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Traffic Safety  
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December 2022

# **NHTSA Special Crash Investigations: Comprehensive Study of 2019 U.S. Pediatric Vehicular Hyperthermia Fatalities**

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16. Abstract Incidents of children dying from heatstroke in vehicles, either because they were left or became trapped, have increased in recent years. Pediatric vehicular heatstroke (PVH), also known as hyperthermia, describes an elevated body temperature that can occur if a child is left in a hot vehicle and may result in fatal injuries. At least 849 children have died due to vehicular hyperthermia over a 22-year period (1998-2019), an average of 39 fatalities per year. This NHTSA study is aimed at furthering the safety community's understanding of underlying factors contributing to children dying in vehicles from heatstroke. There are three main circumstances attributed to PVH: the child is "forgotten," "gained access" to, or is "knowingly left" in an unattended vehicle. Detailed data was collected on heatstroke fatalities to aid in countermeasure development and assessment of the potential effectiveness and safety benefits of these countermeasures. NHTSA's Special Crash Investigations program conducted investigations into the 52 heatstroke fatalities identified in the 2019 No Heatstroke dataset as of September 30, 2020. There are 50 incidents and reports (2 incidents reported that 2 children died from heatstroke, accounting for the 52 reported fatalities). This study compiles the data elements collected by the investigators and presents key descriptive statistical elements from the 50 SCI heatstroke investigations. A summary of the key circumstances and events that occurred prior to the 52 PVH fatalities is also provided.			
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## Executive Summary

The National Highway Traffic Safety Administration's mission is to save lives, prevent injuries, and reduce economic costs due to road traffic crashes through education, research, safety standards, and enforcement activity. NHTSA is concerned with all deaths and injuries involving motor vehicles, not just those involving vehicle crashes. Starting in 2007 NHTSA began reporting data for the Non-Traffic Surveillance system (NTS, previously called Not-in-Traffic Surveillance).

In June 2009 NHTSA's National Center for Statistics and Analysis (NCSA) published the first Non-Traffic Surveillance Traffic Safety Facts summary that focused on children. Based on annual average estimates, heatstroke was the third leading cause of fatalities and injuries for children 14 and younger in non-traffic incidents, and the top cause of fatalities for children 14 and younger in non-crash incidents.<sup>1</sup>

The number of children dying from heatstroke in vehicles, either because they were left behind or became trapped, has increased in recent years. Pediatric vehicular heatstroke (PVH), also known as hyperthermia, describes an elevated body temperature that can occur if a child is left in a hot vehicle and may result in fatal injuries.<sup>2</sup> At least 849 children have died due to vehicular hyperthermia over a 22-year period (1998-2019), an average of 39 fatalities per year.<sup>3</sup>

This study's objective is to understand the underlying factors that contribute to children dying in vehicles from PVH. NCSA designed and conducted a study of 50 known PVH incidents that occurred in the 2019 calendar year, accounting for 52 child fatalities. These incidents were identified using the No Heatstroke dataset,<sup>4</sup> the most comprehensive inventory of PVH incidents available. NCSA's SCI program remotely investigated all 50 incidents, collecting specific information about each situation and the circumstances leading up to the fatal event, the caregiver responsible for the child, the fatally injured child, and the incident vehicle.

A summary of the data identified 56 percent (29 deaths) of the PVH fatalities occurred because the children were "forgotten" and left inside unattended vehicles. In 15 percent of fatalities (8 deaths), the children "gained access" to the vehicles on their own, while in 21 percent<sup>5</sup> (11 deaths), the children were "knowingly left" behind in the vehicles. The circumstances could not be confirmed and were "Unknown" in 8 percent of the fatalities (4 deaths).

The States with the highest PVH occurrences were located in the Sun Belt, with 7 incidents in Texas, 5 in Florida, and 4 in Arizona. With 14 incidents, the most prominent month for PVH occurrence was August. In 36 incidents, the children were found in the time range of 1300 to 1700 hours.

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<sup>1</sup> National Highway Traffic Safety Administration. (2009, June). *Not-in-traffic surveillance 2007 – children* (Traffic Safety Facts Crash•Stats. Report No. DOT HS 811 116).

<https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/811116>

<sup>2</sup> Rudd, R., Prasad, A., Weston, D., & Wietholter, K. (2015, July). *Functional assessment of unattended child reminder systems* (Report No. DOT HS 812 18). National Highway Traffic Safety Administration.

[www.nhtsa.gov/sites/nhtsa.dot.gov/files/812187\\_unattendedchildremindersystems.pdf](http://www.nhtsa.gov/sites/nhtsa.dot.gov/files/812187_unattendedchildremindersystems.pdf)

<sup>3</sup> Null, J. (2020, September 28). *Heatstroke deaths of children in vehicles*. [www.noheatstroke.org/index.htm](http://www.noheatstroke.org/index.htm) [Note the data on this website changes as new incidents are reported.]

<sup>4</sup> Null, 2020, Heatstroke Deaths.

<sup>5</sup> Note that percentages may be rounded.

Age was reported for 49 of the 59 involved caregivers, with an average age of 37 years old. Approximately 90 percent of the caregivers with known age were younger than 50. Forty-three primary caregivers were identified as mothers or fathers of the fatally injured children.

The average child age for the 2019 PVH fatalities was approximately 2 years old (23 months), where 41 of the children (79%) were under 3. Of the 52 children, 26 were females and 26 were males. Thirty-six children (69%) were restrained in child restraint systems (CRS) at the time of the hyperthermia incidents. Forty-three children (83%) were found in the second- or third row of the vehicles.

Model year was reported for 32 of the 50 vehicles (64%) in this study. Fourteen vehicles (44%) were less than 5 years old at the time of the incidents and 14 (44%) were at least 10 years old. The vehicle body types were reported to be 4-door passenger cars in 14 incidents, and 4-door SUVs in 14 incidents. The vehicle locations where the children were most commonly found were the home residences (20 incidents), followed by the caregiver workplaces (12 incidents).

The data presented in this report will assist in identification of the root causes for PVH, which may lead to the development of behavioral and technical countermeasures.



## Introduction

NHTSA’s mission is to save lives, prevent injuries, and reduce economic costs due to road traffic crashes through education, research, safety standards, and enforcement activity. NHTSA is concerned with all deaths and injuries involving motor vehicles, not just those involving vehicle crashes. Starting in 2007 NHTSA began reporting data for NTS, “a virtual data collection system designed to provide counts and details regarding fatalities and injuries that occur in nontraffic crashes and in non-crash incidents.” In June 2009, NHTSA published the first Non-Traffic Surveillance Traffic Safety Facts focused on children.<sup>6</sup> Based on annual average estimates, heatstroke was the third leading cause of fatalities and injuries for children 14 and younger in nontraffic incidents and the top cause of fatalities for children 14 and younger in non-crash incidents.

The number of children dying from heatstroke in vehicles, either because they were left or became trapped, has increased in recent years as shown in Figure 1. Heatstroke and hyperthermia are the terms used to describe an elevated body temperature that can occur should a child be left in a hot vehicle and can result in fatal injuries.<sup>7</sup> At least 849 children have died due to vehicular hyperthermia over a 22-year period (1998-2019), an average of 39 fatalities per year.<sup>8</sup>

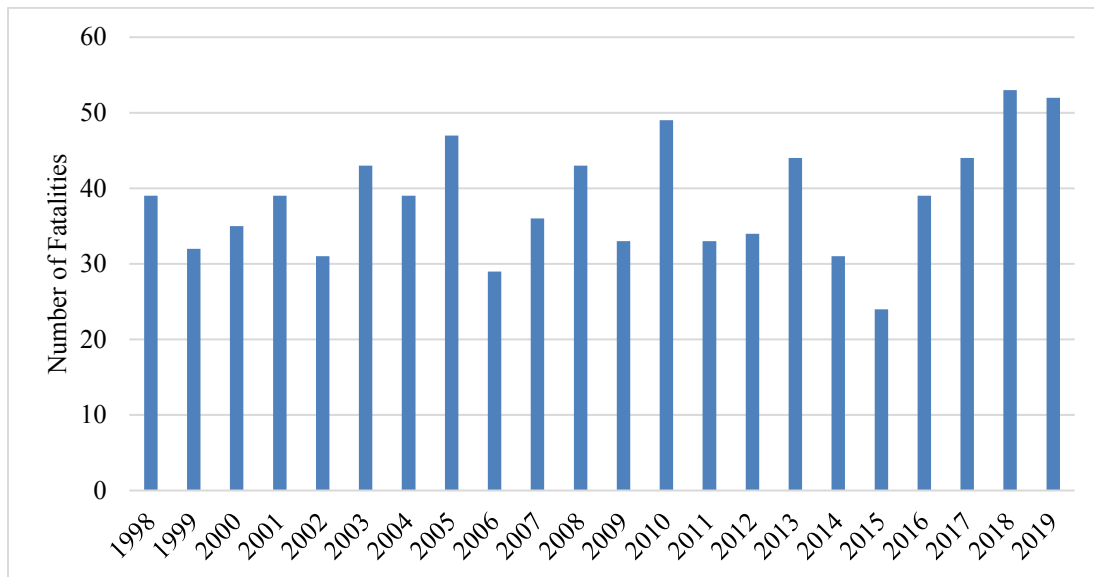


Figure 1. Pediatric Vehicular Heatstroke Fatalities<sup>9</sup>

<sup>6</sup> NHTSA, 2009.

<sup>7</sup> Rudd et al., 2015.

<sup>8</sup> Null, 2020, Heatstroke Deaths.

<sup>9</sup> Null, 2020, Heatstroke Deaths.

Per the 1998-2019 data, there are three primary circumstances attributed to heatstroke fatalities involving children.

- The child is “forgotten” in the vehicle.
- The child “gained access” to the vehicle.
- The child is “knowingly left” in the vehicle.

A summary of this data<sup>10</sup> identified 53.9 percent of heatstroke fatalities occur because children are “forgotten” and left inside vehicles. In 46 percent of these “forgotten” fatalities, the children were on their way to childcare or preschool. In 25.2 percent of the fatalities, the children “gained access” to the vehicles, and in 19.3 percent the children were “knowingly left” behind in the vehicles. This report uses the term “knowingly left” to remain consistent with the data set. “Knowingly left” is an industry term used to denote the caregiver’s awareness that the child was in the vehicle prior to the incident. The term “knowingly left” is not intended to denote or imply legal intent or culpability. The circumstances could not be determined and were classified as “Unknown” in 1.5 percent of the fatalities.<sup>11</sup>

This report uses the term “knowingly left” to remain consistent with the data set. “Knowingly left” is an industry term used to denote the caregiver’s awareness that the child was in the vehicle prior to the incident. The term “knowingly left” is not intended to denote or imply legal intent or culpability.

Although heatstroke fatalities can occur in any month of the year, from 1998 to 2019 incidents occurred most frequently in June (20%), July (23%), and August (22%). May and September are also considered to be at higher risk for heatstroke, which combined account for 22 percent of the reported fatalities (11% each).<sup>12</sup>

In 72 percent of these PVH fatalities, one or both parents were the responsible caregiver, regardless of circumstance. Generally, the fatality occurred at the caregiver’s home (57% of deaths) or workplace (25% of deaths).<sup>13</sup>

The average age of the child for all circumstances was 26.7 months.<sup>14</sup>

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<sup>10</sup> Data cited in this paragraph came directly from the noheatstroke.org website as of September 30, 2020, retrieval date. Cannot account for rounding error.

<sup>11</sup> Null, (2020, June 21). Trends and Patterns: Pediatric Vehicular Heatstroke Deaths 1998-2019. [www.noheatstroke.org/Heatstroke\\_Trends.pdf](http://www.noheatstroke.org/Heatstroke_Trends.pdf).

<sup>12</sup> Null, 2020, Trends and Patterns.

<sup>13</sup> Null, 2020, Trends and Patterns.

<sup>14</sup> Null, 2020, Trends and Patterns.

## Objective and Purpose

NHTSA’s objective for this special study is to further the safety community’s understanding of the underlying factors that contribute to children dying in vehicles from heatstroke. As discussed in the previous section, there are three main circumstances attributed to heatstroke fatalities: the child is “forgotten,” “gained access” to, or is “knowingly left” in an unattended vehicle. Detailed data was collected to assist in root cause identification for PVH, which may lead to the development of behavioral and technical countermeasures. The SCI program conducted remote investigations into the 52 heatstroke fatalities that were identified in the No Heatstroke 2019 dataset.<sup>15</sup> There are 50 incidents and reports. There were two incidents where two children died from heatstroke, accounting for the 52 total reported fatalities.

Each investigation collected specific information about the situation and circumstances leading up to the fatal incident, the caregiver responsible for the child, the fatally injured child, and the incident vehicle. See Appendix A for the template, with the type of elements listed per category.

This report also outlines the methods used to collect the heatstroke fatality data and discusses the results. The individual cases and key elements for each case are included in Appendix B. Also, the 50 detailed investigation reports, which describe the 52 known heatstroke fatalities, are in Appendix C.

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<sup>15</sup> Null, 2020, Trends and Patterns.

## Data Collection

NCSA collected data from the 50 known fatal PVH incidents that occurred in 2019, compiled by the No Heatstroke organization on September 30, 2020.<sup>16</sup> A description of the SCI program is detailed below. SCI assigned investigators to evaluate the 50 incidents that occurred in 23 States. A common template was provided to each assigned investigator to ensure consistency in information gathered and to standardize data element collection. An overview of the types of information and standardized data elements is described below. A copy of the data collection template is shown in Appendix A.

## Special Crash Investigations Program

Since 1972 SCI has provided NHTSA with the most in-depth and detailed level of crash investigation data collected by the agency. The SCI program is in the Crash Investigation Division of NCSA. The data SCI collects ranges from basic data contained in routine police and insurance crash reports to comprehensive data from special reports by professional crash investigation teams. Hundreds of data elements relevant to the vehicle, occupants, injury mechanisms, roadway, and safety systems are collected for each of the over 100 crashes designated for study annually. SCI has the capability to conduct on-site level investigations as well as remote-level investigations depending on Agency requirements.

SCI cases are intended to be an anecdotal dataset, used for examining special crash circumstances or outcomes from an engineering perspective. The benefit of the program is its ability to locate real-world crashes anywhere in the country and perform in-depth clinical investigations in a timely manner that can be used by the automotive safety community to improve the performance of its advanced safety systems. Past cases have triggered interest from individual companies and the industry to improve the safety performance of motor vehicles, notably passenger cars, light trucks, and school buses.

Case selection is based on the current and evolving needs of the agency. The program's flexibility allows for detailed investigations of emerging technologies, including the performance of alternative fueled vehicles, driving automation systems, child restraint systems, adaptive controls, safety belts, vehicle-pedestrian interactions, and alleged vehicle defects. Resources have also been concentrated on crashes involving automatic safety restraints (air bags and safety belts) and school buses.

Professional crash investigators locate involved vehicles, photograph and measure the exterior damage, and interior occupant contacts are identified. Data collection consists of four main parts: the scene inspection, the vehicle inspection(s), the interview(s) of the crash victims and injury documentation and assessment. The scene investigation involves the collection of data such as skid/yaw marks and other relevant data in attempt to document the point of impact, the crash dynamics and the final rest positions of the vehicles in the crash. The vehicle(s) is/are inspected and an analysis is made of the crash dynamics, damage, occupant kinematics, and the safety systems. A complete set of images is taken of the scene and each vehicle. The data from the scene and vehicle are augmented by interviews of the crash victims and any other surrogates or witnesses. All occupant injuries are evaluated and coded. The investigations are further

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<sup>16</sup> Null, 2020, Heatstroke Deaths.

augmented by official records such as the police report which provides details on the crash and medical records which provide the level of injuries sustained.

All data collected is confidential. The research teams are interested only in information that will help them understand the nature and consequences of the crashes. Personal identifiable information about the facts of the crash and involved parties are not included in any public SCI file. Each investigation provides extensive information about pre-crash, crash, and post-crash events of the occupants, vehicles, and environmental factors that may have contributed to the event's occurrence or severity. Detailed documentation of the safety features (particularly those related to any of the Federal Motor Vehicle Safety Standards) is provided.

The participation and cooperation of automotive manufacturers, suppliers, law enforcement agencies, hospitals, physicians, medical examiners, coroners, insurance companies, tow and salvage yard operators, and the individuals involved in crashes are essential to the success of the SCI program.

For this special study, SCI did not conduct any on-scene investigations. Instead, evidence and relevant investigative information were obtained “remotely.” For each incident, the investigators contacted local authorities to obtain official documents such as police, incident, and medical records. Investigators also conducted interviews with people of interest to provide additional insight into the circumstances surrounding the fatal incidents. Given the delay between the dates the incidents occurred and the time the special study was initiated, this method was considered the best approach to investigate and document these fatalities.

## **Method**

The SCI program is part of NCSA’s overall NTS project. NCSA used its various data collection programs such as the Fatality Analysis Reporting System, National Automotive Sampling System General Estimates System, Crash Investigation Sampling System, Crash Report Sampling System, and the State Data Reporting Systems to gather data on various aspects of this crash population. The SCI program was used to gather very detailed information on a variety of NTS incidents.<sup>17</sup> The scope for NTS incidents included a variety of categories, from crashes that occurred on private driveways to stationary-vehicle incidents including hyperthermia.

From 2007 to 2016 SCI conducted approximately 28 hyperthermia investigations through the NTS program.<sup>18</sup> However, it is important to note that NTS qualifying cases are not solely focused on hyperthermia cases, and include other types of non-traffic and non-crash situations such as backovers, carbon monoxide poisoning, roll-aways, etc. Therefore, when NHTSA looked at the 28 NTS hyperthermia cases to identify pattern and relationship trends specific to hyperthermia, the dataset proved to be limiting, given the scope of the problem. These 28 investigations account for just 8 percent of the total 366 incidents that happened during this 9-year timeframe.

Given the limitations referenced above, NHTSA decided to take another approach beyond reliance on NTS alone for hyperthermia case identification and selection since it would allow NHTSA to better analyze the circumstances for PVH. For example, “forgotten” cases may be

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<sup>17</sup> NHTSA. (2014, December). *Not in Traffic Surveillance cases (December 2014)*.

<sup>18</sup> See <https://crashviewer.nhtsa.dot.gov> to enter the portal that includes SCI data.

overrepresented in a convenience selection of cases compared to child “knowingly left” behind or child “gained access” to vehicle cases. NHTSA subsequently decided that using all known PVH fatal incidents that occurred in a single calendar year, as identified by the No Heatstroke organization, would provide a comprehensive dataset to examine the circumstances specifically related to hyperthermia, prompting this special study. The No Heatstroke organization’s data is regarded by many safety organizations as a comprehensive catalogue of hyperthermia incidents that have occurred since 1998.

This study considers all known 2019 hyperthermia incidents compiled by the No Heatstroke organization as of September 30, 2020. By remotely investigating every available 2019 case, the information collected from this study provides a more complete understanding of the contributing factors and causation for heatstroke fatalities.

### ***Investigation Data Collection Template***

As mentioned, it was important to develop a data collection template to provide a consistent approach for the SCI investigators as they gathered information about the 50 incidents in 2019. The template items in Appendix A were developed by a multi-disciplinary team with backgrounds in PVH, including researchers, engineers, investigators, and program development specialists. The goal of this multi-disciplinary collaboration was to ensure the SCI investigators collected comprehensive data that would provide insight into the heatstroke problem and develop behaviorally based intervention programs and technical countermeasures to ultimately prevent PVH fatalities.

Each SCI heatstroke investigation collected data on:

1. the situation surrounding/contributing to the fatal incident,
2. the caregiver/guardian responsible for the child,
3. the fatally injured child, and
4. the vehicle where the incident occurred.

Examples of the types of data collected in each category are shown below in Table 1. As mentioned, for a more comprehensive list of the types of information collected by the template, see Appendix A.

Table 1. Summary Key Data Elements by Category

	Category			
	Situation	Caregiver/Guardian	Child	Vehicle
<b>Key Elements</b>	Incident Date	Age	Age	Make
	Incident State	Sex	Sex	Model
	Critical Time Duration <sup>19</sup>	Relationship to Child	Height/Weight	Model Year
	Circumstance (Forgotten, etc.)	Typical/Atypical Day	Child Seating Position	Vehicle Type
	Temperature Range	Final Trip Destination	Restraint Type	Exterior Color
	Weather Conditions	Type of Criminal Charges Filed	Restraint Use	Shade Status

### Final Case Report Template

A common report template was provided to and used by all investigators to consistently present the findings of each individual SCI heatstroke investigation. All 50 reports provided in Appendix C are structured as follows.<sup>20</sup>

- **Background.** Provides an executive summary of the circumstances and events of the heatstroke death.
- **Summary.** Includes the Incident Site; Weather Data; Vehicle Data; summaries for Pre-Incident, Incident, and Post-Incident findings; Caregiver/Guardian Data; and Non-Motorist (Child) Data.
- **Incident Site Diagram/Incident Site Satellite View.** Depicts the site diagram and/or satellite image of the incident location.

Each incident was a specific undertaking, resulting in variability of the actual data collected from investigation to investigation. Since these investigations were conducted remotely,<sup>21</sup> typically months after the incident had occurred, key elements specific to the SCI program’s investigations were not always captured by the involved local authorities, such as the make and model of the vehicle or type of child restraint system. Further, a successful remote investigation relied on cooperation from government officials and obtaining official police and/or government records to assess and understand the circumstances of each event. However, because of pending criminal charges or ongoing police investigations, full cooperation from local authorities was not always provided to the SCI investigator. In these cases, the investigator conducted supplemental interviews and/or researched publicly sourced material to complete the remote investigation.

<sup>19</sup> For “forgotten” and “knowingly left” circumstances, the critical time is defined as the time from when the caregiver leaves the vehicle until the child is found. The critical time duration for the “gained access” circumstance is defined as the time from when the caregiver last saw the child until the child is found.

<sup>20</sup> Investigations began in October 2019. Data collection and drafting of the reports was completed by August 2020. Follow-up with the investigators for clarification and completeness on individual cases for the reports in Appendix C was finalized in December 2020.

<sup>21</sup> SCI did not conduct any onsite investigation. All information was gathered by contacting involved law enforcement, conducting interviews, obtaining online media sources, etc.

## Results

The following section presents key descriptive statistics from the 50 SCI heatstroke investigations involving the 52 PVH fatalities.<sup>22</sup> Note that, for elements coded as “Unknown,” the SCI investigator was not able to obtain the requested information. Therefore, only elements where sufficient information was collected among all reports are presented in this section.

Official records from fatal heatstroke incidents were obtained from local authorities by SCI investigators in 28 of the 50 cases, as listed in Table 2. These records were generally police or incident reports and could include other documentation collected during the official investigation.

In the 22 cases listed in Table 2 as “No” or “Other Official Records,” the SCI investigator was not able to acquire official incident or police reports on the fatal incident for one of the following reasons.

- 9 cases, no cooperation from local authorities
- 4 cases, no official records obtained due to active litigation/police investigation
- 6 cases, no incident or police report provided, but other official records obtained
- 3 cases, no official records were provided, but SCI interview conducted

In the 13 cases where official incident or police records were not obtained due to lack of cooperation from local authorities or pending litigation/investigation, the SCI investigator generally had to rely on publicly available information, such as online news sources. However, in the 9 “other official records” cases, the investigator cited official documents such as death certificates or autopsy reports that were gathered through the course of the investigation and/or were able to conduct interviews with the involved police agency. For these “No” and “Other” cases, the investigator typically used online news reports and, where specific involved vehicle information was reported, inspections of exemplar vehicles to supplement their findings.

*Table 2. Status of Official Records per Incident*

<b>Official Incident Records Obtained</b>	<b>Incidents</b>
Yes	28
No	13
Other Official Records	9
Total	50

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<sup>22</sup> Case Nos. CR19017 and CR19029 both involved two fatalities.

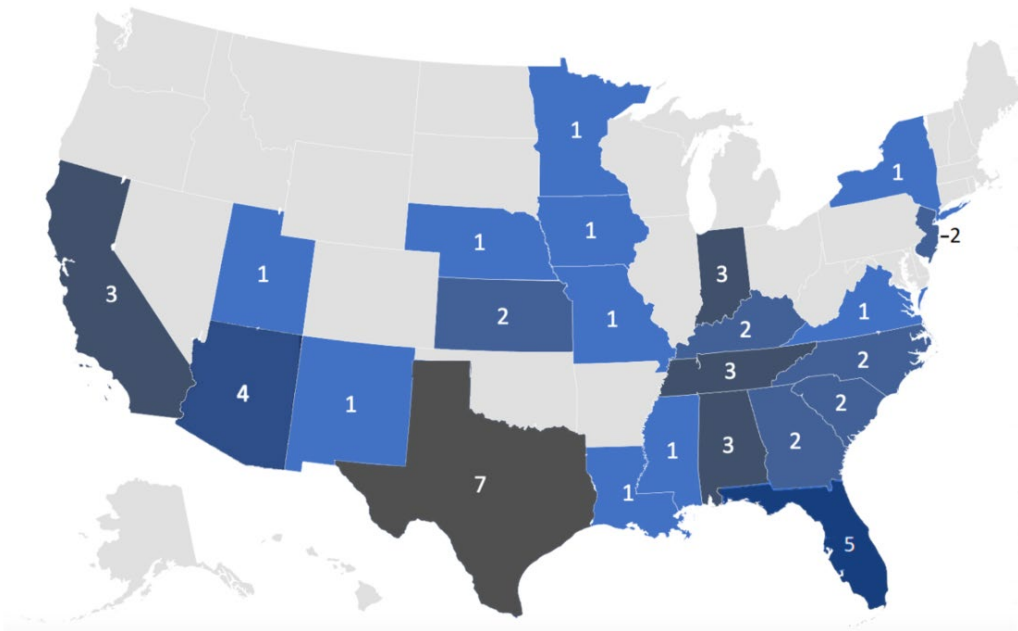


## Situation

The following section presents information related to the situations surrounding the fatal incidents. These include the incident State, critical time, and general circumstances that led to the 50 fatal incidents.

Figure 2 presents the distribution of incidents by State. By region, 70 percent (35 of the 50 incidents) occurred in the Sun Belt region.<sup>23</sup> The greatest number of incidents by State occurred in Texas (7), followed by Florida and Arizona at 5 and 4 incidents, respectively. As shown in the map, at least one incident occurred in every Sun Belt States except for Arkansas, Nevada, and Oklahoma. However, incidents also occurred in midwestern and northern States, including three in Indiana, indicating that any State subjected to high heat temperatures may make an unattended vehicle occupant vulnerable to heatstroke.

The two northern most States where fatal incidents occurred were Minnesota (Case No. CR19009) and New York (Case No. CR19017). The Minnesota incident occurred in May, when a 4-year-old male child was left unattended in a 2017 Dodge Journey for over 5 hours by his 26-year-old father while the father worked at a public event, leaving the vehicle parked in a large parking lot with full exposure to the sun. On the day of the incident, the maximum external temperature reported was 70 °F. The New York incident occurred in July and involved 1-year-old twin siblings who were left unattended in the second-row seat of a Honda Accord for 8 hours by their 39-year-old father. On that day, the maximum external temperature was reported to be 85 °F.



*Figure 2. Location of 50 Incidents by State*

<sup>23</sup> Alabama, Arizona, Arkansas, California, Florida, Georgia, Louisiana, Mississippi, Nevada, New Mexico, North Carolina, South Carolina, Texas, Tennessee, and Utah. Definitions of the “Sun Belt” generally include only the southernmost edges of some States such as Utah, Tennessee, North Carolina, and about the lower half of California and Nevada. The southern border of Tennessee is the 35th parallel, about the northernmost edge of the “Sun Belt.” Yet another definition of the Sun Belt is the region “south of the 36<sup>th</sup> parallel” (the northern border of Arkansas except the Missouri “bootheel.”)

The distribution of the incidents by month is presented in Figure 3. August has the highest incident occurrence at 14. Thirty-four of the 50 incidents occurred during the summer, June to September. The remaining cases typically occurred in Sun Belt States where temperature conditions are usually higher throughout the year. The exceptions are the incidents described by Case Nos. CR19010 and DS19030, which both occurred during May in New Jersey and Indiana.

In Case No. CR19010, a 21-month-old female was left unattended in a Toyota Camry for 2.5 hours. The maximum external temperature during that time was reported to be 71 °F. In Case No. DS19030 a 12-month-old female was left unattended in a 2010 Saturn Outlook for approximately 3 hours during daylight. The maximum reported external temperature was 85 °F.

The last case in this study, Case No. DS20004, occurred in the Sun Belt State of California in November. In this incident, an 18-month-old male was left behind for approximately 7 hours in a 2016 Subaru Outback at his caregiver’s workplace. The maximum reported external temperature was 81 °F.

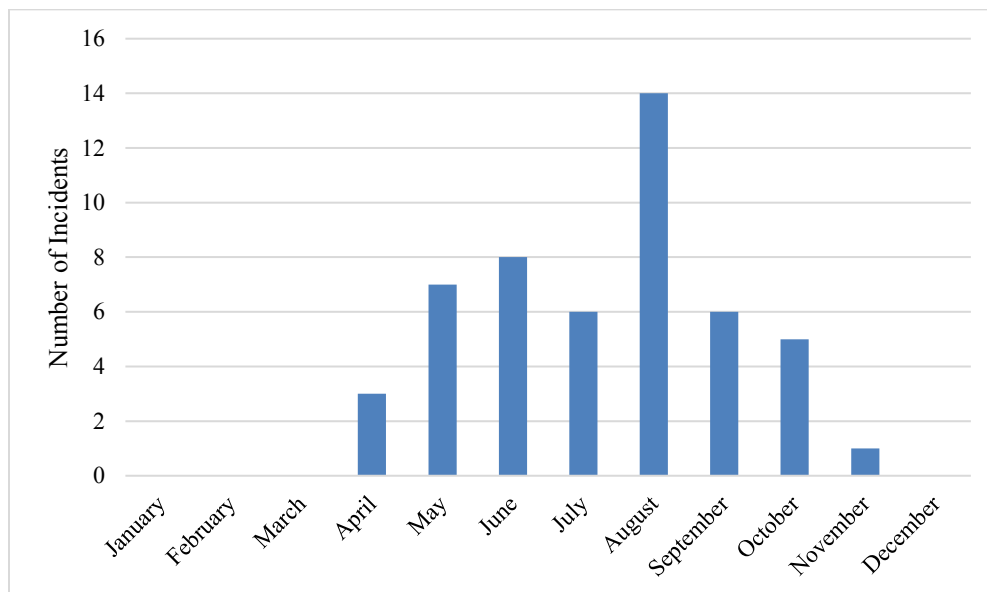


Figure 3. Number of Heatstroke Incidents by Month

The times the children were found is presented in Figure 4.<sup>24</sup> Of the 50 incidents, the time was known, approximated, or calculated in 48 cases. In 45 incidents, the children were found between 1100 and 2059 hours. The children were found in the 1600-1659 time period in 10 incidents and from 1700 to 1759 hours in 10 incidents. There were 2 incidents where the children were found in the early morning, at 0500 hours (Case No. DS20010) and 0627 hours (Case No. DS19042).

Environmental hyperthermia is not considered a factor in Case No. DS20010. In this case, a 2-year-old female child was reported as knowingly left in the subject vehicle with the ignition on and heater on while her 34-year-old mother fell asleep in another vehicle. The maximum exterior vehicle temperature during the time the child was left unattended was 71 °F. However, vehicle temperature testing conducted by the case detectives confirmed the internal vehicle temperature

<sup>24</sup> Time reported using the 24-hour clock system, commonly called “military time,” which is frequently used by law enforcement and other first responders.

could exceed 100 °F when the vehicle was set to its “as found” temperature control setting (approximately 95% of high).

The time the child was found in Case No. DS19042 likely does not correlate with the actual time the 2-year-old male succumbed to his hyperthermia-related injuries, because the child had been missing for at least 17 hours, the longest duration reported out of all 50 cases. The child’s 31-year-old mother placed a 911 call sometime between 5 minutes and 1 hour after she realized the child had disappeared from the family apartment. The police did not immediately locate the child, and a search party consisting of 250 to 300 police, fire department, social workers, volunteers, etc., were unable to find the missing child. The child was discovered in the incident vehicle, not owned by the caregiver, the following morning by the vehicle owner’s adult son.

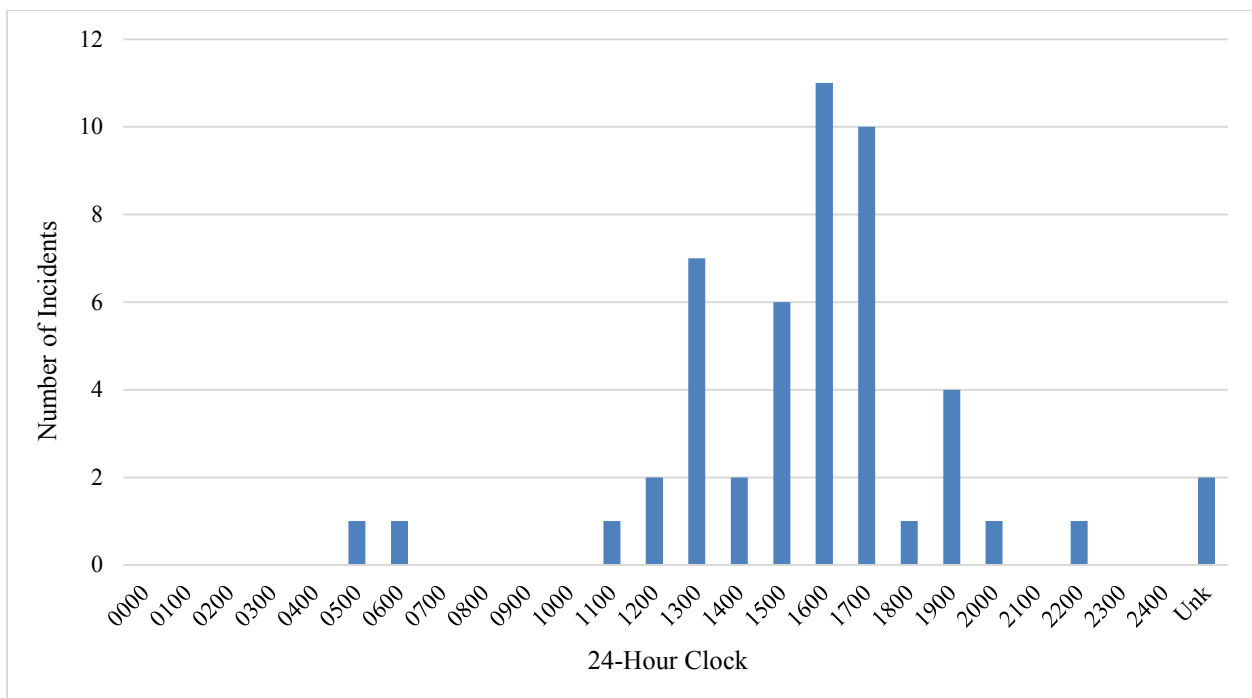


Figure 4. Time the Child Was Found

For each incident, the critical time duration is defined as the estimated time from when the caregiver initially left the vehicle, or the child gained access to the vehicle until the time the child was found. The critical time duration was known or approximated in all but 4 incidents, and was rounded to the nearest whole hour as shown in Figure 5. On average, the duration the child was left unattended in a vehicle for these cases is approximately 6 hours. The shortest duration was approximately 45 minutes (Case No. CR19021). There were 6 incidents where the child was left unattended for approximately 10 hours or more,<sup>25</sup> with the longest incident, Case No. DS19042, spanning up to 17 hours, as previously noted.

<sup>25</sup> Case Nos. CR19007, CR19022, CR19026, DS19031, DS19042, CR20011.

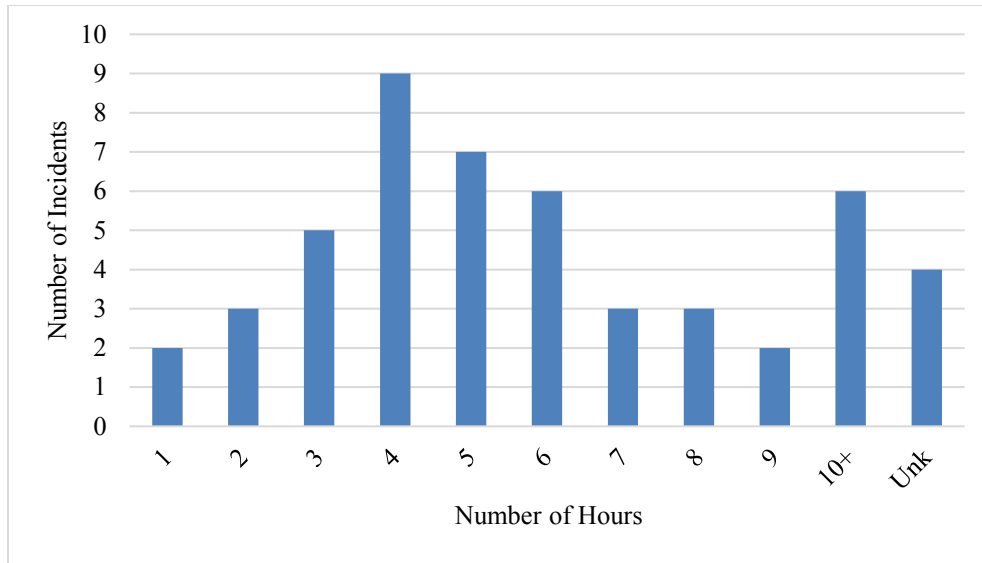


Figure 5. Critical Time Duration Child Left Unattended

The maximum external temperature<sup>26</sup> during the critical time the child was unattended in the vehicle was estimated for these PVH incidents and is presented in Figure 6. Temperatures ranged from as low as 70 °F to as high as 98 °F. The average temperature was 88 °F with 66 percent of the incidents occurring when the maximum temperature was 85 to 94 °F.

Three incidents occurred on days with maximum external temperatures under 72 °F.<sup>27</sup> As mentioned, Case No. DS20010 is unique because the incident occurred at night when the maximum external temperature was reported to be 71 °F during the critical duration. However, the fact that the vehicle’s heat was turned on was the primary cause for this hyperthermia event. The caregiver left the child unattended for 4 hours and emergency services reported the child’s temperature at 107.4 °F when she was found.

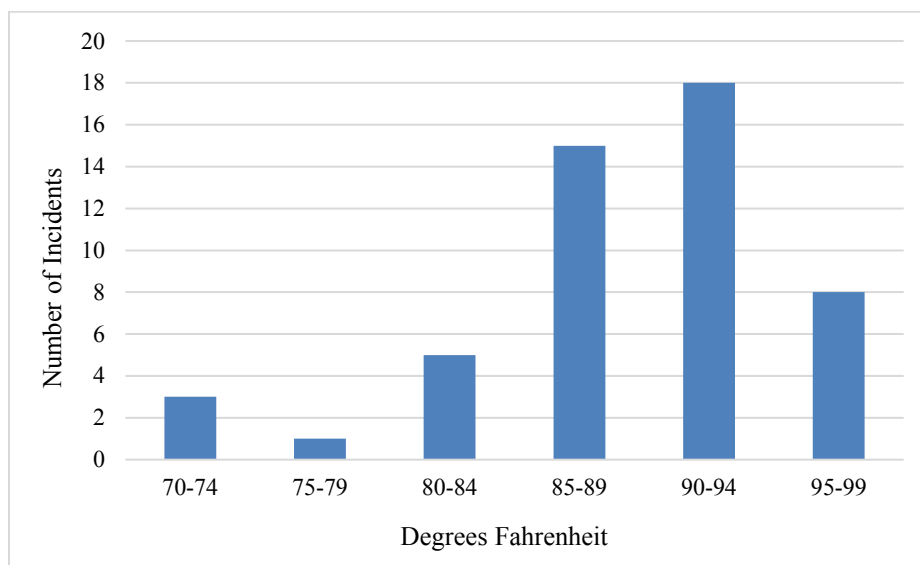


Figure 6. Maximum Outside Temperature During Critical Time

<sup>26</sup> All temperatures referenced and used in this report were obtained from [www.wunderground.com/](http://www.wunderground.com/).

<sup>27</sup> Case Nos. CR19009, CR19010, and DS20010.

Figure 7 presents the circumstances under which the children were left unattended in the vehicles prior to sustaining fatal injuries. A summary of the data identified 29 fatalities (28 incidents) occurred because a child was “forgotten” and left inside a vehicle. There were 8 fatalities (7 incidents), where the child “gained access” to the vehicle, and 11 fatalities (11 incidents) where the child was reported as “knowingly left” behind in the vehicles. The circumstance either could not be determined or were unable to be verified for 4 fatalities (4 incidents)<sup>28</sup> classified as “Unknown.”

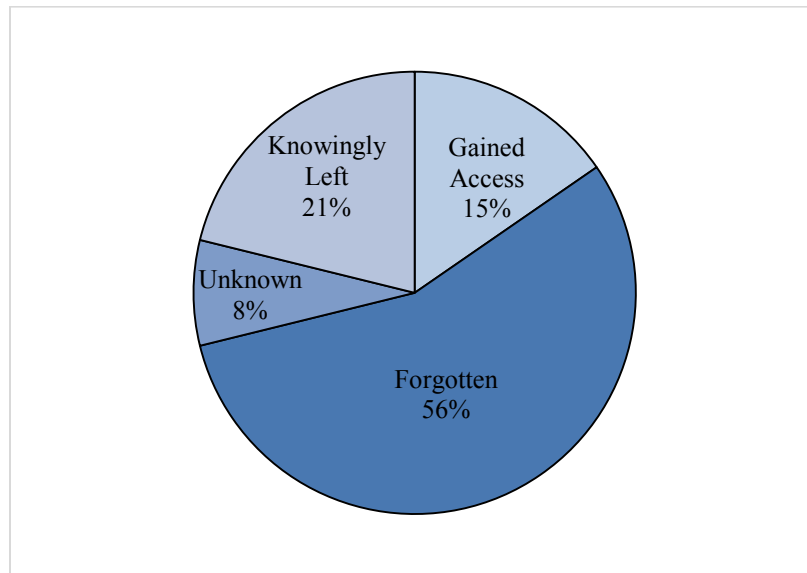


Figure 7. Circumstances for the Hyperthermia Fatalities

### Caregiver/Guardian

This section discusses the data for the 59 caregivers who were responsible for the children on the days of the incidents as identified by the SCI program’s 50 hyperthermia investigations. Information was collected on caregiver demographics, caregiving roles and responsibilities, and other factors relevant to the incidents. The data presented below is divided into two parts. Part 1 addresses the 59 caregivers as people while Part 2 aggregates the caregivers per incident in order to avoid data duplications.

### Results per Caregiver

Of the 59 caregivers identified, 33 were female and 26 were male as shown in Figure 8.

<sup>28</sup> Case Nos. CR19015, CR19023, CR19030 and DS19031.

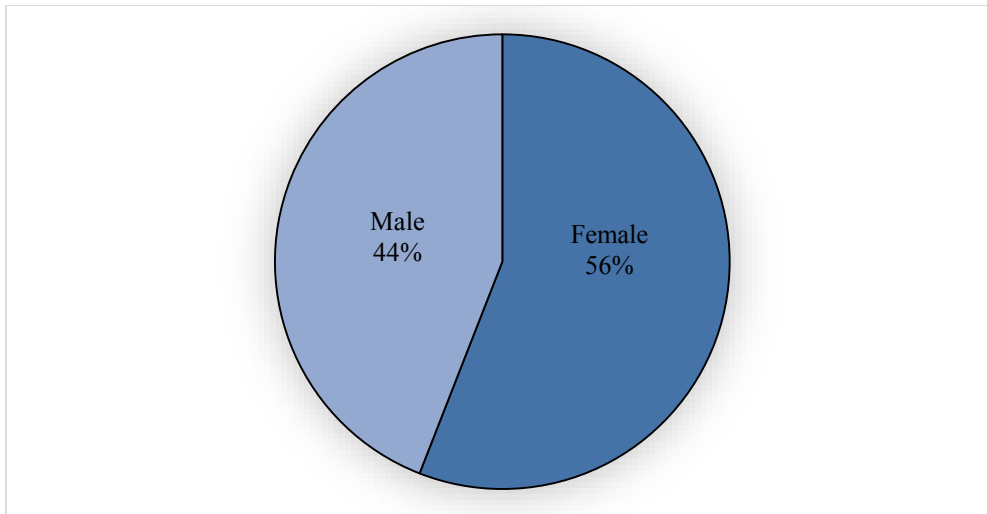


Figure 8. Caregiver Distribution by Sex

Figure 9 shows the age distribution of the caregivers. Age was reported for 49 of the 59 caregivers with an average age of 37. Approximately 90 percent of the caregivers with known age were younger than 50 at the time of the incidents.

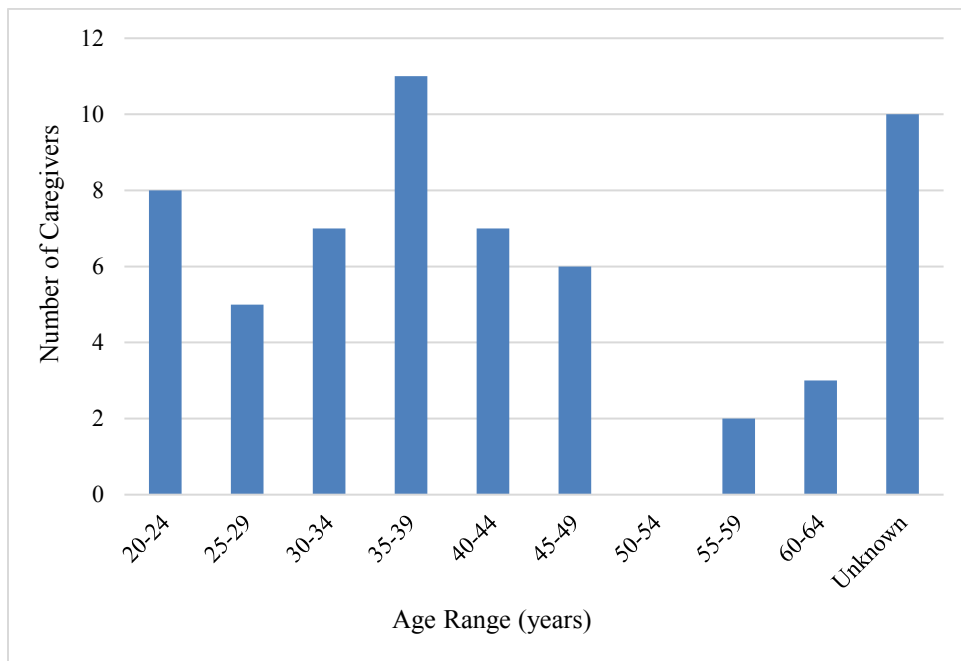


Figure 9. Age of Caregiver Responsible for the Child

The caregiver was identified as the mother or father for 43 of the 59 individuals (73% of caregivers), shown by Figure 10. This number includes the 5 incidents<sup>29</sup> where two parents were responsible for the children at the times the children were left unattended in the vehicles.

<sup>29</sup> Case Nos. CR19014, CR19021, DS19031, DS19045, and DS19046.

Of the remaining caregivers, 6 were grandparents,<sup>30</sup> and 11 were either foster parents, childcare providers, friends, or other relatives.

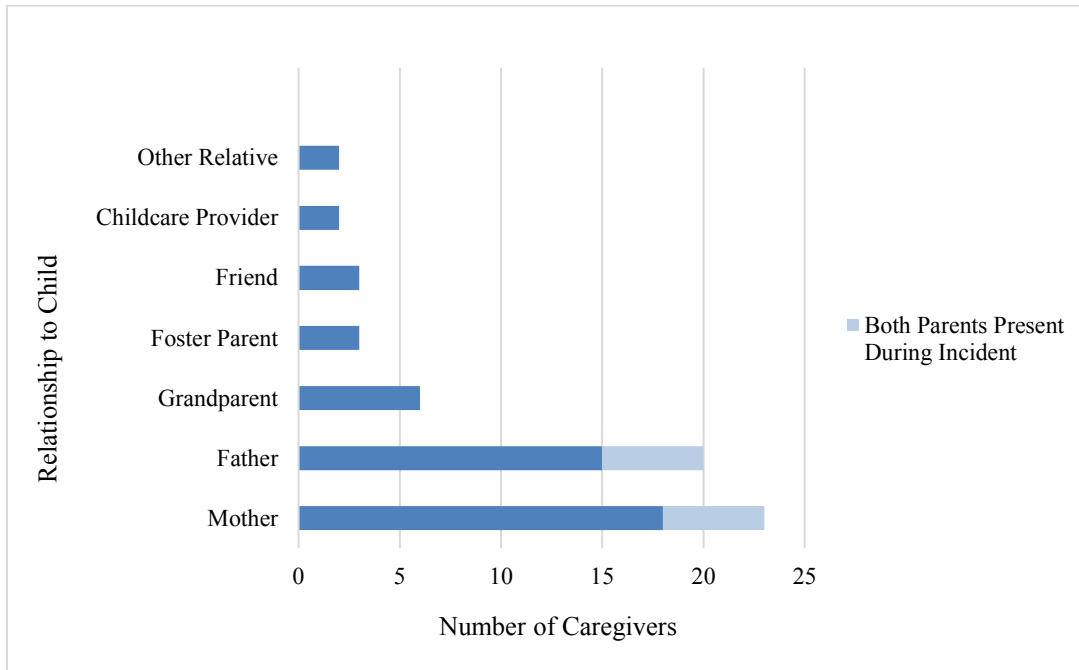


Figure 10. Caregiver's Relationship to Child

Information was collected on caregiver alcohol and drug consumption to determine whether these factors may have contributed to the fatal heatstroke incidents. Table 3 shows no drug or alcohol use was suspected for 43 of the 59 caregivers. However, drug or alcohol use were confirmed for 8 caregivers.<sup>31</sup> For the remaining 8 caregivers, it is unknown whether they were under the influence of drugs and/or alcohol.

Table 3. Drug/Alcohol Use by Caregiver

Caregiver Under the Influence of Drugs or Alcohol	Number of Caregivers
None Suspected	43
Yes, Confirmed	8
Unknown	8
Total	59

Investigators recorded whether local authorities filed criminal charges against the responsible caregivers after the fatal hyperthermia events. Figure 11 shows the total number and type of

<sup>30</sup> Great-grandparents are included in the “grandparents” category.

<sup>31</sup> Case Nos. CR19006, CR19007, CR19014, DS19029, DS19030, DS19038, DS20010 and CR19014.

charge<sup>32</sup> filed.<sup>33</sup> For the 59 caregivers identified, there were charges brought against 29 caregivers, no charges filed for 24 caregivers, and whether charges were filed for the remaining 6 caregivers is unknown.

There were 45 charges reported against 29 caregivers, and 13 of these caregivers were charged with more than one offence.<sup>34</sup>

As shown by Figure 11, the most frequent types of charges filed against caregivers for hyperthermia incidents were child abuse, neglect, or cruelty (13 charges), followed by manslaughter and murder (10 charges each) and “other homicide” (4 charges).

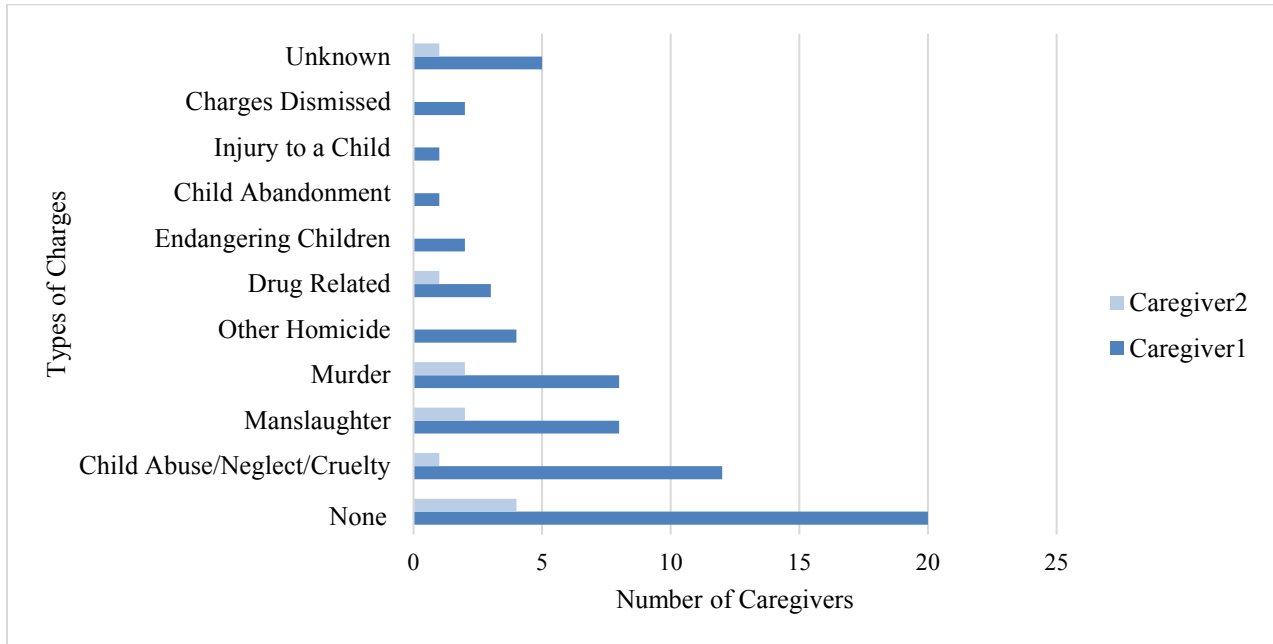


Figure 11. Types of Criminal Charges Filed Against Caregivers

### Results per Incident

Of all 50 hyperthermia incidents, 18 percent (9 cases) involved two or more caregivers who were jointly responsible for the child at the time the fatality occurred. As indicated by Figure 10 in Caregiver Part 1, both parents were the responsible caregivers in 5 cases. In 2 cases, a grandparent was identified as the second caregiver (Case Nos. DS19044 and CR20012) and in 2 cases, the boyfriends of the children’s guardians were the second caregivers (Case Nos. CR19020 and CR19029). These instances indicate that, regardless of circumstance, “forgotten,” “knowingly left,” and “gained access,” PVH incidents are still possible with several caregivers present. Below are 3 case examples, one of each circumstance, where two caregivers were listed.

<sup>32</sup> Charges listed in Figure 11 were broadly categorized by term to groups and compares the caregivers listed by this report. These broad categories therefore may not reflect the specific charge used by local authorities.

<sup>33</sup> The types of criminal charges filed vary from State to State. The categories in Figure 11 provide a broad depiction of types of charges filed. Specific charges filed per case are available in Appendix C.

<sup>34</sup> Case Nos. CR19006, CR19007, CR19008, CR19014, CR19015, CR19017, CR19023, CR19029, DS19029, DS19047, and DS20010.



- **Case No. CR20012.** The aunt of a 2-year-old child had primary caregiving responsibilities the day of the incident, though the grandmother normally would share in caregiving duties for this child. Following a shopping trip, the aunt and grandmother returned to their residence. The grandmother exited the vehicle and went to her residence on the same property. The aunt and another person unloaded the vehicle and carried the bags into the residence. The child was left unattended in the second row of the vehicle, restrained in the CRS. The aunt assumed the child was with her grandmother.
- **Case No. CR19020.** Reportedly, the child’s mother and her boyfriend knowingly placed the 13-year-old with special needs in the vehicle and left her unattended for unknown reasons.
- **Case No. CR19029.** Twin 3-year-old females were in the care of their foster mother, who left the children at her boyfriend’s residence, located next door to her residence, while she napped. While in the care of the boyfriend the children gained access to a vehicle, where they sustained fatal heatstroke.

The number of children each caregiver was responsible for at the time of the incident, including the child that sustained fatal hyperthermia injuries, was reported in 48 of the 50 incidents, shown by Figure 12. In 62 percent of incidents (31 of 50 cases), the caregiver was only responsible for one child. In 6 incidents,<sup>35</sup> the caregiver was responsible for 5 or more children. The highest number of children a caregiver was responsible for was 14, Case No. CR19012. However, the caregiver of the 4-month-old child in this case was the driver of a daycare van and was also the co-owner of the daycare facility with his wife. On average, the daycare was known to care for 14 children a day, though the exact number of children being supervised by the caregiver on the incident day was not reported.

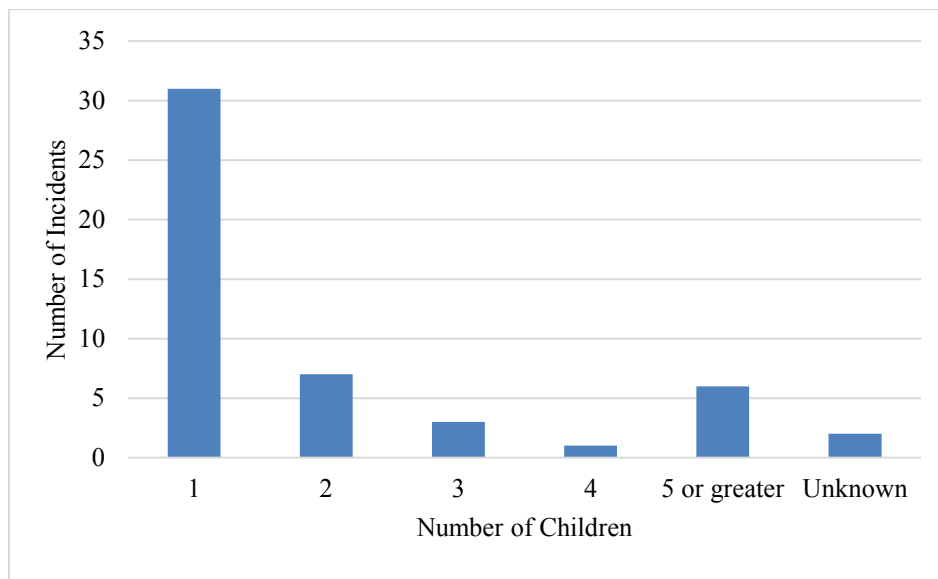


Figure 12. Number of Caregivers Responsible for Child at the Time of Incident

<sup>35</sup> Case Nos. CR19012, DS19033, DS19038, DS19041, DS19046 and DS20005.

General information related to the days of the incidents were collected to determine whether the daily routines were typical for the caregivers, or if there were changes to the routines that may have contributed to the fatal incidents. As shown in Figure 13, for 18 of the 50 incidents the day was not typical for the caregiver. In 21 cases, it was unknown whether this was a typical day, as this information was not reported. Two cases exemplifying an atypical day are as follows.

- **Case No. DS19028.** In this case the child’s father (unknown age) was the primary caregiver and vehicle driver at the time of the incident. Typically, his wife drives their 20-month-old daughter to the daycare facility and then drives to work. If the caregiver needs the vehicle for the day, he would typically drop off the child at daycare first, then drop off his wife at work. On the day of the incident the wife was running late and the father needed the vehicle. The caregiver dropped off the wife first, then returned to his residence, forgetting to drop off the child at the daycare facility. She was left behind inside the vehicle.
- **Case No. DS19036.** The 37-year-old father typically takes his three children to school and pre-school. On the day of the incident the family decided to keep the 3-year-old home from pre-school, since they were leaving for vacation the following day. The father took the other two children to school then drove back to the residence, unintentionally leaving the child behind in the vehicle.

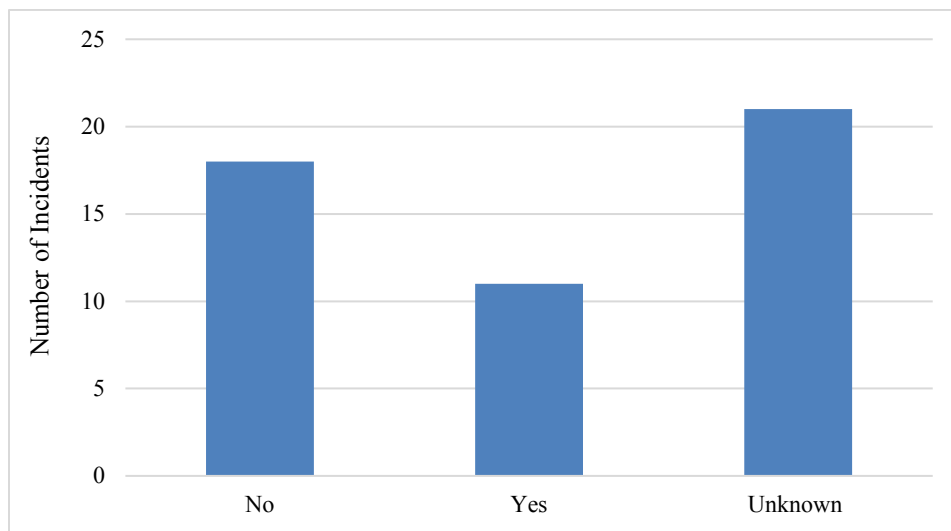


Figure 13. Typical Caregiver Routine on the Day of Incident

Data was collected for the hyperthermia cases to document the caregiver’s trip, including the location of the intended final destination, as represented by Figure 14. In 13 incidents,<sup>36</sup> over 25 percent of all cases, the caregivers forgot to drop the children off at daycare before proceeding to their workplaces or home residences. The incidents coded as “Not Applicable” (N/A) are the 7 “gained access” cases where a vehicle trip was not a relevant cause for the PVH incident. Of the 40 trips where trip information was reported, the final destination was the caregiver’s home residence in approximately 48 percent of cases (19 incidents) and workplace in 35 percent of cases (14 incidents).

<sup>36</sup> Case Nos. CR19022, CR19024, CR19025, CR19027, CR19028, DS19028, DS19032, DS19036, DS19043, DS19047, DS19048, CR20011 and DS20004.

The final destinations for Case Nos. CR19012 and CR19018 were the children’s daycare facilities. The caregivers in both cases were drivers of the daycare-provided vans. Both drivers picked up an unspecified number of children to transport them to daycare. On arrival, both neglected to confirm all children had exited the vehicles.

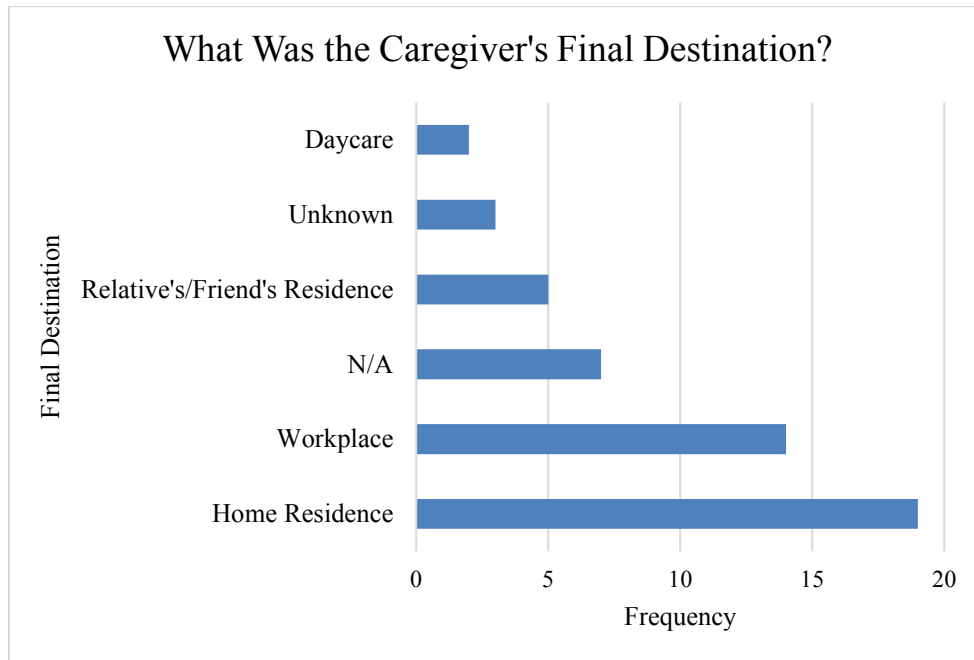


Figure 14. Final Trip Destination for the Caregivers

### Non-Motorist (Child)

The following section focuses on the 52 children, 26 females and 26 males, who were fatally injured during the 50 hyperthermia incidents. Case Nos. CR19017 and CR19029 both involved 2 children. The aggregated results below include information on the ages of the children, location in the vehicle the children were found, and restraint use.

The average child age for this study was approximately 2 years old (23 months). Ages in Figure 15 are rounded down to the whole year. For example, a 20-month-old is a 1-year-old child in this representation. All children in this dataset were 4 years old or younger, except for Case No. CR19020, which involved a 13-year-old female with special needs who reportedly was knowingly placed and left in an unattended vehicle by her caregivers. The age group with the most PVH fatalities in 2019 is 1 to 2 years old, at 37 percent. Collectively, 79 percent of the 2019 PVH fatalities involved children under 3.

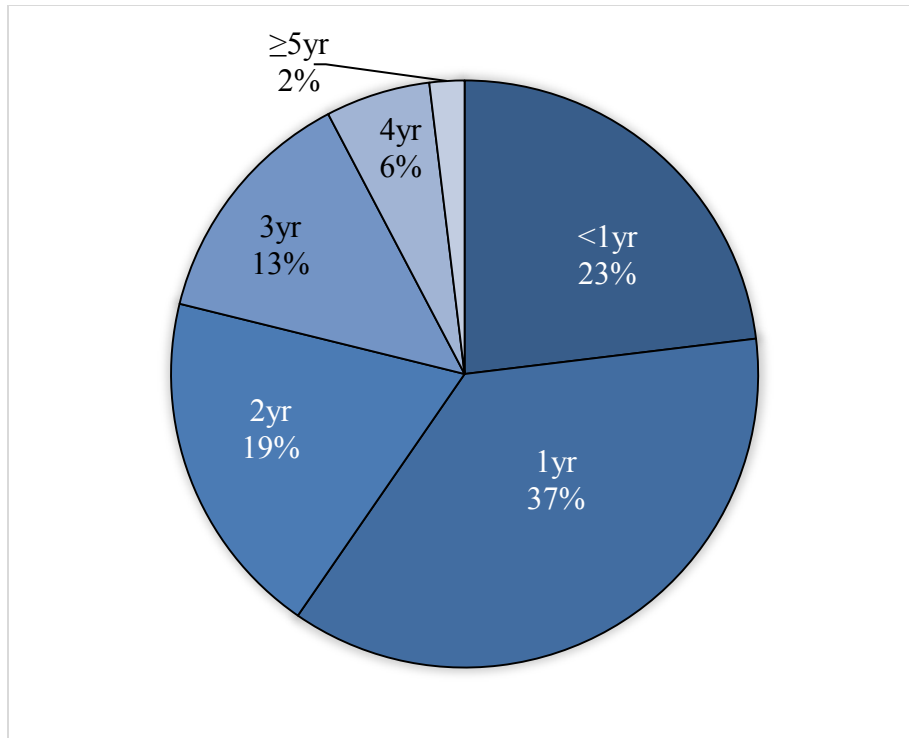


Figure 15. Age Distribution for Heatstroke Deaths

Figure 16 shows the location in the vehicle where the child was found. This location was specified by vehicle row for 44 of the 52 children. The narratives for all hyperthermia cases imply that the children were found in occupant compartments of vehicles. There was no indication any child was found locked in a trunk, even regarding the 8 children where the vehicle location is listed as “Unknown.” At least 80 percent of the children were found in the second row of the vehicles, of which 4 children<sup>37</sup> were specifically found on the second-row floors of the vehicles. One child (Case No. DS19040) was found in the front row passenger seat and one child (Case No. CR19012) was found in the third row of the vehicle. Both children were restrained by their CRS.

<sup>37</sup> Case No. CR19013, DS19039, DS19042 and DS20005.

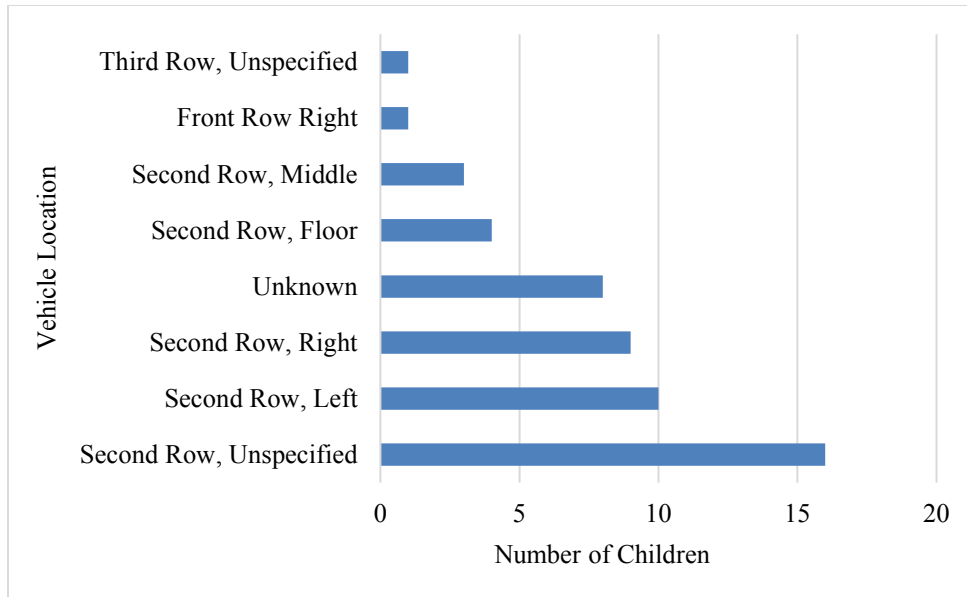


Figure 16. Seating Location in Vehicle Where Children Were Found

Investigators gathered data to determine whether the children were secured by restraint systems when found. The details specifying the types of restraint used and whether the children were restrained at the time they were found is documented in Table 4.

Nearly 70 percent of children were restrained by their CRS when found. Of these 36 children, 15 were in a forward-facing CRS, 12 were in a rear-facing CRS, and 9 were in unspecified types of CRS. Supposedly, the 2-year-old child in Case No. CR19018 was secured in an unspecified row of a daycare van by a seat belt. However, because this restraint claim was unable to be confirmed, the restraint status for this child is considered “Unknown” in Table 4.

There were 2 children found in but not restrained by CRS. In Case No. DS19038, the 4-year-old male was restrained by a CRS during the incident trip. When the family returned home, the child’s 12-year-old brother unbuckled the child’s harness, then assisted the 4-year-old’s twin out of the vehicle. However, no one helped the subject 4-year-old twin exit the vehicle. For Case No. DS19039, the 18-month-old child was placed in a rear-facing CRS, but the 24-year-old caregiver stated he did not buckle the 5-point harness because the child was sleeping. The child in this case was found in the floor space of the vehicle’s second row.

Table 4. Child Restraint Status

Restraint Type	Restrained in CRS	Not Restrained	Unknown Whether Restrained	Total
Forward-Facing CRS	15	1	0	16
Rear-Facing CRS	12	1	0	13
CRS, Unknown Type	9	0	0	9
None	0	7	0	7
Unknown	0	0	7	7
Total	36	9	7	52

## Vehicle

This section presents pertinent information regarding the vehicles involved in the hyperthermia incidents, such as model year (MY), body type, and color. Conditions specifying the location of the vehicles when the children were found and whether the vehicles were in shade or in full sun exposure are also included.

Vehicle model year was reported for 64 percent of the vehicles. Figure 17 shows the model year distribution for these 32 vehicles. The oldest<sup>38</sup> reported vehicles were MY 2000 and the newest<sup>39</sup> were MY 2019. Fourteen vehicles were less than 5 years old at the time of the incidents and 14 vehicles were over 10 years old. For 18 vehicles, the MY was not reported, classifying these vehicles as “Unknown.”

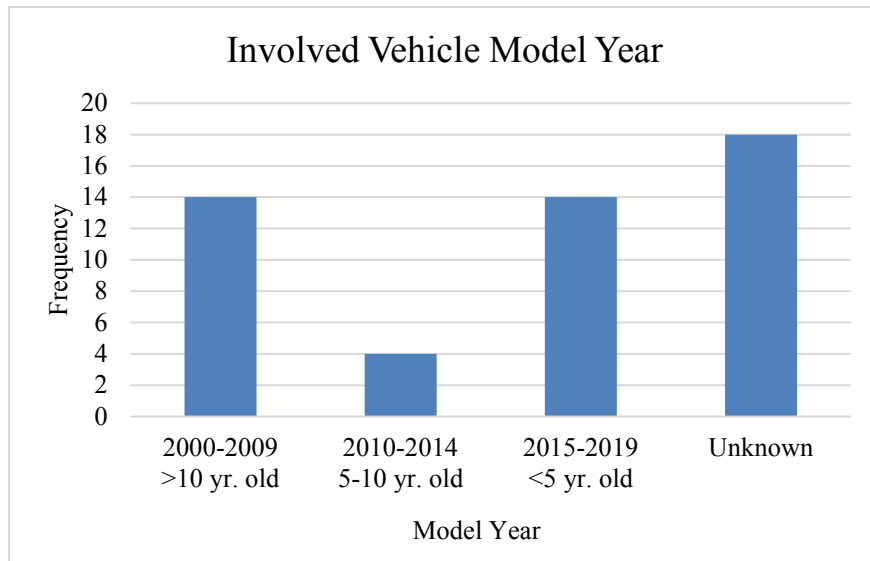


Figure 17. Model Year Distribution for Subject Vehicles

Subject vehicles were categorized by body type, as shown in Figure 18. The most frequent body type was “4-Door Passenger Car” at 37 percent of the 46 vehicles with known body types. The second largest body type category was “4-Door Sport Utility Vehicle” at 33 percent. Minivans and pickup trucks collectively accounted for 22 percent of vehicles, at 6 and 4 vehicles. Three incidents involved full-size vans, of which 2 were used and operated for daycare purposes (Case Nos. CR19012 and CR19018). The single convertible resulted from a “gained access” incident, Case No. CR19014.

<sup>38</sup> Case Nos. DS19031 and DS19040.

<sup>39</sup> Case Nos. CR19022 and CR19027.

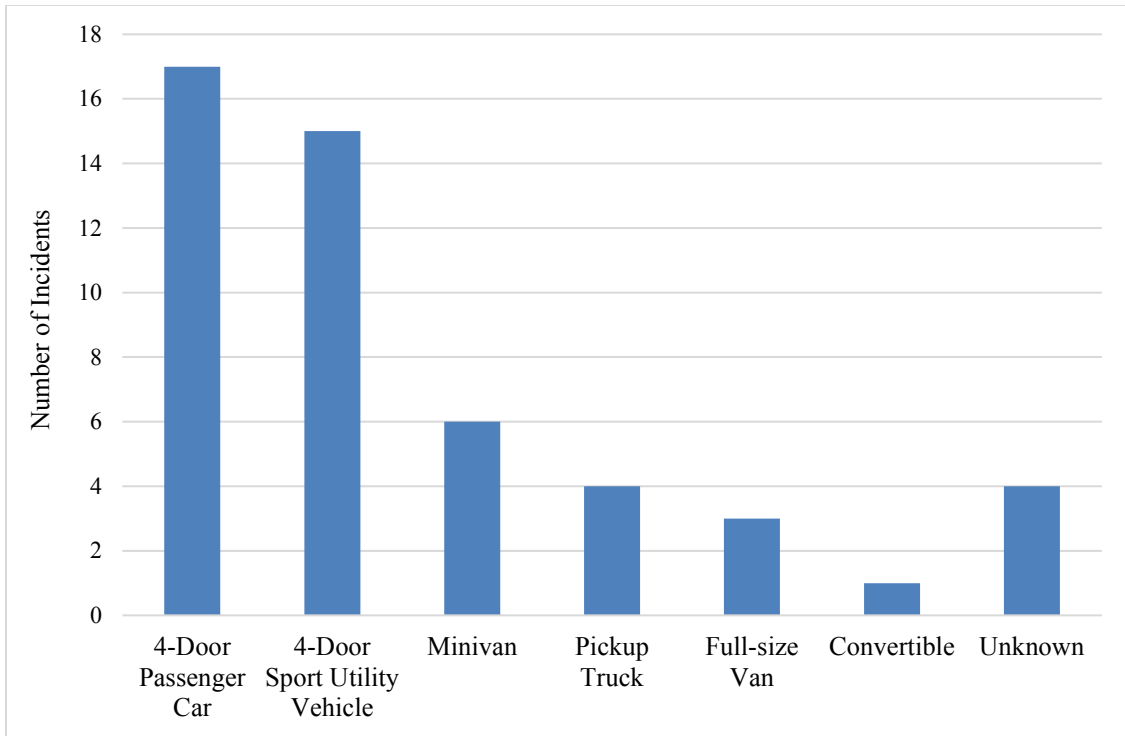


Figure 18. Involved Vehicle Body Type

Vehicle color was listed for 82 percent of subject vehicles, as seen in Figure 19. The vehicle colors with the greatest number of associated hyperthermia incidents were white (9 vehicles), silver (8 vehicles), and blue (7 vehicles).

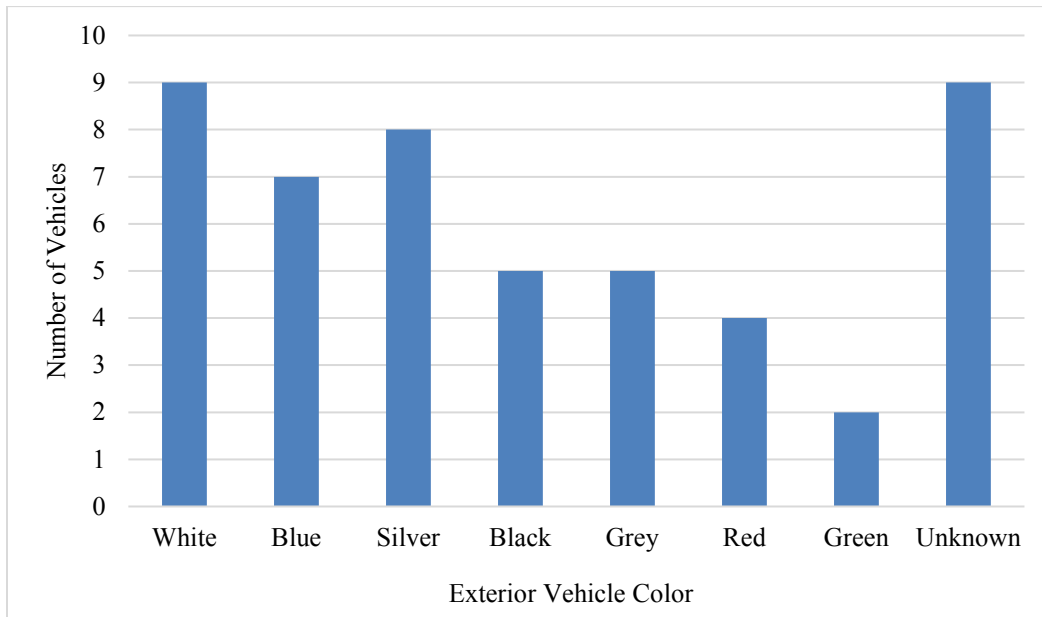


Figure 19. Exterior Color of Involved Vehicle

The vehicle locations where the children were found were reported in 92 percent of PVH incidents, as shown by Figure 20. Note that location only references where the vehicle was located when the child was physically found and may not include an intermediate stop or critical

location where the child succumbed to fatal hyperthermia injuries. One example where the found location differs from the critical location is Case No. DS19043, where the caregiver forgot to drop his child off at daycare after taking his wife to her workplace. The caregiver instead returned home and parked the vehicle for approximately 2.5 hours. He then drove to and spent time at several other locations, including a car dealership, before finding the child at a car wash in the second row of the vehicle.

Children were most commonly found at their home residences (20 incidents) followed by the caregiver workplaces (12 incidents) and relatives or friends' residences (10 incidents). Children were found at daycare facilities in 4 incidents.<sup>40</sup> It should be noted, no "found" location had the subject vehicle parked in a garage or under covered parking.

In the 3 incidents with location listed as "Other," the children were found at a grocery store (Case No. CR19023), an auto parts store (Case No. DS19030), and a car wash (Case No. DS19043). The found location was unknown for only one incident, Case No. DS19040, in which the location documenting the caregiver's whereabouts and overall timeline leading up to the incident were unable to be verified.

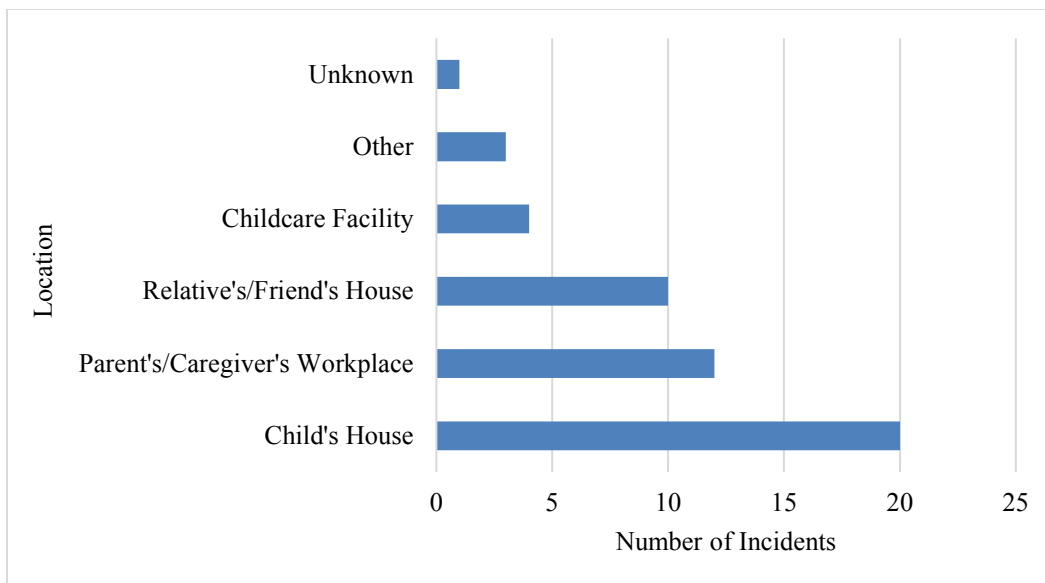


Figure 20. Vehicle Location When Children Found

Figure 21 shows whether the subject vehicles were parked in the shade or were fully exposed to the sun during the hyperthermia events as determined by the SCI investigations. Note that no subject vehicles were parked in garages or under covered parking, and were therefore fully exposed to environmental and location conditions, such as shade from trees or buildings.

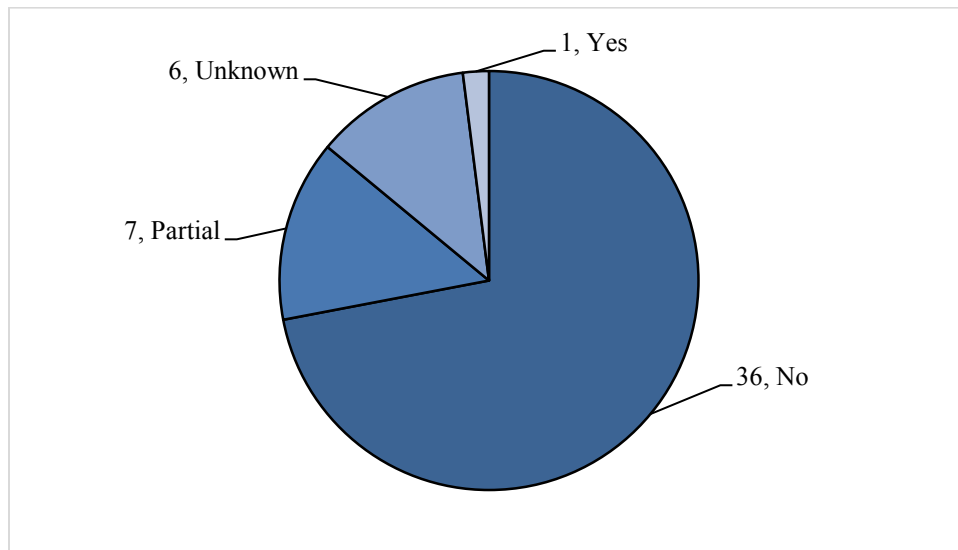
In 72 percent of these incidents, the subject vehicles had no shade coverage. Seven vehicles<sup>41</sup> were partially shaded during the incidents. In Case No. CR19018, coded as "Yes," the subject daycare van was parked in a lot where trees provided shade coverage over almost the entire parking lot where the van was parked. Vehicle shade status was unknown in 6 incidents.

<sup>40</sup> Case Nos. CR19012, CR19018, CR19022, and CR19024.

<sup>41</sup> Case Nos. CR19012, CR19020, CR20011, CR20012, DS19031, DS19036, and DS19042.



Included in this “Unknown” category is Case No. DS20010, which resulted from the vehicle’s high heater temperature setting, not from environmental conditions.



*Figure 21. Vehicle Shade Status During Hyperthermia Events*

## Summary of Key Circumstances

At least 849 children have died due to vehicular hyperthermia over a 22-year period (1998 - 2019),<sup>42</sup> an average of 39 fatalities per year. The 52 fatalities in 2019 investigated in this study were higher than historical averages. However, the percentages by circumstance (“forgotten,” “gained access” and “knowingly left”) were consistent with the historical averages as shown in Table 5.

For 2019 there were 56 percent of the PVH fatalities resulting from children being “forgotten” in the vehicles, compared to 53.9 percent from the historical data. “Knowingly left” circumstance was confirmed for 19.3 percent of deaths compared to 21 percent from the historical data. The largest difference in 2019 compared to this historical data was in the percentage of fatalities where the children “gained access” to the vehicles. The “gained access” circumstance in 2019 was 15 percent compared to 25.2 percent historically.

As previously discussed, SCI investigators could not confirm the circumstances in 3 incidents from the 2019 cases. Thus, 8 percent of the 2019 PVH fatalities were not confirmed for a specific circumstance, compared with the 1.5 percent of “Unknown” historical data.

A detailed discussion is provided with respect to the specific circumstances leading up to the children sustaining fatal hyperthermia-related injuries in vehicles.

*Table 5. Historical PVH Fatality Data Compared With 2019 PVH Fatalities*

<b>Circumstances</b>	<b>1998 - 2019</b>	<b>2019</b>
Forgotten	53.9%	56%
Gained Access on Own	25.2%	15%
Knowingly Left	19.3%	21%
Unknown	1.5%	8%
Total	99.9% <sup>43</sup>	100%

## The Child is Forgotten in the Vehicle

The following section provides descriptive statistics for the 28 incidents categorized in the “forgotten” circumstance. Information in this section includes the routine of the caregiver, the presence of other rear seat occupants, trip destinations, and other relevant data for this “forgotten” circumstance.

Of the 29 children who were “forgotten” by their caregivers, 74 percent were 1-year-old or younger, as seen in Figure 22. The average age for a “forgotten” child in these cases was 19 months.

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<sup>42</sup> Null, Trends and Patterns.

<sup>43</sup> Rounding error.

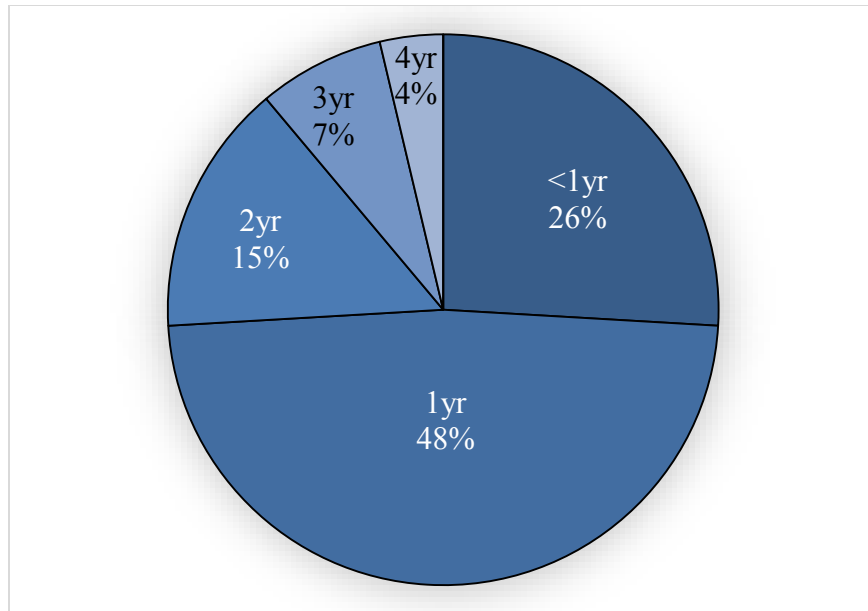


Figure 22. Ages of Forgotten Children

As shown in Figure 23, in 8 of the 28 “forgotten” cases, the day for the caregiver was not considered routine, or the trip itself was atypical.<sup>44</sup> For 4 of these cases, there was a different caregiver who was responsible for taking the child to daycare.<sup>45</sup> It was considered a typical/normal day in 11 incidents and not reported/unknown for 5 cases.

With respect to the categorized “atypical routine” incidents, for various reasons the day did not follow a standard routine. Three cases that exemplify “atypical routines” routines are as follows.

- **Case No. CR19025.** The caregiver, reported as the uncle and assigned guardian for the child, usually drops the child off at daycare first, then drops off an adult family member at a workplace. On the day of the incident, the adult passenger requested to be dropped off before the child. The caregiver took the adult to work first, as requested, then failed to take the child to daycare before going to work himself, consequently leaving the child unattended in the vehicle.
- **Case No. DS19034.** On the day of the incident the caregiver, identified as the child’s mother, had attended a baby shower in the morning and returned to the residence with the child seated in a CRS. The caregiver was tired after the social gathering, and unintentionally left the child in the vehicle as she entered the residence to take a nap.
- **Case No. DS20005.** The primary caregiver was the 47-year-old grandmother to the child and her family were returning to their home residence after visiting a friend and picking up a mini refrigerator approximately 228 miles away. The trip home included at least one stop to pick up groceries. Upon arriving at home the caregiver exited the vehicle to use the bathroom. At that time 5 of the 6 occupants exited the vehicle in an unknown order and began carrying luggage and groceries out of the vehicle. Then 2 of the occupants returned to the vehicle to remove the mini refrigerator from the vehicle. The caregiver

<sup>44</sup> Case Nos. CR19025, DS19033, DS19034, DS19036, DS19041, DS19045, DS19048, and DS20005.

<sup>45</sup> Case Nos. CR19024, CR19028, DS19028 and DS19043.

asked if everything was out of the vehicle then locked the vehicle using the remote. The 2-year-old male was unintentionally left behind.

In all 4 incidents where a different caregiver was responsible for dropping the child off at daycare, it was reported the caregiver was the child’s father. In 3 of the cases the father dropped off another household member at school (Case No. CR19024) or workplace (Case Nos. DS19028 and DS19043) then subsequently forgot to drop the child off. In Case No. CR19028 the caregiver’s wife typically takes the 11-month-old twins to daycare, but for unstated reasons the father was responsible for daycare drop-off on the day of the incident. No criminal charges were brought against the caregivers in any of these 4 cases.

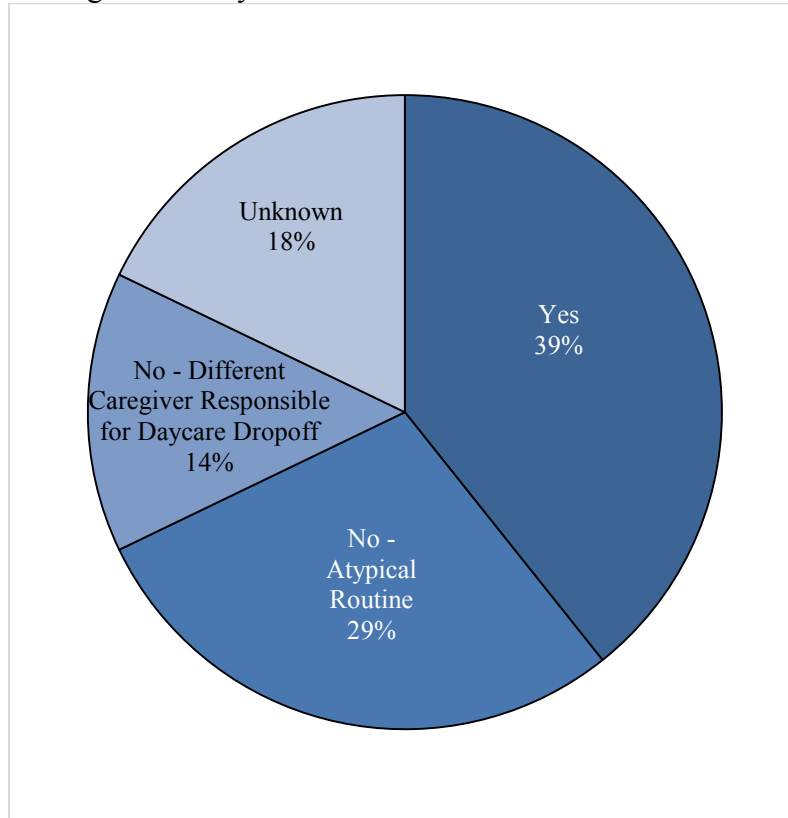


Figure 23. Caregiver Daily Routine

Figure 24 shows whether another occupant was seated in the same row as the subject child during the “forgotten” incident. Of the 28 incidents, there were 15 in which no other occupants were seated in the same vehicle rows as the children.

Of the “forgotten” cases 13 reported there was at least one other occupant seated in the same row as the subject child during the incident trip. In 8 of these cases these second-row occupants were present when the vehicles reached their final destinations.<sup>46</sup> However, in 7 of the 8 cases the other children left the vehicle at the final destinations, whereas the subject children were unintentionally left behind. The remaining case (Case No. CR19028) concerns two children sitting next to each other that did not depart the vehicle at the final destination. The children in this case were 11-month-old twins, a male and a female, who were unintentionally left in a parked minivan for approximately 3.5 hours by their 35-year-old father. As limited information

<sup>46</sup> Case Nos. CR19012, CR19018, DS19033, DS19038, DS19041, DS19045, DS19046, DS20005.

was provided for this case, the intended destination for the twins was not reported. When found, both children were transported by ambulance to a local hospital where the male was pronounced deceased, while the female was evaluated, treated, and released without injury.

Case Nos. CR19012 and CR19018 are also notable cases for “Other Rear Seat Occupant Present, Same Final Destination,” because the involved vehicles were designated for picking up and transporting children of various households to the daycare facilities. The children in each of these cases were left behind while the other children and the van drivers left the vehicles.

Two additional examples of “Other Rear Seat Occupant Present, Same Final Destination” are as follows:

- **Case No. DS19041.** A 4-year-old male child was placed in the second row of the subject vehicle next to the 16-month-old female child who was secured in a forward-facing CRS. The 27-year-old mother and her children traveled to a relative’s residence, parking the vehicle across the street from the home. The mother and 4-year-old exited the vehicle and entered the relative’s residence, leaving the 16-month-old child behind. It is unknown if the 4-year-old exited the vehicle on his own or was assisted by his mother.
- **Case No. DS19033.** On the day of the incident, the 46-year-old grandmother of the child traveled to her daughter’s workplace and picked up her four grandchildren, including the 11-month-old female, who was placed in the second-row middle seat of the vehicle. As 2 other children were already in the vehicle, there were 6 children in the vehicle when they returned to the grandmother’s residence. She parked in the driveway, exited the vehicle, and entered the residence with the mobile children and groceries. The 11-month-old child remained in the vehicle, restrained in her CRS.

In 4 incidents, although there was each another rear-seat occupant present during the overall trip, the occupants exited the vehicles prior to the subject children’s intended destinations. In Case Nos. CR19017, CR19024, and CR20011 one or more older siblings were dropped off at their schools prior to the caregivers proceeding to work and ultimately forgetting the subject children in the vehicles. In Case No. DS19036 the father of the 3-year-old female dropped off the child’s older siblings at their schools then returned to his home residence, where he typically worked. The child, who usually got dropped off at preschool, was supposed to return to the home residence with her father on the incident day, as the family was getting ready to go on vacation. Instead, she was unintentionally left behind in the vehicle.

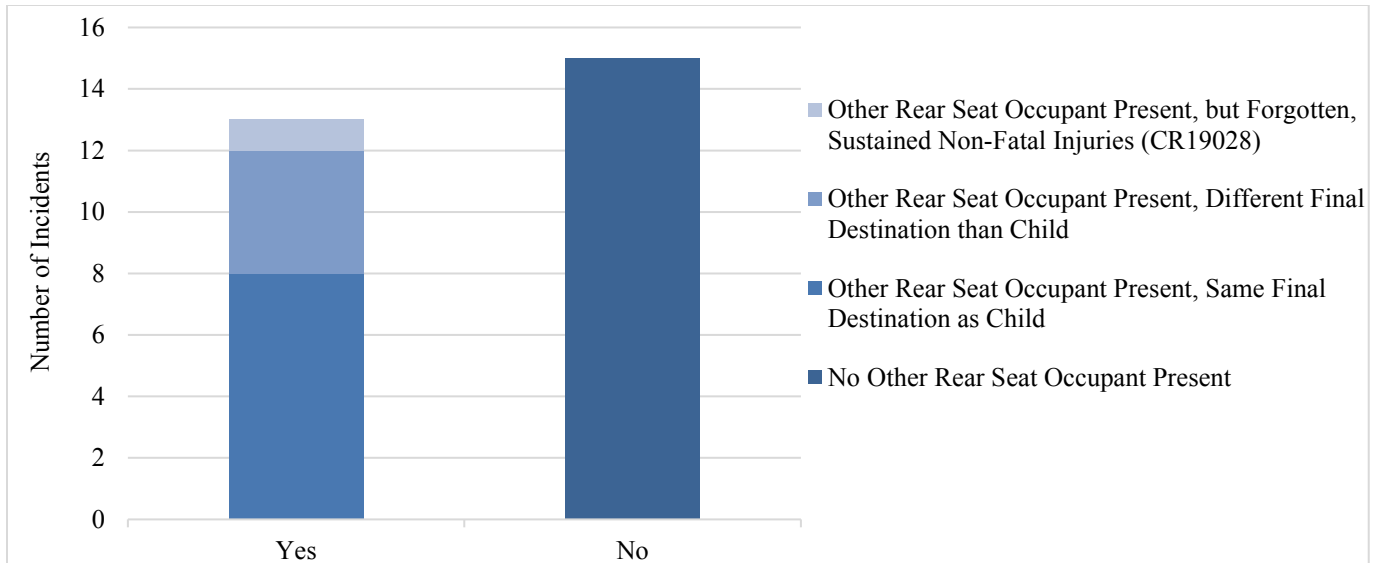


Figure 24. Other Rear Seat Occupant Present During Incident Trip

The number of children the caregivers were responsible for at the times of the incidents is shown in Figure 25. In half of these incidents, each caregiver was only responsible for the subject child. There were 3 incidents where caregivers were responsible for 2 children,<sup>47</sup> 3 incidents where the caregivers were responsible for 3 children,<sup>48</sup> and 6 incidents where the caregivers were responsible for 5 or more children,<sup>49</sup> including the children who sustained fatal injuries. The total number of children the caregivers were responsible for was “Unknown” in 2 cases.

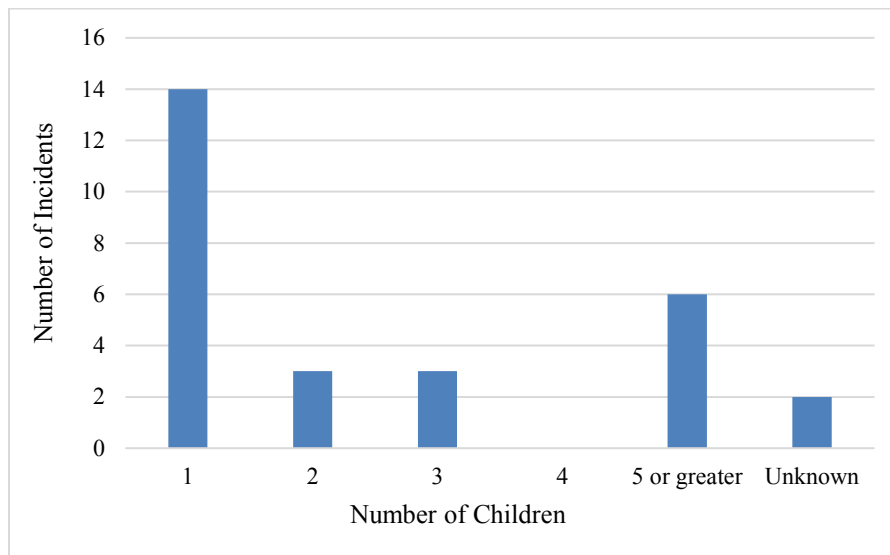


Figure 25. Number of Children Caregiver Responsible for at Time of Incident

Intended trip destinations for both children and caregivers are represented by Figure 26. For 16 cases, 57 percent of the “forgotten” circumstance, the intended destinations were daycare facilities. The second highest trip destinations were the children’s home residences, at 7 incidents

<sup>47</sup> Case Nos. CR19024, CR19028, and DS19045.

<sup>48</sup> Case Nos. CR19017, DS19036, and CR20011.

<sup>49</sup> Case Nos. CR19012, DS19033, DS19038, DS19041, DS19046, and DS20005.

(25%). Note that the “Other Residence” category is defined as the residence of a relative or friend of the child or caregiver. It is not the primary residence of the child or subject caregiver.

Regarding the caregivers, the most frequent final destinations were their home residences (13 incidents, 46%) and workplaces (11 incidents, 39%). As noted, Case Nos. CR19012 and CR19018 involved drivers of daycare vans who ultimately forgot to ensure that all of the children exited the vehicles and entered the daycare facilities. For these 2 cases, since driver workplace is directly related to the caregiving responsibilities of a daycare facility, these 2 caregivers’ final destinations have been categorized as “Daycare.”

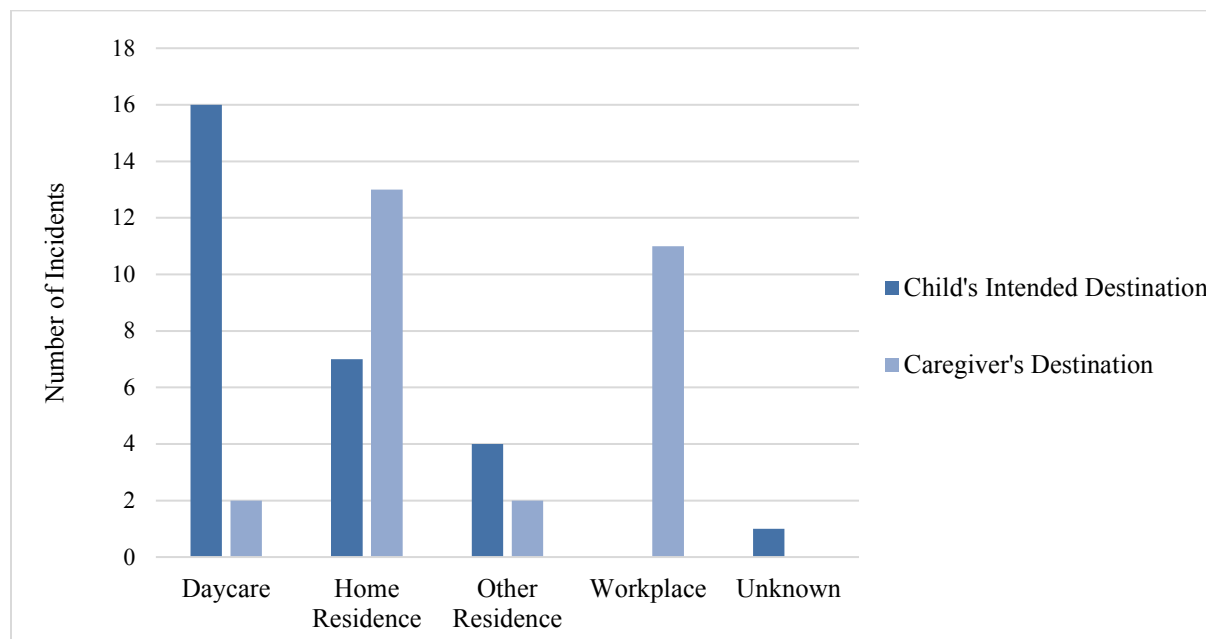


Figure 26. Caregiver Intended Trip Destination

Criminal charges were filed against 9 (28%)<sup>50</sup> of the total 32 responsible caregivers as shown in Figure 27. There were 4 cases where several caregivers were present.<sup>51</sup> Six of the 9 charged caregivers (67%) were female. However, when charges were not filed, 12 of the 18 caregivers (67%) were male. The variety of charges filed are in the results section of this report. For the remaining 5 “forgotten” caregivers, it was unknown whether criminal charges were filed.

<sup>50</sup> Case Nos. CR19012, CR19017, CR19018, CR19025, DS19037, DS19038, DS19047, CR20012, and DS20005.

<sup>51</sup> Case Nos. DS19044, DS19045, DS19046, and CR20012.

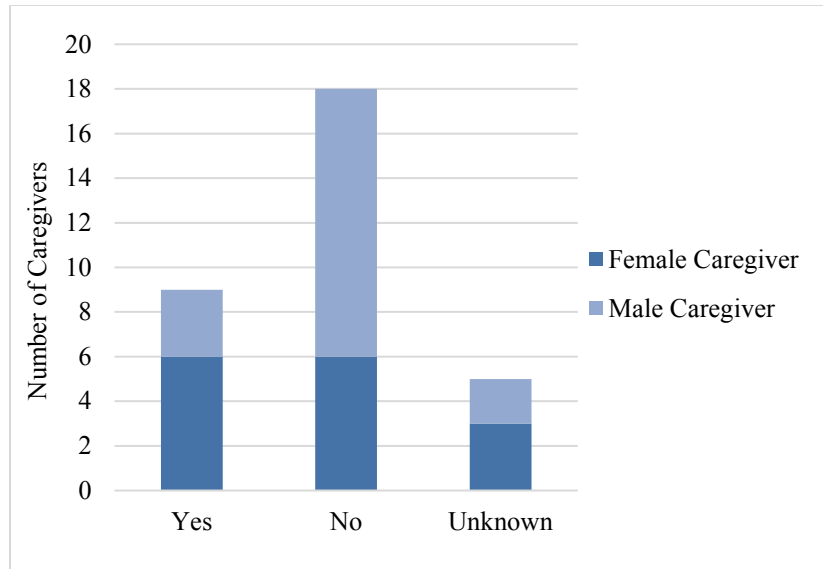


Figure 27. Criminal Charges Filed Against “Forgotten” Caregiver

In Case No. DS19038 one of the mother’s 4-year-old sons was left in an SUV after the mother drove her 3 sons and a family friend to a store for snacks. Upon returning home from the trip, the 12-year-old brother unclipped the harnesses for both of his 4-year-old twin brothers, but only assisted one from the vehicle. All other occupants exited the vehicle, leaving the second 4-year-old in the vehicle. Throughout the incident, the mother was described as appearing “detached” from the events, leaving the other children of the household to take the lead on responding to the forgotten child.

None of the reported “forgotten” cases suspected that the responsible caregiver was under the influence of alcohol.

There were 3 incidents where the child was “forgotten” in the vehicle, resulting from confusion among the responsible caregivers as to who was responsible for removing the child from the vehicle.<sup>52</sup> Unlike the other “forgotten” incidents discussed above, both caregivers believed someone else was going to bring the child into the house. Instead, the child was forgotten and left unattended in the vehicle.

One example of “caregiver confusion” is Case No. DS19045. On the day of this incident, a 3-year-old male, his 35-year-old father, 31-year-old mother, and 6-year-old brother arrived at their home residence after a baseball game. The child’s mother, who had been seated in the front passenger seat, exited the vehicle to go to the bathroom and then took a nap. The child’s father, the driver, exited the vehicle, assisted the 6-year-old from his backless booster CRS in the second-row left seat, then began unloading the 6-year-old’s baseball gear. The 3-year-old was left in the second-row right seat of the vehicle unattended, while restrained in his forward-facing CRS. The mother thought the father would remove the child from the vehicle and the father thought the mother had already removed the child from the vehicle.

Vehicle type was reported for 27 of the 28 “forgotten” incidents, seen in Figure 28. Of these, 24 were 4-door passenger cars and 3 were full-size passenger vans (Case Nos. CR19012, CR19018, and DS19048). Note that the vans in Case Nos. CR19012 and CR19018 were specifically

<sup>52</sup> Case Nos. DS19045, DS19046, and CR20012.



designated for daycare facility use. Over 60 percent of “forgotten” vehicles were 4-door passenger cars and 4-door SUVs.

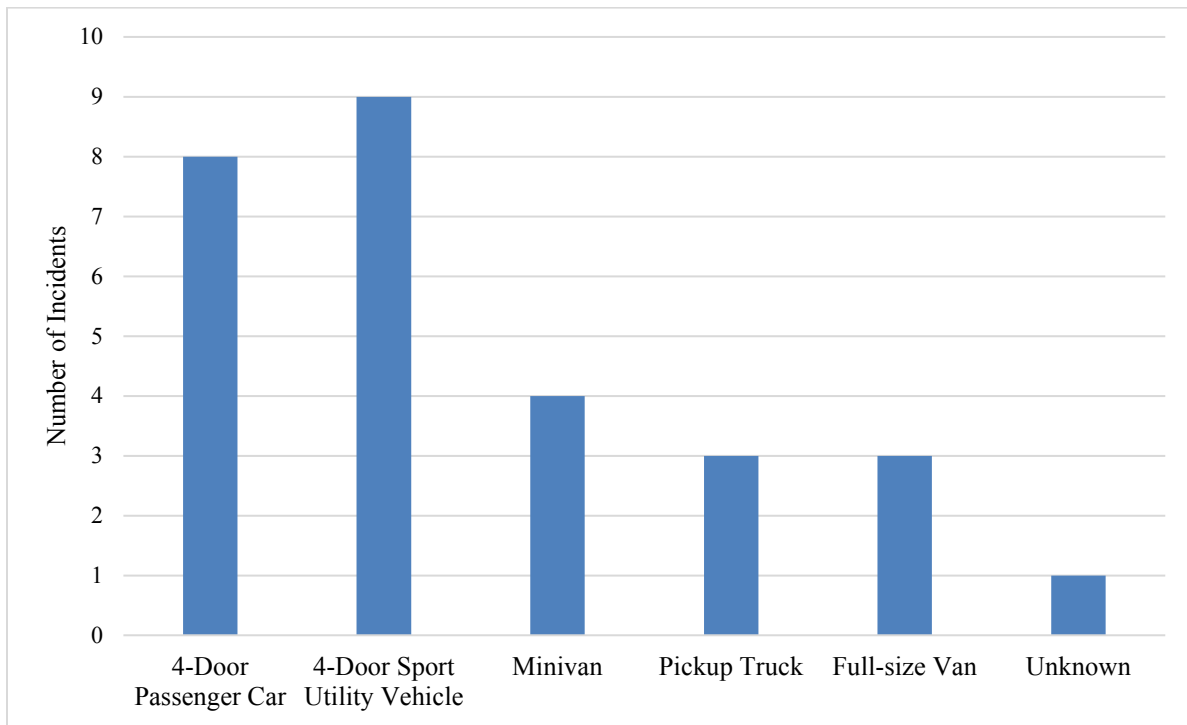


Figure 28. Vehicle Type per “Forgotten” Circumstance

### The Child Gained Access to the Vehicle

The following section provides descriptive statistics for the 7 incidents<sup>53</sup> specific to the “gained access” circumstance. Note that 3 of these incidents involved 2 caregivers each: Case Nos. CR19014, CR19021, and CR19029. Information presented in this section includes the age of the children, caregivers’ activities while the children were in their charge, and legal activity resulting from the incidents. Since there are only 7 “gained access” cases, a brief summary describing the circumstances of each event is provided at the end of this section.

Of the 8 children who “gained access” to the vehicles, six were 2- or 3 years old, as represented by Figure 29. The average age for “gained access” children in these cases was 2.6 years. There were no “gained access” cases reported for children under 1 year old, nor any cases where a child was 5 or older.

<sup>53</sup> Case Nos. CR19011, CR19013, CR19014, CR19019, CR19021, CR19029, and DS19042.

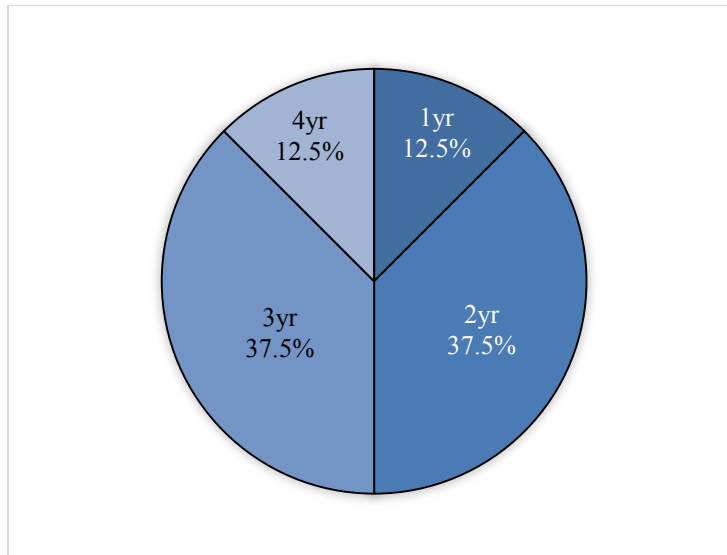


Figure 29. Age of "Gained Access" Child

Table 6 below describes what the 10 caregivers were doing at the time the child gained access to the vehicle.

Table 6. Caregiver Activities When Child Gained Access to Vehicle

What Caregiver Was Doing	Napping	Intoxicated	Housework/ Vehicle Maintenance	Unknown	Total
CR19011				1	1
CR19013				1	1
CR19014		2			2
CR19019	1				1
CR19021			1	1	2
CR19029	1			1	2
DS19042			1		1
Total	2	2	2	4	10

As represented by Figure 30, charges were filed against the caregivers in 2 of the "gained access" incidents, Case Nos. CR19014 and CR19029. In Case No. CR19014, summarized below, the caregivers of the child fell asleep after ingesting marijuana. They were initially charged with possession of marijuana but, after the local law enforcement agency confirmed the child was deceased, charges of manslaughter were also filed against both caregivers. Case No. CR19029, which also involved 2 caregivers, charged the foster mother/guardian of twin girls with two counts of second-degree murder and two counts of cruelty to children. The boyfriend of this guardian was arrested and charged with 2 counts of second-degree murder. The investigating police detective stated the charges, by State law, stemmed from the lack of proper supervision involving child neglect and a death.

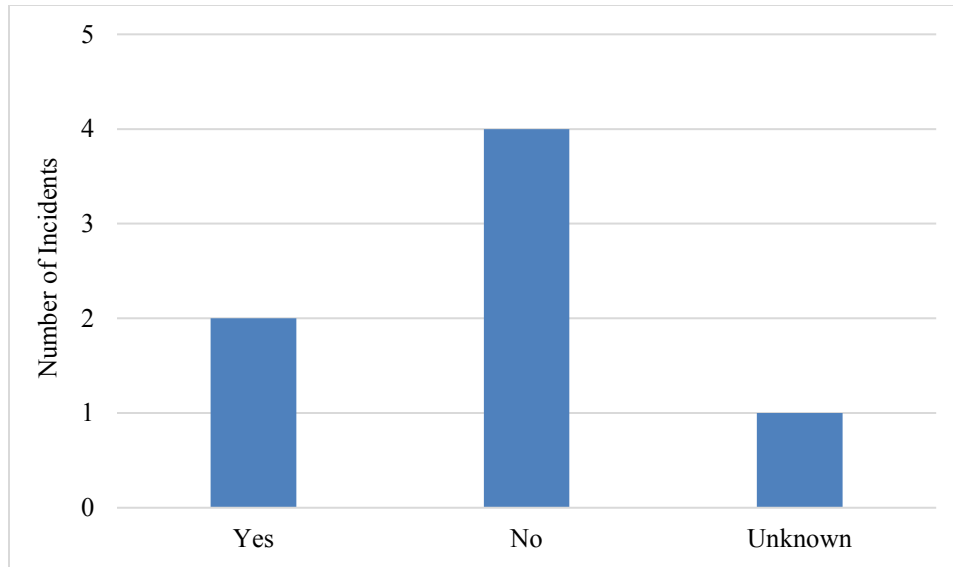


Figure 30. Charges Filed Against “Gained Access” Caregiver by Incident

### Gained Access Case Summaries

- Case No. CR19011.** The mother and her 4-year-old child were “visiting with family” at their residence when the child, who was watching television, left the residence at an undisclosed time. He subsequently locked himself into the family SUV. At the time the child left the residence, the mother’s exact social activities were unknown.
- Case No. CR19013.** The 3-year-old child’s parents, who work a late shift, left their child under the care of the child’s grandmother while they napped. The grandmother was therefore recognized as the sole primary caregiver during this event, even though the parents were physically present at the incident location when the child gained access to the vehicle. At an unknown time, the child left the residence. The grandmother thought the child went to nap with the parents. It is unknown what the grandmother was doing when the child gained access to the family’s minivan. This case exemplifies how a “gained access” situation can result from a sub-circumstance of “caregiver confusion.” Additionally, in this case the official cause of death was listed as cardiac arrhythmia due to lymphocytic myocarditis (autopsy revealed the child had a viral infection of the heart muscle). Although hyperthermia was not listed medically as a contributing factor in this child’s death, which was classified as “natural,” the case met the circumstances for PVH and was identified accordingly by the noheatstroke.org dataset. Therefore, it is included within the scope of this study.
- Case No. CR19014.** A 2-year-old male and his older sibling were reportedly left unsupervised by their mother and father, who had passed out in the afternoon hours at their family residence while under the influence of marijuana. The child exited the residence and entered the parked Mazda Miata at approximately 1515 hours. He was found 4.5 hours later by his older sibling. Both caregivers were charged with possession of marijuana and manslaughter. This is the only “gained access” case that involved intoxicated caregivers.
- Case No. CR19019.** Early in the morning on the day of the incident, the 2-year-old child and her father had transported the child’s grandfather to a hospital for medical treatment.

When they returned to the residence at approximately 0730 hours, they both laid down for a nap. When the child woke up, she exited the fenced yard and accessed a parked vehicle. The father noticed her absence when he awoke and reported her missing to local law enforcement, who found her in the vehicle about 30 minutes after she was reported missing.

- **Case No. CR19021.** Limited information is available for this case. It was reported that both parents were at their home residence at the time of the incident. The father stated he was working on a truck in the driveway and observed the 20-month-old child enter the residence. Information regarding the mother's activities were not reported. The parents noticed the child was missing at an unknown time, and found him in a parked SUV after approximately 45 minutes of searching.
- **Case No. CR19029.** Twin 3-year-old females gained access to a 2006 Kia Spectra parked in the backyard of the house of their foster mother's boyfriend, who lived next door. It was reported that a child protection agency had previously expressed concern about the foster mother leaving the children under the care of her boyfriend, as he was not approved by the foster agency to supervise the children. At the time of the incident, the foster mother was napping, and it is unknown whether any instructions were given to the boyfriend to supervise the children, providing another example of "caregiver confusion." The boyfriend apparently remained inside his residence, located adjacent to the foster mother's residence, while knowing the children were playing in his backyard, unsupervised. His activities during the incident were unknown. The foster mother woke, realized the children were missing, and located them in the Kia.
- **Case No. DS19042.** The 2-year-old child left his family's home while his mother, the primary caregiver, was cleaning a bathroom. She had previously noticed him playing with car keys from her purse, which she described as typical behavior for this child. When she finished cleaning, she noticed the front door was unlocked, the floor mat had been moved, and the child was missing. The child's sister, who was also home at the time, did not know where he had gone. The mother reported the child as missing and a search unit of 250 to 300 people, including police, social workers, and a special agent from the FBI Missing Child Unit attempted to locate the child. After approximately 17 hours from when the child was initially reported as missing, he was found in a white 2018 Toyota Highlander owned by an unrelated neighbor who lived in the same apartment complex as the child's family. The SUV was a similar color and style to the child's family 2018 Toyota RAV4. There were conflicting statements regarding whether all vehicles near the apartment had been searched to locate the child when the search initially began.

### **The Child Was Knowingly Left in the Vehicle**

The following section provides descriptive statistics for the 11 incidents specific to the "knowingly left" circumstances.<sup>54</sup> Information presented in this section includes the age of the child, why the caregiver left the child in the vehicle, caregiver activities surrounding the event,

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<sup>54</sup> Case Nos. CR19006, CR19007, CR19008, CR19009, CR19010, CR19016, CR19020, DS19029, DS19030, DS19040, and DS20010.

and legal consequence resulting from the incident. Note that in Case No. CR19020 there were two caregivers who reportedly “knowingly left” the child in the unattended vehicle.

Table 7 provides a summary outlining caregiver rationale for knowingly leaving a child alone in the vehicle, the activities the caregiver was participating in during the critical time, and the types of criminal charges brought against the caregiver because of a hyperthermia death.

*Table 7. “Knowingly Left” Caregiver Summary*

<b>Case Number</b>	<b>Why Child Knowingly Left Behind</b>	<b>What Caregiver Was Doing</b>	<b>Criminal Charge Filed Against Caregiver</b>
CR19006	Unknown stated reason	Selling drugs and drug use	Aggravated manslaughter by child neglect and drug-related offenses
CR19007	Prepare child’s bed	Sleeping	Homicide-negligent manslaughter, child neglect, possession of controlled substances and misdemeanor drug charges
CR19008	Childcare not available	Working	Murder and felony child abuse
CR19009	Childcare not available	Working	Second-degree manslaughter
CR19010	Thought child’s father would get her	Unknown	Second-degree endangering the welfare of a child
CR19016	Unknown stated reason	Reportedly unloading groceries	No charges
CR19020	Unknown stated reason	Retrieving keys from offsite location to unlock subject vehicle	Murder (both caregivers)
DS19029	Unknown stated reason	Visiting friends	Second-degree murder and felony child abuse
DS19030	Unknown stated reason	Visiting friends	Neglect of a dependent resulting in death
DS19040	Unknown stated reason	Reportedly gambling	Child abuse homicide
DS20010	Unknown stated reason	Visiting friend	Murder and child neglect resulting in death

Figure 31 presents the age distribution for the 11 children who were reported as “knowingly left” behind in an unattended vehicle in 2019. The average age was 2.6 years old. Nine of the 11

children were 2 or younger and were restrained in CRSs at the time of the incidents. There were no 3-year-old children. There were a 4-year-old male (Case No. CR19009) and a 13-year-old disabled female (Case No. CR19020). Summaries of these cases are described below.

- **Case No. CR19009.** The 4-year-old male child was left unattended in a 2017 Dodge Journey for over 5 hours by his 26-year-old father. The father drove his son to a public event and parked the vehicle in a large parking lot with full exposure to the sun. The father lacked babysitting services and, reportedly, knowingly left the child in the vehicle at 1130 hours with a window cracked open while he went to work at the event. An electronic game console was given to the child for entertainment, as well as a blanket in the event he fell asleep. The father returned to the Dodge at 1715 hours and found the child unresponsive. The father subsequently pled guilty to the charge of second-degree manslaughter and was sentenced to 6 months in jail, 6 months of electronic home monitoring upon his release, and 10 years of probation. The father stated that a year earlier he had left the child in a parked vehicle for the duration of the event with a window fully open and nothing happened.
- **Case No. CR19020.** For unknown reasons, the 49-year-old mother and her 41-year-old boyfriend placed the 13-year-old female with special needs in a passenger car and left her unattended for approximately 5 hours. After checking on the child, the caregivers noticed that all the doors on the sedan were locked and they could not get the child out of the vehicle. Both caregivers left the residence to retrieve another set of keys for the sedan from the mother’s home. The caregivers then returned to the residence at approximately 1615 hours and found the child had expired. Both people were charged with murder.

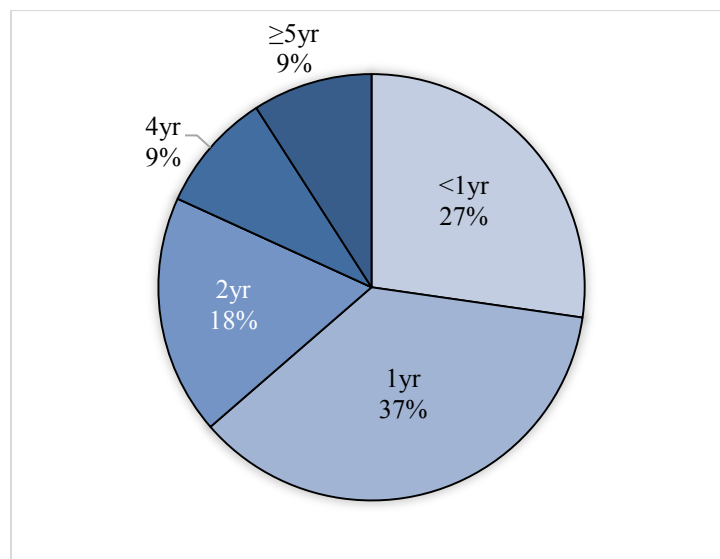


Figure 31. Age of “Knowingly Left” Child

Criminal charges were filed against 11 of the 12 caregivers who reportedly “knowingly left” the child, as seen in Figure 32. Of the reported caregivers, 9 were female and 3 were male.

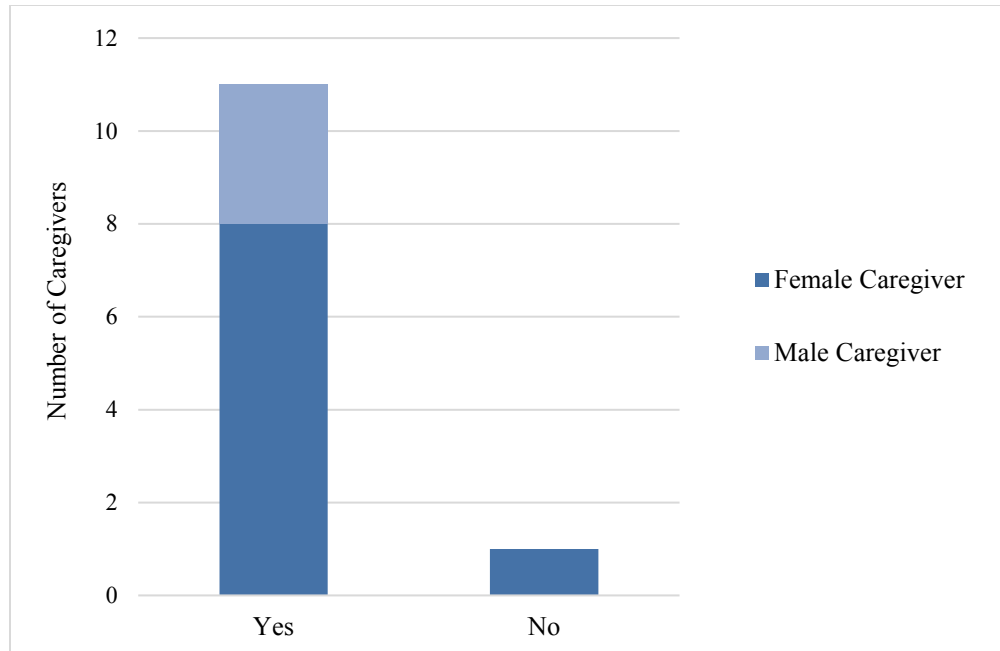


Figure 32. Criminal Charges Filed Against the “Knowingly Left” Caregiver

In 2 incidents, Case Nos. CR19008 and CR19009, the caregivers stated they did not have childcare available during their work shifts. They ultimately decided to take the children to work and leave them unsupervised in the vehicles.

Case No. CR19010 resulted from “caregiver confusion.” The 25-year-old mother drove her 21-month-old female child to daycare, but the toddler did not want to stay. The mother drove the toddler back to their residence and knowingly left the child, expecting the father to remove the toddler from the vehicle. It was reported that there was a misunderstanding between the parents as to who was going to remove the toddler from the vehicle. The toddler was discovered 2.5 hours later, restrained in her CRS.

### Unknown

There were 4 incidents where the circumstances were reported as “Unknown” by the investigators. For these cases, the investigators typically were not able to obtain official incident records or other supplemental information to make a conclusive determination about the circumstances surrounding the event. Summaries for each of these incidents are as follows.

- **Case No. CR19015.** It was reported that the 3-year-old male was left unattended in a vehicle for approximately 2 hours by his 23-year-old father. The SCI team contacted the police agency to request documentation and interview the investigating officer. Attempts to speak with the investigating officer and obtain records met no response from the police agency. The lack of available data and cooperation hampered the ability of the SCI team to determine the circumstances surrounding the incident.
- **Case No. CR19023.** The 6-month-old male was reported as being left unattended in the parking lot at the 30-year-old female caregiver’s place of employment for at least 7 hours. The caregiver discovered the child after she returned to her vehicle, picked up the child’s older sibling from school, and subsequently drove to a local grocery store. The responding police and emergency medical services found the child deceased in the

second-row seat. Due to open status of the criminal charges, the limited available information was insufficient to categorize the driver's actions.

- **Case No. CR19030.** It was reported that the 13-month-old male was left unattended in a vehicle for an extended period by his 36-year-old mother, who was subsequently charged with capital murder. The SCI team contacted the involved police agency; however, due to the seriousness of the criminal charges and the fact that criminal prosecution was in progress, the district attorney intervened and understandably prohibited release of information on this case. The mother has been jailed since her arrest. Due to the lack of obtainable information, the caretaker's actions remain unclassified.
- **Case No. DS19031.** The 11-month-old female died while reportedly being left unattended by her parents in a 2000 Ford Taurus SES at least 16 hours. The parents and child lived across the street from the incident site. The parents parked the Ford in the driveway of the child's grandmother, exited the vehicle, and left the child unattended in a CRS in the second row. The SCI team obtained the police report and photos, fire/EMS report, and medical examiner's report. However, the investigation did not determine whether the child was "forgotten" or "knowingly left" behind in the vehicle. Both parents were later charged with second-degree involuntary manslaughter.



## Conclusion

The objective of this study is to further the safety community's understanding of the underlying factors that contribute to children dying in vehicles from heatstroke. To accomplish this, NHTSA used the SCI program to conduct investigations of the 52 heatstroke fatalities identified by the No Heatstroke organization's 2019 dataset as of September 30, 2020. There are 50 incidents and reports, with 2 incidents involving 2 child fatalities, accounting for the 52 total PVH deaths.

Each investigation collected specific information about the situations and circumstances leading up to the fatal incidents, the caregivers responsible for the children, the fatally injured children, and the incident vehicles.

A summary of the data identified 56 percent (29 deaths) of the 2019 heatstroke fatalities occurred because children were "forgotten" and left inside vehicles. In 15 percent (8 deaths) of the fatalities, the children "gained access" to the vehicles, and in 21 percent (11 deaths) the children were "knowingly left" behind in the vehicles. The circumstance could not be confirmed and were therefore "Unknown" in 8 percent (4 deaths) of the fatalities.

The States with the highest PVH incident occurrence were Texas, Florida, and Arizona, all located in the "Sun Belt." The primary caregivers were identified as the parents in 43 of the 59 incidents. The children were found at home in 20 incidents (40%) and at caregiver workplaces in 12 incidents (24%).

Forty-one (79%) of the 52 PVH fatalities in 2019 involved children under age 3, and 36 children (69%) were restrained in a CRS. Forty-three (83%) children were found in vehicle second or third rows.

The data summarized in this report, including the 50 full SCI reports compiled in Appendix C may provide insight into the root causes of PVH and lead to the development of behavioral and technical countermeasures.

**Appendix A: Data Element Collection Template**

<b>Category</b>			
<b>Situation</b>	<b>Caregiver/Guardian</b>	<b>Non-Motorist</b>	<b>Vehicle</b>
<b>Incident Date</b>	Age	Age	Make
<b>Incident State</b>	Sex	Sex	Model
<b>Types of Official Records Obtained</b>	Relationship to Child	Height/Weight	Model Year
<b>Circumstance (Forgotten, etc.)</b>	Rationale for Knowingly Leaving Child Behind	Vehicle Location Child Found	Vehicle Type
<b>Critical Time Duration<sup>55</sup></b>	Approximate Distance of Caregiver to Child	Child Seating Position	Exterior Color
<b>Time Child Found</b>	Typical/Atypical Day <sup>56</sup>	Restraint Type	Interior Color
<b>Temperature Range</b>	Intermediate Stop Location(s)	Restraint Attachment (CRS)	Vehicle Location
<b>Weather Conditions</b>	Forgotten Intermediate Stop	Restraint Use	Vehicle Lock Status
<b>Total Number of Occupants in Vehicle</b>	Final Trip Destination	Chest Clip Engaged (CRS)	Child Safety Locks Engaged/Disengaged
<b>Relationship of Vehicle Occupants to Child</b>	Under the Influence of Drugs/Alcohol	Covered by Blanket, Coat, etc., During Incident	Type of Interior Door Handle
<b>Seating Position for All Vehicle Occupants</b>	Criminal Charges Reported	Object Present That Might Restrict Motion Detection	Type of Exterior Door Handle
<b>Rear Seat Occupant Presence</b>	Major Life Experience <sup>57</sup> within Last 3 Months	Child Capable of Vehicle Actions (Open Doors, Honk Horn, etc.)	Type of Window Regulators
<b>Cargo/Belongings Removed from Vehicle at End of Trip</b>	Number of Children Caregiver Has Guardianship of	Pattern of Child Gaining Access	Window Tint Status
	Number of Children Caregiver Responsible for	Child's Intended Destination	Shade Status
	Prior Legal History		Windows Opened/Closed
	Prior History With Child Protective Services		Vehicle Alarm System
	Daycare Provides Drop Off Notifications		Vehicle Emergency Notification System
	Personal Items Routinely Stored in Rear Seat		Vehicle Unattended Child Detection System
	Awareness of Heatstroke Risk/NHTSA Campaigns		Bluetooth Activated
			Smartphone Connected Via Cable

<sup>55</sup> For “Forgotten” and “Knowingly Left” circumstances, the critical time is the time from when the caregiver leaves the vehicle until the child is found. The critical time duration for the “Gained Access” circumstance is the time from when the caregiver last saw the child until the child is found.

<sup>56</sup> Typical day defined as routine schedule for family. A typical day is any deviation from normal routine, such as a different caregiver taking the child to daycare, trip schedule rearranged, etc.

<sup>57</sup> Includes birth or death of a family member, new custody arrangement, divorce or separation, etc.

**Appendix B: Report Summary of 2019 Pediatric Vehicular Heatstroke  
SCI Cases**

The case numbers in this appendix are catalogued in the same order as in the Table of Contents in Appendix C. The table below lists all 50 hyperthermia cases beginning with the earliest incident month. Key elements for each case include the left behind circumstance (“Forgotten,” “Gained Access,” “Knowingly Left,” or “Unknown”), the caregiver relationship to the child, and the age of the fatally injured child.

Month	Case Number	State	Vehicle Model Year	Vehicle Model	Circumstances Child Left Behind	Caregiver 1 Relationship	Caregiver 2 Relationship	Child 1 Age	Child 2 Age
April	DS19028	AZ	2010	Altima	Forgotten	Father	N/A	20 months	N/A
	CR19006	FL	2011	Altima	Knowingly Left	Mother	N/A	14 months	N/A
	CR19007	FL	Unknown	Town and Country	Knowingly Left	Mother	N/A	2 years	N/A
May	DS19029	AZ	2016	Civic	Knowingly Left	Father	N/A	18 months	N/A
	CR19012	FL	Unknown	E-Series Van	Forgotten	Childcare Provider	N/A	4 months	N/A
	DS19030	IN	2010	Outlook	Knowingly Left	Mother	N/A	12 months	N/A
	CR19009	MN	2017	Journey	Knowingly Left	Father	N/A	4 years	N/A
	CR19010	NJ	Unknown	Camry	Knowingly Left	Mother	N/A	21 months	N/A
	CR19008	NC	Unknown	Unknown	Knowingly Left	Mother	N/A	9 months	N/A
	CR19011	SC	Unknown	Unknown	Gained Access	Mother	N/A	4 years	N/A
June	CR19014	AL	Unknown	Miata	Gained Access	Father	Mother	2 years	N/A
	DS19041	IA	2010	Cobalt	Forgotten	Mother	N/A	16 months	N/A
	DS19034	KS	2007	Outback	Forgotten	Adopted Parent	N/A	3 months	N/A
	DS19031	MO	2000	Taurus	Unknown	Mother	Father	11 months	N/A
	CR19013	TN	2002	Town and Country	Gained Access	Grand-parent	N/A	3 years	N/A
	DS19039	TX	2007	Tahoe	Forgotten	Father	N/A	18 months	N/A
	DS19038	TX	2002	Explorer	Forgotten	Mother	N/A	4 years	N/A
	DS19033	TX	2001	Frontier	Forgotten	Grand-parent	N/A	11 months	N/A
July	CR19018	FL	Unknown	E-350 Super Duty Passenger Van	Forgotten	Childcare Provider	N/A	2 years	N/A
	DS19032	IN	2008	Sentra	Forgotten	Father	N/A	3 years	N/A

Month	Case Number	State	Vehicle Model Year	Vehicle Model	Circumstances Child Left Behind	Caregiver 1 Relationship	Caregiver 2 Relationship	Child 1 Age	Child 2 Age
	CR19017	NY	Unknown	Accord	Forgotten	Father	N/A	1 years	1 years
	CR19015	TN	Unknown	Unknown	Unknown	Father	N/A	3 years	N/A
	DS19042	TX	2018	Highlander	Gained Access	Mother	N/A	2 years	N/A
July	CR19016	VA	Unknown	Freestyle	Knowingly Left	Mother	N/A	10 months	N/A
August	DS19037	CA	2018	Altima	Forgotten	Mother	N/A	20 months	N/A
	CR19021	GA	Unknown	Unknown	Gained Access	Mother	Father	20 months	N/A
	DS19046	IN	2006	Odyssey	Forgotten	Father	Mother	21 months	N/A
	DS19044	KS	2007	Avalon	Forgotten	Grand-parent	Grand-parent	2 years	N/A
	CR19019	KY	Unknown	Unknown	Gained Access	Father	N/A	2 years	N/A
	CR19026	KY	Unknown	Unknown	Forgotten	Father	N/A	2 months	N/A
	CR19024	MS	2009	Vue	Forgotten	Father	N/A	21 months	N/A
	CR19022	NE	2019	Sienna	Forgotten	Mother	N/A	1 years	N/A
	CR19025	NJ	Unknown	Caravan	Forgotten	Other Relative	N/A	22 months	N/A
	CR19027	NC	2019	Highlander	Forgotten	Foster Parent	N/A	1 years	N/A
	CR19020	SC	Unknown	Unknown	Knowingly Left	Mother	Friend	13 years	N/A
	CR19023	TN	Unknown	Altima	Unknown	Mother	N/A	6 months	N/A
	DS19043	TX	2018	Camry	Forgotten	Father	N/A	9 months	N/A
	DS19040	UT	2000	S-10	Knowingly Left	Mother	N/A	6 months	N/A
September	CR19028	AL	Unknown	Unknown	Forgotten	Father	N/A	11 months	N/A
	DS19036	AZ	2015	Sierra 1500	Forgotten	Father	N/A	3 years	N/A
	DS20010	CA	2016	Altima	Knowingly Left	Mother	N/A	2 years	N/A
	CR19029	GA	2006	Spectra	Gained Access	Foster Parent	Friend	3 years	3 years
	DS19047	NM	2015	Avalon	Forgotten	Friend	N/A	2 years	N/A
	DS19045	TX	2018	Colorado	Forgotten	Father	Mother	3 years	N/A

Month	Case Number	State	Vehicle Model Year	Vehicle Model	Circumstances Child Left Behind	Caregiver 1 Relationship	Caregiver 2 Relationship	Child 1 Age	Child 2 Age
October	CR19030	AL	Unknown	Unknown	Unknown	Mother	N/A	13 months	N/A
	DS19048	AZ	2018	Transit T-350	Forgotten	Foster Parent	N/A	4 months	N/A
	CR20011	FL	2008	Grand Cherokee	Forgotten	Father	N/A	18 months	N/A
	CR20012	LA	2015	Rouge	Forgotten	Other Relative	Grand-parent	2 years	N/A
	DS20005	TX	2006	ML350	Forgotten	Grand-parent	N/A	2 years	N/A
November	DS20004	CA	2016	Outback	Forgotten	Father	N/A	18 months	N/A

## **Appendix C: 2019 Pediatric Vehicular Heatstroke SCI Cases**



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. DS19028**

**Vehicle: 2010 Nissan Altima**

**Location: Arizona**

**Incident Date: April 2019**

## **Background**

This report documents the remote investigation of the hyperthermia death of a 20-month-old female left unattended in a parked 2010 Nissan Altima for an extended period in daylight in Arizona in April 2019. The investigation was intended to determine the events leading up to the incident, the actions of the vehicle driver/caregiver, the vehicle characteristics and equipment, the environment/scene conditions and layout, and the activities of the child. The incident was identified as part of a hyperthermia study by NHTSA and assigned to the SCI team in October 2019.



*Figure 1. Exemplar 2010 Nissan Altima*

The incident occurred from early morning to late afternoon in the parking lot of an apartment complex. The father of the child was the primary caregiver and vehicle driver at the time. Typically, the caregiver's wife drove her daughter to the daycare facility and then drove to work. On this day, the wife was running late and the father needed the vehicle. The child was placed in a rear-facing child restraint system (CRS) in the second-row right position by the father. The child's diaper bag was placed in the second row by the mother. Because the wife was running late the father drove her straight to work. The wife's work was in the opposite direction from the child's daycare. After dropping his wife off at work the father drove straight back to his apartment, not making any stops on the way back. He arrived at approximately 0900 hours and went into the apartment. While there he met with a friend to arrange for the friend to rent a house. After locating a rental online, they both left the apartment and got into the Nissan at approximately 1200 hours. They drove from the apartment to look at the rental. At no time did they notice the child in the second row. After looking at the rental they returned to the apartment approximately an hour later. They remained in the apartment until approximately 1640 hours,

when they decided to leave the apartment to pick up the child from the daycare facility and then drop the friend off at the rental. When the friend opened the rear door of the Nissan to load his luggage he noticed the child. The father took the child out of the CRS and began CPR.

Emergency services were contacted by a passerby. The father was concerned that emergency services were taking too long so he placed the child in the front seat of the Nissan and began to leave the parking lot. The fire department arrived just then and began resuscitative efforts. The child could not be revived and was pronounced deceased at 1642 hours by fire department personnel.

The weather from the nearest reporting station reported the high temperature for that day was 30 °C (86 °F) and occurred at 1451 hours. The temperature at the time the child was found at 1630 hours was 25 °C (85 °F). The redacted police incident report and an autopsy report were obtained.

The medical examiner's autopsy report stated that the child's cause of death was "environmental heat exposure" and the manner of death was "accident." Per the investigating officer, the county attorney's office declined to prosecute the caregiver.

## Summary

### ***Incident Site***

The incident occurred in the morning to late afternoon in the parking lot of an apartment complex. The parking lot was surfaced with asphalt and delineated with parking spaces and driving isles. Some parking spaces were covered by overhead shade structures. The white 2010 Nissan Altima 4-door sedan was parked on the south side of the apartment building and was facing north in an uncovered space adjacent to a shade structure (Figure 2). Residents were assigned parking spaces and the Nissan was parked in its assigned space. There are entrances to the two-story apartment building on the east and west sides.



*Figure 2. Incident site, parked position to left of shade structure, looking north.  
Image from local resident.*

The location of the caregiver's apartment in the building is not known. The distances from the apartment to the parking place is unknown. There were no windows providing a view of the parked Nissan. After discovering the child, the father moved the Nissan from its original location to a covered space in the lot as police and fire personnel arrived.

### ***Weather***

On the day of the incident, the low temperature was 17 °C (63 °F) and the high temperature was 30 °C (86 °F). Skies were fair to partly cloudy. At 0851 hours, the solar azimuth angle was 100° and the solar elevation angle was 36°. At 1651 hours, the solar azimuth angle was 267° and the solar elevation angle was 26°.

The table below documents the weather conditions for the duration of the incident.<sup>1</sup>

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Conditions</b>
0851	22 (72)	26	21 (70)	Partly cloudy
0951	24 (76)	21	24 (74)	Partly cloudy
1051	26 (80)	17	26 (78)	Fair
1151	27 (81)	16	26 (79)	Fair
1251	28 (83)	14	27 (80)	Fair
1351	28 (83)	13	27 (80)	Fair
1451	30 (86)	10	28 (82)	Partly cloudy
1551	28 (84)	10	27 (81)	Partly cloudy
1651	29 (85)	10	27 (81)	Fair

### ***Vehicle Information***

The 2010 Nissan Altima Hybrid 4-door sedan was identified by the Vehicle Identification Number (VIN) 1N4CL2AP9ACxxxxxx. The Nissan had a 2.5-liter, 4-cylinder, gas engine and front-wheel drive. Standard equipment included air conditioning and power windows. The vehicle’s exterior color was “Winter Frost Pearl” (white) and the interior color was either blonde or charcoal. The interior had two rows of seating for a capacity of five occupants. The front row had bucket seats and the second row had a fixed bench seat.

The Nissan had pull-out type exterior door handles. The vehicle had an intelligent key and a mechanical key. The mechanical key is contained in the intelligent key. The doors can be locked and unlocked remotely. The operating range is within 10 m (33 ft.) of the vehicle. It is unknown if the vehicle was locked during the incident.

The vehicle had second row child safety door locks to prevent second row occupants from opening the doors from the inside. The locks are located on the edge of the rear doors. When the lever is in the UNLOCK position 1, the door can be opened from the outside or the inside. When the lever is in the LOCK position 2, the door can be opened only from the outside. The status of the door locks is unknown.

The Nissan had electric window regulators and the rear windows and backlight were tinted. Per the police report, the driver window was fully down and the passenger window was down approximately 15 cm (6 in). The rear windows were fully up. It was unknown if the vehicle had unattended-child detection, monitoring, or warning systems. Given the child’s size and age, it is unlikely that she could manipulate the door mechanisms and enter or exit the vehicle without assistance.

### ***Pre-Incident***

The incident occurred on a Monday in April. The child lived with her parents in an apartment in Arizona. The parents have one vehicle they share. The father of the child was the primary

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<sup>1</sup> Temperature data for this and all similar charts in the following cases came from the [www.wpc.ncep.noaa.gov/html/heatindex.shtml](http://www.wpc.ncep.noaa.gov/html/heatindex.shtml) web site.

caregiver and vehicle driver at the time of the incident. He works from his home. The mother of the child works outside of the home.

Typically, the mother would take the child to daycare from 0700 to 0800 hours or at 0900 hours if she had a physical therapy appointment. Sometimes they would both take the child to daycare. If her husband needed the vehicle he would drop off the child and then drop off his wife. The wife generally got a notification on her phone from the daycare facility indicating the child had been dropped off.

The couple were hosting an out-of-State friend in their apartment. The guest had stayed longer than anticipated and there were on-going efforts to find a place for him to stay. The father needed the vehicle this day.

The couple were running behind schedule. The child ate breakfast at 0755 hours and the family left the apartment at approximately 0830 hours. The child was placed in a rear-facing CRS in the second row by the caregiver. The child's diaper bag was placed in the second row by the wife. As they were leaving, the wife told the husband to first drive her to her workplace and then drop off the child at the daycare facility. The wife's workplace was in the opposite direction of the child's daycare. The trip to her workplace took approximately 20 minutes. After dropping his wife off at her workplace, the father drove straight back to his apartment, not making any stops on the way back. The child was left behind in the vehicle. It is unknown if any other people were present around the vehicle at this time.

### ***Incident***

The father exited the vehicle and went into the apartment at approximately 0900 hours. The guest reported to police that the father told him that the father had dropped his wife off at work and the child off at daycare. The wife reported to police that she did not receive an email notification from the daycare facility on this day. She said there had been previous instances when she did not receive notifications but attributed it to issues with its system. She did not call the daycare in any of these instances. While at the apartment the father met with his friend to make arrangements for the friend to rent a house. After locating a rental on-line, they both left the apartment and got into the Nissan at approximately 1200 hours. They drove from the apartment to look at the rental. At no time did they notice the child in the second row. After looking at the rental in a nearby city they returned to the apartment approximately an hour later.

### ***Post-Incident***

The father and his friend remained in the apartment until approximately 1640 hours when they decided to leave the apartment to pick up the child from the daycare facility and then drop the friend off at the rental. When the friend opened the rear door of the Nissan to load his luggage he noticed the child still in the CRS. The father took the child out of the CRS, placed her on the hood and began CPR. Emergency services were contacted by a passerby. The father was concerned emergency services were taking too long so he placed the child into the front seat of the Nissan and began to leave the parking lot. The friend and passerby attempted to get him to stay and wait for emergency services. The father entered the vehicle and started to leave. He stopped when he saw the fire department entering the lot (Figure 3). The fire department began resuscitative efforts but the child could not be revived. She was pronounced deceased at 1642 hours by the fire department.



Figure 3. Treatment area. Image obtained from online news outlet.

### **Caregiver/Guardian Data**

The primary caregiver at the time of the incident was the child's father. His age is unknown. Evidence indicates the child was unintentionally left behind by the father. Records stated that the day was mostly atypical and several factors likely affected the actions of the father before and during the incident. A summary of the atypical factors is shown below.

- Family woke up late.
- Family had an out-of-State guest who had stayed longer than anticipated.
- Father needed vehicle.
- Father drove wife to work first, instead of going to daycare facility.
- Father was solely responsible for taking the child to daycare.
- Wife did not receive drop-off notification from daycare facility and did not follow up with call.

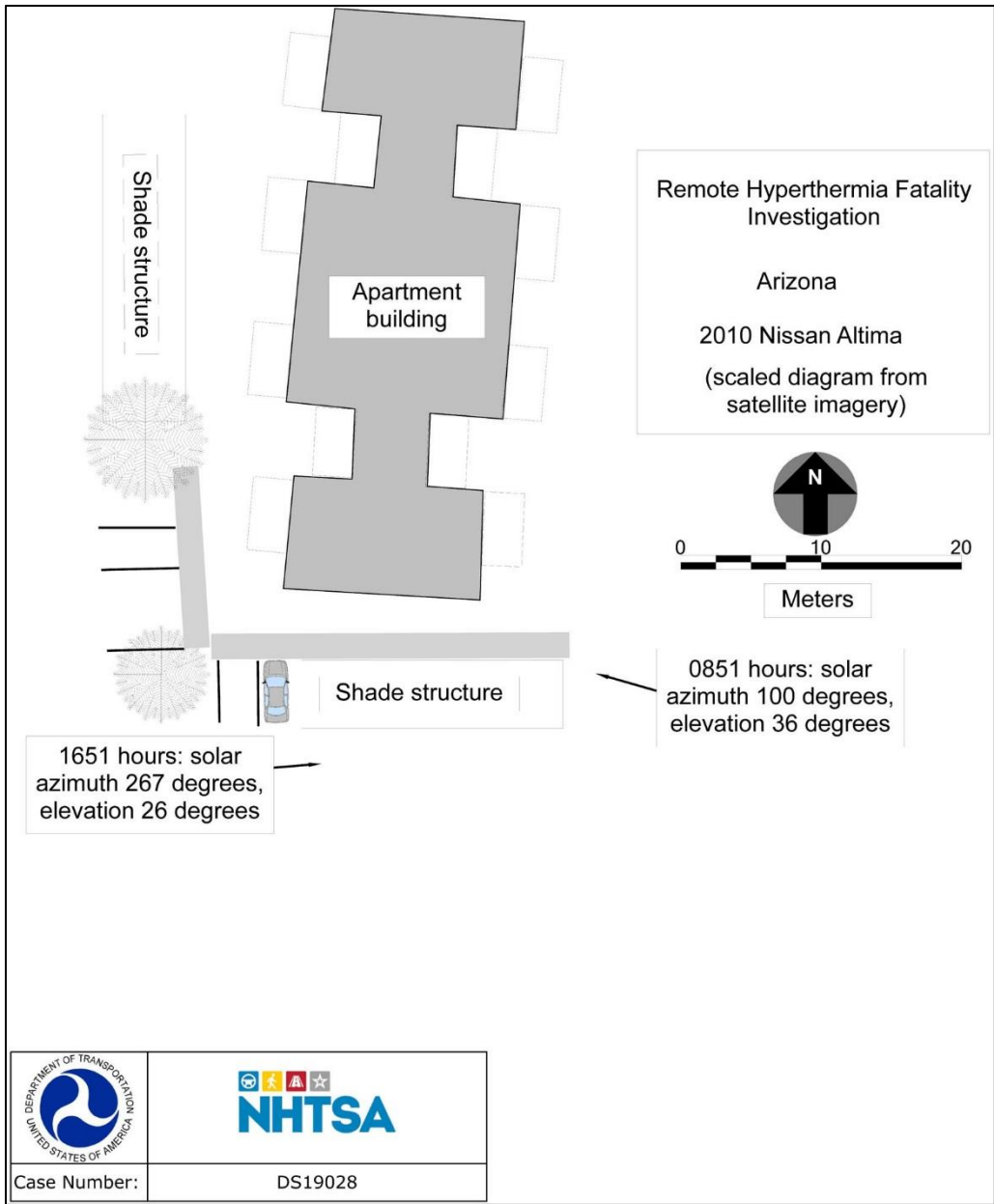
It is unknown if the father had been informed about the dangers of leaving a child in a hot car or if the driver was aware of any NHTSA campaigns regarding this issue. The county attorney reported in a news story following this incident that the county makes public service announcements about hot car deaths annually when the weather gets warmer.

### **Non-Motorist (Child) Data**

Age/Sex:	20 months/female
Height:	78 cm (31 in)
Weight:	8.6 kg (19 lbs)
Seat type:	Bench seat
Restraint usage:	Seating in CRS
Transport from scene:	None
Type of medical treatment:	Treated at scene, declared deceased at 1642 hours

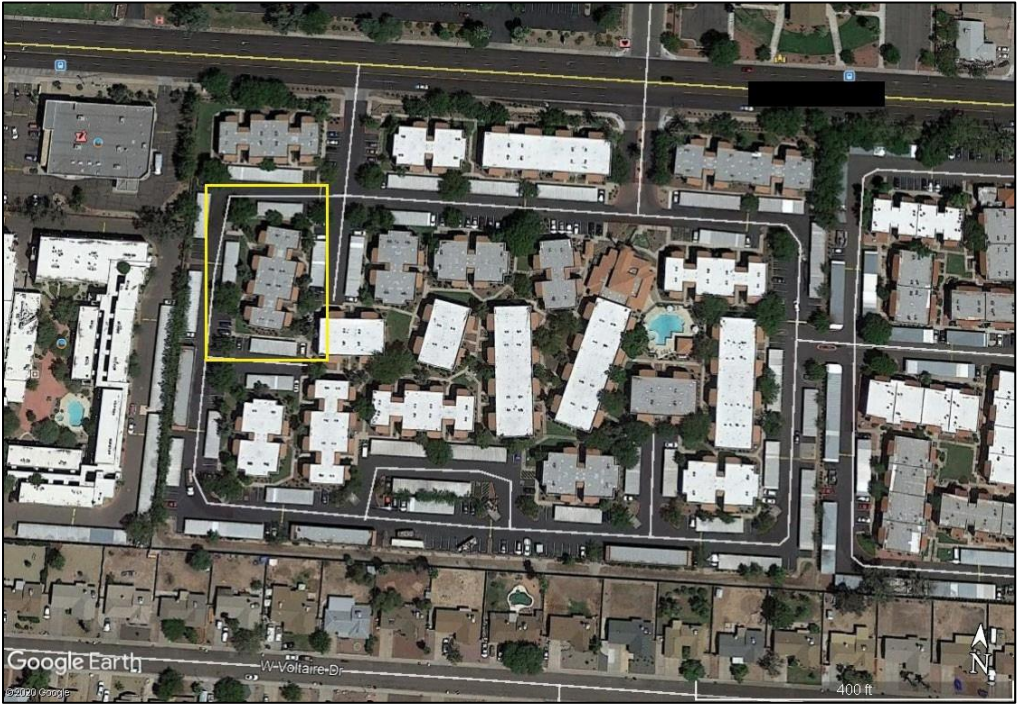
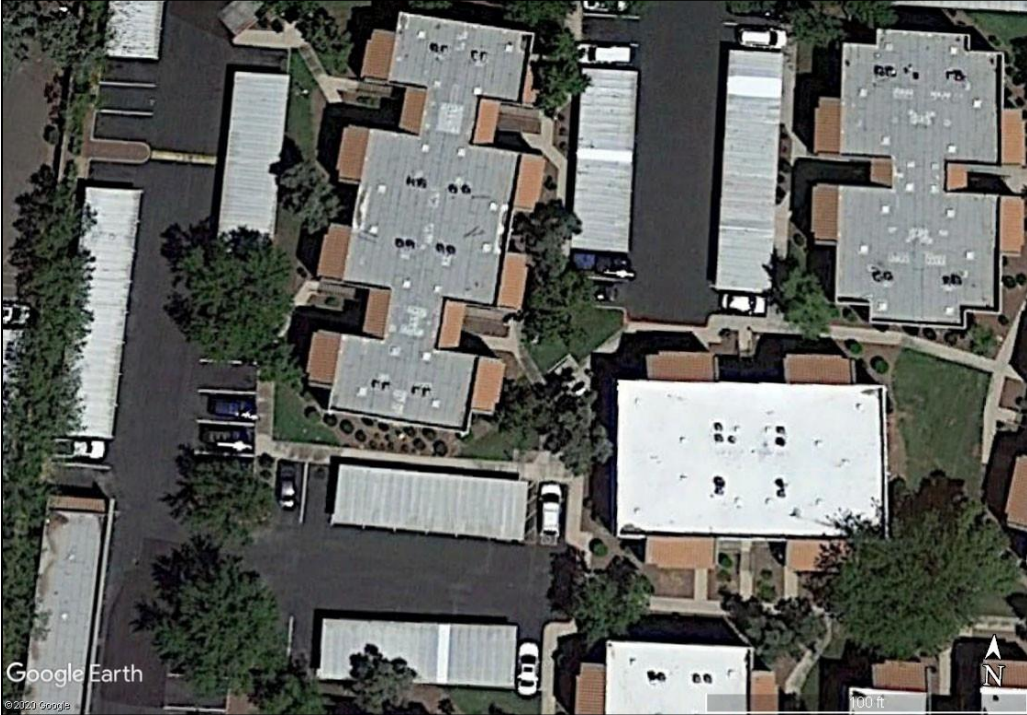
The child was seated in a rear-facing CRS positioned in the second-row right seat position. She wore a short-sleeve T-shirt, gray stretch pants, and a diaper under the pants. She was not wearing socks or shoes. She was not covered by a blanket, coat, or other object. It is not known how the CRS was anchored to the vehicle or how the internal harness was being used. The medical examiner's autopsy report stated that the child's cause of death was "environmental heat exposure" and the manner of death was "accident."

# Incident Site Diagram



# Incident Site Satellite View

(Google Maps image date September 12, 2019)





**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. CR19006**

**Vehicle: 2011 Nissan Altima**

**Location: Florida**

**Incident Date: April 2019**

## **Background**

This report documents the remote investigation of the circumstances surrounding the hyperthermia-related fatality of a 14-month-old male left unattended while secured in a CRS in a 2011 Nissan Altima (Figure 1) in Florida in April 2019. The child was left behind for an extended period by his mother. The police reported that the vehicle was parked outside the residence while the child's mother was inside engaged in illegal activities. After returning to the vehicle, she realized the child was having a seizure and then drove the child to a fire station. The first responders determined the child was under heat stress and transported him to a local hospital. He was later airlifted to a pediatric trauma center where he died 2 days later. The mother was charged with aggravated manslaughter by child neglect and two drug-related offenses.



*Figure 1. Involved 2011 Nissan Altima in police impound. Image obtained from an online news outlet.*

The incident was identified by NHTSA and assigned to the SCI group for further research on October 9, 2019.

The SCI team contacted the involved police agency and county coroner's office. Due to the criminal elements of this case, the copies of the police incident report and the coroner's report were redacted. An exemplar vehicle inspection, supplemental internet research, and medical record data provided the basis for this remote SCI investigation. The mother was jailed and was not available for interview.

## Summary

### *Incident Site*

This incident occurred at several locations. The mother of the child placed him in the CRS and drove to several locations over a 16-hour period, often leaving the child unattended in the vehicle. The 16-hour period occurred at night and in daylight. During the last 6 hours of this incident, the mother left the child unattended in the Nissan, secured in a CRS in the second row while the Nissan was parked at one or more locations. The police reported that the neighborhood where the mother had parked the Nissan was located approximately 2.4 km (1.5 miles) from the fire station.

### *Weather*

The onset of this hyperthermia incident began at 2100 hours. On this day, sunset was reported by the National Weather Service at 1942 hours. Sunrise was reported at 0709 hours the next morning. The mother drove the child to the fire station where she sought assistance, at 1317 hours. The weather data for the duration of this event is detailed in the following table.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Conditions</b>
2053	24 (75)	69	24 (75)	Fair
2153	23 (73)	73	23 (73)	Fair
2253	22 (72)	78	23 (73)	Fair
2353	22 (72)	81	23 (73)	Mostly cloudy
0053	23 (74)	71	24 (74)	Cloudy
0153	23 (74)	73	24 (75)	Cloudy
0253	23 (73)	71	23 (73)	Cloudy
0353	23 (74)	79	24 (75)	Cloudy
0453	23 (73)	81	23 (74)	Cloudy
0553	22 (72)	81	23 (73)	Mostly cloudy
0653	22 (72)	87	23 (73)	Mostly cloudy
0753	22 (72)	84	23 (73)	Mostly cloudy
0853	24 (75)	79	24 (76)	Mostly cloudy
0953	25 (77)	76	26 (78)	Mostly cloudy
1053	26 (79)	72	28 (82)	Partly cloudy
1153	26 (79)	72	28 (82)	Mostly cloudy
1253	28 (83)	58	30 (85)	Mostly cloudy
1353	28 (83)	63	30 (87)	Mostly cloudy

### *Vehicle Information*

The vehicle was a 2011 Nissan Altima (Figure 2) identified by VIN 1N4AL2AP8BNxxxxxx. The vehicle was a white 4-door sedan, with an interior of unknown color. The police reported it had deep-tinted windows. As standard equipment, the Nissan's interior had front row bucket seats with a fixed center console and a three passenger second-row split-bench seat (Figure 3). All seat positions were equipped with manual 3-point lap and shoulder seat belts and adjustable head restraints. The second-row interior door release levers were flush-mounted with recessed pockets in the upper forward portion of the door panels. The aft hinged lever required a pull-force to open the doors. A manual lock/unlock lever was located directly above the hinge point

of the door release lever. The central locking system was power-activated via the remote key fob and the front door panels. Since this child was secured in a CRS and due to his age, he could not have opened a door unassisted.



*Figure 2. Exemplar 2011 Nissan Altima*



*Figure 3. Second-row seat of an exemplar 2011 Nissan Altima*

### ***Pre-Incident***

This timeline of events was reconstructed by the police based on the mother's statements, family member interviews, and surveillance videos. The duration of this incident occurred over the evening hours and into the following day, totaling 16 hours.

### ***Incident***

At approximately 2100 hours the mother drove to a fast-food restaurant with the 14-month-old child restrained in the CRS in the second row of the Nissan. She went through the drive-in lane then returned to her residence to eat. The child's grandfather stated he last saw the child that evening after the mother had returned home from the restaurant. At approximately 2200 hours, the mother departed her residence with the child restrained in the CRS in the second row of the Nissan to visit the father of the child at his place of business. The mother did not tell the father that the child was in her vehicle. They departed in the father's vehicle and drove to a bar, where they stayed for approximately 45 minutes. On the way back, they argued over the parenting of the child.

As they returned to the father's place of business, the mother exited the father's vehicle and walked back to the Nissan, where she reportedly drove to a convenience store to buy milk for the child. She again left the child in the vehicle with the engine running and the air conditioning on.

Between 2300 hours and 2400 hours the mother drove to and met a friend at another bar. She left the child unattended in the vehicle while they stayed at the bar until 0130 hours. The mother then departed with the child and drove to the friend's residence, where she stayed until 0200 hours, again leaving the child unattended in the vehicle.

The mother claims she drove around the city from 0200 to 0800 hours with the child in the CRS in the Nissan. During this drive, she reportedly made a few stops at bars and at a library to change the child's diaper and to feed him. She also stopped at a convenience store.

The grandfather texted the mother at 0700 and 0730 hours to check on the status of the child. He did not get a response as they did not return home.

During the morning, the mother parked the Nissan at curbside or possibly at various locations while she allegedly walked the streets in an attempt to sell drugs. The child was knowingly left unattended in the Nissan for a police-reported time of approximately 6 hours. The specific parked locations are unknown. During this time, the mother smoked marijuana.

At 1310 hours, the mother drove to a previous employer to pick up paperwork. The person she was to meet was not at the business location.

At 1317 hours, the mother drove to a fire station to request assistance for the child as the mother found the child in distress. The firefighters found the child strapped into the CRS. He was purple in color, soaking wet with a contusion on his forehead and was unresponsive.

### ***Post-Incident***

The emergency medical services (EMS) transported the child to the emergency room of a local hospital, where they arrived at 1339 hours. The child had a temperature of 41 °C (106 °F). The hospital staff lowered his temperature to 36 °C (97 °F) and prepared him for helicopter transport to a major pediatric hospital. He arrived at 1620 hours and was diagnosed with coma, heat stroke, dehydration, acute respiratory failure, metabolic acidosis, and hyperkalemia.

The mother signed a do-not-resuscitate order on the following day. The child died a day later at 1258 hours.

Following the police investigation, the mother was charged with aggregated manslaughter by child neglect, possession of cocaine with intent to sell, and possession of cannabis. She was arrested and jailed.

### ***Caregiver/Guardian Data***

The 26-year-old mother of the child was the caregiver/guardian throughout this incident. Due to the criminal charges, the mother has been processed through the legal system and is currently incarcerated.

### ***Non-Motorist (Child) Data***

Age/sex:	14-month-old/male
Height:	Unknown
Weight:	Unknown
Seat type:	Split bench with folding back
Restraint usage:	Secured by the harness system of an unknown CRS
Transport from scene:	Transported by ambulance to a local hospital, stabilized and transported by air to a pediatric trauma center
Type of medical treatment:	Hospitalized for two days and removed from life support

## **Incident Site Diagram**

The specific locations of the parked positions of the Nissan are unknown and were not documented or observed by the police, therefore there is no diagram for this incident.

**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. CR19007**

**Vehicle: Chrysler Town And Country**

**Location: Florida**

**Incident Date: April 2019**

## **Background**

The interests in this remote investigation are the circumstances surrounding the hyperthermia-related fatality of a 2-year-old female knowingly left unattended in a Chrysler Town and Country minivan for approximately 9.5 hours by her 36-year-old mother in Florida in April 2019. The police reported that the mother returned to her residence at 0630 hours and parked the Chrysler minivan on a lawn area adjacent to the single-story, ranch-style building facing north (Figure 1). The mother exited the minivan, entered her apartment to make the child's bed while knowingly leaving the child in the vehicle. Inside her apartment the mother fell asleep and awoke at approximately 1530 hours. At this time she realized she left the child in the vehicle, where she found the child deceased. Following the police investigation, the mother was charged with homicide-negligent manslaughter, child neglect, possession of controlled substances, and two misdemeanor drug charges. She was held in jail for nearly 2 months prior to her release on bail. As of December 2020, the criminal case has not been resolved.



*Figure 1. Northerly view of the Chrysler minivan parked on the lawn area. Image obtained from online news outlet.*

The incident was identified by NHTSA and assigned to the Special Crash Investigations group for further research on October 9, 2019.

The SCI team contacted the investigating police agency. Due to the severity of the active criminal charges against the driver, the police department could only release redacted criminal investigation reports. These reports provided minimal data to this investigation. Images and information for this final report were supplemented through online media reporting and medical examiner data. All images obtained through the course of the investigation are embedded into the body of this report.

## Summary

### ***Incident Site***

This hyperthermia incident occurred in the yard of an apartment complex (Figure 2) that consisted of ranch-style duplexes and two-story multi-apartment buildings. The Chrysler minivan was parked on the lawn by the entrance door of a single-story duplex. The building was oriented north-south with the entrance door on the west side of the building. A driveway was located on the north side of a two-lane street that provided access to the duplex. The driveway split in a Y to provide access to both units. The east side driveway continued to the east side of the building directly opposite an entry door. The west side driveway terminated to a parking area. A sidewalk provided access to the west side of the building. A wide lawn surrounded the side and back yard of the building. The Chrysler was driven along the sidewalk and parked on the lawn area opposite the west front door. In this position the vehicle was facing north with full exposure to the late morning and afternoon sun. There were no trees to shade the vehicle. The incident diagram is included at the end of this report.



*Figure 2. Arrow indicates the parked location of the Chrysler minivan. May 2011 image obtained from an online mapping system.*

### ***Weather***

The weather throughout this daylight incident were reported as clear skies with variable winds of 10 to 23 km/h (6 to 14 mph). Sunrise was reported at 0628 hours with sunset at 1913 hours. The Chrysler was parked facing in northerly direction adjacent to the west side of a single-story, ranch-style building. This building partially shaded the right side of the minivan during the morning hours. The vehicle would have been exposed to full sun for the duration of this incident, a period of approximately 4 hours.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Condition</b>
0553	17 (63)	100	18 (64)	Clear
0653	20 (68)	87	20 (69)	Clear
0753	22 (72)	76	23 (72)	Clear
0853	25 (77)	62	25 (77)	Clear
0953	27(81)	50	28 (82)	Clear
1053	28 (83)	44	28 (83)	Clear
1153	29 (84)	41	29 (83)	Clear
1253	30 (86)	35	29 (85)	Clear
1353	31 (87)	31	29 (85)	Clear
1453	29 (84)	44	29 (84)	Clear
1553	28 (82)	49	28 (83)	Clear
1653	27 (81)	47	27 (81)	Fair
1753	26 (79)	47	26 (79)	Fair

### ***Vehicle Information***

The vehicle in this hyperthermia death investigation was a late-model Chrysler Town and Country minivan (Figure 3). The exterior color was white and it had deep-tint AS3 windows for the second-row doors, rear quarter windows, and the backlight. The interior color was beige. Throughout this incident, the operable side window was closed. The interior had power-operated windows and door locks.



*Figure 3. On-scene images of the Chrysler minivan. Image obtained from an online media outlet.*

### ***Pre-Incident***

The mother of the 2-year-old female was referred to by immediate family members as a “night owl” as she and the child had a history of being up all night and sleeping in the daytime. On the day prior to this incident, the maternal grandmother was babysitting the child as the mother searched for employment. The mother admitted to smoking methamphetamines around 2200 hours on this day. At approximately 0030 hours of the following day (the day of this incident), the mother arrived at the grandmother’s residence to pick up the child and return to her residence located several kilometers away. At approximately 0625 hours, the mother and the child returned to the grandmother’s residence to switch vehicles. The mother placed the child in the Chrysler minivan and returned to her residence. The child had reportedly fallen asleep in the Chrysler. The mother had parked the vehicle on the lawn on the west side of her apartment facing in a northerly direction adjacent to her front door. The mother exited the vehicle and entered her



residence, knowingly leaving the child in the Chrysler minivan unattended with the windows closed. Her intent was reportedly to make the bed for the child; however, the mother fell asleep.

### ***Incident***

The mother awoke at approximately 1530 hours and went to look for the child. She recalled that she left the child in the Chrysler. The mother went outside to the vehicle and found the child locked in the minivan. She returned to the residence in desperation and retrieved a hammer to break the right front door window to gain entry to the vehicle. She removed the child from the vehicle and called the grandmother, who instructed her to call the emergency response system. The grandfather drove to her residence and entered the apartment where he found the mother talking to the emergency response operator and trying to perform cardio-pulmonary resuscitation (CPR) on the child. Police and EMS personnel arrived at the residence. The child was declared deceased by EMS at 1532 hours.

### ***Post-Incident***

The child's body was transported to the county medical examiner's office for autopsy. The cause of death was hyperthermia and the manner of death was listed as an accident. The police conducted a consensual search of the apartment, where they found numerous illegal drugs and drug paraphilia. The police reconstructed the timeline of events that preceded this death investigation. The mother was subsequently charged with homicide-negligent manslaughter, child neglect, a felony drug charge, and two misdemeanor drug charges. The mother was arrested and remanded to the county jail.

### ***Caregiver/Guardian Data***

The mother of the child was a 36-year-old female. At the time of the incident, she lived as a single parent without employment. The police investigation resulted in the mother's arrest on felony charges of homicide-negligent manslaughter, child neglect, and possession of controlled substances. She was also charged with two drug-related misdemeanors. Due to the felony charges, she was arrested and jailed. The mother was released on bond on June 6, 2019. As of December 2, 2020, she remains on bail and her case has not been adjudicated.

### ***Non-Motorist (Child) Data***

Age/sex:	2 years/female
Height:	Unknown
Weight:	Unknown
Position in Vehicle:	Unknown
Restraint type:	Unknown
Transport from scene:	Medical examiner
Medical treatment:	None, body transported for autopsy

## Incident Site Satellite View

(Google Maps image date: 2020)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. DS19029**

**Vehicle: 2016 Honda Civic**

**Location: Arizona**

**Incident Date: May 2019**

## **Background**

This report documents the remote investigation of the hyperthermia-related fatality of an 18-month-old female who died after being left unattended in a 2016 Honda Civic during daytime in Arizona in May 2019. The investigation was intended to determine the events leading to the incident, actions taken by the caregiver, vehicle characteristics and equipment, environmental conditions, and activities of the child. The incident was identified as part of a hyperthermia study by NHTSA and assigned to the SCI team in October 2019. The police report, on-scene photos, and autopsy report were obtained.

This incident occurred at a private residence in Arizona (Figure 1). The high temperature for the day of the incident was 30 °C (86 °) and temperature at the time of the incident was 29 °C (84 °F). The child's father was the primary caregiver and driver of the Honda on the day of the incident. Prior to the incident, the caregiver and child drove in the Honda from their residence to a friend's residence. The child was using a rear-facing CRS in the second-row center seat position. After arriving at their destination, the caregiver entered the residence to visit with friends and left the child unattended in the vehicle for approximately 60 minutes. The caregiver, a male friend, and the child then left the residence intending to drive to a local restaurant. A few minutes into the trip, the friend observed the child's hair appeared wet. The caregiver stopped the vehicle and found the child to be unresponsive. Police were called and they performed CPR on the child until fire department personnel arrived and transported her to a local hospital. The child did not regain consciousness and was pronounced deceased in the emergency department a short time later.

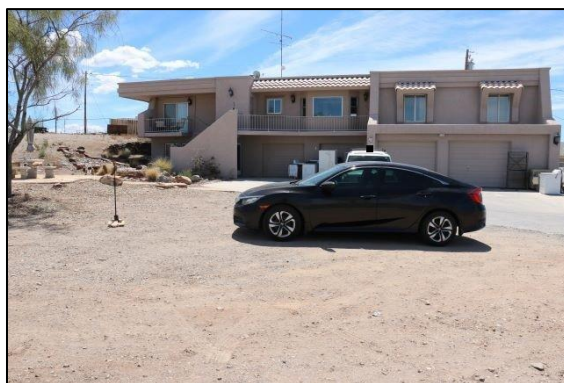


*Figure 1. Incident site looking southeast, guest parking area in foreground (police photo)*

## Summary

### *Incident Site*

The incident occurred in Arizona. The incident site was on private property in a cul-de-sac in a residential area. The property included a multi-family residence with a concrete driveway surrounded by unpaved dirt, sand, and scattered low vegetation typical of a desert climate. The property was surrounded by a block masonry wall. The residence was two stories with a flat roof. The front of the building faced northwest and the driveway was oriented generally east to west. On the day of the incident, the caregiver parked the Honda in a north-facing orientation on unpaved level ground in an unshaded area west of the residence and north of the driveway (Figure 2).<sup>2</sup> The estimated distance between the vehicle and residence was 16 m (52 ft).



*Figure 2. Incident site looking southeast, 2016 Honda Civic in foreground (police photo)*

During the time of the incident, the property owner and two other adult residents were home and two or more vehicles were present on the property. The locations of the other vehicles relative to the Honda and residence were unknown. An incident site diagram and incident site satellite view are included at the end of this report.

The caregiver stated to police he was never more than 12 m (40 ft) from the Honda and the child. Police data stated the vehicle was parked an estimated distance of 16 m (52 ft) from the residence. The Honda was visible from the interior of the residence through windows on the front side of the building facing west (Figure 3).<sup>1</sup> The caregiver visited several residences on both floors of the building during the incident. Interior walls likely blocked the Honda from view at times. It was unknown if view of the Honda was impeded by differences in elevation of the first or second floors relative to the position of the vehicle at ground level. The caregiver did not indicate to police he had reason to return to the vehicle for any reason during the incident prior to his departing the residence.

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<sup>2</sup> Police returned the vehicle to the incident site for their investigation. The placement of the vehicle was an approximation of its location during the incident.



Figure 3. 2016 Honda Civic view from residence looking northwest. Image obtained from local law enforcement.

### Weather

On the day of the incident, the low temperature was 20 °C (68 °F) and the high temperature was 30 °C (86 °F). At 1325 hours, the solar azimuth angle was 218° and the solar elevation angle was 70°. Historical weather data from the nearest reporting station for the duration of the incident is included in the following table.

Time 24-Hour Clock	Temperature °C (°F)	Humidity %	Calculated Heat Index °C (°F)	Conditions
1049	26 (79)	34	26 (78)	Partly cloudy
1149	28 (82)	28	27 (80)	Partly cloudy
1247	29 (84)	27	28 (82)	Partly cloudy
1354	30 (86)	23	28 (83)	Mostly cloudy

### Vehicle Information

The vehicle was a 2016 Honda Civic LX 4-door sedan identified in the police report by VIN 19XFC2F53GExxxxxx (Figure 4). The Honda had standard daytime lights, air conditioning, power steering, tilt steering, power brakes, antilock brakes, power windows, power sun/moon roof, and satellite radio. It had a 2.0-liter, 4-cylinder, gas engine and front-wheel drive. The security system included an immobilizer/keyless entry with alarm. The vehicle’s exterior color was “Crystal Black Pearl” (black) and the interior colors were beige upholstery for the seat cushions and backs with black door panels, dash, carpet, and trim.



Figure 4. The 2016 Honda Civic. Image obtained from local law enforcement

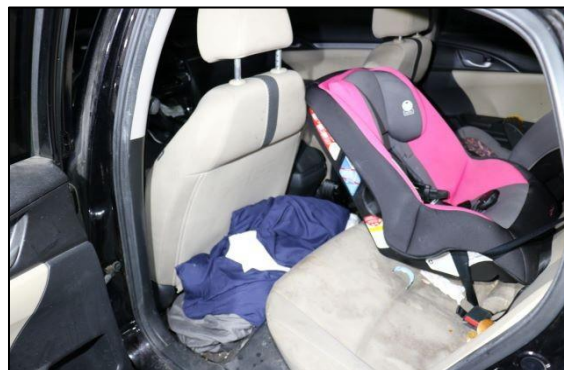
The Honda had exterior pull-type door handles. It had front-row interior door handles designed to unlock and open the front-row doors when pulled. The driver's interior door handle was configured to unlock all doors in the vehicle when pulled. The second-row doors had child proof door locks that, when set to the locked position, prevented the doors from opening when pulling the interior handle. The status of the child proof door locks at the time of the incident was unknown. The status of the door locks during the incident was unknown.

The vehicle had electric window regulators. The windows were closed during the time of the incident. The alarm system consisted of a standard immobilizer/keyless entry and alarm. It was unknown if the system incorporated telematics or Bluetooth technology. The child was known by the father to be in the vehicle during the incident. It was unknown if the vehicle had unattended-child detection, monitoring, or warning systems.

The child was placed in the CRS and vehicle by the father at the beginning of the trip. During the incident, the vehicle's engine was left running with the radio possibly on. It was undetermined whether the air conditioner was on or off. The father made conflicting statements to police regarding the air conditioning status and settings. Due to the child's age and position in the vehicle, it was unlikely she could reach or manipulate the vehicle door handles or locks while seated in the CRS. It was unlikely she could enter or exit a vehicle without assistance. It was unknown if she could unbuckle the CRS harness without assistance.

### ***Pre-Incident***

Prior to the trip the father placed the child in the rear-facing Cosco MightyFit 65 CRS in the second-row center seat position (Figure 5). The child was restrained using a 5-point harness. The father and child arrived at the friend's residence at approximately 1015 hours. The father left the child unattended in the Honda and briefly visited the owner of the residence for approximately 10 minutes. During that visit, the father did not mention the presence or location of the child to the homeowner, who was unaware of the child's presence on the property. The father then visited the apartments of two other male residents. One resident was still asleep and the other was gone until he returned home with his girlfriend at approximately 1100 hours. The father visited with the male and his girlfriend until the couple left at approximately 1140 hours. They later stated to police that they parked near the Honda and passed by the vehicle but were unaware of the child's presence in the vehicle or on the property. At about the time the friend and girlfriend left, the father and child left the residence in the Honda, drove to a local store to buy milk, then returned to the friend's residence. The trip to the store and back took an estimated 30 minutes.



*Figure 5. Cosco MightyFit 65 CRS. Image obtained from local law enforcement*

## ***Incident***

The child was fed the milk and then went to sleep while seated in her CRS. While the child slept, the father left the vehicle engine running and the windows closed and the radio possibly on at a low volume. The time was approximately 1215 hours. He closed the doors to the vehicle knowingly leaving the child unattended and entered the residence for approximately 60 minutes, during which time he smoked marijuana and played video games alone in the apartment of the friend who had left earlier. At the time of the incident, at least four people including the child were present on the property, as follows: male, age 23, father/caregiver; female, age 18 months, child; female, age 53, resident/property owner; male, age 22, resident.

When the other friend awoke, the father visited his apartment. After talking for a few minutes, they decided to drive to a local restaurant for lunch. The father did not mention the child to the friend and he was unaware of the child's presence in the vehicle or on the property. Upon entering the vehicle, the father and friend removed trash bags from the front row but apparently not from the second row. Later, the friend told police that when they entered the vehicle it felt somewhat hot inside. Prior to leaving the residence at approximately 1315 hours, the father did not check on the condition of the child.

They departed the incident site and after an estimated 2 to 3 minutes into the trip the friend looked in the second row and observed the presence of the child, whose hair appeared wet and who appeared unresponsive. He alerted the father to the child's appearance and the father stopped the vehicle on the roadside.

## ***Post-Incident***

After stopping the vehicle, they used a cell phone to call 911. The 911 dispatcher gave instructions over the phone for administering CPR. The father removed the child from CRS and vehicle and laid her on ground while attempting CPR per the dispatcher's instructions. At 1325 hours, police and fire personnel were dispatched to the location of the child approximately 1.3 km (0.8 mi) west of the incident site. Police arrived first and continued resuscitative efforts until fire personnel arrived. At 1328 hours, fire personnel arrived and transported the child to a local hospital. Records showed she felt hot to the touch and had a core rectal temperature measuring 43.0 °C (109.4 °F). The child did not regain consciousness and was pronounced deceased at 1404 hours. The autopsy report stated the child's cause of death was hyperthermia due to being left alone in a hot car and the manner of death was an accident.

Approximately 2 hours following the incident and after securing the Honda in a police lot, police conducted temperature reading tests of the Honda's interior. The tests were conducted from 1523 to 1640 hours when conditions and ambient temperatures were similar to the time of the incident. The tests revealed the following results.

- With the air conditioner turned off, the maximum temperature of the CRS backrest read 49.3 °C (120.8 °F) and the lowest temperature read 47.3 °C (117.2 °F).
- With the air conditioner turned on for 20 minutes at the lowest setting,<sup>3</sup> the maximum temperature of the CRS backrest read 42.8 °C (109.0 °F) and the lowest temperature read 40.0 °C (104.0 °F).

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<sup>3</sup> Caregiver stated to police at one point the air conditioner had been on and set to lowest setting; he later made conflicting statements indicating he didn't recall if it was on or off.

- With the air conditioner turned on for 40 minutes at the lowest setting,<sup>4</sup> the maximum temperature of the CRS backrest read 38.4 °C (101.2 °F) and the lowest temperature read 36.3 °C (97.4 °F).

### **Caregiver/Guardian Data**

The primary caregiver and driver of the vehicle at the time of the incident was the child's 23-year-old father. The primary purpose of the trip was to visit with friends. Before leaving the child unattended, the father fed milk to the child and then observed that she was sleeping. He knowingly left the child behind in the vehicle for the purpose of visiting with friends, smoking marijuana, and playing video games. Upon returning to the vehicle he was aware of the child's presence and did not check on her condition.

The incident occurred on a Saturday. The day of the incident was not typical for the child's family. They lived in another town approximately 320 km (200 mi) from the incident site. The family included a father, mother, and three children age 6 weeks old, 18 months old, and 2 years old. They were in town visiting family and friends for a few days and were staying as guests in the home of a family friend. The father was not on his typical home and work schedule.

On the morning of the incident, the father stated to family his intentions to visit friends and that he would take the child along while the mother looked after the other two children. The father lived previously in the town where the incident occurred and was familiar with the vehicle, routes, and destinations relevant to the incident. The trip on the day of incident was somewhat routine in that the father historically helped the mother with caregiving duties and spent time with the children. The trip on the day of the incident involved two intermediate stops. The first was the father's initial trip to the friend's residence and the second was the trip to the store.

The family had experienced recent events that may have played roles in the incident. Six weeks prior to the incident, the mother gave birth to a daughter who was 10 days premature, possibly increasing the responsibilities to both caregivers. On the morning of the incident, the mother asked the father to take the child with him to relieve her of some of the caregiving responsibilities. The father had filled a prescription for a muscle relaxant, Flexeril (cyclobenzaprine hcl), approximately 3 months prior to the incident, which was found in the vehicle on the day of the incident. Research stated the ingredients of that medication can cause an altered state of mind as well as unfavorable interaction with other drugs.<sup>5</sup>

The police investigation determined the parents of the child were likely aware of potential dangers associated with hyperthermia because they told police that they generally refrained from leaving children unattended in the family vehicles. It was unknown what level of information was made available to them or if they had a plan in place to prevent such occurrences. The father at the time of the incident was charged with second degree murder and felony child abuse. In May 2020, he pleaded guilty to the second-degree murder charge in exchange for dismissal of the felony child abuse charge. He was sentenced to 16 years in prison without the possibility of early release.

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<sup>4</sup> Prior to this round of testing, the rear aspect of the vehicle was subject to some shading from overhead structures.

<sup>5</sup> [www.northpointrecovery.com/blog/flexeril-high-muscle-relaxer-creating-dependency/](http://www.northpointrecovery.com/blog/flexeril-high-muscle-relaxer-creating-dependency/)



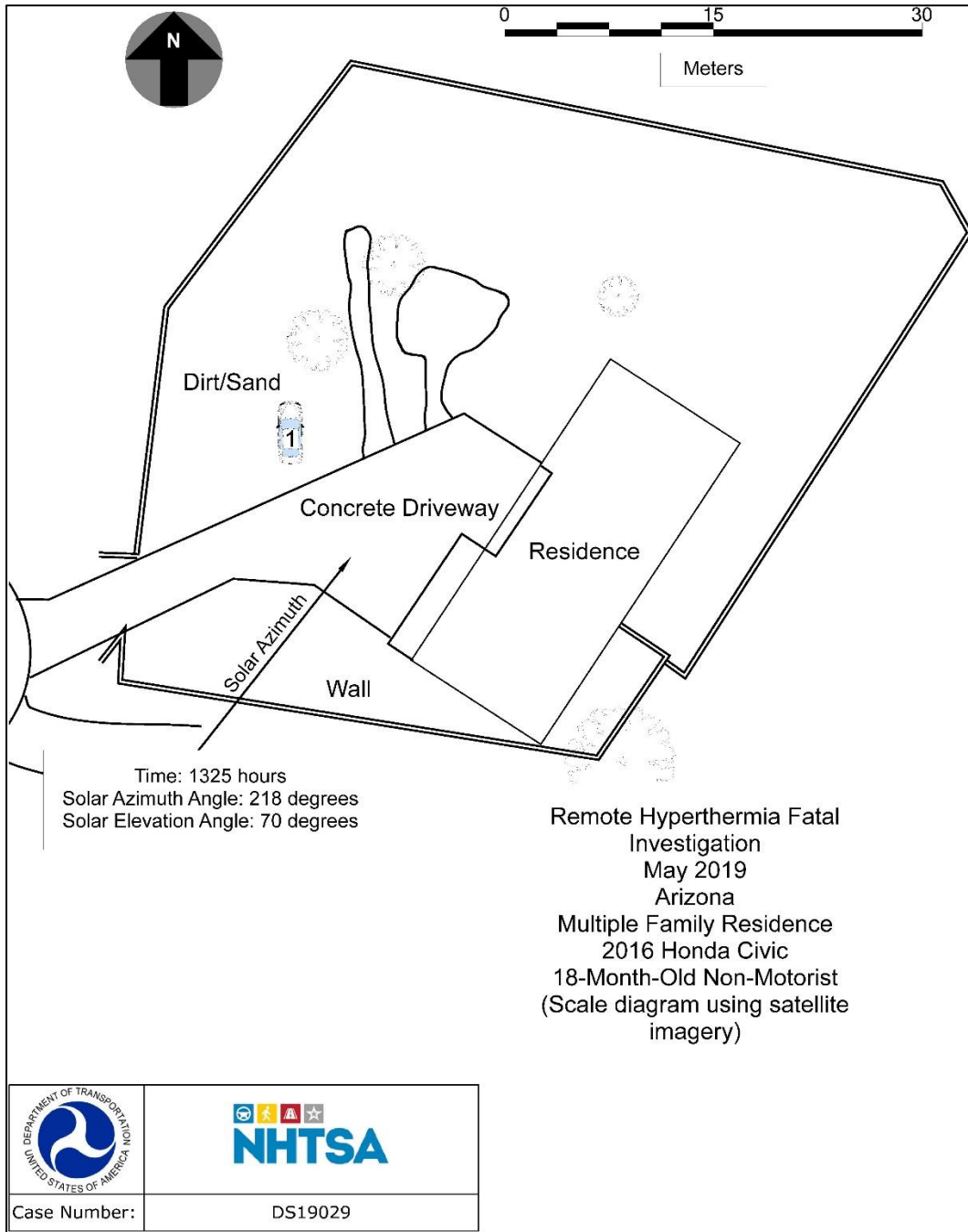
***Non-Motorist (Child) Data***

Age/sex: 18 months/female  
Height: 81 cm (32 in)  
Weight: 10 kg (22 lb)  
Seat type: Bench  
Restraint usage: CRS with 5-point harness system  
Transport from scene: Ambulance  
Type of medical treatment: Treated by police and EMS, declared deceased in ER

The child was restrained in a rear-facing Cosco MightyFit 65 Convertible Car Seat (“Coral Reef” color/pattern). She was using the 5-point harness with a buckled chest clip. The CRS was installed in the second-row center seat position using the vehicle’s lap and shoulder seat belt.

The seat belt retractor mode was unknown but the CRS appeared to be installed properly based on police photos. The child was not covered by a blanket or other object.

# Incident Site Diagram



**Incident Site Satellite View**

(Google Maps image date: 2017)



## Addendum



*Figure A-1. Incident site looking west (police photo)*



*Figure A-2. Incident Site looking west (police photo)*



*Figure A-3. Cosco MightyFit 65 CRS (police photo)*



*Figure A-4. Police temperature testing, 2016 Honda Civic (police photo)*

**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. CR19012**

**Vehicle: Unknown Year Ford E-Series Van**

**Location: Florida**

**Incident Date: May 2019**

## **Background**

This report documents the remote investigation of the circumstances surrounding the hyperthermia-related fatality of a 4-month-old female left unattended in a daycare van for approximately 5 hours in Florida in May 2019. The 56-year-old male daycare van driver picked the infant up at her residence along with two other siblings in the morning. The driver placed the infant in a CRS in the third row of the Ford E-series passenger van (Figure 1). The infant and other children were driven to the daycare facility. The driver of the van neglected to remove this infant from the CRS. In the early afternoon, the child's mother called the daycare facility to check on the status of her children. The daycare worker who fielded the call did not have the child logged in at the facility. The child was found unresponsive in the van, still buckled in the CRS. She was transported by EMS to a local hospital where she expired. The daycare van driver was charged with aggravated manslaughter of a child.



*Figure 1. Unknown Year Ford E-Series Van at daycare facility. Image obtained from an online news outlet.*

This incident was identified by NHTSA and assigned to the Special Crash Investigations group for further research in October 2019.

The SCI team contacted the police agency for records pertaining to this case. The records department told the SCI team that they would have to speak with the investigating officer to obtain approval to have any records released. A voicemail was left for the investigating officer several times and the SCI team never received a return call. A search of online media sources provided the basis for this report.

## Summary

### ***Incident Site***

The incident occurred during the morning and afternoon hours in a small parking lot of a local daycare facility (Figure 2). The parking lot was surfaced with gravel with no visibly marked parking spots. The parking lot is located on the north side of the daycare facility. The property contains trees along the east, south, and west sides of the daycare facility. Some shade can be cast onto the parking lot from a tree on the east side of the daycare facility. Additionally, the daycare facility provides some shade on the southernmost part of the parking lot. The daycare van was parked on the south side of the parking lot next to the entrance of the daycare facility facing east.



*Figure 2 Overhead view of incident site. Imaged obtained from an online news outlet.*

### ***Weather***

The weather data for the duration of this incident was obtained from the National Weather Service. Sunrise occurred at 0629 hours with sunset reported at 2019 hours. The peak temperature for the day was at 32 °C (91 °F) recorded at 1256 hours with 39 percent humidity. Winds were ranging from 4 km/h (3 mph) and 20 km/h (13 mph) in an east-south-east direction. The conditions were reported as fair for most of the day. The temperatures, humidity, calculated heat index, and conditions for the duration of the incident are provided in the following table.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Conditions</b>
0756	25 (77)	82	26 (78)	Fair
0856	26 (80)	71	28 (83)	Fair
0956	28 (83)	63	30 (87)	Fair
1056	30 (86)	57	32 (90)	Fair
1156	31 (88)	51	33 (91)	Fair
1256	32 (91)	39	33 (92)	Partly Cloudy
1356	32 (91)	36	33 (91)	Fair
1456	32 (91)	36	33 (91)	Fair

### ***Vehicle Information***

The vehicle in this hyperthermia case was a Ford E-Series van of an unknown year (Figure 3). There is no data from online media sources referring to the vehicle and local law enforcement

agencies have not returned any calls pertaining to this investigation. According to images obtained from online news sources, the van had tinted right side, left side, and rear windows.



*Figure 3. Unknown Year Ford E-Series Daycare Van. Image obtained from an online news outlet.*

### **Pre-Incident**

On the day of the incident, the 56-year-old daycare van driver picked the child and her siblings up from their mother in the early morning. The driver secured the child into the CRS and proceeded on his route to pick up other children that morning. After picking up all the children, the daycare van driver drove to the daycare facility. The driver parked the van facing east on the north side of the daycare facility in front of the entrance. All other children except for this child in the CRS exited the daycare van and proceeded to enter the daycare facility with the driver.

### **Incident**

According to online sources, the mother of the child called the daycare facility at 1303 hours to make after-school arrangements for her children when a daycare employee informed her the 4-month-old child wasn't checked into the daycare that morning. Daycare employees began searching for the child and found the child unresponsive in her CRS still in the third row of the daycare van at approximately 1330 hours. EMS were contacted by a daycare employee.

### **Post-Incident**

Local EMS were called and arrived on scene and performed CPR with no response. The 4-month-old female was taken to a local hospital where she was pronounced deceased at 1453 hours. The 56-year-old daycare van driver was initially charged with child neglect and taken into custody by the local law enforcement agency. At the time of this report, the child neglect charges were dropped and charges of aggravated manslaughter of a child have been filed against him.

### **Caregiver/Guardian Data**

The caregiver of the 4-month-old child was the daycare van driver, the co-owner of a daycare facility with his wife. The daycare facility was known to care for an average of 14 children a day. At the time of this report, pre-trial is pending for the end of July 2020 on charges of aggravated manslaughter of a child.

### **Non-Motorist (Child) Data**

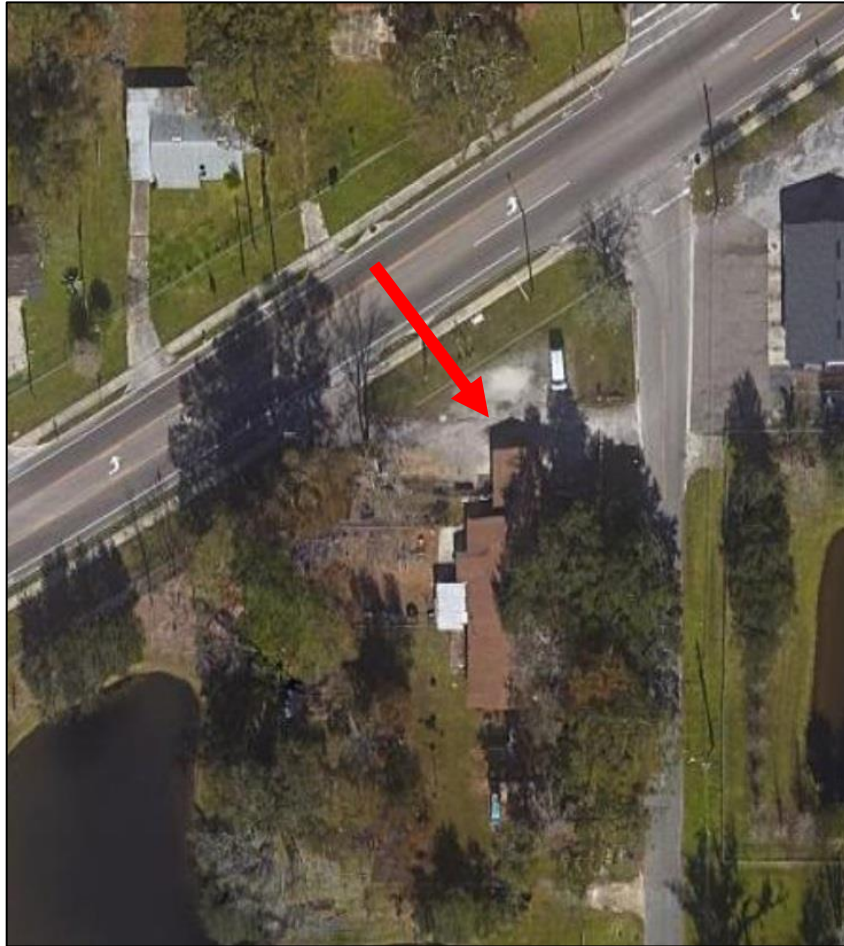
Age/sex:	4-months/female
Height:	Unknown
Weight:	Unknown

Seat type: Bench seat  
Restraint usage: Unknown  
Transport from scene: Transported by ambulance  
Type of medical treatment: Treated by EMS, declared deceased at 1453 hours.

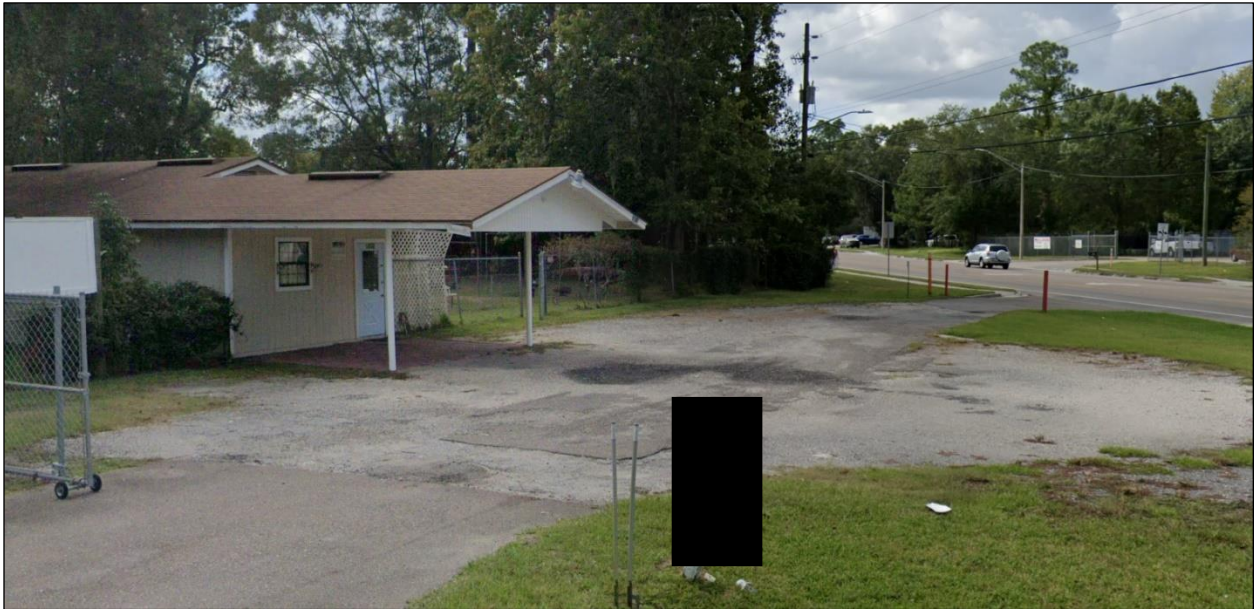


## Incident Site Satellite View

(Google Maps image date: 2020)



## Addendum



*Figure A-1. Parking lot and entrance of the daycare facility where Ford E-Series van was parked. October 2019 satellite image obtained from an internet-based mapping system.*

**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. DS19030**

**Vehicle: 2010 Saturn Outlook XE**

**Location: Indiana**

**Incident Date: May 2019**

## **Background**

This report documents the remote investigation of the hyperthermia fatality of a 12-month-old female left unattended in a 2010 Saturn Outlook for approximately 3 hours in daylight in Indiana in May 2019. The investigation was intended to determine the events leading to the incident, the actions of the vehicle driver/caregiver, the vehicle characteristics and equipment, the environment/scene conditions and layout, and the activities of the child. The incident was identified as part of a hyperthermia study by NHTSA and assigned to the SCI team in October 2019. The SCI team obtained the public-release version of the incident report and the autopsy report. Due to pending litigation, the police department chose to not release its full investigative report to SCI. Instead, they responded to a questionnaire submitted by the SCI team. Additionally, SCI obtained an interview with a family member who was knowledgeable of the caregiver's and child's history.

The incident occurred during May 2019 in Indiana. The high temperature in the area on the day of the incident was 29 °C (85 °F) with an average temperature of 23 degrees (74 °F). The child's 30-year-old mother was the vehicle driver and primary caregiver at the time of the incident. The child was seated in a forward-facing CRS of unknown make and model in the second-row right position of the Saturn. The autopsy report stated the child had been left unattended for approximately 3 hours and the district attorney stated the caregiver visited with friends during that time. After returning to the vehicle and driving to an auto parts store, the mother became aware of the child's condition. The store manager was alerted to the situation and called 911. Emergency responders arrived and noted that the child was pulseless and not breathing. She was transported by ambulance to a local children's hospital while undergoing resuscitative efforts. The child arrived at the hospital with a body temperature of 40 °C (105.08 °F). Life-saving efforts were unsuccessful and she was declared deceased in the emergency department. The autopsy report stated the cause of death was "environmental heat exposure" and the manner death was "accident."

## Summary

### ***Incident Site***

The primary incident site was a private residence belonging to a friend of the caregiver. Due to ongoing litigation, police would not release the specific address. Based on available data, the incident occurred over a period of approximately 3 hours during which the child was present in the Saturn while it was taken to several locations including the friend's residence, an unknown location to pick up a passenger, a gas station, an auto parts store parking lot, and routes driven in between. Available data suggested the destinations were generally close to one another. That determination was based largely on the interviewee's statements indicating the area included residences of the caregiver's extended family, two local community parks, and an additional location. The mother's residence was located approximately 10 to 14 km/h (6 to 8 miles) from the neighborhood, depending on the route taken. The routes taken by the mother to the various destinations were unknown but appeared to be familiar to her. She had lived in the area among an extended family her entire life.

The parking lot of the auto parts store was the only location known to SCI to have been associated with the incident. The parking lot was the vehicle's location after the incident and the child's location when she was first observed by the caregiver to be in medical distress (Figure 1). The parking lot was located on the east side of the business at the rear entrance and was paved with asphalt and delineated with marked parking spaces. It was unknown if there were other vehicles around or if the vehicle was in shade. The incident occurred on a weekday during business hours in an urban area so the parking lot and surrounding area were likely populated with other vehicles and customers coming and going. An incident site diagram and incident site satellite view for the auto parts store and parking lot are included at the end of this report.



*Figure 1. 2010 Saturn Outlook in auto parts store parking lot, looking west. Image obtained from online news source.*

### ***Weather***

On the day of the incident the high temperature in this general area was 29 °C (85 °F) with an average temperature of 23 degrees (74 °F). The skies were partly cloudy and windy. At 1254 hours, the solar azimuth angle was 188° and the solar elevation angle was 69°. At 1643 hours, the solar azimuth angle was 267° and the solar elevation angle was 34°. The table below documents the weather conditions during the duration of the incident.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Conditions</b>
1254	28 (83)	46	28 (83)	Partly cloudy
1354	28 (84)	46	29 (84)	Partly cloudy
1454	28 (84)	44	29 (84)	Partly cloudy
1554	28 (84)	43	29 (84)	Partly cloudy
1654	29 (85)	40	29 (84)	Mostly cloudy

### ***Vehicle Information***

The vehicle was a 2010 Saturn Outlook XE SUV identified by the VIN 5GZLRTED5AJxxxxxx. The Saturn had a 3.6-liter, 6-cylinder, gas engine, 6-speed automatic transmission, and a power sun/moon roof. The exterior color was “Carbon Black Metallic” and the interior color was black. The vehicle had fabric covered front-row bucket seats, a second-row split bench seat with folding backs, and a third-row 60/40 split bench seat with folding backs. The vehicle had child safety locks in the second row to prevent passengers from opening the doors from the inside. The locks were located on the inside edge of each door and set by inserting and turning a key in a slot to the horizontal position. The status of the locks was unknown. The vehicle had electric power window regulators. Due to conflicting reports, the status of the windows during the incident was unknown.

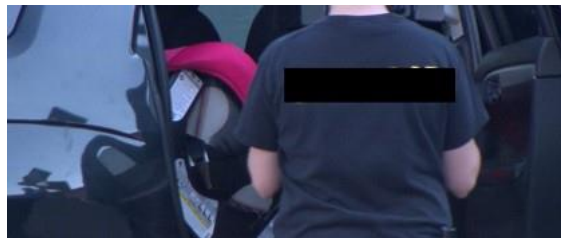
One interviewee said that the vehicle’s air conditioning system was not functioning and in need of repair. She stated further that the windows were partly or completely open after the incident. Another source stated the windows were closed throughout the incident. The Saturn had a Sentry key and keyless remote entry system. The Sentry key is an immobilizer system preventing unauthorized vehicle operation by disabling the engine. The system will shut the engine off in two seconds if an invalid key fob is used to start the engine. The mother had owned the vehicle for an unknown duration but appeared to have been familiar with its controls and functionality. There was no evidence available indicating the Saturn had unattended-child detection, monitoring or warning systems. It was unknown if the caregiver connected a cellular phone to the vehicle systems in any way.

### ***Pre-Incident***

SCI interviewed the caregiver’s grandmother, who had limited knowledge of the incident. The interviewee’s knowledge of the incident was based on conversations she had with the caregiver and manager of the auto parts store following the incident.

According to the interviewee, approximately 2 days prior to the incident, the mother left the child in the care of a family friend. On the morning of the incident, the mother returned in the Saturn to the friend’s residence and picked up the child, assuming caregiving duties until the time of the child’s death. The mother told her grandmother she and the child visited a local community park and sometime later they both fell asleep in the vehicle. When the mother awoke, she observed the child and thought she was still sleeping. The mother acknowledged the presence of the male passenger but was unclear regarding any specifics or timeline of events that may have led to the child’s death. The spouse’s whereabouts during the incident or knowledge of the incident were unknown. The spouse did not respond to the SCI team’s interview request.

Police stated that approximately 3 hours before the incident the mother drove the Saturn to a friend's residence at an unspecified location to visit with friends and allegedly ingest narcotics. The estimated time of arrival at the residence was approximately 1345 hours, possibly earlier, and the child was presumably seated in the forward-facing CRS in the second-row right position in the Saturn (Figure 2). After arriving at the friend's residence, the mother exited the vehicle and entered the residence, leaving the child unattended in the Saturn. No further information was available regarding the physical surroundings of the location or what activities may have been taking place near the vehicle. It was unknown if the vehicle was in shade or if other vehicles or people were present. It was unknown if the doors were locked or if the windows were closed. The engine was presumably turned off, and in any event the air conditioning system did not work.



*Figure 2. Unknown make/model forward-facing CRS, 2010 Saturn Outlook. Image obtained from an online news outlet.*

It was unknown if the incident day began in a typical or atypical fashion.

### **Incident**

During the incident, the child was in the Saturn and the mother was in the residence visiting with friends for approximately 3 hours. Police reported cocaine was present in the mother's system following the incident. The distance from mother to child was unknown and the mother's field of view of the Saturn was unknown. It was unknown if the vehicle was exposed to direct sun or in shade. The child's actions inside the vehicle were unknown. Due to her age and physical limitations, it was unlikely she made attempts to exit the vehicle. The mother's actions suggest she likely forgot about the child's presence in the vehicle. At some time, she exited the residence, entered the vehicle, and departed the location.

After leaving the residence in the Saturn, the mother stopped at an unknown location and picked up a male passenger of unknown age. The passenger presumably entered the vehicle through the right front door and sat in the front passenger seat position as he reportedly was unaware of the child's presence in the vehicle until after the incident. The passenger's relationship to the mother was unknown. Police reported the mother then drove the vehicle to a gas station at an unknown location and for an unknown duration. The purpose for that trip and was not determined. The activities of the vehicle occupants while at the gas station were unknown. It was not known who, if anyone, exited the vehicle or entered the vehicle.

According to police, after leaving the gas station the mother drove to the auto parts store because the male passenger needed to stop there. They entered the parking lot and the mother parked the vehicle facing west on the east side of the building. Within a few minutes of their arrival, the mother observed the child in the second row and became aware of her presence. It was at that time that the male passenger first became aware of the child's presence in the vehicle. According to witnesses, the vehicle had only been in the parking lot a matter of minutes before the mother

acted in response to the child’s perceived condition. The mother exited the vehicle through a side door, opened the second-row right door and observed the child to be in medical distress based on her physical appearance and apparent absence of breathing. She removed the child from the CRS and vehicle and the mother, child, and male passenger entered the store.

### ***Post-Incident***

SCI contacted a manager of the auto parts store to conduct an informational interview. Due to conflicting statements, it was unclear how the store manager first became aware of the situation. The manager stated that the mother, child, and male passenger entered the store. It was unknown who was carrying the child. According to police, the manager of the store called 911 to report the incident at 1643 hours. Emergency responders arrived at an unknown time and noted that the child was pulseless and not breathing. She was transported by ambulance to a local children’s hospital with resuscitative efforts ongoing and arrived with a body temperature of 40 °C (105.08 °F). After life-saving efforts proved unsuccessful the child was declared deceased in the emergency department.

The grandmother interviewee stated that, following the incident, the mother was questioned by police and then released. During police interrogation, the mother was administered a blood draw drug test that revealed a positive result for cocaine

In February 2020, police arrested the mother and she was incarcerated in a county jail where she remains as of this writing. According to a State inmate directory search, the offense was “neglect of a dependent resulting in death.” According to police, the case against the mother is pending.

### ***Caregiver/Guardian Data***

The caregiver was the 30-year-old mother of the child. According to the interviewee, the mother, father, and child comprised their household. The mother and father reportedly shared in caregiving duties. The father had a history of employment and was sometimes out of town due to work-related duties. The mother was not working at the time of the incident and assumed duties as primary caregiver when the father was at work or absent from the home.

It was unknown if the mother was aware of the potential dangers of leaving a child unattended in a vehicle.

### ***Non-Motorist (Child) Data***

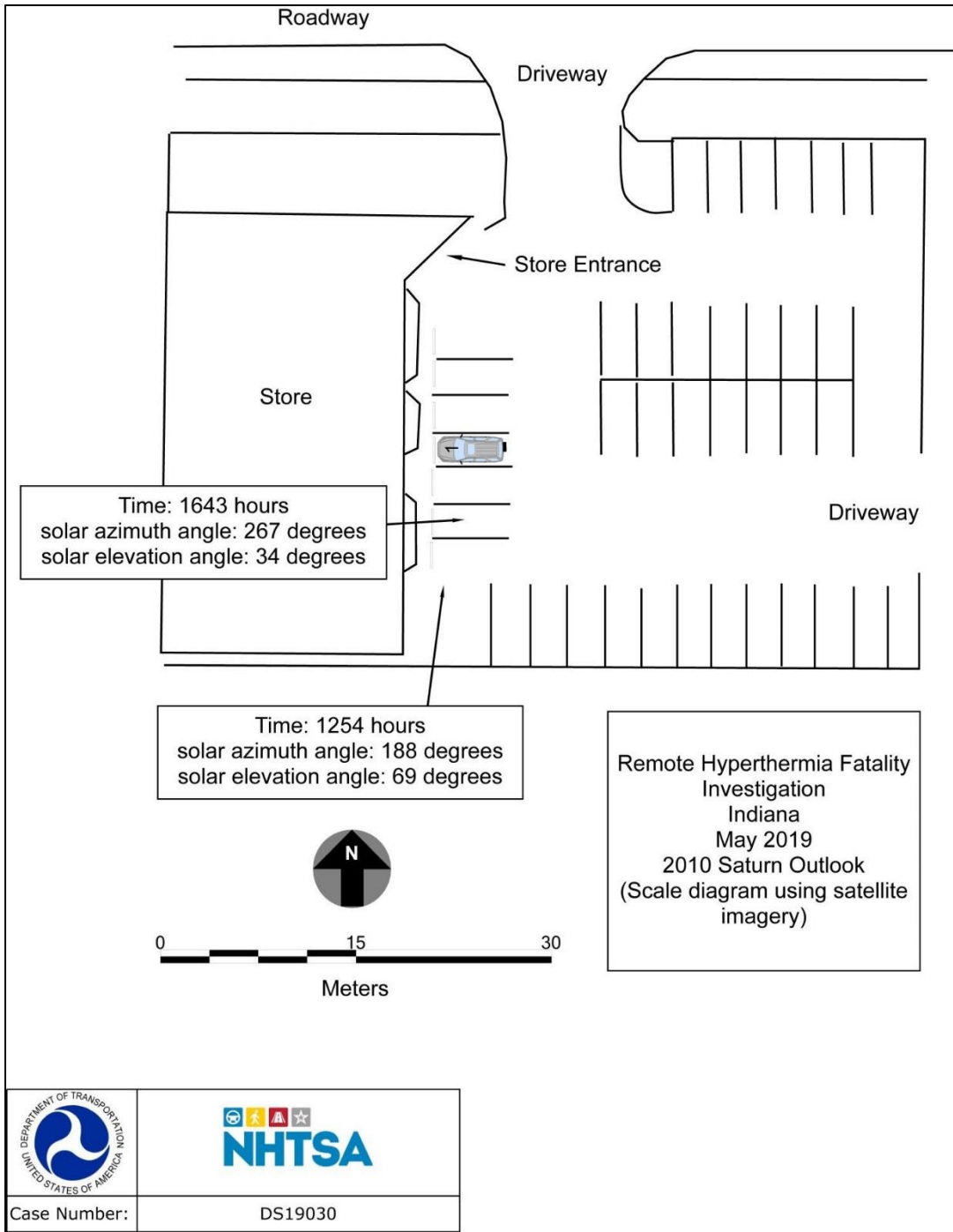
Age/sex:	12 months/female
Height:	79 cm (31 in)
Weight:	12 kg (27 lbs)
Seat type:	Split bench with folding back, second-row right
Restraint usage:	CRS installation method unknown
Transport from scene:	Ambulance to hospital
Type of medical treatment:	Declared deceased in emergency department

The 12-month-old female was seated in a forward-facing CRS in the second-row right position of the Saturn. She was likely restrained by the internal 5-point harness. Based on her age and size it was unlikely that she could get out of the CRS on her own if restrained by the harness. It was unknown if she was covered by a blanket, coat, or any other object. It was also unknown if any objects were present that restricted visibility.

The child was transported by ambulance to a local children's hospital. She arrived with a body temperature of 40 °C (105.08 °F). Life-saving efforts continued unsuccessfully and she was pronounced deceased. The autopsy report stated her cause of death was "environmental heat exposure" and the manner death was "accident." Her autopsy noted the presence of abrasions to her face and hands that were possibly self-induced.



# Incident Site Diagram



## Incident Site Satellite View

(Google Earth image date: September 2, 2018)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. CR19009**

**Vehicle: 2017 Dodge Journey**

**Location: Minnesota**

**Incident Date: May 2019**

## **Background**

The interests in this remote investigation are the circumstances surrounding the hyperthermia-related fatality of a 4-year-old male child left unattended in a 2017 Dodge Journey for over 5 hours by his 26-year-old father in Minnesota in May 2019. The father drove his son to a public event at a baseball stadium and parked the vehicle in a large parking lot with full exposure to the sun. The father lacked babysitting services and knowingly left the child in the vehicle at 1130 hours with a window cracked open while he went to work at the event. He gave an electronic game console to the child for entertainment and a blanket in the event he fell asleep. The father returned to the Dodge at 1715 hours and found the child unresponsive. He drove the child to a local hospital where the child expired due to hyperthermia. Police charged the father with manslaughter.



*Figure 1. Front left oblique view of an exemplar 2017 Dodge Journey*

The SCI team contacted the police agency; however, it was not responsive to this request. The basis for this final case report involved a review of media reports and an inspection of an exemplar 2017 Dodge Journey. At the time of case assignment, the father pled guilty to second degree manslaughter and was sentenced to prison. The mother of the child moved to another State and there is no contact information for her location. A death certificate was obtained from the medical examiner's office that identified the cause of death as hyperthermia. Hospital medical records have been requested but have not been received.

The incident was identified by NHTSA and assigned to the Special Crash Investigations group for further research on October 9, 2019.

## Summary

### *Incident Site*

This hyperthermia incident occurred in the morning and afternoon in a paved parking lot of a baseball stadium parking lot used for employees and patrons. The parking lot was located remote to the stadium with no line of visibility between the two entities. All parking lots in the surrounding area of the ballpark were surfaced with asphalt with full exposure to the sun. The Dodge was driven from the incident site prior to the police investigation, therefore the specific location of the parked vehicle and direction the vehicle was facing during this incident is currently unknown. A schematic of the overall incident site is included at the end of this report.

### *Weather*

The sky conditions reported by the National Weather Service during this day were fair changing to partly cloudy and mostly cloudy at the last reported hour of 1753. Sunrise was reported at 0559 hours with sunset at 2022 hours. The following table lists the temperatures, humidity, heat index and conditions from the reported onset of this hyperthermia event to the discovery of the unresponsive child.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Condition</b>
1053	18 (65)	32	17 (65)	Fair
1153	19 (67)	27	18 (65)	Fair
1253	20 (68)	23	19 (66)	Fair
1353	21 (69)	22	19 (67)	Fair
1453	21 (70)	21	20 (68)	Fair
1553	21 (70)	21	20 (68)	Partly cloudy
1653	21 (70)	16	20 (67)	Partly cloudy
1753	20 (68)	17	19 (65)	Mostly cloudy

### *Vehicle Information*

The vehicle was a 2017 Dodge Journey, a crossover-type SUV with four forward-hinged doors and a rear lift gate (Figure 2). Standard configuration is seating for seven (2/3/2) with front row bucket seats, a three-passenger split-bench second-row seat with forward folding seat backs (Figure 3) and sliding seat tracks to facilitate access to a two-passenger, third-row seat. All seat positions had adjustable head restraints.



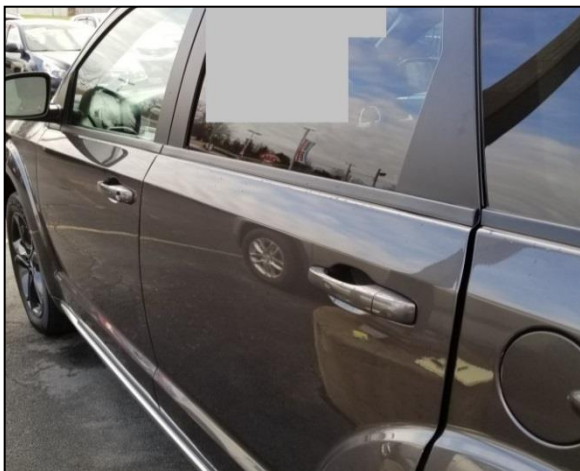
*Figure 2. Back left oblique of an exemplar 2017 Dodge Journey*



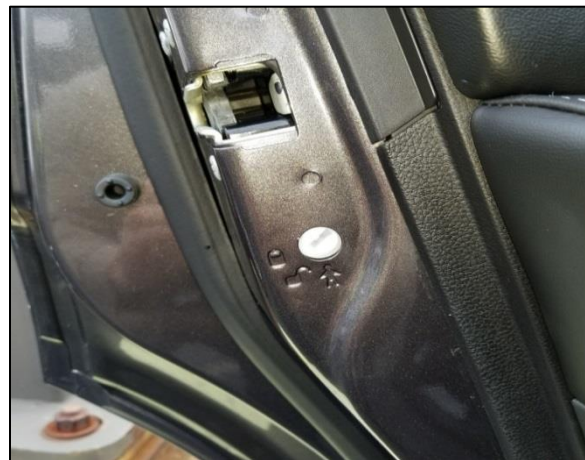
*Figure 3. Second-row interior view of an exemplar 2017 Dodge Journey*

An inspection of an exemplar 2017 Dodge Journey provided the following configurations. These evaluations were conducted with the engine off to simulate a parked and unattended vehicle.

The exterior door handles were pull-type that protruded beyond the profile of the doors (Figure 4). A recessed pocket was formed into the door panel to provide adequate grip space for the handle. The second-row doors had child safety locks (Figure 5). A key or blade tool was required to turn the nylon lock mechanism located on the door frame below the latch. The status of these locks on the involved Dodge is unknown.



*Figure 4. Exterior door handles on an exemplar Dodge Journey*



*Figure 5. Child safety lock on the left rear door of an exemplar Dodge Journey*

The interior door release levers of the Dodge were flush-mounted pull levers (Figure 6). A pocket was formed into the door panel to provide access to the levers. The levers were not equipped with mechanical lock/unlock mechanisms. Each door was equipped with a lock stalk on the top aft aspect of the door panel (Figure 7). This stalk protruded 3 cm (1 in) above the door panel in the unlocked position and protruded 1 cm (0.375 in) above the door panel in the locked position. In the locked position, the 6 mm (0.25 in) diameter stalk could be pulled to unlock the

door. It remains unknown if a 4-year-old child could physically grip and pull this stalk to unlock the door.

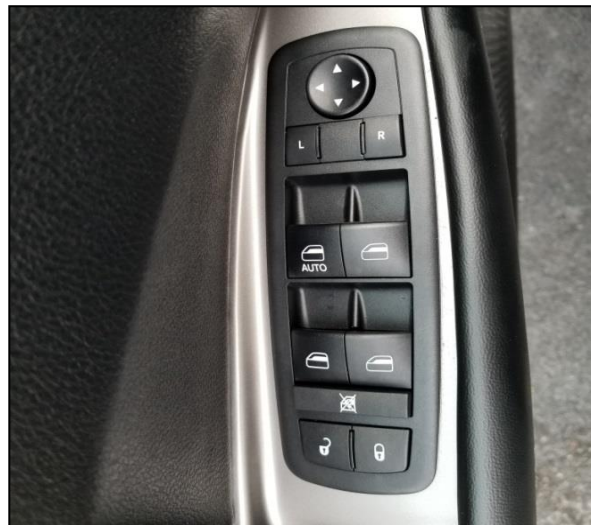


*Figure 6. Second-row interior door release lever of an exemplar Dodge Journey*



*Figure 7. Lock stalk in unlocked position on the second-row right door of an exemplar Dodge*

The central locking system of the Dodge was power. The key fob had lock and unlock switches. With a single touch of the switches, all four doors including them lift gate could be locked or unlocked. On the interior of the Dodge, lock and unlock switches were located on the front door panels, mounted horizontally forward of the door closer handle that were incorporated into the armrests. The driver's door switch panel (Figure 8) included the power window switches and a lockout switch for the front row right and second-row power windows. The front row right door panel had a single window switch for that position and lock/unlock switches for all doors. The interior lock switches were push-type switches. The second-row door panels were not equipped with power lock switches.



*Figure 8. Power window and door lock switch console on the driver's door panel of an exemplar Dodge Journey*

The locking logic for the Dodge was the same whether using the key fob or the front door panel-mounted switches. All four doors could be locked or unlocked by a single touch of the switch.

Once inside the Dodge, with the power locking system in the unlock mode, all four doors could be opened by pulling on the interior door release levers. In the locked mode, the front door levers would release the power lock for that door. Upon egress of a front door, the second-row doors remained locked.

The second-row doors could not be unlocked/opened by pulling on the door release lever from the second row of the Dodge Journey with the central locking system locked. Egress required unlocking of the power lock system by key fob or the front door switches. The second-row doors could be unlocked and opened by pulling on the mechanical stalk on the top aft aspect of the door panel. This evaluation was conducted with the child safety lock in the off position. When switched to the safety lock position, the second-row doors could only be opened by pulling on the exterior door handles.

### ***Pre-Incident***

The 4-year-old child's mother left him in the care of his 26-year-old father at 0230 hours on the day of this incident as she went to work. The father was scheduled to work a festival event at the baseball stadium for most of that day. He could not get a babysitter for the child; therefore, he planned on taking the child with him to the day-long event. The father drove his 2017 Dodge Journey, arriving at approximately 1130 hours, and parked in a remote lot for the ballpark (exact location unknown). It was reported that he parked the Dodge in an open area in full exposure to the sun. The father's plan was to leave the child unattended in the vehicle for the length of his work shift since this event was closed to people under age 21. The father told police he lowered a power window approximately 6 to 13 mm (0.25-0.5 in) for ventilation. He further stated that he left the child in the vehicle with a blanket and a handheld video game for entertainment.

### ***Incident***

The father knowingly left the child unattended in the Dodge. The father's co-workers stated that the father never left his workstation until the end of his work shift. The child was locked in the Dodge with a window cracked open for approximately 6 hours. The temperature range during the timeframe was 18 to 21°C (65 to 70°F). Due to the closed status of the Dodge, the ambient temperature, full exposure to the sun, and the child's status in the vehicle, he succumbed to hyperthermia. The father returned to the vehicle at 1715 hours and found the child unresponsive in the second-row seat. The father reportedly checked for a pulse and found none. He placed the child in the front row right seat and drove him to the emergency room of a local hospital that had a level 1 trauma designation.

### ***Post-Incident***

The father parked the Dodge and carried the child into the hospital where he called for medical help. Medical staff found the child unresponsive and determined he was deceased. His body was transferred to the medical examiner's office for autopsy. The medical examiner concluded the cause of death was hyperthermia due to heat exposure.

### **Caregiver/Guardian Data**

The vehicle driver and guardian of the 4-year-old child was the 26-year-old father. He initially told the investigating police officer he checked on the child during the event and found him to be fine. The police questioned co-workers of the father who reported the father never left the event to check on the child. The father stated that a year prior at the same event he had left the child in a parked vehicle for the duration of the event with a window fully open and nothing happened. The father was subsequently charged with second degree manslaughter and jailed. He was released on bond. The father subsequently pled guilty to the charge of second-degree manslaughter and was sentenced to 6 months in jail, 6 months of electronic home monitoring upon his release, and 10 years of probation.

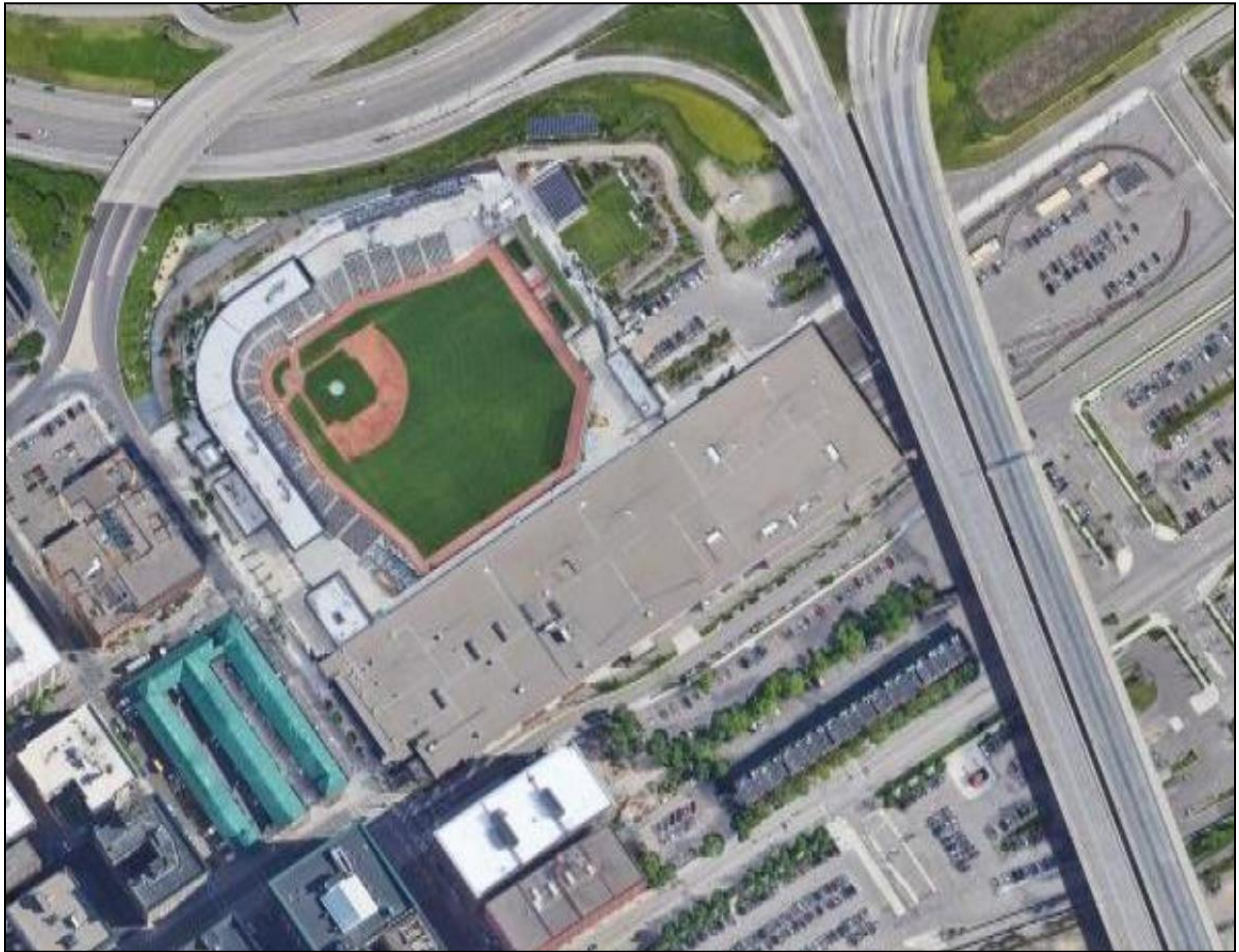
### **Non-Motorist (Child) Data**

Age/sex:	4 years/male
Height:	Unknown
Weight:	Unknown
Seat type:	Unknown
Restraint usage:	Unknown
CRS Transport from scene:	Caregiver/guardian transported
Type of medical treatment:	Unknown



## Incident Site Satellite View

(Google Maps image date: 2020)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. CR19010**

**Vehicle: Toyota Camry  
Location: New Jersey  
Incident Date: May 2019**

## **Background**

This report documents the remote investigation of the circumstances surrounding the hyperthermia-related fatality of a 21-month-old female knowingly left unattended in a Toyota Camry (Figure 1) for 2.5 hours by her 25-year-old mother in New Jersey in May 2019. The police reported that the mother drove the toddler to daycare, but the toddler did not want to stay. The mother drove the toddler back to their residence, where she was left unattended in the vehicle. The mother knowingly left the child in the vehicle expecting the father to remove the toddler from the vehicle. Reportedly there was a misunderstanding between the parents as to who was going to remove the toddler from the vehicle. The mother discovered the toddler was discovered unresponsive. A neighbor attempted CPR while awaiting the arrival of the first responders. A police officer drove the toddler to a local hospital where the child expired. The mother was later charged with second-degree endangering the welfare of a child. The incident was identified by NHTSA and assigned to the Special Crash Investigations group for further research on October 9, 2019.



*Figure 1. Toyota Camry. Image obtained from an online news outlet.*

The SCI team contacted the police agency to request documentation and interview the investigating officer. Due to the open status of the criminal investigation, requests for an interview and/or records were declined pending the conclusion of case. The case remains unresolved at the time of this report. The information in this summary report is based on data gathered from online sources.

## Summary

### *Incident Site*

The incident occurred during the late morning and early afternoon in a residential driveway. The house was two stories and faced east. The driveway was surfaced with black asphalt. There were two parking spots in the driveway with the Toyota Camry parked facing west in the northern most parking spot. There were no trees in the area during this May incident resulting in full exposure of the sun.

### *Weather*

The weather data for the duration of this incident was obtained from the National Weather Service. Sunrise occurred at 0554 hours with sunset reported at 2154 hours. The peak temperature for the day was 21 °C (71 °F), recorded at 1353 hours with 55 percent humidity and mostly cloudy conditions. The temperatures, humidity, calculated heat index, and conditions for the duration of this incident are provided in the following table.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Conditions</b>
1053	17 (62)	62	16 (61)	Fair
1153	19 (67)	61	19 (66)	Fair
1253	20 (69)	57	20 (68)	Fair
1353	21 (71)	55	21 (70)	Mostly Cloudy
1453	21 (70)	56	21 (69)	Cloudy

### *Vehicle Information*

The vehicle in this hyperthermia investigation was a black Toyota Camry, year unknown. Exterior configurations consisted of four forward hinged doors. Standard configuration is seating for five (2/3) with the front-row bucket seats and a three-passenger bench second-row seat. All side windows were AS2 glazing without deep tint. All windows were closed except for the front left window that was halfway open as reported by online news media sources.

The exterior door handles were pull-type that protruded beyond the profile of the doors. A recessed pocket was formed into the door panel to provide adequate grip space for the handle. The second-row doors had child safety locks. The status of these locks on the Toyota Camry is unknown.

The interior door release levers of the Toyota Camry were flush-mounted pull levers (Figure 2). A pocket was formed into the door panel that provided adequate access to the levers. The levers did not have mechanical lock/unlock mechanisms. Each door had a lock stalk on the top aft aspect of the door panel.



Figure 2. Second-row of Toyota Camry. Image obtained from an online news outlet.

### **Pre-Incident**

On the day of the incident the mother secured the 21-month-old child in a forward-facing CRS in the second-row left seating position and departed the residence. Upon arrival at the daycare facility, the child refused to go inside, so the mother decided to return home with the child. The mother then departed the daycare facility and drove back to the residence.

### **Incident**

Upon arriving at the residence, the mother parked the Toyota Camry in the driveway (Figure 3) and went inside the home, knowingly leaving the child in the vehicle. According to online sources, there was confusion between the mother and father as to who would bring the child inside the home. The high temperature for that day was 21 °C (71 °F) at 1353 hours.

Approximately 2.5 hours later, around 1400 hours, the mother returned to the vehicle to find the unconscious child secured in the forward-facing CRS in the second-row seat of the Toyota Camry. The mother removed the child from the CRS and was found by the neighbors next to the Toyota Camry holding the child and crying.



Figure 3. Incident site. Image obtained from an online news outlet

### **Post-Incident**

The female neighbor called local EMS while the male neighbor began CPR until EMS arrived on scene. A local law enforcement officer drove the toddler to the local hospital, where the child expired. The mother was charged with second-degree endangering the welfare of a child.

**Caregiver/Guardian Data**

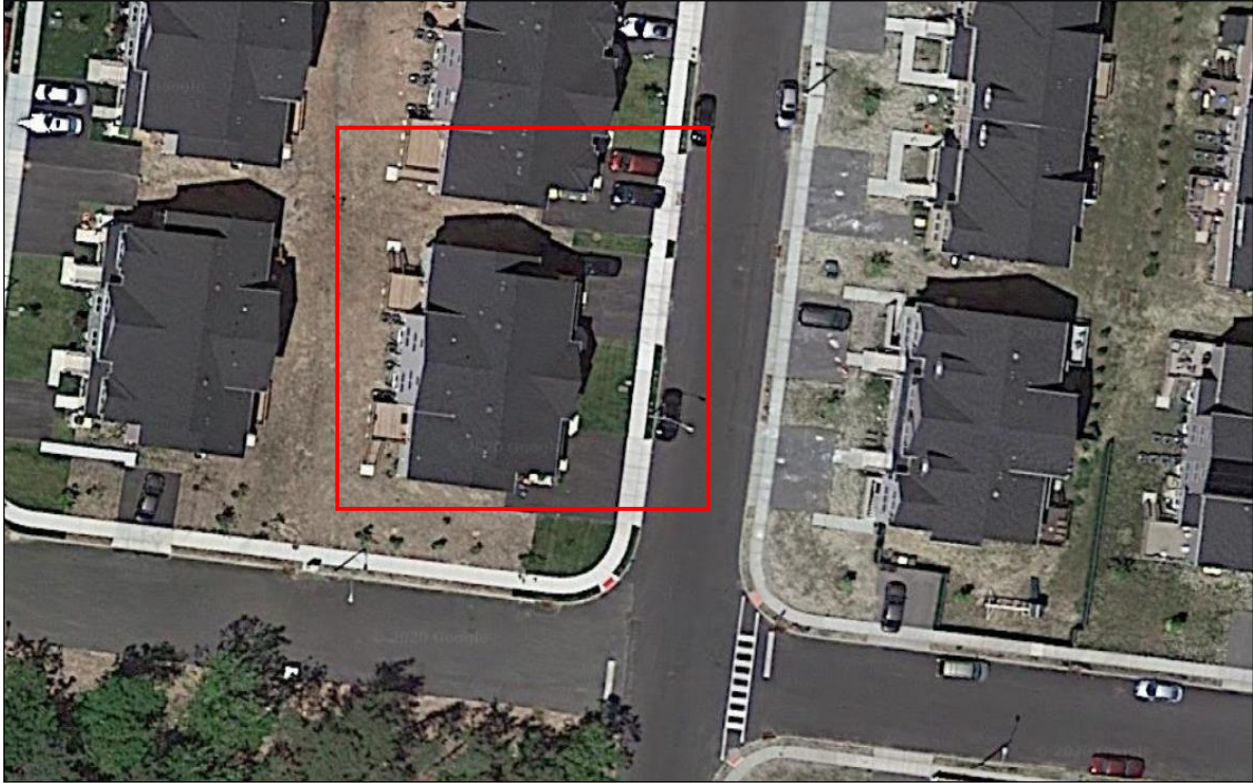
The vehicle driver and guardian of the 21-month-old child was the 25-year-old mother. She and her husband also have a 4-year-old child. The district attorney's office filed second-degree endangering the welfare of a child charges against the mother. At the time this report was submitted, the status of these charges or any court dates was unknown.

**Non-Motorist (Child) Data**

Age/sex:	21 months/female
Height:	Unknown
Weight:	Unknown
Seat type:	Bench
Restraint usage:	Unknown
CRS transport from scene:	Unknown
Type of medical treatment:	Treated by neighbor and at local hospital, declared deceased at the local hospital

**Incident Site Satellite View**

(Google Maps image date: 2020)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. CR19008**

**Vehicle: Unknown**

**Location: North Carolina**

**Incident Date: May 2019**

## **Background**

This report documents the remote investigation of the circumstances surrounding the hyperthermia-related fatality of a 9-month-old male child who was knowingly left unattended in a vehicle for approximately 5 hours by his 23-year-old mother in North Carolina in May 2019. The police reported that the child was left in the vehicle while the mother was at her workplace. When she returned to the vehicle at 1600 hours, she found the child unresponsive. She drove the child to the emergency room of a local hospital, where efforts to revive him were unsuccessful. The mother allegedly made up a story of finding the child unresponsive at daycare. Following the police investigation, she was charged with murder and felony child abuse, and was remanded to the county jail for 14.5 months. She subsequently pleaded guilty to the charges and was sentenced to 18 to 22.5 years in prison.

The incident was identified by NHTSA and was assigned to the Special Crash Investigations group for further research on October 9, 2019.

The SCI team contacted the police agency and obtained the incident report and the arrest report. Attempts to interview the investigating police officer were unsuccessful as he had retired prior to SCI involvement. The police reports did not include any data pertaining to the vehicle.

## Summary

### *Incident Site*

This incident occurred in an open parking lot during the day. The single-story commercial building was located at the northwest corner of two local streets. The parking lot was located on the south side of the local street across the street from the building. The parking lot was an L-configuration that facilitated parking directly off the local street and a lot that extended south of the local street. Satellite imagery showed vehicles typically parked facing in a north or south direction immediately off the local street or facing in east/west directions in the remote lot. This remote lot provided parking for 7 to 8 vehicles. The parking lot was surfaced with asphalt. There were no trees or structures shading either parking area.

### *Weather*

The National Weather Service reported sunrise at 0627 hours on the morning of this incident and sunset at 2008 hours. This incident occurred over a 5-hour period during the day. The specific weather data for this time is provided in the following table.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Conditions</b>
0954	22 (72)	81	23 (73)	Mostly cloudy
1054	24 (75)	73	24 (76)	Fair
1154	26 (78)	66	26 (79)	Partly cloudy
1254	27 (80)	60	28 (82)	Partly cloudy
1354	27 (81)	54	28 (82)	Partly cloudy
1454	28 (83)	49	29 (84)	Fair
1554	28 (83)	44	28 (83)	Partly cloudy
1654	28 (83)	41	28 (82)	Mostly cloudy

### *Vehicle Information*

The vehicle in this incident was not reported or investigated by the police; therefore the specific year, make, and model are unknown.

### *Pre-Incident*

Although not specifically reported, the mother apparently did not have adequate daycare for the child. Her place of work was located a considerable distance from her residence. On the morning of the incident, the mother placed the 9-month-old child presumably in a CRS in the vehicle and drove approximately 102 km (62.8 mi) to her workplace. A mapping software website listed the average travel time for this trip as 66 minutes. She arrived at approximately 1100 hours and parked in the parking lot for the single-story building. Parking was on a hard-surfaced lot on the south side of the building in full exposure to the sun. There were no trees or obstructions to shade the area.



## ***Incident***

The mother knowingly left the child in the vehicle as she proceeded to her workplace for the duration of her assigned work shift. She returned to the vehicle at approximately 1600 hours and found the child unresponsive. The mother drove the child approximately 28 km (17.4 mi) to the emergency room of a hospital. She removed the child from the vehicle and carried him into the emergency room.

## ***Post-Incident***

A police officer was at the emergency room of the hospital attending to other business when at 1620 hours he observed the mother walk through the exterior doors seeking help for the child she was cradling in her arms. Medical staff took control of the child and placed him in a room where they initiated CPR activities. At 1645 hours, the medical staff determined the child was deceased and stopped all resuscitative efforts.

The mother told law enforcement that she had found a new babysitting service on a mobile app. She said that morning she dropped the child off at the daycare facility and drove to work. She further stated this was the first time she used this daycare service. The mother reported to the officer that at the end of her work shift she drove to the daycare at 1600 hours and found the child lying face down in a crib with his head turned to the side. She said the child was unconscious and was not breathing. She said she immediately picked the child up and drove him to the emergency room.

The police conducted a routine death investigation. The mother was unable to provide details of the daycare. Medical staff determined the child expired due to hyperthermia. The mother later admitted that she knowingly left the child in the vehicle for approximately 5 hours while she was at her place of employment. On the evening of this incident, the mother was arrested and charged with murder and felony child abuse.

## ***Caregiver/Guardian Data***

The caregiver/guardian for this incident was the mother of the child. She was a 21-year-old female. Following the police investigation of this incident, she was charged with murder and felony child abuse. The mother pleaded guilty to the charges and was sentenced to 18 to 22.5 years in prison.

## ***Non-Motorist (Child) Data***

Age/sex:	9-months/male
Height:	Unknown
Weight:	Unknown
Seat type:	Unknown
Restraint usage:	Unknown
Transport from scene:	Transported by care giver/guardian to a hospital
Type of medical treatment:	CPR in the ER, declared deceased at 1645 hours.

## Incident Site Satellite View

(Google Maps image date: 2020)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. CR19011**

**Vehicle: Unknown Year/Make/Model SUV**

**Location: South Carolina**

**Incident Date: May 2019**

## **Background**

This report documents the remote investigation of the circumstances surrounding the hyperthermia-related fatality of a 4-year-old male who entered the family's SUV and inadvertently locked himself in the vehicle for an unknown period in South Carolina in May 2019. The child's family was visiting relatives out-of-State at a private residence. The child was last seen watching television inside the residence. He apparently exited the residence and entered the family's SUV, where he locked himself in the vehicle for an undetermined time. He was later found unresponsive and was transported by local emergency services to a local hospital where it was determined that he expired due to hyperthermia.

The incident was identified by NHTSA and assigned to the Special Crash Investigations group for further research on October 9, 2019.

The SCI team contacted the police agency and has received no contact back from the investigating officer at this time. A search of online media sources provided the basis for this report.

## Summary

### ***Incident Site***

The incident occurred during the afternoon on a residential area. It is undetermined the exact location of the vehicle as to whether it was on the roadway or in a residential driveway. The incident site shows no trees in the area to shade the residential roadway or driveway during this May incident.

### ***Weather***

The weather data for this incident was obtained from the National Weather Service. Sunrise occurred at 0620 hours with sunset at 2024 hours. The peak temperature for the day was 33 °C (92 °F) recorded at 1556 hours with 42 percent humidity. Winds were calm, recorded at 21 km/h (13 mph) with partly cloudy conditions. The temperatures, humidity, calculated heat index, and conditions for this incident are provided in the following table:

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Conditions</b>
1156	30 (86)	53	32 (89)	Partly Cloudy
1256	30 (87)	53	32 (90)	Fair
1356	31 (89)	50	34 (93)	Partly Cloudy
1456	32 (90)	46	34 (93)	Partly Cloudy
1556	33 (92)	42	35 (95)	Partly Cloudy
1656	32 (91)	43	34 (93)	Partly Cloudy
1756	32 (90)	40	33 (91)	Partly Cloudy

### ***Vehicle Information***

The vehicle in this hyperthermia investigation was an SUV of unknown make, model and year.

### ***Pre-Incident***

On the day of the incident the child's mother parked the vehicle in an unknown residential location outside of a family member's home. The mother and the child entered the home of the family member. The mother stated the child proceeded to watch the television while she was visiting with family inside the residence.

### ***Incident***

According to online sources, at some point in the day, after the child was watching the television, the child exited the residence and entered the mother's SUV. Upon entering the vehicle, the child was unable to exit the SUV. The high temperature for that day was 33 °C (92 °F) at 1556 hours. The mother noticed the child was missing from inside the home and attempted to locate the child. At approximately 1700 hours, the mother exited the home and found the child unresponsive in the SUV.

***Post-Incident***

Local emergency services were called and arrived on scene. Local EMS personnel performed CPR with no response. Local EMS took the child to the local hospital where he was pronounced deceased. No charges have been filed against the mother.

***Caregiver/Guardian Data***

The vehicle driver and guardian of the 4-year-old child was the mother. At the time of this report, no charges have been filed against her.

***Non-Motorist (Child) Data***

Age/sex:	4 years old/male
Height:	Unknown
Weight:	Unknown
Seat type:	Unknown
Restraint usage:	Unknown
Transport from scene:	Transported by ambulance
Type of medical treatment:	Treated by EMS, declared deceased upon arrival at local hospital

## Incident Site Satellite View

(Google Maps image date: 2020)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. CR19014**

**Vehicle: Unknown Year Mazda Miata**

**Location: Alabama**

**Incident Date: June 2019**

## **Background**

This report documents the remote investigation of the circumstances surrounding the hyperthermia-related fatality of a 2-year-old male who was left unsupervised by his parents at the family residence and gained access to a vehicle in Alabama in June 2019. Per news sources, the parents were under the influence of marijuana at the time. The child exited the residence and entered the Mazda Miata passenger car parked in the driveway at approximately 1515 hours. He was discovered by an older sibling at 1945 hours. Police were called to the residence and found the child unresponsive. He was transported to a local hospital where he expired. The child's father was charged with possession of marijuana and was later charged, along with his wife, with manslaughter.

This incident was identified by NHTSA and assigned to the Special Crash Investigations group for further research in October 2019.

The SCI team contacted the police agency to request documentation and interview the investigating officer. Voicemails were left for the records department and investigating officer with no calls returned. Attempts to speak with the investigating officer and obtain records were met with no response from the police agency. Due to this the information in this final report are based on data gathered from online sources.

## Summary

### ***Incident Site***

The incident occurred in the afternoon and early evening. The exact location of the residence is unknown. However, online sources state that the incident occurred in the driveway of a residential home. No additional information could be obtained.

### ***Weather***

The weather data for the duration of this incident was obtained from the National Weather Service. Sunrise occurred at 0541 hours with sunset reported at 1951 hours. The peak temperature for the day was 33 °C (93 °F) recorded at 1453 hours with 30 percent humidity. Winds were ranging from 0 km/h (0 mph) and 16 km/h (10 mph) in a primarily eastward direction. The conditions were reported as fair for most of the day. The temperatures, humidity, calculated heat index, and conditions for the duration of the incident are provided in the following table:

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Conditions</b>
1453	33 (93)	30	33 (92)	Fair
1553	32 (91)	33	32 (90)	Fair
1653	32 (90)	39	32 (90)	Fair
1753	32 (90)	40	33 (91)	Fair
1853	31 (88)	45	32 (89)	Fair
1953	28 (84)	58	31 (87)	Fair

### ***Vehicle Information***

The vehicle in this hyperthermia case was a maroon Mazda Miata, model year unknown (Figure 1). It had two forward-hinged doors. All side windows were AS2 glazing with no tint. All windows were closed during this incident.



*Figure 1. Mazda Miata. Image obtained from an online news outlet.*

The exterior door handles were pull-type that protruded beyond the profile of the doors. A recessed pocket was formed into the door panel to provide adequate grip space for the handle. The status of the locks on the Miata is unknown.

The interior door release levers of the Miata were flush-mounted pull levers. A pocket was formed to provide adequate access for the levers.



### ***Pre-Incident***

On the day of the incident the 2-year-old male was inside the residence with his mother, father, and older sibling. Per news sources, the 38-year-old mother and 36-year-old father had ingested marijuana and passed out, leaving the children unattended.

### ***Incident***

At approximately 1515 hours the 2-year-old male exited the residence and entered the vehicle parked in the residence driveway. The door shut behind the child, resulting in the child not being able to exit the vehicle. The high temperature for the day was 33 °C (93 °F) recorded at 1453 hours. Approximately 4 hours later, the older sibling began looking for the child and found him in the Mazda Miata at 1915 hours.

### ***Post-Incident***

First responders were contacted and arrived on scene. EMS personnel transported the 2-year-old male to a local hospital where the child expired. The local law enforcement agency began its investigation and arrested the mother and father.

### ***Caregiver/Guardian Data***

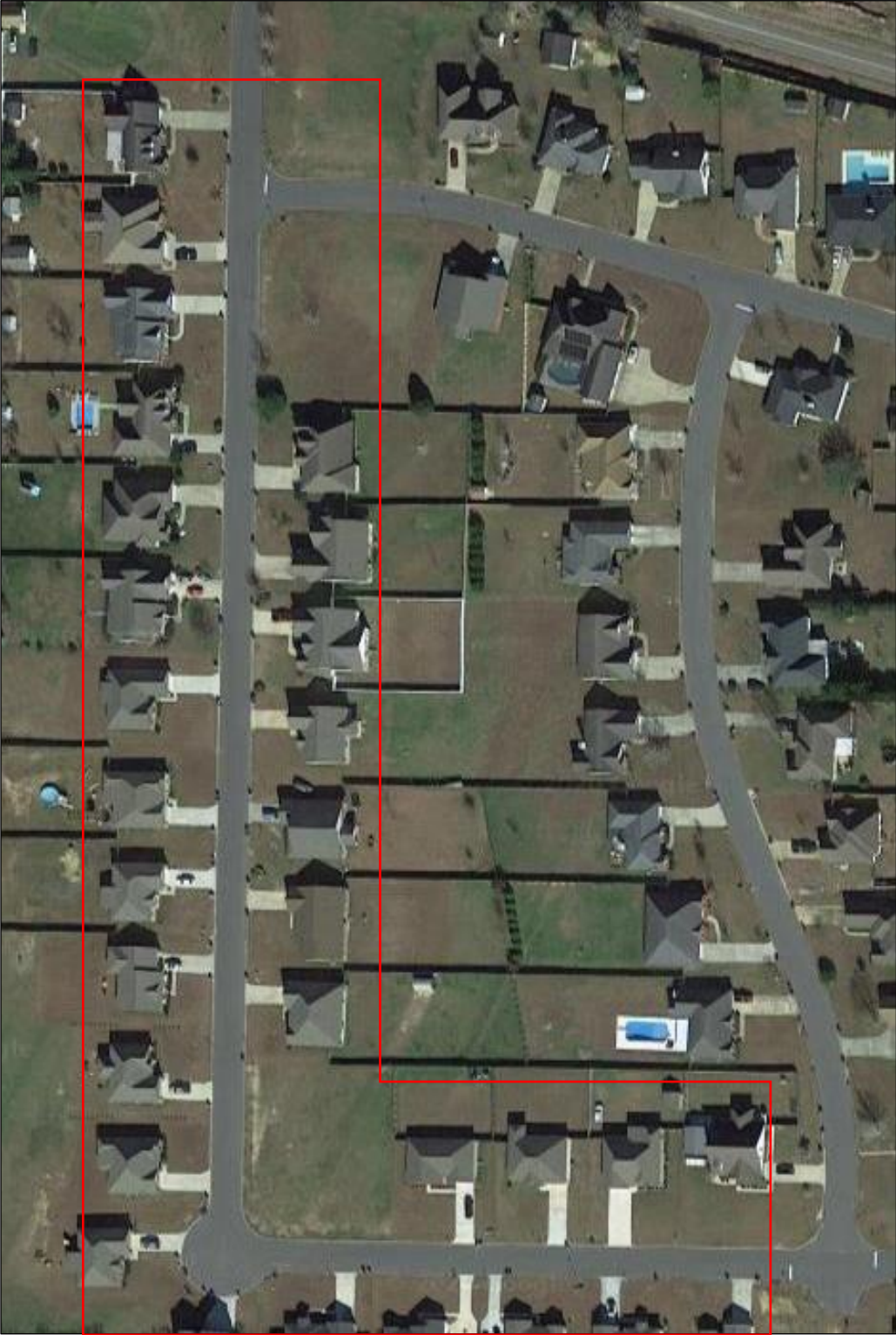
The caregivers of the 2-year-old child were the 38-year-old mother and 36-year-old father. Both caregivers were asleep during the incident, according to online sources. Both caregivers were initially charged with possession of marijuana. After the local law enforcement agency confirmed the child was deceased, charges of manslaughter were filed against both caregivers. At the time of this final report, both caregivers are awaiting court hearings.

### ***Non-Motorist (Child) Data***

Age/sex:	2 years old/male
Height:	Unknown
Weight:	Unknown
Seat type:	Unknown
Restraint usage:	None used
Transport from scene:	Transported by ambulance
Type of medical treatment:	Treated by EMS and ER, declared deceased at local hospital.

**Incident Site Satellite View**

(Google Maps image date: 2020)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. DS19041**

**Vehicle: 2010 Chevrolet Cobalt**

**Location: Iowa**

**Incident Date: June 2019**

## **Background**

This report documents the remote investigation of the hyperthermia death of a 16-month-old female who was left unattended in a parked 2010 Chevrolet Cobalt 4-door sedan (Figure 1) for approximately 1-1/2 hours during daylight in Iowa in June 2019. The investigation was intended to determine the events leading up to the incident, the actions of the caregiver/guardian, the vehicle characteristics and equipment, the environment/scene conditions and layout, and the activities of the drove child. The incident was identified as part of a hyperthermia study by NHTSA and assigned to the SCI team on October 9, 2019. The offense report, on-scene images, and autopsy report were obtained.



*Figure 1. 2010 Chevrolet Cobalt. Image obtained from local law enforcement.*

This incident occurred on a city street in front of a private residence during mid-afternoon. On the day of the incident at approximately 1420 hours, the caregiver, the 27-year-old mother of the child, was contacted by a relative to assist her in moving to a new residence. The mother placed the 16-month-old in the second-row left seat in a Cosco Scenera NEXT convertible CRS. A 4-year-old male child was also placed in the vehicle. The caregiver and children drove to the relative's residence and arrived at approximately 1440 hours. The temperature at 1452 hours was 36 °C (98 °F).

The vehicle was parked facing south across the street from the residence. The caregiver and 4-year-old exited the vehicle and the 16-month-old was left behind. The mother's role in the move was to watch the relative's children. At 1557 hours, she got a text from her boyfriend asking about the 16-month-old. It was at this point the mother realized the child was still in the vehicle. She retrieved the unconscious child and brought her into the residence. The temperature at 1552 hours was 36 °C (97 °F). Calls were placed to emergency services and the relative began CPR

efforts. The fire department arrived shortly after being contacted and began resuscitative efforts. The police arrived as the fire department was performing life-saving activities. The child was transported to a local hospital that reported the child had a core body temperature of 40 °C (104.7 °F) upon arrival and was pronounced deceased at 1637 hours. The police attempted to obtain a vehicle interior temperature measurement. A digital thermometer was placed in the vehicle from 1647 to 1715 hours. The device reported a temperature of 53 °C (128 °F) before malfunctioning.

No charges were filed against the caregiver. According to the assistant district attorney, for a person to be charged under Iowa law the person would have to have “acted with knowledge that [he/she] was creating a substantial risk” to a child. If a parent is distracted and forgets about the child, that is insufficient to convict.

## Summary

### **Incident Site**

This incident occurred on a city street in front of a private residence. The residence was located on the east side of the roadway (Figure 2). The Chevrolet was parked facing south on the west side of the asphalt roadway. The distance from the residence to the vehicle was approximately 18 m (59 ft). There were shade trees in the area but the vehicle appears to have been in an unshaded area. There were other vehicles parked on the roadway but their proximity to the case vehicle was not known.



*Figure 2. Incident site, looking east. Image obtained from internet mapping software.*

### **Weather**

At 1445 hours, the sun's azimuth was 246° and the elevation was 55°. At 1545 hours, the sun's azimuth was 260° and the elevation was 45°. An incident site diagram is included at the end of this report. The incident occurred during mid-afternoon. The temperature, humidity, calculated heat index, and conditions for the duration of this incident are provided in the following table:

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Conditions</b>
1452	36 (98)	42	41 (106)	Fair
1552	36 (97)	44	41 (106)	Fair
1652	35 (96)	46	40 (105)	Fair

The police attempted to obtain a vehicle interior temperature measurement. A digital thermometer was placed in the vehicle from 1647 to 1715 hours. The device reported a temperature of 53 °C (128 °F) before malfunctioning.

### **Vehicle Information**

The vehicle was a 2010 Chevrolet Cobalt 4-door, 5-passenger, sedan. It was identified by the VIN 1G1AB5F58A7xxxxxx. The vehicle had a 2.2-liter, 4-cylinder, gas engine coupled to an automatic transmission and front-wheel drive. The exterior color was "Imperial Metallic Blue" and the interior was gray. The vehicle had cloth-covered front bucket seats and second-row split bench seats with folding backs. The Chevrolet had exterior pull-type door handles. The vehicle had rear-door security locks that prevent passengers from opening the rear doors from the inside. The security locks are located on the inside edge of each rear door and can be accessed by opening rear doors. The locks are set by inserting the vehicle key and turning the key until the

slot is in the horizontal position. It is unknown if the security locks were engaged. The vehicle doors were unlocked at the time of the incident. The vehicle had manual window regulators and the windows were all closed at the time of the incident, according to the police. There were no indications that the vehicle had an alarm system.

### ***Pre-Incident***

This incident began at approximately 1420 hours. The mother of the child was contacted by her sister via a text message. The sister asked that the mother come over to her current residence to help her to move out of that residence. The 16-month-old child was placed in the second-row left seat position in a forward-facing CRS. A 4-year-old male child was also placed in the vehicle. It appears that this child was placed in the second-row right seat position in a booster seat.

### ***Incident***

The mother and children traveled to the relative's residence and arrived at approximately 1440 hours. The temperature at 1452 hours was 36 °C (98 °F). The vehicle was parked facing south across the street from the residence. The mother and 4-year-old exited the vehicle and the 16-month-old child was left behind. It is unknown if the 4-year-old exited the vehicle on his own or was assisted by the mother. There were 6 or 7 children in the residence and at least three adults present. The mother's role in the move was to watch the relative's children since two people were in poor health and the sister would be the one moving items from one residence to another. After the mother arrived, the sister and a friend departed with items already loaded in her vehicle. They returned approximately 45 minutes later and went upstairs. At 1557 hours, the mother got a text from her boyfriend asking about the 16-month-old. It was at this point the mother realized the child was still in the vehicle. She retrieved the unconscious child and brought her into the residence. The temperature at 1552 hours was 36 °C (97 °F). Calls were placed to emergency services and one of the adults present began CPR efforts. The fire department arrived shortly after being contacted and took over resuscitative efforts. The police arrived as the fire department was performing life-saving activities. The child was transported to a local hospital that reported the child had a core body temperature of 40 °C (104.7 °F) upon arrival and was pronounced deceased at 1637 hours. The police attempted to obtain a vehicle interior temperature measurement. A digital thermometer was placed in the vehicle from 1647 to 1715 hours. The device reported a temperature of 53 °C (128 °F) before malfunctioning.

### ***Post-Incident***

Several calls were placed to emergency services. One of the adults present had some CPR training and began CPR efforts, including chest compressions and mouth-to-mouth breathing. She reported that the child was warm to the touch and had vomited when the adult was continuing her CPR efforts. The fire department arrived shortly after being contacted and continued resuscitative efforts. The police arrived as the fire department was performing life-saving activities. The child was transported to a local hospital by ambulance. She was pronounced deceased at 1637 hours. The autopsy report stated that the child had a core temperature of 40 °C (104.7 °F) upon arrival at the hospital and sustained minor abrasions to the left eye and eyelid. The reported cause of death was "hyperthermia due to exposure to high ambient temperature." The manner of death was "accident."

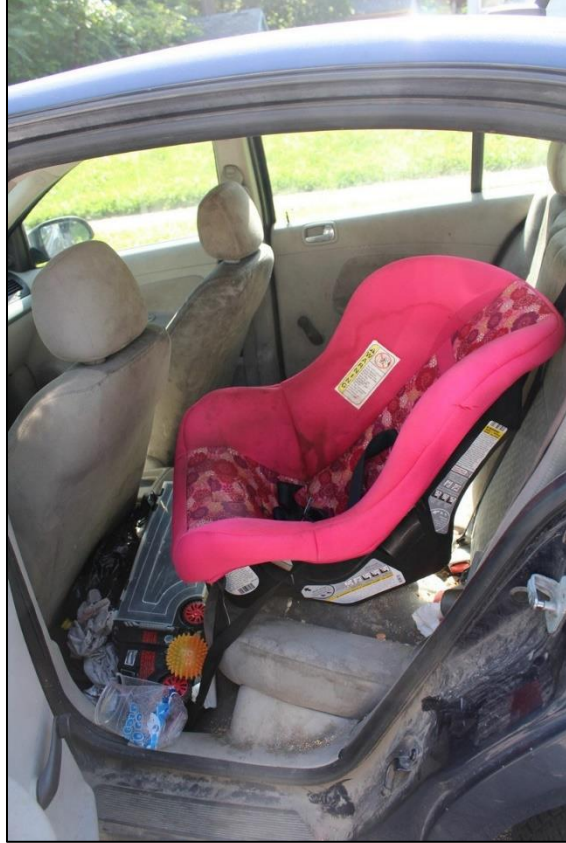
### **Caregiver/Guardian Data**

The caregiver was the 27-year-old mother of the child. She and her boyfriend had four children, including the driver child, an 8-year-old female, a 5-year-old male, and 4-year-old male. On the day of the incident, they had been woken by the text message from the mother's sister. All the children wanted to go with the mother but she only took the 16-month-old and the 4-year-old. The other two children stayed with the boyfriend. The purpose of the trip was to assist her sister in moving. This would be an atypical type day. There were no intermediate stops during the journey. It was not known if the mother was aware of any specific information related to the dangers of leaving children in hot cars or of any safety campaigns related to that topic. As stated earlier, there were no charges brought against the mother.

### **Non-Motorist (Child) Data**

Age/sex:	16-months/female
Height:	79 cm (31 in)
Weight:	15 kg (33 lbs)
Seat type:	Split bench with folding back
Restraint usage:	CRS not anchored at time of police investigation, unknown if anchored during trip to family member's house
Transport from scene:	Transported by ambulance
Type of medical treatment:	Treated by EMS and ER, declared deceased at 1637 hours.

The child had been placed in a forward-facing Cosco Scenera NEXT convertible CRS placed in the second-row left seat position (Figure 3). The CRS had a 5-point harness and can be anchored using either the vehicle seat belts or Lower Anchors and Tethers for Children (LATCH). The CRS was not anchored to the vehicle at the time of the police investigation. The CRS was designed to be used rear-facing for children weighing 2.2-18.1 kg (5-40 lbs) and 48-101 cm (19-40 in) tall and forward-facing for children weighing 9.9-18.1 kg (22-40 lbs) and 73-109 cm (29-43 in) in height and at least 1 year old. The child met the age, weight, and height requirements for a forward-facing CRS.

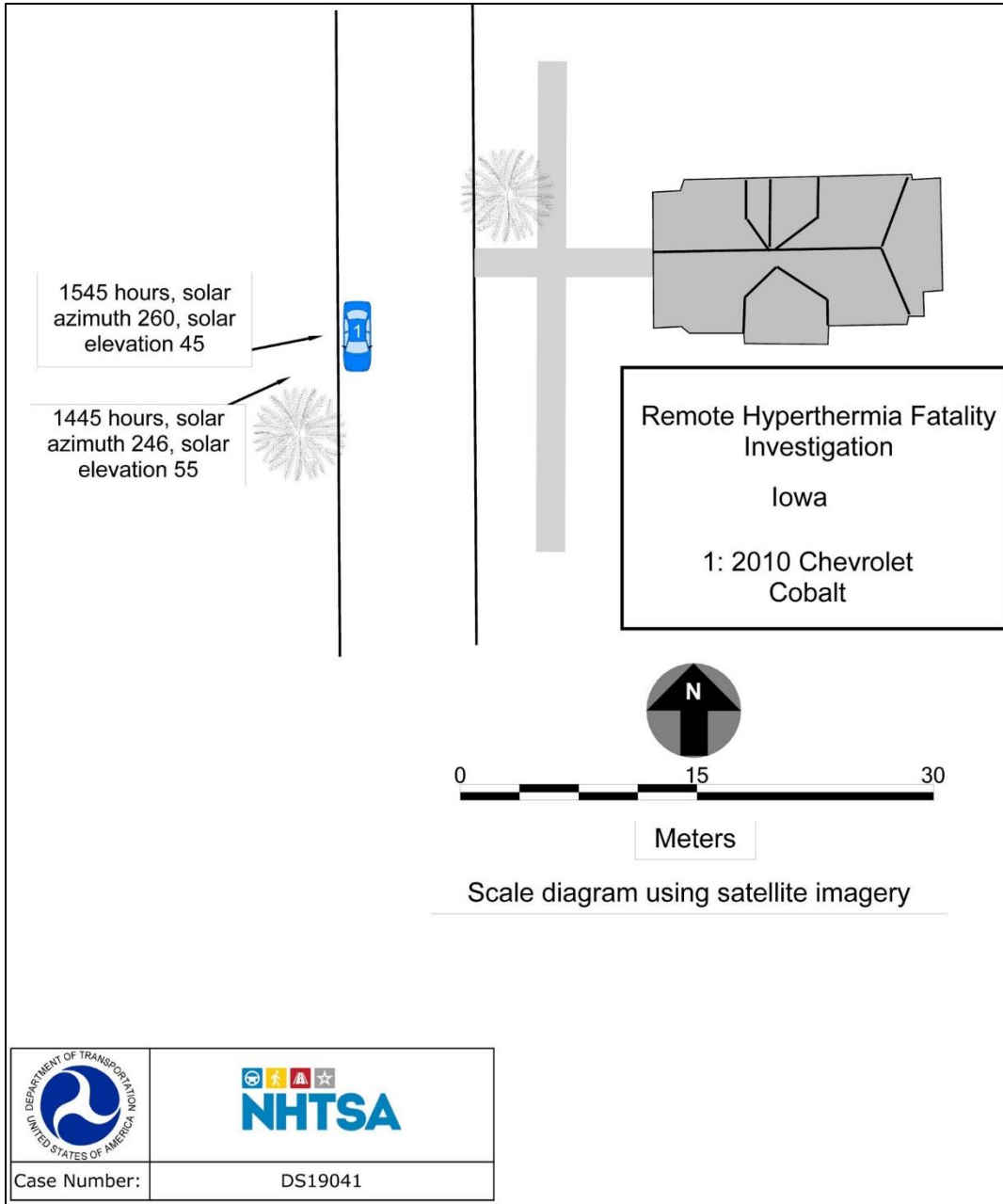


*Figure 3. Cosco Scenera NEXT convertible CRS. Image obtained from local law enforcement.*

The child was wearing a red shirt, black shorts, and a diaper. There were no reports of any coverings or anything to restrict visibility.



# Incident Site Diagram



## Incident Site Satellite View

(Google Maps image date: May 11, 2017)



## Addendum



*Figure A-1. 2010 Chevrolet Cobalt, looking west. Image obtained from local law enforcement.*



*Figure A-2. Vehicle interior temperature (police photo). Image obtained from local law enforcement.*



*Figure A-3. Second row, 2010 Chevrolet Cobalt (police photo). Image obtained from local law enforcement.*

**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. DS19034**

**Vehicle: 2007 Subaru Outback**

**Location: Kansas**

**Incident Date: June 2019**

## **Background**

This report documents the remote investigation of the hyperthermia death of a 3-month-old female left unattended in a parked green 2007 Subaru Outback (Figure 1) for an extended period during daylight in Kansas in June 2019. The investigation was intended to determine the events leading up to the incident, the actions of the guardian/caregiver, the vehicle characteristics and equipment, the environment/scene conditions and layout, and the activities of the drove child. The incident was identified as part of a hyperthermia study by NHTSA and assigned to the SCI team in October 2019.



*Figure 1. Exemplar 2007 Subaru Outback*

This incident occurred at a private residence in a rural area during summer daylight. The Subaru was parked in a gravel parking area to the northeast of the residence in direct sunlight facing southeast. On the day of the incident the child’s mother, returned to the residence at approximately 1230 hours after attending a baby shower. She exited the vehicle and entered the residence. She reported to police that she was tired and had taken a nap. The child remained in the vehicle still seated in a Graco CRS in the second-row right seat position. The temperature at 1253 hours was 28 °C (84 °F). At approximately 1615 hours the mother woke up and realized that the child was still in the Subaru. The temperature at 1553 hours was 30 °C (87 °F). She went to the child and found her pulseless and not breathing. Emergency services were contacted and rescue personnel responded to the scene.

Resuscitative efforts were initiated but were unsuccessful. After stopping life-saving measures an EMT obtained a rectal thermometer reading of 43 °C (110 °F), which was the highest reading possible on the thermometer used. An autopsy was conducted and the cause of death was determined to be “hyperthermia” and the manner of death was “accident.” The case was to be presented to the county attorney but it is unknown if any charges were eventually filed. The investigative report, autopsy report, and a sudden-infant-death report were obtained.

## Summary

### ***Incident Site***

The incident occurred in Kansas at a private residence in a rural area during summer daylight. There were no other houses in the area and the residence was surrounded by grass and low vegetation. The residence had an attached garage that was located to the east. There were no vehicles parked in the garage, which was used for storage. There was a large van parked to the west of the Subaru. The Subaru was parked facing southeast in a gravel parking area to the northeast of the residence. The distance from the parked Subaru and the front entrance was 14 m (46 ft). The gravel parking area was connected to an extended driveway that travels 109 m (361 ft) north to a county road. The vehicle was parked in direct sunlight and there were no trees or shade structures. It is unclear how visible the Subaru would be from interior rooms in the residence. An incident site diagram is included at the end of this report.

### ***Weather***

On the day of the incident, the low temperature was 18 °C (66 °F) and the high temperature was 30 °C (87 °F). The conditions were partly cloudy. At 1230 hours, the sun's solar azimuth was 183° and the solar elevation was 75°. At 1615 hours, the sun's solar azimuth was 270° and the solar elevation was 30°. The weather conditions during the time the child was in the vehicle is shown in the following table:

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Conditions</b>
1153	27 (81)	54	28 (82)	Partly cloudy
1253	28 (84)	51	30 (85)	Partly cloudy
1353	30 (85)	46	30 (86)	Partly cloudy
1453	30 (86)	46	30 (87)	Fair
1553	30 (87)	43	29 (85)	Partly cloudy

During the post-incident investigation, police officers measured the interior temperature of the Subaru. The thermometer was placed in the second row with the doors closed at 1738 hours and then checked at 1802 hours. The temperature was 48 °C (120 °F).

### ***Vehicle Information***

The drove vehicle was a 2007 Subaru Outback 5-door, 5-passenger hatchback. It was identified by the VIN 4S4BP61C677xxxxxx. The vehicle had a 2.5-liter, gas engine coupled to an automatic transmission and all-wheel drive. The exterior color was "Moss Green" and the interior was "Ivory." The vehicle had front bucket seats and second-row split bench seats with folding backs. The Subaru had pull-type door handles. According to the police, the doors were unlocked. The second-row rear doors were equipped with child safety locks that prevent the doors from being opened even if the inside door handle is pulled. The safety lock levers were located on the rear edge of the second-row doors. When the child safety lock lever is in the lock position, the door cannot be opened from inside regardless of the position of the inner door handle lock lever. The door can only be opened from the outside. The status of the safety locks is unknown. The police did not mention safety locks in their report. The vehicle had electric

window regulators and the windows were all closed, according to the police. The vehicle was not equipped with any unattended-child-detection systems. It is not known if the vehicle had an alarm system.

### ***Pre-Incident***

The incident occurred on a Saturday in June. The child lived with her parents in a private residence in Kansas with five other children under age 18. The father of the child was not present during this incident. Several children were with the father. The other children were not at the residence during the incident and may have been in the care of an adult friend. There were no other adults present at the residence during the incident. On the day of the incident the mother had attended a baby shower in the morning and returned to the residence at approximately 1230 hours. The details regarding the party and any times related to their departure are not known. The mother had placed the child in the CRS in the second-row right seat position and they were the only people in the vehicle. The mother exited the vehicle and entered the residence. It is not known if she removed anything from the vehicle. She reported to police she was tired and had taken a nap when she went inside. The child was left behind and remained in the vehicle still seated in the Graco CRS in the second row.

### ***Incident***

The temperature at 1253 hours was 28 °C (84 °F). At approximately 1615 hours she woke up and realized that the child was still in the Subaru. The temperature at 1553 hours was 30 °C (87 °F). She went to the child and found her pulseless and not breathing. She removed the child while still in the CRS, brought her inside, called 911, and began CPR efforts as instructed by the operator. Rescue personnel responded to the scene. The first responder was a member of the fire department. Resuscitative efforts were initiated but were unsuccessful. Death was pronounced at 1627 hours. After stopping life-saving measures an EMT obtained a rectal thermometer reading of 43 °C (110 °F) for the child, which was the highest reading possible on the thermometer used.

### ***Post-Incident***

The mother removed the child and CRS carrier from the vehicle, brought her into the residence, and removed her from the CRS. She contacted emergency services and began CPR under their direction. EMS personnel arrived and began life-saving measures. The child was shocked with an automated external defibrillator with no results. The child was not breathing and did not have a pulse. Rigor mortis had set in. She was declared deceased on site.

The father had been contacted by phone and arrived at the residence while the police were still present. The family were Catholic. With the permission of police authorities, the child's father performed a baptism of intention using sterile water provided by EMS.

There were concerns regarding the post-incident mental condition of the mother. Early on she expressed the desire to die. She was accompanied by police personnel for a short time until friends and relatives arrived to stay with her.

### ***Caregiver/Guardian Data***

The caregiver and driver was the 3-month-old child's 44-year-old mother. She was the adoptive mother of the 3-month-old. There were five other children in the family. The father had several

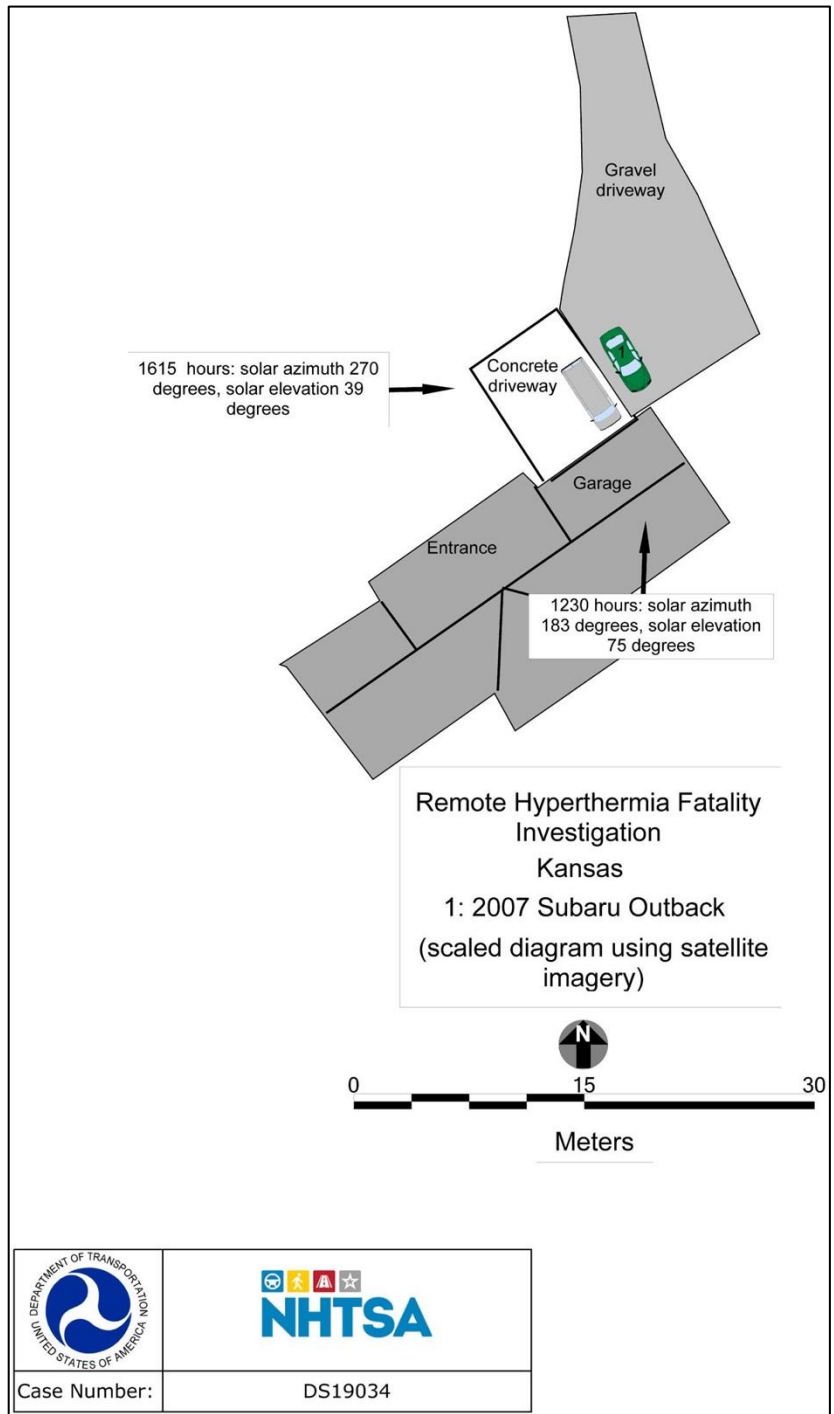
children with him but he was out of town. The incident drove the mother's trip to and from a baby shower, making this an atypical day. Her normal practices are unknown. She was the primary caregiver for the child. The child was unintentionally left behind. After leaving the child alone, the mother took a nap and slept for several hours. The police obtained her cell phone records and determined that it was not being used during the time she said she was sleeping. It is not known if the driver was aware of any specific information related to the dangers of leaving children in hot cars or of any safety campaigns related to that topic.

***Non-Motorist (Child) Data***

Age/sex:	3 months old/female
Height:	61 cm (24 in)
Weight:	5 kg (11 lbs)
Seat type:	Split bench with folding back
Restraint usage:	Unknown if seat belt used to anchor CRS
Transport from scene:	NA
Type of medical treatment:	Resuscitation efforts by caregiver and EMS

The child was wearing only a disposable diaper when first seen by the police. The child had been placed in the vehicle by the driver. The child was seated in a rear-facing Graco CRS that connected to a stay-in-vehicle base. The base was anchored in the second-row right seat position. When found by the police, the CRS was sweat-stained in the area where the child would have been placed. There was a small toy suspended from the CRS handle that was attached to a child gummy ring. There were no coverings under or over the child according to the police. The CRS harness usage is not known. After stopping life saving measures an EMT obtained a rectal thermometer reading of 43 °C (110 °F) for the child, which was the highest reading possible on the thermometer used.

# Incident Site Diagram





## Incident Site Satellite View

(Google Maps image date: October 26, 2018)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. DS19031**

**Vehicle: 2000 Ford Taurus SES**

**Location: Missouri**

**Incident Date: June 2019**

## **Background**

This report documents the remote investigation of the hyperthermia-related fatality of an 11-month-old female who died while left unattended more than 16 hours in a 2000 Ford Taurus SES (Figure 1) in Missouri in June 2019. The investigation was intended to determine the events leading to the incident, actions taken by the caregivers, vehicle characteristics and equipment, environmental conditions, and activities of the child. The incident was identified as part of a hyperthermia study by NHTSA and assigned to the SCI team in October 2019. The SCI team obtained the police report and photos, fire/EMS report, and autopsy report.



*Figure 1. 2000 Ford Taurus SES at incident site. Image obtained from online news outlet.*

This incident occurred in June 2019 at approximately 1630 hours on the property of a private residence in Missouri. The primary caregivers were the parents of the child. The parents and child lived across the street from the incident site. The EMS and autopsy reports stated the parents and the child arrived at the incident site at approximately midnight on the morning of the incident. The parents<sup>6</sup> parked the Ford in the driveway of the child's grandmother, exited the vehicle, and left the child unattended while seated in a CRS in the second row. They crossed the street and entered their residence and by all indications had no further contact with the child until she was discovered unresponsive by the grandmother more than 16 hours later. The high temperature for the day of the incident was 26.1 °C (79 °F). Emergency responders were dispatched and arrived to find the child not breathing. Efforts to resuscitate the child were unsuccessful and she was pronounced deceased. A paramedic advised police he believed the child had possibly been deceased for several hours.

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<sup>6</sup> The police report did not specify which parent was driving the vehicle.

## Summary

### ***Incident Site***

The incident occurred in Missouri in a residential area on private property including an asphalt driveway and single-family, single-story residence surrounded by a grass lawn and mature trees. The residence faced southeast and the driveway oriented generally southeast to northwest. The driveway was visible from doors and windows on the east and south sides of the residence. The driveway was visible from the front porch, front lawn, and street that fronted the residence. It was unknown when shade may have been cast on the driveway or vehicle during the day. The first several hours of the incident occurred prior to sunrise. Some shade was likely present during early morning.

The parents parked the Ford in a northwest-facing orientation in the driveway. They then left the property, crossed the street to the south side, and entered their residence located across the street from the incident site. The estimated distance between the Ford and the front entrance to the incident site residence was 7 m (23 ft). The estimated distance between the Ford and the parents' residence across the street was 30 m (98 ft).

### ***Weather***

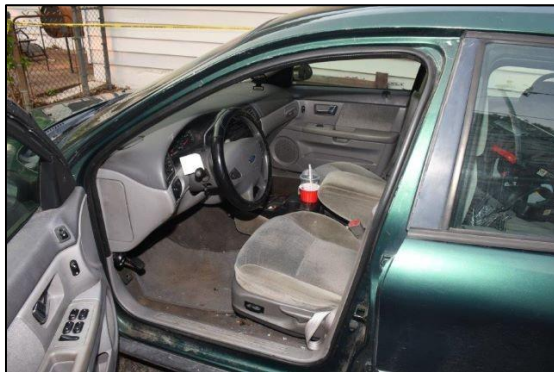
On the day of the incident, the low temperature was 17.8 °C (64 °F) and the high temperature was 26.1 °C (79 °F). Conditions were cloudy during the morning and fair during the afternoon. Winds were calm during morning, with midday gusts NNW to 35 km/h (22 mph) from 1251 to 1551 hours, returning to calm late in the afternoon. At 1640 hours, the solar azimuth angle was 213° and the solar elevation angle was 71°. The table below documents the weather conditions during the time of the incident.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Conditions</b>
0051	19 (66)	87	19 (66)	Partly cloudy
0451	18 (65)	90	19 (65)	Fair
0851	21 (70)	76	21 (70)	Partly cloudy
1251	25 (77)	43	24 (76)	Partly cloudy
1651	26 (79)	39	25 (78)	Fair

### ***Vehicle Information***

The vehicle was a 2000 Ford Taurus SES 4-door sedan identified in the police report by VIN 1FAFP55U4YAxxxxxx (Figure 2). The Ford had a 3.0-liter, 6-cylinder, gas engine, front-wheel drive, standard air conditioning, power windows, and optional power sun/moon roof. The security system included a passkey. The vehicle's exterior color was "Tropic Green Clearcoat Metallic" (dark green) and the interior color was "Medium Graphite" (gray). The Ford had exterior pull type door handles. It had power door locks and the status of the door locks during the incident was unknown. The vehicle had manual child safety locks. When the locks are set, the second-row doors cannot be opened from the inside. The status of the child safety locks was unknown. A remote-entry system and perimeter alarm system were optional equipment and it was unknown if the vehicle had either system. The child was placed in the CRS and vehicle by a

caregiver and given the age, height, and weight of the child, she was likely unable to manipulate the door locks and handles sufficiently to enter or exit the vehicle without assistance.



*Figure 2. 2000 Ford Taurus, front row. Image obtained from local law enforcement.*

The vehicle had electric power window regulators. The EMS, police, and autopsy reports did not specify whether the windows were open or closed during the incident. Due to the age of the vehicle it was unlikely it incorporated telematics or Bluetooth technology. It was unknown if the vehicle had an unattended-child detection, monitoring, or warning system.

### ***Pre-Incident***

The primary caregivers and vehicle drivers were the child's parents. The time spent and distance driven prior to their arrival at the incident site on the morning of the incident was unknown. Prior to the trip, one parent placed the child in a rear-facing Graco SnugRide Click Connect 30 infant safety seat installed in the second row of the vehicle (Figure 3). The child was dressed in a sun dress of an unknown description and a diaper. The caregivers and child returned home at approximately midnight from a trip to visit family. They parked the vehicle facing northwest in the driveway of the grandmother's residence. A media photo obtained from the internet suggested the vehicle was parked approximately 7 m (23 ft) from the front entrance to the residence. At the time of their arrival, the nighttime it was dark with some ambient lighting likely present from nearby residences.



*Figure 3. Graco SnugRide Click Connect 30 CRS, 2000 Ford Taurus. Image obtained from local law enforcement.*

## ***Incident***

The caregivers exited the vehicle, crossed the street to their residence, and went inside. The child was left unattended in the vehicle in the second row while seated in the CRS. It was unknown if the child was left knowingly or unintentionally. It was unknown if leaving the child unattended in the vehicle was common practice or a random event. The investigation found no evidence that either parent returned to the vehicle to check on the child for the duration of the incident. Their activities from 0000 to 1640 were unknown. It was unknown if anyone retrieved any items from the vehicle during the incident. It was also unknown if anyone else approached or entered the vehicle for any reason during the incident prior to 1640 hours.

During the time of the incident, the grandmother was at home at the incident site and was unaware of the child's presence in the vehicle or on the property. It was unknown if other people or vehicles were present during the incident. Visibility from the caregiver's residence to the vehicle was unknown. Trees present in the front yard of the incident site possibly obscured the view. Vehicular and pedestrian traffic traveling on the roadway between the two residences likely had a view of the Ford but not necessarily a view of the CRS or child. An incident site diagram and incident site satellite view are included at the end of this report.

The investigation did not determine whether the child was forgotten or knowingly left behind in the vehicle. The child's mother told emergency responders she was unaware of the child's whereabouts from 0000 hours until 1645 hours on the day of the incident. She was made aware of the child's whereabouts by family members. The documents obtained by SCI did not include statements made by the child's father. The circumstances of the incident indicate that neither parent checked on the infant's welfare or whereabouts for approximately 16 hours and 45 minutes.

## ***Post-Incident***

At approximately 1640 hours, the grandmother of the child exited her residence and approached the vehicle intending to move it to another location. At that time, she observed the child inside the vehicle in an unresponsive state. The grandmother removed the child from the CRS and vehicle and carried her inside the residence while screaming for someone to call for emergency services. It was unknown who else was in the vicinity at the time of the incident or who called 911. The grandmother laid the child on a bed and attempted to administer CPR. Fire personnel were dispatched at 1647 hours and police were dispatched at 1653 hours. Fire and EMS personnel arrived first to find the child displaying signs and symptoms of cardiac arrest with a Glasgow coma score of 3 and no pulse. Her skin felt hot to the touch and her autopsy report indicated an actual core rectal temperature of 42.2 °C (108 °F). She had sustained second-degree burns including blisters on the scalp and ears, as well as subgaleal hemorrhages measuring 10 mm and 20 mm to the right parietal scalp. The child was transported by ambulance to a local hospital, but her condition was unchanged and she was declared deceased at 1707 hours. A paramedic advised police he believed the child had possibly been deceased for several hours. The autopsy report stated the cause of death was hyperthermia and the manner of death was homicide.

The parents were present post-incident. The mother told emergency responders she was unaware of the child's whereabouts during the incident and she last saw the child when they arrived home

from the trip. The parents did not indicate whether the child was left behind knowingly or unintentionally. Both parents were later charged with second degree involuntary manslaughter.

### ***Caregiver/Guardian Data***

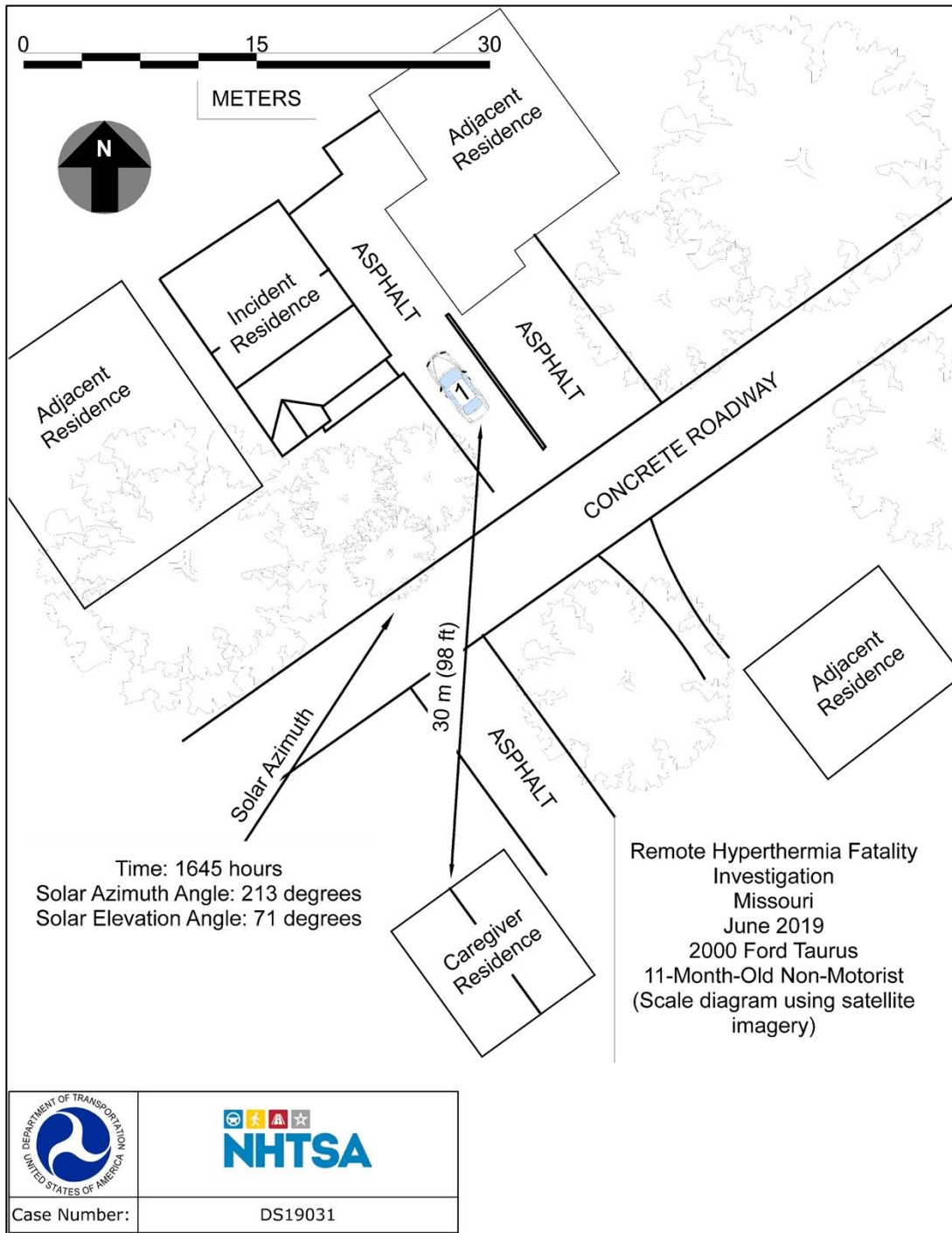
The primary caregivers and vehicle drivers on the day of the incident were the child's 27-year-old father and 24-year-old mother. The primary purpose of the trip prior to the incident was to visit with family, details unknown. The incident occurred on a Sunday. It was not determined what a typical day for the household included. The daily schedules and routines of the family was unknown. Reports obtained by SCI did not mention the presence of other adults or children in the household. The parents and grandmother did not respond to interview requests. It was unknown if the child had other caregivers or guardians. It was unknown if the parents had access to vehicles other than the Ford. It was unknown if recent events may have influenced their actions on the day of the incident.

### ***Non-Motorist (Child) Data***

Age/sex:	11 months old/female
Height:	74 cm (29 in)
Weight:	9 kg (20 lb)
Seat type:	Bench
Seat location:	Second row, unknown position
Restraint usage:	Graco SnugRide Click Connect 30 CRS
Transport from scene:	Ambulance to hospital
Type of medical treatment:	Declared deceased in ER

The child was restrained in a Graco SnugRide Click Connect 30 CRS. It was installed rear-facing in an unknown manner and unknown seat position in the second row of the Ford. It was unknown if the 5-point harness was used. No additional data was available regarding CRS installation or usage.

# Incident Site Diagram



## Incident Site Satellite View

(Google Maps image date: May 6, 2018)





## Addendum



*Figure A-1. Incident site looking west (Google Maps image)*

**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. CR19013**

**Vehicle: 2002 Chrysler Town And Country Minivan**

**Location: Tennessee**

**Incident Date: June 2019**

## **Background**

This report documents the remote investigation of the circumstances surrounding the hyperthermia-related fatality of a 3-year-old male who gained access to the family's 2002 Chrysler Town and Country minivan (Figure 1) in Tennessee in June 2019. The child was under the supervision of his 62-year-old grandmother while his parents slept before they went to work later that evening. The child was last seen at approximately 1630 hours. At 1800 hours, the family noticed he was missing, but did not notify the emergency response system until 2200 hours. Police responded to the family residence and found the child deceased on the second-row floor of the Chrysler. The police further reported that the van appeared to have been parked for some time without being moved.



*Figure 1. On-scene image of the 2002 Chrysler Town and Country. Image obtained from an online news outlet.*

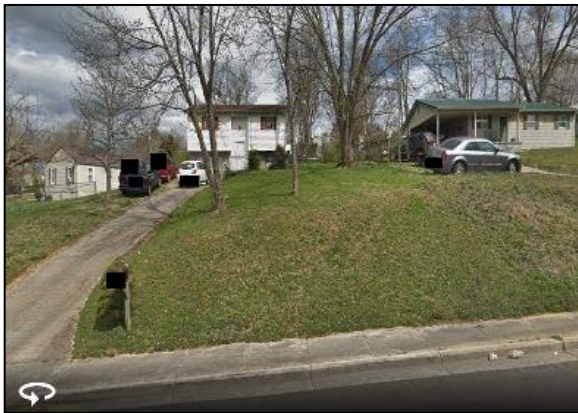
The incident was identified by NHTSA and assigned to the Special Crash Investigations group for further research on October 9, 2019.

The SCI team contacted the police agency and interviewed the investigating officer to obtain the circumstances of the incident. The autopsy and coroner's report were also obtained. This data provided the basis for this remote SCI investigation. The parents of the child did not respond to SCI correspondence.

## Summary

### ***Incident Site***

This incident occurred at the family's residence during the late afternoon and evening. The Chrysler was parked on the lawn area adjacent to the concrete driveway facing in a northeasterly direction. Parked ahead of this minivan was another Chrysler minivan facing in the same direction. A passenger car was parked on the driveway in front of the attached garage and to the right of the Chrysler. The residence was a single-family, raised-ranch-style house with the garage located in the lower left corner of the building when viewed from the street. The driveway was approximately 3 m (10 ft) wide with a positive slope to the residence. The lawn where the Chrysler was parked had a positive grade to the northeast. Two large trees were in the yard of the residence. The largest was in the front yard, but did not shade the Chrysler at this time of day. The second tree was located behind and to the left of the parked position of the Chrysler and offered little to no shade to the vehicle at the time of this incident. Figures 2 and 3 are views of the residence and the parked position of the Chrysler.



*Figure 2. Street view of the residence looking northwest. Image obtained from an online mapping website.*



*Figure 3. Northeast view of the location of the Chrysler in the yard. Image obtained from an online news outlet.*

### ***Weather***

The National Weather Service reported a daytime high temperature of 32°C (90°F) for this day at 1353 hours. Sunrise occurred at 0622 hours with sunset at 2057 hours. The conditions for the day were partly to mostly cloudy. The recorded weather data throughout the duration of this incident is provided in the following table.

Time 24-Hour Clock	Temperature °C (°F)	Humidity %	Calculated Heat Index °C (°F)	Conditions
1353	32 (90)	46	34 (93)	Partly cloudy
1453	31 (88)	48	32 (90)	Mostly cloudy
1553	32 (89)	46	32 (90)	Mostly cloudy
1653	32 (89)	46	32 (90)	Mostly cloudy
1753	30 (86)	49	31 (88)	Mostly cloudy
1853	29 (84)	49	29 (85)	Mostly cloudy
1953	27 (80)	54	27 (81)	Mostly cloudy
2053	26 (78)	60	26 (78)	Mostly cloudy
2153	24 (76)	71	25 (77)	Mostly cloudy
2253	24 (75)	71	24 (76)	Mostly cloudy

### **Vehicle Information**

The vehicle was a 2002 Chrysler Town and Country minivan (Figure 4). The Chrysler exterior was blue with a gray interior with leather seating. It had two forward-hinged front doors, two sliding doors for the second row, and a rear lift gate. The windows for the sliding doors, the rear quarter windows, and the backlight were AS3 deep tint. Two large decal-type displays were present on the backlight. At the time of the incident, the operable front door and rear quarter windows were closed. The windows of the second-row sliding doors and backlight were fixed. The interior seating was front and second-row captain's chairs with a third-row bench seat providing seating for up to seven occupants. The police reported the Chrysler had been parked and was not in service by the family. They also reported the interior was littered with trash.



*Figure 4. 2002 Chrysler Town and Country minivan. Image obtained from an online news outlet.*

The locking system was power. The police reported the vehicle was unlocked at the time of the incident. The mother of the child told police the doors were hard to open. This vehicle had power-sliding doors that could be manually opened with resistance from the power mechanism.

### **Pre-Incident**

The child lived with his parents and his grandmother. On the day of this incident, the parents told the grandmother they were going to nap for a while, as they both work later shifts. The child was then left under the watch of the grandmother. The child was last seen by the parents at approximately 1630 hours when they napped. The grandmother thought the child went to nap with the parent. At some point, the child left the residence.

## ***Incident***

The family noticed the child was missing at approximately 1800 hours. They conducted a brief search of the house and the yard, but didn't notify the emergency response system until 2208 hours. Police officers responded to the residence and found the child deceased, lying on the floor of the second row of the Chrysler. He was pronounced deceased at 2230 hours.

The child apparently opened an unlocked front door to gain access to the Chrysler minivan. Due to the resistance of the power-sliding doors, it would have been difficult for him to open and close one of the sliding doors. The Chrysler was parked on the lawn with a slight negative cross slope from left to right of the vehicle. This cross slope would have made it easier for the child to close the left front door.

Based on the known times, it was estimated the child was in the vehicle for approximately 3.5 hours. The average ambient heat index during this time was 29 °C (85 °F).

## ***Post-Incident***

The child was removed from the vehicle. His body was transferred to the medical examiner for autopsy. The official cause of death was listed as cardiac arrhythmia due to lymphocytic myocarditis.<sup>7</sup> The manner of death was "natural." The autopsy revealed the child had a viral infection of the heart muscle. The medical examiner did not list or mention hyperthermia as a contributing factor.

## ***Caregiver/Guardian Data***

The caregiver/guardian during this incident was the 62-year-old grandmother of the child. She was providing supervision to the child while the parents were sleeping. She was under the impression that the child was asleep with the parents.

## ***Non-Motorist (Child) Data***

Age/sex:	3 years/male
Height:	84 cm (37 in)
Weight:	20 kg (44 lb)
Seat type:	Second-row captain's chair
Restraint use:	None
Transport from scene:	Medical examiner
Type of medical treatment:	None, pronounced deceased at scene

The child was dressed in a diaper (soaked), with a T-shirt and shorts that were on backwards. The medical examiner noted abrasions to the child's left knee, small possible burns to his feet, a small purple contusion under the left eye and several minor to small deep scalp and subgaleal

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<sup>7</sup>This incident was reported and included as a hyperthermia event on [noheatstroke.org](http://noheatstroke.org), which was the source data used for this report. Note that the duration the child was in the vehicle and weather temperatures indicate the conditions were met for categorizing this event as hyperthermia-related.

hemorrhages. As noted above, the official cause of death was listed as cardiac arrhythmia due to lymphocytic myocarditis. The manner of death was “natural.” The autopsy revealed the child had a viral infection of the heart muscle. The medical examiner did not list or mention hyperthermia as a contributing factor.

## Incident Site Satellite View

(Google Maps image date: 2020)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. DS19039**

**Vehicle: 2007 Chevrolet Tahoe LTZ**

**Location: Texas**

**Incident Date: June 2019**

## **Background**

This report documents the remote investigation of the hyperthermia-related fatality of an 18-month-old male who died after being left unattended in a 2007 Chevrolet Tahoe LTZ (Figure 1) for approximately 5 hours in Texas in June 2019. The investigation was intended to determine the events leading to the incident, actions taken by the caregiver, vehicle characteristics and equipment, environmental conditions, and activities of the child. The incident was identified as part of a hyperthermia study by NHTSA and assigned to the SCI team in October 2019. The SCI team obtained the police report, on-scene photos, and autopsy report.



*Figure 1. 2007 Chevrolet Tahoe LTZ. Image obtained from local law enforcement.*

This incident occurred in June 2019 during late morning to late afternoon in a restaurant parking lot in Texas. The 24-year-old father of the child was the primary caregiver and driver at the time of the incident. He was employed at the restaurant and on the day of the incident intended to drop off the child at the residence of a family member then continue to the restaurant to work his shift. Reports stated he forgot to drop off the child and instead drove directly to the restaurant, where he exited the vehicle, leaving behind the child unattended for approximately 5 hours. The child was seated in a rear-facing Britax B-Safe CRS in the second-row right position of the vehicle. Prior to the trip, the caregiver did not buckle the child in the CRS using the 5-point harness because the child was sleeping and, while left unattended, the child moved without assistance from the CRS to the floor space between the second-row bucket seats. After receiving a phone call from a family member and realizing the child was still in the vehicle, the father returned to the vehicle to find the child unresponsive. Emergency responders were called and they transported the child to a local hospital where he was pronounced deceased soon after arrival. Ambient temperatures during the incident ranged from 31.1 °C (88 °F) to 32.7 °C (91 °F). Reports stated the air temperature inside the vehicle exceeded 57.2 °C (135 °F).



## Summary

### *Incident Site*

The incident occurred in Texas in a restaurant parking lot. The property included a single-story restaurant with a flat roof. The parking lot was paved in asphalt on the north, east and south sides and concrete on the west side. The Chevrolet was parked on the west side of the building facing northeast approximately 2 m (6 ft) from the restaurant service entrance (Figure 2). During the time of the incident, no shade was present around the vehicle. It was unknown how many other vehicles may have been parked nearby or the duration of their presence. Police photos taken following the incident show no other vehicles in the immediate area but they may have cleared the area due to their investigation. The caregiver was working a shift inside the restaurant and given the size of the restaurant could not have been more than 22 m (72 ft) from the vehicle at any time. During the incident, other vehicles drove by or stopped near the Chevrolet, including the child's 25-year-old mother, who came to the incident site, opened the second-row right door of the Chevrolet, and removed the CRS from the vehicle. She was unaware of the child's presence on the floor and left the incident site thinking he was in the care of a family member. Additionally, other employees or visitors to the restaurant were close to the vehicle. An incident site diagram and incident site satellite view are included at the end of this report.



*Figure 2. Incident site, 2007 Chevrolet Tahoe, looking east. Image obtained from local law enforcement.*

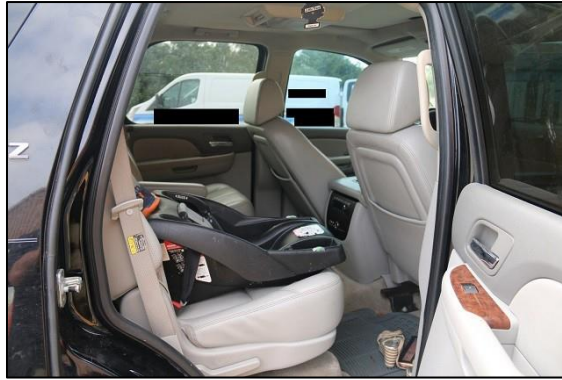
### *Weather*

On the day of the incident, the low temperature was 28.9 °C (84 °F) and the high temperature was 32.8 °C (91 °F). Skies were hazy with visibility of 13 km (8 mi) and maximum wind speed for the day was 32 km/h (20 mph). At 1623 hours, the solar azimuth angle was 265° and the solar elevation angle was 62°. The table below documents the weather conditions for the duration of the incident.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Conditions</b>
1052	31 (88)	75	39 (103)	Haze
1352	32 (90)	75	43 (109)	Haze
1652	32 (90)	75	43 (109)	Haze

### **Vehicle Information**

The 2007 Chevrolet Tahoe LTZ 4-door SUV was identified in the police report by the VIN 1GNFC130X7Rxxxxxx (Figure 3). The Chevrolet had a 4.0-liter, 6-cylinder, flex-fuel engine and rear-wheel drive. Standard equipment included air conditioning, power windows, and passkey security. The vehicle's exterior color was black and the interior color was beige. The vehicle had dark tinted windows (tint percent unknown). The interior had three rows of seating for a capacity of seven occupants. The front row had bucket seats, the second row had bucket seats and folding backs, and the third row had a bench seat with folding backs.



*Figure 3. Interior second row, 2007 Chevrolet Tahoe. Image obtained from local law enforcement.*

The Chevrolet had pull-out type exterior door handles. The vehicle had one double-sided key for the ignition and all door locks, as well as a remote keyless entry system configured to lock and unlock the doors within a range of up to approximately 20 m (65 ft). The vehicle could be locked and unlocked via several methods. From the outside, either the manual key or remote keyless entry system could be used. From the inside, either power door locks or manual, push-pull type lock knobs could be used. The Chevrolet was locked during the incident. When the child's mother came to the restaurant to retrieve the CRS from the vehicle, she obtained the key from the father.

The vehicle had second-row door security locks intended to prevent second-row occupants from opening the doors from the inside. The locks were located on the inside edges of the doors and were activated by inserting the manual key into the lock slot and turning it until the slot was in a horizontal position. Turning the slot back to vertical deactivated the locks. Police photos indicated the left door security lock was deactivated. The right door security lock status was unknown.

The Chevrolet had electric window regulators. The windows were closed during the incident. The alarm system consisted of a standard immobilizer/keyless entry and alarm. It was unknown if the system incorporated telematics or Bluetooth technology. It was unknown if the vehicle had unattended-child detection, monitoring, or warning systems. Given the child's size and age it appears unlikely he could manipulate the door mechanisms and enter or exit the vehicle without assistance.

## ***Pre-Incident***

The incident occurred on a Saturday in June. The family had a similar schedule planned each Friday, Saturday, and Sunday that included both parents going to work and the child being dropped off at his aunt's residence, where she would be his caregiver beginning in late morning and ending in late afternoon. For the remainder of the week, the father's work schedule varied and so the child's drop-off and pick-up times may have changed accordingly. The aunt was the child's only caregiver outside of his parents. Historically, the typical schedule for Saturday was as follows.

The mother left home at 0700 hours, drove to her workplace, and began her shift. The father and child left home at 1000 hours and drove to the aunt's residence, where the child would stay in the care of his aunt while the father proceeded to his workplace and began his shift at 1100 hours. Following work, the mother drove to the father's workplace, retrieved the CRS from the Chevrolet, proceeded to the aunt's residence, and picked up the child at approximately 1500 hours.

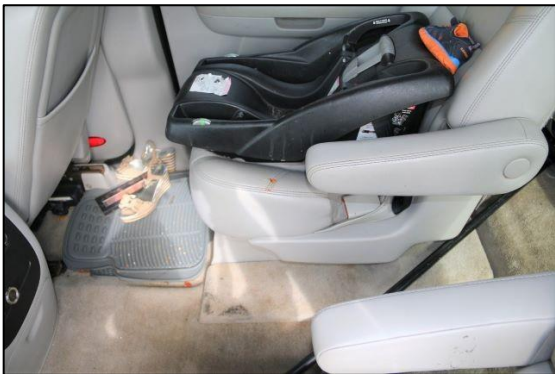
On the morning of the incident, the mother left home for work at approximately 0700 hours, leaving the child in the care of his father. The father woke up at approximately 1000 hours that, given his work shift was to begin at 1100 hours, caused him to rush in preparation for the trip. Prior to leaving he attended to the child, packed his bottle, and placed him in his CRS in the second row. The father told police he sometimes placed the child's CRS in the front-row right position but on this day placed it in the second-row right position. The father told police he left the 5-point harness unbuckled because the child was sleeping. The decision regarding non-usage of the harness possibly played a role during the incident, discussed below. The father then proceeded directly to his workplace with the child on-board instead of dropping the child off at his aunt's residence. The investigation determined the missed stop was likely unintentional and the father made no other stops during the trip. A video surveillance camera located on the restaurant exterior west wall showed the father arrived at the restaurant at 11:17:56 hours. He exited and locked the vehicle, then entered the restaurant to begin his shift. It was not known if the caregiver opened any doors other than the front left for any reason.

The child was left behind while seated in the rear-facing CRS in the second-row right position. The Britax was an infant safety seat with an adjustable handle, LATCH, and a 5-point harness system. The CRS was installed in the Chevrolet using LATCH lower anchors and the stay-in-vehicle base. The harness shoulder straps were not buckled.

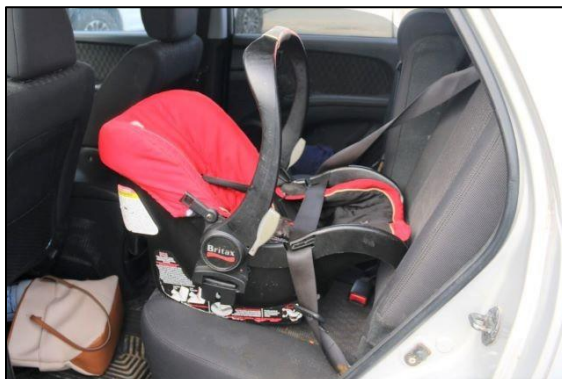
## ***Incident***

The father was working his shift in the restaurant. The child's mother finished her work at 1500 hours and called the father to ask for gas money and to say she needed the CRS. She drove to the restaurant, arriving at approximately 1530 hours. She contacted the father to get the key to the Chevrolet. After getting the key, she unlocked and opened the second-row right door, removed the CRS from its stay-in-vehicle base (Figure 4) and then installed the CRS the second-row left position of her own vehicle, a 2008 Kia Sportage LX (Figure 5). The caregiver had not buckled the CRS harness before the trip. Non-usage of the harness made it possible for the child to move from the CRS to the open floor space between the second-row bucket seats and apparently out of view of the mother. It was not determined how long the child was on the vehicle floor. Prior to the mother leaving the restaurant, the father mentioned to her the child was in the care of his

aunt. The mother mentioned she intended to drive to the aunt's residence, pick up the child, and take him to the beach.



*Figure 4. Britax stay-in-vehicle CRS base, 2007 Chevrolet Tahoe. Image obtained from local law enforcement.*



*Figure 5. Britax B-Safe CRS, installed in 2008 Kia Sportage LX. Image obtained from local law enforcement.*

The mother arrived at the aunt's residence to discover the child had not been dropped off earlier. The mother then drove back to her own residence to look for the child. At approximately 1606 hours the aunt called the father to ask him about the child's whereabouts. Following the call, the father went to the Chevrolet and discovered the child unresponsive on the floor space in the second row. While home, the mother received a call from the father, who was distraught and not speaking clearly about the child's condition. She then returned to the restaurant.

### **Post-Incident**

The father picked up the child from the floor, laid him on a passenger seat cushion, and called 911 at 1623 hours. The father was a recent émigré from Guatemala who did not speak English and communication with the dispatcher was difficult due to translation issues. Police and fire units were dispatched to the incident site and at 1629 were administering CPR to the child. At 1636 he was transported by ambulance to a local hospital. Efforts to resuscitate the child were unsuccessful and he was declared deceased at 1656 hours. His core body temperature measured 42.2 °C (107.9 °F). An EMS supervisor on-scene told police the child was deceased upon their arrival, yet CPR protocols were followed nonetheless. He estimated the child was likely deceased 1 to 1.5 hours after being left behind in the vehicle. While on-scene, police officers checked the current heat index for the area, which read 42.2 °C (108 °F). Using a Klein Tools IR5 dual laser infrared thermometer to measure the Chevrolet's interior heat with doors and windows closed, they obtained readings ranging from 40.6 to 47.8 °C (105 to 118 °F).

The child's autopsy report stated the cause of death was hyperthermia due to environmental exposure and the manner of death was "accident." He had additional injuries including cerebral and pulmonary edema, as well as abrasion and contusions in various stages of healing to the forehead, face, right ear, right upper arm, right lower leg, and left upper arm.

The restaurant manager told police he and other employees walked past the vehicle throughout the day and did not see or notice the child due to dark tint on the windows.

Additionally, the child would have been less visible after moving from the CRS to the floor of the vehicle.

The child's aunt told police that when the child was not dropped off to her, she thought perhaps the mother did not work that day and was caring for the child, which was not unusual. She therefore did not believe she had reason to check on the child's welfare during the day.

### ***Caregiver/Guardian Data***

The primary caregiver at the time of the incident was the child's 24-year-old father. Evidence suggests the child was unintentionally left behind by the caregiver. Records stated the day was typical in some ways yet atypical in others and several factors likely affected the actions of the father before and during the incident.

The day appeared to be typical in the following ways.

- The family had a similar schedule for Friday, Saturday, and Sunday and the incident occurred on a Saturday.
- The father had a history of driving the Chevrolet and the mother had a history of driving a separate vehicle.
- The father routinely dropped off the child at his aunt's residence then proceeding to his workplace.
- The route from the father's home to the aunt's residence and to the father's workplace appeared to be nearby and familiar to him.
- The aunt had expectations she would provide care to the child on Saturdays.
- The mother had expectations she would pick up the child following her work day.
- According to the police report, the father slept approximately 9 hours prior to the incident.

The day appeared to be atypical or included aspects which may have influenced the actions of the caregiver in the following ways.

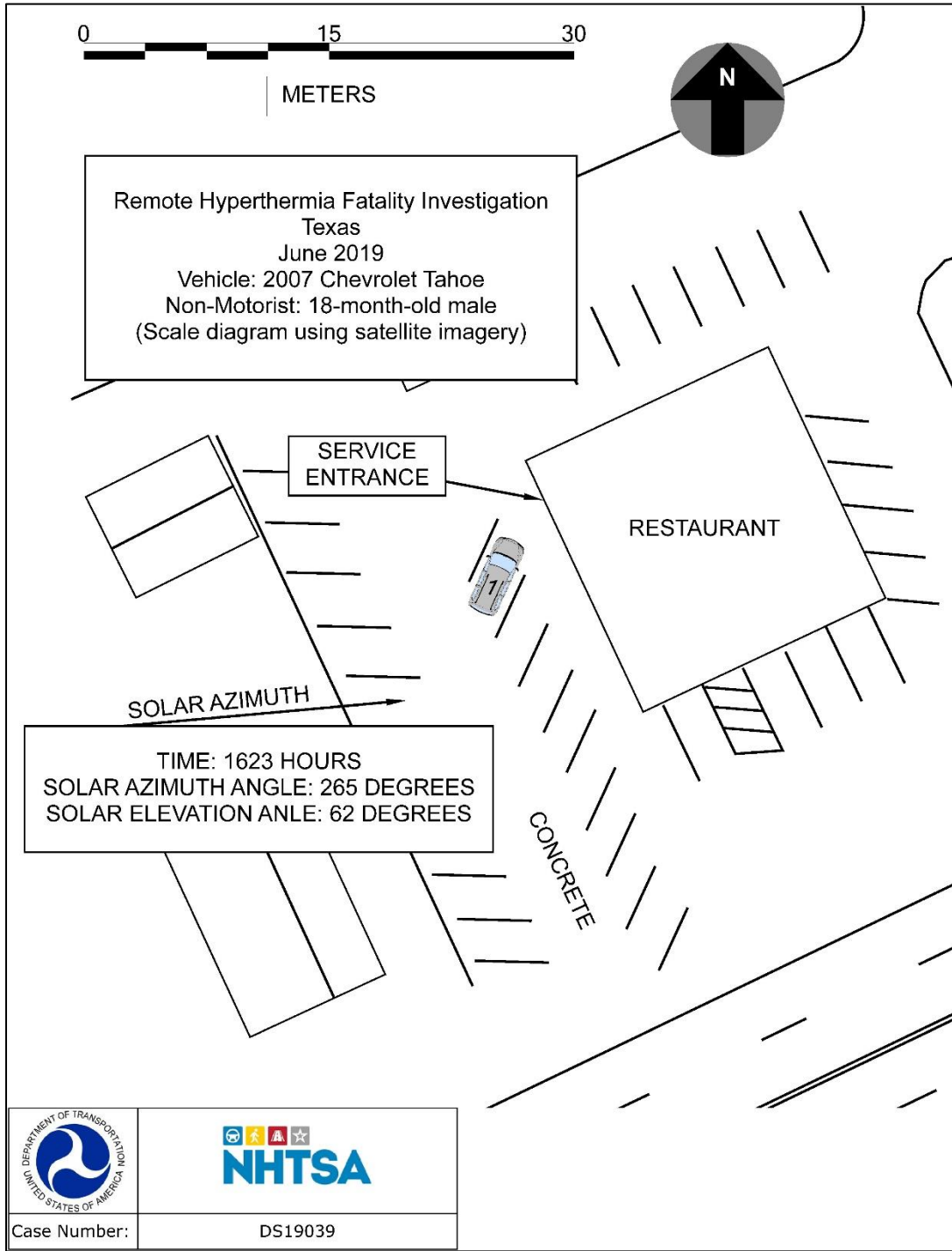
- The father told police he had a "rough day" at work the night prior to the incident and did not get to sleep until 0100 hours the day of the incident.
- The father told police he woke up at 1000 hours on the day of the incident, causing him to rush in preparation for his trip to work.
- The father told police he was "running late" while preparing for work.
- The father told police he may have forgotten to drop the child off at his aunt's because he "was in a rush to get to work."
- The father told police the child did not have a consistent seat position when traveling in the Chevrolet.
- The father sometimes installed the CRS in the front-row right position, and on the day of the incident he installed it in the second-row right position.
- The father told police he momentarily considered leaving the child in the care of his 39-year-old brother, who had recently entered the country and lived in the family home, but then decided against it.
- The father told police he forgot about the child's presence in the vehicle while the child slept silently during the trip.
- The father told police he had been forgetful recently.

According to the assistant district attorney, as of September 2020, no criminal charges were filed against the father. He indicated the case is still open and will be referred to a grand jury later in the year, at which time charges may or may not be filed.

***Non-Motorist (Child) Data***

Age/sex: 18 months old/male  
Height: 81 cm (32 in)  
Weight: 10.9 kg (24 lb)  
Clothing: Diaper  
Seat type: Bucket with folding back, second-row right position  
Restraint usage: Rear-facing CRS, 5-point harness not buckled  
Transport from scene: Ambulance to hospital  
Type of medical treatment: CPR on-scene, dead on arrival at ER

# Incident Site Diagram



## Incident Site Satellite View

(Google Maps image date: September 2016)





**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. DS19038**

**Vehicle: 2002 Ford Explorer**

**Location: Texas**

**Incident Date: June 2019**

## **Background**

This report documents the remote investigation of the hyperthermia-related fatality of a 4-year-old male who died after being left unattended in a 2002 Ford Explorer at the family residence for approximately 2.5 hours in Texas in June 2019. The investigation was intended to determine the events leading to the incident, actions taken by the guardian/caregiver, vehicle characteristics and equipment, environmental conditions, and activities of the driver child. The incident was identified as part of a hyperthermia study by NHTSA and assigned to the SCI team in October 2019. SCI obtained the police report, on-scene photos, and autopsy report.

The incident occurred during daytime in June 2019 on the property of a private residence in Texas. The caregiver on that day was the mother of the child and a resident of the property. Earlier in the day, the mother drove the Ford with her three sons and an unrelated male child to a nearby store to get snacks. The vehicle had a seating capacity for five and was fully occupied. The unrelated child was seated in the front passenger seat position, the child drove in the incident was seated in the second-row left seat position in a forward-facing CRS, his 12-year-old brother was beside him in the second-row center seat position, and his 4-year-old twin brother was seated in the second-row right seat position in a forward-facing CRS. When they returned home, the 12-year-old brother unbuckled the harnesses from both CRS-restrained occupants and assisted the twin brother in the second-row right position from the vehicle. The 12-year-old brother later told police that he thought someone else had helped the child to exit the vehicle but no one did so. All occupants except the child exited the vehicle and went into the house, leaving the child unattended sitting in his CRS inside the vehicle.

The Ford was parked in direct sunlight and the temperature during the incident was 35 °C (95 °F). The mother later told police she assumed all the children went inside the house but she did not check on them to be sure. Twenty to 30 minutes later, family members became aware of the child's absence and a search began. After searching the residence, the 12-year-old brother went out and found the child inside the vehicle. The child's eyes were closed and he was unresponsive. Emergency responders were called and the child was transported by helicopter to a hospital where he died 2 days later. According to an arrest warrant, his core body temperature near the time of his discovery was 43.2 °C (109.8 °F). The autopsy report stated that the cause of death was hyperthermia due to prolonged exposure to extreme heat.

## Summary

### *Incident Site*

The incident occurred in Texas on private property in a residential area that included a concrete driveway and a two-story, single-family residence with a hip roof, surrounded by a grass lawn and wooden fence on the west side and a neighboring residence on the east side (Figure 1). The front of the residence faced south toward an east/west street and the back faced north toward an east/west alley. The driveway was oriented north to south and was located on the north side of the residence between an attached garage and the alley. The driveway measured 5.8 m (19.0 ft) wide and 10.0 m (32.8 ft) long and sloped downward at an estimated grade of negative 8 percent from garage to alley. The driveway was bordered on the west edge by a wooden fence measuring approximately 1.5 m (5.0 ft) tall. Four mature trees aligned in a north to south orientation were located 6 m (20 ft) west of the fence on the west side of the residence. Another two-story residence and driveway were located close to the east side of the incident residence. At the time of the incident, the Ford was parked facing south in the driveway at an estimated distance of 4 m (13 ft) north of the garage. According to the police report, no shade was present at the vehicle location and the Ford was in direct sunlight for the duration of the incident. It was unknown if other vehicles were present during the incident. Police photos taken post-incident show a second vehicle parked in the driveway. The mother and four children were present in the home in addition to the child who was in the vehicle.



*Figure 1. Incident site and 2002 Ford Explorer, looking south from alley. Image obtained from local law enforcement.*

## Weather

On the day of the incident, the low temperature was 23.3 °C (74 °F) and the high temperature was 35.0 °C (95 °F). Skies were clear and maximum wind speed for the day was 39 km/h (21 mph). The table below documents the weather conditions during the time of the incident.

Time 24-Hour Clock	Temperature °C (°F)	Humidity %	Calculated Heat Index °C (°F)	Conditions
1353	34 (93)	57	41 (106)	Fair
1553	35 (95)	56	43 (110)	Fair
1653	35 (95)	54	43 (109)	Fair

## Vehicle Information

The vehicle was a 2002 Ford Explorer XLS 4-door SUV identified in the police report by VIN 1FMZU62K02Zxxxxxx (Figure 2). The Ford had a 4.0-liter, 6-cylinder, flex-fuel engine and rear-wheel drive. Standard equipment included air conditioning, power windows and passkey security system. The vehicle's exterior color was "Silver Birch Clearcoat Metallic" (silver) and the interior color was "Graphite" (dark gray) leather.



*Figure 2. Interior view, 2002 Ford Explorer. Image obtained from local law enforcement.*

The Ford had exterior pull type door handles. All four doors had interior power door locks. A press of the control locked or unlocked all four doors. All four interior doors had interior manual door lock knobs located above the inside door release handle.

The second-row doors had manual child safety door locks that when set to the locked position prevented the doors from opening when pulling the interior handle (Figure 3). Police photos indicated the child safety door locks were disengaged at the time of their investigation and it was confirmed in their report. The vehicle was unlocked during the incident.



*Figure 3. Child proof door lock, second-row left, 2002 Ford Explorer. Image obtained from local law enforcement.*

The vehicle had electric window regulators. The windows were closed during the incident. The alarm system consisted of a standard immobilizer/keyless entry and alarm. It was unknown if the system incorporated telematics or Bluetooth technology. It was unknown if the vehicle had an unattended-child detection, monitoring, or warning system.

### ***Pre-Incident***

The primary caregiver was the child's mother. She was also the driver of the vehicle, resident of the property, and the only adult present at the time of the incident. Prior to the trip to the store, the child was assisted into the forward-facing CRS by an unspecified occupant of the vehicle who buckled the CRS harness. During their investigation, police conducted a time study to determine a timeline of pre-incident events that included the round trip from the residence to the store and back to the residence. They determined the vehicle departed the residence at or about 1350 hours, drove approximately 1.6 km (1.0 mi) to the store, arriving at 1354 hours. Their arrival, duration at the store, and departure times were captured on a video surveillance camera. After arriving at the store, the 12-year-old brother and unrelated child exited the vehicle, entered the store, and then returned to the vehicle at 1404 hours, after which the vehicle departed the store in seconds. They arrived back home at a police-estimated time of 1411 hours. Prior to exiting the vehicle, the older brother unbuckled the harnesses from both CRS-restrained occupants and assisted the 4-year-old male in the second-row right position from the vehicle. The 12-year-old brother later told police that he thought someone else had helped the child to exit the vehicle, but no one did so. All occupants except the child exited the vehicle and went inside the residence. The mother later told police she thought all the children had gone inside the residence. A 13-year-old sister of the child was also inside the residence at that time.

The child was restrained in a forward-facing Safety 1st Grow 'n' Go 3-in-1 convertible CRS in the second-row left seat position (Figure 4). It was installed using the vehicle's lap and shoulder seat belt and police indicated it was installed correctly and appeared to be very stable. During the trip, the child used the 5-point harness. The child was not covered by a blanket or other object.



Figure 4. Safety 1st Grow 'n' Go 3-in-1 CRS (police photo)

### **Incident**

When the family returned home, the 13-year-old sister was taking a nap and the brothers and family friend played or relaxed in the residence. The mother was in the residence during the incident but her specific location and activities during that time were unknown. The police report suggested that, when interviewed by police, the mother's account of the incident was inconsistent with the accounts given by the 13-year-old sister and 12-year-old brother. The accounts given by the two siblings appeared consistent with one another. According to the mother, approximately 30 minutes after arriving home from the trip, she began asking the children as to the whereabouts of the child. She stated that following an unspecified duration the brother found the child in the vehicle and carried him to the residence, at which time she took the child from him and laid him on the rug. She stated he was not conscious but that after she initiated CPR he began to breathe. She stated "stuff" was coming from his mouth that smelled like "throw up." She stated that she continued resuscitative efforts until emergency responders arrived.

According to the sister, she awoke from a nap at approximately 1430 hours (20 minutes after the family returned home) and soon thereafter it was she who initially asked the mother as to the whereabouts of the child, and the mother stated she thought he was playing with the other boys. The sister stated that after searching the residence and not finding the child she placed a 911 call to report him missing and, during the call, the brother and family friend found the child in the vehicle and brought him into the residence.

According to the brother, the children were upstairs playing when they noticed the child was absent. Initially, he thought the child might be hiding somewhere in the house but after searching unsuccessfully he and the family friend looked outside, where they found the child inside the vehicle.

The police report did not specifically state the mother's location and activities in the residence during the incident. At 1649 hours, the sister called 911 to report the child missing and at 1650 hours, police and fire department personnel were dispatched. At the beginning of the call, the sister told the dispatcher that "everyone is looking for him" and they looked in the house as well as outside in the front and back yard. Her statement suggests the mother may have been engaged in the search for the child and it appears the mother was on the first floor of the residence at the time the 911 call was placed. Less than 2 minutes into the call the 12-year-old brother and family friend discovered the child in the vehicle. The 12-year-old brother opened the unlocked door and

found the child was unresponsive. He removed the child from the CRS and the family friend carried him inside the residence and placed him on a floor rug. The mother was alerted in an unknown manner to the child's condition and location on the first floor. Based on the police report and statements made by the family, the mother was made aware of the situation when the child was carried into the residence. Once the child was inside the residence, the mother attempted CPR while the sister received and relayed instructions from the 911 dispatcher. The child had been left unattended in the vehicle for approximately 2 hours 38 minutes. This suggests the search for the child lasted more than 2 hours.

At the time of the incident, six people including the child were present on the property, as follows: 38-year-old mother; 4-year-old male child; 13-year-old female, sister; 12-year-old male, brother; 4-year-old male, brother; and the unrelated child.

It was unknown if anyone inside or outside the household approached, entered, or removed items from the vehicle during the incident. It was unknown if other vehicles passed by or parked near the Ford during the incident. The Ford was likely visible from the interior of the residence through windows on the second floor and was possibly visible from a door and window on the first floor. However, any view from the first floor would be partially obstructed by a protrusion of the building floor plan and the wooden fence bordering the driveway. Given the child's position in the vehicle relative to the residence's door and windows, he was not likely visible to anyone inside the residence during the incident.

It was not known if the child had ever entered or exited the vehicle without assistance or if he was physically able to do so. The police report indicated the older brother or other occupants routinely assisted the 4-year-old males in and out of their CRSs. If the CRS was unbuckled after the trip, as indicated by the brother, it appears likely the child would have been able to reach the interior door handles. The police reports gave no indication of evidence he attempted to exit the vehicle. The child had a history of playing with a cell phone while traveling in the vehicle. Police found a cell phone lying on the second-row bench seat during their investigation. It was unknown if the phone had any relevance to the incident.

The investigation determined the child was forgotten and unintentionally left behind in the vehicle. The determination was based on statements made by family members to police as well as actions taken by the family during the incident. The evidence suggested various family members thought someone else assisted the child from the vehicle after they arrived home and then later assumed he was somewhere in the residence while he was still in the vehicle.

### ***Post-Incident***

The mother attempted to administer CPR while waiting for emergency responders to arrive. At some time, the child resumed detectable breathing but he did not regain consciousness. For unknown reasons, the mother placed a second 911 call prior to the arrival of emergency responders. SCI obtained audio files of both 911 calls and it seemed the sister communicated more effectively with the dispatcher than did the mother. When emergency responders arrived, the child was moved to an ambulance and then transferred an unknown distance to a helicopter.<sup>8</sup> EMS reported the child's eyes were open but were not tracking and he was unresponsive to stimuli including a needle injection into the tibia, which is typically very painful. The child was transported by helicopter to a local hospital located approximately 40 km (25 mi) away, where he

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<sup>8</sup> The helicopter landing required local road closures an unknown distance from the incident site.

was admitted in critical condition. The child's rectal temperature as measured by EMS was 43.2 °C (109.8 °F).

According to the autopsy report his injuries included hyperpyrexia, cerebral edema, acute bronchopneumonia, hemorrhages of the epicardium and endocardium, bilateral pleural effusions and peritoneal effusion. During the next 2 days, he experienced multiple organ system failure that included brain system failure. He was declared deceased 2 days after the incident. The autopsy stated that the cause of death was hyperthermia and the manner of death was "accident."

### ***Caregiver/Guardian Data***

The caregiver was the child's 38-year-old mother, driver, and resident of the property. She drove the children to the store to get snacks. The entire trip took approximately 21 minutes. Upon returning home and exiting the vehicle it appears unlikely the mother checked on the condition of the child or assisted him in any way.

The incident occurred on a Thursday during summer. Police records suggested some aspects of the day were typical in the following ways.

- The mother was home.
- The mother's children were home.
- School was not in session due to summer break.
- The family vehicle was available for use.
- The trip to the store and back was a familiar, short route.
- The children appeared to have a usual seating arrangement while on trips.
- The 4-year-old twin boys including the child routinely sat in CRSs in the outboard positions in the second row of the vehicle.
- The children appeared to occupy their free time at home by playing or relaxing.

A police interview with the child's father suggested recent events may have had a significant role in the inattentiveness of the mother on the day of the incident. He indicated the presence of the following factor.

- Approximately 2 months prior to the incident, the mother's doctor changed an unspecified prescription medication to a different unspecified medication that, based on her behavior and appearance, caused the father to conclude "something was wrong with her." He continued that she exhibited a "spacey" behavior and had a "dull look." He described the newly prescribed medication as "psych" meds but he could not identify it by name.

The investigation did not determine if the child was left behind knowingly or unintentionally. The mother appeared somewhat detached from activities during the incident in that it was left to the children to notice the child's absence, to call 911 first, to leave the residence and discover him in the vehicle, carry him into the residence, etc. The mother placed a second 911 call prior to the arrival of emergency responders that consisted primarily of voices and background noises from the incident site. The mother told police she noticed the child's absence 30 minutes after returning from the trip but more than 2.5 hours passed before the 911 call was made.

It was unknown if the mother was aware of potential dangers associated with hyperthermia. It was unknown what level of information was made available to her or if she had a plan in place to prevent such occurrences. It was unknown if she used smart phone or Bluetooth technology to

monitor the vehicle. Efforts by SCI to interview the mother via telephone and letter were unsuccessful.

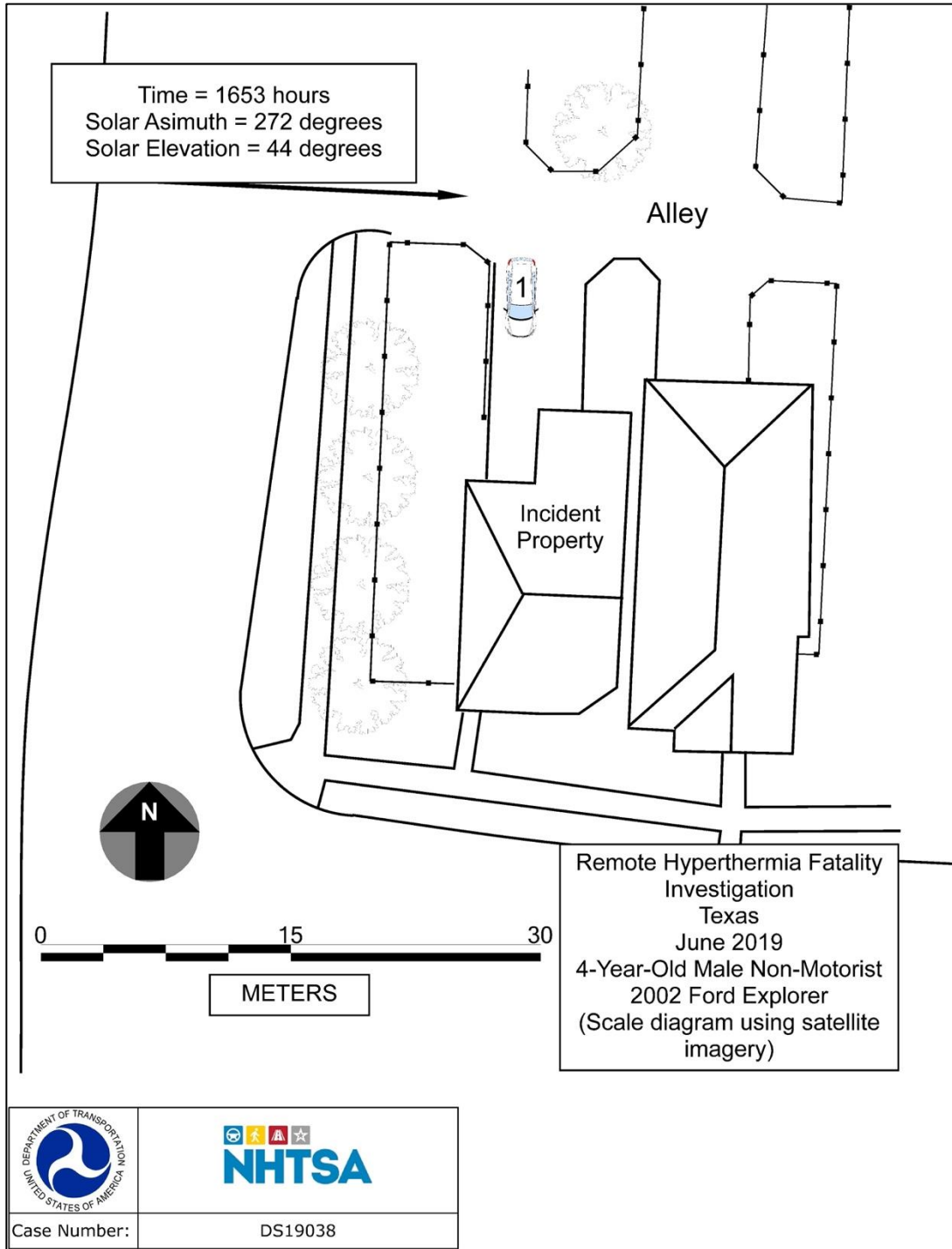
Following a police investigation, the mother was arrested and charged with the second-degree felony offense of injury to a child. An online bail bond registry showed she was booked in July 2019 into a county jail and no release date was shown.

***Non-Motorist (Child) Data***

Age/sex:	4 years old/male
Height:	102 cm (40 in)
Weight:	18 kg (39 lb)
Seat type:	Bench with folding back
Seat location:	Second row, left seat
Restraint usage:	Forward-facing CRS
Transport from scene:	Helicopter to hospital
Type of medical treatment:	Hospitalization for 2 days then declared deceased



# Incident Site Diagram



## Incident Site Satellite View

(Google Maps image date: October 26, 2019)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. DS19033**

**Vehicle: 2001 Nissan Frontier Crew Cab Pickup**

**Location: Texas**

**Incident Date: June 2019**

## **Background**

This report documents the remote investigation of the hyperthermia death of an 11-month-old female left unattended in a parked 2001 Nissan Frontier pickup (Figure 1) for approximately 3 hours during daylight in Texas in June 2019. The investigation was intended to determine the events leading to the incident, the actions of the caregiver/guardian, the vehicle characteristics and equipment, the environment/scene conditions and layout, and the activities of the driver. The incident was identified as part of a hyperthermia study by NHTSA and assigned to the SCI team in October 2019.



*Figure 1. Exemplar 2001 Nissan Frontier*

This incident occurred in the driveway of a private residence when the 46-year-old grandmother of the child drove to her daughter's place of work and picked up her daughter's four children, including the 11-month-old child. The Nissan was a 4-door crew cab model with a second row of seats. The child was placed in the Nissan in the second-row middle seat in a rear-facing CRS. Six children were in the vehicle with her during this trip. The grandmother returned to her residence at approximately 1400 hours and parked the Nissan in the driveway. She exited the vehicle and entered the residence with the mobile children. The child remained in the vehicle still seated in the CRS. The temperature at 1353 hours was 35 °C (95 °F).

At approximately 1640 hours a female relative arrived at the residence and began preparing food with the grandmother. The temperature at 1653 hours was 35 °C (95 °F). At 1700 hours, additional relatives arrived at the residence. It was at this time they realized the child was not in the residence. They went to the vehicle, found the child, and brought her into the residence. The police were called. They were dispatched at 1717 hours, arrived at 1719 hours, and began CPR at 1720 hours. EMS personnel arrived shortly after the police and took over the CPR efforts. CPR was discontinued when it became obvious that the child was deceased and rigor mortis had begun. The police investigative report, autopsy report, and child protective services report were obtained. According to the medical examiner, the cause of death was hyperthermia. Images were not available, according to the county attorney. The responding fire department was contacted

but it does not prepare incident reports since it is a volunteer force. The first responding EMT was interviewed by SCI.

## Summary

### Incident Site

The incident occurred in Texas on private property in the driveway of a single-story residence oriented in a northwest direction and was surfaced in concrete. The driveway led from the street to a covered carport (Figure 2). There were no shade-producing structures or vegetation near the vehicle. There were at least two other vehicles present in the driveway near the time the child was discovered. An incident site diagram and incident site satellite view are included at the end of this report.



Figure 2. View of residence, looking northwest. Image obtained from internet mapping software.

### Weather

On the day of the incident the low temperature was 27 C (82 °F) and the high temperature was 35 °C (96 °F). The conditions were fair for most of the day with moderate winds out of the south. At 1200 hours, the solar azimuth angle was 143° and the solar elevation angle was 70°. At 1700 hours, the solar azimuth angle was 294° and the solar elevation angle was 6°. The incident occurred during mid-afternoon. The table below documents the weather conditions during the time of the incident.

Time 24-Hour Clock	Temperature °C (°F)	Humidity %	Calculated Heat Index °C (°F)	Conditions
1153	33 (92)	54	38 (101)	Fair
1253	33 (93)	52	39 (102)	Fair
1353	35 (95)	47	40 (103)	Fair
1453	35 (96)	46	40 (105)	Fair
1553	35 (96)	46	40 (105)	Fair
1653	35 (95)	47	40 (103)	Fair/windy

### Vehicle Information

The drove vehicle was a 2001 Nissan Frontier 4-door crew cab pickup truck identified by the VIN 1N6ED27Y61Cxxxxxx. The vehicle had a 3.4-liter, 6-cylinder, gas engine coupled to an automatic transmission and 4-wheel drive. The exterior color was “Silver Ice Metallic” and the

interior was either beige or gray. The vehicle had leather-covered front bucket seats and a tilting second-row bench seat.

The Nissan had exterior pull type door handles. According to the police and a first responder, there were no indications that the vehicle doors were locked at any time during the incident. The crew cab model is equipped with child safety locks that help prevent the rear doors from being opened from the inside. The child safety locks are located on the edge of the rear doors. When the lever is in the lock position, the doors can only be opened from the outside. It is unknown if the child locks were engaged or not. There was no discussion of the child locks in the report. It is unknown if the window regulators were powered or manual or if any windows were open. There are no indications that the vehicle had an alarm system.

### ***Pre-Incident***

Both parents of the drove child work. They have four children: a 10-year-old female, a 7-year-old male, a 5-year-old female, and an 11-month-old female (child). The father usually goes into work in the morning. The mother works at a fast-food restaurant in the afternoon and is typically home with the child in the morning. On days she works, she takes the children to the grandmother's residence at 1330 hours. The children are usually there for 4 to 6 hours about 4 or 5 times per week.

On the day of the incident, the father woke up at approximately 0730 hours and departed for work. The rest of the family woke up at approximately 0830 hours. The mother and her four children left their residence and began doing some errands. At one point, they drove to the grandmother's residence but she was not in. They then returned to their residence so the mother could get ready for work. She was scheduled to begin work at 1400 hours. She drove to her place of business with the four children and arrived at approximately 1350 hours. Her mother (the grandmother) arrived shortly thereafter. The grandmother already had two children in the vehicle with her and had gone to the grocery store prior to arriving at the restaurant. The grandmother and the six children, including the child in the CRS, departed from the restaurant and drove approximately 9.6 km (6 miles) to the grandmother's residence (the incident site). There were no intermediate stops during this trip.

### ***Incident***

The grandmother exited the vehicle and entered the residence with the other children and the groceries. Several children assisted in taking the groceries into the residence. The child remained in the vehicle still seated in the CRS. The temperature at 1153 hours was 32 °C (90 °F). At approximately 1640 hours the child's 21-year-old aunt arrived at the residence and began preparing food with the child's grandmother. The temperature at 1653 hours was 35 °C (95 °F). The aunt was putting a phone protector on her phone when her sister arrived home.

At 1700 hours, the 17-year-old aunt of the child arrived at the residence. The two aunts asked the grandmother and other children present where the child was. The grandmother stated that she had forgotten her in the truck and they all went outside and found the child in the CRS in the Nissan. They took the child out of the vehicle, brought her inside, and contacted emergency services. It is unknown if the family members attempted CPR. They did try to cool off the child with a damp cloth.

## ***Post-Incident***

Police officers arrived at 1719 hours, found the child lying on the living room/kitchen floor unresponsive, and began CPR efforts at 1720 hours. An officer noted that rigor mortis had already begun. An EMS first responder with the volunteer fire department received the emergency call at his home at approximately 1700 hours. He drove directly to the residence, which was approximately 10 to 11 km (6 or 7 miles) away. He was delayed for a short time due to a bad dispatch address. He arrived at 1727 hours and took over CPR efforts from the police officer. At no time did the child begin breathing or have a heartbeat. The EMS responder discontinued his efforts when it became obvious that too much time had passed. Police, ambulance EMTs, and other first responders arrived on-scene to assist in the death investigation. The child's mother and father arrived on-scene after being contacted by phone. The mother was unable to provide a statement at that time. The father said he was unsure why his mother-in-law would leave the child in the vehicle. He was not aware if it was common for her to forget things like this. The local justice of the peace requested an autopsy be performed. An internal/external autopsy was conducted 2 days after the incident. The conclusion was that the child "died as a result of hyperthermia" and the manner of death was "accident."

The State child protective services agency opened an investigation. The mother and father of the child were cleared of any wrongdoing. The grandmother was accused of "neglectful supervision." The district attorney charged her with a felony and brought the case to the grand jury. The grand jury issued a no bill and declined to indict her.

## ***Caregiver/Guardian Data***

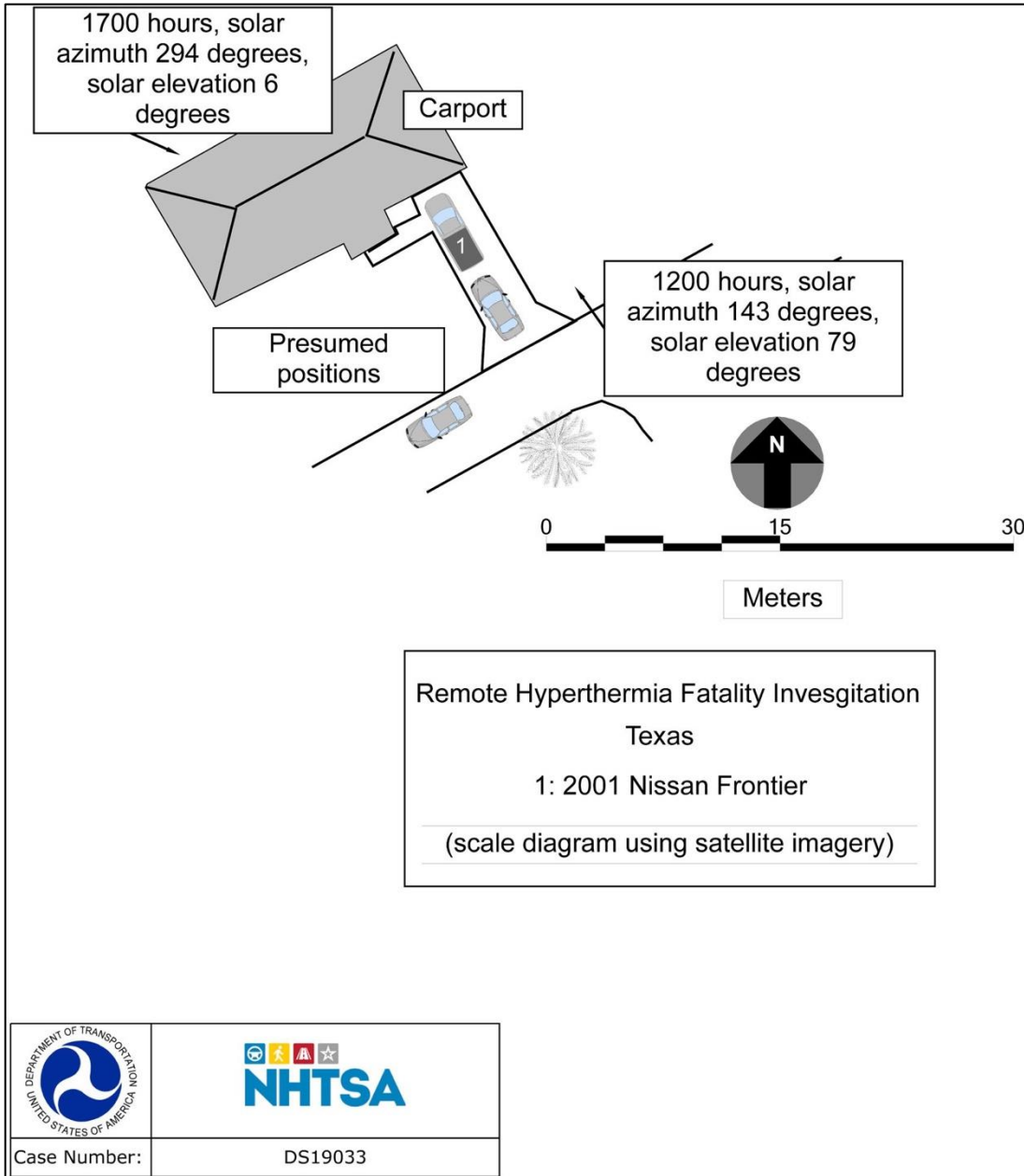
The caregiver was the 46-year-old maternal grandmother of the deceased child. On this day, she was caring for at least six children at her residence. Several of the children were related to her and lived at the same residence. The drove child was her grandchild and did not live at this residence. She was being cared for at this residence while her parents were working. The grandmother had picked up the children from her daughter's place of business. She placed the drove child in the CRS. The grandmother returned to the residence at approximately 1400 hours and parked the Nissan in the driveway. She exited the vehicle and entered the residence with the mobile children and the groceries. The child was unintentionally left behind. Prior to the child being discovered, the child's two aunts arrived by car at the residence and likely passed close to the Nissan as they entered the residence. The grandmother was preparing food with her daughters just prior to realizing that the child was still in the truck.

## ***Non-Motorist (Child) Data***

Age/sex:	11 months old/female
Height:	76.5 cm (30.1 in)
Weight:	10 kg (23 lbs)
Seat type:	Tilting bench seat
Restraint usage:	Seated in CRS
Transport from scene:	None
Type of medical treatment:	Treated on scene, declared deceased

The child was seated in a rear-facing CRS of unknown make and model that was in the second-row middle of the Nissan with the internal harness fastened. She was wearing a diaper at the time of the incident.

# Incident Site Diagram



## Incident Site Satellite View

(Google Maps image date: March 21, 2018)





**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. CR19018**

**Vehicle: Ford E-350 Super Duty Van**

**Location: Florida**

**Incident Date: July 2019**

## **Background**

This report documents the remote investigation of the circumstances surrounding the hyperthermia-related fatality of a 2-year-old male left unattended in a Ford E-350 daycare van (Figure 1) for approximately 5 hours by the female driver in Florida in July 2019. The police reported that the driver arrived at the daycare facility and turned off an audible safety alarm on the Ford E-350 prior to disembarking the child occupants. As the children exited the van, the driver failed to physically check each seat for occupied positions. The 2-year-old was left belted in the van for approximately 5 hours, where he expired. The driver was charged with one count of aggravated manslaughter. This incident was identified by NHTSA and assigned to the Special Crash Investigations group for further research in October 2019.



*Figure 1. Incident Scene. Image obtained from an online news outlet.*

The SCI team contacted the police agency for records pertaining to this incident. The records department stated that the SCI team would have to speak with the investigating officer to obtain approval to have any records released. Voicemails were left for the investigating officer and the SCI team never received a return call. A search of online media sources provided the basis for this report.

## Summary

### ***Incident Site***

The incident occurred in the morning and early afternoon in a small parking lot of a local daycare facility (Figure 2). The parking lot had four parking spaces and was located on the west side of the daycare with trees located on the north and south sides of the parking lot resulting in shade coverage of almost the entire parking lot. The Ford E-350 Super Duty passenger van, model year unknown, was parked in the southern most parking spot facing east.



*Figure 2. Incident Scene. Image obtained from an online news outlet.*

### ***Weather***

The weather data for the duration of this incident was obtained from the National Weather Service. Sunrise occurred at 0645 hours with sunset reported at 2010 hours. The peak temperature for the day was at 32 °C (90 °F) recorded at 1153 hours with 61 percent humidity. Winds ranged from 0 km/h (0 mph) and 21 km/h (13 mph). The conditions were reported as fair for most of the day. The temperatures, humidity, calculated heat index, and conditions for the duration of the incident are provided in the following table.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Conditions</b>
0753	27 (82)	85	32 (90)	Fair
0853	30 (86)	74	36 (97)	Fair
0953	31 (88)	63	36 (97)	Partly cloudy
1053	31 (88)	63	36 (97)	Mostly cloudy
1153	32 (90)	61	38 (100)	Mostly cloudy
1253	31 (89)	63	37 (98)	Mostly cloudy
1353	32 (90)	59	37 (99)	Mostly cloudy
1453	32 (90)	59	37 (99)	Mostly cloudy
1553	32 (90)	57	37 (98)	Thunder

### **Vehicle Information**

The vehicle in this hyperthermia investigation was a Ford E-350 Super Duty passenger van of unknown model year. The exterior color was white. It had three forward-hinged doors and one rear-hinged door. All side windows were AS2 glazing with deep tint as reported by online news media sources.



*Figure 3. Ford E-350 Super Duty passenger van. Image obtained from online news outlet.*

The exterior door handles were pull-type that protruded beyond the profile of the doors. A recessed pocket was formed into the door panel to provide adequate grip space for the handle. The status of the locks on the Ford E-350 is unknown.

### **Pre-Incident**

On the day of the incident the driver picked up the child at approximately 0902 hours and secured him in the van, presumably with the seat belt. Online news media sources reported that he was not secured in a CRS. The exact position of the child in the vehicle is unknown. The driver continued the normal route for picking up children and then returned to the daycare.

### **Incident**

Upon arriving at the daycare, the driver parked the Ford E-350 in the southernmost parking spot in the daycare parking lot with the van facing east. All other children except for the involved child exited the vehicle and entered the daycare facility with the driver. Day care activities proceeded as normal and approximately 5 hours later the child was noticed to not be present. Daycare employees began searching for the child and found him unresponsive in the Ford E-350 passenger van.

### **Post-Incident**

An employee of the daycare facility called emergency services upon finding the child. First responders arrived on scene and declared the child deceased. The driver was charged with one count of aggravated manslaughter by the local law enforcement agency. At the time of this report, the court case is still pending.

### **Caregiver/Guardian Data**

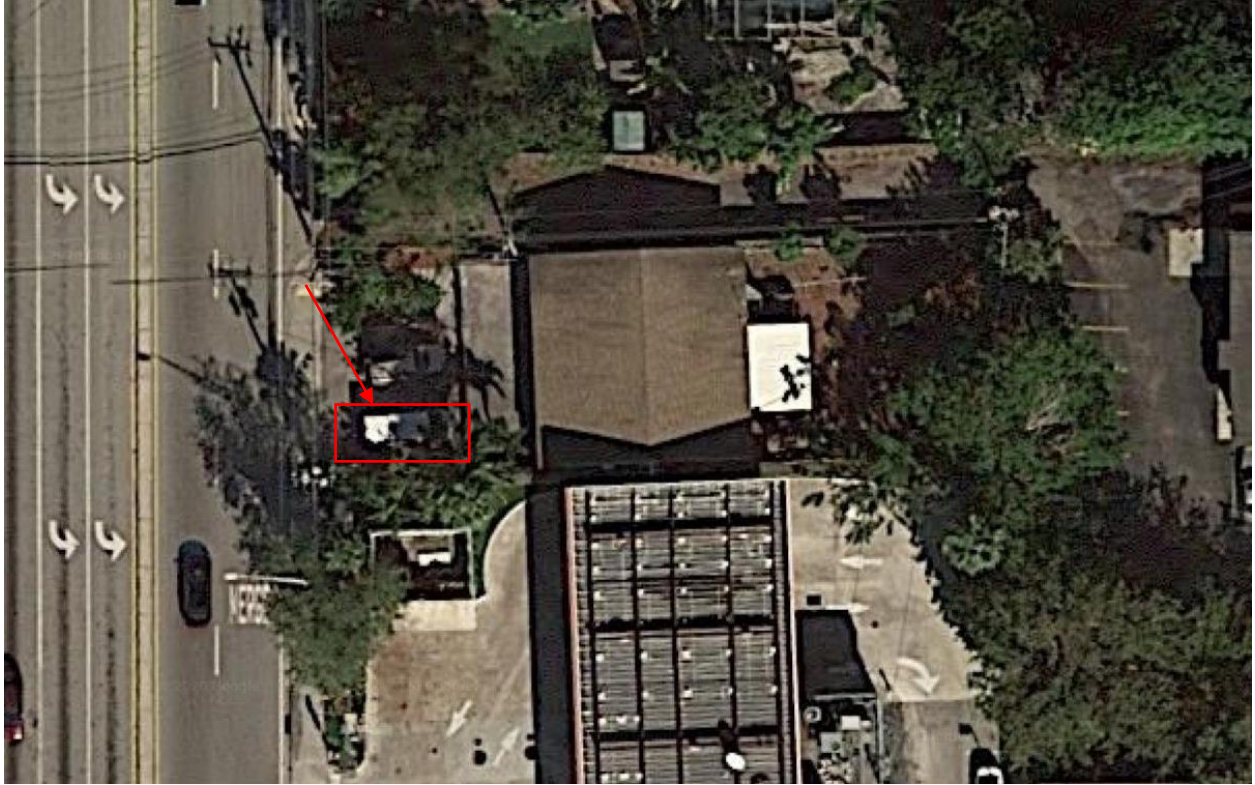
The caregiver of the 2-year-old was the driver of the Ford E-350 daycare passenger van. No additional information could be obtained on the caregiver.

***Non-Motorist (Child) Data***

Age/sex:	2 years old/male
Height:	Unknown
Weight:	Unknown
Seat type:	Unknown
Restraint usage:	Unknown
Transport from scene:	Unknown
Type of medical treatment:	Declared deceased when first responders arrived on scene

**Incident Site Satellite View**

(Google Maps image date: 2020)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. DS19032**

**Vehicle: 2008 Nissan Sentra**

**Location: Indiana**

**Incident Date: July 2019**

## **Background**

This report documents the remote investigation of the hyperthermia death of a 3-year-old male who was left unattended in a parked 2008 Nissan Sentra (Figure 1) for an extended period during daylight in Indiana in July 2019. The investigation was intended to determine the events leading up to the incident, the actions of the caregiver/guardian, the vehicle characteristics and equipment, the environment/scene conditions and layout, and the activities of the driver child. The incident was identified as part of a hyperthermia study by NHTSA and assigned to the SCI team in October 2019. The incident/investigation report and a summary of autopsy findings were obtained. Requests for police photos were unsuccessful.



*Figure 1. Exemplar 2008 Nissan Sentra*

This incident occurred in the parking lot of a local university. The parking lot was located south of an accounting building and was surfaced with asphalt and delineated with parking spaces and driving aisles. On the day of the incident, the child's father was the parent that took the child to a daycare facility on the campus of a local university. The 3-year-old male was placed in the second-row left position of the Nissan in a forward-facing Baby Trend 3-in-1 high-back CRS. The father then drove to the university, past the daycare facility, and then parked the Nissan near his workplace. He arrived at approximately 0900 hours. He went directly from his vehicle to his workplace. The temperature in this area was 26 °C (80 °F) and rose to 31 °C (89 °F) by 1300 hours. After lunch, he was contacted by his wife to pick up the child from daycare. He went to his vehicle, drove to the daycare facility, and parked. When he opened the rear door, he noticed the child. He removed the child and then carried the child to the daycare facility. Once inside the facility, several people began performing chest compressions. Efforts continued as other people in the facility shocked the child three times using an automated external defibrillator. There were no results to their efforts or first responder efforts and the child was declared deceased.

## Summary

### ***Incident Site***

This incident occurred in the parking lot of a local university. The parking lot was located south of an accounting building and was surfaced with asphalt and delineated with parking spaces and driving aisles. An incident site diagram and satellite view is included at the end of this report.

According to the father, the vehicle was parked in the second row facing south. There was no shade cover present and no vegetation. There were other vehicles parked in this area but their proximity to the Nissan was not known.

### ***Weather***

On the day of the incident, the low temperature was 21 °C (70 °F) and the high temperature was 31 °C (89 °F). The conditions were partly cloudy from mid-morning forward. At 0854 hours, the sun's azimuth was 73° and the elevation was 16°. At 1354 hours, the sun's azimuth was 183° and the elevation was 72°. The table below documents the weather conditions during the time of the incident.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Conditions</b>
0854	26 (80)	69	28 (83)	Fair
0954	28 (83)	65	31 (87)	Fair
1054	29 (85)	57	31 (88)	Partly cloudy
1154	31 (89)	52	34 (94)	Partly cloudy
1254	31 (89)	50	34 (93)	Partly cloudy
1354	31 (89)	50	34 (93)	Partly cloudy

### ***Vehicle Information***

The vehicle was a 2008 Nissan Sentra 4-door sedan identified by the VIN 3N1AB61E98L6xxxxxx. The Nissan was powered by a 2.0-liter, 4-cylinder, gas engine linked to an automatic transmission, front-wheel drive, and front disc/rear drum brakes. The interior configuration consisted of front bucket seats and three-passenger rear bench seat with 60/40 split folding backs. The vehicle exterior was red and the interior trim color was charcoal/steel and all the seating surfaces were cloth. There was no after-market window tinting. The vehicle had exterior pull type door handles. The vehicle had child safety rear door locks. The lock levers were located on the edge of the rear doors. Based on available information, they were not in use. The vehicle had electric window regulators and the windows were closed. The vehicle was not equipped with any child-detection systems.

### ***Pre-Incident***

On the day of the incident, the child's father took the child to a daycare facility on a local university campus. The 3-year-old male was placed in the second-row left position of the Nissan in a forward-facing Baby Trend 3-in-1 high-back CRS. There were no other occupants. The father's tablet was placed on the front right seat. The father departed at approximately 0830 hours. The distance from the father's home to the daycare facility was approximately 9.9 km (6.2 miles). As the father entered the university grounds, he began traveling south, drove past the

daycare facility, and then parked the Nissan near his workplace (Figure 2). The daycare center was approximately 0.67 km (0.42 miles) north of the father's workplace.



*Figure 2. Caregiver route to workplace*

### ***Incident***

The father arrived at approximately 0900 hours. He went directly from his vehicle to his workplace and unintentionally left the child behind. After lunch, he was contacted by his wife to pick up the child from daycare. He went to his vehicle, unlocked the vehicle with his key, placed his computer tablet on the front seat, drove to the daycare facility, and parked. When he opened the rear door, he noticed the child.

### ***Post-Incident***

The father removed the child from his vehicle, brought him into the daycare facility and asked for help. The child was placed on the floor and two teachers began attempting CPR. Calls were made to 911 and to the university public safety office. Several people reported that the child's skin was discolored and he was not breathing. Efforts continued as other parties in the facility shocked the child three times using a defibrillator. There were no results to their efforts or first responder efforts and the child was declared deceased. An autopsy was conducted and the findings were as follows.



## Hyperthermia

- Found in a hot car with the middle of the day with the windows up.
- Sloughing of the skin of most of the body.
- No evidence of significant injury or natural disease.
- The cause of death in this case is hyperthermia (heat stroke).

## **Caregiver/Guardian Data**

The caregiver was the 42-year-old father of the child. The child was the younger of the family's two children. The parents took turns taking the child to the daycare facility and the father had dropped the child off approximately 59 times in the previous 6 months. He had dropped off the child four times in the previous week. This was a typical trip on a normal day. The father and mother both prepared the children for school on this day. The father took the child from the residence to the vehicle and placed him in the CRS. There were no intermediate stops during the journey. It is not known if the father was aware of any specific information related to the dangers of leaving children in hot cars or of any safety campaigns related to that topic. The father went to lunch with fellow workers on this day. They noted that he was "normal" at lunch and had talked about an upcoming vacation. The father was not charged with any crime.

## **Non-Motorist (Child) Data**

Age/sex:	3-year-old/male
Height:	Unknown
Weight:	Est. 15-18 kg (35-40 lbs)
Seat type:	Second row, left, 60/40 split cloth bench
Restraint usage:	Lap and shoulder belt available. Not known if used to anchor CRS.
Transport from scene:	NA
Type of medical treatment:	Resuscitation efforts by daycare staff and by EMS.

The child was wearing black/green/white tennis shoes, white socks, denim shorts, a pull-up diaper, and a red or orange shirt. The child had been placed in the vehicle by the father.

It was not known if the child was covered or if there were any sight-related restrictions. The child was seated in a forward-facing Baby Trend 3-in-1 high-back CRS (Figure 3). The CRS is designed as be used as follows.

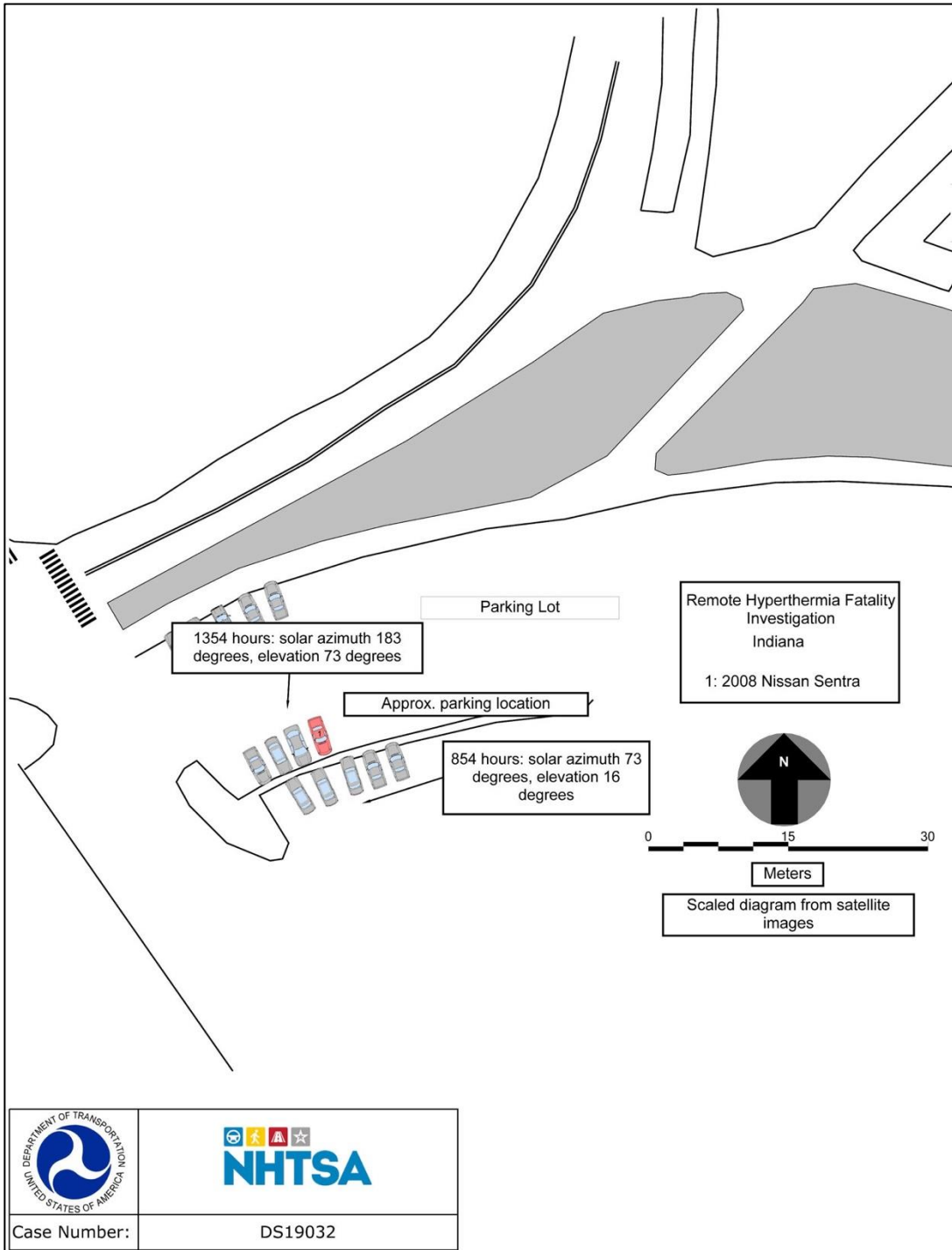
- Forward-facing 5-point internal harness seat designed for a child 9.9 to 22.6 kg (22 to 50 lbs) and 73 to 121 cm (29 to 48 in) tall
- High-back booster designed for a child 13.6 to 45.3 kg (30 to 100 lbs) and 96 to 127 (38 to 50) tall
- Backless booster designed for a child 18.1 to 45.3 kg (40 to 100 lbs) and 106 to 144 (42-57) tall



*Figure 3. Baby Trend 3-1 high back (exemplar)*

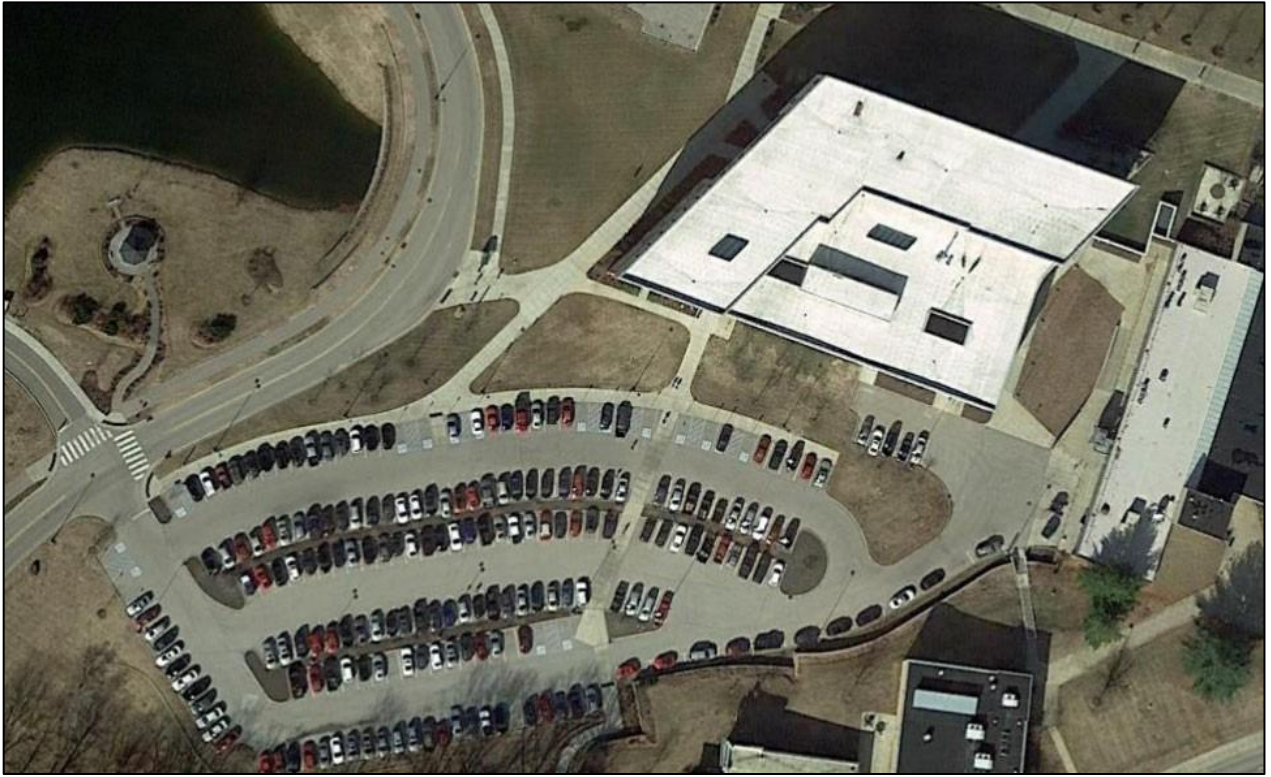
The child met the weight requirements for the forward-facing option using the internal harness. The anchorage and CRS harness usage was not determined.

# Incident Site Diagram



## Incident Site Satellite View

(Google Maps image date: October 11, 2019)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. CR19017**

**Vehicle: Honda Accord  
Location: New York  
Incident Date: July 2019**

## **Background**

This report documents the remote investigation of the circumstances surrounding the hyperthermia-related fatalities of 1-year-old twins left unattended in the second-row seat of a Honda Accord (Figure 1) for 8 hours by their 39-year-old father in New York in July 2019. The police reported that the father drove to his workplace with the twins restrained in two CRSs. He parked in the parking lot and went to work at 0800 hours. He returned to the Honda at 1630 hours and began to drive home when he discovered the children in the CRSs. He immediately stopped the car, exited the vehicle, and yelled for help. Emergency responders determined the siblings, a male and a female, were deceased. The incident was identified by NHTSA and assigned to the Special Crash Investigations group for further research in October 2019.



*Figure 1. Honda Accord. Image obtained from online news outlet.*

The SCI team contacted the police agency to obtain records and request an interview with the investigating officer. The SCI team left voicemails with no return call from the police agency on this hyperthermia case. A search of online media sources provided the basis for this report. The research conducted by the SCI team determined this incident was the result of the driver forgetting the children were in the vehicle.

## Summary

### *Incident Site*

This hyperthermia incident occurred during the morning and afternoon in the parking lot of the father's place of employment. The parking lot was surfaced with asphalt with parking rows separated by driving lanes. There were trees that lined the main entrance to the parking lot and building on the southwest, west, and northwest sides of the parking lot. These trees and building provided minimal shading across the parking lot, resulting in the Honda Accord being in full exposure of the sun for the majority of this incident.

### *Weather*

The weather data for the duration of this incident was obtained from the National Weather Service. Sunrise occurred at 0546 hours with sunset reported at 2019 hours. The peak temperature for the day was 29 °C (85 °F) recorded at 1456 hours with 32 percent humidity and mostly cloudy conditions. The temperatures, humidity, calculated heat index, and conditions for the duration of this incident are provided in the following table.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Conditions</b>
0756	22 (72)	66	22 (72)	Fair
0856	25 (77)	52	25 (77)	Fair
0956	27 (80)	48	27 (81)	Fair
1056	27 (81)	42	27 (81)	Fair
1156	28 (82)	44	28 (82)	Fair
1256	28 (83)	42	28 (83)	Partly cloudy
1356	28 (83)	41	28 (82)	Partly cloudy
1456	29 (85)	32	28 (83)	Partly cloudy
1556	29 (84)	38	28 (83)	Fair
1656	29 (84)	43	29 (84)	Fair
1756	29 (84)	44	29 (84)	Fair

### *Vehicle Information*

The vehicle in this hyperthermia case was a Honda Accord (Figure 2) model year unknown. The exterior color was silver. It had four forward-hinged doors. Standard configuration is seating for five (2/3) with the front-row bucket seats and a three-passenger split bench second-row seat. All side windows were tinted AS2 glazing. It is not known if the windows were closed or open during this incident.



*Figure 2. Honda Accord. Image obtained from online news outlet.*

The exterior door handles were pull-type that protruded beyond the profile of the doors. A recessed pocket was formed into the door panel to provide adequate grip space for the handle. The second-row doors had child safety locks. The status of these locks is unknown.

### ***Pre-Incident***

The father's typical daily routine was not reported. On the day of the incident he secured the 1-year-old female and male twins into their CRSs in the second row of the Honda Accord and then secured the 4-year-old sibling into the vehicle's second row. The father drove to the older sibling's school and dropped the older sibling off. The father then proceeded to his place of employment where he parked the Honda Accord in an unknown spot in the parking lot at approximately 0830 hours.

### ***Incident***

After the father had parked the Honda Accord, he exited the vehicle, forgetting the children in the second row, and proceeded into his place of employment where he stayed for the duration of his work shift. At approximately 1630 hours, the father walked to the parking lot and entered the Honda Accord. The father drove approximately two city blocks when he noticed the children were still in their CRSs. The father pulled off the side of the roadway (Figure 3), exited the vehicle, and began yelling for help.



*Figure 3. On-scene image. Image obtained from online news outlet.*

### ***Post-Incident***

According to online news sources, a passer-by heard the father screaming and called emergency services. Local police and EMS arrived on scene and pronounced the children deceased. The father was arrested on scene.

### ***Caregiver/Guardian Data***

The 39-year-old caregiver was the father of the 1-year-old male and female children. The father was charged with two counts of manslaughter and two counts of criminally negligent homicide. According to online news sources, the father pled guilty to two counts of second-degree reckless endangerment as a plea deal in June 2020.

### ***Non-Motorist (Child) Data***

Age/sex:	1 year old/male and 1 year old/female
Height:	Unknown
Weight:	Unknown
Seat type:	Unknown
Restraint usage:	Unknown
Transport from scene:	Unknown
Type of medical treatment:	None, declared deceased by EMS on scene



## Incident Site Satellite View

(Google Maps image date: 2020)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. CR19015**

**Vehicle: Unknown Year/Make/Model**

**Location: Tennessee**

**Incident Date: July 2019**

## **Background**

This report documents the remote investigation of the circumstances surrounding the hyperthermia-related fatality of a 3-year-old male left unattended in a vehicle for approximately 2 hours by his 23-year-old father in Tennessee in July 2019. The police reported that the father parked the vehicle in the driveway of his residence (Figure 1) and left the child in the vehicle at approximately 1515 hours. The father went into the house and fell asleep. Police found the child unresponsive in the vehicle at 1715 hours. The child was pronounced deceased at the scene. The father was charged with aggravated child abuse, neglect, and first-degree murder



*Figure 1. Incident Site. Image obtained from online news outlet.*

This incident was identified by NHTSA and assigned to the Special Crash Investigations group for further research in October 2019.

The SCI team contacted the police agency to request documentation and interview the investigating officer. Voicemails were left for the records department and investigating officer with no return calls. Attempts to speak with the investigating officer and obtain records were met with no response from the police agency. Due to this the information in this final report are based on data gathered from online sources. The lack of available data and cooperation hampered the ability of the SCI team to determine if this incident was intentional or unintentional in nature.

## Summary

### ***Incident Site***

The incident occurred in the afternoon and early evening. Online sources reported that the incident occurred in the driveway of the 23-year-old fathers' home. The driveway was concrete with little to no shade. There is a tree at the entrance of the driveway that provides minimal shading. The exact location of the vehicle in the driveway is unknown, resulting in the vehicle being in full exposure of the sun for this incident.

### ***Weather***

The weather data for the duration of this incident was obtained from the National Weather Service. Sunrise occurred at 0539 hours with sunset reported at 2006 hours. The peak temperature for the day was 34 °C (94 °F) recorded at 1453 hours with 47 percent humidity and mostly cloudy conditions. The temperatures, humidity, calculated heat index, and conditions for the duration of this incident are provided in the following table:

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Conditions</b>
1453	34 (94)	47	38 (101)	Mostly cloudy
1553	32 (91)	52	36 (98)	Mostly cloudy
1653	33 (93)	49	38 (100)	Mostly cloudy
1753	32 (90)	54	36 (96)	Mostly cloudy
1853	31 (89)	57	36 (96)	Mostly cloudy

### ***Vehicle Information***

The vehicle in this hyperthermia case was an unknown passenger car. The year, make, and model of the vehicle are unknown. Cooperation with the local law enforcement agency was unsuccessful after several attempts.

### ***Pre-Incident***

On the day of the incident, the 23-year-old father of the 3-year-old child drove to his residence. Online sources reported that the child was in the second row of the vehicle. It is unknown if the child was in a CRS. The direction that the vehicle was parked is unknown.

### ***Incident***

Upon arriving at the residence, the father of the child parked the vehicle in the driveway (Figure 2) and exited the vehicle at approximately 1515 hours. The father then proceeded into the house leaving the child in the vehicle alone. At this time, online sources stated that the father went to sleep.



*Figure 2. Driveway of incident site. May 2013 image obtained from an internet-based mapping system.*

### **Post-Incident**

The grandmother of the child arrived at the residence and noticed the child in the vehicle. The grandmother called the police to report the incident at approximately 1655 hours. First responders arrived on scene and found the child in the vehicle at approximately 1700 hours. First responders removed the child from the vehicle and performed CPR with no success. The child was pronounced deceased at the scene.

### **Caregiver/Guardian Data**

The caregiver was the 23-year-old father of the child and was asleep during this hyperthermia incident. The father was initially charged with child abuse and child neglect. Online sources report that the additional charge of first-degree murder was filed against the father as well.

### **Non-Motorist (Child) Data**

Age/sex:	3 years old/male
Height:	Unknown
Weight:	Unknown
Seat type:	Unknown
Restraint usage:	Unknown
Transport from scene:	Unknown
Type of medical treatment:	Treated by EMS, declared deceased at the scene.

## Incident Site Satellite View

(Google Maps image date: 2020)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. DS19042**

**Vehicle: 2018 Toyota Highlander**

**Location: Texas**

**Incident Date: July 2019**

## **Background**

This report documents the remote investigation of the hyperthermia-related fatality of an unattended 2-year-old male child who died after entering a 2018 Toyota Highlander under his own power and remaining inside the vehicle overnight before being found deceased by the vehicle's owner the following morning in Texas in July 2019. The investigation was intended to determine the events leading to the incident, actions taken by the caregiver, vehicle characteristics and equipment, environmental conditions, and activities of the child. The incident was identified as part of a hyperthermia study by NHTSA and assigned to the SCI team in October 2019. The SCI team obtained the police and autopsy reports, as well as two images of the decedent taken prior to the removal of his body from the vehicle.

The incident occurred in Texas in July 2019. The incident site was an open parking area located on the property of an apartment building close to where the child and his family lived. The incident began during the afternoon when the child's mother first reported him missing from their home and continued through the night for approximately 16.5 hours until he was discovered the following morning. Police later determined the child exited his home under his own power, walked through the neighborhood unattended and, after entering the unlocked Toyota without assistance, was unable to get out. During the incident, a search for the child including police, K9 units, firefighters and volunteers covered a 5-mile radius from the child's home. The search included door-to-door searches and canvassing of neighbors and looking into vehicles parked in the search area. The child was eventually discovered in the Toyota that was parked within 44 m (144 ft) of the child's residence and the police command center for the search. According to police, the Toyota had tinted windows and interior sunshades that made seeing into the vehicle difficult.

According to the police report, the potential for a criminal event necessitated splitting the operational search from the criminal investigation. The investigative team researched whether the incident qualified for an Amber Alert and later reported the incident did not meet the criteria necessary to issue an Amber Alert. The report did not provide a reason but, according to the Amber Alert Home website, "Amber Alerts are...issued when a law enforcement agency determines that a child has been abducted and is in imminent danger" ([amberalert.ojp.gov](http://amberalert.ojp.gov) web site).

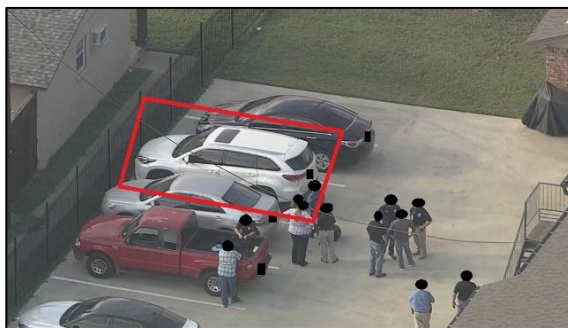
## Summary

### *Incident Site*

The incident occurred in an urban residential area in Texas. The incident site was an open parking area located on the property of an apartment building on the city block where the child and his family lived. The area contained several multi-family residential apartment buildings consisting of one or two floors lining both sides of the street. The street was oriented east/west and the child's family lived on the south side of the street. The Toyota was parked in a parking lot also on the south side and two properties west of the child's building. A single-story apartment building and metal fence separated the child's building from the lot where the Toyota was parked.

The street, parking lot, and surrounding area were on level ground. A few mature trees were scattered among the properties but the location generally provided clear views from street to building and building to building. The child's home was on the second floor and east side of a two-story building with a flight of exterior stairs leading to ground level. Police determined through interviews with family and neighbors the child had a history of climbing up and down the stairs without assistance and while unattended. The child's activities are discussed further in the Pre-Incident section of this report.

The vehicle drove in the incident was a 2018 Toyota Highlander. It was parked on a level concrete combination driveway and parking lot on the property of an apartment building two properties west of the child's residence (Figure 1). The parking lot was oriented north to south, with the north edge of the parking lot intersecting south edge of the roadway. It measured 13m (43 ft) wide and 40 m (131 ft) long with 14 parking spaces oriented east/west in a parallel configuration. The Toyota was parked facing east in the twelfth space from the roadway and approximately 33 m (108 ft) south of the south curb. The apartment building on the property was oriented north to south with a total of 10 units occupying two floors. The building was designed with an east wall configured with exterior access doors and windows, making it possible for all occupants of the property to view the parking lot from their respective units. The vehicle owner and his family lived on the property and were home at unspecified times during the incident. The Toyota and the actions of its owner are discussed in later sections of this report.



*Figure 1. 2018 Toyota Highlander, looking south. Image obtained from an online news outlet.*

The incident occurred over 16.5 hours beginning in the early afternoon of the first day and ending early morning the following day. At times, the vehicle was likely shaded by one or more buildings present on the east and west sides of the parking lot, and possibly by other vehicles in the lot. Given the summer season, duration of the incident, and weather conditions, the vehicle

was likely exposed and without shade for several hours beginning at the onset of the incident. An incident site diagram and satellite view are included at the end of this report.

### **Weather**

According to police, on day of the child’s disappearance the high ambient temperature was 34.4 °C (94 °F) and the temperature of the concrete pavement near the incident during the afternoon measured 60.0 °C (140 °F). A weather history report indicated a daily high temperature of 32.8 °C (91 °F) and a low of 25.0 °C (77 °F) with maximum wind gusts to 34 km/h (21 mph) and partly cloudy to fair conditions. At 1400 hours, at the onset of the incident, the solar azimuth angle was 217° and the solar elevation angle was 78°. At 0600 hours, the time of the child’s discovery the following morning, the ambient temperature was 26.7 °C (80 °F). The table below documents the weather conditions for the first day of the incident.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Conditions</b>
1353	31 (87)	59	34 (93)	Partly cloudy
1453	32 (89)	53	35 (94)	Partly cloudy
1553	33 (91)	45	35 (95)	Partly cloudy
1653	33 (91)	50	36 (97)	Partly cloudy
1753	32 (90)	52	35 (96)	Partly cloudy
1853	32 (90)	46	34 (93)	Partly cloudy
1953	31 (88)	51	33 (92)	Partly cloudy
2053	30 (86)	57	32 (90)	Partly cloudy
2153	27 (81)	65	29 (84)	Fair
2253	26 (79)	66	27 (81)	Fair
2353	25 (77)	76	26 (78)	Fair

### **Vehicle Information**

The vehicle was a 2018 Toyota Highlander LTD Platinum identified by police with the VIN 5TDYZRFH7JSxxxxxx. The exterior color was “Blizzard Pearl” (white) and the interior was black leather and trim. The Toyota was an SUV configured with a 3.5-liter, 6-cylinder, gas engine, front-wheel drive, and hydraulic brakes. Standard features included daytime running lights, power steering, air conditioning, power brakes, and power windows. The vehicle had a seating capacity for seven occupants with three rows of seats in a 2-2-3 configuration. The front and second rows had bucket seats and the third row was a bench seat and folding backs.

The Toyota had pull-out-type exterior door handles. The Toyota’s doors could be locked and unlocked using a smart key. If the smart key was present, the doors unlocked from the outside when the exterior door handles are pulled out.

The vehicle owner and his family lived on the property where the Toyota was parked. The owner’s adult son was visiting the family for several days and used the Toyota during his visit. He stated to police he was the last person to operate the Toyota prior to the incident. He stated he last drove the vehicle one day prior to the incident day and that it had not been moved since. He stated that upon exiting the vehicle he did not specifically recall locking it but that he usually did so. He stated that since exiting the vehicle no one in the family had returned to enter the vehicle for any reason.



The child was not in possession a key capable of unlocking the Toyota. The investigation determined the doors were unlocked prior to the incident, given that the child had no means of unlocking the vehicle. Whether the doors were locked by the child from the interior during the incident was unknown. It was not determined if, upon the owner's return to the vehicle, the vehicle was locked or unlocked. He possessed the smart key and the doors would have opened in either case when the exterior handle was pulled.

Locking and unlocking the doors from the vehicle's interior was done with a combination of buttons and switches located on the interior door panels. The driver's door had a button that, when pressed, locks all doors and another button that, when pressed, unlocks all doors. It is also configured with a switch that, when pushed inward, locks all doors and, when pulled outward, unlocks all doors. The front doors can be opened by pulling the inside handle even if the lock buttons are in the locked position. The second-row doors cannot be opened from the inside when the lock buttons are in the locked position.

The second-row doors had child safety locks. The locks are engaged with a switch that locks in the up position and unlocks in the down position. According to police, both child safety locks were disengaged at the time of the incident. The security system included an immobilizer, keyless entry, and alarm. The vehicle had pull-out type exterior door handles. If the key fob is near the vehicle, the doors unlock when an exterior handle is pulled outward. The vehicle had power window regulators and factory tinted windows of an unknown percentage. The windows were closed during the incident. The second-row windows had sun shields installed over the window glazing which, according to police, were "heavy" and made viewing in from outside extremely difficult. Police photos of the shades were not made available to SCI.

It was unknown if the vehicle had unattended-child detection, monitoring, or warning systems. It was not known if the Toyota had advanced alarm systems, telematics, or Bluetooth. Police measured the height of the door handles from the ground, and measured the heel-to-shoulder and arm lengths for the child. Using these measurements, police determined the child could likely reach and manipulate the exterior door handles while standing at ground level.

### ***Pre-Incident***

Prior to the incident, the 2-year-old male was at home in the care of his 31-year-old mother, who was the primary caregiver. His 8-year-old sister was also home at the time. The other occupants of the residence were the child's 37-year-old father and an 18-year-old female who had lived there as a guest of the family for approximately one month. The father and family friend began their day at home but left for work during the morning. The family's primary language was Nepali and the child did not speak English. The police report indicated that when the caregiver spoke English it was mixed with Nepali and possibly Hindi. The father, sister, and family friend appeared to be more fluent in English, based on statements they made to police.

The incident occurred on a Tuesday in July. The caregiver did not work outside of the home and typically stayed home to care for the two children. School was not in session due to the summer season. On the morning of the incident, the child and his sister were in the residence having breakfast, playing, and watching programs on a tablet. They were not in constant contact with one another but given the apartment layout could only be separated by one or two rooms at any time. The caregiver was cleaning the apartment and going from room to room. She also had one or more phone calls with family or friends that were unremarkable. At some time during the

morning, she went outside briefly to tend to some matter and then returned. She stated to police that, upon her return, she locked the front access door from the inside. The door had two dead bolt locks with one chain lock located above them.

At 1200 hours the caregiver bathed the child. He typically had a nap at 1300 hours each day. Around that time, the caregiver observed the child lying on the couch but not sleeping. Later, she observed the child had moved from the couch, opened her purse, and was playing with her car keys. This was typical behavior for him and the caregiver was not concerned. She continued cleaning a bathroom and when finished, noticed the front door was unlocked and a floor mat was out of place. She looked for the child in the residence and he was not present. His sister apparently had no knowledge of his whereabouts.

### ***Incident***

The caregiver placed a 911 call at 1359 hours and stated the child had been missing for about 5 minutes prior to the call. Dispatch notes indicated the caregiver was panicking and difficult to understand, making it difficult to identify the child's address and to continue communication. The 8-year-old sister then began speaking to the dispatcher and a police unit was dispatched approximately 5 minutes into the call.

During the search, police identified a possible discrepancy in the caregiver's statements regarding the time of her 911 call relative to the child's disappearance. She initially indicated the call was placed after 5 minutes of searching, but later indicated to a neighbor she'd been searching for "one hour." At that time, police had been on-scene for 25 minutes. Given a time line of 5 minutes prior to the 911 call, 5 minutes response time and 25 minutes of police presence, it was possible the caregiver was either mistaken about the time lapse or searched for the child longer than 5 minutes prior to calling 911.

Police did not immediately locate the child and eventually the search party grew to include 250 to 300 people, including police, fire department, social workers, neighbors, volunteers, and a special agent of the FBI's Missing Child Unit. Their methods incorporated the use planes, helicopters, drones, and K-9 units. As more staff and volunteers arrived, the search perimeter was increased eventually to a radius of 5 miles from the child's home.

Police distributed flyers showing a photo and description of the child to officers drove with the search. Police outlined protocols for searching the immediate area as follows.

- Police officers would conduct door-to-door searches of the residential buildings. Each encounter was to be recorded by police body-cameras.
- Volunteers would follow behind the officers and search the outside areas of the buildings, behind fences, foliage, landscaping, outbuildings, storm drains, dumpsters, etc.
- Volunteers would look behind and under parked vehicles.
- Volunteers would look into vehicle interiors through open or closed windows but would not attempt to open doors or enter vehicles.

The caregiver's vehicle was a white 2018 Toyota RAV4 parked in the lot on the property of the family residence. During the search, family and police were unable to locate the car keys. They looked through the windows into the vehicle interior and did not see the child inside. Following a secondary search of the immediate area, the search extended to outlying areas while searches of the neighborhood continued. Police conducted at least three searches of the neighborhood block.

The child's residence was located approximately mid-block. The initial perimeter was defined as the entire length of the block ending at the intersections to the east and west, and approximately 69 m (75 yd) north, which included the properties on the north side of the street. The boundary to the south was a continuous metal fence located at the south property lines separating the residential properties from an east/west roadway. The search continued into the night and the next day. Some but not all of the police units took a rest break from searching the immediate area from 0100 to 0500 hours the following morning.

During the search, the child's father and family friend who resided there returned home to lend their assistance. At some point they wanted to look in their own vehicle and discovered one set of keys were missing. The caregiver, sister and neighbors were interviewed by police and their statements revealed the child had a history of activities including the following.

- He had learned to stand on a bar stool so he could reach and unlock the exterior door of his apartment including the chain lock, and manipulate the door knob without assistance.
- He was able to put on his shoes and fasten the velcro straps without assistance.
- He could walk up and down the flight of exterior stairs leading to his apartment without assistance.
- He had historically exited the residence unassisted and walked as far as the courtyard or parking lot before being found by family members.
- He had historically exited the residence unassisted and been found by neighbors while unattended.
- He enjoyed playing with car keys and attempting to unlock car doors by pressing the buttons on the smart keys and fobs.
- He enjoyed getting into cars and could open some car doors without assistance.

### ***Post-Incident***

The child was discovered in the Toyota by the owner's adult son early on the morning following the incident. He placed a 911 call at 0627 hours, approximately 16.5 hours after the child was reported missing. The son was preparing for a family trip planned for that day. The child was found unresponsive lying laterally across the second-row floor with his feet near the left door and his head near the center console. He apparently had removed his shoes and socks during the incident. The keys belonging to the caregiver which fit the family vehicle were found in the Toyota. Police arrived and determined, due to the presence of rigor, that child had been deceased for some unspecified duration. No medical intervention or treatment was attempted. The autopsy report stated that the cause of death was hyperthermia and the manner of death was "accident."

Police later determined the child found car keys belonging to the caregiver, exited his residence unassisted, descended the exterior flight of stairs, and likely looked for the family vehicle intending to get inside. The family vehicle was a white 2018 Toyota RAV4 purchased one month prior and parked on the property of the apartment building. Eventually, the child walked unattended from the property of his residence to the parking lot two properties west and entered the unlocked white 2018 Toyota Highlander, which was similar in color and style to the family vehicle. Police determined, after closing the vehicle door, he was overcome by heat and unable to exit the vehicle. Additionally, the child may have been sleepy due to his habit of taking a midday nap. There was no evidence reported by police suggesting the child had assistance from anyone when he entered the vehicle or was accompanied by anyone while inside the vehicle. The

child's time of death was not determined. Police determined many of the neighbors were away from home due to work, shopping, running errands, etc., at the onset of the incident. When they canvassed the neighborhood, many residences were unoccupied. The absence of neighbors being present likely reduced the probability of someone seeing the unattended-child as he walked through the neighborhood.

The police report and police press conference gave conflicting accounts of key aspects relating to the search for the child during the incident. The police report stated that, after interviewing the child's family on the day of the incident, detectives theorized the child was inside an unknown vehicle and would not likely be discovered until the vehicle owner returned to that vehicle. The report states, "We passed the information along and were assured that all vehicles were searched." At a police press conference following the incident, the police chief indicated they could not say conclusively that all vehicles in the area had been searched.

### ***Caregiver/Guardian Data***

The primary caregiver at the time of the incident was the child's 31-year-old mother. Immediately prior to the incident, she was cleaning their second-floor apartment with the child and his 8-year-old sister inside. At 1200 hours, the caregiver bathed the child. His typical nap time was 1300 hours. While cleaning, she observed the child drove in various activities including lying on the couch but not sleeping, getting items from her purse, and playing with her car keys. After finishing her cleaning, she exited a bathroom and went to the front door, which she discovered was unlocked. Additionally, she noticed a floor mat near the door was out of place.

The day of the incident appeared typical in the following ways.

- The caregiver did not work outside the home. She stayed home days taking care of the child and his 8-year-old sister.
- The school year had ended several weeks earlier due to summer and the children stayed home during the day.
- The father and family friend who lived in the residence had daytime jobs and went to work during morning hours on weekdays.
- The father had a historical weekday work schedule of 0600 to 1800 hours.
- The incident began on a weekday when the caregiver expected to care for the children during the day while the father was at his workplace.

Police interviewed the family including the 8-year-old female and the family friend who resided with them. Additionally, friends and neighbors were interviewed. The police report did not reveal any unusual or remarkable circumstances present in the household. The caregiver stated to police she placed a 911 call 5 minutes after noticing the child was missing from the home. During the incident, she and the father joined the search effort and it was reported they actively searched the neighborhood until past midnight.

It was unknown if the family had a plan in place to prevent such incidents from occurring. It was unknown if they had a routine of storing items in the second row requiring them to open second-row doors while using their vehicles. It was unknown if they typically connect a smart phone by any method to their vehicles when in use. It was unknown if they had an awareness of the dangers associated with leaving children unattended in vehicles. It was unknown if they were aware of campaigns to educate caregivers about associated topics.

Police determined the manner of death to be an accident and no criminal charges were filed.

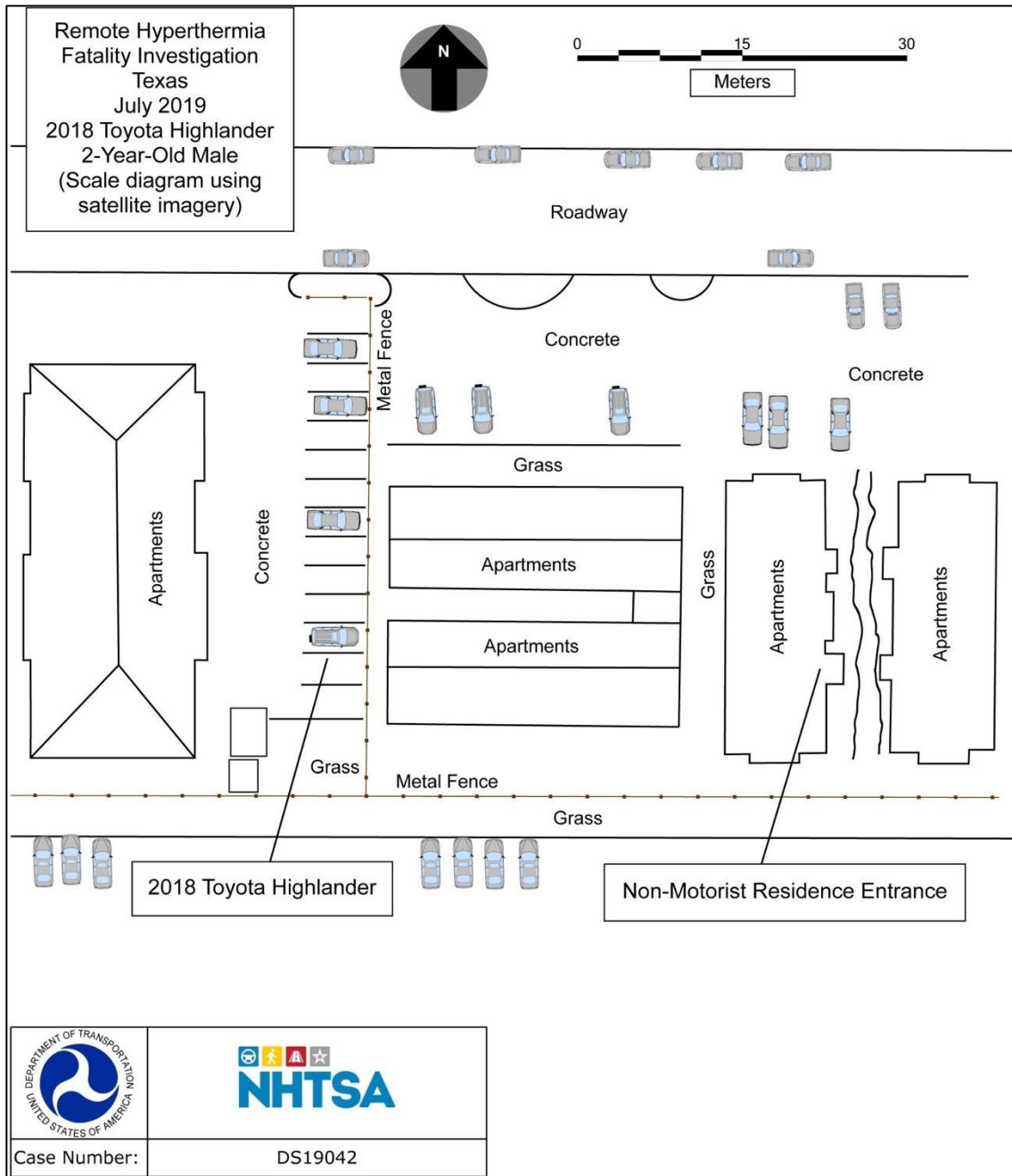
***Non-Motorist (Child) Data***

Age/sex:	2 years and 7 months/male
Height:	99 cm (39 in)
Weight:	15 kg (33 lb)
Clothing:	White diaper, long sleeve black and white checked button up shirt, long light grey pants, socks, and green athletic shoes (removed when found)
Seat type:	Bucket with folding back, second row (not seated)
Position:	Second-row floor, feet toward left door and head toward center console; lying supine on back facing up/right
Restraint usage:	None used (not in a seat)
Transport from scene:	Ambulance to hospital
Type of medical treatment:	None, declared deceased on-scene

According to his family, the child did not speak English. He was reported to have normal vision and hearing. The child was not covered by a blanket, coat, or other object. Visibility into the vehicle was restricted by window tinting of an unknown percent and window screens installed in the second row. An autopsy report indicated the cause of death was “hyperthermia” and the manner of death was “accident.” Additional documented injuries included scant subdural hemorrhages to the cerebrum, cerebral edema, pulmonary edema, pulmonary and thymic petechiae, reactive spleen, and lymphadenopathy.

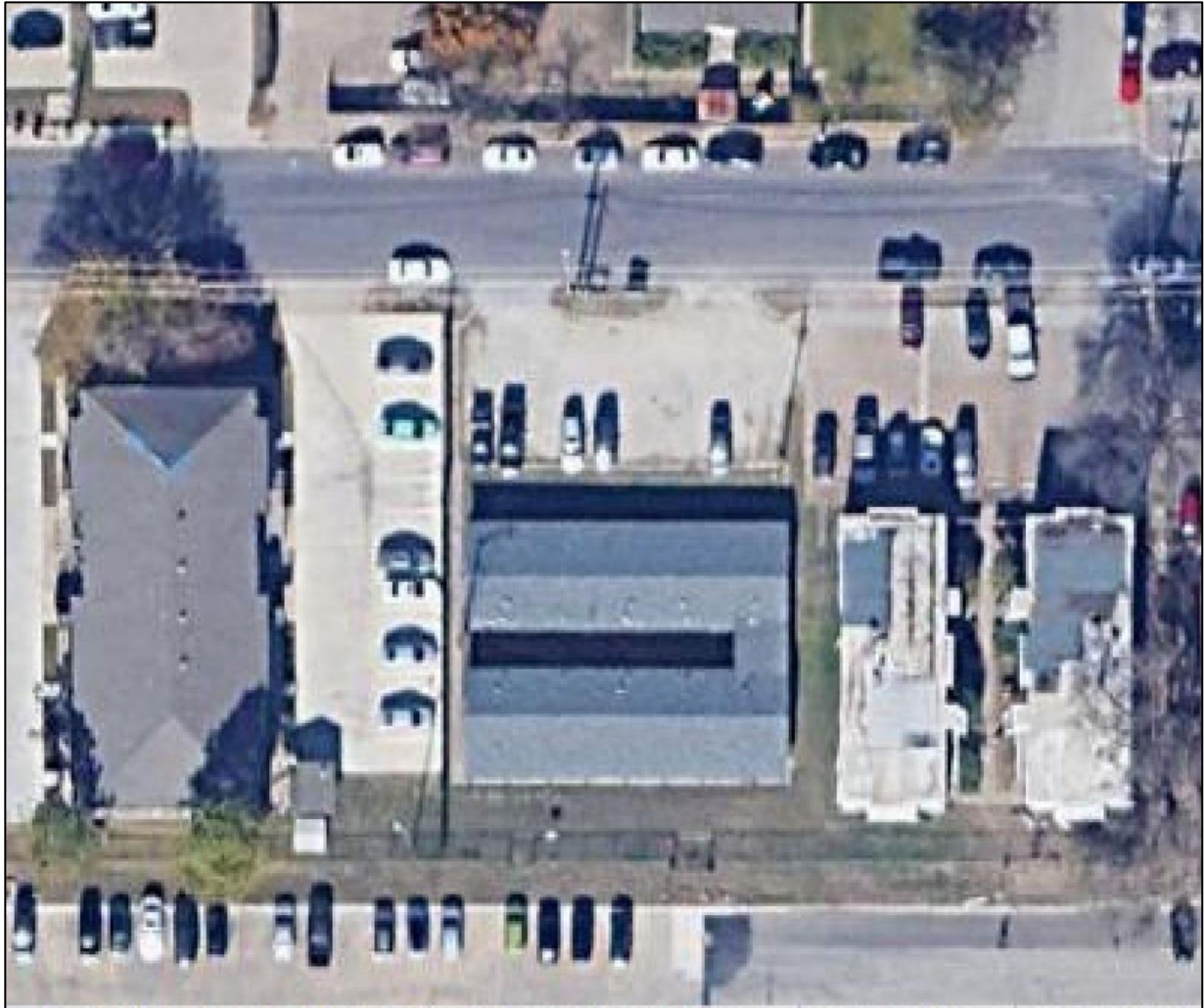
The child’s activities while unattended and without assistance appear to be the primary cause for the incident, including his exiting the residence, exiting the property, finding an unsecured vehicle, and entering it. He was known by family and neighbors to have the physical capability to perform such tasks as well as a history of exiting the residence and descending the stairs without assistance.

# Incident Site Diagram



## Incident Site Satellite View

(Google Maps image date: March 2020)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. CR19016**

**Vehicle: Ford Freestyle  
Location: Virginia  
Incident Date: July 2019**

## **Background**

This report documents the remote investigation of the circumstances surrounding the hyperthermia-related fatality of a 10-month-old female child in Virginia in July 2019, who was left unattended in a Ford Freestyle (Figure 1) of unknown model year for an undetermined length of time by her mother. The mother secured the child into a rear-facing CRS in the second row of the vehicle. It was reported that the mother took the child with her to go grocery shopping. After shopping, she then drove home, and parked the Ford on the front lawn of her residence. The mother then left the child in the vehicle while she unloaded the groceries. The total length of time the child was left unattended in the vehicle was not disclosed. The mother stated she left the vehicle's rear door open and only left the child in the Ford for 20 minutes. When she went back to get the child, the infant was unresponsive. The mother called the emergency response system and police and fire fighting personnel arrived on site. The child was transported to the emergency room of a local hospital where staff attempted to revive her. She was pronounced deceased due to hyperthermia. No charges were filed against the mother.



*Figure 1. Ford Freestyle. Image obtained from an internet news site.*

The incident was identified by NHTSA and assigned to the Special Crash Investigations group for further research on October 9, 2019.

The SCI team attempted to contact the police agency to interview the investigating officers from the detective division. Numerous messages were not returned. The police records department would not release the incident report without consent from the mother. The mother did not reply to letter correspondence. The medical examiner's office provided a copy of the autopsy with a synopsis of the incident. This, in conjunction with internet searches of news sites provided the basis for this report.



## Summary

### *Incident Site*

This incident occurred as the Ford traveled between two locations, distanced approximately 2 km (1.3 mi) apart. The mother placed the child in the vehicle and drove to a grocery store where she shopped. It was reported in the media that while the mother was grocery shopping, the child was knowingly left unattended in the vehicle. The parking lot was an open-air lot, surfaced with asphalt with standard delineation of parking spaces. The front of the grocery store was oriented in a southeasterly direction. Parking delineations were parallel to the building with vehicles parked in northeast and southwest headings (Figure 2).



*Figure 2. Satellite view of the grocery store parking lot. Image obtained from internet mapping software.*

The site where the child was retrieved from the vehicle was the front yard of the family residence. The single-story house was located on a two-way city street that was oriented in an east and west direction. The house was on the north side of the street with the front of the house facing south. A shared stone driveway for the neighboring residence was located on the west edge of the property line. The front yard consisted of mowed grass with a single tree located at the east property line. This tree did not provide shade to the yard or the front of the residence. On her return to the residence, the mother parked the Ford on the front lawn facing east (Figure 3). The driver's door was directly in line with the front steps and the front entrance door to the residence.



*Figure 3. Residence and the parked position of the Ford. Image obtained from an online news outlet.*

## ***Weather***

The weather data provided by the National Weather Service listed sunrise at 0601 hours and sunset at 2031 hours on the day of this incident. The high temperature for the day was 34 (93 °F) at 1554 hours. The following table identifies the weather data for the duration of this incident.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Conditions</b>
0854	29 (84)	69	32 (90)	Mostly cloudy
0954	31 (88)	61	35 (96)	Mostly cloudy
1054	32 (90)	57	37 (98)	Mostly cloudy
1154	33 (91)	55	37 (99)	Cloudy
1254	32 (90)	61	28 (100)	Cloudy
1354	33 (92)	58	40 (103)	Cloudy
1454	33 (92)	55	39 (101)	Mostly cloudy

## ***Vehicle Information***

The vehicle was a Ford Freestyle, year unknown. The Ford was a crossover-type SUV with four forward-hinged doors and a rear lift gate. The exterior color was a medium blue with an unknown color/fabric interior. Seating consisted of front row bucket seats and a second-row bench seat with split, forward folding seat backs. The second-row door windows, rear quarter windows, and the backlight were OEM deep tint AS3 glazing. All four doors had operable windows; the backlight and quarter windows were fixed glazing.

## ***Pre-Incident***

This incident occurred in the morning and early afternoon in July 2019 in an urban setting of Virginia. The specific time and duration of the incident is unknown.

## ***Incident***

The mother placed the child in the second row of the Ford and presumably secured her into a rear-facing CRS. The mother drove the Ford approximately 2 km (1.3 mi) to a local grocery store.

After she completed her shopping, the mother drove back to her residence and parked the Ford on the front lawn facing in an easterly direction. The right side of the vehicle was exposed to the mid-day sun. According to news articles, the mother stated the child was having a tantrum and she left the child in the Ford for an unknown time as she unloaded the groceries. The mother stated the child was in the vehicle for 20 minutes with the door open. When the mother returned to retrieve the child from the Ford, she found her cold to the touch, dripping in sweat, and unresponsive. The mother carried the child into the residence, where she placed the child in cold bath water in an attempt to revive her without success. The mother called the emergency response system. Police and fire department personnel responded to the call with police arriving at 1359 hours.

### **Post-Incident**

The child was transported to the emergency room of a local hospital. Her temperature on arrival was 40 °C (104 °F). Resuscitative efforts by medical staff were unsuccessful. The child was pronounced deceased at 1436 hours. Her body was transferred to the medical examiner where an invasive autopsy was performed. The cause of death was determined as hyperthermia. There were no injuries or evidence of trauma; no underlying medical conditions were reported.



*Figure 4. Parked position of the Ford on the front lawn of the residence. Image obtained from an online news outlet.*

### **Caregiver/Guardian Data**

The caregiver/guardian was the mother of the child. The child was the youngest of her four children. No further data/information was available.

### **Non-Motorist (Child) Data**

Age/sex:	10 months/female
Height:	68 cm (26.8 old in)
Weight:	8.6 kg (19 lb)
Seat type:	Unknown child restraint system on split bench with folding back
Restraint usage:	Harness system of a child restraint system
Transport from scene:	Transported by ambulance
Type of medical treatment:	Treated by EMS and ER, declared deceased at 1436 hours.

The child was a 10-month-old female 68 cm (26.8 in) tall and weighing 8.6 kg (19 lb). She was transported by ambulance to the emergency room of a local hospital, where resuscitative efforts were initiated. Her temperature in the ER was reported as 40 °C (104 °F). The resuscitative efforts were stopped and she was pronounced deceased at 1436 hours. Her body was transferred to the medical examiner, where an autopsy was performed. The cause of death was hyperthermia. There were no injuries or evidence of trauma and no underlying medical conditions.

## Addendum



*Figure A-1. West-facing view of the residence and the location of the parked Ford. July 2014 image obtained from internet mapping software.*



*Figure A-2. Satellite view of the residence. 2020 image obtained from internet mapping software.*

## Incident Site Satellite View

(Google Maps image date: 2020)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. DS19037**

**Vehicle: 2018 Nissan Altima**

**Location: California**

**Incident Date: August 2019**

## **Background**

This report documents the remote investigation of the hyperthermia death of a 20-month-old female who was left unattended by her mother in a parked silver 2018 Nissan Altima 4-door sedan (Figure 1) for an extended period during daylight in California in August. The investigation was intended to determine the events leading up to the incident, the actions of the caregiver/guardian, the vehicle characteristics and equipment, the environment/scene conditions and layout, and the activities of the drove child. The incident was identified as part of a hyperthermia study by NHTSA and assigned to the SCI team in October 2019. The crime and autopsy reports and a partial court record were obtained.



*Figure 1. 2018 Nissan Altima at incident site, looking north. Image obtained from online news outlet.*

This incident occurred at a private residence in an urban area during early summer morning to mid-day. The Nissan was parked in a concrete driveway in front of the residence. The child was in the second-row left position in a forward-facing combination CRS. Shortly after midnight on the day of the incident, the 24-year-old mother departed her residence for several hours and then returned to her residence, leaving the child in the vehicle. At approximately 1242 hours, the mother called 911 and reported that her child was missing. Approximately 5 minutes later, she called 911 and reported that she had found the child inside her vehicle and the child was in need of medical help. The temperature at 1304 hours was 30 °C (86 °F). Paramedics arrived shortly after the second call but were unable to resuscitate the child and declared her deceased on site. The criminal complaint filed by prosecutors for the county reported that the child’s body temperature was 41 °C (106 °F) and that the vehicle interior temperature reading was in excess of 65 °C (150 °F). The medical examiner indicated that the primary cause of death was “hyperthermia” due to “environmental exposure.” The 24-year-old female mother was arrested and charged with child cruelty. She pled guilty to a single count of felony child abuse. According to the district attorney’s office she was sentenced to 10 years in prison.

## Summary

### ***Incident Site***

This incident occurred at a private residence in an urban area during early summer morning to mid-day. The residence was a two-story duplex facing southeast and situated on a corner lot (Figure 2). The structure had an attached two-car garage with a concrete driveway that led to a residential street. There were trees along the driveway to the west, but they would not have provided any shade during the times the child was in the vehicle. It was dark as the incident began at 0030 hours. There was a streetlight located 23 m (77 ft) southwest of the driveway that provided some illumination. An incident site diagram is included at the end of this report.



*Figure 2. Incident site. Image obtained from internet mapping software.*

### ***Weather***

On the day of the incident, the low temperature was 16 °C (62 °F) and the high temperature was 30 °C (87 °F). Sunrise on this date occurred at 0605 hours. At 1000 hours, the sun's azimuth was 101° and the elevation was 47°. At 1300 hours, the sun's azimuth was 184° and the elevation was 74°. The temperatures, humidity, calculated heat index and conditions for the duration of this incident are provided in the following table:

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Conditions</b>
0004	17 (63)	92	17 (63)	Not reported
0104	17 (63)	94	17 (63)	Not reported
0204	17 (63)	96	18 (64)	Not reported
0304	17 (63)	96	18 (64)	Not reported
0404	17 (63)	97	18 (64)	Not reported
0504	17 (63)	97	18 (64)	Not reported
0604	17 (63)	98	18 (64)	Not reported
0704	16 (62)	98	17 (63)	Not reported
0804	17 (63)	98	18 (64)	Not reported
0904	19 (67)	96	20 (68)	Not reported
1004	23 (75)	72	24 (76)	Not reported
1104	27 (82)	56	29 (84)	Not reported
1204	30 (86)	52	32 (90)	Not reported
1304	30 (86)	48	31 (87)	Not reported

### ***Vehicle Information***

The involved vehicle was a 2018 Nissan Altima 4-door, 5-passenger sedan. It was identified by the VIN 1N4AL3AP0JCxxxxxx. The vehicle had a 2.5-liter, 4-cylinder, gas engine coupled to an automatic transmission and front-wheel drive. The exterior color was “Gun Metallic Gray” and the interior was charcoal with gray seat trim. The vehicle had cloth-covered front bucket seats and second-row split bench seats with folding backs. The second-row rear doors were equipped with child safety locks that prevent the doors from being opened even if the inside door handle is pulled. The safety lock levers were located on the rear edge of the second-row doors. When the child safety lock lever is in the lock position, the door cannot be opened from inside regardless of the position of the inner door handle lock lever. The door can only be opened from the outside. The status of the safety locks was unknown. The vehicle had electric window regulators and the windows were all closed according to the police. It was not known if the vehicle had an alarm system.

### ***Pre-Incident***

The mother’s cousin and the cousin’s boyfriend were temporarily residing in the residence and were sleeping in an upstairs bedroom. The mother told a friend that the cousin was helping to babysit the children. The mother had a second child, a 4-year-old male.

On Sunday night, the mother invited a male she was dating to the residence. He arrived around midnight and both children were asleep on the couch. According to this boyfriend, the mother was extremely upset when he arrived. He stayed for approximately one hour. He said that both children were still on the couch asleep when he left. He also said that he did not believe the mother was drinking this night. The cousin and her boyfriend reported that they heard the mother arguing with someone. It is not known with whom she was arguing or if the argument was in person or over the phone. At approximately 0030 hours they heard the mother drive away, leaving the 4-year-old behind asleep. The mother left the residence with the child, drove to another residence, and spent several hours at that location. It is unknown if the child entered this



residence or not. She left that residence and returned to her residence with a puppy she was caring for. It is not known how long she was away or what time she returned.

### ***Incident***

The mother returned to her residence and parked the vehicle in the driveway facing northwest, took the puppy inside, and left the child behind in the second-row left position in the CRS. According to news accounts, after going inside she took an anti-depressant and fell asleep. In the early afternoon, the mother woke and began looking for the child and asked her cousin and her cousin's boyfriend if they had seen her. At 1242 she contacted the police non-emergency line and reported the child as missing. Shortly after that call, the cousin's boyfriend located the child in the vehicle in the CRS. The child was brought into the residence. The mother called 911 and reported that she had found the child inside her vehicle and the child was in need of medical help. The temperature at 1204 hours was 30 °C (86 °F). Based on the fact that the mother did not know where the child was after waking in the afternoon it is believed that she unintentionally forgot the child.

### ***Post-Incident***

Paramedics arrived shortly after the second call to 911 but were unable to resuscitate the child and declared her deceased on site. Prosecutors for the county reported that the child's body temperature was 41 °C (106 °F) and that the vehicle interior temperature reading was in excess of 65 °C (150 °F). An autopsy was conducted. The medical examiner indicated that the primary cause of death was "hyperthermia" due to "environmental exposure." The mother was later arrested.

### ***Caregiver/Guardian Data***

The caregiver was the 24-year-old mother of the child and a 4-year-old male child. She was married but had separated from her husband in June 2019. The mother had a visitor on the evening prior to the incident (Sunday). After the visitor left, the mother took the child and drove to another residence where she had an arrangement to care for a puppy while the owner worked. On the day of the incident, she returned home with the puppy and brought it inside, leaving the child in the vehicle. It is not known if she knowingly or unintentionally left the child behind. The mother was arrested on suspicion of felony child abuse, with allegations that she personally inflicted great bodily injury on a child under age 5 and willfully caused or permitted suffering resulting in death. She pled guilty to a single count of felony child abuse. According to the district attorney's office she was sentenced to 10 years in prison.

### ***Non-Motorist (Child) Data***

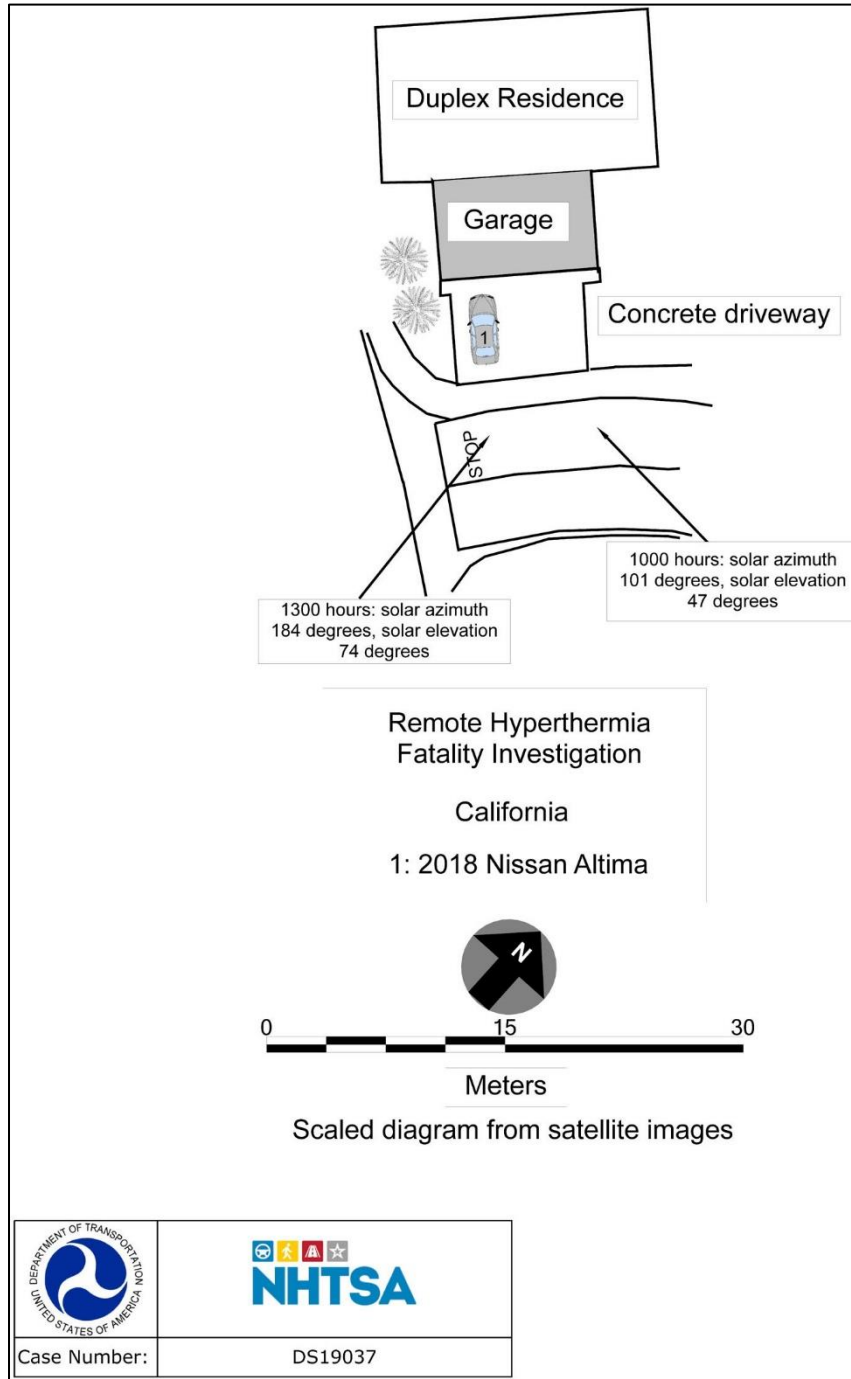
Age/sex:	20 months old/female
Height:	81 cm (32 in)
Weight:	15 kg (33 lbs)
Seat type:	Split bench with folding back
Restraint usage:	Seated in CRS, anchorage not known
Transport from scene:	NA
Type of medical treatment:	Paramedics attempted resuscitation. Pronounced deceased on site.

The child was wearing a pink top and a diaper. She had been placed in a forward-facing combination CRS with an adjustable head rest and the 5-point harness (Figure 3). The seat padding color was dark brown.



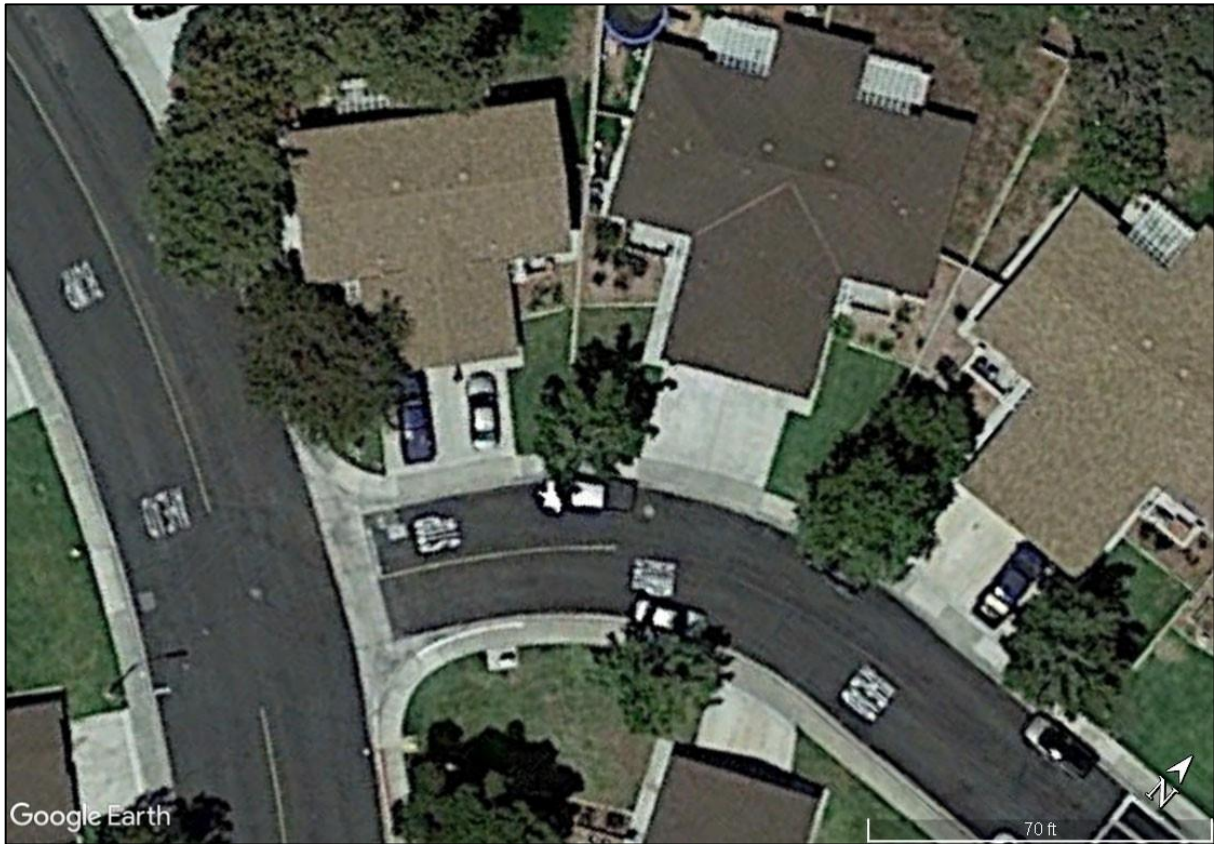
*Figure 3. CRS, 2018 Nissan Altima, second row left. Image obtained from online news outlet.*

# Incident Site Diagram



## Incident Satellite View

(Google Earth image date: November 17, 2018)



## Addendum



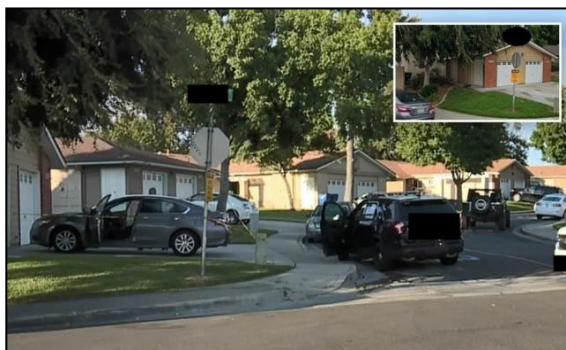
*Figure A-1. Incident site and vehicle looking northeast. Image obtained from online news outlet.*



*Figure A-2. Incident site and vehicle, looking west. Image obtained from online news outlet.*



*Figure A-3. Incident site and vehicle looking north. Image obtained from online news outlet.*



*Figure A-4. Incident site and vehicle looking northeast. Image obtained from online news outlet.*

**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. CR19021**

**Vehicle: Unknown Year/Make/Model Sport Utility Vehicle**

**Location: Georgia**

**Incident Date: August 2019**

## **Background**

This report documents the remote investigation of the circumstances surrounding the hyperthermia-related fatality of a 20-month-old male who entered a parked SUV at the family residence in Georgia in August 2019. He was located in the SUV by the parents as they initiated a search for him after realizing he was missing for approximately 45 minutes. When they discovered the child at approximately 1900 hours, he was unresponsive. The parents transported the child to the emergency room of a local hospital where efforts to revive him were unsuccessful. On arrival, the child's temperature was 42 °C (107.7 °F). He was pronounced deceased at 2000 hours; the cause of death was listed as hyperthermia. There were no criminal charges filed against the parents of the child. The incident was identified by NHTSA and assigned to the Special Crash Investigations group for further research on October 9, 2019.

The SCI team contacted the police agency to request records of this incident and to interview the investigating detective. Voice messages were left with no returns call. The records department would not release the incident report for this case. Telephone messages were also left with the parents of the child without response. The SCI team did obtain the emergency room medical records for the child. These records and additional data gleaned from online media sources provided the basis for this report.

## Summary

### *Incident Site*

Due to the lack of police cooperation, the specific location of this hyperthermia death is unknown. It was reported within a range of addresses shown in Figure 1. The location of the residence was on the east side of a two-lane north/south roadway. Of the three possible locations of this incident, none of the driveways were paved and all three transitioned from stone to grass. All the residences were single-story structures. Only one had trees to offer shade to the front area of the house. Given the reported time of this incident, the sun would have been in the western sky in the front of the residences.



*Figure 1. Satellite view of the incident area. Image obtained from internet mapping software.*

### *Weather*

On the day of this incident, the National Weather Service reported sunrise at 0657 hours and sunset at 2030 hours. The high temperature was 33 °C (92 °F) recorded at 1753 hours. The weather data for a 6-hour period leading up to and at the time of this incident was reported as follows.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Condition</b>
1553	32 (89)	59	36 (97)	Mostly cloudy
1653	32 (90)	55	36 (97)	Partly cloudy
1753	33 (92)	55	39 (101)	Fair
1853	31 (87)	65	35 (95)	Fair
1953	31 (87)	65	35 (95)	Fair
2053	29 (85)	72	35 (95)	Mostly cloudy

### **Vehicle Information**

The vehicle was reported as an unknown year/make/model SUV. All data pertaining to this vehicle are unknown.

### **Pre-Incident**

This incident occurred during the early evening in August 2019. The father of the child was reportedly working on a truck in his driveway. During this activity, the father stated he observed the child enter the family residence. Both parents were home at the time.

### **Incident**

At an unknown time, the parents noticed the child was missing. They began to search for him and found him inside the parked SUV in the driveway of the residence at approximately 1900 hours. He reportedly entered the vehicle by himself and closed the door. At the time of the child's discovery, the doors and windows of the SUV were closed.

### **Post-Incident**

The child was unresponsive when found by the parents. They removed him from the SUV and drove the child by private vehicle to the emergency room of a local hospital. The hospital was located approximately 12 km (7.4 miles) southeast of the location of this incident and required an average drive time of 13 minutes.

On arrival at the hospital, the child was in full cardiac arrest. CPR was initiated with 100 compressions per minute. Respirations were assisted with an Ambu<sup>1</sup> bag with one breathe administered every 6 seconds. The child's temperature was 42 °C (107.7 °F). His elevated temperature suggested that he was in the vehicle for an extended period. He was placed on a "cold blanket" with ice packs. CPR was continued for 41 minutes. The child did not respond to the resuscitation efforts. He was pronounced deceased at 2019 hours.

### **Caregiver/Guardian Data**

The parents of the children lived together at the same residence. Internet sources listed the father at 41 years old and the mother at 34 years old.

### **Non-Motorist (Child) Data**

Age/sex:	20 months old/male
Height:	Unknown
Weight:	Unknown
Seat type:	Unknown
Restraint usage:	None
Transport from scene:	Transported in private vehicle by parents
Type of medical treatment:	Hospital emergency room. CPR administered for 41 minutes without response.
Body Temperature:	42 °C (107.7 °F) recorded in the ER

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<sup>1</sup> Proprietary trade name of what is known as an artificial manual breathing unit also known as a self-inflating bag resuscitator.



## Incident Site Satellite View

(Google Maps image date: 2020)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. DS19046**

**Vehicle: 2006 Honda Odyssey**

**Location: Indiana**

**Incident Date: August 2019**

## **Background**

This report documents the remote investigation of the hyperthermia-related fatality of a 21-month-old female who was unintentionally left behind in a 2006 Honda Odyssey while seated in a CRS in Indiana in August 2019. The vehicle was parked at her residence following a family trip to church. The investigation was intended to determine the events leading to the incident, actions taken by the caregivers, vehicle characteristics and equipment, environmental conditions, and activities of the child. The incident was identified as part of a hyperthermia study by NHTSA and assigned to the SCI team in October 2019. The SCI team obtained the police death investigation report and autopsy report.

The incident occurred during daytime in August 2019. The incident site was a single-family residence in a suburban area of Indiana. The caregivers were the 40-year-old father and 40-year-old mother. The family had returned home from church on a Sunday afternoon. The parents and other family members mistakenly thought the child was brought inside the residence to take a nap at the same time other family members were napping. Approximately 4 hours after being left behind, the family sought her whereabouts and discovered her inside the Honda in an unresponsive condition. Police were notified at 1725 hours and after responding they were unable to revive the child. The child was pronounced deceased on scene. The high ambient temperature that day was 27.2 °C (81 °F) at 1622 hours.

## Summary

### *Incident Site*

The incident site was a one-story single-family residence with an attached garage in suburban Indiana (Figure 1). It was oriented with the front wall facing east and was located 27 m (89 ft) west of a north/south roadway. A gravel driveway extended from the roadway to the garage, with a secondary spur branching off to the south before continuing past the south side of the residence (Figure 2). The roadway, driveway, and land were generally level and covered by grass with mature trees scattered on all sides of the property. The south wall of the residence had one exterior door with a window on the upper half, plus one single window and one double window providing what appeared to be an unobstructed view of the south side of the property including the driveway spur. The east wall had the main exterior entrance door and one window that appeared to provide a partial view of the driveway and front lawn. A double window on the east wall appeared to provide an unobstructed view of the driveway and most of the front lawn.



*Figure 1. Incident Site, looking west. Image obtained from an internet mapping software.*



*Figure 2. Incident Site, looking west. Image obtained from an internet mapping software.*

It was unknown if other vehicles were present during the incident. The incident occurred on a Sunday. The neighborhood was primarily residential and no retail businesses appeared to be located nearby. The homes were set well back from the roadway and the area had no sidewalks. It seemed unlikely the area had much foot traffic or other passersby who could see inside vehicles parked near the homes. The neighboring homes to the north and south were each approximately 18 m (60 ft) from the incident site. Satellite images indicate the driveway was unshaded during part of the day. The exact parked location for the Honda was unknown. The distance of the family to the vehicle and child during the incident was not specifically determined. Using a satellite image, the distance from the approximate center of the residence to the approximate center of the driveway measured 23 m (75 ft). If the vehicle was parked closer to the garage, the distance was shortened. An incident site diagram and incident site satellite view are included at the end of this report.

## **Weather**

On the day of the incident, the low ambient temperature was 15.5 °C (60 °F) and the high ambient temperature was 26.7 °C (80 °F). Maximum wind was 26 km/h (16 mph), conditions were partly to mostly cloudy and visibility was clear. At 1330 hours (onset of incident), the solar azimuth angle was 172°, the solar elevation angle was 61°, the ambient temperature was 26.1 °C (79 °F) and relative humidity was 47 percent. At 1727 hours (conclusion of incident), ambient temperature was 26.7 °C (80 °F) and relative humidity was 44 percent. Temperatures and conditions during the incident are documented in the table below.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Condition</b>
1254	24 (76)	54	24 (76)	Mostly cloudy
1354	26 (79)	48	26 (79)	Partly cloudy
1454	26 (79)	45	26 (79)	Partly cloudy
1554	26 (79)	45	26 (79)	Partly cloudy
1654	27 (80)	45	27 (80)	Partly cloudy
1754	27 (80)	42	27 (80)	Mostly cloudy

## **Vehicle Information**

The 2006 Honda Odyssey EXL was identified by police by the VIN 5FNRL38776Bxxxxxx. The Honda was a passenger van with three rows of seats for seven occupants in a 2-2-3 configuration. It had electric power door locks and windows, front-wheel drive, a 3.5-liter, 6-cylinder, gas engine, and power moon roof. The exterior color was “Silver Pearl Metallic” (silver) and the interior color was unknown. On the trip prior to the incident, the vehicle was at full occupancy as follows.

Driver’s seat: 40-year-old father  
Front right passenger seat: 40-year-old mother  
Second-row left seat: 21-month-old female child in CRS  
Second-row right seat: Unknown age male in CRS (minor, sibling)  
Third-row left seat: Unknown age male (minor, sibling)  
Third-row center seat: Unknown age female (minor, oldest sibling)  
Third-row right seat: Unknown age male (minor, sibling)

The first two rows had leather bucket seats separated by center consoles. The third row had a leather 60/40 split bench seat and folding backs. The vehicle had a sliding door at the second-row right position and a rear hatch.

The Honda had electric power door locks and electric power window regulators. The status of the door locks and windows during the incident was unknown. The vehicle had exterior pull-out-style handles, a wireless remote key, and a cylinder, style lock for the driver’s door. The security system consisted of an engine immobilizer, keyless entry, and alarm. It was unknown if the vehicle had telematics or Bluetooth technology, or with unattended-child detection, monitoring, or warning systems. The child was a toddler and not in possession of a physical or proximity key system.

The Honda had child proof door locks and their status was unknown. The vehicle had a power sliding door main switch to prevent children from operating the sliding door or unintended use of

the door. The rear doors were usually opened following a family trip due to the presence of child occupants in the second- and third-row seats. The owner's manual included a section titled "Protecting Children - General Guidelines" with a section that stated, "Do not leave children alone in a vehicle." The discussion included information regarding hot cars and heatstroke. It was unknown if the caregivers had a plan in place to prevent such incidents from occurring. It was unknown if they normally connected a smartphone to the vehicle via Bluetooth or cable. It was unknown if the caregivers had ever been informed about the dangers of leaving a child in a hot car. It was unknown if they were aware of campaigns focusing on the issue.

### ***Pre-Incident***

The family went to and from church on a Sunday in August. They left home at 1015 hours and arrived at church for a 1030 service. Church ended at 1230 hours and they departed at 1245 hours after staying to talk with friends. The mother stated that on the ride home she observed the child was awake. The trip took 15 minutes or less and no intermediate stops were made. The father was driving and was familiar with the route. The family arrived home and the father parked the Honda in the driveway on the east side of the house at approximately 1330 hours. Historically, that was their habit and usual schedule on Sundays beginning in the morning and extending to mid-day. The trip appeared to be unremarkable without any unusual circumstances present.

According to the police report, both parents as well as an older sister shared in caregiving activities of the younger children including the child, who was the youngest child in the household. Historically, after arriving home after church, the father would typically remove the child from her CRS and vehicle and assist or carry her into the house. After the family was inside, it was typical for either the father or older sister to put the child down for a nap. It was also typical for both parents to then take a nap. The father had an obstructive sleep apnea<sup>1</sup> condition and the mother's work schedule required her to work what she referred to as "graveyard shift" that ran from late evening hours to the early hours of the next morning, typically midnight to 8 a.m.

When the family arrived home, the children exited the Honda prior the parents exiting. The older sister unbuckled the CRS-restrained male in the second-row right position before going into the house. She then went inside to tend the family dog and change her clothes. The three brothers exited through the right-side sliding door with the third, seated in the third row, closing it behind him. The mother took a bag from between the front-row seats and went inside to change clothes. She apparently did not check on the status of the child prior to her exiting the vehicle. It was unknown if other occupants removed items from the vehicle. The father exited the vehicle through his left side door and the child was unintentionally left behind after the rest of the family entered the residence. The Honda was parked in front of the residence, where the east-facing wall had a door and windows providing an unobstructed view of the driveway and front lawn.

The child was seated in the CRS and restrained by the 5-point harness. At 21 months old she was not likely capable of unbuckling a CRS harness. Additionally, she likely did not have the

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<sup>1</sup> A potentially serious sleep disorder in which breathing repeatedly stops and starts. Among the symptoms are difficulty staying asleep and difficulty paying attention while awake ([www.mayoclinic.org](http://www.mayoclinic.org)).

capability to open or close doors, manipulate locks or handles, or enter or exit the vehicle without assistance.

### ***Incident***

During the incident six family members were occupied with various activities inside the residence. It was not determined who exactly was thought to be attending to the child. Family statements to police indicated that, following a trip to church, the father usually removed the child from the CRS and vehicle and the mother carried a bag. Sometimes, the sister would remove the child from the CRS. After changing her clothes, the mother went to the living and kitchen area of the home to make sure the children were “taken care of.” At that time, she thought either the father or sister had put the child down for her nap. The older sister stated to police she thought the father had put the child down for a nap. It appeared the father thought the sister had put the child down for a nap. Based on statements in the police report, it appeared the three brothers were too young to assume responsibility for the toddler or were not expected by the parents to assume the role.

The family did not have a lunch together but some of the children had sandwiches or snacks. The mother then went to her bedroom and took a nap lasting approximately 2.5 to 3 hours. The father then took a nap for an unknown duration, the sister was engaged in activities on her cell phone then took a nap of an unknown duration. The three brothers watched television and/or took naps of unknown durations.

After sleeping for several hours, the parents woke up from their naps. According to the police report, the father asked the mother if the child was down for a nap and the mother said she did not know if the sister had put her down for a nap. A search of house lasting an unspecified length of time was undertaken by the family. At some point the father was heard asking the whereabouts of the child, asking did “we” leave her in the van? The father, mother, and older sister exited the residence to discover the child inside the Honda.

### ***Post-Incident***

At approximately 1720 hours, the father removed the unresponsive child from the CRS and handed her to the mother, who initiated CPR. The child felt warm to the touch. The police report stated she was “purple, not breathing, hot and sweaty.” The mother later stated she did not recall if the interior of the Honda felt warm. The sister placed a 911 cell phone call. Fire and EMS personnel arrived at approximately 1725 hours and sheriff’s officers arrived at 1727 hours. Emergency responders took over lifesaving efforts but they were ceased at 1739, declaring her to be deceased when it was evident there were no signs of life. The autopsy report declared the time of death to be 1600 hours. Emergency responders indicated lividity was present on the child’s back.

The father told police he assumed the mother or sister had gotten the child out of the vehicle. He stated their typical routine following church was to have lunch and put the child down for a nap. He stated further that he was usually the one who removed her from the vehicle, that he forgot her that day, and did not know why. The sister told police it was the first instance that the child had been left behind in the Honda.

Police did not measure temperatures inside the vehicle due to the side sliding door being opened for a prolonged time following the incident.

According to the police report, during their investigation in August 2019 police contacted the State Department of Child Services (DCS) and furnished it with the facts of the case. In response, the DCS initiated an active investigation. Later in August 2019 police gave the county prosecutor's office the facts of the case. It was determined that no criminal charges would be filed against the caregivers at that time. The DCS investigation was still active and the police investigation was considered to be active/open. In September 2019 the autopsy report determined that the manner of death was an accident. Police then concluded that all evidence and interviews collected in the case indicated that the child's death was an accident and no criminal charges would be filed. The outcome of the DCS investigation was unknown.

### ***Caregiver/Guardian Data***

The primary caregivers were the 40-year-old father and 40-year-old mother, and a secondary caregiver appeared to be the child's oldest sister, age unknown. It appeared the father and mother shared in the day-to-day care of the children. The mother had worked the night before the incident and the father got the children out of bed, fed them breakfast, and bathed the child that morning in preparation for church. The parents did not respond to efforts by the SCI team to conduct an interview.

The day of the incident appeared to be typical in the following ways.

- The incident occurred on a Sunday when both primary caregivers and all family members were at home.
- The family had a history of attending church together then going home to relax and take naps.
- When the family traveled in the Honda, the two CRS-restrained occupants in the second row were routinely assisted from the vehicle by the father and older sister.
- The events preceding the incident (trip to church, etc.) appeared to be unremarkable.

The day of the incident appeared to be atypical or circumstances may have adversely affected the actions of the caregivers in the following ways.

- The mother was fatigued due to working the previous night shift.
- The father was likely fatigued or sleepy due to obstructive sleep apnea. Additionally, his continuous positive airway pressure machine was non-operational, exacerbating the situation and resulting in chronic fatigue.
- The father did not remove the child from the CRS and vehicle, as opposed to his normal practice to do so.
- The mother, father, and older sister appeared to have assumed another caregiver removed the child from the vehicle and put her down for a nap prior to them taking their own naps.

### ***Non-Motorist (Child) Data***

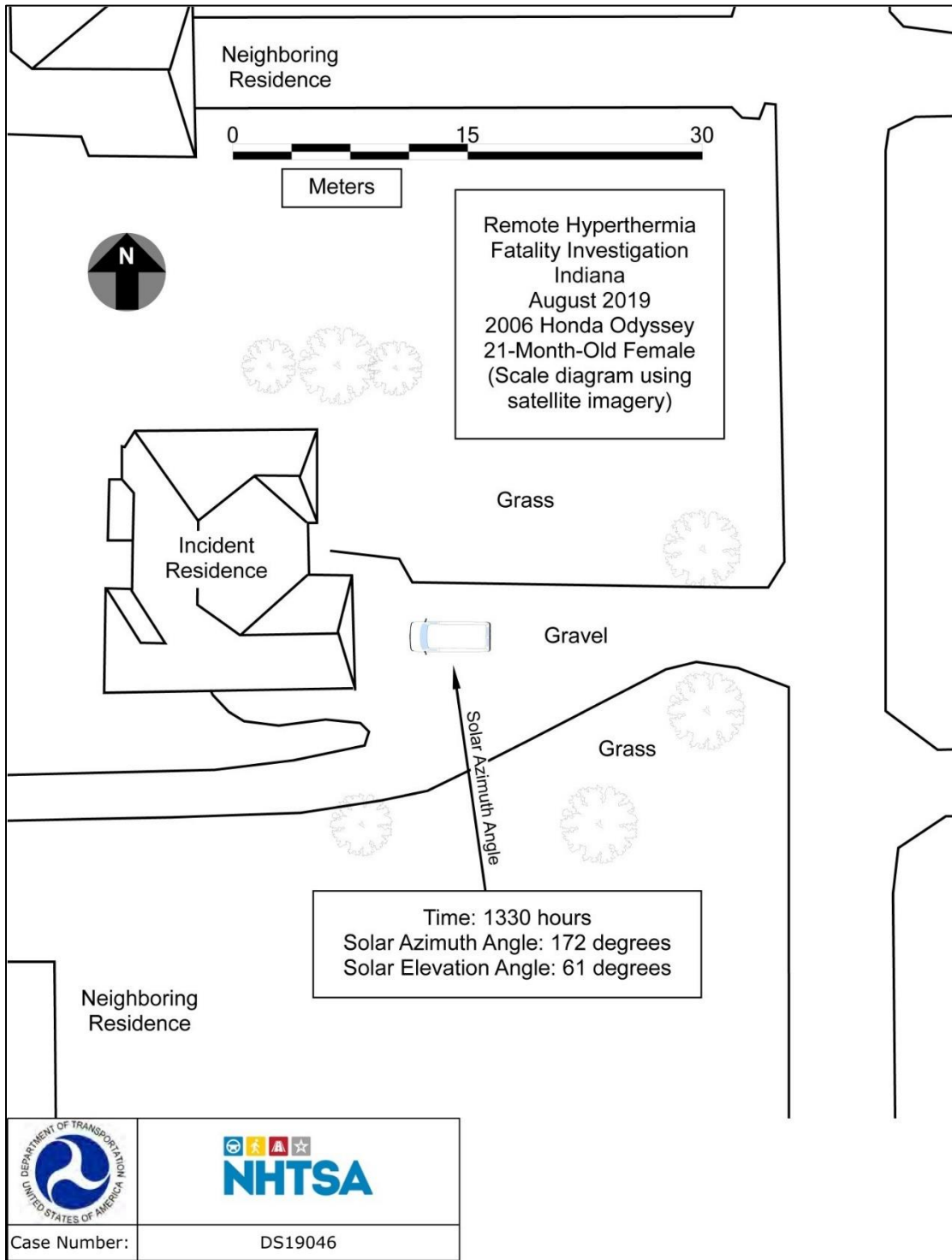
Age/sex:	21 months old/female
Height:	83 cm (33 in)
Weight:	12 kg (26 lb)
Clothing:	Dress, unknown color fabric, diaper, white sandals
Seat type:	Bucket, second-row left position
Restraint usage:	Forward-facing Evenflo CRS, installation method unknown
Transport from scene:	Taken to coroner's office
Type of medical treatment:	CPR attempted on scene

The child was seated in the Honda's second-row left position in a forward-facing Evenflo CRS. Details concerning CRS installation and adjustments were unknown. It was unknown if she was found covered by a blanket, coat, or other object, but that seems unlikely given the time of year and relatively high ambient temperatures. It was unknown if the child had a stuffed toy, dangling items, or anything that would restrict visibility to motion sensors.

The child's autopsy report stated the following injuries were present: pulmonary congestion and edema, and cerebral edema. The stated cause of death was environmental hyperthermia and the manner of death was "accident."



# Incident Site Diagram



## Incident Site Satellite View

(Google Maps image date: July 2020)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. DS19044**

**Vehicle: 2007 Toyota Avalon**

**Location: Kansas**

**Incident Date: August 2019**

## **Background**

This report documents the remote investigation of the hyperthermia-related fatality of a 2-year-old male child left unattended in a 2007 Toyota Avalon Limited for approximately 4 hours before being discovered by the caregiver, the child's great-grandmother in Kansas in August 2019. The investigation was intended to determine the events leading to the incident, actions taken by the caregiver, vehicle characteristics and equipment, environmental conditions, and activities of the child. The incident was identified as part of a hyperthermia study by NHTSA and assigned to the SCI team in October 2019. The SCI team obtained the autopsy report and the medical examiner's on-scene photographs. The investigating police agency refused to release its report and photographs to SCI.

This incident occurred in August 2019 in Kansas. The incident site was the uncovered parking pad of a single-family residence on a residential street (Figure 1). The child was in the custody of his great-grandparents. On the day of the incident, the great-grandparents and child attended church and had lunch at a restaurant, after which the great-grandmother and child returned home in the Toyota.



*Figure 1. Incident site looking north, 2007 Toyota Avalon in foreground. Image obtained from local medical examiner.*

The great-grandmother became distracted and unintentionally left the child behind in the vehicle for approximately 4 hours before again being aware of his whereabouts. A 911 call was placed and emergency responders arrived to find the child unresponsive with rigor and livor mortis present. His rectal temperature at the time was 43.3 °C (110 °F) and he was pronounced deceased on-site. The medically determined cause of death was hyperthermia and the manner was "accident." On that day the low ambient temperature was 23.3 °C (74 °F) and the high ambient temperature was 31.6 °C (89 °F).

## Summary

The incident site was the uncovered parking pad of a single-family residence. The neighborhood consisted of single-story mobile homes and a network of level, asphalt streets. The incident residence was oriented north/south and located on the northwest corner lot of a four-leg intersection. The residence measured approximately 23.9 m (78.4 ft) long and 5.3 m (17.4 ft) wide. The east side of the residence faced a north/south roadway located 6 m (20 ft) or more to the east and the south edge of the residence faced an east/west roadway located 7 m (23 ft) or more to the south. At the south end, a parking pad of asphalt and crushed rock aggregate measuring 6 x 6 m (20 x 20 ft) extended from the east/west roadway north toward the residence. The parking pad sloped slightly downhill from north to south and was configured for two vehicles parked in a north/south orientation. The exterior entrance for the residence was located on the west side approximately 8 m (26 ft) north of the driveway and up a short flight of steps above ground level. The south side of the residence had one window that appeared to reveal an unobstructed view of the parking pad and the west side had an entrance door and three windows that appeared to reveal unobstructed or partial views. A neighboring residence was located to the west of the incident residence. The neighboring residence as well as other residences were in view of the Toyota during the incident. Mature trees were present in the area but were located north of the vehicles. The trees and single-story residences would have provided shade to the area in the morning and evening but it was likely unshaded for several hours during the day. Conditions during the incident were overcast but photos taken by the medical examiner following the incident showed the area to be unshaded.

Prior to the incident, the great-grandmother arrived home first and backed the 2007 Toyota Avalon into the left space of the parking pad so the vehicle faced south. Sometime later the great-grandfather arrived home, backing his Dodge Caravan into the right side of the parking pad also facing south. Distance between the two vehicles was approximately 1 m (3 ft). An incident site diagram and incident site satellite view are included at the end of this report.

## Weather

On the day of the incident, the low ambient temperature was 23.3 °C (74 °F) and the high ambient temperature was 31.6 °C (89 °F). Skies were hazy with visibility of 13 km (8 mi) and maximum wind speed for the day was 32 km/h (20 mph). At 1400 hours, the solar azimuth angle was 201° and the solar elevation angle was 65°. The table below documents the weather conditions during the time of the incident.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Condition</b>
1340	29 (84)	69	33 (90)	Mostly cloudy
1353	29 (85)	65	33 (91)	Partly cloudy
1453	31 (87)	63	35 (94)	Partly cloudy
1528	31 (87)	65	35 (95)	Mostly cloudy
1553	31 (88)	63	36 (97)	Mostly cloudy
1645	31 (87)	65	35 (95)	Partly cloudy
1653	31 (88)	63	36 (97)	Partly cloudy
1753	31 (88)	67	37 (99)	Fair

## **Vehicle Information**

The vehicle was a 2007 Toyota Avalon Limited, 4-door sedan identified by the VIN 4T1BK36B27Uxxxxxx (Figure 2). The vehicle's exterior color was "Indigo Ink Pearl" (dark blue) and the interior color was light grey with perforated leather seat trim. The Toyota had a 3.5-liter, 6-cylinder, gas engine.



*Figure 2. 2007 Toyota Avalon. Image obtained from local medical examiner.*

The Toyota had a wireless remote key system designed to lock or unlock all the doors, open the trunk lid, or activate the alarm from a distance within approximately 1 m (3 ft) of the vehicle. The driver's exterior door handle also had a manual cylinder-type lock. When using the manual key, all four doors lock or unlock simultaneously. It did not appear the child was in possession of a physical key or proximity key system at the time of the incident. The Toyota had exterior pull type door handles.

All four doors had interior power door locks and manual lock knobs. The power mechanisms locked or unlocked all four doors simultaneously. The front doors could be opened by pulling the interior handle even if the lock knobs were in the lock position. The second-row doors had manual child safety door locks which when set to the locked position prevented the doors from opening when pulling the interior handle. The status of the door locks during the incident was unknown. It was unknown if the child could open or close the vehicle doors without assistance.

The vehicle had electric window regulators. The windows were closed during the time of the incident. The alarm system consisted of a standard immobilizer/keyless entry and alarm. It was unknown if the system incorporated telematics or Bluetooth technology. It was unknown if the vehicle had an unattended-child detection, monitoring, or warning system.

The child was seated in a forward-facing Evenflo Chase LX CRS installed in the second-row left seat position. The method of installation was unknown.

### **Pre-Incident**

The incident occurred on a Sunday in August 2019. In July 2019 the 2-year-old male had been placed in the custody of his great-grandparents, ages unknown. It appeared the three were the only residents of the household.

At an unknown time on the morning of the incident, the great-grandparents drove the child and an unknown number of his siblings to church using two vehicles, the 2007 Toyota Avalon and a Dodge Caravan of unknown year. Following church, the family drove both vehicles to a restaurant for lunch while accompanied by one or more family friends. After lunch, the great-grandfather placed the child in the forward-facing Evenflo Chase LX CRS installed in the second-row left seat position of the Toyota (Figure 3). The great-grandmother was aware of the child being placed in the vehicle and she was expected to be the child's caregiver for the next several hours while the great-grandfather took the other siblings to a park in the Dodge. The great-grandmother, child, and a family friend left the restaurant in the Toyota, dropping off the friend at an unspecified location on their way home. The great-grandmother and child arrived home at approximately 1400 hours. The great-grandmother backed the Toyota onto the parking pad so that the vehicle faced south and away from the residence. She removed unspecified items from unspecified locations inside the vehicle and received a cell phone call possibly distracting her attention away from the child. She entered the residence and unintentionally left the child behind in the Toyota, seated in his CRS.



*Figure 3. Evenflo Chase LX CRS, second-row left position, 2007 Toyota Avalon. Image obtained from local medical examiner.*

### **Incident**

Once inside the residence the great-grandmother had two subsequent phone conversations with unknown parties before taking a nap of an unknown duration. While the great-grandmother slept, the great-grandfather returned home in the Dodge at an unknown time. According to the child's autopsy report, the great-grandfather did not see the child in the Toyota after arriving home. He entered the residence and fell asleep in a reclining chair at an unknown time.

The distance from the caregivers to the child during the incident was unknown and difficult to estimate. Due to the orientation of the residence relative to the vehicle, the distance was possibly anywhere from 5 to 28 m (16 to 92 ft). The south and west sides of the residence had doors and windows that provided unobstructed or partial views of the Toyota.

At approximately 1730 hours, the great-grandmother awoke from her nap. The great-grandfather awoke also and the two realized they did not know the child's whereabouts. They exited the residence, found him unresponsive in the Toyota, and called 911.

### ***Post-Incident***

The great-grandfather attempted CPR until emergency responders arrived. When EMS arrived the child was unresponsive and they noted the presence of rigor and liver mortis. The child's rectal temperature at that time was 43.3 °C (110 °F) and he was pronounced deceased at 1745 hours. It is probable the child had been deceased for one or more hours prior to his discovery. According to experts,<sup>9</sup> "fully developed rigor mortis is an easily identifiable and reliable indicator that death has occurred. The time of onset is variable but it is usually considered to appear from 1 and 6 hours (average 2–4 hours) after death." Additionally, livor mortis, the stage which follows rigor, was also present, suggesting the time of death was possibly earlier than one hour prior. The child was transported to the medical examiner's office.

### ***Caregiver/Guardian Data***

On the day of the incident the primary caregiver was the child's great-grandmother and the secondary caregiver was the great-grandfather. Their ages were unknown. The great-grandparents obtained custody of the child approximately one month prior to the event. The three appeared to be the sole occupants of the home. The great-grandparents each had the use of their own vehicles and it appeared the great-grandmother typically used the Toyota. They also interacted with the child's siblings and accompanied them on family activities such as attending church, dining out in restaurants and playing at a park.

The incident occurred on a summer Sunday. Official records suggest some aspects of the day were typical in the following ways.

- The great-grandmother was home prior to, and during, the incident.
- The great-grandfather arrived home during the incident.
- They had custody of the child.
- The child had lived with them for approximately one month.
- It was reasonable to expect the child would require age-appropriate care.
- The great-grandmother was familiar with the Toyota.
- The great-grandmother was familiar with the route taken during the trip home.
- The child appeared to have a usual seating arrangement in a CRS secured in the Toyota.
- The great-grandmother was aware of the child's presence in the vehicle during the trip.

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<sup>9</sup> Munro, R., & Munro, H. M. C. (2008). Estimation of time since death. In R. Munro & H. M. C. Munro, (Eds.) *Animal abuse and unlawful killing* (pp. 88-93). W. B. Saunders. doi.org/10.1016/B978-0-7020-2878-6.50022-2. www.sciencedirect.com/science/article/pii/B9780702028786500222

Records suggest some aspects of the day were atypical or may have affected the caregiver's actions adversely in the following ways.

- The caretakers received full custody of the child one month before the incident.
- Upon returning home the great-grandmother had phone calls possibly distracting her attention from the child's whereabouts.
- Both caregivers took naps after arriving home. That in itself may have been typical but their fatigue possibly affected their awareness of the child's whereabouts.

It was unknown if the great-grandmother was aware of potential dangers associated with leaving a child in a hot car or the effects of hyperthermia. It was unknown what level of information was made available to her or if she had a plan in place to prevent such occurrences. It was unknown if she used smart phone or Bluetooth technology to monitor the vehicle. Efforts by the SCI to interview the parents and great-grandparents of the child were unsuccessful.

According to the district attorney's office, it received the police report in August 2019 for a criminal charging review and determined in March 2020 the case would not be charged. The listed suspect was the child's great-grandmother, who was the primary caregiver at the time of the incident. The great-grandfather was not considered to be a suspect.

### ***Non-Motorist (Child) Data***

Age/sex:	2 years old/male
Height:	84 cm (33 in)
Weight:	12 kg (27 lb)
Clothing:	Diaper
Seat type:	Bench second row left
Restraint usage:	CRS installation method unknown
Transport from scene:	None
Type of medical treatment:	None

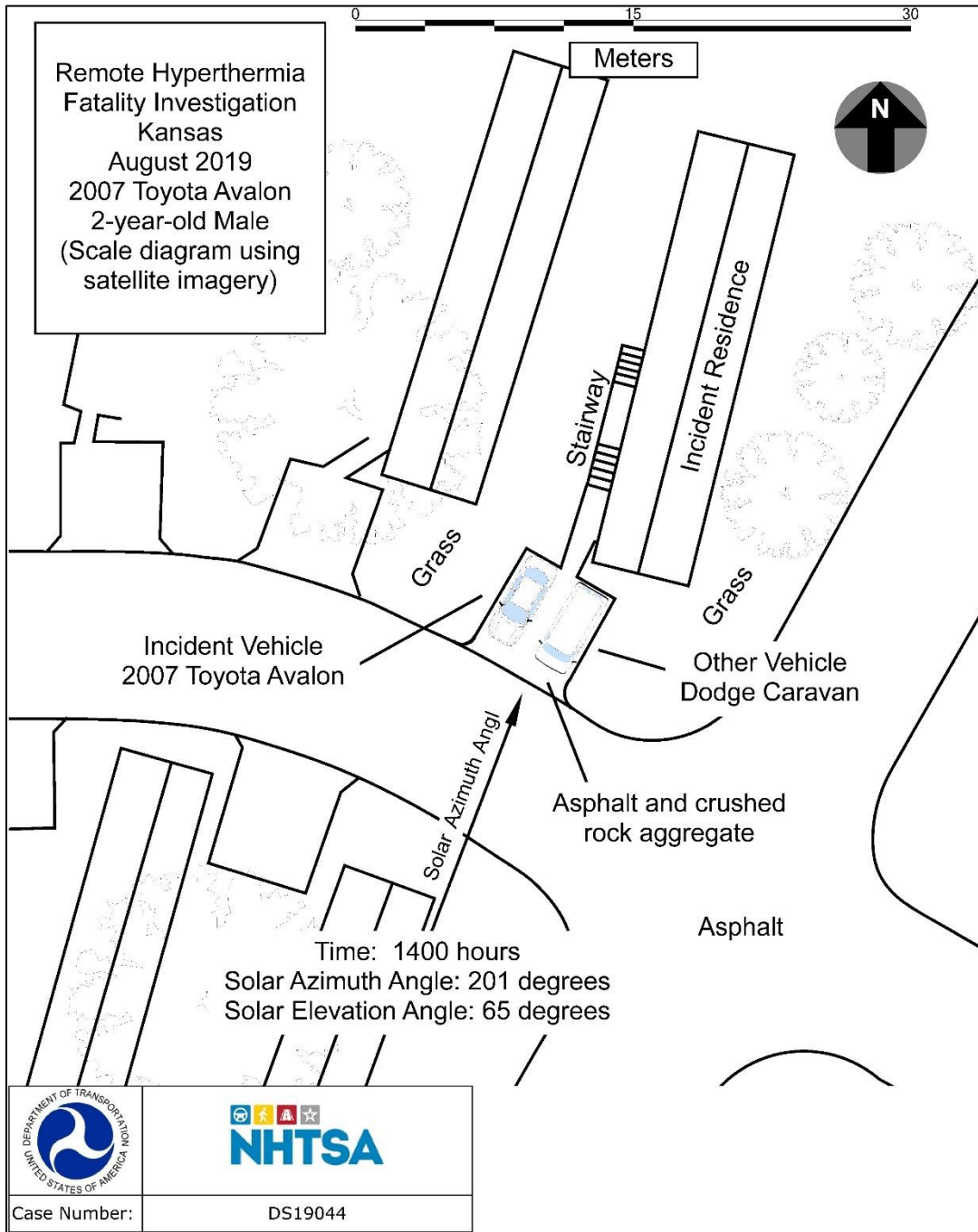
The 2-year-old male was seated in a forward-facing Evenflo Chase LX CRS in the Toyota's second-row left position. He was likely restrained by the internal 5-point harness. The Evenflo owner's manual stated that for forward-facing orientation a child should meet the following design parameters.

- Height from 28 inches and 57 inches
- Weight from 22 pounds and 110 pounds

The child met the CRS design parameters. It was unknown if the child could enter or exit the vehicle without assistance.



# Incident Site Diagram



## Incident Site Satellite View

(Google Maps image date: July 2020)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. CR19019**

**Vehicle: Unknown Year/Make/Model**

**Location: Kentucky**

**Incident Date: August 2019**

## **Background**

This report documents the remote investigation of the circumstances surrounding the hyperthermia-related fatality of a 2-year-old female who gained access to a vehicle unbeknownst to her father in Kentucky in August 2019. The police reported the incident developed while the child was napping and the father also laid down to nap. When the child awoke, she exited the residence and opened the door on a vehicle parked outside and climbed in. The caregiver awoke and reported the child as missing. Police responded to the residence and found the child unresponsive in the vehicle. The child was transported to a local hospital where she expired due to hyperthermia. The incident was identified by NHTSA and assigned to the Special Crash Investigations group for further research in October 2019.

The SCI team contacted the police agency to obtain records and interview the investigating officer of this hyperthermia case. The records department stated that the SCI team would need to speak with the investigating officer to obtain approval to have any records released. Attempts to reach the investigating officer were made by the SCI team with voicemail requests for a return call. No return call was ever received. A search of online media sources provided the basis for this final report.

## Summary

### ***Incident Site***

The incident occurred during the morning and early afternoon at the father's residence. The exact location of the residence and the vehicle's parked location are unknown. A search of online news media sources stated that there was a chain-link fence that the 2-year-old female exited in order to get to and enter the vehicle. The father informed local police and the news media that the gate was normally locked.

### ***Weather***

The weather data for the duration of this incident was obtained from the National Weather Service. Sunrise occurred at 0644 hours with sunset reported at 2042 hours. The peak temperature for the day was at 31 °C (88 °F) recorded at 1453 hours with 49 percent humidity. Winds were calm for the duration of this incident. The conditions were reported as cloudy for the duration of this incident. The temperatures, humidity, calculated heat index, and conditions for the duration of the incident are provided in the following table.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Conditions</b>
0653	20 (68)	93	21 (69)	Partly cloudy
0753	21 (69)	93	31 (70)	Partly cloudy
0853	23 (73)	80	23 (74)	Partly cloudy
0953	25 (77)	71	25 (78)	Mostly cloudy
1053	28 (82)	62	29 (85)	Mostly cloudy
1153	29 (84)	58	31 (87)	Cloudy
1253	29 (85)	59	32 (89)	Cloudy
1353	30 (86)	57	32 (90)	Cloudy
1453	31 (88)	49	33 (91)	Mostly cloudy

### ***Vehicle Information***

The vehicle in this hyperthermia investigation is unknown.

### ***Pre-Incident***

Based on news media, during the early morning on the day of the incident, the father was involved in the care of his own father, the child's grandfather, whose medical conditions required the father and child transport him to the hospital. Upon their return to the residence, the father and child laid down to nap at approximately 0730 hours.

### ***Incident***

At some point during the day, the 2-year-old female woke up from her nap and exited the home. The child then exited the fenced yard and entered the vehicle. The father woke up in the early afternoon and was unable to find the child. The father then called the local law enforcement agency at 1404 hours to report the child missing. Law enforcement agencies and additional first responders arrived at the incident site and began searching for the child. Local law enforcement officers found the child unresponsive in the backseat of the vehicle at approximately 1430 hours.

### ***Post-Incident***

First responders removed child from the vehicle and began CPR. The first responders then transported the child to a local hospital where she was pronounced deceased.

### ***Caregiver/Guardian Data***

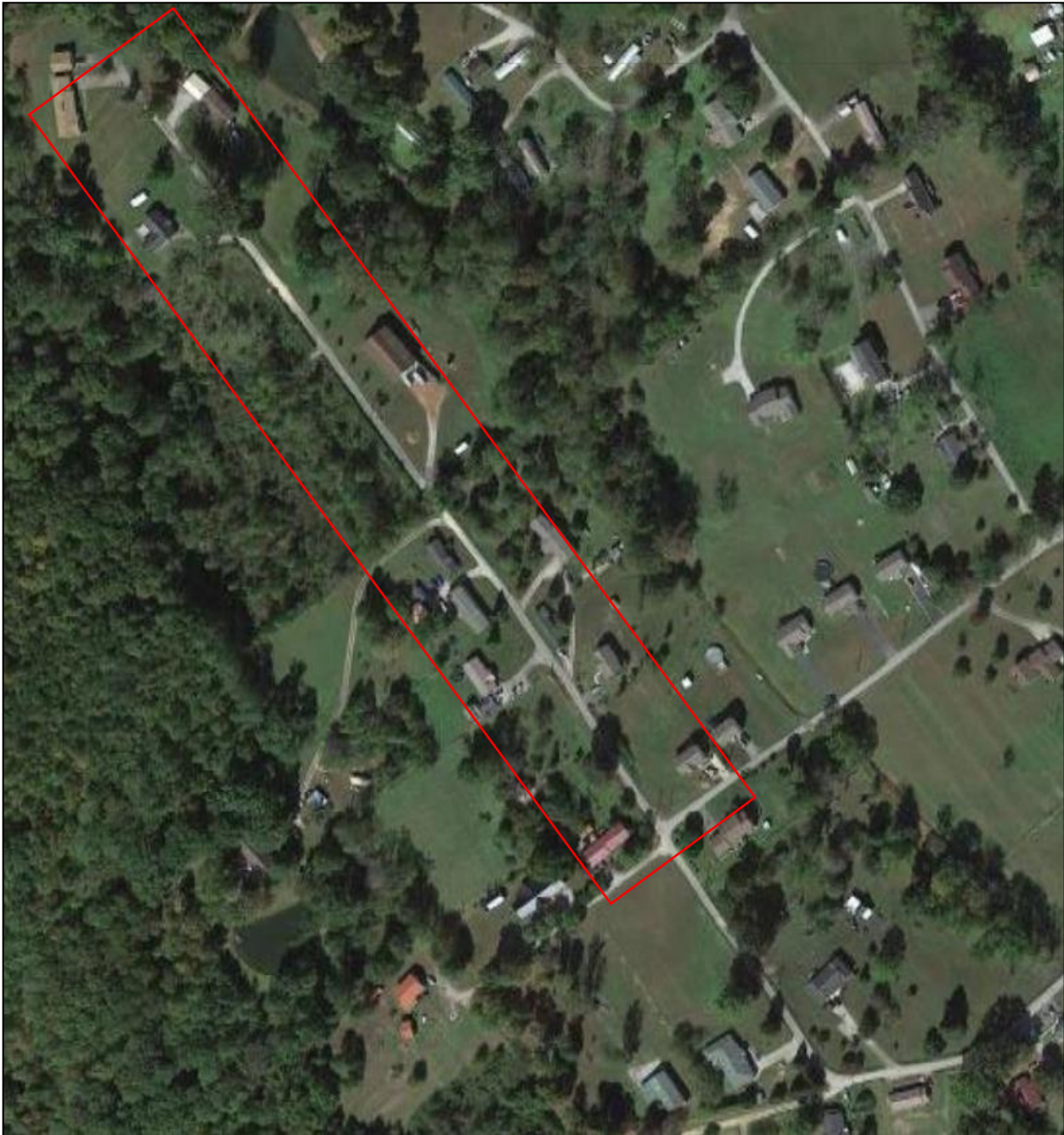
The caregiver was the father of the child. His age was not reported. Local law enforcement agencies stated that there was no foul play in this hyperthermia case and the father was not charged. No additional information could be obtained for the father.

### ***Non-Motorist (Child) Data***

Age/sex:	2 years old/female
Height:	Unknown
Weight:	Unknown
Seat type:	Unknown
Restraint usage:	Unknown
Transport from scene:	Transported by ambulance
Type of medical treatment:	Treated by first responders, declared deceased at local hospital

**Incident Site Satellite View**

(Google Maps image date: 2020)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. CR19026**

**Vehicle: Unknown Year/Make/Model**

**Location: Kentucky**

**Incident Date: August 2019**

## **Background**

This report documents the remote investigation of the circumstances surrounding the hyperthermia-related fatality of a 2-month-old male left unattended in a vehicle for approximately 9 hours by his father. The father drove the mother to her workplace at 0815 hours then proceeded to a friend's house where he left the child unattended but restrained in a rear-facing CRS in the second-row seat of his vehicle. The father proceeded to the upstairs living quarters where he had snacks and fell asleep until 1900 hours. He returned to his vehicle and found the forgotten child deceased. He called the child's mother and told her the child was deceased. As he arrived at her residence, she removed the child from the CRS and called the emergency response system. Police and fire department personnel arrived on-scene and conducted their investigation. The medical examiner took possession of the body for autopsy. The cause of death was hyperthermia. No charges were filed against the father.

The incident was identified by NHTSA and assigned to the Special Crash Investigations group for further research on October 9, 2019.

The SCI team attempted to contact the investigating police detective and obtain the incident report from the police agency. After numerous voicemail messages, the detective failed to respond. The incident report was not available for public disclosure. A search of internet news articles and the acquisition of the coroner's report provided the basis for this investigation.

## Summary

### ***Incident Site***

This incident occurred in the parking lot of an apartment complex (Figure 1). The parking lot was surfaced with asphalt and was delineated with parking spaces oriented in a northwest/southeast direction. There were three rows of parking with two rows providing 35 back-to-back parking spaces and the third row of 16 parking spaces at the end of the lot. A semi-circular driving lane provided access to the lot with two access point to the main driveway of the complex. The lot was in full view of the sun throughout the day with no shade. The specific parked location of the father's vehicle during this incident was not reported. The two-story multi-unit apartment building was located to the northwest of the parking lot and was separated from the lot by a grass lawn. Three sidewalks provided pedestrian access from the parking lot to the apartment building.



*Figure 1. Satellite image of the apartment building and the parking lot of this incident. Image obtained from internet mapping software.*

### ***Weather***

The National Weather Service reported sunrise at 0706 hours on the day of this incident with sunset at 2015 hours. The daytime high temperature was 29 °C (84 °F) at 1554 and 1654 hours. The weather data for the duration of this incident is provided in the following table.



<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Conditions</b>
0854	18 (65)	73	18 (65)	Fair
0954	22 (71)	61	21 (71)	Fair
1054	25 (77)	48	25 (77)	Fair
1154	25 (77)	45	25 (77)	Fair
1254	27 (80)	42	27 (80)	Fair
1354	27 (81)	39	27 (81)	Fair
1454	28 (82)	39	27 (81)	Fair
1554	29 (84)	37	28 (83)	Fair
1654	29 (84)	38	28 (83)	Fair
1754	28 (83)	39	28 (82)	Fair
1854	28 (82)	42	28 (82)	Fair
1954	26 (79)	48	26 (79)	Fair
2054	24 (75)	55	24 (75)	Fair

### ***Vehicle Information***

The specific year, make, and model of the vehicle in this incident are unknown.

### ***Pre-Incident***

The child resided with his mother at a separate residence from his father. The father provided transportation for the mother to her workplace and for the child to the maternal grandmother's residence for babysitting services. The father worked third shift and provided this transport service after the completion of his work shift. This was his normal routine.

On the day of the incident, the father arrived at the mother's residence at approximately 0815 hours. The child was placed in a rear-facing CRS in the second row of the father's vehicle and secured with the integral 5-point harness system. The father and mother entered the vehicle and departed the residence at approximately 0841 hours. The father drove the mother to her workplace where she works a shift from 0900-1730 hours. The father then left with the child. After dropping the mother off at work, the father's normal routine was to drive the child to the grandmother's residence for day-long babysitting.

### ***Incident***

The father texted the mother at 1001 hours from an unknown location and called her on her cell phone at 1006 hours. She was unable to respond to the text and call due to her work requirements. The coroner's report indicated that the father drove to a friend's apartment and parked the vehicle in the parking lot of the complex while he went to the second-floor apartment. Reportedly, the father left the child restrained in the second-row seat of the vehicle. The father stated he had snacks with his friend and fell asleep.

The child's aunt texted the mother at 1745 hours to report that the child had not been dropped off at the grandmother's residence. The mother called for a ride-sharing service for transport to her mother's residence, arriving at 1803 hours. She sent a voice-clip text message to the father requesting his return to the grandmother's residence. There was no response.

The father reportedly awoke from his sleep at approximately 1900 hours and returned to his vehicle where he found the forgotten child deceased in the CRS. The father called the mother of

the child to report the child was deceased and that he was driving to the grandmother's residence. When he arrived at 1930 hours, the mother removed the child from the CRS and immediately called the emergency response system.

### ***Post-Incident***

Police, professional fire department, and EMS personnel arrived on-scene. EMS determined the child was deceased with a temperature of 40 °C (103.9 °F). The medical examiner was summoned to the scene to retrieve the body for autopsy. The official cause of death was listed as hyperthermia.

The police interviewed the father to understand the circumstances of this death. The father initially stated that after dropping off the mother at her workplace, he drove to the grandmother's residence where he arrived at 1000 hours, parked his vehicle, reclined his seat back and listened to music before falling asleep. When he reportedly awoke at 1900 hours, the child was deceased in the second-row seat. The father was transported to the police headquarters for further questioning, where he admitted to dropping off the mother and proceeding to his friend's apartment. Following the police investigation, no charges were filed against the father.

### ***Caregiver/Guardian Data***

The father who was responsible for the care of the child at the time of this incident was a 23-year-old male. He did not live with the mother of the child. His normal routine was to drive to the mother's residence and in the morning to take her to work at 0900 hours, then transport the child to the maternal grandmother's residence for babysitting services. He would then drive back to his residence to sleep. He would pick the mother up at the end of her work shift at 1730 hours and transport her to the grandmother's residence to pick up the child and drive them back to the mother's residence.

### ***Non-Motorist (Child) Data***

Age/sex:	2 months old/male
Height:	58 cm (23 in)
Weight:	7 kg (16 lb)
Seat type:	Rear-facing CRS on the second-row seat
Restraint usage:	Integral 5-point harness
Transport from scene:	Transported by medical examiner
Type of medical treatment:	None, deceased at scene

***Incident Site Satellite View***

(Google Maps image date: 2020)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. CR19024**

**Vehicle: 2009 Saturn Vue XE**

**Location: Mississippi**

**Incident Date: August 2019**

## **Background**

This report documents the circumstances surrounding the hyperthermia-related fatality of a 21-month-old male left unattended in a vehicle for approximately 9 hours by his father in Mississippi in August 2019. He placed the child in a forward-facing CRS in the second-row center seating position of a 2009 Saturn Vue XE (Figure 1) SUV and departed the residence. The typical routine was for the mother to drop the child off at daycare in the morning, but she was out of town; therefore, the father was supposed to. The father forgot to drop the child off at the daycare and proceeded directly to his workplace. The father parked the vehicle in the workplace parking lot where it remained for the duration of the day. Before the father left work, the mother of the child called the father to remind him to go to the daycare facility after work and pick up the child. The father completed his work shift, entered his vehicle, and drove directly to the daycare facility. At approximately 1700 hours the father walked into the daycare facility to pick up the child. The father was informed by daycare personnel that the child was never dropped off that day. The father then walked out of the daycare facility and went to his vehicle where he found the child in the forward-facing CRS. Daycare personnel noticed the father become distressed and went outside to see what was going on. At that time, daycare personnel realized what had happened, they cut the CRS harness to remove the child, took the child into the daycare facility, and contacted the local police.



*Figure 1. Front left oblique view of an exemplar 2009 Saturn Vue*

The incident was identified by NHTSA and assigned to the Special Crash Investigations group for further research on October 9, 2019.

The SCI team contacted the investigating law enforcement agency. An incident report was obtained from the records department.

## Summary

### ***Incident Site***

The incident occurred over a 9-hour period during daylight. The Saturn was parked on an open concrete parking lot in full view of the sun. There were no structures or trees to shade the vehicle. The parking lot was located on the south side of the single-story commercial building (Figure 2) across a road separating the building from the parking lot. Painted yellow parking lines were oriented in a northwest, northeast, south east and southwest directions.



*Figure 2. Satellite view of the incident site/father's workplace. Image obtained from an internet-based mapping site.*

The father traveled to the daycare facility after work, where the child was found in the backseat of the Saturn. The Saturn was parked on the open gravel parking lot in full view of the sun. There were no structures or trees to shade the vehicle. The parking lot was located on the west side of the single-story commercial building (Figure 3). The exact parking location and direction for the Saturn are unknown.



*Figure 3. Satellite view of the daycare facility. Image obtained from an internet-based mapping site.*

## Weather

The weather for this incident was reported by the National Weather Service as fair. Sunrise occurred at 0618 hours with sunset at 1943 hours. There was no precipitation during this incident and winds were variable with speeds ranging from 0 to 11 km/h (0 to 7 mph). Temperatures, humidity, calculated heat index and conditions for the duration of this incident are reported in the following table.

Time 24-Hour Clock	Temperature °C (°F)	Humidity %	Calculated Heat Index °C (°F)	Condition
0653	21 (70)	87	22 (71)	Fair
0753	23 (74)	82	24 (75)	Fair
0853	26 (79)	69	27 (81)	Fair
0953	28 (83)	58	30 (85)	Fair
1053	30 (86)	51	31 (88)	Fair
1153	32 (90)	42	33 (91)	Fair
1253	32 (90)	42	33 (91)	Fair
1353	33 (92)	38	34 (93)	Fair
1453	33 (92)	39	34 (93)	Fair
1553	33 (92)	39	34 (93)	Fair
1653	33 (93)	38	35 (95)	Fair
1753	33 (92)	39	34 (93)	Fair

## Vehicle Information

The vehicle in this hyperthermia investigation was a 2009 Saturn Vue XE SUV, exemplar vehicle shown in Figure 4. The subject Saturn has the VIN 3GSCL33P19Sxxxxxx. The exterior color was red. Exterior configurations consisted of four front forward-hinged doors and a rear lift gate. Standard configuration is seating for five (2/3) with front row bucket seats and a three-passenger split-bench second-row seat with folding seat backs (Figure 5). All seating positions except for the second-row middle position were equipped with adjustable head restraints.



Figure 4. Left side view of an exemplar 2009 Saturn Vue XE



Figure 5. Second-row interior view of an exemplar 2009 Saturn Vue XE

The exterior door handles were pull-type handles that protruded beyond the profile of the doors. A recessed pocket was formed into the door panel to provide adequate grip space for the handle. The second-row doors had child safety locks. A key blade or tool was required to turn the nylon

lock mechanism located on the door frame below the latch. The status of these locks on the Saturn is unknown.

The interior door release levers of the Saturn were flush-mounted (Figure 6). A pocket was formed into the door panel that provided adequate access to the lever. The levers were not equipped with mechanical lock/unlock mechanisms. All doors were equipped with lock stalks on the top aft aspect of the door panels (Figure 7).



*Figure 6. Second-row interior door release of an exemplar 2009 Saturn Vue XE*



*Figure 7. Driver's interior door release of an exemplar 2009 Saturn Vue XE*

The central locking system of the Saturn was power. A key fob had lock and unlock switches. With a single touch of the switch, all four doors including the lift gate could be locked and unlocked. On the interior of the Saturn, lock and unlock switches were located on the front panels, mounted horizontally forward of the door closer handle that were incorporated into the armrests. The driver's door switch panel (Figure 8) included the power window switches and a lockout switch for the front right and second-row power windows. The interior lock switches were push-type switches. The second-row door panels were not equipped with power lock switches.



*Figure 8. Power window and door lock switch console on the driver's door panel of an exemplar 2009 Saturn Vue XE*

The locking logic of the Saturn was the same whether using the key fob or the front door panel-mounted switches. All four doors would be locked or unlocked by a single touch of the switch. Once inside the Saturn, with the power locking system in the unlock mode, all four doors could be opened by pulling on the interior door release levers. In the locked mode, the front door levers would release the power lock for that door. Upon egress of a front door, the second-row doors remained locked.

From in the second row of the Saturn with the central locking system locked, the second-row doors could not be unlocked/opened by pulling on the door release lever. Egress required unlocking the power lock system by key fob or the driver front door switches. The second-row doors could be unlocked and opened by pulling on the mechanical stock on the top aft aspect of the door panel.

### ***Pre-Incident***

On the day of the incident the mother of the child was scheduled to work out-of-town and the father was supposed to take one daughter to school and the 21-month-old child to daycare. The father secured the daughter in the second-row left seating position and their 21-month-old child in the forward-facing CRS in the second-row center seating position, and left their residence. The father dropped the daughter off at her school like he did every morning. The father then drove to his workplace and arrived there at approximately 0740 hours.

### ***Incident***

The father forgot the 21-month-old male was in his vehicle and went into his workplace for the duration of his shift. The father received a call from his wife reminding him to pick up the child from daycare. The father left his workplace at approximately 1640 hours and drove to the daycare facility. The high temperature for that day was reported at 34°C (93°F) at 1653 hours. At approximately 1700 hours, the father walked into the daycare facility to sign-out the child. Daycare personnel advised him that the child was never dropped off that morning and that the child was not there. The father walked back out to the vehicle where he discovered the 21-month-old male still secured in the forward-facing CRS. Daycare personnel noticed the father became distressed and went outside to the parking lot to determine what was happening. At that time, they realized that the child was secured in the forward-facing CRS in the second-row seat of the 2009 Saturn Vue. Daycare personnel cut the straps of the CRS and removed the child from the vehicle. The daycare personnel took the child into the daycare facility and contacted local law enforcement.

### ***Post-Incident***

Police and EMS personnel arrived on scene. The child was pronounced deceased shortly after the arrival of EMS personnel. The body was transported to the coroner's office for autopsy. The cause of death was hyperthermia. Local law enforcement conducted its investigation and contacted the local district attorney's office. At the time this report was submitted, the district attorney's office has not filed charges.



### ***Caregiver/Guardian Data***

The caregiver/guardian responsible for the child on the day of the incident was the father of the child. He was 38 years old. In an interview, he stated this was not his normal day and he never heard his son in the backseat, so he went about his day as normal and just forgot his son was in the backseat.

### ***Non-Motorist (Child) Data***

Age/sex:	21 months/male
Height:	Unknown
Weight:	Unknown
Position in vehicle:	Second-row center
Restraint type:	Unknown
Transport from scene:	Medical examiner
Medical treatment:	None, body transported for autopsy

The child was a 21-month-old male of unknown height and weight. According to the father, the child was positioned in the second-row center position and restrained in an unknown make/model forward-facing CRS. The child was secured in the forward-facing CRS by the integrated 5-point harness system.

# Incident Site Satellite View

(Google Maps image date: 2020)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. CR19022**

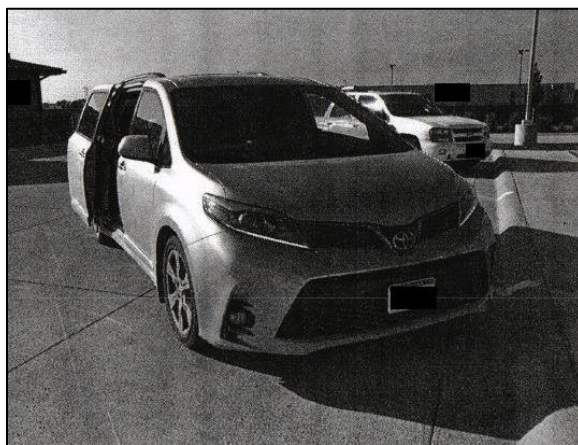
**Vehicle: 2019 Toyota Sienna SE**

**Location: Nebraska**

**Incident Date: August 2019**

## **Background**

This report documents the circumstances surrounding the hyperthermia-related fatality of a 1-year-old male left unattended in a vehicle for approximately 9.5 hours by his mother in Nebraska in August 2019. The father placed the child in a rear-facing convertible CRS in the second-row right position of the 2019 Toyota Sienna minivan (Figure 1) and departed her residence at 0735 hours. Her typical routine was to drop the child off at daycare on the way to her workplace. On the day of this incident, she forgot to drop the child off at daycare and proceeded directly to her workplace. The mother parked the Toyota on an open, unobstructed concrete parking lot facing in a westerly direction at 0756 hours. She gathered her belongings from the front right seat and exited the Toyota, locking the vehicle with all windows closed. The mother proceeded to her workplace where she remained for the duration of the day. She completed her work shift, exited the building, and entered the Toyota at 1748 hours. She drove directly to the daycare facility and as she entered the facility, she was told the child was not dropped off that day. The mother immediately ran to the Toyota to find the child unresponsive, restrained in the CRS. She removed him from the CRS and carried him into the daycare facility. Efforts to revive him were unsuccessful and he was pronounced deceased at an adjoining hospital at 1802 hours. There were no criminal charges filed against the mother.



*Figure 1. 2019 Toyota Sienna minivan. Image obtained from coroner.*

The incident was identified by NHTSA and assigned to the Special Crash Investigations group for further research on October 9, 2019.

The SCI team contacted the investigating law enforcement agency and the county coroner's office. A complete file of the police investigation and the autopsy report was obtained for this investigation. The data extracted from that investigation provided the basis for this report. Images obtained through the course of the investigation are embedded into the body of this report.

## Summary

### *Incident Site*

This incident occurred over a 9.75-hour period in daylight. The Toyota was parked on an open concrete parking lot in full view of the sun. There were no structures or trees to shade the vehicle. The parking lot was located on the east side of the single-story commercial building (Figure 2). Painted white parking lines were oriented in an east and west direction. The Toyota was parked facing in a westerly direction. During the day, other vehicles were parked in this lot. The professional building was located adjacent to a hospital and housed businesses that had frequent appointments; therefore, many vehicles entered, parked, and exited the lot throughout the day.



*Figure 2. Satellite view of the incident site. Image obtained from internet mapping software.*

### *Weather*

The weather for this incident was reported by the National Weather Service as fair. Sun rise occurred at 0630 hours with sunset at 2038 hours. There was no precipitation during this incident and winds were variable with speeds ranging up to 16 km/h (10 mph). Temperatures, humidity, calculated heat index, and conditions for the duration of this incident are reported in the following table.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Condition</b>
0654	22 (71)	78	22 (71)	Fair
0754	23 (73)	73	23 (73)	Fair
0854	22 (71)	84	22 (71)	Fair
0954	25 (77)	66	25 (78)	Fair
1054	26 (78)	68	26 (79)	Fair
1154	28 (80)	67	28 (83)	Fair
1254	30 (83)	60	30 (86)	Fair
1354	32 (85)	59	32 (89)	Fair
1454	33 (87)	55	33 (91)	Fair
1554	33(87)	55	33 (91)	Fair
1654	34 (89)	53	34 (94)	Fair

Time 24-Hour Clock	Temperature °C (°F)	Humidity %	Calculated Heat Index °C (°F)	Condition
1754	33 (87)	55	33 (91)	Fair
1854	31 (84)	58	31 (87)	Fair

The police conducted a temperature test on the interior of the 2019 Toyota Sienna minivan (Figure 3). For this test the Toyota was parked on a grass surface facing in a westerly direction. Three matching large-scale analog thermometers were used to record temperatures. One thermometer was placed on an aluminum structure in partial shade to measure the ambient temperature (Figure 4) while the others were placed in the front-row right and second-row right seats of the Toyota (Figure 5). This test was conducted 3 days after this incident. A peak outside temperature of 33 °C (92 °F) was recorded with a peak temperature of 46 °C (114 °F) in the second-row seat of the Toyota.

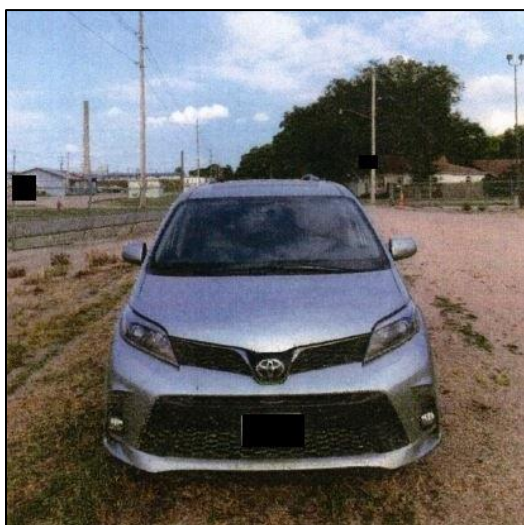


Figure 3. Police image of the parked position of the Toyota during the temperature test

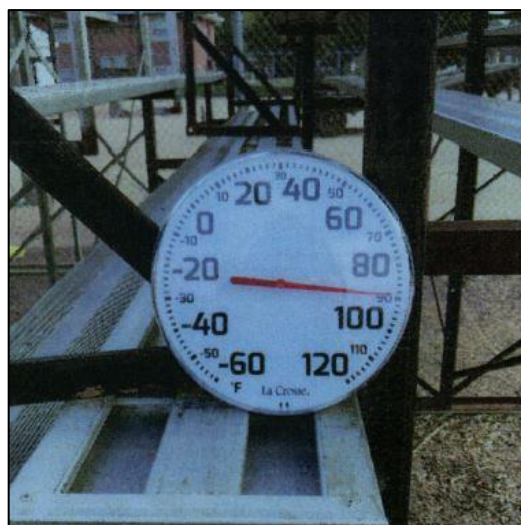


Figure 4. Police image of the outside temperature during its test

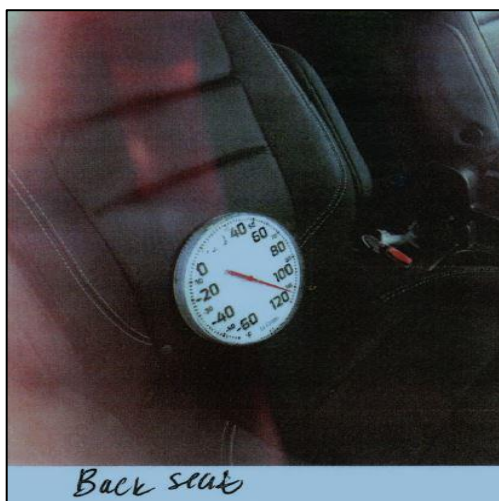


Figure 5. Police second-row image of the temperature of police temperature test

The following table details the results of the test by hour, outside temperature, front seat temperature, and second-row right temperature and sky conditions.

<b>Time 24-Hour Clock</b>	<b>Outside Temperature °C (°F)</b>	<b>Front-Row Right Temperature °C (°F)</b>	<b>Second-Row Right Temperature °C (°F)</b>	<b>Conditions</b>
0830	24 (75)	27 (80)	27 (80)	Medium cloud cover
0900	24(76)	28 (82)	28 (83)	Medium cloud cover
1000	28 (82)	31 (87)	31 (88)	Medium cloud cover
1100	30 (86)	34 (93)	34 (94)	Heavy cloud cover
1200	28 (82)	37 (98)	38 (100)	Heavy cloud cover
1300	29 (84)	37 (98)	38 (100)	Heavy cloud cover
1400	31 (88)	38 (101)	39 (102)	Heavy cloud cover
1500	31 (88)	40 (104)	41 (106)	Medium cloud cover
1600	33 (92)	43 (110)	44 (111)	Medium cloud cover
1700	33 (92)	47 (117)	45 (113)	Light cloud cover
1747	32 (89)	47 (116)	46 (114)	Not reported

### **Vehicle Information**

The vehicle in this hyperthermia investigation was a 2019 Toyota Sienna SE minivan identified by the VIN 5TDXZ3D0KSxxxxxx. The mother and her husband purchased the vehicle new on June 15, 2019. The exterior color was silver. It had two front forward-hinged doors, left and right side sliding doors for the second and third seating rows, and a rear lift gate. The windows were an AS1 laminated windshield, AS2 tinted left and right front doors, and AS3 deep tint for the second-row sliding doors, the rear quarter windows, and the fixed rear lift gate glazing. The Toyota was not equipped with a roof window.

The interior had seating for seven occupants (2/2/3) with captain's chairs for the first and second rows and a third-row folding bench seat. All seating surfaces and interior trim were black leather and vinyl. All seat positions had adjustable head restraints. The driver's seat was adjusted approximately 3 cm (1 in) above the seat backs, the front-row right was adjusted 4 cm (1.5 in) above, both second-row head restraints were adjusted approximately 3 cm (1 in) above the seat backs and both third-row left and right were full down. The third-row center was adjusted full up. All operable windows were closed for the duration of this incident.

The child was positioned and secured in a rear-facing CRS (Figure 6) installed in the second-row right position of the Toyota. The CRS was a Graco Comfort Sport convertible seat, black and tan in color. Manufacturer specifications for the Graco CRS in the rear-facing mode was for children weighing from 2 to 18 kg (4 to 40 lb) with their head 3 cm (1.0 in) below the handle and for children in the forward-facing mode weighing from 9 to 29 kg (20 to 65 lb), up to 124 cm (49.0 in) tall. The CRS had the LATCH and belt paths in the shell of the CRS for both forward- and rear-facing positions. Based on the available images, the CRS was installed with the LATCH system. The CRS had a 5-point harness system with a chest clip. Vertical adjustments of the shoulder harness straps were manually adjusted at the back of the CRS shell.



*Figure 6. Police image of the rear-facing CRS in the second-row right of the Toyota*

The police conducted an inspection of the Toyota and reported that the vehicle was not equipped with an active indicator for the driver to check the second or third-row seats prior to locking and leaving the vehicle.

### **Vehicle Locking System**

The following discussion is based on an inspection of an exemplar Toyota Sienna minivan.

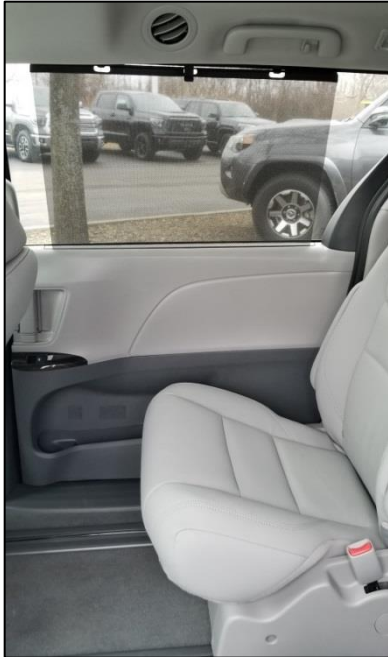
The Toyota had a power locking system activated by a remote key fob and interior switches. The key fob had six buttons, one to lock the doors, one to unlock the doors, separate buttons to unlock and open the power sliding second-row doors and a button to unlock and open the rear left gate.

The lock feature of the key fob required one push of the lock button to lock all doors and the lift gate. One push of the unlock button would unlock the driver's door. Two engagements of the unlock button would unlock all doors. The power sliding doors could be unlocked and opened by holding the respective button on the key fob. The same function was provided to unlock and open the power lift gate from the key fob.

The exterior door handles of the Toyota were pull types that protruded beyond the body line of the vehicle. A recessed pocket was stamped into the door panel behind the handle. The front door interior door release levers were horizontally mounted in a recessed pocket in the upper forward aspect of the door panel. The door release lever pivoted at the aft aspect and required minimal pull force to open the respective doors. Manual locking levers were mounted above the front door release levers at the aft aspect. When locked, the lever was flush with the pocket trim. In the unlocked position, the lever protruded outward of the pocket and an orange marker was visible on the leading edge of the lock lever.

The second-row sliding doors had a vertically mounted door release lever that required a rearward pull-force to open the door manually, or to engage the power open feature (Figure 7). This lever was located at the forward aspect of the door panel and was recessed in a formed pocket. A manual slide lock bar (Figure 8) was located directly below the pull lever. In the locked position, the lock bar was in vertical alignment with the pull handle. To manually unlock the rear sliding doors, the lock bar had to be moved rearward. In this position, an orange marker was visible on the top surface of the lock bar.





*Figure 7. View of the second-row right of an exemplar 2019 Toyota Sienna*



*Figure 8. Close-up view of the interior locking system in the second row of an exemplar Toyota Sienna*

Electronic push switches were mounted on the B-pillars directly forward of the sliding door release levers. These switches opened and closed the motorized feature of the sliding doors from the occupant compartment. It should be noted that the restrained position of the child in the rear-facing CRS prevented him from reaching any of the levers or switches to open the sliding doors.

### **Power Windows**

The Toyota had operable power windows at all four doors. Both front-door windows powered down to a full-open position. The second-row sliding door windows opened approximately 75 percent with 15 cm (6.0 in) of window protruding above the door panel in the full-open position. The driver's door had a master console to operate all four door windows. A lock-out switch was present to lock-out the operation of the rear door windows from the rear door switches. Both power sliding second-row doors were equipped with a power window switch located on the door panel below the location of the door release lever and lock bar.

### **Pre-Incident**

The 36-year-old mother and driver of the Toyota placed the child in the rear-facing CRS in the second-row right position and secured him with the integral harness while the Toyota was parked in the driveway of their residence. Her husband and their 3-year-old child were outside in the driveway. The husband moved a family pet to provide a clear path of travel from her parked position. The guardian estimated her departure from home at 0735 hours with a trip plan that included dropping the 1-year-old child off at daycare prior to continuing to her workplace. The daycare was located in the hospital adjacent to her workplace. This was her normal morning routine. She used the same day care provider previously for her older children. The mother told police she didn't feel rushed on the morning of the incident. She did however say that she was up

much of the night attending to the child and that she felt as though she had pulled an “all-nighter” similar to a nighttime work shift.

### ***Incident***

The mother arrived at her workplace and parked the Toyota in an open parking lot on the east side of the building facing west. A surveillance camera at her workplace captured the Toyota entering the parking lot and parking at 0756 hours. The mother exited the vehicle, and walked west, and entered the building. A co-worker entered the parking lot after the mother and parked her vehicle in the lot. She exited her vehicle and walked past the Toyota without looking in the vehicle. The child was left unattended in the Toyota secured in the rear-facing CRS in the second-row right position. In this position his left side was exposed in a northerly direction through the deep tint AS3 window.

The mother had a heavy case load for the day with her first patient scheduled for 0815 hours. She and her co-workers often take lunch breaks and take the mother’s Toyota to a nearby hospital cafeteria near the daycare facility. On this day, the case load was too heavy to allow for a typical lunch break.

At the completion of her work shift, the mother was observed by the security camera entering her vehicle and driving out of the parking lot at 1746 hours. At 1748 hours, another security camera recorded the mother entering the parking lot for the daycare facility. The mother parked the Toyota, exited the vehicle, and walked into the facility. She was observed speaking with a daycare worker as she entered the building. At that point she was told the child was not dropped off at the facility in the morning. The mother immediately ran to the Toyota and opened the right sliding door. She unbuckled the child from the CRS and carried him into the lobby of the daycare facility, where she placed him on the floor of the entryway.

### ***Post-Incident***

Another female parent observed the status of the child and initiated CPR in an attempt to revive the child. This parent determined that lifesaving efforts were futile. A daycare worker called the emergency response system. Police, fire, and an ambulance were dispatched to the daycare facility, located within the hospital complex. The child was immediately placed in the ambulance and driven around the building to the emergency room facility. He was evaluated by the attending physician and was determined to be deceased. The child was pronounced deceased at 1802 hours.

### ***Caregiver/Guardian Data***

The caregiver of the child was his 37-year-old mother. She was the mother of five children with this child being the youngest. She and her husband resided on a farm approximately 14.5 km (9.0 miles) from the daycare facility and her workplace. Her normal routine was to drop the child off at daycare around 0800 hours and pick him up at the end of her work shift at 1745 hours. The daycare facility provided care for this child 4 days per week, Monday to Thursday. The mother used this daycare facility previously for her other children.

The police obtained a time clock attendance record for the child at the daycare facility. For a 1-month period up to the day before this incident, the child was at daycare Monday to Thursday. Typically, he was dropped off around 0800 hours and picked up between 1730 and 1745 hours,

equating to an average 9.75 hours per day at daycare. The daycare facility did not contact parents on days their children were not dropped off.

During the police interview of the mother, she stated that the child was quiet in nature, didn't talk much but made noises and babbles, and wasn't crying in the Toyota. She was certain that she had dropped off the child at daycare on the morning of the incident.

### ***Non-Motorist (Child) Data***

Age/Sex:	1 year old/male
Height:	89 cm (35 in)
Weight:	13.6 kg (30 lb)
Seat type:	Rear-facing CRS
Restraint Usage:	Integrated 5-point harness
Transport from scene:	Ambulance
Type of medical treatment:	Transported to the emergency room of a local hospital where he was pronounced deceased

The child was dressed in a navy-blue shirt, gray shorts, white socks, and a diaper. He was positioned in a Graco Comfort Sport convertible CRS installed a rear-facing in the second-row right position of the Toyota. The second row of the Toyota had captain's chairs with fold-down center armrests and adjustable head restraints. This seat position had a manual 3-point lap and shoulder seat belt with a sliding latch plate and a switchable retractor for both the emergency locking and automatic locking modes and the LATCH system. Based on the available images, the CRS was secured to the vehicle by the LATCH system. The child was restrained in the CRS by the integral 5-point harness system with a chest clip. Based on the available images, the shoulder straps of the integral harness system were adjusted to an upper position. There were no toys or obstructions on or around the CRS to obstruct vision of the child from the driver's position or from outside the vehicle. It should be noted that in the rear-facing position, the height of the CRS and the side shielding of the shell and padding would have restricted the driver's view of the child in the CRS.

## Incident Site Satellite View

(Google Maps image date: 2020)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. CR19025**

**Vehicle: Dodge Caravan  
Location: New Jersey  
Incident Date: August 2019**

## **Background**

This report documents the remote investigation of the hyperthermia-related fatality of a 22-month-old female forgotten and left unattended in a Dodge Caravan (Figure 1) for approximately 9 hours by her 60-year-old uncle, the legal guardian/caregiver, in New Jersey in August 2019. The uncle placed the child in a forward-facing CRS and forgot to drop the child off at daycare. He made two driving trips during the morning before parking the Dodge in a large open public parking lot that serviced a train station. Other family members arrived at the daycare facility at 1530 hours and learned the child had not been dropped off that day. Following a call to the uncle, the family members drove to the parking lot and found the child unresponsive in the CRS of the closed and locked minivan. They fractured the right front door window to gain access to the Dodge. A call was placed to the emergency response system, which dispatched police, fire, and EMS to the scene. Attempts to resuscitate the child were unsuccessful and she was pronounced deceased at the scene. The uncle was charged with fourth-degree abuse and neglect of a child.



*Figure 1. On-scene image of the Dodge Caravan. Image obtained from online news outlet.*

The incident was identified by NHTSA and assigned to the Special Crash Investigations group for further research on October 9, 2019.

The SCI team contacted the investigating police department to obtain images of the vehicle and incident site and reports of its investigation. Due to the charges against the uncle and the involvement of the county prosecutor's office, they could not release information regarding this incident at the time of the initial request. Additional follow-up was conducted in December 2020. The SCI request for information was forwarded to prosecutor's office without response. Information and on-scene images for this final report were obtained from many internet media sources. An inspection of an exemplar Dodge Caravan was conducted to determine the locking systems and door handle configurations for the vehicle. The autopsy report has been requested, but had not been received at the time this report was written.

## Summary

### *Incident Site*

This hyperthermia incident occurred in a large parking lot of a train station in daylight. The parking lot was surfaced with asphalt and was delineated with parking spaces and driving lanes (Figure 2).



*Figure 2. Southwesterly view of the parking lot*

The Dodge Caravan was parked among other vehicles in the central area of the parking lot facing northeast. In this parked position, the vehicle was exposed to full sun as there was no shade present from trees or structures. Based on on-scene images at the time the child was discovered in the vehicle, the Dodge was parked adjacent to a compact, 4-door sedan to its right, a compact SUV to its left, and behind another compact SUV.

### *Weather*

The weather for this incident spanned 9 hours. The National Weather Service data listed sunrise at 0614 hours and sunset at 1958 hours. The peak temperature during this incident was 31 °C (88 °F) at 1454 hours. Winds were reported as calm with maximum intermittent wind speeds ranging from 10 to 14 km/h (6 to 9 mph). The Dodge Caravan was parked in the middle area of a large open asphalt surfaced parking lot with full exposure to the sun. The weather conditions were reported as mostly to partly cloudy throughout the duration of this incident. Ambient temperature, humidity, the calculated heat index, and weather conditions as reported hourly throughout this incident are provided in the following table.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Heat Index °C (°F)</b>	<b>Condition</b>
0554	23 (73)	81	23 (74)	Mostly cloudy
0654	23 (74)	82	24 (75)	Partly cloudy
0754	25 (77)	76	26 (78)	Mostly cloudy
0854	26 (79)	72	28 (82)	Mostly cloudy
0954	28 (82)	62	29 (85)	Mostly cloudy
1054	28 (83)	60	30 (86)	Mostly cloudy
1154	29 (84)	56	30 (86)	Partly cloudy
1254	30 (86)	53	32 (89)	Mostly cloudy
1354	29 (85)	55	32 (88)	Mostly cloudy

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Heat Index °C (°F)</b>	<b>Condition</b>
1454	31 (88)	53	33 (92)	Mostly cloudy
1554	28 (83)	67	31 (88)	Mostly cloudy
1654	29 (84)	65	32 (89)	Mostly cloudy

### ***Vehicle Information***

The vehicle in this hyperthermia incident was a Dodge Caravan minivan (Figure 3), model year unknown. The vehicle was gray in exterior color with deep tint AS3 privacy glass from the B-pillar rearward, including the backlight. The Dodge did not have a roof window. During this incident, all operable windows and doors were closed. The power locking system was engaged as the doors were locked.



*Figure 3. Overhead image of the Dodge Caravan. Image obtained from an online news outlet.*

### ***Exemplar Vehicle Inspection***

An inspection of an exemplar Dodge Caravan was conducted to determine the logic and functionality of the power and manual locking systems, and the type, location and lock override of the interior door release levers. Additionally, the exterior door handles and window configurations were reviewed.

The exemplar Dodge had power sliding second-row doors. The four exterior door release handles were pull-type that protruded beyond the side profile of the doors. A recessed pocket was formed in the door skin to facilitate a hand grip around the door handle.



*Figure 4. Exterior door handles on an exemplar vehicle*



*Figure 5. Second-row right interior door panel, door release lever and the lock lever of an exemplar vehicle*

On the interior of the Dodge, the front door levers were flush-mounted with a recessed pocket in the door panel. The horizontally oriented levers pivoted at the aft aspect.

The second-row sliding interior door release handles were vertically oriented at the forward aspects of the door panels (Figure 6). These handles allowed an occupant to manually unlatch and open the door, or to unlatch and allow the power mechanism to open the door. A switch was mounted on the aft aspect of the B-pillars to allow an occupant to open the power door by pushing the vertically oriented switch.



*Figure 6. Door release lever and lock lever on right rear sliding door of an exemplar Dodge*

### **Locking System**

The Dodge had a central power locking system activated by the key fob or the power lock switch on the front door panels (Figure 7). The key fob had lock and unlock buttons. One push of the lock function on the key fob would lock all doors inclusive of the lift gate. With one push of the unlock button on the key fob, the driver's door unlocked. To unlock all doors, the unlock button had to be engaged twice. Separate buttons were on the key fob to open the left and right power sliding doors to allow access to the second row and a third button unlocked and opened the rear lift gate.



From the interior of the Dodge, with the power lock system engaged to lock all doors, both front doors could be opened by pulling on the door release lever. This would override and unlock the power lock for the respective door. By manually opening either front door, it did not release the power locks of the second-row doors and those remained locked. It should be noted that this logic functioned with the manually operated child safety locks in the off-position.



*Figure 7. Power lock/window switches on driver's door panel*

The second-row door locks could be opened in two modes, one by unlocking the power locks at the front door panel switches, or by sliding a lock lever on the forward aspect of the door panel to release that specific door lock. The manually operated interior door lock lever was mounted above the door release lever and was black in color without high-visibility highlighting (Figure 6). The unlock lever was flush-mounted to the door panel in a concave pocket to facilitate operation. A small, embossed lock symbol was molded into the door panel aft of the lock lever. Mounted vertically in the pod that contained the lock lever and the door release lever was a power window switch with a heated seat switch below the window switch. There were no locking stalks on the top surface of the rear door panels. Unless the power lock system was “unlocked,” or the lock lever was rotated rearward to the inlock position, the rear sliding doors could not be opened by pulling on the door release lever.

### ***Pre-Incident***

The legal guardians/caregivers of the child were the 60-year-old male and his wife, identified as the uncle and aunt of the child. They were court-appointed, as the father of the child was incarcerated and the status of the mother was unknown. Prior to this incident, the father had been released and was trying to regain custody of the child.

### ***Incident***

On the morning of the event, at approximately 0630 hours the uncle placed the child in the forward-facing CRS in the second-row right position of the Dodge minivan. His plan was to drive the child to a daycare facility and drive an adult family member to her workplace. His normal routines were to first drop off the child at daycare then proceed to the drop the adult off at her workplace. On this morning, the adult requested to be dropped off first, prior to the child. The uncle complied with this request, dropping the adult off at her workplace at 0650 hours. The uncle then forgot to drop the child off at daycare and returned to his residence. He parked the

Dodge and entered his residence, leaving the child in the vehicle. The caregiver planned to nap until 1130 hours.

He awoke at 1130 hours to leave his residence for his assigned work shift. The uncle left his residence, entered the Dodge, and drove to the train station where he parked the Dodge in the open-air parking lot (Figure 8). He parked behind a compact SUV and between a compact 4-door sedan to his right and a compact SUV to his left. These vehicles did not shade the Dodge Caravan. The uncle exited the vehicle, locked the doors and proceeded to work. It is unknown if he worked at the train station or used the rail line as a secondary form of transportation to his workplace.



*Figure 8. Parked position of the Dodge Caravan. Image obtained from an online news outlet.*



*Figure 9. View of the parked Dodge Caravan and its surrounding vehicles. Image obtained from an online news outlet.*

At approximately 1530 hours, family members drove to the daycare facility to pick up the child. As they entered the daycare facility, an employee of the daycare told the family members that the child was not dropped off that day. They immediately called the uncle, who told them he thought he had dropped her off that morning. He then told them to check the Dodge Caravan in the parking lot of the train station.

The family members drove to the parking lot of the train station and located the parked Dodge, where they observed the child secured in the CRS. They fractured the right front door window to unlock the doors to gain access to the Dodge. They found the child unresponsive and immediately called the emergency response system at 1538 hours. The child was removed from the CRS. First responders arrived on-scene within minutes of the call and found the child unresponsive. The emergency medical services personnel attempted resuscitative efforts; however; these efforts were unsuccessful. The child was pronounced deceased at the incident site at 1554 hours.

### ***Post-Incident***

Police from two jurisdictions marked off the scene with yellow tape and initiated their investigation. The body of the child was transported for autopsy. Following the on-scene police investigation, the Dodge was removed from the scene on a flatbed tow truck and impounded for investigation. The uncle was charged with fourth-degree child abuse and neglect.

### ***Caregiver/Guardian Data***

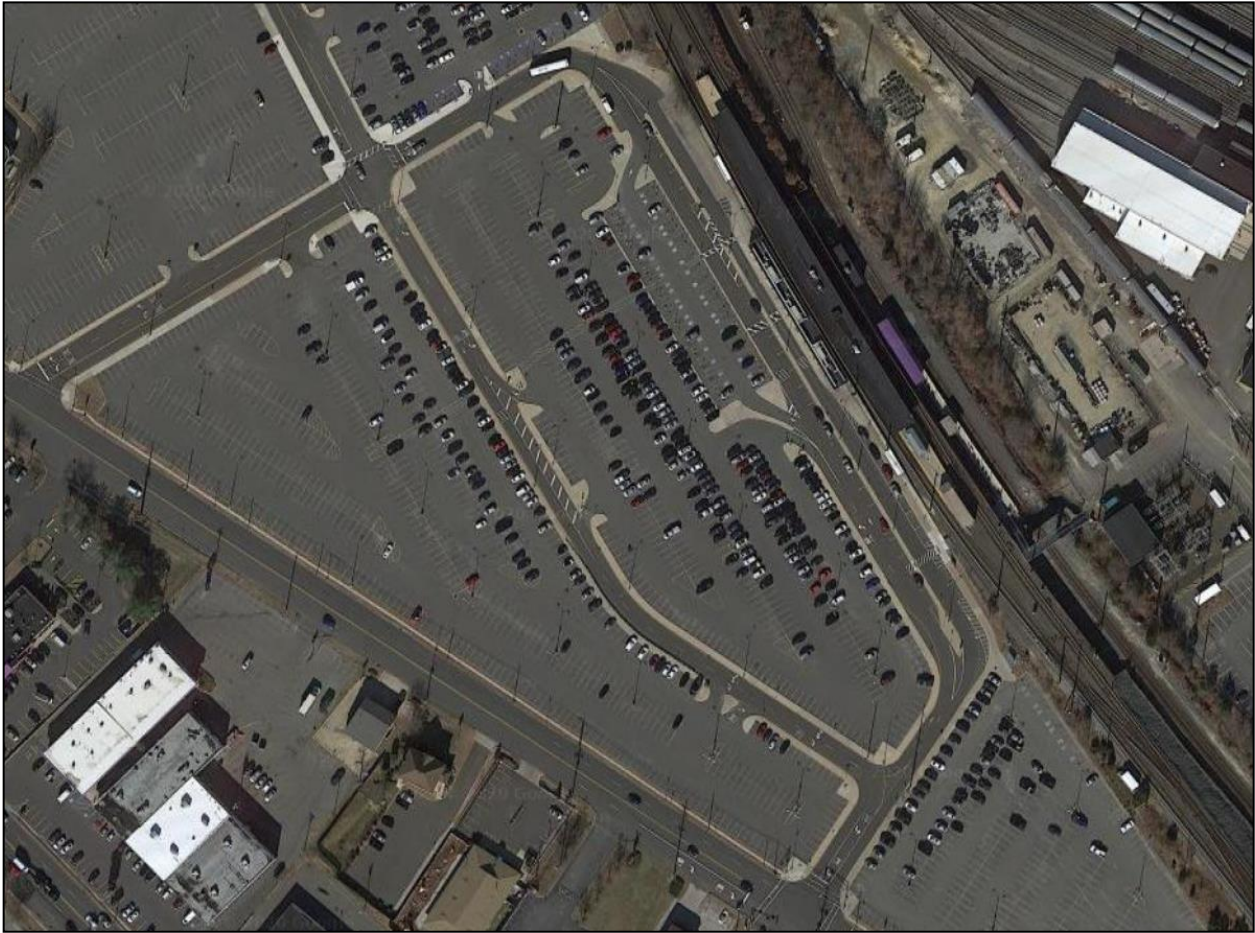
The caregiver responsible for the child was the 60-year-old uncle and was assigned guardianship of the child. The father of the child had been incarcerated prior to this incident and the status of the mother was not currently known. It was reported in news articles that the uncle suffered memory loss due to a work-related head injury.

### ***Non-Motorist (Child) Data***

Age/Sex:	22 months old/female
Height:	Unknown
Weight:	Unknown
Seat Type:	Second-row right
Restraint Type:	Restrained in a forward-facing CRS
Transport from Scene:	Medical examiner
Type of Medical Treatment:	CPR at scene, determined to be deceased, autopsy

**Incident Site Satellite View**

(Google Maps image date: 2020)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. CR19027**

**Vehicle: 2019 Toyota Highlander**

**Location: North Carolina**

**Incident Date: August 2019**

## **Background**

This report documents the remote investigation of the circumstances surrounding the hyperthermia-related fatality of a 1-year-old male who was forgotten and left unattended in a vehicle for 7 hours by his 42-year-old foster mother in North Carolina in August 2019. She placed the child in a rear-facing CRS in the second-row left position of a 2019 Toyota Highlander SUV (Figure 1) and drove to her work place. She forgot to drop the child off at daycare. The mother parked the vehicle in an open, unshaded commercial parking lot at 0951 hours and exited the vehicle at 0952 hours. She completed her assigned shift at a bookkeeping service and returned to the Toyota at 1647 hours. The mother entered the vehicle and began to drive to the daycare facility. As she exited the parking lot, she discovered the child in the CRS. The mother drove into another parking lot where she exited the vehicle, checked the status of the child, and called the emergency response system. EMS, fire, and police responded to the call. EMS attempted to revive the child and transported him to a local hospital, where he was pronounced deceased at 1723 hours. Following the police investigation, the mother was charged with involuntary manslaughter. The district attorney subsequently dropped the charges as there was no criminal intent by the foster-parent.



*Figure 1. 2019 Toyota Highlander. Image obtained from an online news outlet.*

The incident was identified by NHTSA assigned to the Special Crash Investigations group for further research on October 9, 2019. The SCI team contacted the police agency and due to the active criminal charges against the mother, data pertaining to this case could not be released at that time. A follow-up with the investigating police agency was conducted on December 3, 2020. Since the charge of involuntary manslaughter was dropped, the police agency released the incident report and interior vehicle images to the SCI team. The incident report provided additional data that was incorporated into this final case report. Vehicle locking systems and functionality were determined from an inspection of an exemplar 2019 Toyota Highlander.

## Summary

### *Incident Site*

This incident occurred during the morning and afternoon in a large, open, commercial parking lot surfaced with asphalt and delineated with double row parking spaces and driving lanes. There were no trees or structures to shade the parking lot during this August incident. The parking lot served a plaza of commercial businesses, retail stores, and restaurants. The parking spaces were oriented in a westerly direction. Since the mother drove from the parking lot prior to detecting the forgotten child, the specific parking space that she parked in is unknown. Due to the retail nature of the plaza, it is presumed that other patrons of the plaza/shopping center had walked near or passed the Toyota at some point during this 7-hour incident.

### *Weather*

The weather data for the duration of this incident was obtained from the National Weather Service. Sunrise occurred at 0655 hours with sunset reported at 1957 hours. The peak temperature for the day was 29 °C (85 °F) recorded at 1642 hours with 34 percent humidity. Winds were calm, recorded at 0 km/h. The conditions were reported as fair. On-scene images of the Toyota showed the skies as clear after 1700 hours. The temperatures, humidity, calculated heat index, and conditions for the duration of this incident are provided in the following table.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Conditions</b>
0852	24 (76)	52	24 (76)	Fair
0952	26 (79)	42	26 (79)	Fair
1052	27 (80)	40	26 (79)	Fair
1152	27 (81)	39	27 (81)	Fair
1252	27 (81)	39	27 (81)	Fair
1352	28 (83)	38	28 (82)	Fair
1452	28 (83)	36	28 (82)	Fair
1552	29 (84)	34	28 (82)	Fair
1652	29 (85)	34	29 (83)	Fair
1752	28 (82)	41	28 (82)	Fair

### *Vehicle Information*

The vehicle was a 2019 Toyota Highlander LE 4-door SUV (Figure 2). The exterior color was silver. It had deep tint AS3 windows for the second-row doors, the rear quarter windows, and the backlight. All operable door windows were closed throughout the duration of this incident. The Toyota did not have a roof window. The interior seating surfaces of the Toyota were black cloth and consisted of three rows of seats (2/3/3) for seating of eight occupants. The front row consisted of bucket seats with adjustable head restraints; the second row was a three-passenger split bench with forward folding seat backs and adjustable head restraints, and the third row was a three-passenger split bench with adjustable head restraints. Interior safety systems consisted of frontal air bags, front-seat-mounted air bags, and inflatable curtain air bags. All seat positions were equipped with 3-point lap and shoulder seat belts. The second-row left and right positions and the third-row center position had LATCH. Although unconfirmed by police documentation, it appeared the CRS was secured to the vehicle with the LATCH system.



*Figure 2. 2019 Toyota Highlander. Image obtained from an online news outlet.*

### **Child Restraint System**

The CRS was documented by police as a Safety First infant seat (Figure 3). Images of the CRS depicted the unit to consist of the carrier and the detachable base. The CRS appeared to be secured to the vehicle by the LATCH belt in the second-row left position. The CRS was installed rear-facing with the forward aspect of the carrier against the driver's seat back. The carry handle was adjusted up over the head area of the child. The integral 5-point harness system was intact with the shoulder harness straps adjusted to the top position. The chest clip was in-place on the shoulder harness straps.



*Figure 3. Installed position of the Safety First rear-facing CRS in the Toyota. Image provided by the investigating police department.*

### **Pre-Incident**

The mother placed the 1-year-old child in a rear-facing CRS in the second-row left position of the Toyota. She departed her residence with a routine of dropping the child off at daycare on the way to her workplace. Her scheduled start time was 1000 hours. On this morning, the mother forgot to drop the child off and continued to her place of employment.

### **Incident**

The mother drove the Toyota to her workplace and parked in a large open-air lot facing west with full exposure to the sun at 0951 hours. Surveillance video captured the mother exiting the Toyota at 0952 hours. She locked the Toyota with all windows fully closed and walked to her workplace. The child was left secured in the rear-facing CRS in the second-row left position of

the vehicle. At the time, she parked the vehicle, the temperature was 26 °C (79 °F) with 42 percent humidity.

The mother remained at her workplace for the duration of her shift and departed the building at 1647 hours. At this time the high temperature of the day was recorded at 29 °C (85 °F) with 34 percent humidity. She unlocked the Toyota, entered the vehicle, and started the engine. The mother drove from her parked position and exited the parking lot onto the three-lane road, traveling northbound toward the daycare facility. As she began to travel on the road, she realized the child was still in the rear-facing CRS. The mother immediately exited the roadway and turned right into a driveway that provided parking to a large home-improvement retailer. She turned left and traveled to a parking lot at the northwest corner of the complex. She parked the Toyota, exited the vehicle, and opened the left rear door where she found the child unresponsive and apparently deceased. The mother called the emergency response system to report her location and the condition of the child.

### ***Post-Incident***

EMS, fire department personnel, and police responded to the call and arrived on-scene within minutes. The police found the mother at the scene to be calm without emotion or distress. Emergency medical personnel evaluated the child as he was still secured in the CRS. Although EMS determined the child was probably deceased, they removed him from the CRS and place him in an ambulance where resuscitative efforts were initiated on the way to a local hospital. On arrival, the child was evaluated by the medical staff. He was pronounced deceased at 1723 hours. The attending physician estimated the child had been deceased for approximately 4 hours. The cause of death was listed as hyperthermia due to environmental exposure. The mother was subsequently charged and arrested for involuntary manslaughter. This charge was subsequently dropped as the district attorney determined there was no criminal intent.

### ***Daycare Facility***

The daycare facility was operated by two adult females. They were interviewed by the police during their follow-up investigation. Initially they reported no problems or concerns regarding the foster parents as guardians to the children. They later revealed that the child's health appeared to have declined as he had lost a significant amount of weight. Additionally, they reported that he had the worst case of hand, foot, and mouth disease they ever encountered. When questioned regarding follow-up with parents for absent children at the facility, they reported it wasn't their policy. As a result of this incident, the owners determined that this would be a good policy to help prevent this type of incident from reoccurring.

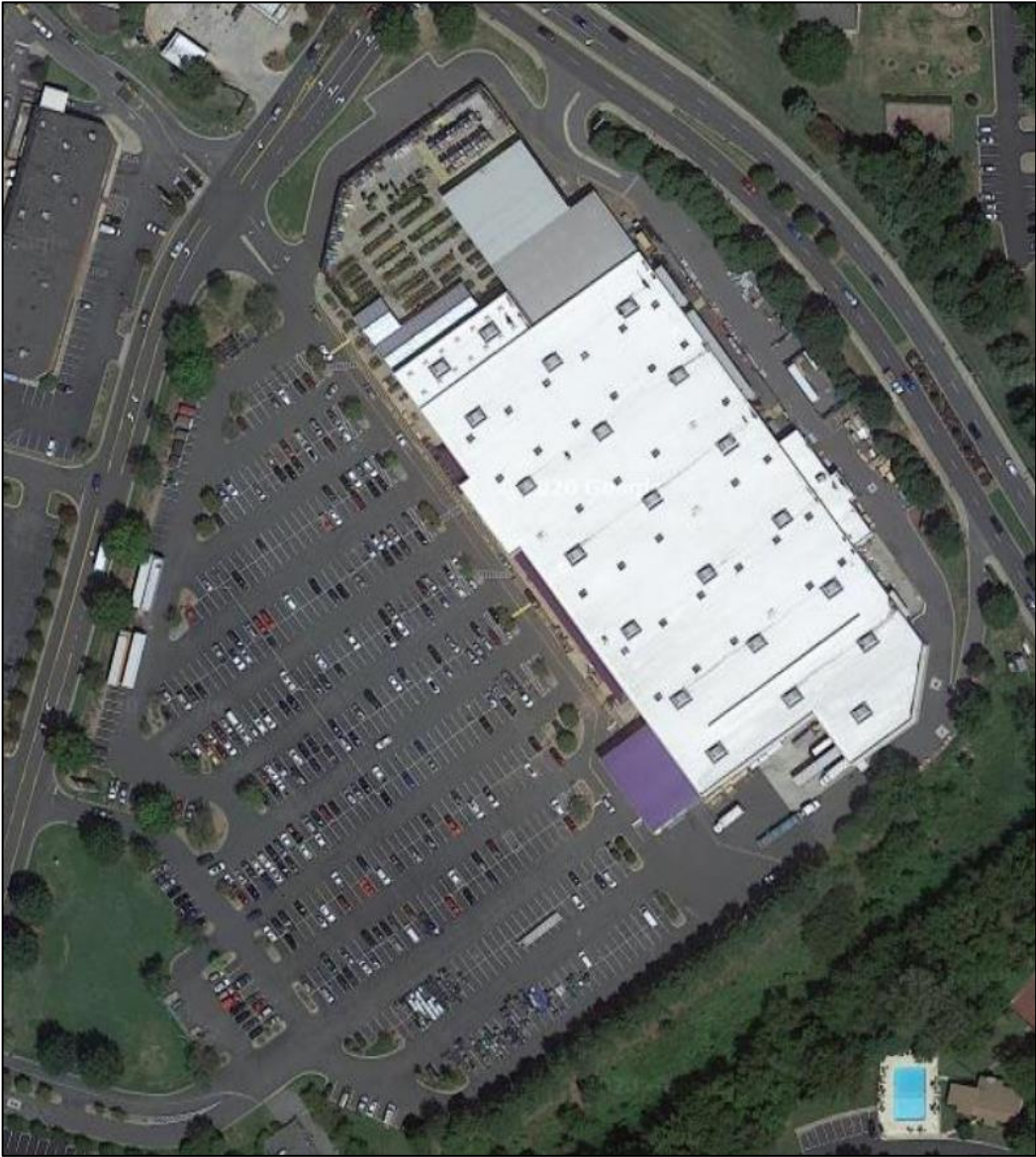
### ***Non-Motorist (Child) Data***

Age/sex:	1 year old/male
Height:	Not reported
Weight:	Not reported
Seat type:	Second-row left bench seat
Restraint use:	Restrained in a Safety First rear-facing CRS
Transport from scene:	Ambulance
Type of medical treatment:	Attempted resuscitation, pronounced deceased on arrival to a local hospital



**Incident Site Satellite View**

(Google Maps image date: 2020)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. CR19020**

**Vehicle: Unknown Year/Make/Model 4-Door Sedan**

**Location: South Carolina**

**Incident Date: August 2019**

## **Background**

This report documents the remote investigation of the circumstances surrounding the hyperthermia-related fatality of a 13-year-old female with special needs who was intentionally placed in a passenger car and left unattended for approximately 5 hours in South Carolina in August 2019. Surveillance video captured the child's mother and her boyfriend placing the 13-year-old in the vehicle at 1100 hours. They checked on her at 1500 hours and left the residence and returned at 1615 hours. At that time, they opened the car door and removed the child from the vehicle and called the emergency response system. Police arrived and found the child lying next to the vehicle deceased. Both adults have been charged with murder. The incident was identified by NHTSA and assigned to the Special Crash Investigations group for further research in October 2019.

The SCI team contacted the police agency and spoke with the investigating officer in an attempt to obtain records and circumstances about this hyperthermia incident. The investigating officer requested email documentation of the NHTSA inquiry and would then speak to her supervisor to obtain permission to release the records to the SCI team. The SCI team followed the email documentation with several phone calls without response from the investigating police agency. Online news sources and further research provide the basis of this report.

## Summary

### Incident Site

The incident occurred in the late morning to late afternoon in August. The 4-door sedan was parked at the caregiver's residence in the driveway facing in a westward direction (Figure 1). There were trees throughout the entire property that provided partial shade over the driveway during this incident.



Figure 1. Unknown year 4-door sedan at the incident site. Image obtained from an online news outlet.

### Weather

The weather data for the duration of this incident was obtained from the National Weather Service. Sunrise occurred at 0637 hours with sunset reported at 2017 hours. The peak temperature for the day was 31 °C (88 °F) recorded at 1656 hours with 57 percent humidity and mostly cloudy conditions. The temperatures, humidity, calculated heat index, and conditions for the duration of this incident are provided in the following table.

Time 24-Hour Clock	Temperature °C (°F)	Humidity %	Calculated Heat Index °C (°F)	Conditions
1056	26 (78)	79	27 (80)	Mostly cloudy
1156	27 (81)	72	29 (85)	Mostly cloudy
1256	29 (85)	61	32 (90)	Mostly cloudy
1356	30 (86)	63	33 (92)	Mostly cloudy
1456	30 (86)	61	33 (91)	Mostly cloudy
1556	31 (88)	55	34 (93)	Mostly cloudy
1656	31 (88)	57	34 (94)	Mostly cloudy

### Vehicle Information

The vehicle in this hyperthermia investigation was an unknown year 4-door sedan. The exterior color was gray. Exterior configurations consisted of four forward-hinged doors. Standard configuration was seating for five (2/3) with two front row bucket seats and a three-passenger bench second-row seat. All side windows were AS2 glazing with no deep tint. All windows were closed during this incident as reported by online news sources.

The exterior door handles were pull-type handles (Figure 2) that protruded beyond the profile of the doors. A recessed pocket was formed into the door panel to provide adequate grip space for the handle. Online news sources reported that the doors of the 4-door sedan were locked at some point during the duration of this incident.



*Figure 2. Unknown year 4-door sedan at the incident site. Image obtained from an online news outlet.*

### ***Pre-Incident***

On the day of the incident the caregivers for the 13-year-old female child were her 49-year-old mother and the mother's 41-year-old boyfriend. According to online news sources, they and the child were at home that morning.

### ***Incident***

A neighbor's surveillance video system captured both caregivers carrying the child out of the residence, placing the child into the backseat of the 4-door sedan, and shutting the door at approximately 1100 hours. Both caregivers then went back into the residence, allegedly knowingly leaving the child in the vehicle. At approximately 1215 hours, the mother exited the residence and checked on the child in the 4-door sedan. The mother then went back into the residence without removing the child from the vehicle.

At approximately 1500 hours, both caregivers exited the residence and checked on the child again. At this time the caregivers noticed that all the doors on the sedan were locked and they could not get the child out of the vehicle. Both caregivers left the residence to retrieve another set of keys for the sedan from the mother's home. Both caregivers then returned to the residence and at approximately 1615 hours and found the child had expired.

### ***Post-Incident***

The caregivers removed the child from the vehicle and placed her on the ground, then placed a call to the emergency response system at approximately 1650 hours. First responders arrived at the incident site and found the child next to the vehicle deceased.

### ***Caregiver/Guardian Data***

The caregivers throughout this incident were the 49-year-old mother of the child and her 41-year-old boyfriend. Both were charged with murder, granted bond, and are pending their hearing dates.

***Non-Motorist (Child) Data***

Age/sex: 13 years old/female  
Height: Unknown  
Weight: Unknown  
Seat type: Bench  
Restraint usage: Unknown  
Transport from scene: Unknown  
Type of medical treatment: None/declared deceased upon first responder's arrival to scene

**Incident Site Satellite View**

(Google Maps image date: 2020)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. CR19023**

**Vehicle: Nissan Altima**

**Location: Tennessee**

**Incident Date: August 2019**

## **Background**

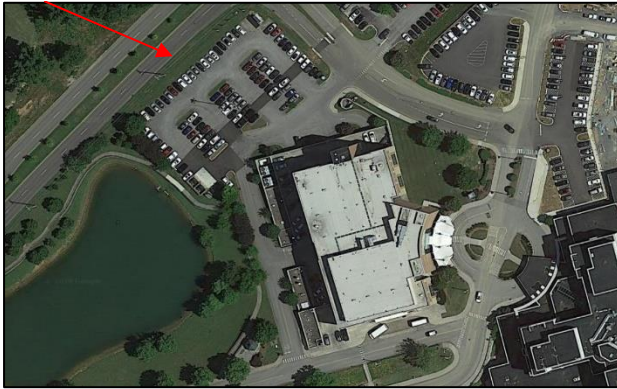
This report documents the remote investigation of the circumstances surrounding the hyperthermia-related fatality of a 6-month-old male who was left unattended in the parking lot at the 30-year-old mother's place of employment in Tennessee for at least 7 hours in August 2019. The mother discovered the child after she returned to her vehicle and drove to a local grocery store. The responding police and EMS found the child deceased in the second-row seat. Due to open status of the criminal charges, the limited available information was insufficient to determine the intent of the mother's actions. The incident was identified by NHTSA and assigned to the Special Crash Investigations group for further research in October 2019.

The SCI team contacted the police agency to obtain records and an interview from the investigating officer. The SCI team was told that if it wanted any records or to speak with the investigating officer, it was required to obtain permission from the district attorney's office. The district attorney was not responsive to the records request from SCI. A search of online media sources provided the basis for this report.

## Summary

### Incident Site

This hyperthermia incident occurred during the morning and early afternoon at several sites that included the mother's work (Figure 1) and a grocery store parking lot (Figure 2). Both parking lots were surfaced with asphalt and delineated with parking spaces and driving lanes.



*Figure 1. Incident Site -Caregiver's Work Parking Lot. 2020 image obtained from internet mapping software.*



*Figure 2. Incident Site -Grocery Store Parking Lot. 2020 image obtained from internet mapping software.*

The Nissan Altima was parked among other vehicles in both parking lots. However, the exact location of the Nissan Altima in the parking lot could not be determined. In both parking lots, the Nissan Altima was exposed to full sun as there was no shade present from trees or structures.

### Weather

The weather data for the duration of this incident was obtained from the National Weather Service. Sunrise occurred at 0651 hours with sunset reported at 2034 hours. The peak temperature for the day was 32 °C (90 °F) recorded at 1453 hours with 45 percent humidity and partly cloudy conditions. The temperatures, humidity, calculated heat index, and conditions for the duration of this incident are provided in the following table.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Conditions</b>
0653	20 (68)	93	21 (69)	Patches of fog
0753	21 (70)	93	22 (71)	Fair
0853	23 (74)	85	24 (75)	Mostly cloudy
0953	26 (78)	74	26 (79)	Partly cloudy
1053	27 (81)	65	29 (84)	Partly cloudy
1153	29 (84)	51	30 (85)	Partly cloudy
1253	30 (86)	51	31 (88)	Partly cloudy
1353	30 (86)	49	31 (88)	Mostly cloudy
1453	32 (90)	45	34 (92)	Partly cloudy
1553	32 (90)	42	33 (91)	Partly cloudy



### **Vehicle Information**

The vehicle in the hyperthermia investigation was a Nissan Altima (Figure 3), model year unknown. The exterior color was gray. It had four forward-hinged doors. Standard configuration is seating for five (2/3) with the front row bucket seats and a three-passenger split bench second-row seat. All side windows were AS2 glazing without tint. It is unknown if the windows were closed or open throughout this incident.



*Figure 3. Image of Nissan Altima. Image obtained from an online news outlet.*

The exterior door handles were pull-type that protruded beyond the profile of the doors. A recessed pocket was formed into the door panel to provide adequate grip space for the handle. The second-row doors had child safety locks. The status of these locks on the Nissan Altima is unknown.

### **Pre-Incident**

On the morning of this incident, the 30-year-old mother secured the 6-month-old male in a CRS and his older sister into the backseat of the Nissan Altima. The mother drove to the older sister's school and dropped that child off. At that time, the mother drove approximately 20 minutes to her place of employment and parked the vehicle in an unknown spot in the parking lot at approximately 0820 hours.

### **Incident**

The mother exited the vehicle and went into her place of employment. The mother returned to the vehicle at approximately 1430 hours after she had completed her work shift. At this time, she drove approximately 20 minutes to her daughter's school to pick the older sister up. The mother secured her into the backseat of the Nissan Altima. The mother then drove approximately 45 minutes to the grocery store and parked the vehicle in an unknown spot in the parking lot. According to online news sources, the mother began making a shopping list when the sister said, "What's that?" and pointed at the hand of the 6-month-old. The mother then saw the 6-month-old child still secured in his CRS and called EMS at approximately 1510 hours.

### **Post-Incident**

First responders arrived on scene at approximately 1515 hours according to online media sources. They declared the 6-month-old child deceased. The mother was arrested and charged with child neglect and abuse charges. Based on the available information, it is unknown if the child was left in the vehicle knowingly or not.

### **Caregiver/Guardian Data**

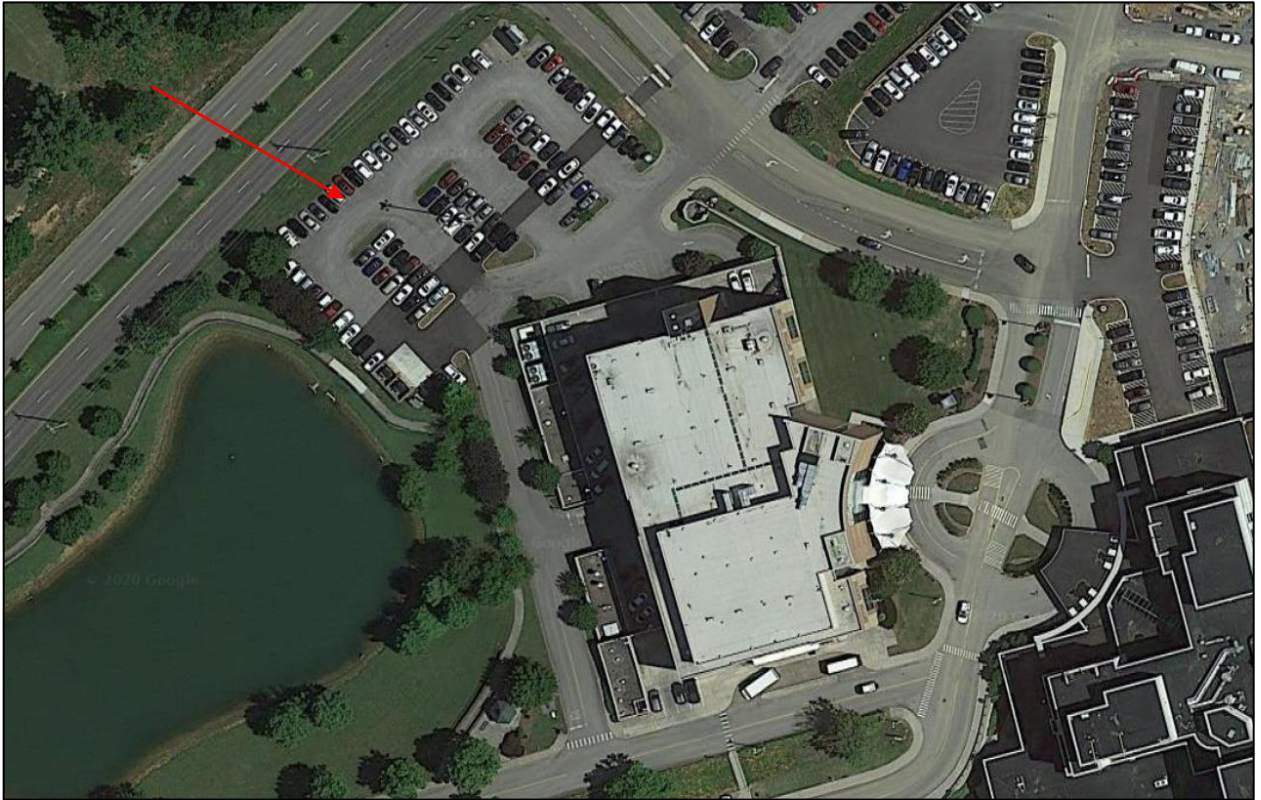
The 30-year-old caregiver was the mother of the 6-month-old male child and his 9-year-old sister. According to online media sources, the charges of child neglect and child abuse have been escalated to first-degree murder. A court date for the 30-year-old mother has not been set and is pending an official date.

### **Non-Motorist (Child) Data**

Age/sex:	6 months old/male
Height:	Unknown
Weight:	Unknown
Seat type:	Child restraint system on a second-row bench seat
Restraint usage:	5-point harness system of a CRS
Transport from scene:	Unknown
Type of medical treatment:	Declared deceased by EMS at the incident scene

## Incident Site Satellite View

(Google Maps image date: 2020)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. DS19043**

**Vehicle: 2018 Toyota Camry**

**Location: Texas**

**Incident Date: August 2019**

## **Background**

This report documents the remote investigation of the hyperthermia-related fatality of a 9-month-old female who was unintentionally left behind in a vehicle for approximately 6 hours before being found by the child's father in Texas in August 2019. The investigation was intended to determine the events leading to the incident, actions taken by the father, vehicle characteristics, and equipment, environmental conditions, and activities of the child. The incident was identified as part of a hyperthermia study by NHTSA and assigned to the SCI team in October 2019. The SCI team obtained the police report, on-scene photos, and autopsy results.

This incident occurred in August 2019 in Texas. The child was a 9-month-old female and the vehicle was a 2018 Toyota Camry XSE (Figure 1). The incident occurred in several locations including the driveway of the child's residence, a car dealership, and a car wash facility, among others. The primary caregiver at the time of the incident was the child's 31-year-old father, who forgot to take the child to a daycare facility in the morning and instead left her behind in the vehicle throughout the day while he worked at home and drove to several destinations attending to various activities. While in the vehicle, the child was intermittently attended and unattended, but the father had forgotten her whereabouts until late in the afternoon when he discovered her while parked at a car wash facility. The child had been in the second-row seat of the Toyota for approximately 6 hours when the father opened a second-row door to discover her seated in her rear-facing CRS. The father removed the child from the vehicle and called 911 at 1715 hours and emergency responders pronounced the child deceased on-scene. On the day of the incident, the high temperature was 35 °C (95 °F).

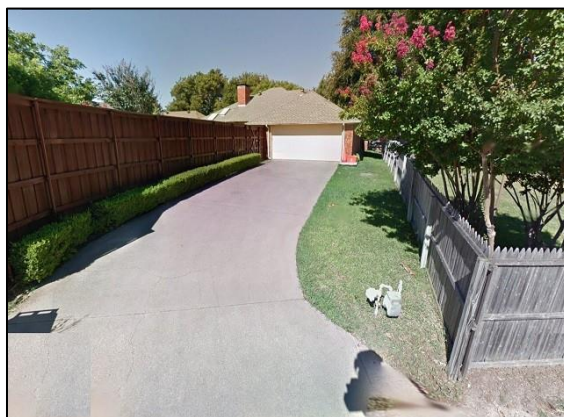


*Figure 1. 2018 Toyota Camry. Image obtained from local law enforcement.*

## Summary

### *Incident Site*

The incident occurred in several locations including the driveway of the child's residence, a car dealership, a car wash facility, and points in between as the caregiver and child traveled from location to location. The investigation determined the primary incident site was the driveway of the child's residence where she was left behind and unattended in the Toyota for approximately 4 hours during which ambient temperatures reached (94 °F) and the heat index reached (99 °F). The residence was a single-story, single-family unit located on a north/south residential street in a suburban area of Texas. The west side of the home faced an alley. A concrete driveway was located on the west side of the property and was oriented east/west extending from an attached garage to the alley. The driveway measured approximately 5 m (16 ft) wide and 15m (49 ft) long. It was bordered on the north edge by a strip of level grass-covered lawn and a wood fence measuring approximately 1.5 m (5 ft) high (Figure 2). Two mature trees were located approximately 5 m (16 ft) north of the north edge. The driveway was bordered on the south edge by a row of low shrubs and a wood fence measuring approximately 2.5 m (8 ft) high. The Toyota was parked facing west toward the residence and possibly within 2 m (6 ft) of the garage.<sup>10</sup>



*Figure 2. Incident site, driveway view from alley, looking west. Image obtained from internet mapping software.*

Given the orientation of the driveway and presence of buildings, trees, and fences, it was probable a vehicle parked in the driveway during the day would be subject to periods of full or partial shade as well as full or partial exposure to sun. The incident occurred during mid-day in August when the sun's elevation angle was relatively high. The autopsy report stated the Toyota and child were in an unshaded area for several hours. Police visited the residence at 1045 hours the day after the incident and noted no shade was present on the driveway. The incident began between 1045 hours and 1120 hours the day before.

While the child was left unattended in the vehicle, the father was inside the home attending to various activities. A satellite image of the driveway suggests the vehicle was not visible from inside the residence. The garage door did not have windows and a fence blocked views from the east side of the residence. While inside the home, the father was approximately 8 to 23 m (25 to 75 ft) from the vehicle. Other homes in the area were configured similarly to the child's home.

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<sup>10</sup> Satellite imagery showed the vehicle parked in that manner with no other vehicles present.

The neighborhood had a network of fences, mature trees, landscaping, and structural design that provided the residents privacy. The same aspects that provided privacy also reduced the likelihood of a neighbor or passerby noticing the child while she was unattended in the vehicle. It appeared unlikely the CRS or child were visible to traffic using the alley. Images of the alley suggested a low volume of vehicular or foot traffic was present and to see the child inside the vehicle one would likely have had to enter the property. The police report did not mention the presence of anyone other than the caregiver and child on the property. No mention was made regarding the presence of other vehicles in the driveway. Other locations and trips relevant to the incident are discussed in later sections of this report. An incident site diagram and incident site satellite view are included at the end of this report.

### ***Weather***

On the day of the incident the high ambient temperature was 35 °C (95 °F) and the low ambient temperature was 27 °C (80 °F) with a maximum wind speed of 19 km/h (12 mph), clear visibility and partly to mostly cloudy skies. At 1445 hours, the solar azimuth angle was 233° and the solar elevation angle was 68°. The table below documents the weather conditions for the duration of the incident.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Condition</b>
1053	32 (89)	52	34 (94)	Partly cloudy
1153	33 (92)	47	36 (97)	Partly cloudy
1253	34 (93)	47	37 (99)	Mostly cloudy
1353	34 (94)	40	36 (97)	Partly cloudy
1453	35 (95)	41	38 (100)	Mostly cloudy
1553	35 (95)	40	37 (99)	Mostly cloudy
1653	35 (95)	40	37 (99)	Mostly cloudy

### ***Vehicle Information***

The vehicle was a 2018 Toyota Camry XSE identified by police with the VIN 4T1B61HK0JUxxxxxx. The Toyota was a 4-door sedan with a 2.5-liter, 4-cylinder, gas engine, front-wheel drive, and a security system using an immobilizer and keyless entry. The exterior color was “Ruby Flair Pearl” (red) and the interior color was medium-dark gray leather or softex interior.

The Toyota had a wireless remote control key system including a fob configured with four buttons. Button 1 unlocked all doors, Button 2 unlocked the driver’s door or, when held down, unlocked all doors, and, if configured at a dealership, opened all windows and the moon roof. Button 3 opened the trunk and Button 4 sounded the alarm system.

The vehicle had pull-out style exterior door handles. When the electronic key was present, all four doors could be unlocked by pulling out either the driver’s or front passenger’s door handles. As a security feature, if a door was not opened in approximately 60 seconds of being unlocked, the system would relock the vehicle.

The Toyota had power actuated door locks and window controls. The driver’s door panel armrest housed one switch used to lock all four doors and one switch to unlock all four doors. It housed

four switches to separately control the four side windows and one switch that, when pressed, locked or unlocked all four windows. According to the owner's manual, the window lock prevents children from operating the power windows accidentally.

Each door had an interior lock button. The front doors could be opened by pulling the inside handle even if the lock buttons were in the lock position. The second-row doors did not have that feature.

The Toyota had second-row rear door child-protector locks which, according to the owner's manual, prevent children from opening the door accidentally or while the vehicle is in motion. The door cannot be opened from inside the vehicle when the lock is set. A police photo showed the second-row left child-protector door lock was in the unlocked position. The right-side child-protector door lock status was unknown.

During the incident, the child was intermittently left behind when the vehicle was parked and in company of the caregiver when the vehicle was used for trips to various locations. Consequently, the vehicle door lock status likely changed depending on the whereabouts and actions of the father.

The child was a 9-month-old female restrained in a rear-facing CRS during the incident. She did not have the physical capacity to reach or manipulate switches and buttons required to lock or unlock the vehicle. She could not enter or exit the vehicle without assistance. She was placed in the CRS by either the father or mother at the beginning of the initial trip. She was restrained by the internal 5-point-harness and remained so until being discovered by the father several hours later. The window status during the day was unknown.

The vehicle had a standard alarm system including an immobilizer and keyless entry. It was unknown if telematics or Bluetooth systems were in place. It was unknown if an unattended-child detection, monitoring, or warning system was in place.

### ***Pre-Incident***

The household included the 31-year-old father, 23-year-old mother, and 9-month-old female child. On the morning of the incident, the child was placed in a rear-facing Graco SnugRide Click Connect 40 CRS in the second-row left seat position (Figure 3). A small backpack containing baby clothes and diapers was placed on the second-row seat near the CRS. The father drove the Toyota with the mother and child present to the mother's workplace. The trip was intended to make two stops, the first at the mother's workplace and the second at the child's daycare facility. The distance from their residence to the mother's workplace was approximately 26 km (16 m) with an estimated travel time of 20 to 30 minutes. The distance from the workplace to the daycare was approximately 27 km (17 mi) with an estimated travel time of 25 to 30 minutes. The distance from the daycare to the residence was approximately 2 km (1 mi) with a travel time of 3 to 5 minutes.



*Figure 3. Graco SnugRide Click Connect 40 CRS, second row, 2018 Toyota Camry (police photo)*

They departed their home at approximately 0915 hours and, according to video surveillance systems, all three entered the building of the mother's workplace at 0948. While there, the father, mother, and child interacted with other employees until the father and child left the building. The mother indicated more than once in police interviews that the father and child left at 1015 hours. She stated it was their habit to stay for 15 to 20 minutes interacting with other employees before leaving. The police report stated that, based on video surveillance, they left at 1050 hours. This discrepancy was not rectified but, upon leaving the workplace, the father was recognized as the child's primary caregiver until she was to be received by the daycare facility.

The father and child returned to the vehicle and he secured her in the CRS. They then left the mother's workplace and, instead of driving to the daycare facility, the father drove directly to their residence approximately 30 minutes later. He parked the vehicle in the driveway, exited the vehicle, and unintentionally left the child behind. The exact time of their return home was not known but, given the police-reported departure time of 1050 hours, their arrival home would have been approximately 1120 hours.

### ***Incident***

The caregiver was inside the home searching online for a van that he intended to purchase for use by the family. The mother's vehicle had recently been in disrepair and out of service. At 1359 hours, the father sent the mother a text photo of a van he intended to purchase. He exited the residence, entered the Toyota, and departed at an unknown time, arriving at a car dealership at 1456 hours. Upon his arrival, he exited the vehicle and learned the van had already sold. He then returned to the Toyota and, while parked, viewed other online sales on his cell phone. During that time, he accidentally released the trunk, got out of the vehicle to close it, and returned to the driver's seat. According to video surveillance, he departed the dealership at 1536 hours.

He stayed in the general vicinity of the dealership for an additional 45 minutes. From 1534 hours to 1620 hours, he continued intermittently using a cell phone to shop online and, at 1551 hours, sent another text photo of a van to the mother. From 1536 hours to 1700 hours, the father's specific whereabouts were unknown. Cell phone records and satellite mapping routes obtained by police indicated he drove approximately 11 to 14 km (7 to 9 mi) from the dealership to the car wash, stopping once for gas along the route. He arrived at the car wash at 1700 hours and drove through the car wash facility. The father then parked the Toyota in a self-use vacuum area, and while the vehicle was still running discovered the child in the second row.



## ***Post-Incident***

After discovering the child in the vehicle, the father called 911 and removed her from the CRS. Witnesses told police he was carrying the child in his arms and crying. He carried the child from east side of facility (vacuum area) to the west side toward a fire truck that he observed was entering the property. Paramedics received the child and attempted life-saving measures. At 1715 hours, the father called the mother using his cell phone while emergency responders attended to the child. Paramedics applied a Lead II<sup>11</sup> to the child, which indicated no electrical activity was present in the body. They reported the child was deceased, pronouncing her at 1718 hours. The child's actual temporal temperature at 1718 hours was 36.7 °C (98 °F). Medical records stated rigor was present and the child was in a sitting position consistent with CRS usage. Approximately 6 hours had passed since the child was first left behind at the family's residence. She was transported to the county medical examiner's office.

It is probable the child had been deceased for 2 hours or more and was deceased while the vehicle was parked at the family residence. According to experts, "fully developed rigor mortis is an easily identifiable and reliable indicator that death has occurred. The time of onset is variable but it is usually considered to appear from 1 and 6 hours (average 2 to 4 hours) after death."<sup>12</sup>

## ***Caregiver/Guardian Data***

The household included the 31-year-old father, the 23-year-old mother, and the 9-month-old child. The mother and father shared responsibilities for the child but in different ways. During an interview, police asked if the father took part in the child's caregiving such as feeding or changing diapers and the mother responded that he was not good at those tasks and they were typically performed by her or at daycare. However, when a family member was asked by police who had more interaction with the child, she stated the father "was closer" to the child. On the day of the incident, video surveillance at the mother's workplace showed the father and mother together playing with the child. The police interviews seemed to suggest that the father readily interacted with the child in the mother's presence but tasks such as feeding and changing diapers were left to the mother when she was available or to the daycare facility when she was working. The child had been attending the same daycare facility beginning at age 2 months. The facility was operated by a family member.

The day of the incident appeared typical in the following ways.

- The incident occurred on a weekday when the mother had a planned work schedule, the father had planned tasks, and the child was expected to attend daycare.
- On days such as that, the historical action plan was for the father to drop off the mother at her workplace, then drop off the child at her daycare, then return home or continue elsewhere with his day.
- The father dropped off the mother at her workplace, then he and the child continued their trip in the general direction of the daycare.
- The daycare facility did not contact the family in the event that the child did not arrive there. There was no arrangement in place for that.

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<sup>11</sup> A bipolar electrical lead with electrodes on the right arm and left leg.

<sup>12</sup> Munro & Munro, 2008.

- No unusual circumstances or events were uncovered by police that influenced the father’s judgement or decision-making.
- The father and mother communicated via text messaging during the incident.

The day of the incident appeared atypical in the following ways.

- One to two weeks prior, the mother’s vehicle had mechanical issues and was no longer in service. Prior to that, she historically dropped off the child at daycare then proceeded to her workplace. The father was not present on those trips.
- The father was shopping online for a van intended to be used by the mother. He drove to a dealership to view a vehicle and texted images of possible vans to the mother during the incident. It appears the father’s attention was strongly focused on the task of buying a new vehicle.

During the incident, the father used a cell phone while taking trips in the Toyota. A backpack containing baby items was typically placed in the second row when the child was traveling in the vehicle in the CRS. It was unknown if the phone was connected to the vehicle in any way. It was unknown if the family had ever been informed about the dangers of leaving a child in a hot car. It was unknown if the family had a plan in place to prevent such incidents from occurring. It was unknown if the family was aware of outreach or media campaigns intended to prevent of such events.

Criminal charges were not brought against the father and the case was closed by police as an accidental death.

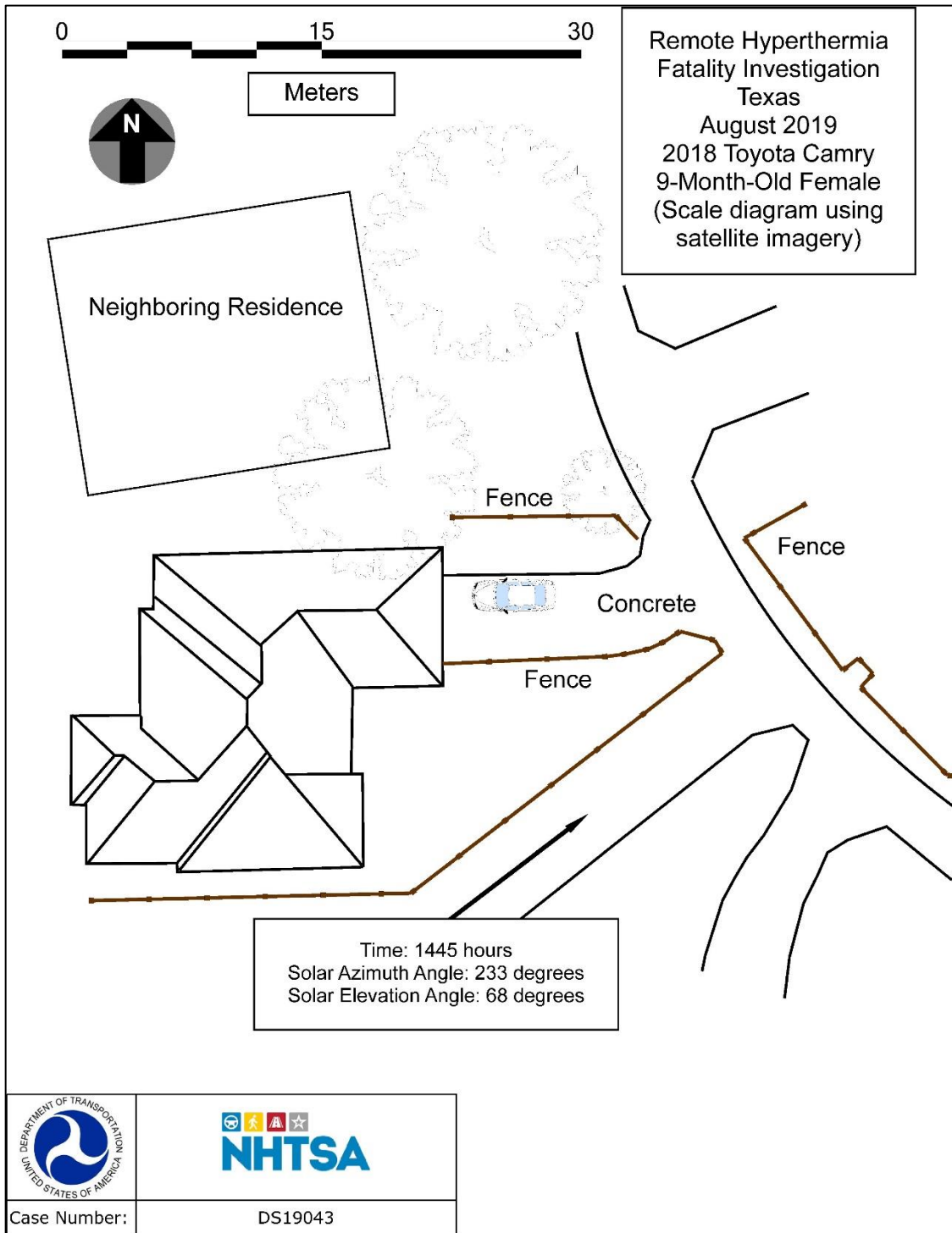
***Non-Motorist (Child) Data***

Age/sex:	9 months old/female
Height:	73 cm (29 in)
Weight:	8 kg (18 lb)
Clothing:	White and yellow “onesie” and diaper, unknown footwear
Seat type:	Bench, second-row left position
Restraint usage:	Rear-facing CRS, installation method unknown
Transport from scene:	To county medical examiner’s office
Type of medical treatment:	Declared deceased on-scene

The 9-month-old female was restrained in a rear-facing Graco Snugride Click Connect 40, light gray in color, in the second-row left seat position of the Toyota throughout the duration of the incident. The installation method for the CRS was unknown. The Graco had a canopy system and its status during the incident was unknown. The child was discovered fully clothed and was not covered by a blanket, coat, or other object. No hanging structure was present.

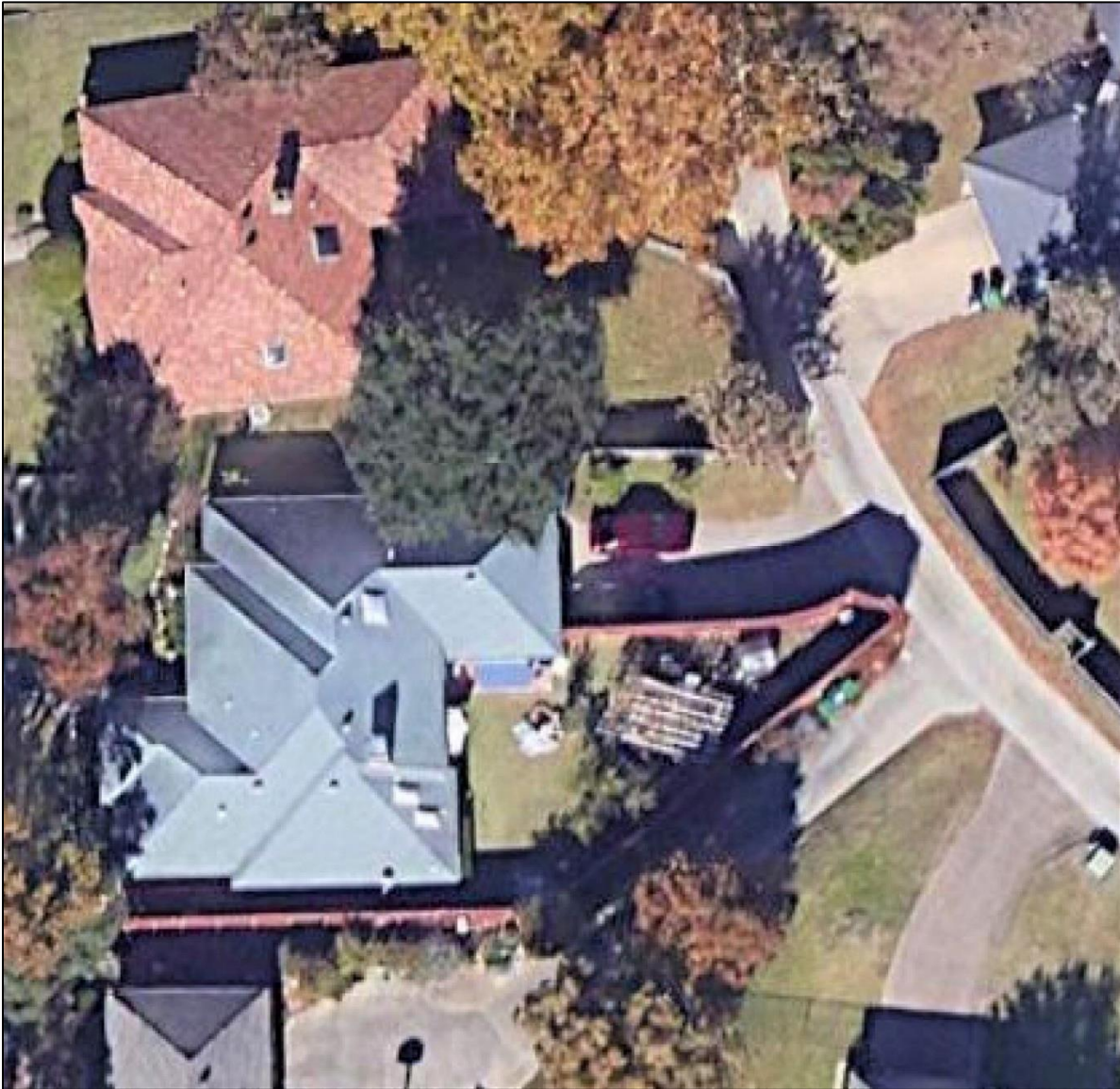
The child was pronounced deceased on-scene by paramedics. Paramedics applied an electrical lead to the child that indicated no electrical activity was present in the body. The child’s temporal temperature at 1718 hours was 36.7 °C (98 °F). They noted rigor was present and the child was in a sitting position consistent with CRS usage. An autopsy report stated the cause of death was hyperthermia and the manner of death was “accident.”

# Incident Site Diagram



## Incident Site Satellite View

(Google Maps image date: November 2018)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. DS19040**

**Vehicle: 2000 Chevrolet S-10 Pickup**

**Location: Utah**

**Incident Date: August 2019**

## **Background**

This report documents the remote investigation of the hyperthermia related fatality of a 6-month-old male who died after being left unattended in a 2000 Chevrolet S-10 pickup (Figure 1) for an unknown period in Utah in August 2019. The investigation was intended to determine the events leading to the incident, actions taken by the caregiver, vehicle characteristics and equipment, environmental conditions, and activities of the child. The incident was identified as part of a hyperthermia study by NHTSA and assigned to the SCI team in October 2019. The investigative and autopsy reports were obtained.



*Figure 1. Exemplar 2000 Chevrolet S-10 extended cab pickup*

This incident occurred in August 2019 in Utah. The caregiver was the mother of the 6-month-old male. She brought the child into a hospital at approximately 1743 hours. According to the police, the child was already deceased when he was brought in. Resuscitative efforts were attempted but were unsuccessful and the time of death was called at 1812 hours.

Doctors reported that the child had hot red flushed skin that was shedding and a rectal core temperature of 43.2 °C (109.8 °F). Prior to the mother's arrival at the emergency room, police and medical personnel had not received any emergency calls regarding this incident. The mother was questioned about the events that led up to the child's death.

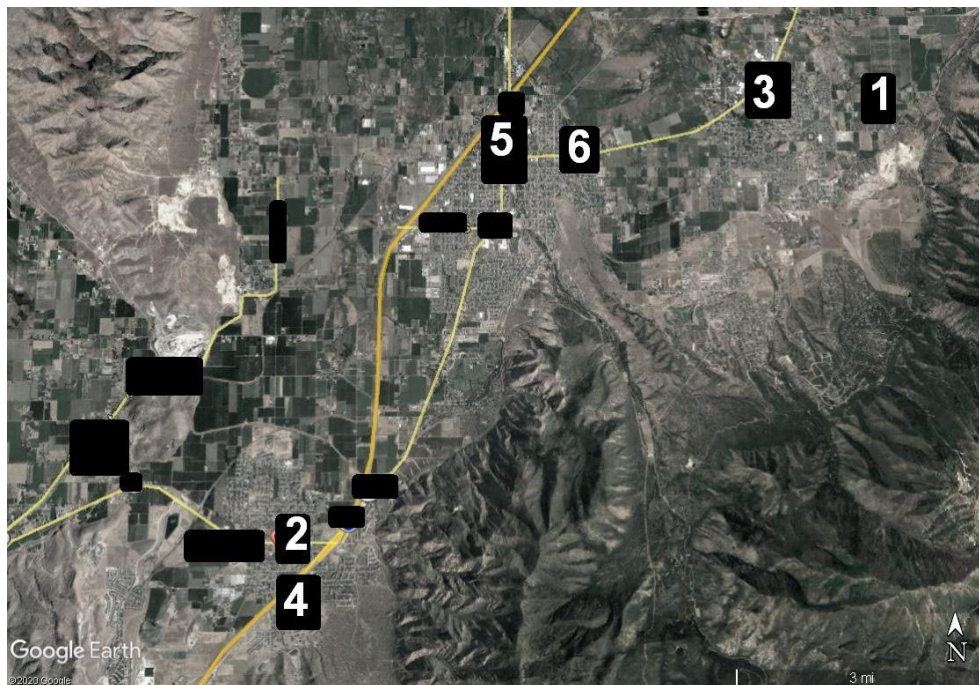
The mother's account of what occurred changed during several interviews. During the day she made several trips in the Chevrolet with the child in a rear-facing CRS placed in the front-row right seat. The medical examiner determined that the immediate cause of death was "hyperthermia." Based on limited information surrounding the death, the manner of death was certified as "could not be determined." The police charged the mother with child abuse homicide, a second-degree felony. In Utah criminal homicide constitutes child abuse homicide if, under circumstances not amounting to aggravated murder, the actor causes the death of a person under 18 years old and the death results from child abuse.

## **Pre-Incident**

The day of the incident began in a typical fashion. The child woke between 0600 to 0630 hours, was fed, and then went back to sleep. The mother's fiancé left early for work. The fiancé has a child from a previous relationship who lives with her mother in a different residence. On most days, this child stays with the mother while the child's mother goes to work. The mother usually picks up the female child from the mother at a nearby roadway exit and brings her to the residence.

The day became atypical early on. On the day of incident, the mother's vehicle would not start and the mother brought the female child to the residence at approximately 0830 hours. The 6-month-old child was awake at this time and, according to the mother, was teething and fussy. At approximately 1000 hours, the mother took the temperature of the 6-month-old child because he was hot and fussy. The temperature was normal. The female child was present in the residence during this time.

The incident trip began at approximately 1200 hours at the driver's residence (Figure 2, location 1). The mother's vehicle was having mechanical issues and would not start. The mother's fiancé pulled the vehicle with another vehicle to start it. The 6-month-old child was placed in the rear-facing CRS in the front row by the mother. The mother, 6-month-old child, and the female child traveled to a local pharmacy (Figure 2, location 2) to pick up a prescription for an acquaintance. They arrived at 1234 hours. The mother drove to a local gas station with a drive-through window (Figure 2, location 3) and picked up a soda. She then drove back to her residence (Figure 2, location 1) where she was seen at 1334 hours by a witness. The witness did not recall seeing the 6-month-old child. The female child had a scheduled play date with another child next door and was dropped off by the mother. After leaving her residence, the mother stated that she drove to a storage facility (Figure 2, location 4) to settle a bill. The travel distance would have been approximately 24 km (15 miles).



*Figure 2. Overview of locations traveled (Image date: August 19, 2019)*

## ***Incident***

There was no indication from the storage facility that the mother ever arrived at the storage facility. The police believed that she was actually at a gas station (Figure 2, location 5). Based on the level of rigor mortis observed by doctors at the hospital (Figure 2, location 6) when she arrived at 1743 hours, it appears that the child had died 2- to 3 hours prior to being seen at the hospital.

## ***Post-Incident***

The mother stated that the child had a blank stare and was completely stiff when she tried to get him out of the CRS. Upon arrival at the hospital at 1743 hours, the child was in rigor mortis with slipping of the skin on his forehead, left side of his face, chest, left shoulder and left knee. There was a scratch on his left arm that the driver attributed to her efforts to get him out of the CRS. Prior to the emergency room call to the police, police and medical personnel had not received any emergency calls regarding this incident. Resuscitation efforts were attempted with no results. Death was pronounced at 1812 hours.

## ***Caregiver/Guardian Data***

The caregiver was a 23-year-old mother of the 6-month-old child who lived in her parents' house with both parents, her fiancé, and the child. The fiancé has a female child from a previous relationship who lives with her mother nearby. It is unknown if the grandparents had any caregiving responsibilities. It is unknown where they were during the incident. There were no reports of the mother being under the influence of drugs or alcohol during the incident.

During the time between being seen at 1334 hours at the residence and arriving at the hospital at 1743 hours, the mother described a series of events that could not be corroborated and were at times inconsistent. She stated that during this time her cell phone battery had gone dead and she could not call 911. She stated that she first noticed the child was not well at 1540 hours and that she drove directly to the hospital at that point. Note: The distance from her stated location at 1540 hours to the hospital was 11 km (7 miles) with a driving time of 13 minutes. The hospital arrival time was 1743 hours, leaving a little over 2 hours unaccounted for.

## ***Non-Motorist (Child) Data***

Age/sex:	6 months old/male
Height:	67 cm (26 in)
Weight:	7 kg (15 lbs)
Seat type:	Bench
Restraint usage:	Lap and shoulder belt used to anchor CRS
Transport from scene:	Taken to hospital by mother
Type of medical treatment:	Resuscitation attempted at hospital.

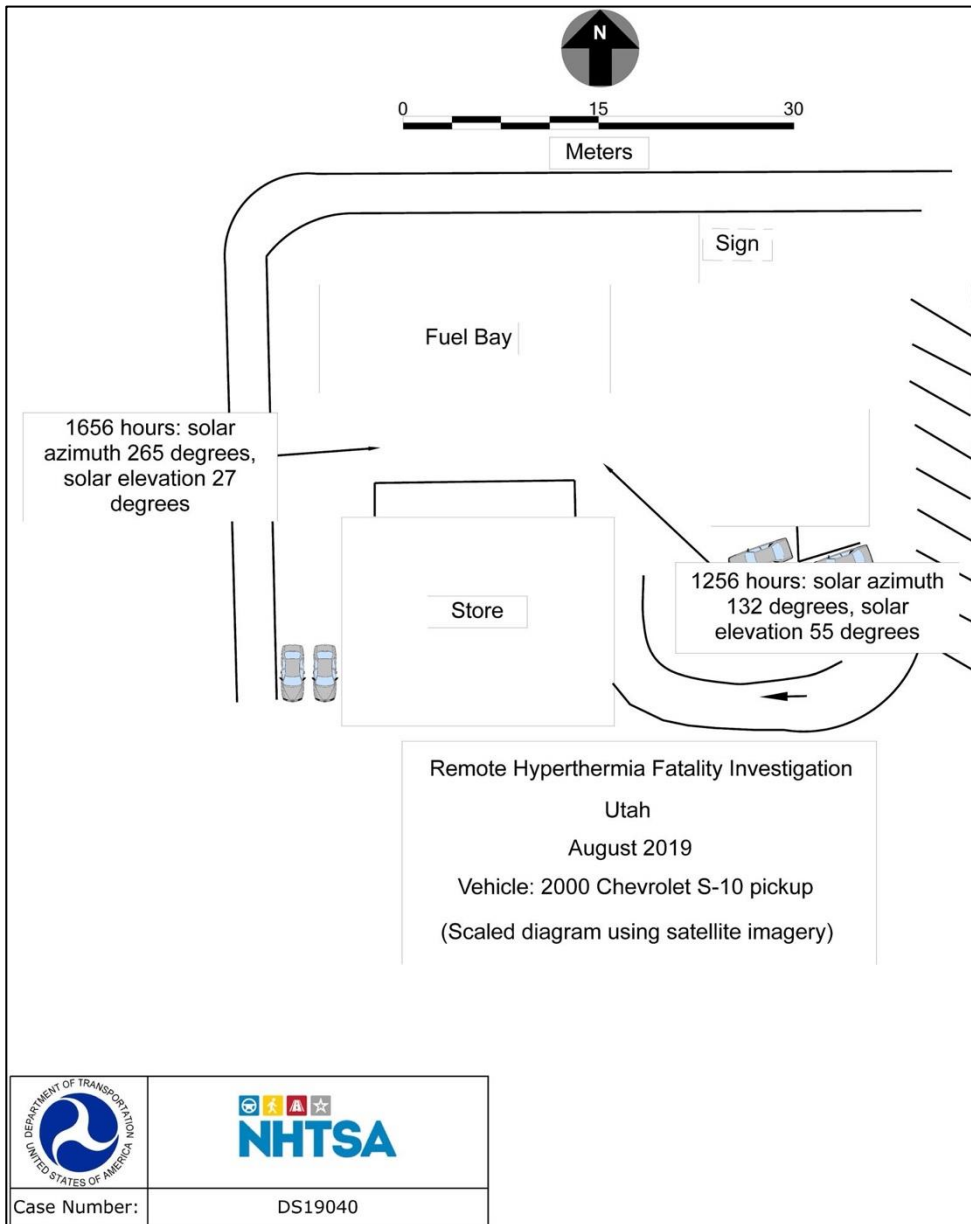
The child was wearing a diaper throughout the day. The child had been placed in the vehicle by the mother. It does not appear that the child was covered or there were any sight-related restrictions. The child was in the front-row right seat position, clearly visible to the mother. He was seated in a rear-facing CRS (Figure 3). The child likely met the weight requirements for this type of CRS. The CRS harness usage was not determined.



*Figure 3. Rear-facing CRS in right front seat of 2000 Chevrolet S10 (police photo)*

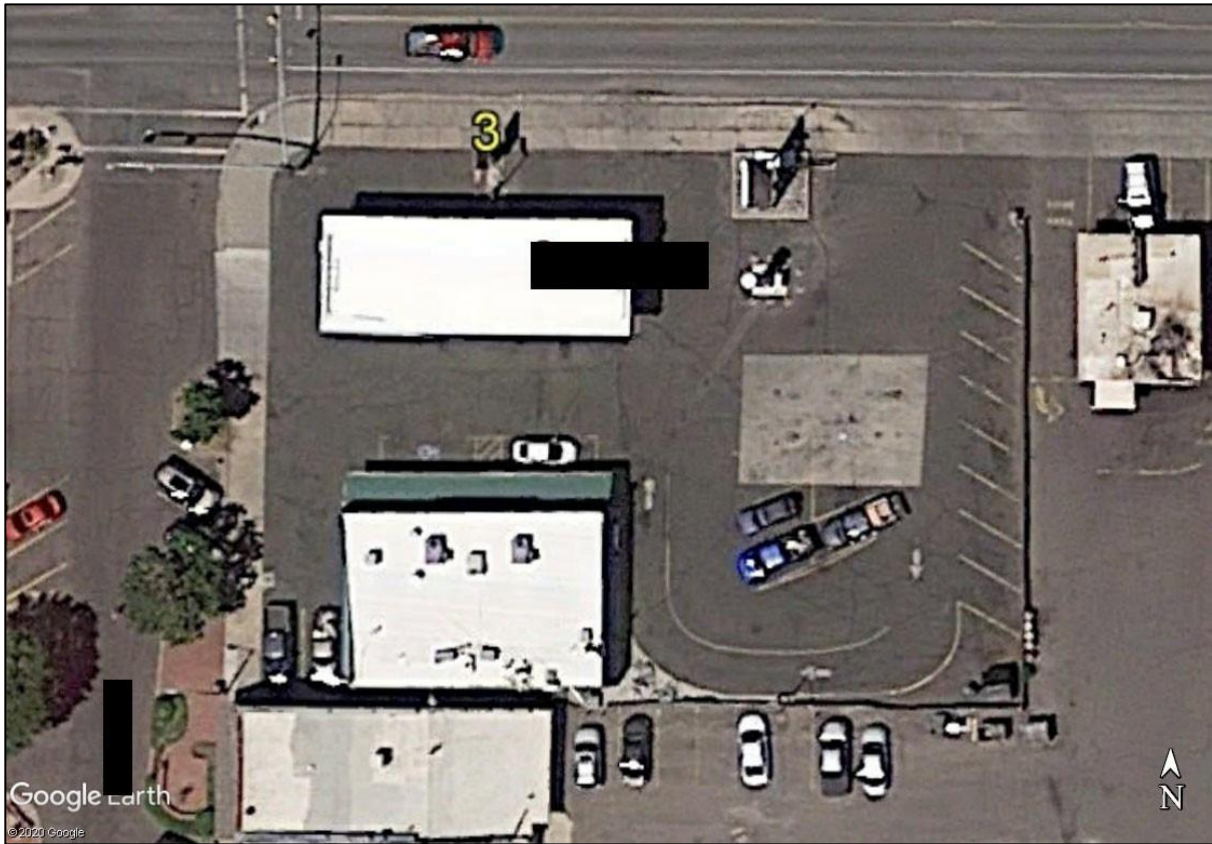


# Incident Site Diagram



## Incident Site Satellite View

(Google Earth image date: July 18, 2019)



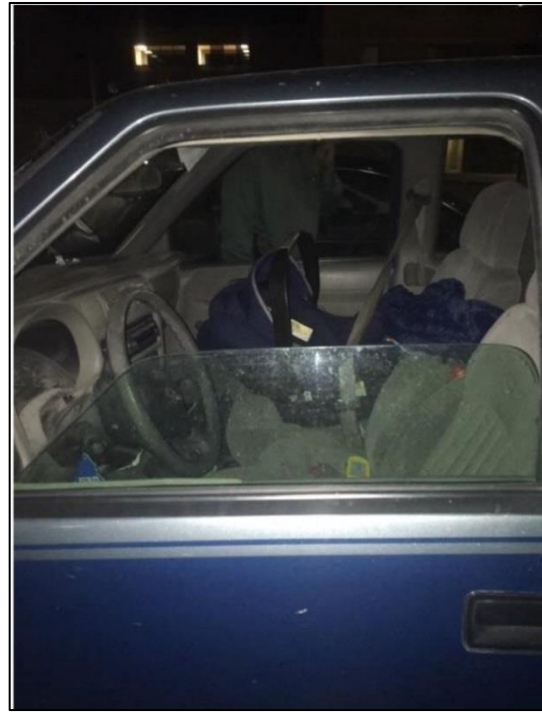
**Addendum**



*Figure A-1. Probable incident site, looking east (GoogleEarth image)*



*Figure A-2. Left front, 2000 Chevrolet S-10 pickup (police photo)*



*Figure A-3. Side window position, 2000 Chevrolet S-10 pickup (police photo)*

**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. CR19028**

**Vehicle: Unknown Year/Make/Model Minivan**

**Location: Alabama**

**Incident Date: September 2019**

## **Background**

This report documents the remote investigation of the circumstances surrounding the hyperthermia-related fatality of an 11-month-old male left unattended in a parked minivan for approximately 3.5 hours by his 35-year-old father in Alabama in September 2019. The father placed his 11-month-old twins, a male and a female, in his minivan with the intention of driving the children to daycare on his way to work. This was not his normal routine as his wife normally drives the twins to the daycare facility. The father drove to his workplace and parked the minivan in the lot of a commercial facility, exited the vehicle, and went to work. Approximately 3.5 hours later, his wife called him to check on the status of the twins. He immediately rushed to the minivan, where he removed the children and called the emergency response system. Police and EMS responded to the call. Both children were transported by ambulance to a local hospital where the male was pronounced deceased. The 11-month-old female was evaluated, treated, and released without injury. No charges were filed against the father. The incident was identified by NHTSA and assigned to the Special Crash Investigations group for further research in October 2019.

The SCI team contacted the police agency in an attempt to get an interview with the investigating officer and any records pertaining to this hyperthermia incident. Several voicemails were left for the investigation division and no return call was ever received. A search of online media sources provided the basis for the final case report.

## Summary

### *Incident Site*

This incident occurred during the morning in the parking lot of the father's place of employment. The parking lot was surfaced with asphalt and wraps around two buildings that offer minimal shade. The exact location that the minivan was parked is unknown. However, based off satellite imagery it can be determined that the vehicle would have been in direct sunlight for the duration of the incident.

### *Weather*

The weather data for the duration of this incident was obtained from the National Weather Service. Sunrise occurred at 0638 hours with sunset reported at 1840 hours. The peak temperature for the day was at 34 °C (94 °F) recorded at 1353 hours with 36 percent humidity. Winds were calm during the duration of this incident. The conditions were reported as partly cloudy to mostly cloudy during the duration of this incident. The temperatures, humidity, calculated heat index, and conditions for the duration of the incident are provided in the following table.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Conditions</b>
0753	24 (76)	79	25 (77)	Partly cloudy
0853	27 (81)	67	29 (84)	Partly cloudy
0953	31 (88)	49	33 (91)	Partly cloudy
1053	33 (92)	41	35 (94)	Mostly cloudy
1153	33 (92)	39	34 (93)	Mostly cloudy
1253	33 (92)	39	34 (93)	Mostly cloudy

### *Vehicle Information*

The only available information indicated that the vehicle was a minivan. Its year/make/model was unknown.

### *Pre-Incident*

On the day of the incident, the 45-year-old father secured the twin 11-month-old male and female children into their CRSs in the minivan. The exact seat positions were unknown. The father was supposed to drop both children off at a daycare on his way to work that morning. This was not his normal routine. The father left his place of residence and drove directly to his place of employment. Upon arriving at his place of employment at approximately 0830 hours, the father parked the minivan in an unknown location.

### *Incident*

After parking the minivan, the father exited the minivan and went into work for the day. The father received a call at approximately 1145 hours from his wife asking the father about the children. The father ran out of work towards his minivan and called emergency services. The father had removed both children from the minivan at approximately 1151 hours. First responders arrived on scene at approximately 1154 hours.

***Post-Incident***

EMS began treating both children and took them to the local hospital by ambulance. Upon arrival at the local hospital, the 11-month-old male was pronounced deceased. The 11-month-old-female was treated and later released back into the care of her mother and father.

***Caregiver/Guardian Data***

The 45-year-old caregiver was the father of the child. The police agency investigated and determined there was no foul play on the father’s behalf and no charges were made.

***Non-Motorist (Child) Data***

Age/sex:	11months old/male
Height:	Unknown
Weight:	Unknown
Seat type:	Unknown
Restraint usage:	Unknown
Transport from scene:	Transported by ambulance
Type of medical treatment:	Treated by EMS, declared deceased at local hospital

**Incident Site Satellite View**

(Google Maps image date: 2020)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. DS19036**

**Vehicle: 2015 GMC Sierra 1500**

**Location: Arizona**

**Incident Date: September 2019**

## **Background**

This report documents the remote investigation of the hyperthermia-related death of a 3-year-old female left unattended in a parked black 2015 GMC Sierra 1500 SLT crew cab pickup (Figure 1) for an extended period during daylight in Arizona in September. The investigation was intended to determine the events leading up to the incident, actions of the father, vehicle characteristics and equipment, environment conditions and layout, and activities of the child. The incident was identified as part of a hyperthermia study by NHTSA and assigned to the SCI team in October 2019. The SCI team obtained the investigative report, autopsy report and 911 call logs.



*Figure 1. 2015 GMC Sierra 1500. Image obtained from an online news outlet.*

This incident occurred in September 2019 in Arizona at a private residence in an urban area during summer daylight. The GMC was parked in a concrete driveway adjacent to the residence. The primary caregiver at the time of the incident was the child's 37-year-old father. On the day of the incident he drove his other children to school. The 3-year-old was in the second row in an unknown type CRS. The child was supposed to go to school that day but the family was planning to leave on a vacation and they decided to keep her home. The father returned to the residence between 0815 to 0830 hours. The temperature at 0750 hours was 30 °C (86 °F). The father exited the vehicle and entered the residence, leaving the child behind. At approximately 1200 hours the father realized the child was still in the vehicle and went to retrieve her. The temperature at 1150 hours was 36 °C (97 °F). She was not breathing when he found her. He called out to neighbors and they began CPR. Police and EMS were contacted and arrived to continue resuscitative efforts. She was transported by ambulance to a local trauma center. The hospital reported that she had a rectal temperature of 42 °C (109 °F). At 1300 hours, she was declared deceased by the emergency room staff. The medical examiner indicated that the primary cause of death was "complications of environmental heat exposure."



## Summary

### *Incident Site*

The incident occurred in a residential area in Arizona at a private residence in an urban area during summer daylight summer. The single-story, single-family residence was north-facing with a 3-car, 2-door attached garage and a concrete driveway to the east (Figure 2). There was a row of medium-size trees east of the driveway, providing some measure of shade during the morning hours. The GMC was parked in the driveway adjacent to the residence, perpendicular to the garage doors, and facing south. The garage doors did not have any windows and there were no other windows that would have provided a clear view of the parked vehicle. One of the garage doors was open in on-scene photos but it is not known when it had been opened. The vehicle was in a position that the interior and CRS would not have been visible from the sidewalk or the street. There was a driveway to the east for the residence next door. The police report did not mention the presence of anyone other than the father and child on the property. There were no other vehicles in the driveway. An incident site diagram and incident site satellite view are included at the end of this report.



*Figure 2. Residence looking south. Image obtained from internet mapping software*

### *Weather*

On the day of the incident the high ambient temperature was 41 °C (106 °F) and the low ambient temperature was 27 °C (81 °F), clear visibility and light winds. At 0815 hours, the solar azimuth was 85° and the solar elevation was 25°. At 1200 hours, the solar azimuth was 121° and the solar elevation was 63°. The weather conditions during the time the child was in the vehicle is shown in the following table.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Conditions</b>
0750	30 (86)	45	30 (87)	Fair
0850	32 (90)	40	33 (91)	Fair
0950	33 (93)	38	35 (95)	Fair
1050	36 (97)	32	37 (98)	Fair
1150	36 (97)	30	36 (97)	Fair

### **Vehicle Information**

The vehicle was a 2015 GMC Sierra 1500 crew cab pickup identified by the VIN 3GTU2VEC1FGxxxxxx. It had a 5.3-liter, 8-cylinder, gas engine coupled to a 6-speed automatic transmission, 4-wheel drive, 4 doors, and short pickup box. The exterior color was “Carbon Black” and the interior trim was “Jet Black.”

The vehicle had leather-covered front bucket seats and second-row split bench seats with folding backs. There are several ways to lock and unlock the vehicle. From outside, use the remote keyless entry transmitter or the key in the driver door. From inside, use the power door locks. From inside, pull the door handle once to unlock the door. Pull the handle again to open the door. The vehicle had rear door safety locks that are actuated via the control on the driver’s door and prevent passengers from opening the rear doors from inside the vehicle. The vehicle had electric window regulators and the windows were all closed, according to the police. The vehicle’s doors were unlocked. The vehicle was not equipped with any unattended-child-detection systems.

### **Pre-Incident**

This incident occurred at a private residence in an urban area during summer daylight on a Tuesday. The family had three female children, ages 3, 5, and 7. The father normally worked out of the home. On the day of the incident, the mother had driven herself to her work as a correctional officer. It was the normal routine for the father to take the children to school and pre-school in the morning. The 3-year-old was placed in the second row of the GMC in an unknown type forward-facing CRS. There was a change of plans on this day. The family was planning to leave on a vacation on the following day. The mother and father decided they would keep the 3-year-old home from pre-school that day.

### **Incident**

After dropping off the 5 and 7-year-old children at school the father took the 3-year-old home. He parked the GMC in the driveway adjacent to the residence, perpendicular to the garage doors, and facing south (Figure 3). The driver returned to the residence from 0815 and 0830 hours.



*Figure 3. Vehicle at incident site, looking southwest. Image obtained from an online news outlet.*

The temperature at 0750 hours was 30 °C (86 °F). The father exited the vehicle and entered the residence, leaving the child behind. It is not known where the father entered the residence. According to the child’s mother, the child was not known to be able to unfasten the CRS harness straps herself. At approximately 1200 hours the child’s mother called the father to see how the child was doing. The father then realized the child was still in the vehicle and went to retrieve her.

The temperature at 1150 hours was 36 °C (97 °F). The child was not breathing when he found her.

### ***Post-Incident***

After finding the child, the father starting yelling and calling attention to the situation. There were neighbors in the area who heard him and responded. They began giving the child CPR. Police and EMS were contacted. Police units arrived first and took over resuscitative efforts. The fire department arrived next and continued the life-saving efforts. The child was transported by ambulance to a local trauma center. She arrived with a rectal temperature of 41 °C (109 °F). At 1300 hours, she was declared deceased by the emergency room staff. The medical examiner indicated that the primary cause of death was “complications of environmental heat exposure” and the manner of death was “accident.”

The father was arrested on suspicion of negligent homicide. In January 2020, the county attorney determined that charges would not be filed because the evidence did not support a reasonable likelihood of conviction.

### ***Caregiver/Guardian Data***

The caregiver was the 37-year-old father of the child. The child was the youngest of the family’s three children. On a typical day, the father takes the children to school and pre-school while the 37-year-old mother drives herself to her job. The father works out of the home. On this day, the father took the 3-year-old home after dropping off the two other children at their school. There were no intermediate stops along the way. Evidence indicates the child was unintentionally left behind by the father. Records indicated that while the day began in a typical fashion when the father departed the residence in the morning but several factors likely affected the actions of the father before and during the incident. A summary of the atypical factors is shown below.

- The family had planned to go on vacation the following day.
- The father was prepping for the vacation and was likely distracted.
- The family decided to keep the child home for the day.

It is unknown if the father had been informed about the dangers of leaving a child in a hot car or if he was aware of any NHTSA campaigns regarding this issue. It is not known if he was aware of any specific information related to the dangers of leaving children in hot cars or of any safety campaigns related to that topic.

### ***Non-Motorist (Child) Data***

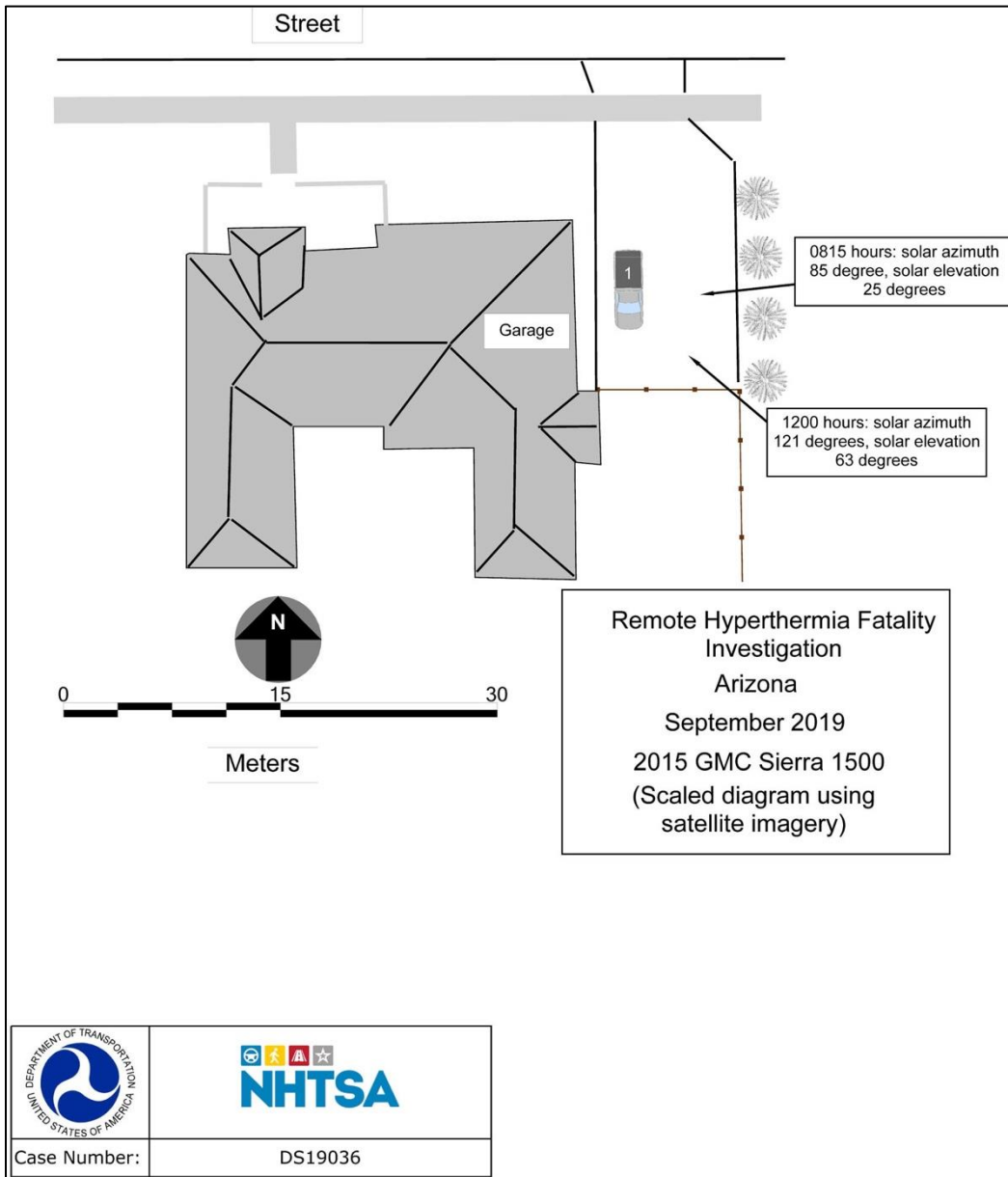
Age/sex:	3 years old/female
Height:	95 cm (37.5 in)
Weight:	32 kg (71 lbs)
Seat type:	Split bench seats with folding backs
Restraint usage:	Forward-facing CRS, installation method unknown
Transport from scene:	Ambulance to hospital
Type of medical treatment:	Transported, declared deceased at hospital

The 3-year-old female was restrained in a forward-facing CRS. The installation method for the CRS was unknown. It is unknown if the child was covered by a blanket, coat, or other object.

According to her mother, she was not known to be able to remove the CRS harness without assistance. She was removed from the vehicle by the father.

The child was transported by ambulance to the hospital. She arrived with a rectal temperature of 41 °C (109 °F). The child was pronounced deceased at the hospital by the emergency room physician 1300 hours. The medical examiner indicated that the primary cause of death was “complications of environmental heat exposure” and the manner of death was “accident.”

# Incident Site Diagram



## Incident Site Satellite View

(Google Maps image date: August 12, 2019)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. DS20010**

**Vehicle: 2016 Nissan Altima**

**Location: California**

**Incident Date: September 2019**

## **Background**

This report documents the remote investigation of the hyperthermia-related death of a 2-year-old female left unattended in a parked 2016 Nissan Altima (Figure 1) for an extended period during nighttime in California in September 2019. The investigation was intended to determine the events leading up to the incident, the actions of the father, the vehicle characteristics and equipment, the environment/scene conditions and layout, and the activities of the child. This incident was identified as part of a hyperthermia study by NHTSA and assigned to the SCI team in August 2020. The investigative report and autopsy report were obtained. Interviews with the involved parties were not attempted per requests from the district attorney and investigator. The case is still active.



*Figure 1. Exemplar 2016 Nissan Altima*

This incident occurred near a private residence in an urban area during a summer night. The Nissan was parked in an asphalt parking area south of the residence. On the day of the incident the child's 34-year-old mother drove to the residence at approximately 1900 hours and went inside. At approximately 2330 hours she placed the child in her forward-facing CRS in the second row of the Nissan. She started the vehicle, turned on the heat, and exited the vehicle. She entered a second vehicle nearby and began consuming alcohol with a friend. She fell asleep in the vehicle and remained asleep for several hours. She woke up at approximately 0500 hours, went to the Nissan, and found the child unresponsive in the CRS. She removed the child, placed her on the grass, and sprayed her with a garden hose to cool her down. She was then taken inside the residence and emergency services were contacted. She was transported by ambulance in full cardiac arrest. Her temperature upon arrival was 42 °C (107.4 °F). She was declared deceased at 0602 hours. According to the medical examiner the cause of death was due to heat stroke. The manner of death was deemed to be undetermined.

## Summary

### Incident Site

This incident occurred in a driveway between a private residence and a commercial thrift shop (Figure 2). There was a parking area south of the residence and east of the shop. The shop's front entrance faced west toward the street. The shop had a pass-through garage with an entrance facing the street and an exit facing the parking area. The shop was open from noon to 8 pm. The single-family, one-bedroom residence was set back 20 m (65 ft) from the north/south street. The front door faced south. A shared common driveway led from the street into the rear parking area. The driveway was bordered on both sides with trees against the south wall of the residence and the north wall of the store. A black 1998 Ford Ranger pickup was parked near the front door of the residence facing east. It was on jacks and was under repair at the time of the incident. The Nissan was parked behind the pickup truck facing west. The area was dark at the time of the incident. There was a single light located on the east wall of the store. An incident site diagram and incident site satellite view are included at the end of this report.



Figure 2. Incident site, looking east. Image obtained from internet mapping software.

### Weather

On the day of the incident the low temperature was 18 °C (65 °F) and the high temperature was 26 °C (79 °F). The sun position was not a factor in this incident. The conditions were fair with light wind. Sunrise was at 0550 hours. The table below documents the weather conditions during the time of the incident.

Time 24-Hour Clock	Temperature °C (°F)	Humidity %	Calculated Heat Index °C (°F)	Conditions
2253	22 (72)	64	22 (72)	Fair
2353	21 (71)	70	22 (72)	Fair
1253	22 (71)	70	22 (71)	Partly cloudy
0153	21 (71)	70	22 (71)	Partly cloudy
0253	21 (70)	71	21 (70)	Fair
0353	20 (69)	73	21 (69)	Fair
0453	20 (69)	73	21 (69)	Partly cloudy
0553	20 (68)	78	20 (68)	Partly cloudy



## Vehicle Information

The 2016 Nissan Altima 4-door sedan was identified by the VIN 1N4AL3AP9GCxxxxxx. The Nissan had a 2.5-liter, 4-cylinder, gas engine, automatic transmission, and front-wheel drive. The vehicle's exterior color was "Storm Blue" (dark blue) and interior color was "Charcoal" (black). The interior had two rows of seating for five occupants. The front row had bucket seats and the second row had a split-bench seat with folding back.

The vehicle had pull-type exterior door locks. It is unknown if the doors were locked during the incident. The vehicle had electric window regulators. All the windows were closed during the incident according to the mother's statement to the police.

The Nissan had rear-door child safety locks to prevent the rear doors from being opened accidentally, especially when small children are in the vehicle. The child safety lock levers are located on the edge of the rear doors. When the lever is in the unlock position the door can be opened from the outside or the inside. When the lever is in the lock position the door can be opened only from the outside. The status of safety locks is unknown.

Detectives conducted a vehicle temperature test as part of their investigation. The test was conducted using a dual-probe ThermoPro thermometer. The ambient outside temperature was 21 °C (71 °F). The thermometer control was placed on the center console.

Temperature probe 1 was attached to the front center air conditioning vehicle. Temperature probe 2 was placed in the back-passenger seat and passed through the CRS. A carbon monoxide monitor was placed in the center console next to the thermometer. The type of monitor is not known. The air conditioning/heater temperature control was turned up to approximately 95 percent of high when first observed. All the testing took place with the windows and doors closed.

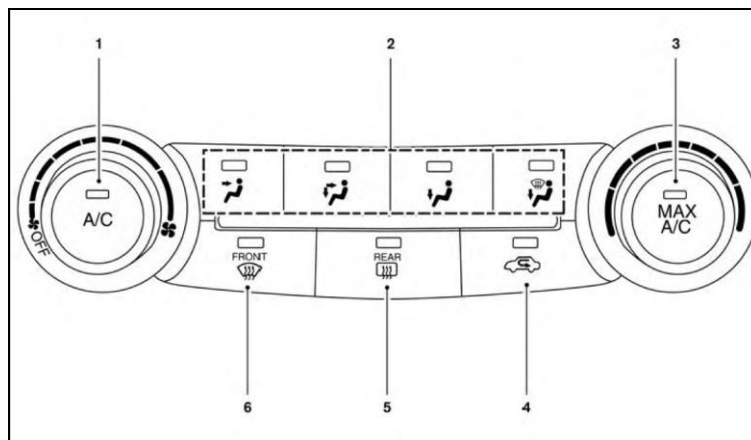


Figure 3. Temperature/fan controls, 2016 Nissan Altima. Image obtained from manufacturer website.

Initially, the air conditioning fan control was turned to 75 percent and the air conditioning temperature control as low as it would go and activated the “MAX A/C” button. The results were as follows.

0010 hours	Probe 1: 21 °C (71 °F)
Probe 2: 22 °C (72 °F)	
Carbon dioxide monitor: 0	
0035 hours	Probe 1: 10 °C (51 °F)
Probe 2: 12 °C (54 °F)	
Carbon dioxide monitor: 0	
0050 hours	Probe 1: 10 °C (50 °F)
Probe 2: 11 °C (53 °F)	
Carbon dioxide monitor: 0	

The air conditioning temperature control was set to its “as found” position and the fan level was kept at 75 percent. The results were as follows.

0054 hours	Probe 1: 25 °C (77 °F)
	Probe 2: 23 °C (75 °F)
Carbon dioxide monitor: 0	
0104 hours	Probe 1: 38 °C (101 °F)
Probe 2: 35 °C (95 °F)	
Carbon dioxide monitor: 0	
0154 hours	Probe 1: 42 °C (108 °F)
	Probe 2: 39 °C (103 °F)
	Carbon dioxide monitor: 0

The temperature of the vehicle’s heater appeared to level out and stay consistent at this time. The fan control was turned up to 100 percent and the air conditioner temperature controller to the far-left position (as hot as the controller allowed). The results were as follows.

0224 hours	Probe 1: 44 °C (112 °F)
Probe 2: 42 °C (109 °F)	
Carbon dioxide monitor: 0	
0235 hours	Probe 1: 45 °C (113 °F)
Probe 2: 43 °C (110 °F)	
Carbon dioxide monitor: 0	

It is unknown if the vehicle had any child detection or warning systems.

### ***Pre-Incident***

The incident began on a Monday evening and extended into the following morning in September. The child and mother lived at a private residence shared with another family approximately 11 km (7 miles) from the incident site. A person residing at the residence near the incident site was used by the mother as the child’s babysitter on a regular basis. On the day of the incident the mother dropped the child off at the babysitter’s residence at approximately 0530 hours and then went to work. She returned to the residence at approximately 1730 hours. She found the child playing in the back of the residence. She ate some food and spent some time inside with the babysitter. At approximately 1900 hours she, the child, and a male friend who lived in a room at the babysitter’s residence drove to a hardware store to refill a propane tank and

to a grocery store to pick up some items to cook on the grill, and to a liquor store. The mother and child never left the vehicle during this trip. After returning to the residence, the mother and male friend hung out and drank several “miniature” bottles of flavored vodka. At approximately 2200 hours, the child got tired and started acting “bratty.” The mother placed the child in her CRS in the second row of the Nissan. The child was buckled into the CRS using the internal harness. The mother intended to drive home but felt a little “buzzed” and did not want to drive. She knowingly left the child behind. While the child fell asleep the mother got into the passenger seat of the parked Ford pickup and continued to drink.

### ***Incident***

The mother estimated that she drank five to seven miniature bottles of flavored vodka throughout the evening. Between 0000 and 0030 hours, the mother went to check on the child. The air conditioner had been on and it was cold inside the vehicle. She placed a blanket over the child, tucked it in, switched off the air conditioner, and turned on the heater. She knowingly left the child behind. The child remained in the Nissan with the heater on and the windows up. The mother returned to the pickup and eventually fell asleep at approximately 0100 hours. The male friend reported that he woke up about that time and went inside the residence to use the restroom and take a shower. He returned to the vehicle and noted that the mother was asleep. He got back into the vehicle and also fell asleep. Later, he exited the vehicle, went into the residence, and fell asleep again. The mother reported that she woke up at approximately 0500 hours, went to the Nissan, and found the child unresponsive in the CRS. She noted the inside of the vehicle was “really, really” hot. Vomit was present on the child’s shirt and on the CRS. She reported that skin was coming off the child’s back.

### ***Post-Incident***

The mother removed the child, placed her on the grass, and sprayed her with a garden hose in an attempt to cool her down. She was then taken inside the residence and emergency services were contacted. Life-saving efforts were undertaken under the direction of the 911 operator. The fire department was the first responding agency and responders began CPR. They worked on the child for approximately 28 minutes. The child was transported by ambulance to a local trauma center. The fire department left the scene at 0552 hours and arrived at the trauma center at 0556 hours. The child’s temperature upon arrival was 42 °C (107.4 °F). Doctors observed peeling skin and blistering to her cheeks, left elbow, right side of chest, right bicep, and stomach. She was declared deceased at 0602 hours by the emergency room physician. The mother was later arrested and charged with murder and child neglect resulting in death.

### ***Caregiver/Guardian Data***

The caregiver was the 34-year-old mother of the child and a 9-year-old male child who did not live with her. The father of the child was separated from the mother for approximately 1 year, did not live with them, and there was an ongoing custody battle. The mother told the police that she had been addicted to oxycontin in the past, entered a rehabilitation program, and said that she was no longer using drugs. She also said that she was a recreational drinker and did not consider herself an alcoholic.

Most of the events on the day of the incident were atypical. The mother had a job and used the person at the incident residence as her babysitter. On a typical day, she would drop off the child

between 0400 to 0430 hours. On this day, the mother never went to her home. Her normal workday practices are not known.

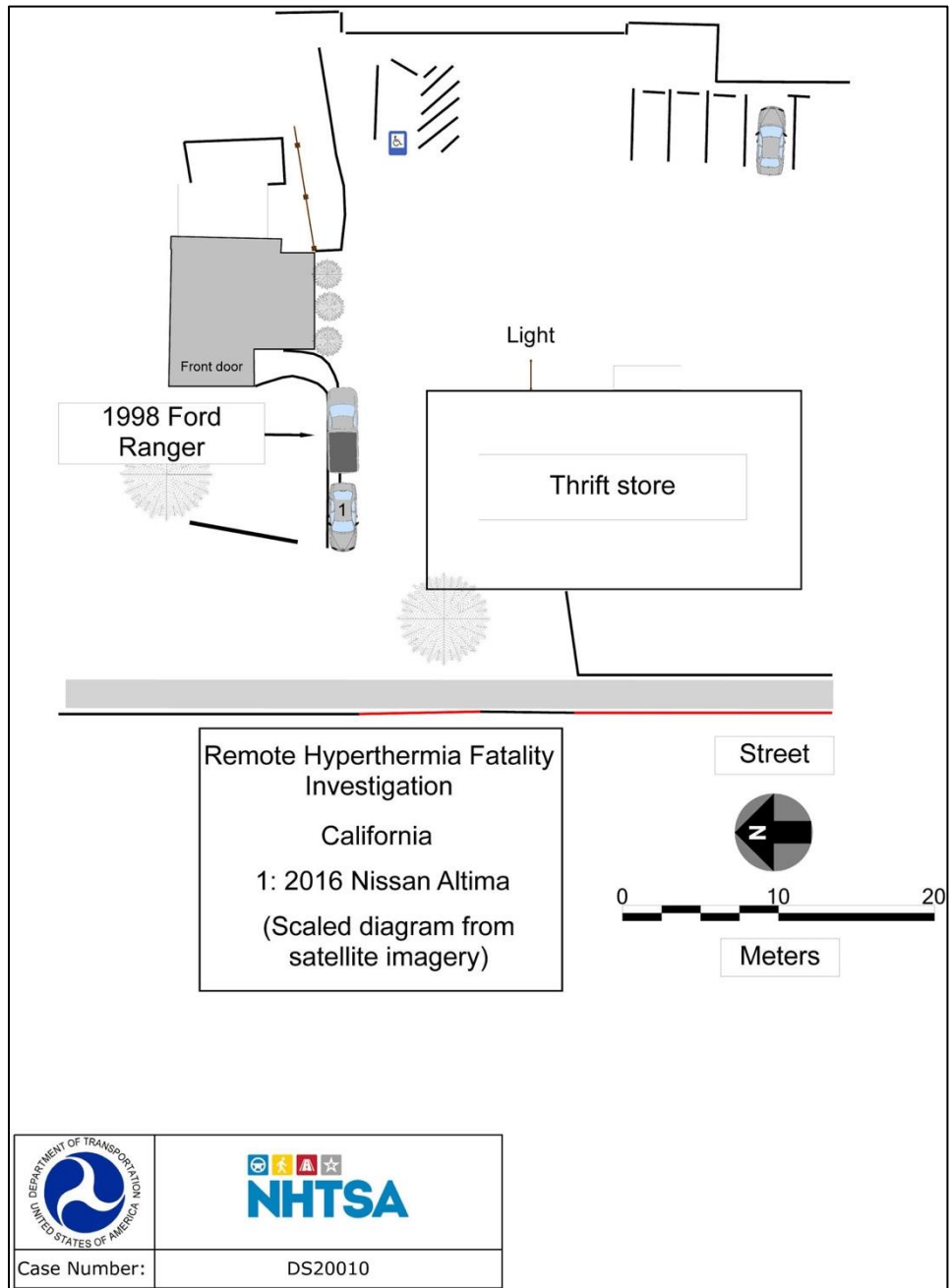
It is not known if the mother was aware of any specific information related to the dangers of leaving children in hot cars or of any safety campaigns related to that topic.

***Non-Motorist (Child) Data***

Age/sex:	2 years old/female
Height:	81 cm (32 in)
Weight:	13 kg (29 lbs)
Seat type:	Split bench with folding back
Restraint usage:	Internal CRS harness used
Transport from scene:	Ambulance
Type of medical treatment:	Transported by ambulance to hospital, declared deceased at 0602 hours

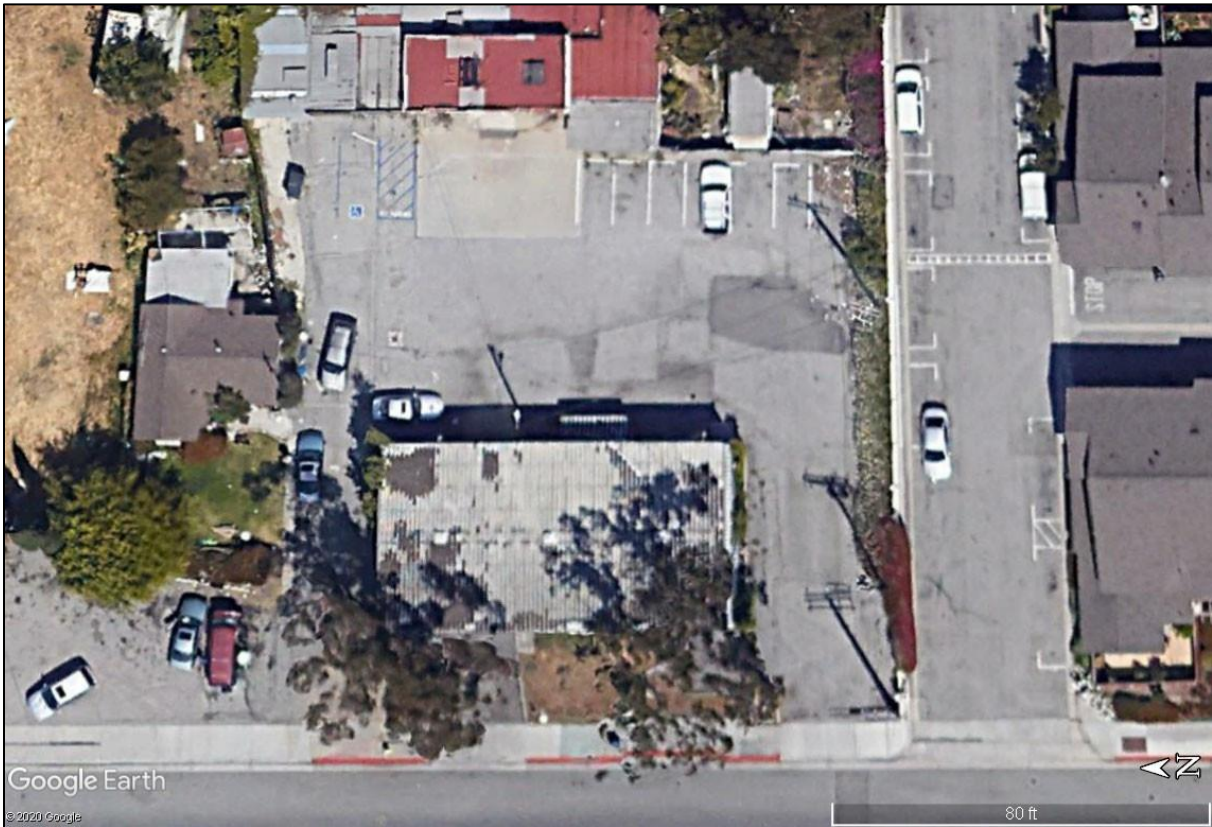
The child was seated in a forward-facing Cosco brand combination CRS positioned in the second row. The CRS was anchored to the vehicle using the upper and lower anchors and had a pink floral print cloth cover. The internal harness was buckled. She was wearing a shirt, pink shorts, and a diaper. She was covered by a blanket that had been placed on her by the mother. According to the medical examiner the cause of death was due to heat stroke. The manner of death was deemed to be undetermined. There was an argument that while there was neglectful behavior involved there was a lack of apparent intent to harm the child.

# Incident Site Diagram



## Incident Site Satellite View

(Google Earth image date: March 14, 2018)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. CR19029**

**Vehicle: 2006 Kia Spectra**

**Location: Georgia**

**Incident Date: September 2019**

## **Background**

The report documents the remote investigation of the circumstances surrounding the hyperthermia-related deaths of 3-year-old female twins found in a 2006 Kia Spectra 4-door sedan parked in the backyard of a single-family residence (Figure 1) in Georgia in September 2019. The children were in the care of their foster mother, who left the children at a neighbor/boyfriend's residence while she napped. The foster parent returned to the neighboring residence during the early afternoon hours and discovered the girls were missing. Following a search of the yard, the children were found deceased in the parked Kia. Both the foster mother and the neighbor/boyfriend have been charged with two counts of murder and child cruelty.



*Figure 1. Street view of the incident location. 2019 image obtained from internet mapping software.*

The incident was identified by NHTSA and assigned to the Special Crash Investigations group for further research on October 9, 2019.

The SCI team contacted the police agency and interviewed the investigating detective. The police interview data, images of an exemplar vehicle and supplemental internet research provided the basis for this remote SCI investigation.

## Summary

### *Incident Site*

This incident occurred in the backyard of a single-family residence in a subdivision of newer homes. The single-story residence was located on a two-way street and was facing in a southeasterly direction. The street was oriented in a northeast/southwest direction. Access to the residence was provided by a concrete driveway that lead to the attached garage. The perimeter of the residential property as with all in the subdivision was bordered by a stockade-type wood fence. Access to the backyard was provided by gates at both sides of the residence. A tented gazebo was located to the right of the residence immediately behind the gate. Both front and back yards of the residence consisted of cut grass. There were no trees of significant size to provide shade to the yard. The Kia was parked in the backyard of the residence with the front plane facing the gated fence, facing in a southeasterly direction. Figures 3 and 4 are of the property where this incident occurred.

### *Weather*

The weather data on the day of this incident was provided by the National Weather Service. The high temperature for this day was 33 °C (92 °F) recorded an hour after the discovery of the children. Sunrise occurred at 0718 hours and sunset was at 0714 hours. The hourly weather data for the duration of this incident is provided in the following table.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Conditions</b>
0953	28 (83)	72	32 (89)	Fair
1053	29 (85)	67	33 (92)	Fair
1153	31 (87)	59	34 (93)	Fair
1253	33 (91)	48	35 (96)	Fair
1353	33 (91)	47	35 (95)	Fair
1453	33 (92)	44	35 (96)	Fair
1553	33 (92)	45	36 (96)	Fair

### *Vehicle Information*

The vehicle was a 2006 Kia Spectra 4-door sedan (Figure 2). The Kia was parked in the fenced backyard of the residential property. The vehicle was reported as operable at the time of this incident with battery power, but parked in the fenced yard for unknown reasons. The exterior color was gray with a matching gray cloth surfaced interior. The glazing was standard with an AS1 windshield and AS2 door and backlight glazing. There was no aftermarket deep tint film applied to the windows. The interior had seating of five with front bucket seats and a three-passenger second-row bench seat. The four outboard positions had head restraints. Figures 3 and 4 are on-scene images of the Kia Spectra.





*Figure 2. Exemplar 2006 Kia Spectra*



*Figure 3. The Kia Spectra. Image obtained from an online news outlet.*



*Figure 4. Right rear door and second-row seat of the Kia Spectra. Image obtained from an online news outlet.*

The exterior door levers were flush-mounted with a recessed pocket for finger access to provide a vertical pull-force to open all four doors. The locking system was power-activated via a remote key fob or the master lock switches on the front door panels. All four interior door panels had manual lock levers. The levers roated on a vertical axis and were mounted directly above the door release levers. Both the lock lever and the door release lever were flush-mounted with a recessed pocket to provide finger access. The lock levers were not highlighted with high visibility (orange) markings. In the locked mode, the lock levers were flush to the door panel. In the unlocked position, the lock levers protruded toward the interior of the occupant compartment. The police detective stated that the doors did not “pop open” when the interior door release levers were pulled to the unlatched position. He further speculated that the children never tried to push on the doors open when pulling on the door release levers. Figure 5 shows the driver’s door panel and the power window switches and door release lever. Figure 6 is a view of the second-row interior and door panel, door levers, and locking levers of an exemplar 2006 Kia Spectra. Both images are of an exemplar vehicle. At the time of this incident, all operable door glazing was closed and the vehicle was unlocked.



*Figure 5. Front row of an exemplar Kia Spectra*



*Figure 6. Second row of an exemplar Kia Spectra and the door lever and locking lever highlighted*

### ***Pre-Incident***

The 3-year-old twins were under the care of their foster mother. These twins and their 6-year-old and 8-year-old siblings were taken from the birth mother and placed in foster care in May 2018. The assigned foster mother/guardian was a 60-year-old female who resided next door to her boyfriend. A child protection agency expressed concern about the foster mother/guardian leaving the children under the supervision and at the home of the boyfriend. The police detective stated that this was because the boyfriend was not approved for supervision by the foster agency. The boyfriend had no criminal or social issues that would have prevented him from caring for children.

On the morning of the incident, the children and their male siblings went to the neighboring boyfriend's residence so the foster mother/guardian could take a nap at her residence. It is unknown if the children and the male siblings were walked over to the neighboring residence by the foster mother, or if they walked over on their own. It is also unknown what instructions, if any, were given to the neighbor/boyfriend in terms of supervising the children. The male siblings returned to the foster mother's residence to play video games. Without supervision, the children continued to play in the backyard of the neighboring residence. The twin children apparently entered the Kia at an estimated time of approximately 1000 hours.

### ***Incident***

The children entered the Kia through unknown doors and apparently closed the doors once inside the vehicle. All operable windows of the Kia were closed. The neighbor/boyfriend apparently remained in his residence knowing the children were playing in his backyard. His activities in the residence were not reported by the police.

At approximately 1330 hours, the foster mother/guardian began to search for the children. Her initial search of the two properties, yards and residences, failed to locate the children. She returned to the backyard of the neighboring residence and found the children unresponsive in the second-row seat area of the Kia.

## ***Post-Incident***

The emergency response system was notified. Police, fire, and EMS responded to the scene. Both children were evaluated and pronounced deceased at the scene. The bodies were transported to the medical examiner's office, where autopsies were performed. The cause of death was heatstroke/hyperthermia.

During the police investigation, the detective observed what appeared to be "claw" marks on the top surface of the rear door panels. He also observed fragments of this material on the clothing and fingernails of the children. The detective concluded that the children were scratching/clawing at the door panel in an attempt to open the unlocked doors. The Kia was removed from the backyard location and towed from the scene to police impound. The detective removed a rear door from the vehicle and secured it as evidence.

On October 14, 2019, the foster mother was charged with two counts of second-degree murder and two counts of cruelty to children. She was arrested and jailed without bond. On December 5, 2019, she was released on bail. The neighbor/boyfriend was arrested and charged with two counts of second-degree murder on December 19, 2019. He was jailed and held without bond. The investigating police detective stated the charges, by State law, stem from the lack of proper supervision involving child neglect and a death.

## ***Caregiver/Guardian Data***

### **Foster Parent:**

The foster parent was a 60-year-old female who resided in a single-family residence and was licensed to operate a daycare facility with capacity of 6 children ranging in ages up to 12 years old. At the time of the incident, it was unknown if she was operating a daycare facility or just fostering the four children. The four children were the twin females and their 6-year-old and 8-year-old male siblings. These four children were in foster care since May 2018. The foster mother was subsequently charged with two counts of second-degree murder, jailed, and later released on bail.

### **Neighbor/Boyfriend of the Foster Mother:**

This person resided in the house adjacent to the foster mother. His age was unknown. A child protection agency expressed concern about foster mother leaving the children under this person's supervision. There was no concern regarding criminal history or intent. He was not approved for supervision by the fostering agency. Several months following this incident, this neighbor was charged with two counts of second-degree murder and was jailed.

## ***Non-Motorist (Child) Data #1***

Age/sex:	3 years old/female
Height:	Unknown
Weight:	Unknown
Seat type:	Second-row bench seat
Restraint use:	None
Transport from scene:	Medical examiner
Type of medical treatment:	None, deceased at scene. Autopsy

***Non-Motorist (Child) Data #2***

Age/sex: 3 years old/female  
Height: Unknown  
Weight: Unknown  
Seat type: Second-row bench seat  
Restraint use: None  
Transport from scene: Medical examiner  
Type of medical treatment: None, deceased at scene. Autopsy

## Incident Site Satellite View

(Google Maps image date: 2020)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. DS19047**

**Vehicle: 2015 Toyota Avalon  
Location: New Mexico  
Incident Date: September 2019**

## **Background**

This report documents the remote investigation of the hyperthermia-related fatality of a 2-year-old female unintentionally left her behind while seated in a CRS in a 2015 Toyota Avalon in New Mexico in September 2019. The caregiver at the time of the incident was a 41-year-old female friend of the child's 28-year-old mother. On the morning of the incident, the friend had agreed to drop off the child at her daycare facility before continuing to the friend's workplace. The friend forgot to drop off the child at daycare and instead drove directly to her workplace before discovering the child in the vehicle approximately 6 hours later. The investigation was intended to determine the events leading to the incident, actions taken by the caregiver, vehicle characteristics and equipment, environmental conditions, and activities of the child. The incident was identified as part of a hyperthermia study by NHTSA and assigned to the SCI team in October 2019. The SCI team obtained the police report and photos, and the autopsy report. The mother and the caregiver did not respond requests for SCI interviews.

The incident occurred in September 2019 in New Mexico. The incident site was the parking lot at the friend's workplace. The mother dropped off the child at the friend's home at approximately 0635 hours on the morning of the incident. Instead of dropping off the child at daycare the friend drove directly to her workplace and exited the vehicle leaving the child behind and unattended while she worked. Approximately 6 hours later, the friend returned to the Toyota and drove a short distance to a bank, at which time she realized the whereabouts of the child. Emergency responders arrived at approximately 1327 hours to find the child unresponsive. Efforts to revive the child were unsuccessful and she was declared deceased on-scene. The high ambient temperature that day was 33.0 °C (91.4 °F). Police measured the vehicle's interior temperature and reported it to be 32.7 °C (91.0 °F).

## Summary

### *Incident Site*

The primary site of the incident was the parking lot of a municipal office building in an urban area of New Mexico. The friend's employer was located in the office building where she worked a daytime shift. The day of the incident was on a Tuesday and she intended to work her normal schedule. The complex consisted of two, two-story office buildings connected by a skyway. The property occupied an entire city block with the buildings occupying primarily the northwest, southwest and southeast quadrants, and a parking lot occupy primarily the northeast quadrant. The buildings had brick facades, flat roofs, and a few windows, particularly on the second floor. It appeared that viewing the parking lot from inside the buildings would be possible from some interior spaces but unlikely for most. The friend's office was located on the first floor.

The parking lot was on level ground and paved with concrete. Satellite images showed the lot to be unshaded for parts of the day (Figure 1). Most parking spaces were in uncovered areas and the evidence obtained from the police report, photos, and autopsy report indicated the Toyota was parked in an unshaded area of the parking lot. A few mature but smallish trees were planted on parking islands. The parking layout had five rows of spaces parallel to one another and situated north to south. The friend's exact parking location in the parking lot was unknown but her statements suggested it was close to the building entrance near the center of the block. The estimated distance from the geographic center of the office complex to the geographic center of the parking lot was 50 m (164 ft).



*Figure 1. Incident site, looking west (Google Maps image)*

The incident occurred on a Tuesday. The buildings and parking lot were used by employees as well as visitors during business hours. Given the weekday occurrence, municipal building location, the friend's attempt to open the second downtown urban location and daytime hours, it appeared likely that several other vehicles and passersby were located near the friend's vehicle throughout the duration of the incident. At one point during the incident, an unidentified row right door of the Toyota, possibly thinking it was her vehicle. The Toyota was locked and she walked away from the vehicle when she was unable to gain entry. Apparently, she did not observe the child inside. An incident site diagram and incident site satellite view are included at the end of this report.

## **Weather**

On the day of the incident, the low ambient temperature was 17.8 °C (64 °F) and the high ambient temperature was 32.8 °C (91 °F). Maximum wind speed was 27 km/h (17 mph), conditions were fair and visibility was clear. At 1200 hours, the solar azimuth angle was 155° and the solar elevation angle was 57°. Temperatures and conditions during the incident are documented in the table below.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Condition</b>
0750	21 (70)	64	21 (70)	Fair
0850	25 (77)	50	25 (77)	Fair
0950	27 (81)	45	27 (81)	Fair
1050	29 (84)	37	28 (83)	Fair
1150	30 (86)	33	29 (84)	Fair
1250	31 (88)	31	30 (86)	Fair
1350	32 (90)	29	31 (88)	Fair

## **Vehicle Information**

The 2015 Toyota Avalon XLE was identified by police using the VIN 4T1BK1EB6FUxxxxxx (Figure 2). The friend owned the vehicle. The Toyota was a 4-door sedan with two rows of seats for five occupants. The vehicle had front-wheel drive and a 3.5-liter, 6-cylinder, gas engine. Standard equipment included daytime running lights, air conditioning, power steering, tilt steering and power brakes. Optional equipment included a power moon roof and satellite radio. The exterior color was “Silver Pearl Metallic” (silver) and the interior color was light gray with leather seat trim (gray).



*Figure 2. 2015 Toyota Avalon (police photo)*

The security system consisted of an engine immobilizer and alarm. The vehicle had exterior pull-out style handles, a wireless remote key and a cylinder style lock for the driver’s door. The vehicle was locked during the incident. It was unknown if the vehicle had telematics or Bluetooth technology, or with unattended-child detection, monitoring, or warning systems. The child was a toddler and not in possession of a physical or proximity key system.

The Toyota had electric power door locks and electric power window regulators. The Toyota’s second-row doors had child proof door locks that were in the unlocked position. The vehicle had



a window lock switch that was in an unknown position. The windows were closed during the incident.

It was unknown if the friend had a plan in place to prevent such incidents from occurring. It was unknown if she normally connected a smartphone to the vehicle via Bluetooth or cable but she possessed a cell phone inside the vehicle during the incident. It was unknown if the friend had ever been informed about the dangers of leaving a child in a hot car. It was unknown if she was aware of campaigns focusing on the issues of heatstroke.

### ***Pre-Incident***

Between 0630 and 0640 hours on the day of the incident, the mother of the child dropped her off at the home of the 41-year-old female friend.

The friend had a full-time day job in addition to caring for the child part-time. One of her tasks as caregiver was to drop the child off at her daycare on weekdays. The friend placed the child in a forward-facing Graco Nautilus 65 3-in-1 CRS in the second-row left position (Figure 3). The CRS was installed using the vehicle's lap and shoulder belt routed through the forward-facing channels. The friend buckled the retaining clip restraining the child with the internal 5-point harness and placed a gray and white diaper bag containing item for the child on the floor in front of the second-row left seat position, where the CRS was installed. The friend later told police that the child was awake at the beginning of the trip and that she was a quiet child.



*Figure 3. Graco Nautilus 65 CRS, second row, 2015 Toyota Avalon (police photo)*

The friend and child departed the friend's residence at approximately 0725 hours. The friend was supposed to drop off the child at daycare then proceed to her workplace. Given the trip distance and estimated travel time, it appeared the friend began the trip with sufficient time to make the intended stop at the day care facility and arrive at her workplace prior to her 0800 shift. The friend's workplace was less than 5 km (3 mi) south of her residence. The child's daycare was approximately 1 km (0.5 mi) further south. The entire trip including the intermediate stop at the daycare was approximately 5.6 km (3.5 mi) with an estimated drive time of 15 to 20 minutes. Instead of traveling to the daycare facility, the friend drove directly to her workplace without any intermediate stops. She did not pass the daycare facility during the trip because it was further south than the workplace. Surveillance video at the friend's workplace indicated her arrival time at the parking lot was 0740 hours.

The video showed the friend parking and exiting the vehicle at 0741 hours. While walking from the vehicle to the office building entrance, she appeared to look back and lock the vehicle using a wireless remote fob.

### ***Incident***

Six minutes after locking the Toyota, at 0747 hours, the friend returned to the vehicle, opened the trunk, removed a box, closed the trunk, and returned to the office building. The video showed that at 1028 hours an unidentified woman attempted to open the right rear door, which was locked. Police determined the woman likely confused the child's vehicle with her own. At 2-years-old, the child was not likely capable of unbuckling a CRS harness. It was unknown if she had the capability to open/close doors, manipulate locks/handles, or enter/exit the vehicle without assistance.

The friend worked through lunch due to short staffing in her office. It was unknown if that scenario was typical but it did suggest a possible change in the friend's daily routine. Then at 1316-1318 hours, surveillance video showed the friend left the office building, entered the Toyota, and departed the parking lot. Her intention was to travel a short distance to a bank to make a deposit. The friend drove approximately 2.7 km (1.7 mi) to the bank and stopped in a drive-through banking lane. While conducting the bank transaction, the friend looked into the second row of the vehicle and observed the child in the CRS. She immediately left the bank and drove 300 m (1000 ft) or less to a parking lot on the property adjacent to the bank where she stopped the vehicle.

### ***Post-Incident***

Using her cell phone the friend placed a 911 call at approximately 1320 hours and removed the child from her CRS to the second-row right position. The child's skin had a color and appearance that police described as being pink-purple, specifically on her face, hands, and legs. It appeared from police photos that rigor mortis was present. The child's posture appeared to be in somewhat of a sitting or supine position. Per the dispatcher's instructions the friend attempted CPR on the child but had difficulty because the child's mouth would not open. She then attempted chest compressions. Police arrive on-scene at 1327 and took over life-saving efforts and then fire/EMS arrived and did likewise. They soon ceased life-saving measures due to the deceased state of the child.

Police then treated the incident as a potential crime scene. The friend was taken into police custody and booked on a criminal charge of abandonment or abuse of a child that resulted in death. The child was pronounced deceased at 1610 hours, approximately 2.5 hours after life-saving efforts ceased, and taken to the medical examiner's office. Her body temperature on-scene was 42.8 °C (109 °F).

Following the incident, the CRS was still installed in the second-row left position. A police officer noted in the report that, when seated in the driver's seat and looking into the rear-view

mirror, on the top aspect of the CRS was visible. The fire department had used an infrared thermometer to measure air temperature as follows.

- Outside ambient temperature was 32.2 °C (90 °F).
- Interior vehicle second-row left position (location of child, unshaded) was 68.9 °C (156 °F).
- Interior vehicle front-row left position (location of friend, shaded) was 33.9 °C (93 °F).

The child's mother was unaware of her whereabouts but thought she was at daycare. The daycare facility apparently did not contact the mother regarding the child's absence that day. When police informed her of the incident she expressed an inability to understand why the friend had failed to go to the daycare facility after she had done so in the past.

### ***Caregiver/Guardian Data***

The caregiver was the 41-year-old female owner of the Toyota and a friend of the child's mother. On the morning of the incident, the friend had agreed with the child's mother to drop off the child at daycare before continuing to her workplace. That morning, the mother had to be at work at 0700 hours and the friend had to be at work at 0800 hours. The mother had historically dropped off the child at the friend's residence on her way to work and the friend had historically dropped off the child at daycare on her way to work. The agreement appeared to be based on the women's friendship, the mother's need to be at work earlier than the friend and the child's daycare facility location close to the friend's workplace.

The day of the incident appeared to be typical in the following ways.

- The mother had a history of dropping off the child at the friend's residence.
- The friend had a history of dropping off the child at daycare.
- The arrangement to drop the child at daycare applied to weekdays and the incident occurred on a Tuesday.
- The friend was the owner of the Toyota and apparently familiar with its functionality.
- The friend had used the Graco CRS before and was apparently familiar with its functionality.
- The friend was familiar with the routes to the daycare facility and her workplace. She had been employed at the same location for three years.
- The friend was expected to care for the child until she was received by the daycare facility.
- The day prior to the incident, the friend did drop off the child at daycare on her way to work without incident.

The day of the incident appeared to be atypical or circumstances may have adversely affected the actions of the friend in the following ways.

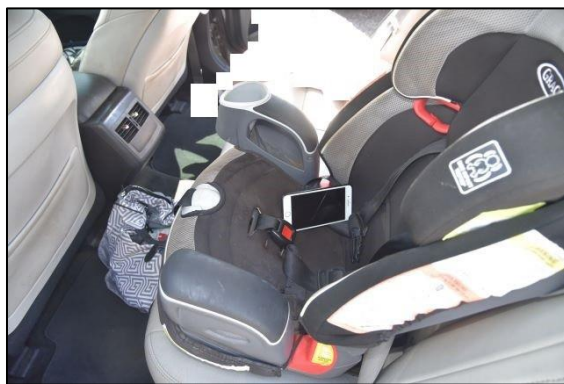
- The mother arrived at the friend's residence with the child while the friend was still getting ready for work; specifically, she was taking a shower.
- The friend had twin boys whose needs may have distracted her attention from the needs of the child. She shared custody of the boys with her ex-husband and she often dropped them off at school or daycare on her way to work in the morning. On the day of the incident, the ex-husband had the boys, so she did not drop them off; however, it was her turn to pick them up that afternoon.

The caregiver and child's mother had been friends for an unknown duration. They also had a family tie in the sense that the ex-husband of the friend was also the ex-husband of the child's grandmother.

### ***Non-Motorist (Child) Data***

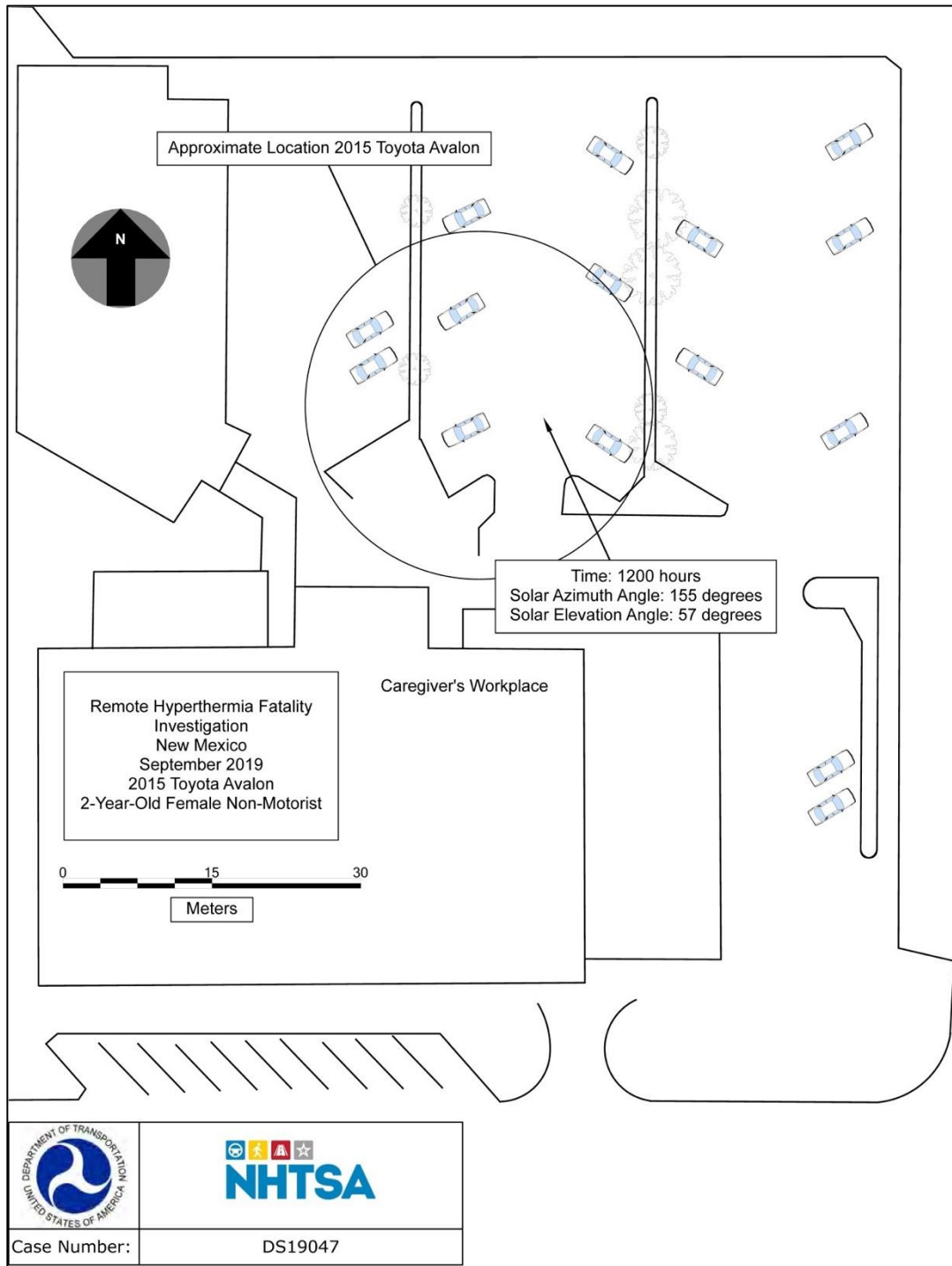
Age/sex:	2 years old/female
Height:	90 cm (35 in)
Weight:	14 kg (31 lb)
Clothing:	Diaper, light green shorts, black top, pink knit sweater, short white socks, black sneakers
Seat type:	Bench
Seat position:	Second-row left
Restraint usage:	CRS with lap and shoulder belt
Transport from scene:	Taken to coroner's officer
Type of medical treatment:	CPR attempted on-scene

The child was seated in a forward-facing Graco Nautilus 65 3-in-1 CRS in the second-row left position (Figure 4). The child was restrained by the internal 5-point harness and the CRS was installed using the vehicle's lap and shoulder belt. She was fully clothed in a diaper, shorts, top, knit sweater, socks, and shoes. She was not covered by a blanket, coat, or other object, and no stuffed toys, dangling items, or other objects were present to restrict visibility to motion sensors. The child's autopsy report stated the cause of death was environmental heat exposure and the manner of death was "accident."



*Figure 4. Graco Nautilus 65 CRS, second row, 2015 Toyota Avalon (police photo)*

# Incident Site Diagram



## Incident Site Satellite View

(Google Maps image date: July 2013)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. DS19045**

**Vehicle: 2018 Chevrolet Colorado**

**Location: Texas**

**Incident Date: September 2019**

## **Background**

This report documents the remote investigation of the hyperthermia death of a 3-year-old male who was left unattended in a parked 2018 Chevrolet Colorado pickup (Figure 1) for approximately 4 hours during daylight hours in Texas in September 2019. The investigation was intended to determine the events leading up to the incident, the actions of the caregiver/guardian, the vehicle characteristics and equipment, the environment/scene conditions and layout, and the activities of the child. The incident was identified as part of a Hyperthermia Study by NHTSA and assigned to the SCI team in October 2019. The initial offense report, on-site images, and autopsy report were obtained.



*Figure 1. 2018 Chevrolet Colorado. Image obtained from local law enforcement.*

This incident occurred in the driveway of a private residence during mid-afternoon when the family was returning home from a tee-ball game. The Chevrolet was driven by the 35-year-old father. The front-right seat was occupied by the 31-year-old mother. The second-row left seat was occupied by the 6-year-old brother in Graco Turbo Booster backless booster CRS. The second-row right seat was occupied by the 3-year-old male in a Cosco Highback 2-in-1 forward-facing CRS. The family arrived at the residence at approximately 1300 hours. The temperature at 1251 hours was 32 °C (90 °F). The child's mother exited the vehicle to go to the bathroom and then took a nap. The child's father exited the vehicle, assisted the 6-year-old from the CRS, and began unloading the 6-year-old's baseball gear. The mother thought the father had removed the child from the vehicle and the father thought the mother had removed the child from the vehicle. At approximately 1620 hours, the mother woke up, saw the 6-year-old playing by himself, and asked about the 3-year-old. The 6-year-old told her that the 3-year-old was asleep in the vehicle. The temperature at 1651 hours was 33 °C (92°F). The parents ran outside, found the 3-year-old in the CRS not moving, and brought him inside. They began CPR efforts and contacted emergency services. The child was declared deceased at the scene by first responders.

## Summary

### ***Incident Site***

This incident occurred at a private residence in an urban area during daylight summer hours. The two-story residence was located in a cul-de-sac. It was north facing with an attached garage and a concrete driveway to the north (Figure 2). The garage door was open. The entrance to the residence was located on the west side of the structure. There were several trees in the front yard to the west of the driveway and another residence to the east. The Chevrolet was parked in the driveway at an angle facing south. A second vehicle was located next to the Chevrolet to the east. An incident site diagram is included at the end of this report.



*Figure 2. South view of residence incident site. Image obtained from local law enforcement.*

### ***Weather Data***

On the day of the incident, the low temperature was 20 °C (68°F) and the high temperature was 33 °C (93°F). At 1300 hours the sun's azimuth was 196° and the elevation was 60°. At 1630 hours the sun's azimuth was 255° and the elevation was 25°. The temperatures, humidity, calculated heat index and conditions for the duration of this incident are provided in the following table:

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Condition</b>
1251	32 (90)	48	34 (94)	Mostly cloudy
1351	33 (92)	47	36 (97)	Partly cloudy
1451	34 (93)	44	36 (97)	Partly cloudy
1551	34 (93)	45	37 (98)	Fair
1651	33 (92)	45	36 (97)	Fair

### ***Vehicle Information***

The vehicle was a 2018 Chevrolet Colorado 4-door crew cab pickup. The vehicle was identified by the VIN 1GCPTEE1XJ1xxxxxx. It had a 2.8-liter, 4-cylinder, diesel engine linked to a 6-speed automatic transmission, 4-wheel drive, 4-doors, and a short pickup box. The exterior color was Kinetic Blue Metallic and the interior trim was Jet Black. The vehicle had leather-covered front bucket seats and a second-row bench seats with a folding back. The vehicle had rear door safety locks that are actuated via the control on the driver's door and prevent passengers from



opening the rear doors from inside the vehicle. It is unknown if the locks were activated. The vehicle had electric window regulators and the windows were all closed according to the police. The vehicle's doors were unlocked. The vehicle was not equipped with unattended-child-detection systems.

### ***Pre-Incident***

This incident occurred in the driveway of a private resident during mid-afternoon on a Saturday. On the day of the incident the family departed the residence at approximately 0900 hours to attend the 6-year-old's tee-ball game. The game finished at approximately 1000 hours and they walked and played around at a nearby park. During the trip home both children were in their respective CRSs and the 3-year-old had fallen asleep.

### ***Incident***

The family arrived at the residence at approximately 1300 hours. The temperature at 1251 hours was 32 °C (90°F). The vehicle was parked facing south in the driveway. The child's mother exited the vehicle to go to the bathroom. After leaving the bathroom she laid down on a couch and fell asleep. The child's father exited the vehicle, assisted the 6-year-old from the CRS, and began unloading the 6-year-old's baseball gear. The garage door was open. The mother thought the father had removed the child from the vehicle and the father thought the mother had removed the child from the vehicle. The child was unintentionally left behind. It was unknown if the child could remove the harness on his own or if he could access the vehicle handles and locks. At approximately 1620 hours, the mother woke up saw the 6-year-old playing by himself and asked about the 3-year-old. The 6-year-old told her that the 3-year-old was asleep in vehicle. The temperature at 1651 hours was 33 °C (92°F). The parents ran outside, found the 3-year-old child in the CRS not moving, and brought him inside. They began CPR efforts and contacted emergency services.

### ***Post-Incident***

After finding the child in the CRS and not moving they brought him inside. The fire department was the first responding agency. The child was declared deceased by the fire department at 1638 hours. Both parents were taken from the scene to police headquarters to be questioned. Child protective services (CPS) were contacted and informed of the incident.

Efforts to obtain any available CPS data were not successful. The autopsy report indicated that the child sustained abrasions to his scalp and both arms. The report stated that the child died of hyperthermia. There was no evidence of acute toxic ingestion or significant natural disease or trauma that would have caused or contributed to death. According to the homicide investigator assigned to the case, no charges were filed. The case was ruled to be an accident.

### ***Caregiver/Guardian Data***

The caregivers were the parents of the child. The Chevrolet was driven by the 35-year-old father. The front right seat was occupied by the 31-year-old mother. The second-row left seat was occupied by the 6-year-old brother in a CRS booster seat. The second-row right seat was occupied by the 3-year-old male child in a forward-facing CRS. The purpose the trip was to take the 6-year-old to and from his tee-ball game. This trip took place on a weekend and would have to be considered atypical from their weekday routine. The mother thought the father had

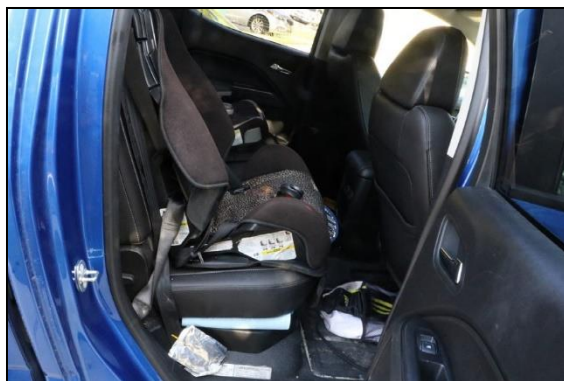
removed the child from the vehicle and the father thought the mother had removed the child from the vehicle. The child was unintentionally left behind. The 6-year-old was aware that his younger brother was asleep in the vehicle. The mother had fallen asleep after arriving at the residence. The father and 6-year-old unloaded the child's baseball gear and later the father went upstairs to assist the child in some unknown activity. The parents were in the kitchen area when they talked to the 6-year-old and realized the 3-year-old motorist had been left behind in the vehicle. It is not known if the driver was aware of any specific information related to the dangers of leaving children in hot cars or of any government safety campaigns related to that topic.

### ***Non-Motorist (Child) Data***

Age/sex:	3 years/male
Height:	101 cm (40 in)
Weight:	13 kg (29 lbs)
Seat type:	Second row, bench seat with folding back
Restraint usage:	Lap and shoulder seat belt available, used to anchor forward-facing CRS
Transport from scene:	NA
Type of medical treatment:	Resuscitation efforts by parents and EMS, pronounced deceased at 1638 hours

The child was wearing gray socks, gray shorts, a dark gray baseball uniform shirt, and black tennis shoes. He had been placed in the vehicle by the mother. It is not known if the child was covered or if there were any sight- related restrictions. The child was seated in a forward-facing Cosco Highback 2-in-1 CRS (Figure 3). The CRS was designed to be used as follows:

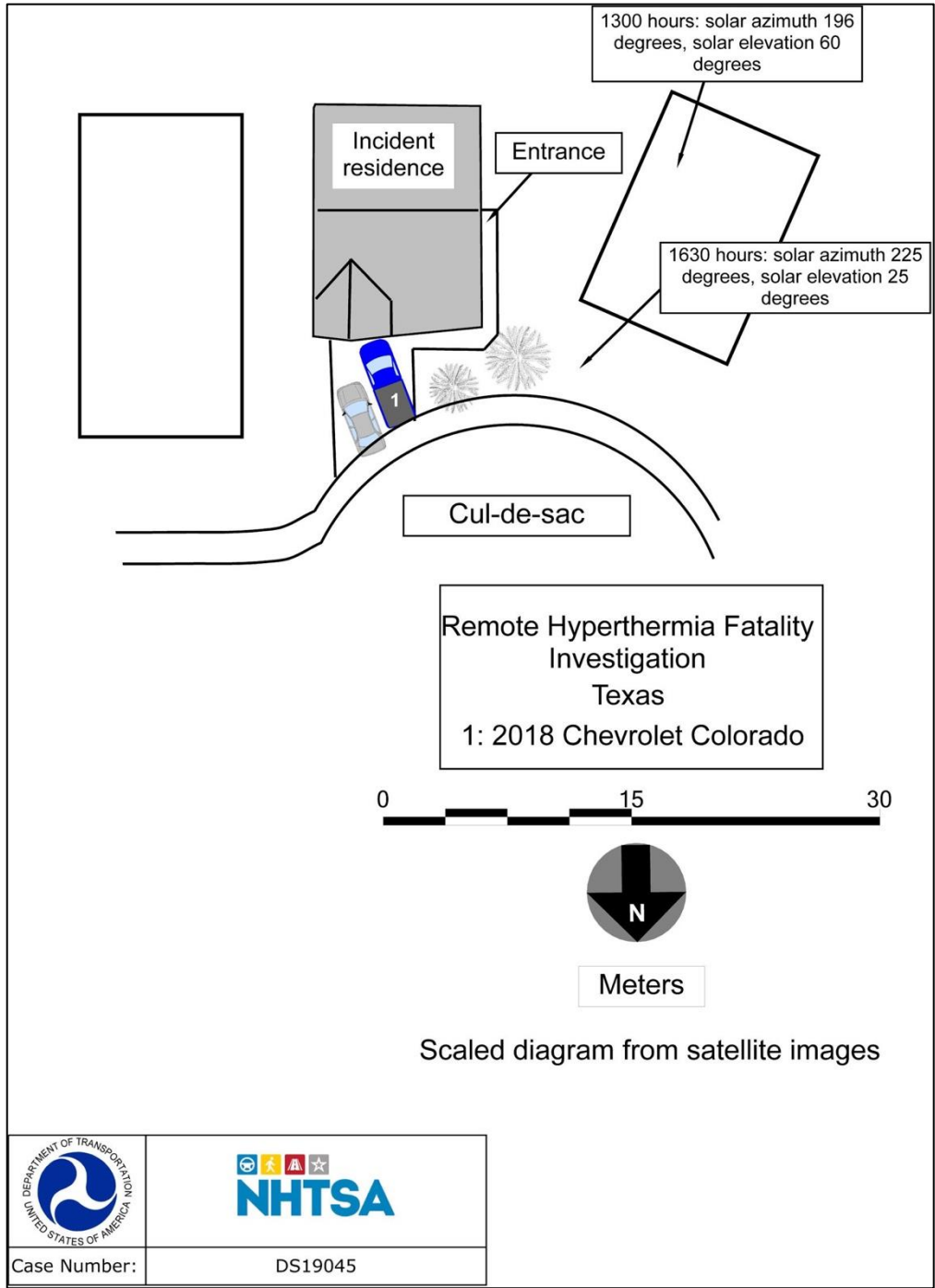
- Forward-facing 5-point internal harness seat designed for a child at least 2-years-old weighing 10.1-18 kg (22-40 lbs) and 85.1-110 cm (34.43 in) tall.
- Belt-positioning booster seat designed for a child weighing 18.1-36.3 kg (40-80 lbs) and 110.1-132.1 cm (43-52 in) tall.



*Figure 3. Cosco Highback 2-in-1 CRS (police photo)*

The CRS was anchored to the vehicle using the lap and shoulder belt. The child met the height and weight requirements for the forward facing option.

# Incident Site Diagram

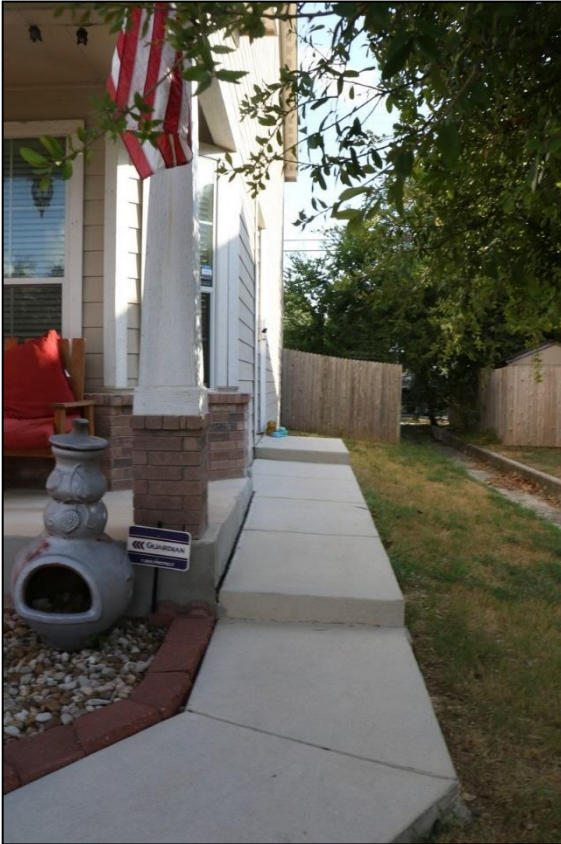


**Incident Site Satellite View**

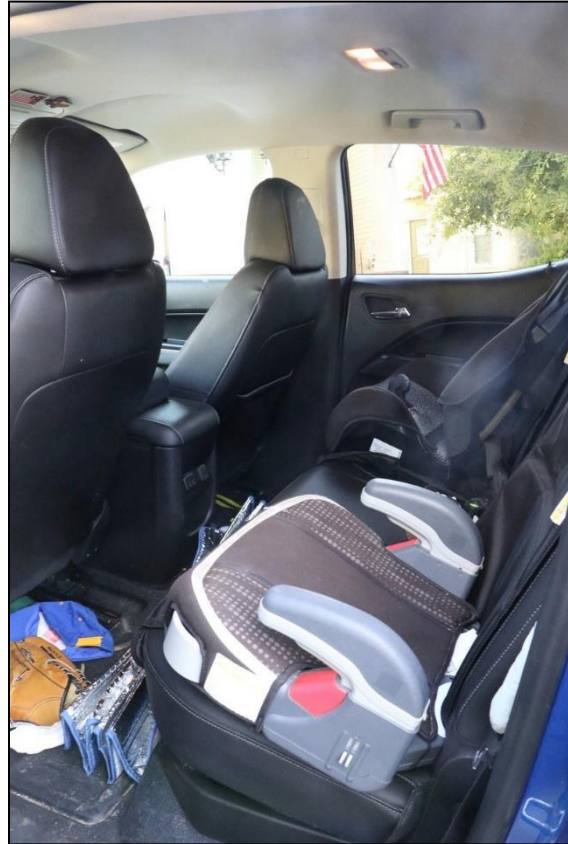
(Google Maps image date: December 8, 2018)



## Addendum



*Figure A-1. Path to resident entrance, looking south (police photo)*



*Figure A-2. Second row, crossing view from left, 2018 Chevrolet Colorado (police photo)*

**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. CR19030**

**Vehicle: Unknown Year/Make/Model**

**Location: Alabama**

**Incident Date: October 2019**

## **Background**

The report documents the remote investigation of the circumstances surrounding the hyperthermia-related fatality of a 13-month-old male child knowingly left unattended in a vehicle for an extended period by his 36-year-old mother in Alabama in October 2019. She placed the child in a forward-facing CRS and buckled the child with the integral harness system; however, the CRS was not secured to the vehicle by the seat belt system. The mother departed her residence between 2100 to 2200 hours and returned with the child at 0540 hours. She parked the vehicle, went inside, and fell asleep, leaving the child in the vehicle. Based on the available information for this case, it's believed the mother knowingly left the child in the vehicle. The child's grandmother arrived at the residence at 1330 hours and with the mother, found the child unresponsive and still strapped in the CRS in the vehicle. They removed the child and put him in the shower before calling the emergency response system. Prior to police arrival, the mother and grandmother began to drive the child to a local hospital. They met police, fire, and emergency medical personnel at an intersection, where the child was transferred to an ambulance and transported to a local hospital where he was pronounced deceased. Following the police investigation, the mother was charged with murder, arrested, and jailed. A grand jury upgraded the charge of murder to capital murder. The mother is currently in jail and the case has not been adjudicated.

The incident was identified by NHTSA and assigned to the Special Crash Investigations group for further research in October 2019. The SCI team initially contacted the police agency; however, due to the seriousness of the criminal charges, the district attorney intervened and prohibited release of information on this case. A second follow-up with the police agency occurred in December 2020. Again, the criminal aspects of this case have not been resolved; therefore, no data can be released. Supplemental internet research provided the basis for this remote SCI investigation. The mother has been jailed since her arrest and bail was denied.

## Summary

### *Incident Site*

The specific locations of the mother, vehicle, and child from 2200 to 0540 hours are unknown. She said she was driving through various parts of two counties in search of salvageable goods from garbage dumpsters.

The mother returned to her residence at 0540 hours and parked the vehicle, leaving the child restrained in his CRS in the second-row seat. The location of her residence was in a rural agricultural area. The address had numerous out buildings on the property. The specific location of her residence on the property is unknown as was the location and orientation of the vehicle. Based on satellite imagery of the address, there were no trees or structure to provide shade to the vehicle. Figure 1 is a satellite view of the address and the buildings on the property.



*Figure 1. Satellite view of the property and the outbuildings of the address for the guardian/mother. 2020 image obtained from internet mapping software.*

### *Weather*

The weather data for the duration of this incident was provided by the National Weather Service. This incident was initiated during the evening hours and continued through the night until the early afternoon hours of the following day. On the evening of this incident, sunset was recorded at 1829 hours. The following morning, sunrise occurred at 0645 hours and set that day at 1827 hours. This incident ended with the discovery of the child at approximately 1330 hours. The daytime high temperature was recorded at 36 °C (96 °F) at 1453 hours, over one hour after the discovery of the child. The weather data for the full duration of this event is detailed in the following table.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Conditions</b>
2053	26 (78)	40	25 (77)	Fair
2153	24 (76)	42	24 (75)	Fair
2253	23 (74)	45	23 (73)	Fair
2353	22 (72)	46	22 (71)	Fair
0053	21 (70)	50	21 (69)	Fair
0153	20 (68)	51	19 (67)	Fair
0253	19 (67)	51	19 (66)	Fair
0353	19 (66)	51	18 (65)	Fair
0453	18 (64)	51	17 (62)	Fair

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Conditions</b>
0553	18 (64)	51	17 (62)	Fair
0653	18 (64)	51	17 (62)	Fair
0753	20 (68)	52	19 (67)	Fair
0853	23 (74)	53	23 (74)	Fair
0953	27 (81)	58	28 (83)	Fair
1053	30 (86)	60	33 (91)	Fair
1153	32 (89)	62	37 (98)	Fair
1253	34 (93)	62	43 (109)	Fair
1353	35 (95)	62	46 (115)	Fair
1453	36 (96)	60	47 (116)	Fair

### ***Vehicle Information***

The vehicle was an unknown year/make/model passenger car.

### ***Pre-Incident***

The mother of the 13-month-old male placed the child in a forward-facing CRS and restrained him with the integrated 5-point harness system. It was reported that the CRS was not secured to the vehicle by the manual seat belt system or LATCH as so equipped. The mother departed her residence with the child in the evening between 2100 to 2200 hours. She said her intent was to drive around a two-county area in search of salvageable items discarded in garbage dumpsters.

### ***Incident***

The mother returned to her residence at 0540 hours the following morning. She parked the vehicle with the doors and windows closed, went into her residence, and fell asleep. Based on the available information, the mother knowingly left the child in the vehicle.

At 1330 hours, the grandmother of the child arrived at the residence of the mother to check on the status of the child. She said she pounded on the door of the residence to wake the mother of the child. The mother awoke and opened the door. The grandmother could not find the child and went outside to check the vehicle. She found the child unresponsive, and restrained in the CRS in the second row of the vehicle. The mother unbuckled the integral harness system and carried the child into the residence. The mother placed the child in a cold shower in an attempt to cool him down. At the time the grandmother discovered the child, the outside ambient air temperature was approximately 34°C (94°F) with a calculated heat index of 44°C (112°F).

### ***Post-Incident***

The grandmother called the emergency response system to request assistance for the child and to report a meeting destination. The mother and grandmother placed the child in a vehicle and drove to a predetermined location toward the local hospital where they were met by police, fire, and medical personnel. The distance from the residence to the intersection of this predetermined location was 13 km (8 miles) with an average drive time of 12 minutes. At this location, emergency medical personnel transferred the child to the ambulance and transported him to the emergency room of a local hospital. The distance from the intersection to the hospital was 3 km (2 miles), with an average 6-minute drive time. On arrival, medical personnel evaluated the child



and determined he was deceased. The cause of death was determined to be heatstroke (hyperthermia).

Following the police investigation, the mother was charged with murder and was jailed without bail. A grand jury reviewed the evidence for this case and the charge of reckless murder was upgraded to capital murder. The mother remains in jail awaiting trial.

***Caregiver/Guardian Data***

The caregiver/guardian for the child was the 36-year-old mother. She apparently lived on her own with the child in a rental property in a rural area.

***Non-Motorist (Child) Data***

Age/sex:	13 months old/male
Height:	Unknown
Weight:	Unknown
Seat type:	Second-row bench seat
Restraint use:	Restrained in a forward-facing CRS. The CRS was not restrained to the vehicle
Transport from scene:	Private vehicle to a meeting point for an ambulance. Ambulance to the ER of a local hospital where he was pronounced deceased.
Type of medical treatment:	None

## Incident Site

(Google Maps image date: 2019)



## Incident Site Satellite View

(Google Maps image date: 2020)



*Figure 2. 2020 satellite view of the address and outbuildings for the mother and child*

**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. DS19048**

**Vehicle: 2018 Ford Transit 350 XL Passenger Van**

**Location: Arizona**

**Incident Date: October 2019**

## **Background**

This report documents the remote investigation of the hyperthermia-related fatality of a 4-month-old female child unintentionally left behind while seated in a CRS in a 2018 Ford Transit 350 XL passenger van (Figure 1) at her caregiver’s workplace in Arizona in October 2019. The caregiver at the time of the incident was a 56-year-old male who, according to a State department of child safety statement released in June 2020, was an “unlicensed kinship placement.”<sup>13</sup> He intended to drop her off at her daycare on his way to work and instead drove directly to his workplace leaving the child unattended in the vehicle for more than 5 hours. The investigation was intended to determine the events leading to the incident, actions taken by the caregiver, vehicle characteristics and equipment, environmental conditions, and activities of the child. The incident was identified as part of a hyperthermia study by NHTSA and assigned to the SCI team in October 2019. The SCI team obtained the police report, police photos, and autopsy report.



*Figure 1. 2018 Ford Transit 350. Image obtained from local law enforcement.*

The incident occurred in October 2019 in an urban area of Arizona. The incident site was the asphalt parking lot of a public-school district’s service center and school bus terminal. The caregiver was reportedly the foster father or “unlicensed kinship placement” to 14 children as well as the reportedly adoptive parent to 18 children. At approximately 0615 hours on the day of the incident, the caregiver departed his residence with an unspecified number of children in the Ford. He dropped them off at daycare and preschool and arrived at his workplace at 0645 hours. Later that morning, he departed his workplace in the Ford, picked up the 4-month-old child from daycare and took her to an appointment at a residence. Following the appointment, he returned to his workplace, intending to drop off the child at her daycare on the way. Instead, he forgot she

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<sup>13</sup> The caregiver was initially reported to be the child’s foster parent, but it was later determined his foster license had expired in 2010.

was in the vehicle, drove directly to his workplace, and left her unattended and restrained in a CRS in the vehicle. More than 5 hours later, at approximately 1530 hours, he returned to the vehicle and discovered the child in an unresponsive condition, exhibiting no signs of life. A co-worker called 911, emergency responders arrived and the child was pronounced deceased on-scene. The high temperature that day was 33.9 °C (93.0 °F).

## Summary

### *Incident Site*

The incident site was the asphalt parking lot of a public school district’s service center and school bus terminal. The caregiver worked a daytime shift in an office building. The complex consisted of a single-story main building with a flat roof measuring 75 x 85 m (246 x 290 ft), a smaller single-story building with a flat roof measuring 20 x 26 m (66 x 85 ft), and a parking lot configured with parking spaces for employees and school buses. The property occupied an area measuring approximately 190 m (623 ft) square. The caregiver’s office was located in the larger of the two buildings.

The parking lot was on level ground. The area where the Ford was parked consisted of 10 parking spaces, configured side by side with white striping at a 45-degree angle diagonal to the driving lanes. The parking space closest to the building began 2 m (6 ft) south of the south wall and the column of spaces extended south from there. The Ford was parked in the sixth space south of the building’s south wall (Figures 2 and 3). Five of the 10 spaces were occupied when police arrived following the incident and three vehicles were parked between the Ford the south wall and 20 m (66 ft) from the nearest building entrance. A white van was parked in the space to the right of the Ford. None of the parking spaces were covered; the autopsy report indicated the Ford was parked “outdoors in full sun” and satellite images showed the parking lot to be unshaded for parts of the day.



*Figure 2. Incident site looking north, 2018 Ford Transit 350 XL. Image obtained from online news outlet.*



*Figure 3. 2018 Ford Transit 350 XL passenger van, looking south. Image obtained from online news outlet.*

The incident occurred on a Tuesday and school was in session. Given the weekday occurrence, the nature of the business, the urban location, and daytime hours, it appeared likely that several other vehicles and passersby were likely close to the Ford throughout the duration of the incident. An incident site diagram and incident site satellite view are included at the end of this report.

## **Weather**

On the day of the incident, the low ambient temperature was 18.8 °C (66 °F) and the high ambient temperature was 32.8 °C (91 °F). Maximum wind speed was 19 km/h (12 mph), conditions were fair and visibility was clear. At 1545 hours, the solar azimuth angle was 231° and the solar elevation angle was 39°. Temperatures and conditions during the incident are documented in the table below.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Condition</b>
0951	24 (76)	19	23 (74)	Fair
1051	27 (80)	16	26 (78)	Fair
1151	29 (84)	13	27 (81)	Fair
1251	31 (88)	12	29 (84)	Fair
1351	31 (88)	12	29 (84)	Fair
1451	32 (89)	12	29 (85)	Fair
1551	33 (91)	12	30 (87)	Partly cloudy

## **Vehicle Information**

The 2018 Ford Transit T-350 XL was identified by police using the VIN 1FBZX2YG4JKxxxxxx. The caregiver owned the 15-passenger van. The Ford had a 3.5-liter, 6-cylinder, gas engine with rear-wheel drive. The exterior color was “Oxford White” (white) and the interior color was gray and black. The Ford was a 5-door passenger van configured with an interior of five rows of seats to accommodate 15 occupants. The front row had driver and passenger bucket seats and adjustable head restraints. The second row had a three-position split bench seat with separate reclining backs, adjustable head restraints, and fold-down armrests. The third and fourth rows had two-position split bench seats with separate reclining backs, adjustable head restraints and fold-down armrests, and one-position individual seats with reclining backs, adjustable head restraints and fold-down armrests; an access aisle separated the center and right seats. The fifth row had a four-position split bench seat with separate backs, adjustable head restraints and fold-down armrests.

The security system consisted of an engine immobilizer and anti-theft alarm. The vehicle had exterior pull out style handles, a wireless remote key and a cylinder style lock for the driver’s door. The child was an infant and not in possession of a physical or proximity key system.

The vehicle had an in-vehicle communications system that worked with a Bluetooth-enabled cell phone and portable media player. The system allows the user to make or receive calls, play music, use 911 Assist and applications, use an advanced voice recognition system, and charge USB-connected devices. The communications system required an owner account, activation, and a network that supported the system. It was unknown if the system was enabled or if the caregiver used these features. It was unknown if the vehicle had unattended-child-detection, monitoring, or warning systems.

The door configuration included left and right front-row doors, a right side second-row sliding door, and double rear doors on the back. The Ford had interior electric power door locks. It was unknown if the vehicle was locked during the incident. The vehicle’s second-row right sliding

door had a child proof door lock that was set by inserting a manual key and turning left or right. The lock was in an unknown position at the time of the incident.

The window configuration included side glass extending the full length of the left and right sides and back windows in each of the double rear doors. According to the police report the windows were tinted to 18 percent. The front-row windows were equipped with electric power window regulators and the other windows were fixed. All the windows were closed during the incident.

It was unknown if the caregiver had a plan in place to prevent such incidents from occurring or if he connected a smartphone to the vehicle via Bluetooth or cable. It was unknown if the caregiver had ever been informed about the dangers of leaving a child in a hot car. It was unknown if he was aware of campaigns focusing on the issues of heatstroke.

### ***Pre-Incident***

The caregiver was the foster father or “unlicensed kinship placement” to 14 children and reportedly the adoptive parent to 18 children. His relationship to the child was reported by the State as an “unlicensed kinship placement.” At 0615 hours on the day of the incident, the caregiver departed his residence with the child and an unspecified number of children in the Ford. He dropped them all off at their daycare and preschool at approximately 0635 hours, then continued alone to his workplace, where he entered the building at approximately 0645 hours. At 0815 hours, the caregiver entered the Ford and departed his workplace to pick up the child from her daycare and take her to a home inspection conducted by the State at his residence. The caregiver’s domestic partner worked at home and would also be present during the inspection. The caregiver picked up the child at 0830 hours, arrived at his residence for the inspection at 0900 hours, and departed his residence at 0930 hours intending to drop off the child at her daycare before continuing alone to his workplace.

On the day of the incident, CRSs were installed in the second-row left and right seat positions. In the left seat position a Disney Baby Scenera NEXT Luxe Convertible CRS was installed in a forward-facing orientation using LATCH. This CRS was not in use at the time of the incident. In the right seat position an Evenflo Nurture Infant Car Seat was installed in a rear-facing orientation using LATCH with a stay-in-vehicle base. The CRS was multicolored and had an adjustable carry handle, retractable canopy system, and internal 5-point harness system. The caregiver later reported to police that, prior to the incident, the child was sleeping, the canopy was in the open position and raised above her, and it blocked his view of her from his position in the driver’s seat (Figure 4). A few small toys and personal items were strewn around the floor of the vehicle. No dangling or hanging objects were present. Evidence obtained by police suggested the caregiver likely placed a briefcase containing paperwork and personal items on the front passenger seat or floor space while driving to and from work.





*Figure 4. Evenflo Nurture CRS, 2018 Ford Transit 350 (police photo)*

The caregiver forgot about the child's presence in the vehicle and returned directly to his workplace without making any intermediate stops, arriving at 1000 hours. After parking, the caregiver picked up a sun-screen configured with a solid color fabric from the second-row floor and positioned it to cover the windshield and dash. He stated later to police the sun-screen had been located on the floor next to the child and he questioned why he did not notice the child's presence when he reached for the screen. Another sun screen configured with a mesh fabric was already attached using suction cups to the second-row left window. After installing the sun-screen in the windshield, the caregiver exited the vehicle and entered the building, unintentionally leaving behind the child.

### ***Incident***

Nobody apparently returned to or entered the Ford until the caregiver did so at 1545 hours as he prepared to depart his workplace for the day. The police report stated at least one co-worker walked past the Ford during the incident and did not notice the child inside. The caregiver first opened the front passenger door and placed his brief case on the front passenger seat. He then took out a tablet so the children could watch a program during the drive home. He entered the vehicle, turned on the air conditioning, and noticed an odor. After opening several ventilation ports, he looked toward the second row and observed the child in an unresponsive state.

### ***Post-Incident***

The caregiver removed the child from the CRS and tried to wake her but she appeared already deceased. He carried her into the office building where a co-worker was alerted to the situation and called 911. Emergency responders were dispatched at 1549 hours with a fire department crew arriving first and pronouncing the child deceased at 1555 hours, followed by police who arrived at approximately 1600 hours.

Police placed the Ford and the child's Evenflo CRS on a security hold to obtain temperature readings. On the following day, at 1545 hours under conditions similar to the day prior and under full exposure to sunlight, police obtained an interior ambient temperature for the Ford of 38.1 °C (100.6 °F) and a surface temperature reading of the CRS of 42.7 °C (108.8 °F).

According to the autopsy report, the cause of death was "environmental heat exposure," the manner of death was "accident," and how the injury occurred was "left secured in car seat inside parked vehicle outdoors in full sun."

## **Caregiver/Guardian Data**

The caregiver at the time of the incident was a 56-year-old male who, according to a State department of child safety statement released in June 2020, was an “unlicensed kinship placement.” He was initially reported by police and media to be the foster father of the child, but the State later determined his foster license had expired in 2010. The caregiver was the foster father or “unlicensed kinship placement” to 14 children and the reportedly the adoptive parent to 18 children. During the previous 17 years, he and his domestic partner had jointly fostered more than 50 children. When placing children into foster care the State attempted to keep siblings together and several of the children in his care had been siblings. He and his domestic partner shared caregiving duties when at home. They had been contacted by the State regarding the birth of the child after they already had custody of her brother. Details regarding the child’s birth and history is included in the Non-Motorist (Child) Data discussion of this report.

The caregiver worked at a public-school district service center and school bus terminal. He had a daytime, weekday work schedule and routinely dropped off the child and an unspecified number of children at their daycare or preschool on his commute to work. Immediately before leaving the child behind in the vehicle he drove from his residence to his workplace and entered his office building. After leaving her behind he worked his daytime shift in the office building.

The day of the incident appeared to be typical in the following ways.

- The caregiver slept the night before from 2100 hours to 0500 hours, waking up once to let a pet dog go outside.
- The caregiver and domestic partner fed, bathed, and prepared the children for daycare or school without incident.
- The incident occurred on a Tuesday; the caregiver went to work and the children attended daycare and preschool on weekdays.
- The caregiver had worked at the same job and location for 10 years.
- The caregiver had been a foster parent, adoptive parent, and unlicensed kinship placement caregiver for several years.
- The caregiver was owner of the Ford and apparently familiar with its functionality.
- The caregiver had a history of using CRSs and was apparently familiar with their functionality.
- The caregiver was familiar with the routes to daycare, preschool, and his workplace; the route from residence to daycare took approximately 20 minutes and the route from daycare to workplace took approximately 10 minutes.
- The caregiver intended to care for the child beginning with their departure from the residence and ending when she was received by the daycare facility.
- The caregiver stated to police that, following the home inspection, he was under no pressure regarding matters at work; he felt no discomfort due to medical issues; he received no phone calls or text messages during the trip.
- Co-workers interviewed by police indicated the caregiver appeared to have a normal and positive disposition throughout the work day.
- Co-workers were unaware of any problems concerning the caregiver’s home, schedule changes, or behavioral changes.

The day of the incident appeared to be atypical or circumstances may have adversely affected the actions of the caregiver in the following ways.

- The caregiver’s work day was interrupted by a scheduled home inspection conducted by the State, requiring him to leave work during his shift, pick up the child, attend the home inspection, return her to daycare, then return to his workplace.

Following its investigation, the county attorney’s office declined to pursue a charge of negligent homicide on the basis of no reasonable likelihood of conviction.

### ***Non-Motorist (Child) Data***

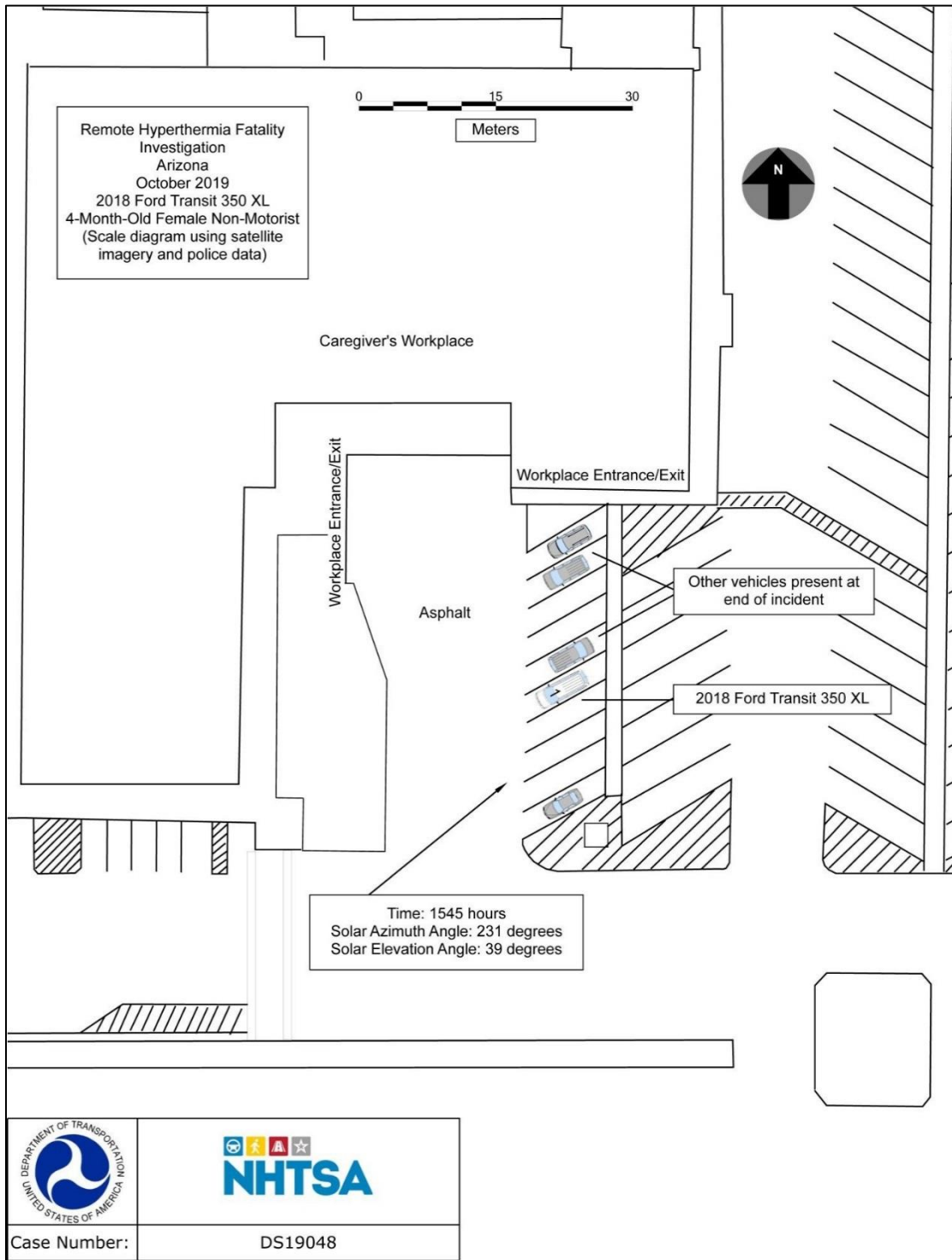
Age/sex:	4 months old/female
Height:	56 cm (22 in)
Weight:	4 kg (12 lb)
Clothing:	Diaper, white top, purple dress, multicolored socks
Seat type:	Split bench with separate reclining back
Seat position:	Second row, unknown position
Restraint usage:	Rear-facing CRS with lap and shoulder belt
Transport from scene:	Taken to coroner’s office
Type of medical treatment:	CPR attempted, declared deceased on-scene

The child had been born prematurely at 33-weeks gestational age. She tested positive for amphetamines and maternal gonorrhea at birth. The child weighed 2.195 kg (4.84 lb) at birth and was treated in the neonatal intensive care unit for respiratory distress. The caregiver took custody of the child in June 2019 when she was discharged following 24 days of hospitalization. The child continued medical treatment, including monthly pediatrician visits and taking multiple prescription medications.

On the day of the incident, the child was placed in a rear-facing Evenflo Nurture CRS in the second-row right seat position of the Ford. Her height and weight met the parameters for using the CRS in a rear-facing orientation. She was restrained by the internal 5-point harness, which was adjusted with the shoulder straps routed through the top set of slots. The child was fully clothed in a diaper, white top, purple dress, multicolored socks, and unknown type footwear. Police photos revealed a small white blanket present on the seat padding. The specific purpose of the blanket was unknown. The child was not reported to be covered by a blanket, coat, or other object.

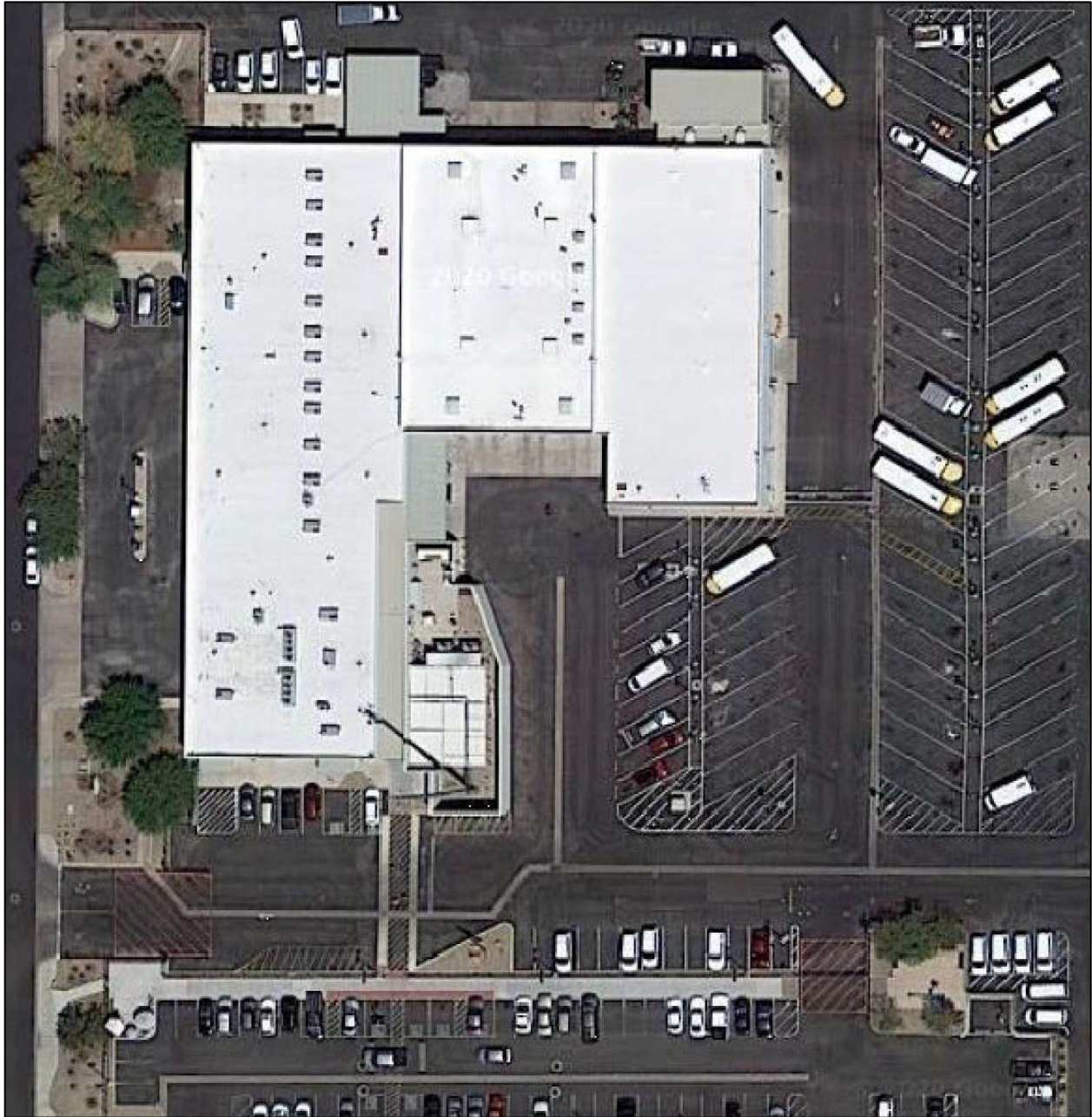
The autopsy did not reveal evidence of abuse or other trauma. According to the autopsy report, the cause of death was “environmental heat exposure,” the manner of death was “accident,” and how the injury occurred was “left secured in car seat inside parked vehicle outdoors in full sun.”

# Incident Site Diagram



## Incident Site Satellite View

(Google Maps image date: July 2013)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. CR20011**

**Vehicle: 2008 Jeep Grand Cherokee**

**Location: Florida**

**Incident Date: October 2019**

## **Background**

This report documents the remote investigation of the circumstances surrounding the hyperthermia-related fatality of an 18-month-old female who was left unattended in a parked 2008 Jeep Grand Cherokee SUV (Figure 1) in Florida in October 2019. The child's father's morning routine involved driving his wife to work, driving other children to school, and dropping the child off at daycare using the Jeep. On the day of the incident, he neglected to drop the child off at daycare. He proceeded home with the 18-month-old child restrained in a CRS in the second-row seat. Upon returning to his residence, he parked the Jeep on a lawn area that was partially shaded by trees. The father left the child in the Jeep as he proceeded to his work truck and departed the residence to his job. As the family members returned home, they eventually realized at approximately 1815 hours that the child was not present. They checked the Jeep and found her unresponsive. A call was made to the emergency response center and police and EMS were dispatched to the residence. The child was transported to a local hospital where she was pronounced deceased. There were no charges filed against the father as this case was deemed accidental with no criminal intent.



*Figure 1. Parked position of the 2008 Jeep Grand Cherokee. Image obtained from an online news outlet.*

The incident was identified by NHTSA and assigned to the Special Crash Investigations group for further research on March 2, 2020. The SCI team contacted the police agency and conducted a brief interview with an investigating officer to obtain the circumstances of the incident. This interview, an exemplar vehicle inspection, and supplemental internet research provide the basis for this remote SCI investigation.

## Summary

### ***Incident Site***

This incident occurred on the front lawn of the single-family residence. The residence was the second house north of a four-leg intersection, located on the west side of a two-lane city street. The guardian parked the Jeep facing north on the front lawn (Figure 2). Several large trees of neighboring properties provided partial shade to the Jeep during this long duration incident. Chain link fences bordered both property lines of the residence. The Jeep was parked in view from the neighboring residence to the south of the incident location.



*Figure 2. Incident site looking west. Jeep was parked on the front lawn area of this residence. Image obtained from an internet mapping software.*

### ***Weather***

The conditions were reported as clear and dry for the duration of this incident. Sunrise was at 0730 hours with sunset reported at 1903 hours. A maximum temperature was recorded at 31 °C (87 °F) at 1453 hours. The following table identifies the weather data inclusive of the calculated heat index for the duration of this incident.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Conditions</b>
0653	23 (74)	85	24 (75)	Clear
0753	23 (74)	85	24 (75)	Clear
0853	25 (77)	76	26 (78)	Clear
0953	28 (83)	67	31 (88)	Clear
1053	29 (84)	61	31 (88)	Clear
1153	30 (86)	55	32 (89)	Clear
1253	28 (83)	67	31 (88)	Clear
1353	31 (87)	57	33 (92)	Clear
1453	31 (87)	55	33 (91)	Clear
1553	30 (86)	55	31 (89)	Clear
1653	30 (86)	55	31 (89)	Clear
1753	30 (86)	61	33 (91)	Clear
1853	29 (84)	61	31 (88)	Clear

### **Vehicle Information**

The vehicle was a 2008 Jeep Grand Cherokee (Figure 3). The exterior color was white with a black interior. The Jeep had deep tint AS3 glazing for the second-row door windows, rear quarter windows, and the backlight glazing. It was not equipped with a roof window. Based on an exemplar vehicle inspection, standard equipment consisted of power-operated windows and a power-actuated locking system. The second-row interior door panels had pull-type door release levers in the lower mid-aspect of the door. A color-coordinated rotating lock lever was located above the door release lever. This lever could be manually rotated to unlock the door from the inside. The door release lever and the lock lever were flush-mounted to the door panel with a finger pocket to provide access. There was no locking stalk on the top surface of the door panel.



*Figure 3. 2008 Jeep Grand Cherokee. Image obtained from an online news outlet.*

### **Pre-Incident**

The father's routine was to drive family members to various locations in the Jeep prior to returning home, parking the Jeep, then entering his work vehicle and departing for work. This trip included dropping the child off at a daycare facility. On the morning of this incident, the child was placed in a CRS in the second row of the Jeep, two other children, and the mother entered the Jeep. The father drove the vehicle and dropped the mother off at her workplace. He then proceeded to drop the children off at their school. The father neglected to drop the child off at the daycare facility and returned to the family residence where he parked the Jeep on a lawn under the shade of numerous large deciduous trees (Figure 4). In this parked position, the Jeep was facing in a westerly direction and shielded from view of people passing by and through the intersection. The father exited the Jeep and locked the vehicle with all windows closed. He then entered his work vehicle and departed the residence for the day.



*Figure 4. Parked position of the Jeep facing north. Image obtained from an online news outlet.*



### ***Incident***

The child was left unattended in the Jeep for approximately 10.5 hours. The father and other family members returned to the residence later in the day. At approximately 1815 hours, one of the child's siblings asked where she was. In a frantic search of the residence, the child was located in the Jeep unconscious.

### ***Post-Incident***

The child was removed from the CRS and a call was placed to the emergency response system. Police and emergency medical personnel arrived on-scene at approximately 1824 hours. The child was transported to a local hospital where she was pronounced deceased. The cause of death was listed as hyperthermia.

### ***Caregiver/Guardian Data***

The guardian responsible for the child at the time of this incident was her father, age unknown. Following the police investigation, this case was deemed accidental and no charges were filed against the father.

### ***Non-Motorist (Child) Data***

Age/sex:	18 months old/female
Height:	Unknown
Weight:	Unknown
Seat type:	CRS in second row
Restraint usage:	Integral 5-point harness system
Transport from scene:	Ambulance
Type of medical treatment:	Emergency room of a local hospital

The child lived with her father, mother, and two older siblings. At the time of the incident, she was restrained in an unknown make/model CRS in the second row of the Jeep. Due to her prolonged exposure, she was found unconscious and was transported to a local hospital where she was pronounced deceased. The cause of death was listed as hyperthermia.

## Incident Site

(Google Maps image date: 2019)



## Incident Site Satellite View

(Google Maps image date: 2020)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. CR20012**

**Vehicle: 2015 Nissan Rogue**

**Location: Louisiana**

**Incident Date: October 2019**

## **Background**

This remote investigation documents the circumstances surrounding the hyperthermia-related fatality of a 2-year-old female left unattended in a 2015 Nissan Rogue (Figure 1) in Louisiana in October 2019 for approximately 6 hours by her 48-year-old aunt, who had babysitting responsibilities along with the grandmother of the child. In the morning, the child was placed in a CRS in the second-row right position of the Nissan Rogue. Following a shopping trip, the aunt returned to the residence at 1330 hours. The grandmother exited the vehicle and proceeded to her residence that was on the same property. The aunt and another person unloaded the vehicle and carried the bags into the residence. The child was forgotten and left unattended in the second row of the vehicle, restrained in the CRS. The aunt assumed the child was with her grandmother. Approximately 6 hours later, the child was found unresponsive and deceased in the vehicle. Ambient outdoor temperatures were in the low to mid 30s °C (90s °F) for the duration of this event. Following the police investigation, the aunt was charged with negligent homicide.



*Figure 1. Front left oblique view of an exemplar 2015 Nissan Rogue.*

The incident was identified by NHTSA and assigned to the Special Crash Investigations group for further research on March 2, 2020.

The SCI team contacted the police agency and interviewed the investigating officer to obtain the circumstances of the incident. This interview, an exemplar vehicle inspection, and supplemental internet research provide the basis for this remote SCI investigation. Due to the pending criminal charges against the caregiver, the police cannot release any records or images related to this incident.

## Summary

### *Incident Site*

This hyperthermia incident occurred during daylight in the driveway of a single-story residential structure. The police reported the environmental conditions as clear, while the National Weather Service reported the conditions as partly cloudy. The average temperature during this 6-hour incident was 33 °C (92 °F) with an average heat index of 37 °C (99 °F).

The residential structure was a single-story building oriented in a southeast/northwest direction with the front of the house facing northwest (Figure 2). It was positioned on the southeast side of a two-lane residential street that was oriented in a southwest/northeast direction. A detached structure with living quarters was located behind the main residence. Reportedly, the grandmother to the child (who was also the mother of the caregiver) lived in this building. The main residence had two entry doors, one on the front of the house and one on the east side adjacent to the driveway. The main house also had three windows on the east side that overlooked the driveway.



*Figure 2. Satellite image of the incident site. 2020 image obtained from an internet mapping software*

The driveway was located on the east side of the residence and was constructed of concrete (Figure 3). The apron of the driveway extended perpendicular to the street and flared toward the house in an irregular shape providing parking for up to eight vehicles. At the time of this incident, the investigating police officer stated the Nissan was parked in the mid portion of the driveway. A large hardwood tree was located at the southeast corner of the driveway and would have provided shade to the back end of the driveway throughout the late morning/midafternoon hours. The house may have provided minimal shade to the Nissan during the late afternoon/evening hours.



Figure 3. Street view of the incident site viewed in a southwesterly direction. January 2019 image obtained from an internet mapping software.

### **Weather**

The conditions were reported as cloudy and dry for the duration of this incident. Sunrise was at 0656 hours with sunset reported at 1843 hours. A maximum temperature was recorded at 36 °C (97 °F) at 1553 hours. The following table identifies the weather data inclusive of the calculated heat index for the duration of this incident.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Condition</b>
1153	33 (92)	50	37 (99)	Most cloudy
1253	34 (94)	41	37 (98)	Most cloudy
1353	35 (95)	38	36 (96)	Most cloudy
1453	35 (95)	38	37 (98)	Partly cloudy
1553	36 (97)	39	38 (100)	Partly cloudy
1653	34 (94)	44	37 (99)	Partly cloudy
1753	33 (91)	55	37 (99)	Partly cloudy
1853	31 (88)	63	36 (97)	Partly cloudy
1953	29 (84)	72	33 (91)	Partly cloudy
2053	29 (84)	74	33 (92)	Partly cloudy

### **Vehicle Information**

The vehicle in this incident was a 2015 Nissan Rogue, 4-door SUV (Figure 4). The Nissan was white in exterior color with a black interior. The second-row door windows, rear quarter windows, and the backlight were OEM AS3 deep-tint glazing. The front-door windows were AS2 tinted without aftermarket deep-tint applique. The Nissan did not have a sunroof. Per specifications, the Nissan was powered by a 2.5-liter, gas engine linked to a continuously variable-speed automatic transmission. The interior of the Nissan had keyless ignition and seating for five occupants (2/3). The front row had bucket seats with adjustable head restraints. The second row was a split bench with forward folding seat backs and adjustable head restraints for all positions. Safety systems included manual 3-point lap and shoulder seat belts for all five positions and Certified Advanced 208-Compliant frontal air bags, front-seat-mounted side impact air bag and roof side-rail mounted inflatable curtain air bags with roll sensing. The Nissan had LATCH. The owner's manual for the vehicle noted that the second-row left and right positions were LATCH-compatible. The second-row center position was not LATCH-compatible. The child was secured in a forward-facing CRS in the second-row right position of

the Nissan. It is unknown if the CRS was secured to the vehicle via LATCH or the manual seat belt system.



*Figure 4. Front right oblique view of an exemplar 2015 Nissan Rogue.*

### **Exterior Door Handles**

The Nissan had horizontal-pull style handles for the four doors (Figure 5). Based on an exemplar vehicle inspection, the vertical height of the front door handles was 98-102 cm (38.5-40 in) above the pavement and the rear door handles were 106-109 cm (41.75-43 in) above the pavement.



*Figure 5. Left plane exterior door handles of an exemplar 2015 Nissan Rogue.*

### **Interior Door Release Levers**

Based on the exemplar inspection, the interior door release levers were flush-mounted into the upper-mid aspects of the front door panels and into the upper-forward third of the rear door panels. The levers were 13 cm (5 in) in overall length and 6 cm (2.25 in) in height and were molded plastic, formed in an upward curve shape. All four door release levers were finished in chrome. The hinge point for the levers was at the aft aspect. The interior door release levers are depicted in Figures 6 and 7.



*Figure 6. Front-row (driver's) door release lever and rotating locking lever in an exemplar 2015 Nissan Rogue.*



*Figure 7. Second-row right door release lever and the rotating locking lever of an exemplar 2015 Nissan Rogue.*

A manual rotating locking lever was mounted in the recess of all four door panels (Figures 6 and 7) directly above the aft aspect of the door release levers. These rotating lock levers were finished in gray and blended into the door panel with no specific identification or highlight marking. The levers were 4 cm (1.6 in) in length and 2 cm (0.9 in) in height.

### **Locking System**

The Nissan had a power locking system with the manual rotating locking levers at each of the four doors. There were three available methods to lock/unlock the vehicle; one by depressing the lock or unlock function of the remote key fob, the second by engaging the front door panel interior-mounted power lock switch, and the third by manually engaging the rotating lock levers at each of the doors. These rotating levers would only lock the specific door while the power system locked all four doors and the rear lift gate. It should be noted that the unlock feature on the key fob required two engagements to unlock all doors inclusive of the lift gate while the driver's door only required a single engagement of the key fob unlock button. Once locked, none of the four doors would unlock from the inside by pulling on the interior door release levers. All four positions required a manual rotation of the locking lever.

### **Pre-Incident**

On the day of this incident, the 2-year-old child was under the care of her 48-year-old aunt. Living on the same property in a separate residence was the grandmother of the child who was the mother of the aunt and the child's father. The aunt had primary care responsibilities. During the morning hours, the aunt and the grandmother decided to go grocery shopping. The aunt placed the child in the forward-facing CRS in the second-row right position of the Nissan. She secured the child in the CRS with the 5-point harness system. They drove to a neighboring town for the shopping trip and returned to the residence at 1330 hours.

### **Incident**

As they returned to the residence, the aunt parked the Nissan in the mid-portion of the driveway with the vehicle facing in a southeasterly direction. The aunt and the grandmother exited the vehicle. A friend of the aunt was at the residence and exited the house to assist with unloading the groceries from the vehicle. The grandmother walked to her residence at the back of the property where she remained for the remainder of the day. The aunt and her friend carried the



groceries into the house. They closed the doors of the Nissan with all windows closed. Apparently, the aunt thought the child went with the grandmother. The child was forgotten and left behind secured in the CRS in the second row of the vehicle. The high temperature for that day was reported at 36 °C (97 °F) at 1553 hours. For unknown reasons, the aunt began to look for the child in the early evening hours around 1945 hours. Since the child was not in the watch of the grandmother, the aunt checked the Nissan and found the child unresponsive in the vehicle, still harnessed in the CRS. She removed the child and carried her into the residence and called the emergency response system. The child was left unattended in the Nissan for approximately 6.25 hours.

### ***Post-Incident***

Police and emergency medical paramedics arrived at the residence at approximately 2000 hours. The investigating police officer stated the paramedics determined the child was deceased. Her body was transported to the coroner's office for autopsy. The cause of death was hyperthermia.

The police conducted their investigation and after consulting with the district attorney's office, the aunt was charged with negligent homicide, arrested, and jailed. She was subsequently released on bond. The charge was supported by a grand jury. As of the date this report was submitted a court date had not been set.

### ***Caregiver/Guardian Data***

The primary caregiver responsible for the child on the day of the incident was the aunt of the child. This 48-year-old aunt was the sister of the child's father. It should be noted that the parents of the child did not live together. The investigating police officer did not know if this caregiver watched the child daily or on an occasional, as-needed basis.

The grandmother, age unknown, lived in a separate building on the property. She apparently shared in the caregiving of the child on an as-needed basis. It is unknown if the shared caregiving of the child was a frequent activity of the grandmother, or a preference of the child. Second, it is unknown if the parents of the child requested grandmother involvement in the caregiving activities. Based on the facts of this incident, there was poor communication between the aunt and the grandmother regarding the caregiving of the child.

The friend of the child was not a resident of the house, but merely a guest who had no responsibility for the care of the child.

Following this incident and the police investigation, the caregiver was arrested on a charge of negligent homicide. She was remanded to the county jail for several days prior to a bail release. A grand jury reviewed the case and upheld the charge of negligent homicide. At the time of this SCI investigation, the case has not been presented in a court. The mother of the child filed a civil lawsuit against the aunt and the grandmother. That case is also pending.

***Non-Motorist (Child) Data***

Age/sex: 2 years old/female  
Height: Unknown  
Weight: Unknown  
Seat type: Unknown  
Restraint usage: Unknown  
CRS Transport from scene: Unknown  
Type of medical treatment: Autopsy

The child was a 2-year-old female of unknown height and weight. Per the investigating police officer, she was dressed in a diaper with a coral-color sundress. She was positioned in the second-row right position of the Nissan and restrained in an unknown make/model child restraint system. The child was secured to the forward-facing CRS by the integrated 5-point harness system. An autopsy was performed and the report has been requested from the coroner's office.

**Incident Site Satellite View**

(Google Maps image date: 2020)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. DS20005**

**Vehicle: 2006 Mercedes-Benz M-Class (ML-350)**

**Location: Texas**

**Incident Date: October 2019**

## **Background**

This report documents the remote investigation of the hyperthermia death of a 2-year-old male left unattended in a parked 2006 Mercedes-Benz ML-350 SUV (Figure 1) for an extended period during daylight in Texas in October 2019. The investigation was intended to determine the events leading up to the incident, the actions of the caregiver/guardian, the vehicle characteristics and equipment, the environment/scene conditions and layout, and the activities of the child. The incident was identified as part of a hyperthermia study by NHTSA and assigned to the SCI team in October 2019. The investigative and autopsy reports were obtained. The 47-year-old female caregiver driver of the Mercedes was the grandmother of the child. This case was referred to a grand jury for “criminal negligent homicide.”



*Figure 1. Exemplar 2006 Mercedes-Benz ML-350 SUV*

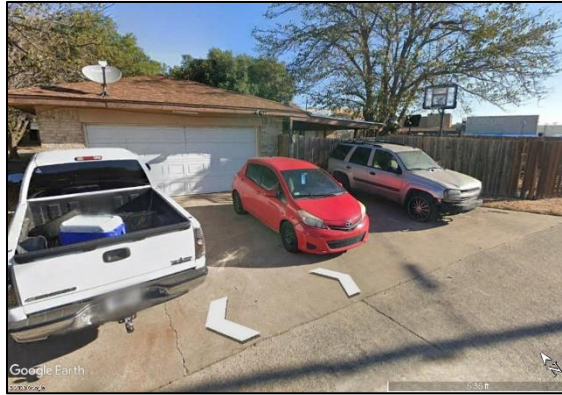
This incident occurred at a private residence in an urban area during summer midafternoon to the early evening. The grandmother and her family were returning home after a trip to another city in Texas. There were six people in the vehicle with the grandmother: an 18-year-old female seated in front-row right position, a 10-year-old female seating in second-row left position, a 7-year-old male seated in second-row middle position, a 2-year-old male seated in second-row middle position, a 5-year-old male seated in second-row middle position, and a 19-year-old female seated in second-row right position. The 2-year-old male and 4-year-old male were using the same seat belt. There were no child restraint systems in use. The family arrived home at approximately 1500 hours. The temperature at 1453 hours was 36 °C (97 °F). The grandmother exited the vehicle first and went directly to the restroom. She returned to the vehicle and began unloading groceries and a mini-refrigerator that they had brought back with them. The remaining family exited the vehicle in an unknown order. The 2-year-old male was unintentionally left

behind. The caregiver sent one of the children back to vehicle to get her purse and the vehicle was locked. The grandmother's boyfriend arrived at the residence at approximately 1954 hours and parked his vehicle next to the Mercedes. He asked the grandmother to help him bring in some food and canned water. The boyfriend then went inside the residence. At some point the grandmother began looking for the 2-year-old. The child was found by the grandmother at approximately 2048 hours. She picked up the child, carried him into the residence, and began giving him chest compressions. The boyfriend contacted emergency services. Emergency personnel arrived on site and continued resuscitation efforts. The child was transported by ambulance to a local trauma center where he was pronounced deceased. The medical examiner reported that the cause of death was "hyperthermia" and the manner of death was "accident."

## Summary

### *Incident Site*

This incident occurred at a private residence in an urban area during the mid-afternoon to evening. The residence was a single-story house situated on a corner lot facing north. The structure had an attached garage facing south with a concrete driveway that led to an east/west alley (Figure 2). The incident occurred in the driveway. The garage door was shut and a wooden fence blocked any views of the driveway from in the residence. There were no trees that would have provided any overhead shade. There were at least two vehicles parked in the driveway when the child was discovered. A site diagram is included at the end of this report.



*Figure 2. Incident site (Google Earth image)*

### *Weather*

On the day of the incident, the low temperature was 19 °C (67 °F) and the high temperature was 35 °C (97 °F). There were light winds throughout the day. Sunset on this date occurred at 1907 hours. At 1453 hours, the solar azimuth was 232° and the solar elevation was 36°. The temperatures, humidity, calculated heat index, and conditions for the duration of this incident are provided in the following table.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Conditions</b>
1453	36 (97)	29	35 (97)	Not reported
1553	35 (96)	29	35 (95)	Not reported
1653	35 (95)	30	35 (94)	Not reported
1753	34 (94)	31	34 (93)	Not reported
1853	33 (93)	34	34 (93)	Not reported
1953	30 (87)	48	32 (89)	Not reported

## **Vehicle Information**

The vehicle was a 2006 Mercedes-Benz M-class ML-350 SUV. It was identified by the VIN 4JGBB86E16Axxxxxx. The vehicle had a 3.6-liter, 6-cylinder, gas engine coupled to 7-speed automatic transmission and all-wheel drive. The exterior color was “Cubanite Silver-Metallic” and the interior color was “Black/Anthracite.” The vehicle had tinted windows. The vehicle had leather-covered front bucket seats and second-row split bench seats with folding backs. The exterior doors had pull-type handles. The door windows are opened and closed electrically. The switches for all door windows are located on the driver’s door control panel. The switches for the respective door windows are located on the front passenger door and the rear doors. According to the police, the windows were closed at the time of incident and all the doors locked. The vehicle had been locked by the grandmother using the remote. The vehicle was not equipped with child safety locks. The police checked the vehicle for child locks and did not observe any.

There was no information concerning child locks in the user manual. The police tested the locking mechanisms for the second-row doors. While seated in the second row, the second-row doors could not be opened from the inside using the door handles if the vehicle was locked. The doors could be manually unlocked by pulling the door lock knob. This was in agreement with the owner’s manual, which indicated that locked rear doors are opened by first pulling up on the locking knob and then pulling on the inside door handle. It was unknown if the vehicle had unattended-child detection, monitoring, or warning systems.

## **Pre-Incident**

The incident occurred on a Sunday in October 2019. The 47-year-old female driver was the primary caregiver and grandmother. On the day before the incident, the grandmother, family members, and a family member’s friend drove to a second city in Texas to visit a friend of the grandmother and to pick up a mini-refrigerator.

On the day of the incident they made the return journey. Demographic data, seating positions of the people in the Mercedes, and their relationships to the grandmother are shown in the following table.

Front row	47-year-old female (grandmother)				18-year-old female (daughter)
Second row	10-year-old female (grandchild)	7-year-old male (grandchild)	2-year-old male (grandchild)	5-year-old female (grandchild)	19-year-old female (friend of daughter)

The grandmother has custody of the 10-year-old, 7-year-old, and 5-year-old. She obtained their custody several years earlier because her eldest daughter was unable to care for them. She was also the guardian for the 2-year-old child. She was given custody of the 2-year-old child in February 2019 and given custody of his 15-year-old brother in January 2019. The older brother did not make this trip but was in the grandmother’s residence throughout the event.

The family departed the friend’s residence at approximately 1200 hours. The city was approximately 366 km (228 miles) distant from the grandmother’s residence. A non-stop journey

would have taken approximately 3.5 hours. There was at least one stop along the way to pick up groceries. They arrived at the residence at 1528 hours and parked in the driveway, south of the residence. The grandmother exited first to use the bathroom. The other occupants exited the vehicle in an unknown order and began carrying luggage and groceries out of the vehicle. They all entered the residence through the garage. The 18-year-old daughter and her friend returned to the vehicle to remove the mini-refrigerator from the cargo area of the Mercedes. The grandmother stated to the police that she asked the children if they had everything out of the vehicle. They said yes and she locked the vehicle using the remote. Someone closed the garage door. The 2-year-old child was unintentionally left behind.

At this time the remaining passengers from the Mercedes and the child's elder brother were in the residence.

Later in the afternoon, the 10-year-old, 7-year-old, and 5-year-old were picked up by the fiancé of the grandmother's son to stay with them for several days. The 18-year-old daughter and her friend went to her room to do homework for several hours and then departed the residence to meet friends at a nearby park. The grandmother's 50-year-old boyfriend arrived at the residence at approximately 1954 hours and parked his vehicle next to the Mercedes. He asked the grandmother to help him bring in some food and canned water. The boyfriend then went inside the residence.

### ***Incident***

As the evening progressed, the grandmother began readying the children for bed. At some point the grandmother began looking for the 2-year-old child. She didn't find him and thought he had left the residence with his older brother. She was unable to call the brother because his cell phone had been stolen at some time in the past. At 2048 hours, the grandmother went to the Mercedes to retrieve some headache medicine. It was at this time that she discovered the child on the floorboard in front of the second-row seat.

### ***Post-Incident***

She picked up the child, carried him into the residence, and began giving him chest compressions. The boyfriend contacted emergency services. The fire department arrived first and were directed to the back of the residence where they located the child and continued resuscitation efforts. The police arrived at approximately 2102 hours. The child was transported by ambulance to a local trauma center. He arrived at 2108 hours and declared deceased at 2109 hours. The medical examiner reported that the cause of death was "hyperthermia" and the manner of death was "accident."

### ***Caregiver/Guardian Data***

The primary caregiver at the time of the incident was a 47-year-old grandmother. The 2-year-old child was legally in her custody, given in February 2019. The grandmother worked during the day on weekdays at an assisted living facility in the medical records department. The child lived with her in her residence. Evidence indicates the child was unintentionally left behind by the grandmother. Records indicated that the day was mostly atypical and several factors likely affected the actions of the grandmother before and during the incident. A summary of the atypical factors is shown below.



- The family was traveling and returning from a trip out of town.
- The children were not using CRSs because of overcrowding.
- There was an unsettled family situation due to the number of children under the grandmother's control.
- Daughter was entertaining a friend and that friend was staying with her.
- Grandmother was unable to contact the older brother of the child to see if the child was with him because the older brother's cell phone had been stolen at some point in the past.

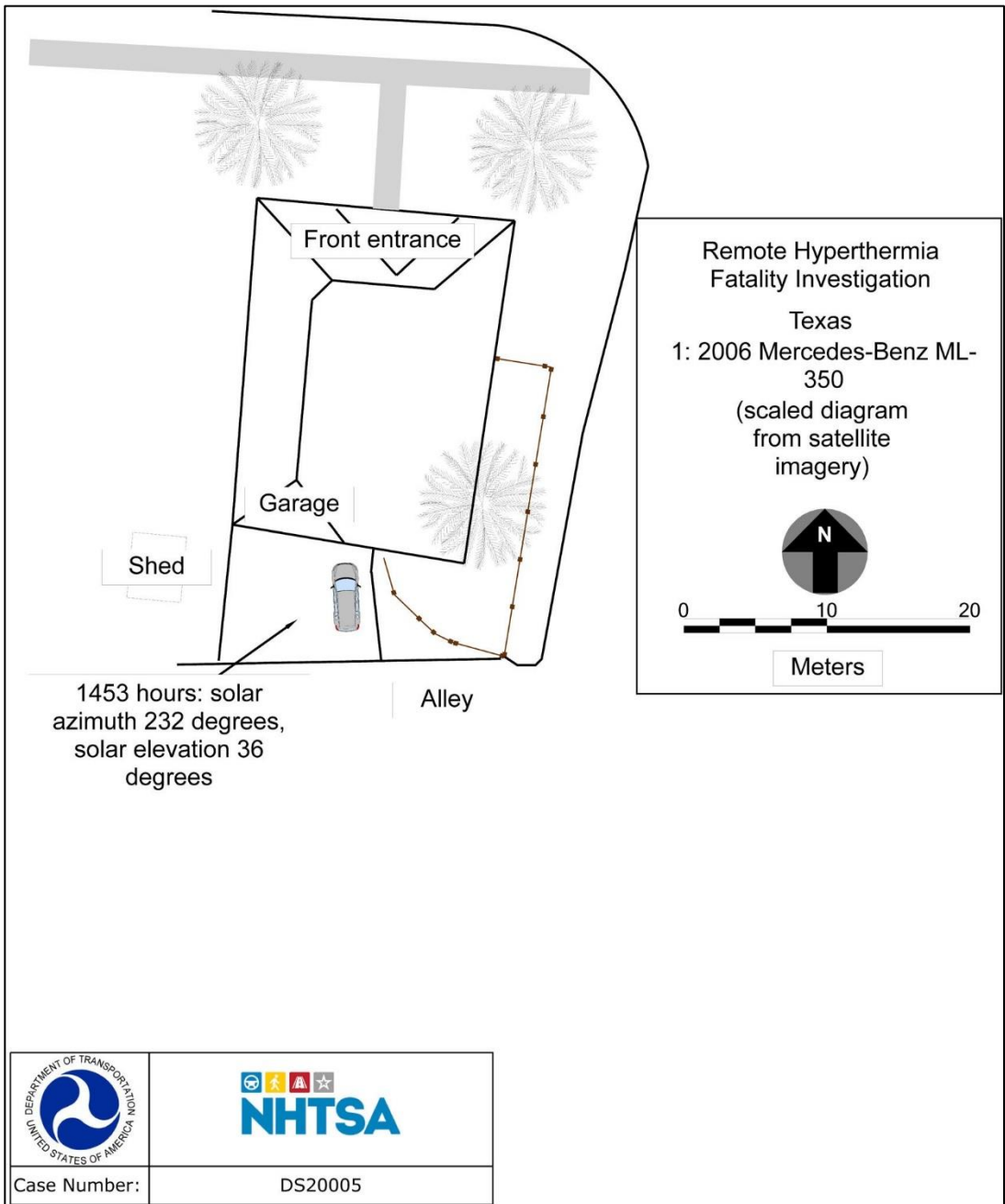
It is unknown if the grandmother had been informed about the dangers of leaving a child in a hot car or if the driver was aware of any NHTSA campaigns regarding this issue.

***Non-Motorist (Child) Data***

Age/sex:	2-year-old/male
Height:	89 cm (35 in)
Weight:	11 kg (25 lbs)
Seat type:	Split bench with folding back
Restraint usage:	None after arriving at residence
Transport from scene:	Transported by ambulance to trauma center
Type of medical treatment:	Treated at scene and during transport. Declared deceased at 2109 hours

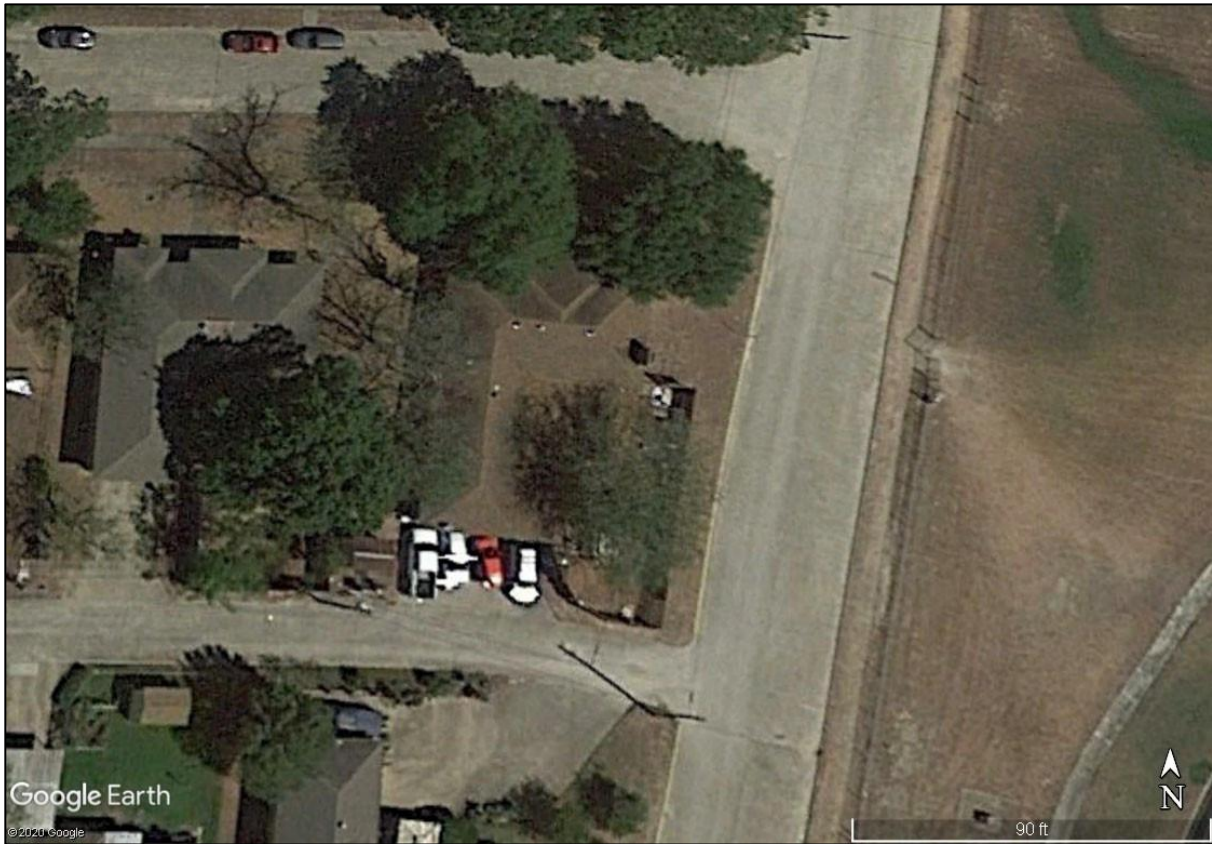
The child was seated in the middle seat position in the second row. It has been reported that he was sharing the lap belt with another occupant. A CRS was available but was not used during this trip. He was clothed in a disposable diaper. He was not covered by a blanket, coat, or other object. The medical examiner reported that the cause of death was "hyperthermia" and the manner of death was "accident."

# Incident Site Diagram



## Incident Site Satellite View

(Google Earth image date: October 2019)



**Final Case Report  
Special Crash Investigations  
Remote Hyperthermia Fatality Investigation**

**Case No. DS20004**

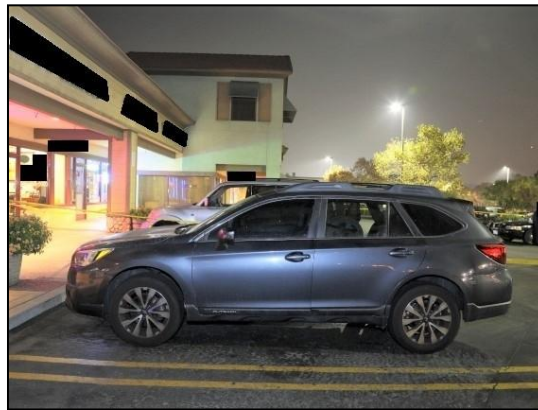
**Vehicle: 2016 Subaru Outback**

**Location: California**

**Incident Date: November 2019**

## **Background**

This report documents the remote investigation of the hyperthermia-related fatality of an 18-month-old male child unintentionally left behind while seated in a CRS for approximately 7 hours in a 2016 Subaru Outback at his father's workplace (Figure 1) in California in November 2019. The caregiver at the time of the incident was the child's father. The father discovered the non-motorist in the vehicle after the child's mother phoned the father's workplace to inquire as to the whereabouts of the child. Following the incident, the child was transported to a local hospital where he was pronounced deceased. The investigation was intended to determine the events leading to the incident, actions taken by the father, vehicle characteristics and equipment, environmental conditions, and activities of the child. The incident was identified as part of a hyperthermia study by NHTSA and assigned to the SCI team in February 2020. In November 2020 the SCI team obtained the police incident report, on-scene photographs, and autopsy report. In December 2020 police declined to release supplemental investigative reports due to ongoing issues related to their investigation.



*Figure 1. 2016 Subaru Outback at incident site. Image obtained from local law enforcement.*

The incident occurred on a Wednesday in November 2019 in California. The incident site was the uncovered, paved parking lot of a retail and office complex located in an urban area. On the day of the incident, the father drove with the child to his workplace, forgetting to drop off the child at daycare. Instead, the father exited the vehicle, entered his office, and left the child behind and unattended in the vehicle for approximately 7 hours until the mother phoned the father seeking the child's whereabouts. The father then returned to the vehicle, found the child in an unresponsive condition, and attempted CPR until emergency responders arrived to transport the child to a local hospital. Police were notified at 1745 hours by an unknown source and the child was pronounced deceased at 1822 hours.

## Summary

### ***Incident Site***

The incident site was the uncovered, asphalt parking lot of a retail and office complex located in an urban area. The complex consisted of one-and two-story commercial buildings having a combination of gable and shed-type roofing. The building in which the father worked was configured in a strip layout extending east to west with the businesses configured side by side and facing south. The south wall was configured primarily with glass walls, windows and doors, including those of the father's workplace. The main entrances were located on the south wall and opened to a sidewalk and parking lot. Directly south of the building and west of the father's office, a parking area consisted of seven parking spaces oriented south to north, beginning at the father's office and extending west. The parking area was on level ground. Satellite images showed the parking lot to be unshaded during the day. The autopsy report stated that the Subaru was parked in direct sunlight but did not specify the duration of exposure to direct sunlight.

The Subaru was parked approximately 13 m (43 ft) from the father's workplace entrance, in the fifth space west (Figure 2). It was unknown which other parking spaces may have been occupied during the incident. The incident occurred on a Wednesday during daytime and the businesses in the building appeared to conduct business during the day. Due to the commercial location and weekday occurrence of the incident, other vehicle and foot traffic likely came and went throughout the incident. It appeared likely that several other vehicles and passersby were close to the Subaru throughout the duration of the incident. During their investigation, police searched the area for surveillance cameras and found none. A sign located at the main entrance to the father's workplace indicated the business was closed to the public on Monday, Thursday and Sunday. An incident site diagram and incident site satellite view are included at the end of this report.



*Figure 2. Incident site, caregiver's vehicle (foreground) and caregiver's workplace entrance (background). Image obtained from an online news outlet.*

## **Weather**

On the day of the incident, the low ambient temperature was 11.7 °C (53 °F) and the high ambient temperature was 27.2 °C (81 °F). Maximum wind speed was 21 km/h (13 mph), and conditions were mostly cloudy and hazy skies with clear visibility. At 1453 hours, during the day's maximum ambient temperature and well into the duration of the incident, the solar azimuth angle was 230° and the solar elevation angle was 20°. Temperatures and conditions during the incident are documented in the table below.

<b>Time 24-Hour Clock</b>	<b>Temperature °C (°F)</b>	<b>Humidity %</b>	<b>Calculated Heat Index °C (°F)</b>	<b>Condition</b>
1053	21 (70)	35	20 (68)	Mostly cloudy
1153	23 (73)	31	22 (71)	Cloudy
1253	25 (77)	24	24 (76)	Cloudy
1352	27 (80)	22	26 (79)	Mostly cloudy
1453	27 (81)	14	26 (79)	Mostly cloudy
1553	26 (79)	28	26 (78)	Mostly cloudy
1653	23 (74)	43	23 (73)	Haze
1753	21 (70)	53	21 (69)	Haze

## **Vehicle Information**

The 2016 Subaru Outback Limited was identified using the VIN 4S4BSALC8G3xxxxxx. It was manufactured in September 2015. A vehicle history report found no accident or salvage records and identified one sale record suggesting the father purchase the vehicle new in 2015. The Subaru was a 4-door SUV configured with two rows for a maximum capacity of five occupants. The vehicle had a 2.5-liter, 4-cylinder, gas engine with all-wheel drive. It had options including satellite radio and a power moon roof. The exterior color was “Carbide Slate Metallic” (medium gray) and the interior had “Slate Black” (black) leather and cloth upholstery.

The security system consisted of an engine immobilizer, anti-theft alarm, and keyless entry. The vehicle had exterior pull out style handles, a wireless remote key and a cylinder style lock for the driver's door. The child was an 18-month-old male not likely in possession of a physical or proximity key system. He was placed in the vehicle either by his father or mother prior to the trip and removed by his father following the incident. The child appeared to have remained held in the CRS by the 5-point harness during the incident.

The vehicle had electric power interior door locks. Status of the locks during the incident was unknown. The second-row doors had child safety locks and both were in the unlocked position. When the child safety lock lever is in the “LOCK” position, the door cannot be opened from inside and can only be opened from the outside. The vehicle had electric power window regulators and the windows were closed during the incident. The autopsy report stated that the windows were tinted and it was “very difficult to see through” the windows due to the tinting. The percentage of window tinting present was unknown.

The vehicle had a second-row bench seat and split folding backs. At the time of the incident, the left seat back was folded forward making it level with the rear cargo floor. A garden hose cart configured with wheels and hose was positioned in the second-row left position over the left seat back, adjacent to the CRS (Figure 3). The cart and hose stood taller than the CRS and police

photos suggest that, when looking through the second-row left window from the outside, the cart and hose possibly blocked the CRS from view. The cart and hose appeared to be unsecured in the vehicle. A black fleece jacket, a soft white blanket and a box of latex examination gloves were present on the seat between the hose cart and CRS. The jacket appeared to be sized for an adult. A blue soft-sided bag with carry strap containing unknown items was present in the second-row right floor space forward of the CRS. Next to the blue bag were the child's shoes which were gray in color and his socks which were white in color. Unsecured items present in the cargo area were a foam pool noodle, a duffle style gym bag containing unknown items and a paper shopping bag containing unknown items. Unsecured items present in the front row included two small cardboard boxes and a black jacket on the front passenger seat cushion and a medium size cardboard box on the passenger floor.



*Figure 3. Chicco CRS (foreground) and garden hose cart (background), second row, 2016 Subaru Outback. Image obtained from local law enforcement.*

The Subaru had Bluetooth and USB technology. Police photos revealed what appeared to be a cell phone or other accessory charging cord plugged into the instrument panel. A Blackview brand dash camera of an unknown model was installed forward of the rear-view mirror in the upper center area of the windshield. It was unknown if the vehicle had unattended-child detection, monitoring, or warning systems.

### ***Pre-Incident***

The child lived with his biological mother and father in their residence. The child had no siblings and no additional children or adults lived in the home. Both parents shared in caregiving responsibilities and were the child's primary caregivers. The events of the morning appear to be typical in the following ways.

- The child was bathed the previous night and fed on the morning of the incident.
- The child was scheduled to attend daycare.
- The family's plan for the day was for the father to drop the child off at daycare on his morning commute to work and for the mother to pick up the non-motorist from daycare at 1730 hours that afternoon.
- The father worked in a professional medical environment and the workplace had regular daytime hours of business.
- The route from the father's residence to daycare and to the father's workplace was relatively short and simple.

- The trip appeared to be routine in the sense that the father was the vehicle owner, the vehicle had no apparent malfunctions, he knowingly took possession of the non-motorist and CRS, he knew the location of the daycare, and he arrived at his workplace parking near the workplace entrance.
- The father worked throughout the day exhibiting no reported behavioral changes.
- The mother arrived at the daycare at approximately 1730 hours as planned.

Neither the police nor autopsy reports identified any circumstances in the family's recent history that suggested the day was atypical. No recent significant changes in the family's activities were noted. The child historically attended daycare but the duration was unknown. Police provided the medical examiner with a pediatric death questionnaire which included the following information.

Neither parent reported any personal significant medical history. . Neither parent used tobacco, alcohol, or illegal drugs The child was healthy, making his milestones and currently on no prescription medications He was last bathed on the night prior to the incident and last fed at 0630 hours on the morning of the incident.

The primary caregiver at the time of the incident was the child's father. On the day of the incident, the father drove the Subaru from his residence to his workplace intending to drop off the child at daycare. His time of his departure from home was unknown but was estimated to be approximately 1015 hours. The available data did not specify which parent placed the child in the CRS. The child was restrained in a rear-facing Chicco KeyFit 30 CRS in the second-row right seat position. The CRS was gray in color and was installed using LATCH lower straps connected to anchors located at the rearward aspect of the seat cushion. The tether strap was not used. An infant insert pad was installed covering part of the seat and backrest padding. The child was presumably restrained using the internal 5-point harness system.

The daycare was located 13.0 km (8.1 mi) in a northwest direction from the father's home and the father's workplace was 2.6 km (1.6 mi) in a northwest direction from the daycare. Using GPS mapping, the estimated total distance was 15.6 km (9.7 mi) and estimated total duration was 24 minutes. The intended route was such that much of the trip was traveled on a single section of road measuring 10.9 km (6.8 mi) in distance and the daycare was located along the right side of that roadway at the 9.0 km (5.6 mi) point. To access the daycare, a driver would make a right turn from the roadway into a shopping center parking lot and proceed in a straight path to the daycare. The daycare was located less than 91 m (300 ft) east of the roadway and was visible from the roadway. To continue to the workplace from the daycare, a driver would reverse directions and travel in a straight path to the roadway, making a right turn onto the roadway from the parking lot. It is noteworthy that the father did not change his intended route; he simply did not stop along the route at the daycare. Instead of dropping the child off at daycare, the father drove directly to his workplace and arrived at an approximate time of 1045 hours. There was no indication in the data obtained by SCI that he made any intermediate stops during the trip.

### ***Incident***

The father arrived at his workplace and parked the Subaru five spaces west of his workplace entrance. He exited the vehicle and entered his workplace, most likely through the main entrance facing the parking lot, leaving behind the child in the CRS and vehicle. The available data suggests the father forgot about the child's presence in the vehicle, forgot to drop him off at daycare, and the act of leaving the child behind and unattended in the vehicle was unintentional.



The father worked in his office throughout the day and apparently did not return to his vehicle during that time. The daytime activities of the mother were unknown until she drove to the daycare to pick up the child, arriving at approximately 1730 hours as planned. When she discovered the child was not there, she phoned the father's workplace and spoke with his co-worker, who apparently alerted the father of the situation. The incident lasted approximately 7 hours, ending at approximately 1745 hours.

### ***Post-Incident***

The father and co-worker returned to the vehicle, finding the child unresponsive and not breathing. At the time of the child's discovery in the vehicle, there were reportedly no objects loose or otherwise next to or near his face. The handle of the CRS was in the raised position. According to the autopsy report, at that time the child's body was cold and limp. The interior temperature of the vehicle was not mentioned. The father removed the child from the CRS and vehicle, carried him into the workplace and attempted CPR. An unknown person placed a 911 phone call requesting emergency services. Police indicated the dispatch call referenced a "baby not breathing." Emergency responders were notified at 1745 hours and a police officer arrived first followed by fire/paramedic support. Lifesaving efforts began with the father, who transferred the child to a police officer, who continued efforts before transferring the child to fire department paramedics, who then transported the child by ambulance to a local hospital. When it was determined that lifesaving efforts were unsuccessful, the child was pronounced deceased at 1822 hours.

Police detectives arrived on-scene and treated the incident as a homicide investigation. The child's parents agreed to be transported to the police station for interviews. Police contacted the county department of child services, which generated a suspicious child abuse report. Police declined SCI's request to obtain a copy of the report. The Subaru was impounded by police as evidence. During their investigation, police used an Extech Instruments brand hygro-thermometer clock (model 445702) to obtain internal vehicle temperatures. Police photos of the procedure indicated temperatures and other data were obtained directly on the CRS padding and from a tripod standing in the rear cargo area. The results obtained from the instrument were not included in the police incident report.

SCI obtained a copy of the autopsy report, which declared the cause of death to be hyperthermia due to entrapment; it declared the manner of death to be an accident; and declared that injury occurred because of being trapped in a closed vehicle during the day. According to the county district attorney's office as of December 2020, no criminal charges had been filed against the father.

### ***Caregiver/Guardian Data***

The caregiver and vehicle driver at the time of the incident was the father of the child. He was 38 years old and was married to the child's mother, who was 37 years old. The mother and father shared in caregiving duties and the child was their only child. The father was the business owner of his workplace and had worked at that location for several years. The workplace was open to customers during the daytime from 0900 to 1800 hours on Tuesday, Wednesday, Friday, and Saturday; it was closed to customers on Sunday, Monday, and Thursday. The father's specific work schedule was unknown. The child's mother likely worked outside of the home during daytime hours but her daily schedule was unknown. Immediately prior to the incident, the father

drove with the child to his workplace, forgetting to drop the child off at daycare. After unintentionally leaving the child behind and unattended in the vehicle, the father worked in his office for approximately 7 hours until receiving a phone call from the mother regarding the whereabouts of the child. The father and mother were interviewed by police following the incident.

It was unknown if the father had a plan in place to prevent such incidents from occurring. It was unknown if the father had ever been informed about the dangers of leaving a child in a hot car. It was unknown if he was aware of campaigns focusing on the issues of heatstroke.

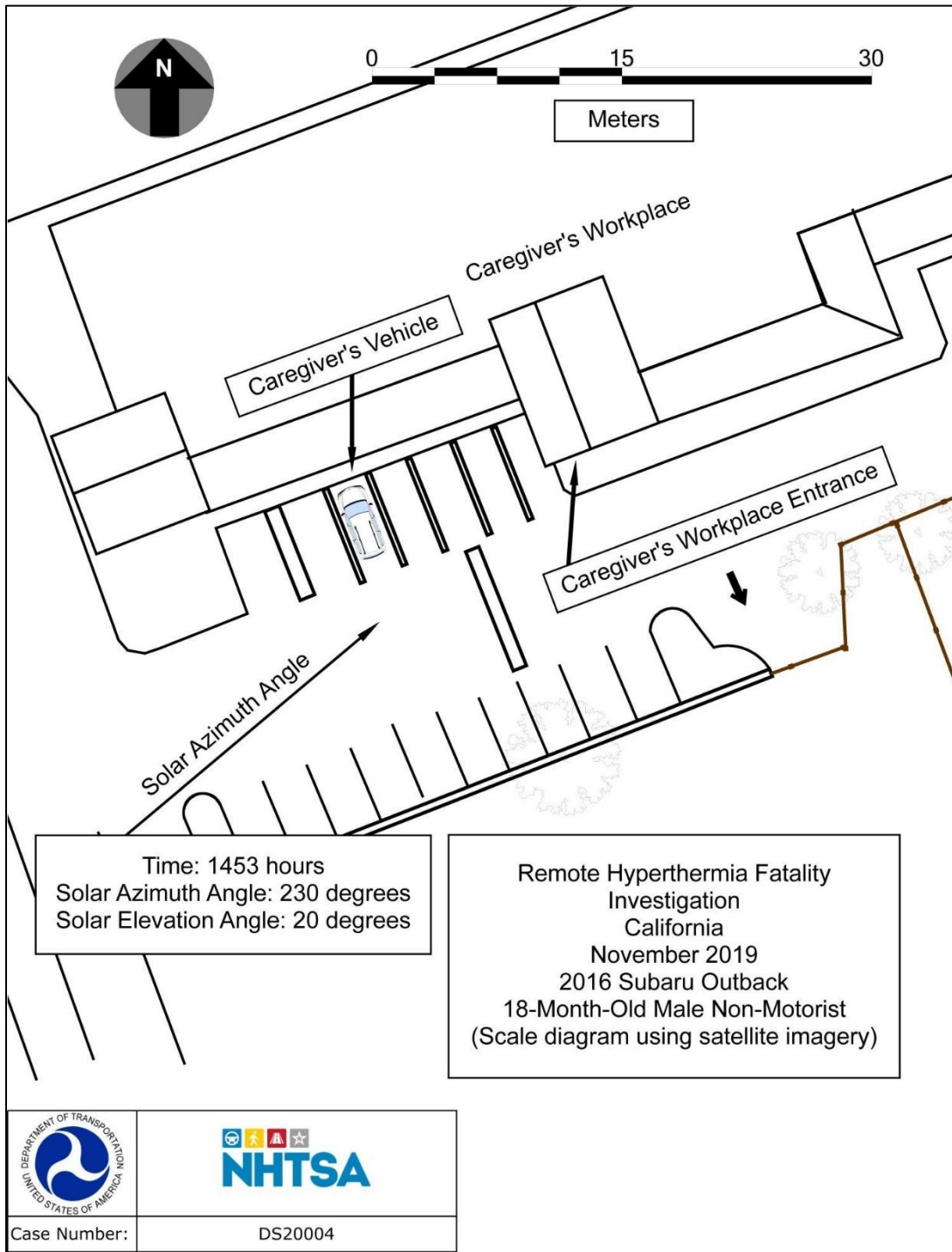
### ***Non-Motorist (Child) Data***

Age/sex:	18 months old/male
Height:	81 cm (32 in)
Weight:	10.4 kg (23 lb)
Clothing:	Blue and white striped “onesie,” white disposable diaper
Seat type:	Bench seat with split folding back
Seat position:	Second-row right
Restraint usage:	Rear-facing CRS with 5-point harness
Transport from scene:	Ambulance to hospital
Type of medical treatment:	CPR attempted, declared deceased at hospital

The child was an 18-month-old male. He was seated in a rear-facing Chicco KeyFit 30 CRS in the second-row right seat position of the Subaru. The child’s age, height and weight were appropriate for the CRS in its rear-facing orientation. The child was wearing a blue and white striped onesie and a disposable diaper. His shoes and socks were found on the floor of the vehicle after the incident. It was unknown if he was covered by a blanket or other objects. A black fleece jacket and soft white blanket were present on the seat next to the CRS but this item was not mentioned in the police incident report or autopsy report. The CRS carry handle was in the up position, behind the headrest. Police photographs of the vehicle did reveal large objects in the second row and rear cargo area including a garden hose cart and hose, a gym bag, a paper shopping bag and a foam pool noodle. It is unknown whether those items could potentially block motion sensors.

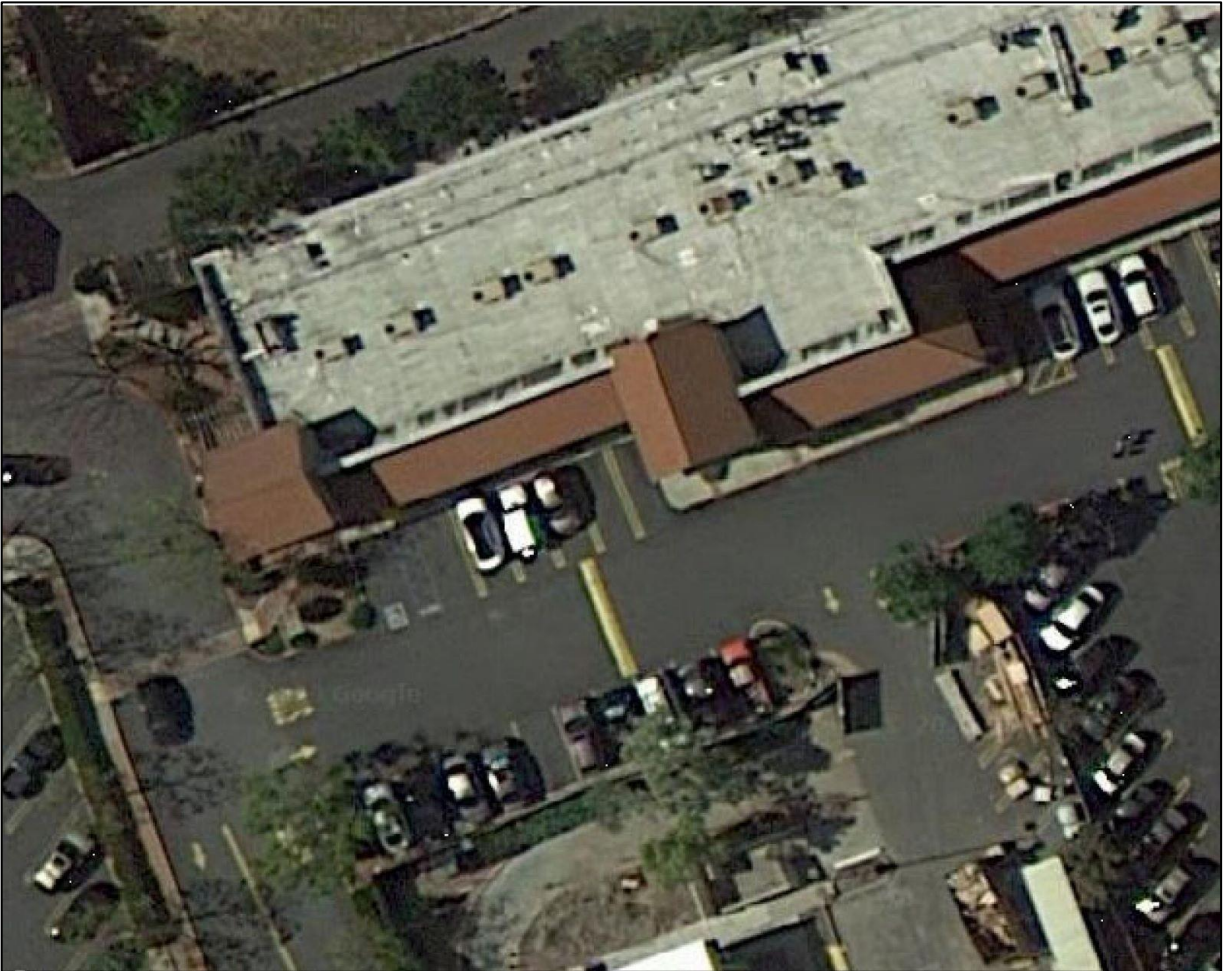
According to the autopsy report, the child sustained evidence of blunt trauma as follows: small abrasion, right forearm; pinpoint abrasion, right thigh; pinpoint abrasion, left nostril; yellow, waxy abrasions, left upper arm; pinpoint yellow, waxy abrasions, left posterior knee; and yellow-brown, waxy abrasions, right posterior knee. The report stated no contusions, lacerations or burns were present. A toxicology report indicated negative for alcohol and no detection of any drugs.

# Incident Site Diagram



## Incident Site Satellite View

(Google Maps image date: March 2020)



DOT HS 813 360  
December 2022



U.S. Department  
of Transportation  
**National Highway  
Traffic Safety  
Administration**

