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# The 2016 Motor Vehicle Occupant Safety Survey: 911 Systems

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## Background

For over 50 years, Americans have relied on 911 to call for emergency services. Public Safety Answering Points (PSAPs) around the country receive an estimated 240 million 911 calls each year (NENA, n.d.), with an increasing percentage from cellular phones and text messages.

Following a motor vehicle crash (MVC), timely activation of the emergency response system is critical to reducing fatalities and minimizing injuries. Highlighting the importance of post-crash care, the World Health Organization 2018 Global Status Report on Road Safety recommends an emergency number to be "valid throughout the country, easy to remember and available as a free call" (WHO, 2018). The adoption of cell phones as primary phones has changed the concept of "throughout the country" to mean more than a landline in each household or business. To keep pace with advances in the public's communication devices, the Nation's 911 system needs an upgrade.

Since it was established by Congress in 2004, the National 911 Program has been housed within the National Highway Traffic Safety Administration Office of Emergency Medical Services. The National 911 Program serves as a Federal point of coordination for activities among 911 stakeholders and provides resources to State and local 911 authorities to integrate their systems and upgrade their infrastructure.

During this time of transition, insights from the Motor Vehicle Occupant Safety Survey (MVOSS) can help inform 911 systems how they can better serve the public. The National 911 Program's efforts to develop a nationwide, fully integrated 911 system with modern infrastructure will help to provide improved 911 services to residents and, ultimately, to increase survivability from MVCs.

## Methods

The 2016 MVOSS (Bailly et al., 2019), the seventh in a series of periodic national surveys on occupant protection issues, consists of two questionnaires administered to a nationally representative sample of approximately 12,000 people. Survey B included questions about EMS and 911 that are reported here. Survey administration began June 14, 2016, and ended February 24, 2017. Respondents 18 years or older were recruited using address-based sampling to create a probability-based, nationally representative sample. Respondents received a $1 non-contingent and $5 contingent incentive for participation and responded using an online or mailed paper survey. MVOSS contacted a random sample of 24,000 households allocated proportionally across the 10 NHTSA Regions (all United States and territories). The final sample included 5,410 completed surveys. Approximately half (49%) of respondents completed the online survey. The data is weighted to yield national estimates.

## Results

Among MVOSS respondents who used wireless phones to report emergencies while driving or riding in motor vehicles, the three most frequent emergencies reported to 911 were related to traffic safety (see Table 1). Most respondents called 911 to report MVCs (62%), with 31 percent calling to report reckless/aggressive drivers, and 29 percent calling to report drunk drivers.

**Table 1. Kind of Emergency Reported by Respondents Who Called 911 From Motor Vehicles***

| Kind of Emergency | Percent |
|---|---|
| Motor vehicle crash | 62% |
| Reckless/aggressive driver | 31% |
| Drunk driver | 29% |
| Broken down or disabled vehicle | 26% |
| Pedestrian walking/cycling on roadway | 1% |
| Other | 32% |

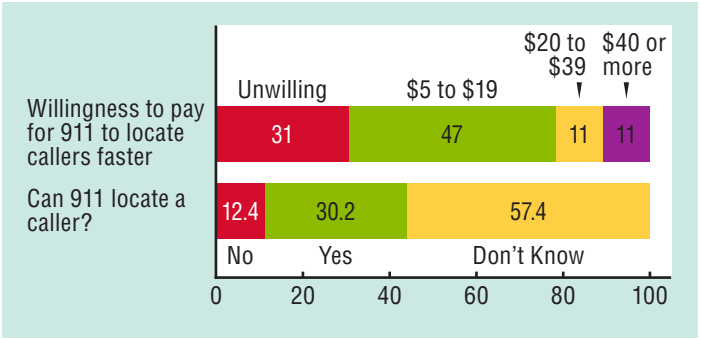
*Total exceeds 100 percent because participants could choose multiple options.

These percentages demonstrate the important connection between MVCs, 911 systems, and EMS. Among respondents who reported placing emergency calls, more than half (54%) called to request an ambulance, rescue squad, or EMS. Slightly less than half (45%) called to request police, and 10 percent called to request fire department response.

In a medical emergency, 91 percent of MVOSS respondents indicated that they expected to receive pre-arrival instructions from 911 operators while waiting for an ambulance. Despite the fact that most respondents expected emergency medical dispatch (EMD) capabilities when they call 911, many PSAPs around the country do not yet have this capacity. In 2018, 2,020 PSAPs reported that they "provide EMD and follow a specific protocol" out of 5,232 total PSAPs nationwide (approximately 39%) (NHTSA OEMS National 911 Program, expected 2019; FCC, 2018).

Only 30 percent of MVOSS respondents were confident that a 911 call center could identify a caller's location without being explicitly told by the caller. Results from MVOSS suggest the public is willing to pay more for expanded 911 services, with 69 percent of respondents willing to pay at least $5 more in fees or taxes to enable 911 call services to locate callers faster (see Figure 1).

**Figure 1. 911's Ability to Locate Callers and Willingness to Pay More to Locate Callers Faster**




In addition, respondents reported the actions they would take if the 911 system was overloaded during a disaster and could not accept calls. Sending a text message was the most frequent response (21%), and seeking help or additional information from an internet source such as social media or e-mail was the third most frequent response (17%) (see Table 2). While some PSAPs currently have the capacity to receive text messages, many 911 systems across the Nation do not. As of June 2019, 1,189 U.S. counties have text-to-911 capacity (37% of total U.S. counties), and 29 percent of all U.S. PSAPs are capable of receiving texts (Fowlkes, 2019).

**Table 2. Response If Call System Is Overloaded During Disaster Situation***

| Response | Percent |
|---|---|
| Text message | 21% |
| Physically move to get help (drive, walk, etc.) | 18% |
| Internet-driven (social media, e-mail, etc.) | 17% |
| Call someone directly for help (police, fire department, doctor, etc.) | 8% |
| Send someone/ask someone nearby to help | 7% |
| Yell for help | 6% |
| Call family/friends to keep trying to get advice | 5% |
| Would keep calling | 5% |
| Radio, CB radio, ham radio | 2% |
| Ask someone else in the area to call | 1% |
| Other | 11% |

*Total exceeds 100 percent because participants could choose multiple responses.

## Discussion

MVOSS respondents indicated the top three reasons for an emergency call were related to traffic safety. Since many 911 callers reported potentially dangerous drivers or MVCs, the important role of 911 in both preventing and responding to MVCs cannot be underestimated. Some municipalities actively promote use of 911 in reporting drunk drivers. State highway safety partners might consider more active promotion of 911 initiatives to help prevent MVCs.

More than 90 percent of respondents expected to receive EMD services when calling 911, and more than half did not know if 911 could locate a caller without being told the caller's location. These results suggest a gap between public expectations of 911 services and current capabilities. While technical upgrades (also known as Next Generation 911 or NG911) enable improvements in technology, PSAPs need additional resources to implement these improvements. Nearly 70 percent of respondents indicated they would be willing to pay more for expanded 911 services.

NG911 has yet to be fully deployed in any jurisdiction. Once functional, it will facilitate text, data (e.g., Advanced Automatic Crash Notification), and multimedia submissions from callers to PSAPs. NG911 will also help handle system overload during disasters, with the capability to transfer calls and data between PSAPs – a function the current infrastructure does not have.

The National 911 Program supports State and local conversion to NG911 through the development of resources, coordination of 911 stakeholder efforts, and oversight of a grant program to improve PSAPs. The program is collecting data on which states currently have EMD and measuring progress toward full NG911 implementation. These data will be available on 911.gov. The National 911 Program also coordinated the efforts of 911 stakeholders to produce a doc-

ument containing best practices for PSAPs on the utilization of supplemental 911 caller location data, which stands to significantly improve 911 caller location data (NENA, NASNA, & iCERT, 2019).

Post-crash care is an integral part of traffic safety. A 911 call is often the first point of contact between the public and the trauma care system after a MVC. Improving the Nation's 911 system will contribute to NHTSA's vision of eliminating traffic fatalities and major injuries on the Nation's roadways.

## References


National Highway Traffic Safety Administration Office of Emergency Medical Services: National 911 Program [NHTSA OEMS National 911 Program]. (Expected 2019, December). 2018 National 911 Progress Report. Available at: www.911.gov/project_national911progressreport.html

Federal Communications Commission [FCC]. (2018, December 17). Tenth Annual Report to Congress on State Collection and Distribution of 911 and Enhanced 911 Fees and Charges for the Period January 1, 2017 to December 31, 2017. Available at: www.fcc.gov/file/14980/download

National Emergency Number Association [NENA: The 911 Association]. (n.d.). 9-1-1 Statistics. Available at: www.nena.org/page/911Statistics

National Emergency Number Association [NENA], National Association of State 911 Administrators [NASNA], & Industry Council for Emergency Response Technologies [iCERT]. (2019, February). Recommended best practices for supplemental 911 location data. Available at: www.911.gov/pdf/Recommended_Best_Practices_for_Supplemental_911_Location_Data_February_2019.pdf

National Highway Traffic Safety Administration. (2016, October). The road ahead: National Highway Traffic Safety Administration strategic plan, 2016 – 2020 (Report No. DOT HS 812 343). Available at: www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/12532-nhtsa-strategic-plan-2016-2020.pdf

Fowlkes, L. (2019, June). [Presentation at National Association of State 911 Administrators (NASNA)].

World Health Organization [WHO]. (2018). Global status report on road safety 2018: Summary. Available at: https://apps.who.int/iris/bitstream/handle/10665/277370/WHO-NMH-NVI-18.20-eng.pdf?ua=1


## How to Order

Download the final reports *2016 Motor Vehicle Occupant Safety Survey, Volumes #1 Methodology Report* and *#4 Emergency Medical Services and Other Traffic Safety Topics* at www.nhtsa.gov.

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