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DRUG USE AMONG DRIVERS

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16. Abstract

Randomly selected drivers were stopped at times and places of previous fatal crashes in Lincoln, Nebraska, and Dade County (Miami), Florida. Breath, urine, blood, and lip swab samples were requested, for later analysis for drugs and medications. A cooperation rate of 78% was achieved for most aspects of the survey, and slightly less for obtaining a blood sample. Overall, 1,029 urine samples and 840 blood samples were collected and analyzed.

About 3% of the Lincoln drivers and 2% of the Dade County drivers evidenced one or more of the 41 drugs tested in the blood or at concentrations of 1 µg/ml or more in the urine. At least a trace amount was confirmed in about 4.3% of each driver group. Sedatives, particularly phenobarbital, were the most commonly found drugs. In addition to the 41 drugs, marijuana traces were found on the lip swabs of 3% of the Lincoln drivers and 9% of the Dade County drivers.

The living driver findings were compared with similar results from fatally injured drivers, obtained under a previous contract. The comparison indicates that users of drugs are about four times as likely to be fatally injured in a vehicular crash as nonusers.

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PREFACE

This report was prepared under Contract No. DOT-HS-119-2-440 for the Department of Transportation, National Highway Traffic Safety Administration. The authors gratefully acknowledge the assistance provided by Mr. Peter Ziegler, NHTSA, the Contract Technical Manager. The discussions and assistance provided by Dr. James Nichols and the suggestions of Dr. Fred Benjamin, both of NHTSA, were also much appreciated.

Mr. Robert R. Blackburn, Senior Traffic Safety Engineer, was the project leader and principal investigator. He was responsible for all aspects of the work. He was assisted by Dr. William D. Glauz, Manager, Highway and Traffic Systems Engineering, particularly in securing the cooperation of city officials, in data analysis, and in report preparation.

Many other MRI staff members played a key role in this project. Dr. E. J. Woodhouse, Principal Chemist, supervised all laboratory analysis of urine, blood and lip swab samples. These laboratory analyses, as well as the obtaining of similar data from fatally injured drivers, were performed under a related Contract No. DOT-HS-119-3-627.

The six field surveys were supervised by the first author and by Mr. C. K. Doll and Dr. L. Bruce McDonald. They were assisted by Messrs. Jerry Graham, Douglas Harwood, and Walter Hodge of MRI.

Statistical analysis and related activities were the responsibility of Mr. Michael Sharp, assisted by Mr. Duncan Sommerville, Ms. Rosemary Moran, Ms. Gayle McKinney and Ms. Robin Hunter.

The field surveys would not have been possible without the cooperation of many public officials from the Cities of Lincoln, Nebraska, and Dade County (Miami), Florida. In particular, their assistance was invaluable in arranging press conferences, providing traffic control personnel, and in locating registered nurses who assisted in the survey.

Finally, the authors wish to publicly thank the 1,160 motorists who participated in the survey, donating their time and the necessary fluid samples. Their cooperation was remarkable, and to an extent far beyond almost everybody's expectations.

Approved for:

MIDWEST RESEARCH INSTITUTE

F. V. Morriss, Vice President
Scientific Affairs

September 1974

ADDENDUM

This report provides data in an area where none existed before. However, difficulties in the collection and analysis of data with respect to drug incidence exist and require caution to be exercised in the interpretation of the data.

The reader should be aware of the following points in particular regarding the data reported.

1. Because of the difficulties involved in securing body fluid samples from live drivers, it was not possible to secure comparative data on live drivers and fatally injured drivers in the same cities. The fatal data were secured from 36 cities/counties other than the two in which the live driver data were collected, and thus tables comparing the two should be viewed with this in mind.

2. The findings in the report that present the relative chance of being fatally injured for different drug types should be viewed cautiously because (1) the problem of comparing samples from different cities as discussed above, and (2) the computed values of risk are based on a very small number of cases.

3. Because the laboratory technique used for detecting marijuana is very new and still undergoing revision, the findings based on this technique are subject to some margin of error. However, if an error does exist, it could be in either direction, i.e., marijuana could be found more or less frequently than that found in this study.

These caveats have been pointed out in more detail by Midwest Research Institute throughout their report and are emphasized here only to alert the reader who may not have intended to review the report in detail.

This study raises the possibility that some drugs may be over-represented in fatal accidents. In addition, this project has shown that it is feasible to develop public cooperation and secure fluid samples on a voluntary basis. NHTSA has initiated other work to improve the accuracy with which marijuana is detected in the samples collected, and to collect additional data from which more definitive conclusions may be drawn.

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SUMMARY

Two communities, Lincoln, Nebraska and Dade County (Miami) Florida, cooperated with MRI in the conduct of roadside surveys of drug use among drivers. Approximately 4 dozen sites were selected for the surveys, each of them being the approximate location of a recent fatal crash. The survey procedure consisted of stopping randomly selected motorists, conducting an interview, and requesting breath, urine, blood, and lip swab samples.

Nearly 1,500 motorists were stopped, of whom 78% cooperated with the interview. Nearly all of those interviewed provided a breath sample and a lip swab sample. Likewise, nearly all consented to give a urine sample, but only about 75% of them were able to produce a sufficient quantity on demand.

About 85% of the people asked agreed to provide a blood sample. This rate was slightly influenced, but only with marginal significance, by the offer of a payment. The amount of the payment did not influence the consent rate.

The drivers encountered had quite different demographic characteristics in the two communities. The Lincoln population was heavily influenced by the presence of the University of Nebraska. Thus, there was a tendency for the Lincoln drivers to be well educated, young, white Americans, many of them students driving older or sporty cars and with relatively low incomes. In Dade County, on the other hand, there was much greater mixture of the races, with a large fraction of older drivers, many in the higher income brackets. There were also a great many with relatively little education by current standards.

The acceptance rate of the survey was markedly different in the two communities, with a much greater acceptance in Lincoln. This was probably partly because of the different demographic make-up, and partly because traffic department personnel, not uniformed police officers, were used for traffic control in Dade County.

The blood and urine samples were analyzed in the laboratory for the presence of drugs. Quantitative procedures were used for 41 drugs, which were placed in six categories: sedatives/hypnotics; stimulants; antihistamines and decongestants; tranquilizers; narcotics and analgesics; and miscellaneous. Qualitative determinations only were made for nicotine, aspirin, and salicylic acid. Of these, only the nicotine results were considered reliable. Finally, blood alcohol content determinations were made using the breath sample and qualitative evidence of marijuana usage was obtained from the lip swabs.

Fluid sample findings which were confirmed by gas chromatography or mass spectrometry were placed into two categories. Level A included all blood sample findings and all drugs found in the urine at concentrations of 1 µg/ml or greater. Level B consisted of drugs found and confirmed in the urine at lesser concentrations. Most statistical analyses considered either Level A findings or total findings (Levels A and B conbined).

Overall, about 3% of the Lincoln drivers and 2% of the Dade County drivers evidenced one or more drugs at Level A. Totally, about 4.3% of all drivers evidenced one or more drugs, with the percentage being about the same in each community. These percentages are roughly comparable to figures often quoted concerning nighttime drivers under the influence of alcohol. The number of drivers involved is relatively small in that only 44 drivers from the entire sample of over 1,000 evidenced drugs.

In many respects, the drug findings among Lincoln and Dade County drivers were similar. Sedatives, particularly phenobarbital, were most often detected. One anomaly, however, was that several samples from Lincoln indicated meprobamate (Miltown), whereas no driver from Dade County evidenced this drug. It is not clear whether this is a true representation of the Lincoln driver sample or whether the anomaly resulted from procedural difficulties. The latter is suspected.

Nearly all of the living-driver drug detections resulted from the urine samples, rather than the blood samples. As wide a disparity did not exist in previous analyses of fatally-injured driver samples. This may be an indication that the level of drug influence among the living drivers was less than that among fatally injured drivers.

The lip swab procedure indicated that 3% of the Lincoln drivers and 9% of the Dade County drivers had recently been using marijuana. An analysis of test swabs produced in this study confirmed earlier conclusions that although the procedure did not produce any false positive findings, it was less than 100% effective in detecting all the true positives. Ongoing research also indicates that the possibility exists for false positives due to certain interfering substances. Therefore, the findings relative to marijuana should be considered as preliminary and subject to modification.

Smoking of tobacco had occurred recently among 58.5% of the Lincoln drivers but only 48.1% of the Dade County drivers. These percentages are significantly different.

Persons using drugs were found to be no more nor less likely to have also been using alcohol than persons not using drugs.

Data previously collected and reported concerning use of drugs in fatally injured drivers were reexamined. Considering only urine and blood findings, as was done with the living drivers, it was determincd that about 10% evidenced drugs at Level A and, overall, 17.69% evidenced drugs. The most commonly detected drug was phenobarbital, with phenopropanolamine second. The stimulants, amphetamine and methamphetamine, were also frequently encountered.

These fatally-injured-driver findings came from 710 drivers in 36 areas or communities of the country. For purposes of analysis, the communities were divided into two types, those considered most typical of a large metropolitan area, and those typifying smaller communities or rural areas. Drivers from the large metropolitan areas were found to be somewhat more likely to have been using drugs, but the differences were not great.

Mouth swabs, similar to the lip swabs used for living drivers, indicated that 21.9% of the fatally injured drivers had been using marijuana. And 54.9% had been smoking tobacco.

The relative incidence of drugs in the living drivers was compared with the relative incidence of drugs in fatally injured drivers. This was done despite recognition of the limitations of such comparisons. The findings among drivers in Lincoln were not always in agreement with the findings among drivers in Dade County. Moreover, there is no reason, a priori, to believe that either set of drivers is a direct reflection of the drivers at large at the times and places of the fatal crashes resulting in the fatally injured driver samples. Nevertheless, the comparisons are indicative that fatally injured drivers are significantly more likely to have been using drugs than drivers at large. They imply that drivers using drugs have a greater chance of being fatally injured in a vehicular crash than drivers at large--perhaps about four times as great. It appears that the danger may be greatest with stimulants and antidepressants, although data samples are not large enough to make very positive statements in this regard. Also, and again based on small samples, it appears that chances of fatal injury increase with the amount of drug in the driver's system.

Based on quantitative determinations only, marijuana users are also more likely to be fatally injured in a crash than nonusers--again by a factor of about four. Tobacco smokers, on the other hand, are apparently no more or no less likely to be so involved than nonsmokers.

The study reconfirmed the fact that alcohol is the most abused drug among drivers, and that it plays the leading role among drugs as a causative factor in fatal crashes. Drivers who would be legally presumed intoxicated in most states (BAC of 0.10% or more) were found to be far more likely to be fatally injured in a crash as sober drivers. In agreement with previous findings, the relative chance increases drastically with BAC, being 6.25 in the range 0.10% to 0.14% and an uncertain but extremely high figure at greater BAC's.

In further confirmation of previous findings, alcohol usage depends strongly on time of day but is relatively independent of day of week. In both communities, the majority of the drinking and nearly all of the drunk driving was detected in the late evening and early morning hours. No relationship was found between drinking and driving and the use of tobacco, however, despite some opinions to the contrary.

Drivers were asked questions concerning their use of drugs. Overall, about 20% said they were taking prescription drugs. Also, 23% of the Lincoln drivers and 30% of the Dade County drivers admitted taking non-prescription pills and medications (predominantly vitamines and minerals). Most of the drugs had been taken within the last 24 hr.

The responses of the drivers in whom drugs were later detected were analyzed separately and compared with the answers of drivers at large. Relatively few differences could be found, except that a larger fraction (about half) of the detected drug users admitted taking drugs. Moreover, these drivers admitted they were taking an average of nearly three drugs apiece.

I. INTRODUCTION

The nation's traffic safety community has long been searching for causative factors of automobile crashes. In the last few years it has become widely recognized that, in regard to serious crashes, the single most commonly encountered causative factor is the excessive use of alcohol. It is well established that about half of all fatal crashes, and a disproportionate share of injuries, involve intoxicated drivers or pedestrians. A number of Alcohol Safety Action Projects (ASAP) have been established throughout the country with the common primary objective of reducing the number of fatal crashes involving alcohol.

Recently, attention has been directed to the use of other drugs such as narcotics, sedatives, tranquilizers, and stimulants. The frequent and, in some cases, abusive use of licit and illicit drugs by the population has caused concern that such drug usage might also pose a problem in traffic safety, particularly regarding fatal crashes. Little is known about the frequency of driving while under the influence of these drugs or their involvement in traffic crashes.

To determine the significance of drugs in vehicular fatalities, it is necessary to determine the incidence of drugs in fatally injured drivers and the incidence of drugs in a sample of the living driver population at times and locations comparable to those for fatal crashes. A comparison of the incidence of drug usage in these two categories would yield information on the relative risk of a driver becoming involved in a fatal crash when he has one or more drugs in his system. This process has been used often for alcohol. It has not previously been followed for drugs other than alcohol.

A recently completed contract provided partial answers (Contract No. DOT-HS-119-3-627, "The Incidence of Drugs in Fatally Injured Drivers"). This was the first program of its type and served as the forerunner to the present study. Quantitative procedures were developed for determining the presence of 41 drugs in addition to blood alcohol concentration (BAC). Qualitative techniques were devised for four other drugs--marijuana, nicotine, aspirin and salicyclic acid. Seven hundred ten sets of fluid samples were obtained from throughtout the country from fatally injured drivers. The analytical results indicated that 58% of the drivers had ingested alcohol, and 47% of the drivers were legally drunk (BAC > 0.10%). Thirteen percent of the drivers evidenced a prescription drug in the blood, or at concentrations of at least 1 μg/ml in the urine or bile, predominantly of the sedative/hypnotic type (7.19% of all drivers).

This report deals with the other type of data needed--data from living drivers. There were two specific objectives of the program. They are:

1. To collect 1,000 urine samples, and attempt to collect 1,000 blood samples, from drivers on the roads at times similar to and located at sites of previous accidents in which fatalities occurred; and

2. Based upon government-furnished data from laboratory analyses of drug levels found in these 1,000 drivers, and of a comparable number of fatally injured drivers, determine the likelihood of a driver's becoming involved in a fatal crash when he has certain types and amounts of drugs in his system.

Section II of this report presents the methodology used in the program. The major portion of this report is Section III, Results and Discussion. Its subdivisions describe the nature of the respondents, driver cooperation, drugs found in the living driver samples, a review and reexamination of fatally injured driver findings, the relationship between living and fatally injured driver findings, results relative to alcohol, and analysis of living driver responses to questions.

The report ends with a section of conclusions and recommendations, followed by four appendices containing backup material.

II. METHODOLOGY

A. Community Selection

At the beginning of the program it was anticipated that the collection of fluid samples from living drivers would be conducted within two of the nine original Alcohol Safety Action Project (ASAP) communities. Selection was to be made, first, on the basis of four nearly mandatory requirements, and second, on the basis of a number of desirable requirements. The "nearly mandatory" qualification was used realizing that if two communities could not be found satisfying all four of the requirements, some concessions would be necessary.

The four nearly mandatory requirements were:

1. The community, through its coroner(s) must have provided a relatively large number of samples from fatally injured drivers for laboratory analysis. Between 50 to 100 samples were considered highly desirable.

2. The community must be willing to provide complete fatal crash data.

3. The community must have previously indicated their willingness to cooperate in similar studies as evidenced by an ASAP Roadside Survey having been conducted.

4. The responsible police, public health and legal authorities of the community must indicate willingness to cooperate with a roadside drug usage survey.

The secondary criteria pertained to one underlying desire, namely that in some sense the end results of the study should be capable of generalization to all fatal crashes that are occuring in the United States. Therefore, the two communities should differ in many respects. For example, they should be geographically distinct and separated. The populations should be somewhat different socially, that is, both should probably not be large urban populations or both predominantly rural populations. If one community is dominated by a large university environment, the other should not be.

NHTSA sent letters to the project directors of the nine ASAPs describing the drug project and, in particular, asking for cooperation in allowing the roadside drug usage survey to be held in their community. It was soon determined that none of the nine communities satisfied all four requirements. Some expressed concern that the drug survey would interfere with the local annual ASAP roadside survey. At the time of the inquiry, only two communities--Seattle, Washington and Portland/Eugene, Oregon ASAPs--had contributed a sufficient number of samples from fatally injured drivers. However, there was serious doubt that the roadside survey could be officially conducted in west coast states because of state regulations.

The list of potential sampling areas was subsequently expanded by including the 20 "second round" ASAP sites. Letters seeking cooperation for the survey were also sent by NHTSA to the directors of the additional communities. Three favorable replies, including Lincoln, Nebraska were received.

Visits were made to each of the three communities to describe the objectives of the program and to present some of the details of the planned survey. Meetings in each community were held between MRI, representatives of NHTSA, including the Contract Technical Manager, and various city/county officials. The community officials involved in most of the meetings included representatives of the ASAP office, the Mayor's office, Police, Traffic, Health and Legal Departments. A brochure describing the roadside drug usage survey was distributed before the meetings. This document gave the background for the survey, objectives of the program, procedures to be followed in the survey, and the need for the community cooperation.

In these meetings it was stressed that MRI would coordinate all survey planning and activities. Also, the assistance of the various governmental agencies was discussed. The assistance of the police and traffic departments was required in selecting safe and suitable sampling locations. Police officers would be needed to provide traffic control and perform the act of stopping vehicles for sampling, under the direction of survey personnel. The assistance from the Health Department was needed in publicly backing the survey, approving of the fluid sampling procedures and helping arrange for registered nurses to be assigned to the survey. The Legal Department's help was sought in answering any legal problems.

The main concern expressed by each of the three communities seemed to be on the part of the police who were fearful that the drug survey might interfere with the ASAP Roadside Survey. The community interest in the drug survey was stronger in Lincoln than in the other two areas. The feeling in Lincoln was that if the Mayor or City Council would support the survey, the rest of the problems could be worked out.

Subsequently, we presented a briefing on the drug survey to a televised meeting of the Lincoln City Council. A favorable response to this briefing prompted the Mayor to issue a proclamation supporting the survey and asking that the involved city agencies cooperate in conducting the survey.

No fluid samples from fatally injured drivers were available from Lincoln at the time the community was selected as the first of two sampling areas. It was thus decided that the first of the four nearly mandatory requirements could be discarded in looking for the second survey community. (The third requirement was also discarded after having exhausted the possibility of working in another ASAP area.) The search for a second sampling community was conducted with the help of NHTSA from among non-ASAP areas known to have an interest in highway safety in general and in the drug problem in particular. Dade County, Florida (which includes Miami) was one such community. Dade County is a large metropolitan area and, as such, opposite from the predominantly rural, university-dominated environment of Lincoln, Nebraska.

A series of meetings was held with Dade County officials following the same procedures used in soliciting the cooperation from Lincoln. As a result of these meetings, the Dade County Manager agreed to cooperate in the survey and requested other county agencies to assist MRI in conducting the survey. Dade County thus became the second survey community.

B. Site Selection

After Lincoln and Dade County were selected as the survey communities, it was necessary to select the actual sampling sites within each area. The sampling in both communities was done during the time of day, day of week and at locations comparable to previous crashes wherein a driver(s) was fatally injured. Traffic moving on the same street and in the same direction as the vehicle of the fatally injured driver was sampled.

Initially, it was anticipated that the fatal crash sites used would only be those for which the fatally injured driver was dead on arrival at a hospital (so that no medication was given) and for which fluid specimens were obtained and analyzed for drugs. This restriction on fatal crash sites was removed upon selection of the two survey communities.

Six years of Lincoln, Nebraska, fatal accident data, 1967-1972, were obtained and screened for locations of driver fatalities. (Six years were required since Lincoln experiences an average of about 11 fatal crashes each year.) This screening process yielded 35 potential sampling sites.

Traffic count data were obtained for these 35 locations and a personal inspection of each site was then made. Of the 35 sites, 20 sites were selected on the basis of satisfying traffic volume and safety requirements. A signed statement was obtained from the property owners of the sites granting permission to use their off-street parking areas for the motorist's interviews.

One year of Dade County, Florida, fatal crash data, 1972, was obtained and screened for potential sampling sites. (Two hundred eighty-four fatal crashes were recorded in 1972, which is about the yearly average for the county.) The initial screening process yielded 116 locations in 25 communities of the county. These locations were plotted on a map and only those sites which fell within an area described by a 12-mile radius from downtown Miami were further evaluated. The 12-mile limit was chosen so that the maximum travel time between two extreme locations would not exceed 1-1/2 hr. This procedure reduced the number of potential locations to 72. Further analysis of the 72 locations considering time of day and day of week of the crash yielded 50 potential sampling sites. A personal inspection of each site was then made. Of the 50 sites, 24 were finally selected on the basis of satisfying the survey requirements. Again, permission was obtained from the owners of the sampling sites to allow us to use their off-street parking areas for the motorist's interviews.

The specific spot at which a vehicle was pulled from the traffic stream for purposes of sampling, and the specific time of the sampling were subject to some relaxation from the requirements listed at the beginning of this section. The time of sampling at a given site was matched essentially perfectly as far as time of day was concerned, but only approximately as far as day of week. The sampling at each site was done over a 2-hr interval centered as near as possible at the time of the previous crash. Weekdays were considered as interchangeable with one another; weekend days were also considered as interchangeable with one another.

Some deletion and slight shift in site locations was necessary. There are valid reasons for making these changes and reasonable guidelines for doing so. For instance, no sampling was done on freeway facilities or under conditions where speed, congestion, or both might create a traffic and/or accident situation. In some cases, the sampling site on a non-freeway-type highway was moved a few miles upstream or downstream of the site of the crash where an area of enforced reduced speed was available. Likewise, when a crash occurred in an urban setting at an intersection, the sampling point was moved a block or two upstream of the intersection where a more suitable location for placing the mobile laboratory could be found.

No sampling was done at sites or at times with exceptionally low traffic volumes. A minimum traffic count of 20 vehicles per hour was required at the time and location of sampling and in the desired direction of traffic flow.

Also, another cause for complete rejection of a site was the complete unavailability of a nearby location for placing the interview van. This situation occurs, for instance, when a fatal crash takes place during rush hour in a downtown area where on-street parking is prohibited and no parking area is available.

C. In-Field Procedure

A total of 44 sampling sites were used in the study: 20 sites in Lincoln and 24 in Dade County. The surveying in each community was done over three distinct periods. The sampling time of each period extended over 10 successive days, including two weekends. Three sites were visited each sampling day.

The sampling procedure followed an experimented design amenable to an analysis of variance. The major variables in the design were: (1) time of day, (2) day of week, (3) location (urban and nonurban), and (4) geographical area (Lincoln and Dade County). The experimental design balanced these factors and enabled statistically valid measures of their individual significance as well as their interactions.

A press briefing was held in each community one day prior to the start of the first survey period in that community. The briefings were held in municipal buildings and were presided over by the Director of the Health Department and a representative from MRI. Reporters from local newspapers, radio and TV stations attended the meetings and gave us excellent mass media publicity. The favorable survey publicity helped to give us a higher-than-expected cooperation rate from the motorists.

The roadside drug usage survey procedure was very similar to that of an Alcohol Safety Action Project roadside survey. A major item of equipment used during the survey was a mobile laboratory. This was a locally rented motor home which contained heating, cooling, refrigeration and sanitary facilities together with counter and storage space capabilities and necessary seating arrangements for effective interviewing. The unit contained its own power generating equipment for both internal and external lighting. Four flood lamps were placed on the roof of the motor home to provide lighting of the immediate parking area. A sign describing the nature and backing of the survey was placed on the side of the motor home,

in view of the motorist. A portable, diamond-shaped sign alerting motorists to the roadside survey was mounted on its own support and placed on the curb upstream of the survey site.

The sampling crew consisted of a MRI field supervisor, an MRI assistant, a locally hired registered nurse for drawing blood, and a police officer to direct traffic and intercept randomly selected vehicles. When possible, and particularly late at night, a locally hired driver was used to assist intoxicated motorists to their next destination.

The police officer was a necessary and integral part of the survey in Lincoln. It was not possible, however, to hire police officers for the survey in Dade County. Although the Dade County Police Department supported the survey, it could not allow its officers to be assigned to the survey. Instead, field personnel from the Metropolitan Dade County Department of Traffic and Transportation were hired on a part-time basis to fulfill the duty of the police officer on the survey. The traffic people assigned to the survey had experience in working on origin-destination surveys. Even though the traffic personnel carried Dade County identification badges and used official county vehicles with a rotating beacon, they were not as effective at stopping motorists as were the police in Lincoln.

The survey procedure was as follows. When another interviewee was needed, the supervisor would notify the police officer (or county employee). The latter would then stop the next male motorist (who could reasonably be stopped safely) and direct him to the survey supervisor. The supervisor would introduce himself to the motorist and explain that he was conducting a drug usage survey for the U.S. Department of Transportation. He assured the motorist that his cooperation was voluntary and anonymous, and that nothing we found could be used against him. The motorist was given a letter from the Mayor requesting his cooperation. He was then asked to enter the van to answer some questions.

Once in the van, the driver was asked a series of questions about his age, health and what medications, if any, he was taking. A Breathalyzer test was administered by the assistant. The driver was then given a standard urine sample bottle and asked to step into the rest room and give us a urine sample.

When he returned, we asked him for a blood sample. The registered nurse withdrew a 20-30 ml sample using standard Vacutainers. Blood samples were not requested from motorists who were under the legal age of consent or who, in the opinion of the nurse, had chronic health problems.

The final sample requested of the motorist was a lip swab. A Q-tip dipped in ethanol was rolled around the lips to pick up any residue of marijuana. The sample was then placed in a screw top glass tube. Both positive and negative control swabs were also prepared in the field and submitted blindly for analysis along with the driver swabs.

After each fluid and swab sample was collected, it was coded with the corresponding interview number. The samples were then refrigerated until they were shipped by air to our laboratory, where they were generally frozen until chemically analyzed.

At the end of the survey the motorist was given the Breathalyzer result, some literature, and an opportunity to ask questions. We used all reasonable means to prevent the driver from continuing to drive if his blood alcohol concentration (BAC) was at or above the local legal presumptive limit. This included encouraging him to let a sober passenger do the rest of the driving, or requesting that someone else, such as our part-time driver, drive him to his local destination.

A number of motorists consented to give a urine sample but could not produce a specimen at the time, or gave an inadequate amount (less than 20 ml). These motorists were asked to place a urine sample in a coded specimen bottle furnished for that purpose, within the next several hours. The drivers were requested to write on the label the date and time of the sample, and place it in the furnished, self-addressed, stamped mailer.

A subsidiary experiment was performed within the data collection activity--that of determining the effect of the offer of a fee upon the willingness of the motorist to donate a blood sample. A five-level-of-fee plan was used: no fee, $1, $2, $5, and $10. The payment procedure generally followed at each site was to offer the first 20% no fee, the second 20% $1, etc., rather than strictly randomizing the fee offered. The reason for this approach was to minimize the possibility of an individual receiving a rather large fee and notifying a friend, in need of money, of the location of the sampling site. Another precaution followed within this sub-experiment was to avoid all publicity regarding the payment of fees.

D. Chemical Analysis Procedures

The procedures used for ascertaining the presence of drugs in the biological fluids and for their quantification are given in detail in the final report on Contract No. DOT-HS-119-3-627. The individual samples were usually frozen after acquisition and processed after a large number were available.

The procedures can be grouped into four categories. The first is the sequence used to quantify the presence of any of 41 specific drugs. Screening for the drugs (or drug groups) was performed using thin-layer chromatography (TLC). Any positive findings were confirmed by a second TLC screen. Confirmed findings were then reconfirmed and quantified using gas chromatography (GC) and, at times, mass spectrometry. Only reconfirmed and quantified results were considered as evidentiary.

A second category concerns the drugs, nicotine, aspirin, and salicyclic acid. For these, only the TLC procedure was used. Qualitative, but not quantitative, determinations were made.

Marijuana was detected from the alcohol-dipped lip swabs. The procedure used was that described as "on-the-swab," in the referenced report. It consists of detecting a specific color change of the swab after a prescribed treatment with Fast Blue B in hydrochloric acid, and then with sodium hydroxide.

Finally, blood alcohol determinations were made in the laboratory with a gas-chromatographic technique. Breathalyzer BAC determinations were also made in the field. Because the latter was performed for nearly everyone participating in the survey, whereas blood samples were not obtained from about one-fourth of the people, the field data were selected for subsequent statistical analysis.

E. Data Used and Statistical Analysis Performed

The data analyzed in this study came from both fatally injured and living drivers. Under Contract No. DOT-HS-119-3-627, urine, blood, bile and swab samples were provided by coroners from 37 areas of the country, and chemically analyzed for drugs. Bile findings are not considered in this study because they are not directly comparable to any data obtained from the living drivers.

The data collected from living drivers fell into two main categories: (1) breath, urine, blood and swab samples which were chemically analyzed for the presence of drugs; and (2) motorists' answers to the survey questionnaire (see Appendix A).

The survey questionnaire data were keypunched on cards along with the results of the chemical analysis of the living driver specimens. A computer program was written which accepted these data and performed statistical tabulations. Chi square analyses were performed on various data to determine the level of significance of the findings. Relative frequency tabulations

were also made of the data collected The survey data from Lincoln, Nebraska, and Dade County, Florida, were analyzed independently and in combination.

Finally, a determination was made of the relative chance of being fatally injured while driving a motor vehicle after having ingested various drugs. To maximize the correspondence between living and fatally injured driver sets, only the data from those drivers for whom both a blood and urine sample were analyzed, are included in the final calculations.

It was initially intended that, not only the presence of drugs, but also the level or concentration of drugs could be examined. The relative rarity of drug findings, particularly among living drivers, made this statistically impractical except for a very gross subdivision. Separate analyses were made for those drugs confirmed and quantitated in the blood (any concentration) and/or confirmed and quantitated in the urine at concentrations of 1.0 µg/ml or greater. This category is termed "Level A". Drugs in the urine at lesser concentrations (but still confirmed by GC and/or mass spectrometry) were considered as "Level B". Although this division is somewhat arbitrary, there is some rationale in the choice. It is the division used in a previous study (Contract DOT-HS-119-3-627). It also happens to split the overall findings into two approximately equally sized groups--a statistical advantage.

Because the total sample size is still rather small, and because the precise meaning of such drug concentrations relative to driver impairment is not clear, the reader is cautioned against being overly influenced by the tentative findings presented here. Level A findings are emphasized, but overall findings (Level A plus Level B--any confirmed drugs regardless of level) are also included.

III. RESULTS AND DISCUSSION

A great volume of data were obtained during this project. Much of the raw data have been presented previously in reports under Contract No. DOT-HS-119-3-627. Those data and others are brought together in this section together with appropriate interpretations.

Subsection A deals with the motorists themselves. It describes their acceptance of the survey and their demographic characteristics. Subsection B describes how their responses to requests for blood samples were influenced by the offer of a payment. Subsection C presents the detailed drug findings for the drivers stopped in the survey.

Subsection D reviews previously reported findings concerning drugs in fatally injured drivers, and presents them in a revised format compatible with the living driver findings. These findings are then compared with the living driver results in Subsection E. There, the relative chances of being fatally injured in an automobile crash after ingestion of drugs is discussed.

The results concerning alcohol usage among drivers are presented in Subsection F. Finally, the respondents' answers to questions are discussed in Subsection G and compared with laboratory findings.

A. Description of Survey Respondents

1. Driver acceptance: A total of nearly 1,500 motorists were stopped during the six survey periods. Of these, 78% consented to the interview procedure. The numbers of people who agreed to the interview and to other requests are given in Table I. Acceptance of the interview differed significantly between Lincoln and Dade County (Miami). About 82% of the motorists stopped in Lincoln agreed to the interview, whereas only 74% of those in Miami consented. The reason for the difference may be partly that uniformed police officers were performing traffic control functions in Lincoln whereas non-uniformed Miami traffic engineers performed that function in Dade County. We suspect that the presence of police authority may have appeared threatening to some fraction of the motorists stopped and, hence, enhanced the cooperation rate. We also suspect that the different acceptance rates may be an indication of the sociological difference in the populations of Lincoln, Nebraska, and Miami, Florida.

Nearly all of the persons who agreed to the interview were persuaded to give a breath sample (for BAC determination), a urine sample, and a lip swab sample. As described earlier, however, all motorists were not

TABLE I

SUMMARY OF DRUG SURVEYS

Survey Area	Survey Number	Number Motorists Stopped	Number Motorists Interviewed	Number BAC's Obtained	Number Consented To Give Urine	Number Motorists Asked for Blood	Number Consented To Give Blood	Number Lip Swabs Obtained
Lincoln	1	226	174	174	173	160	150	174
Lincoln	2	246	198	198	195	183	171	198
Lincoln	3	240	213	206	212	184	174	209
Dade County	1	235	173	169	170	153	121	170
Dade County	2	311	220	216	217	210	158	216
Dade County	3	232	182	180	180	159	115	179
Total		1,490	1,160	1,143	1,147	1,049	889	1,146

asked for a blood sample, for reasons of age, health, etc. Of those of whom a blood sample was requested, however, 85% consented. Here again, there was a large difference between the two communities, with a 94% acceptance being obtained in Lincoln, but only 75% in Dade County. The subject of obtaining blood samples is discussed in more detail in Section III-B.

Table II gives additional information on the obtainment of fluid samples. Although 1,147 motorists consented to give a urine sample, only 855 (about 75%) were, in fact, able to do so. Those who were unable to provide a sufficient sample at the time of the interview were given a pre-posted mailer and instructed in its use. Many people did cooperate with the mail-back procedure so that, as a result, urine samples were ultimately obtained from 90% of the motorists interviewed.

TABLE II

SUMMARY OF SAMPLES ANALYZED FOR DRUGS

Survey Area	Number Motorists Stopped	Number Motorists Accepted Interviews	No. Urine Samples Analyzed for Drugs			No. Blood Samples Analyzed for Drugs	Lip Swab Samples Analyzed for Marijuana
			Collected on Site	Returned Through Mail	Total		
Lincoln	712	585	418	110	528	471	581
Dade Co.	778	575	437	64	501	369	565
Total	1,490	1,160	855	174	1,029	840	1,146

Finally, although 889 drivers consented to give a blood sample (Table I), samples were obtained and analyzed for only 840 (Table II). Many factors contributed, but the major reason for this difference was that the nurse was unable to locate a suitable vein.

2. Demographic characteristics: The motorists who were stopped in the surveys in the two cities differed greatly in their demographic characteristics. Their answers to the demographic questions are included in Appendix B. Of particular interest are Questions 43 and 51 through 55. Reponses to those questions are repeated here as Table III.

TABLE III

DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

	Percentage of Motorists	
	Lincoln	Dade County
Race		
White	97.5%	69.3%
Black	1.6	19.3
Latin	0.7	8.9
Other	0.3	2.6
Age		
Teens	14.8	12.1
20-24	27.9	16.3
25-29	15.9	14.7
30's	14.1	20.2
40's	12.4	15.5
50+	14.9	21.2
Income		
Less than 5,000	19.1	12.0
5,000-7,499	16.0	12.5
7,500-9,999	16.7	18.8
10,000-14,999	27.4	25.8
15,000-19,999	12.3	15.4
20,000+	8.5	15.6
Education		
9th grade or less	7.2	13.6
10th-11th grade	11.3	12.3
High School	26.3	25.9
Some advanced study	36.8	30.6
College graduate	18.3	17.6
Employment		
Student, full or part-time	19.7	10.8
Employed, full or part-time	75.2	78.6
Unemployed	2.6	4.7
Retired	2.6	5.7
With whom do you live		
Alone	13.0	16.0
Spouse	54.4	57.4
Parent	18.2	19.1
Other	14.4	7.5

The motorists in Lincoln were nearly all white, whereas in Dade County, over 30% were nonwhite. The Dade County motorists tended to be older, on the average, and contained a large fraction of drivers over 50 years old. Lincoln, on the other hand, had a very large driving population in their early 20's. This age peak typifies the college student, indicative of the important influence of the University of Nebraska on Lincoln.

The income distributions are also quite different in the two communities. Lincoln has a large fraction of relatively low-income motorists, again an indication of the college-student component. Miami, on the other hand, had a significant fraction of high-income drivers, particularly above $15,000. Miami's drivers tended to have somewhat less education, however, with about 26% having less than a high school education.

The employment data are compatible with the foregoing. Nearly 20% of the Lincoln motorists claimed to be students, versus 11% in Miami. Unemployment was substantially less in Lincoln, as was the percentage of retired drivers. The respondents were asked with whom they lived. Drivers in the two communities differed here also, primarily because of the much larger fraction in Lincoln not living with a spouse, parent, or by themselves. Undoubtedly, most of these were students living in student housing.

A Chi-square analysis was performed for each of the questions displayed in Table III. In each case the differences between the two communities were shown to be significantly different ($\alpha < 0.005$).

Information about the vehicle being driven was recorded for all motorists stopped as part of the survey, regardless of whether or not they cooperated. Those findings are given in Table IV. There was a slight tendency for the Lincoln vehicles to be more highly populated than the Miami vehicles. The Lincoln vehicles tended to be a little older, and a higher fraction of them were classed as "sporty" or "other" (predominantly pick-up trucks).

Finally, there was a great difference in seat-belt usage in the two communities. Drivers in Dade County were more than twice as likely to be wearing restraint systems than Lincoln drivers. In fact, of those Dade County drivers for whom we know seat belts were available, just over one-third were wearing them; only 14% of seat-belt-equipped drivers in Lincoln were wearing them.

As shown in the above statistics, the driving populations of Lincoln, Nebraska, and Dade County, Florida, varied greatly. The Lincoln population was heavily influenced by the presence of the University of Nebraska. Thus, there was a tendency for the Lincoln drivers to be well

TABLE IV

OTHER OBSERVED CHARACTERISTICS OF RESPONDENTS

	Percentage of Motorists	
	Lincoln	Dade County
No. people in car		
1	53.3%	59.5%
2	30.0	26.9
3+	16.7	13.6
Car age		
0-3 yr	46.1	54.3
4-9 yr	41.7	41.3
10+ yr	12.2	4.4
Car model		
Family (including station wagon)	59.0	69.7
Sporty	11.7	6.6
Compact	17.5	18.6
Other	11.7	5.1
Seat belts		
None	14.6	4.3
Not used	70.6	61.1
Used (including harness)	11.5	26.9
Unknown	3.2	7.7

educated, young, white Americans, many of them students driving older or sporty cars and with relatively low incomes. In Dade County, on the other hand, there was a much greater mixture of the races with a large fraction of older drivers, many in the higher income brackets. There were also a great many with relatively little education by current standards.

B. Effect of Blood Payments

One of the secondary objectives of the project was to determine the effect on securing blood samples of offering payment. It was anticipated that a sizable fraction (we originally estimated about half) of the drivers would decline giving a blood sample. Therefore, it was conceived that cooperation might be improved with the offer of a payment for the blood sample.

An experimental design was developed in which approximately equal numbers of drivers would be offered payments of $10, $5, $2, $1, and $0. The implementation of the design was such that, at a given site, there was a tendency for the first motorists stopped to be offered lower amounts and later motorists, larger amounts. This was done to minimize word-of-mouth effects which might attract friends of early motorists to the survey site, simply for the money. As a result, the numbers of drivers offered each amount were not quite equal; fewer were offered the larger amounts.

The results are shown in Tables V and VI. Not included are those drivers who, for reasons such as age or health, were not solicited; drivers stopped when a nurse was unavailable; or the few cases in which the nurse could not locate a vein. Overall, there were approximately equal numbers of drivers from each community, but the acceptance rate was far higher in Lincoln (94% vs 74%).

A Chi-square analysis was performed for each community, to test whether level of payment was related to driver response. No significant result was obtained. Then, a similar analysis was performed testing the options, payment or no payment. No significance was found for Miami but the offer of payment in Lincoln did seem to increase acceptance (χ^2 (1) = 3.921, $\alpha < 0.05$). An additional analysis was performed of the effect of the amount of payment, given that some payment was offered. Here, the levels tested were "high" ($5 or $10) and "low" ($1 or $2). No difference was detected.

Thus, the amount of payment offered did not enhance acceptance, but the offer of a payment (any payment) did enhance acceptance in one of the two communities. Extending the average results from this experiment, disregarding the presence or absence of statistical confidence, indicates

TABLE V

EFFECT OF PAYMENT ON OBTAINING BLOOD SAMPLE, LINCOLN

Payment Offered	Accepted	Declined	Total
$ 0	116	13	129
1	100	5	105
2	93	7	100
5	87	4	91
10	72	3	75
Total	468	32	500

TABLE VI

EFFECT OF PAYMENT ON OBTAINING BLOOD SAMPLE, MIAMI

Payment Offered	Accepted	Declined	Total
$ 0	75	32	107
1	76	27	103
2	79	24	103
5	73	23	96
10	68	21	89
Total	371	127	498

that overall acceptance rates may be increased by about 5% by offering payment, versus not offering payment. That is, acceptance might be increased from 70% to 76% in Miami and from 90% to 95% in Lincoln.

C. Living-Driver Drug Findings

Blood and urine samples obtained from drivers stopped in the surveys were analyzed for drugs. Table VII shows the 41 drugs included in the complete laboratory analysis process, described in Subsection III-C-1. In addition to these 41 there were four others. The presence of marijuana was ascertained by a lip swab test, and is discussed in Section III-C-2. Qualitative tests were performed for aspirin, salicylic acid, and nicotine, as described in Section III-C-3; and quantitative determinations of the blood alcohol content were performed both by breath tests and blood tests (Sections III-C-4 and III-F).

1. Basic 41 drugs: The presence of the drugs listed in Table VII was ascertained in a multi-stage process.* Briefly, the biological fluids were first hydrolyzed, diluted, and extracted and the extracts then frozen until needed. Later, the extracts were subjected to a thin-layer chromatographic (TLC) screen for the drugs or drug groups. Positives from the TLC were run again in a second solvent for qualitative confirmation. Confirmed positives were reconfirmed and quantitated using gas chromatography (GC) on the same extract. The extracts were subjected to mass spectrometry if any doubt existed as to the nature of the drug.

In the analyses to follow, only those drugs in Table VII which were reconfirmed and quantitated by GC are considered.

A complete, sample-by-sample presentation of all results, including marijuana, nicotine, blood alcohol, etc., is available in a previous document.** Because of their voluminous nature, and because most of the findings were negative, the complete tabulations are not repeated here. Instead, only the pertinent, positive results are restated.

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* A complete description of the analytical methods is contained in "The Incidence of Drugs in Fatally Injured Drivers," Final Report, Contract No. DOT-HS-119-3-627, Midwest Research Institute, 1973.

** E. J. Woodhouse, "The Incidence of Drugs in Drivers," Final Letter Report, DOT Contract No. DOT-HS-119-3-627, Midwest Research Institute, February 1974.

TABLE VII

DRUGS AND DRUG GROUPS INCLUDED IN LABORATORY ANALYSIS PROCEDURES

Sedatives and Hypnotics

Phenobarbital (Luminal)
Pentobarbital (Nembutal)
Amobarbital (Amytal)
Secobarbital (Seconal)
Butabarbital (Butisol)
Butobarbital (Butethal)
Diphenylhydantoin (Dilantin)
Glutethimide (Doriden)
Methaqualone (Quaalude)

Tranquilizers

Meprobamate (Miltown)
Chlordiazepoxide (Librium)
Diazepam (Valium)
Chlorpromazine (Thorazine)
Promazine (Sparine)
Thioridazine (Mellaril)
Trifluoperazine (Stelazine)

Stimulants and Antidepressants

Methylphenidate (Ritalin)
Imipramine (Tofranil)
Amitriptyline (Elavil)
Amphetamine (Dexedrine)
Methamphetamine (Desoxyn)

Antihistamines and Decongestants

Chlorpheniramine
Diphenhydramine
Tripelennamine
Methapyrilene
Phenylpropanolamine

Analgesics and Narcotics

Nalorphine (Nalline)
Morphine
Codeine
Meperidine (Demerol)
Cocaine
Methadone (Dolophine)
Hydromorphone (Dilaudid)
Propoxyphene (Darvon)

Miscellaneous

Dimethyltryptamine (DMT)
Diethyltryptamine (DET)
Lobeline
Mescaline
Methylene dioxyamphetamine (MDA)
Quinine
2,5-dimethoxy-4-methylamphetamine (STP)

Table VIII and IX list the pertinent data from those drivers who evidenced one or more of the drugs listed in Table VII. Of the Lincoln drivers, only 23 evidenced any of these drugs; they are shown in Table VIII. Similarly, the 21 drivers from Dade County evidencing drugs are presented in Table IX.

In displaying the results, a distinction is made as to whether the drug was detected in the blood or in the urine; and if in the urine, an indication as to the concentration. In the earlier studies, under Contract No. DOT-HS-119-3-627, detailed statistical analyses were conducted only for those drugs for which: (a) any measurable amount could be reconfirmed in the blood; or (b) a measurable amount exceeding 1.0 µg/ml was detected in the urine (or, for fatally injured drivers, in the bile). Because of the relatively small sample of living drivers encountered who satisfied these criteria, it was decided to include, separately, those instances in which lesser amounts of drugs were found in the urine (but still reconfirmed by GC). The first category is called "Level A"; the second, "Level B". Tables VIII and IX make this distinction.

Overall, the results from the two very different communities are surprisingly similar. Approximately the same fraction of drivers had detectable amounts of drugs in their systems.* Moreover, for the most part, the types of drugs were the same, with one outstanding exception. Among Lincoln drivers, 11 evidenced meprobamate (Miltown). No drivers from the Dade County surveys evidenced this drug.

A second noteworthy feature of the data in the two tables is the relative scarcity of findings from the blood samples. A positive drug detection was made in only two drivers in the entire survey. In each case, the drug found was phenobarbital. On the other hand, the incidence of drugs detected in urine was 10 to 20 times as high. This finding is not compatible with the results of the fatally-injured-driver survey, Contract No. DOT-HS-119-3-627. There, the incidences of drugs found in the two fluids were of the same order of magnitude.

It is unclear why there were almost no drug findings from blood samples among living drivers. One implication, which should be studied further, is the relative influence of a specific drug on a driver as a function of: (a) the fluid in which it is detected; and (b) the drug concentration therein. It may be for many drugs, that only if they are detected in the blood should it be concluded that the driver was under the influence.

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* Overall, 83% of the urine samples were obtained in the van and the rest were returned by mail. A chi-square test indicated no significant difference in the frequency of drug detections among the two sets.

TABLE VIII

DRUGS IN BLOOD AND URINE, LINCOLN

MRI Sample No.	Drug[d/] in Urine ≥ 1.0 µg/ml	Drug[d/] in Blood	Drug[d/] in Urine < 1.0 µg/ml	BAC[e/]
11037	-	Pheno	Pheno	0.00
11085	Chlorphen	-	-	0.00
11086	Mepro	-	-	0.00
11115	-	-	Pheno	0.06
11123	Mepro	-	-	0.02
11169	-	a/	Mepro	0.00
11174	-	-	Mepro	0.00
11179	Mepro & Morph	-	-	0.00
11213	Mepro	-	-	0.00
11225	Pheno	-	-	0.00
11226	-	-	Mepro	0.00
11242	Mepro & Seco	-	-	0.01
11247	Mepro	a/	Seco	0.00
11259	Mepro	-	-	0.01
11296	-	-	Seco	0.00
11332	Phenylprop	b/	-	0.00
11370	Morph	b/	Meth & Code	0.00
11371	Mepro	-	-	0.02
11387	-	-	Seco	0.00
11473	Seco	-	-	0.00
11493	Pheno	-	-	0.00
11565	Pheno	c/	-	0.00
11583	Pheno & DPH	-	-	0.00
Total Drugs	19	1	10	5

a/ No blood sample; under age.
b/ No blood sample; couldn't locate vein.
c/ No blood sample; health reasons.
d/ Abbreviations:
Chlorphen - Chlorpheniramine
Mepro - Meprobamate
Morph - Morphine
Pheno - Phenobarbital
Seco - Secobarbital
Phenylprop - Phenylpropanolamine
DPH - Diphenylhydantoin
Code - Codeine
Meth - Methamphetamine
e/ Based on Breathalyzer.

TABLE IX

DRUGS IN BLOOD AND URINE, DADE COUNTY

MRI Sample No.	Drug[d] in Urine ≥ 1.0 µg/ml	Drug[d] In Blood	Drug[d] in Urine < 1.0 µg/ml	BAC[e]
12004	Buto	-	-	0.00
12030	Pheno	-	-	0.00
12095	-	Pheno	-	0.10
12097	-	[a]	Chlorphen	0.00
12178	-	[a]	MPD & Methaq	0.03
12204	-	-	Methaq	0.01
12382	Pheno	-	-	0.00
12412	-	[b]	Code	0.00
12423	Code	-	-	0.01
12546	-	-	Pheno	0.01
12557	Amitryp	-	-	0.00
12581	-	-	Pheno	0.00
12659	Lobe	[c]	-	0.00
12662	-	-	Seco	0.02
12694	-	-	Pheno	0.00
12696	-	-	Pheno	0.01
12729	Pento	[a]	Seco	0.00
12757	Phenylprop	-	-	0.00
12770	-	-	Diaz	0.00
12778	Pheno	[b]	-	0.00
12802	Phenylprop	[a]	-	0.03
Total Drugs	10	1	12	8

[a] No blood; refusal.
[b] No blood; health reasons.
[c] No blood; no nurse on duty.
[d] Abbreviations:

Buto - Butobarbital	Phenylprop - Phenylpropanolamine
Pheno - Phenobarbital	Chlorphen - Chlorpheniramine
Code - Codeine	MPD - Methylphenidate
Amitryp - Amitryptilene	Methaq - Methaqualone
Lobe - Lobeline	Seco - Secobarbital
Pento - Pentobarbital	Diaz - Diazepam

[e] Based on Breathalyzer.

If this assumption were followed with the present data, then we might conclude that only two living drivers (not 44) were found who were somehow presently impaired by drugs. On the other hand, if the same reasoning were applied to the fatally-injured-driver results, nearly half of the previously reported findings would indicate impairment. The net effect of this discounting procedure would be a large increase (order of magnitude) in the relative risks over those calculated in this report. The just-described calculations were not carried out, however, for want of sufficient justification. Instead, all findings (urine and blood) are included in the calculations despite the relative lack of blood findings among living drivers.

The individual findings shown in Tables VIII and IX are cumulated and summarized in Table X. The individual drugs are grouped into six classifications, as displayed in Table VII. It is clear that the preponderance of drugs found were of the sedative/hypnotic type (generally phenobarbital). With the exception of the tranquilizer, meprobamate, no other drug or drug type was detected in more than a few individuals.

TABLE X

INCIDENCES OF QUANTITATED DRUGS IN LIVING DRIVERS

	Level A[a/]				Drugs Confirmed (Total)			
	Lincoln		Dade County		Lincoln		Dade County	
Type of Drug	No.	%	No.	%	No.	%	No.	%
Sedatives and Hypnotics	8	1.52	5	1.00	12	2.26	14	2.80
Stimulants	0	0.00	1	0.20	1	0.19	2	0.40
Antihistamines and Decongestants	2	0.38	2	0.40	2	0.38	3	0.60
Tranquilizers	8	1.52	0	0.00	11	2.08	1	0.20
Narcotics and Analgesics	2	0.38	1	0.20	3	0.57	2	0.40
Miscellaneous	0	0.00	1	0.20	0	0.00	1	0.20
Total Drivers	17	3.22	10	2.00	23	4.36	21	4.20

a/ Confirmed at any concentration in blood or at 1.0 µg/ml or more in urine.

The tabulations show that slightly over 3% of the drivers in Lincoln, and 2% of the drivers in Dade County had sufficient concentrations of drugs in their system to be classified as Level A. These percentages are based on the number of drivers for whom urine samples were analyzed. The percentages increased to 4.36% and 4.20%, respectively, when those drivers evidencing smaller, but still measurable, amounts are included.

It appears from Table X that the Lincoln drivers were somewhat more likely to evidence drugs than were Dade County drivers. However, if the unusually high incidence of meprobamate findings are discounted, then the findings are reversed and the Dade County drivers would be considered the more likely to have drugs in their system.

The percentages shown in Table X change if the basis is modified to include only those drivers for whom both blood and urine samples were available for analysis. This change clearly decreases the denominator of the fraction, drivers-with-drugs/total-drivers. But it also decreases the numerator, as reference to Tables VIII and IX will readily show. Of the 44 drivers in whom some drug was detected, no blood sample was available for 12.* Correcting, then, the percentages in Table X would indicate that 3.04% of the Lincoln drivers, and 2.09% of the Dade County drivers for whom both blood and urine samples were available had sufficient quantities of drugs in their system as to be classified as Level A. These are, obviously, relatively inconsequential changes from the values given in Table X.

2. Marijuana: A test for marijuana was performed by use of lip swabs. The laboratory findings from these swabs are summarized in Table XI. Nearly 3% of the Lincoln drivers and over 9% of the Dade County drivers produced positive results, indicating that they had been in contact with marijuana.

TABLE XI

MARIJUANA RESULTS FOR LIVING DRIVERS[a/]

	Lincoln		Dade County	
	No.	%	No.	%
Positives	17	2.92	52	9.20
Negatives	564	97.08	513	90.80
Totals Samples	581	100.00	565	100.00

a/ Data subject to correction because of preliminary nature of techniques employed.

* This number is slightly, but not significantly, larger than would be expected on the basis of the total sample, which would indicate that blood samples would have been unavailable for only eight of the 44 drivers.

The marijuana test swab procedure was relatively new and developed during the course of Contract No. DOT-HS-119-3-627. In the final report on that project, it was reported that the technique detected 78% of marijuana smokers in laboratory tests, with no false positives. To further validate the procedure, control swabs (both positive and negative) were prepared in the field under the present contract and submitted (blindly) with the living driver swabs. The individual findings from the 42 test swabs were detailed in the final letter report of the previous contract, and are summarized below:

	True Condition	
Test Result	Positive	Negative
Positive	10	0
Negative	17	15

As in the laboratory tests, there were no false positives. But the detection rate of positive field swabs was less than that of laboratory test swabs. Only 37.0% of the field-spiked swabs were detected. The "true" detection rate is, at most, 55.6% and, at worst, 18.4%, at 95% confidence. Thus, one might surmise that the number of marijuana users was greater than indicated in Table XI.

Ongoing laboratory research indicates that the procedures used may still require improvement. It may be that certain foreign substances could confound the interpretation of color changes. Therefore, all present findings regarding marijuana should be considered as preliminary and subject to revision.

3. Other findings: Quantitative tests only were performed for the presence of nicotine, salicyclic acid, and aspirin in the urine and blood. The results of these tests on a sample-by-sample basis have been reported previously under Contract No. DOT-HS-119-3-627. Because of procedural laboratory difficulties, the findings regarding aspirin and salicyclic acid are suspect, so will not be dealt with further. The nicotine results, however, are considered sufficiently valid to warrent additional analysis.

The findings regarding nicotine are shown in Table XII. Because almost all of the positive findings resulted from urine tests, it is reasonable to use the number of urine samples as the basis for calculating percentages. Pursuing this, then, 58.5% of the Lincoln drivers had been smoking tobacco, whereas only 48.1% of the Dade County drivers had been doing so. This difference is highly significant and probably is a reflection of the differences in demographic characteristics of the drivers in the two communities.

TABLE XII

NICOTINE RESULTS FOR LIVING DRIVERS

	Lincoln	Dade County
Urine Positive	309	241
Blood Positive	10	9
Drivers Positive	316	248

4. Drugs combined with alcohol: It is well known that certain types of drugs, when taken in conjunction with alcohol, produce an intoxifying or influencing effect on the individual which is greater than the simple additive affect of the drug and the alcohol. Therefore, it is of interest to know whether there are significant differences in alcohol ingestion between drug users and nondrug users. The data in this regard are displayed in Table XIII.

TABLE XIII

DRUGS COMBINED WITH ALCOHOL IN LIVING DRIVERS

	Lincoln		Dade County	
BAC	Drug Users, %	Nonusers, %	Drug Users, %	Nonusers, %
0.00	78.3	64.0	61.9	62.3
0.01-0.04	17.4	25.9	33.3	28.7
0.05-0.09	4.3	6.7	0.0	5.1
0.10-0.14	0.0	2.9	4.8	2.8
0.15+	0.0	0.5	0.0	1.1
Sample Size	23.0	555.0	21.0	544.0

It is clear from the table that in Dade County, there was little difference in alcohol consumption between users and nonusers of drugs. There were slightly more nondrinkers among the drug users in Lincoln but, because of the small sample size, the difference was not significant. Overall, then, there is no indication that those persons using drugs were any more or less likely to have been drinking alcohol than nonusers.

D. Drugs in Fatally Injured Drivers

The final report on Contract No. DOT-HS-119-3-627 included data and summary statistics from fatally injured drivers. Under that contract, urine, blood, and bile samples provided by coroners from 37 areas of the country were analyzed for the same drugs included here. Because bile

findings were included, the summary data given there are not directly comparable to the data from living drivers. The positive findings concerning the 41 drugs among fatally injured drivers are repeated here in Appendix D.

To assure comparability, the fatally-injured-driver data were reexamined. As pointed out in the aforementioned final report, 49 drugs were found in the urine of 517 drivers, 35 in the blood of 682 drivers, and 47 in the bile of 526 drivers. Table XIV shows much of this set of data but is limited, first, to blood and urine findings only, and second, to the 503 drivers for whom both blood and urine samples were available. Over 8% of the drivers indicated at least a 1 µg/ml of urine concentration of one or more of the 41 drugs tested, and 3.78% evidenced a measurable amount in the blood. In total, 10.14% of these 503 drivers evidenced one or more drugs at Level A. Two-thirds of the drugs were of the sedative/hypnotic type with phenobarbital being the single drug most commonly observed. The second most frequently detected drug was phenylpropanolamine. No other drug was found at Level A in more than 1% of these drivers.

In Subsection III-C it was desirable to include, in a second tabulation, all measurable evidence of drugs because so few living drivers showed substantial amounts of drugs. Therefore, again for comparative purposes, the fatally-injured-driver data were reviewed and retabulated in the more inclusive manner (Table XV). As shown, over one-sixth (17.69%) of these drivers evidenced one or more drugs. In addition to the two drugs mentioned above the stimulants, amphetamine and methamphetamine, were commonly encountered.

In an effort to distinguish site effects on drug usage among fatally injured drivers, a crude split of all data into two groups was performed. The criterion was whether the site was considered most typical of a large metropolitan area, or of a rural or small community. The former was classified as a "D" site, comparable to Dade County, Florida (Miami), and the latter as a "L" site, comparable to Lincoln, Nebraska.

The sites and the accumulated results therefrom are shown in Table XVI. A slightly higher percentage of drivers were under influence of drugs, especially stimulants, in the large metropolitan areas, but the differences are not statistically significant. When all measurable drugs are considered, the higher incidence of all drugs among drivers from large metropolitan areas is significant, but only marginally so (χ^2 (1) = 3.042, $\alpha < 0.10$). The differences are greatest for stimulants and tranquilizers.

As shown in Table XVII, 58% of the fatally injured drivers had consumed some alcohol. Most of these had enough alcohol to be presumed intoxicated in most states (BAC of 0.10% or more). Similar data are given for subsets of these drivers also evidencing other drugs. The subsets are not significantly different from the total group. The presence or absence of alcohol is not related to the presence or absence of other drugs.

TABLE XIV

DRUGS AT LEVEL A[a/] IN 503 FATALLY INJURED DRIVERS FOR WHOM BOTH BLOOD AND URINE SAMPLES WERE AVAILABLE

Drug	Urine		Blood		Total Drivers	
	No.	Percent	No.	Percent	No.	Percent
Amobarbital	3	0.60	2	0.40	4	0.80
Butabarbital	2	0.40	1	0.20	3	0.60
Butobarbital	1	0.20	0	0.00	1	0.20
Glutethimide	1	0.20	2	0.40	3	0.60
Pentobarbital	5	0.99	2	0.40	5	0.99
Phenobarbital	12	2.39	8	1.59	15	2.98
Secobarbital	3	0.60	0	0.00	3	0.60
Sedatives and Hypnotics	27	5.37	15	2.98	34	6.76
Amphetamine	2	0.40	2	0.40	4	0.80
Imipramine	0	0.00	1	0.20	1	0.20
Methamphetamine	0	0.00	3	0.60	3	0.60
Methylphenidate	1	0.20	0	0.00	1	0.20
Stimulants	3	0.60	6	1.19	9	1.79
Phenylpropanolamine	7	1.39	0	0.00	7	1.39
Antihistamines and Decongestants	7	1.39	0	0.00	7	1.39
Chlordiazepoxide	2	0.40	0	0.00	2	0.40
Chlorpromazine	1	0.20	0	0.00	1	0.20
Meprobamate	2	0.40	0	0.00	2	0.40
Trifluoperazine	2	0.40	0	0.00	2	0.40
Tranquilizers	7	1.39	0	0.00	7	1.39
Meperidine	1	0.20	0	0.00	1	0.20
Methadone	1	0.20	0	0.00	1	0.20
Morphine	1	0.20	0	0.00	1	0.20
Narcotics Analgesics	3	0.60	0	0.00	3	0.60
Lobeline	1	0.20	1	0.20	2	0.40
Quinine	1	0.20	0	0.00	1	0.20
Miscellaneous	2	0.40	1	0.20	3	0.60
Total Drivers	41	8.15	19	3.78	51	10.14

a/ Confirmed at any concentration in blood or at 1.0 µg/ml or more in urine.

TABLE XV

TOTAL DRUGS IN 503 FATALLY INJURED DRIVERS FOR WHOM BOTH BLOOD AND URINE SAMPLES WERE AVAILABLE

Drug	Urine		Blood		Total Drivers	
	No.	Percent	No.	Percent	No.	Percent
Amobarbital	8	1.59	2	0.40	9	1.79
Butabarbital	2	0.40	1	0.20	3	0.60
Butobarbital	3	0.60	0	0.00	3	0.60
DPH	2	0.40	0	0.00	2	0.40
Glutethimide	2	0.40	2	0.40	4	0.80
Methaqualone	3	0.60	0	0.00	3	0.60
Pentobarbital	7	1.39	2	0.40	7	1.39
Phenobarbital	18	3.58	8	1.59	20	3.98
Secobarbital	5	0.99	0	0.00	5	0.99
Sedatives and Hypnotics	50	9.94	15	2.98	56	11.13
Amphetamine	8	1.59	2	0.40	10	1.99
Imipramine	3	0.60	1	0.20	4	0.80
Methamphetamine	9	1.79	3	0.60	12	2.39
Methylphenidate	1	0.20	0	0.00	1	0.20
Stimulants	21	4.17	6	1.19	27	5.37
Chlorpheniramine	2	0.40	0	0.00	2	0.40
Diphenhydramine	1	0.20	0	0.00	1	0.20
Phenylpropanolamine	13	2.58	0	0.00	13	2.58
Tripelennamine	1	0.20	0	0.00	1	0.20
Antihistamines and Decongestants	17	3.38	0	0.00	17	3.38
Chlordiazepoxide	4	0.80	0	0.00	4	0.80
Chlorpromazine	3	0.60	0	0.00	3	0.60
Diazepam	3	0.60	0	0.00	3	0.60
Meprobamate	5	0.99	0	0.00	5	0.99
Trifluoperazine	2	0.40	0	0.00	2	0.40
Tranquilizers	17	3.38	0	0.00	17	3.38
Codeine	1	0.20	0	0.00	1	0.20
Meperidine	1	0.20	0	0.00	1	0.20
Methadone	2	0.40	0	0.00	2	0.40
Morphine	3	0.60	0	0.00	3	0.60
Narcotics and Analgesics	7	1.39	0	0.00	7	1.39
Dimethyltryptamine	2	0.40	0	0.00	2	0.40
Lobeline	2	0.40	1	0.20	3	0.60
Quinine	3	0.60	0	0.00	3	0.60
Miscellaneous	7	1.39	1	0.20	8	1.59
Total Drivers	83	16.50	19	3.78	89	17.69

TABLE XVI

DRUGS IN FATALLY INJURED DRIVERS BY LOCATION GROUP

	Level A[a]				Total Drugs Detected			
	"D" Sites		"L" Sites		"D" Sites		"L" Sites	
	No.	%	No.	%	No.	%	No.	%
Sedative/Hypnotics	25	6.8	9	6.5	42	11.5	14	10.1
Stimulants	9	2.5	0	0.0	24	6.6	3	2.2
Antihistamines/Decongestants	4	1.1	3	2.2	13	3.6	4	2.9
Tranquilizers	6	1.6	1	0.7	16	4.4	1	0.7
Narcotic Analgesics	3	0.8	0	0.0	7	1.9	0	0.0
Miscellaneous	3	0.8	0	0.0	8	2.2	0	0.0
Any Drugs (Drivers)	40	11.0	11	8.0	72	19.7	18	13.0
Total Drivers	365	100.0	138	100.0	365	100.0	138	100.0

a/ Confirmed at any concentration in blood or at 1.0 µg/ml or more in urine.

"D" Sites

Maryland ASAP
Minnesota ASAP
New Mexico ASAP
New York ASAP
Oregon ASAP
Virginia ASAP
Washington ASAP
San Diego, California
Santa Ana, California
Oakland, California
San Jose, California
San Mateo, California
Everett, Washington
Akron, Ohio
Martinez, California
Atlanta, Georgia
San Bernadino, California
Vero Beach, Florida
Las Vegas, Nevada
St. Petersburg, Florida
Cincinnati, Ohio
Tampa, Florida
Daytona Beach, Florida

"L" Sites

Arkansas ASAP
Maine ASAP
Michigan ASAP
Nebraska ASAP
Oklahoma ASAP
Vermont ASAP
Wisconsin ASAP
Sacramento, California
Fort Thomas, Kentucky
Orlando, Florida
Appleton, Wisconsin
Beloit, Wisconsin
Eau Claire, Wisconsin

TABLE XVII

ALCOHOL AND DRUGS IN FATALLY INJURED DRIVERS

BAC	All Drivers	Drivers Evidencing Drugs (Any Level)	Drivers Evidencing Drugs (Level A[a/])	Drivers Evidencing Sedatives
0.00	42.0%	46.4%	41.2%	46.4%
0.01-0.09	11.1	13.6	15.7	9.0
0.10+	46.9	40.0	43.1	44.6

a/ Confirmed at any concentration in blood or at 1.0 µg/ml or more in urine.

Finally, we include here, for completeness, other previously reported findings. Marijuana test swabs were collected from 323 fatally injured drivers. Of these, 201 were mouth swabs. Because they were actually oral/nasal swabs, they were somewhat more thorough in coverage than the lip swabs collected from living drivers. Nevertheless, they are the most nearly comparable to the present swabs of all the swabs and tests reported under Contract No. DOT-HS-119-3-627. Of these 201, positive findings were reported for 44 (21.9%).

Nicotine was detected in 284 of 517 drivers (54.9%) for which urine tests were performed.

E. Relative Probability of Fatal Accident Involvement

In this portion of the report, the results of Subsections C and D are brought together and compared. From this comparison one is able to make certain inferences concerning the relative chances of being fatally injured while driving a motor vehicle if having ingested various drugs. To maximize the correspondence between data sets, only the data from those drivers (living or fatally injured) for whom both a blood and urine sample were analyzed, are included.

The major results concerning the 41 drugs of Table VII are displayed in Tables XVIII and XIX. The concept of drug level, defined previously, is retained. That is, findings are considered to be at Level A if any amount, reconfirmed by GC, was detected in the blood or if one or more µg/ml was detected in the urine.

TABLE XVIII

COMPARATIVE DATA FOR DRIVERS EVIDENCING DRUGS AT LEVEL A[a/]

Drug Type	Living Drivers		Fatally Injured Drivers		Relative Chance of Being Fatally Injured
	No.	Percent	No.	Percent	
Sedatives and Hypnotics	10	1.31	34	6.76	5.16
Stimulants and Antidepressants	1	0.13	9	1.79	13.66
Antihistamines and Decongestants	2	0.26	7	1.39	5.31
Tranquilizers	7	0.92	7	1.39	1.51
Narcotics and Analgesics	2	0.26	3	0.60	2.28
Miscellaneous	0	0.00	3	0.60	-
One or More Drugs	20	2.62	51	10.14	3.87
Sample Size	763		503		

a/ Confirmed at any concentration in blood or at 1.0 µg/ml or more in urine.

TABLE XIX

COMPARATIVE DATA FOR DRIVERS EVIDENCING DRUGS AT ANY LEVEL

Drug Type	Living Drivers		Fatally Injured Drivers		Relative Chance of Being Fatally Injured
	No.	Percent	No.	Percent	
Sedatives and Hypnotics	19	2.49	56	11.13	4.47
Stimulants and Antidepressants	1	0.13	27	5.37	40.99
Antihistamines and Decongestants	2	0.26	17	3.38	12.90
Tranquilizers	10	1.31	17	3.38	2.58
Narcotics and Analgesics	2	0.26	7	1.39	5.31
Miscellaneous	0	0.00	8	1.59	-
One or More Drugs	32	4.19	89	17.69	4.22
Sample Size	763		503		

From Figure 1, which reflects the data of Table XVIII, it is clear that for every drug type, a higher percentage of fatally injured drivers were at Level A than were living drivers. Moreover, the sedative/hypnotic type is dominant. The same general statement can be made regarding drivers evidencing drugs at any level (Figure 2).

Tests of statistical significance were performed to ascertain whether the fatally injured drivers were, indeed, more likely to have been taking drugs than were living drivers. The results are given in Table XX. Generally, the differences are highly significant. The standard 2 x 2 Chi-square test was used. Normally, the test is considered approximate if most cells have an expected value of 5 or more. This condition was satisfied for all cells in all tests made except those involving stimulants/antidepressants at Level A and antihistamines/decongestants at Level A. In the former case one cell had an expected value of 3.97; in the latter one cell had an expected value of 3.58. These low sample sizes are not considered serious enough to chance the major conclusion that the differences observed are significant; although the quantitative measure, α , may be distorted.

TABLE XX

SIGNIFICANCE OF RELATIVE DRUG USAGE FINDINGS

	Drivers Evidencing Drugs (Level A)	Drivers Evidencing Drugs (Any Level)
Sedative/Hypnotics	$\alpha < 0.001$	$\alpha < 0.001$
Stimulants and Antidepressants	$\alpha < 0.005$	$\alpha < 0.001$
Antihistamines and Decongestants	$\alpha < 0.025$	$\alpha < 0.001$
Tranquilizers	Not Significant	$\alpha < 0.025$

By simply dividing the percentage of fatally injured drivers having evidence of a specific drug by the corresponding percentage of living drivers, the relative chance of being fatally injured if having ingested that drug can be defined. This relative chance is displayed in the last column of Table XVIII and is plotted in Figure 3, along with other data to be described subsequently. For example, fatally injured drivers were 5.16 times as likely to evidence sedatives/hypnotics at Level A as were living drivers, so the inference is that such drivers are 5.16 times as likely to be fatally injured as other drivers. Overall, the relative chance of being fatally injured if at Level A for any of the 41 drugs examined is 3.87 times that of the average driver.

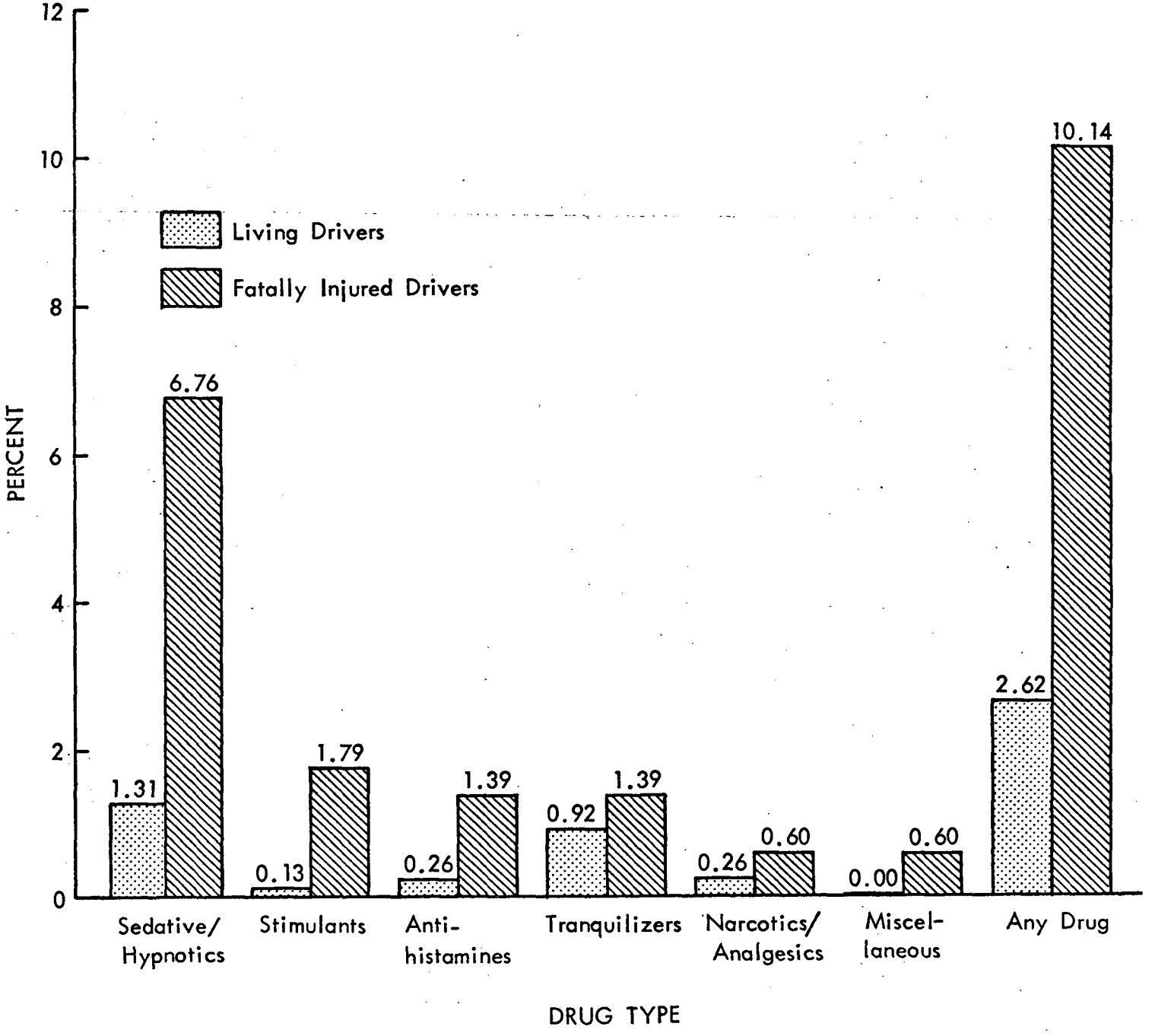

Figure 1 - Drivers Evidencing Drugs in Blood or at 1 µg/ml or Greater in Urine

Figure 2 - Drivers in Whom Drugs Were Confirmed, Regardless of Level

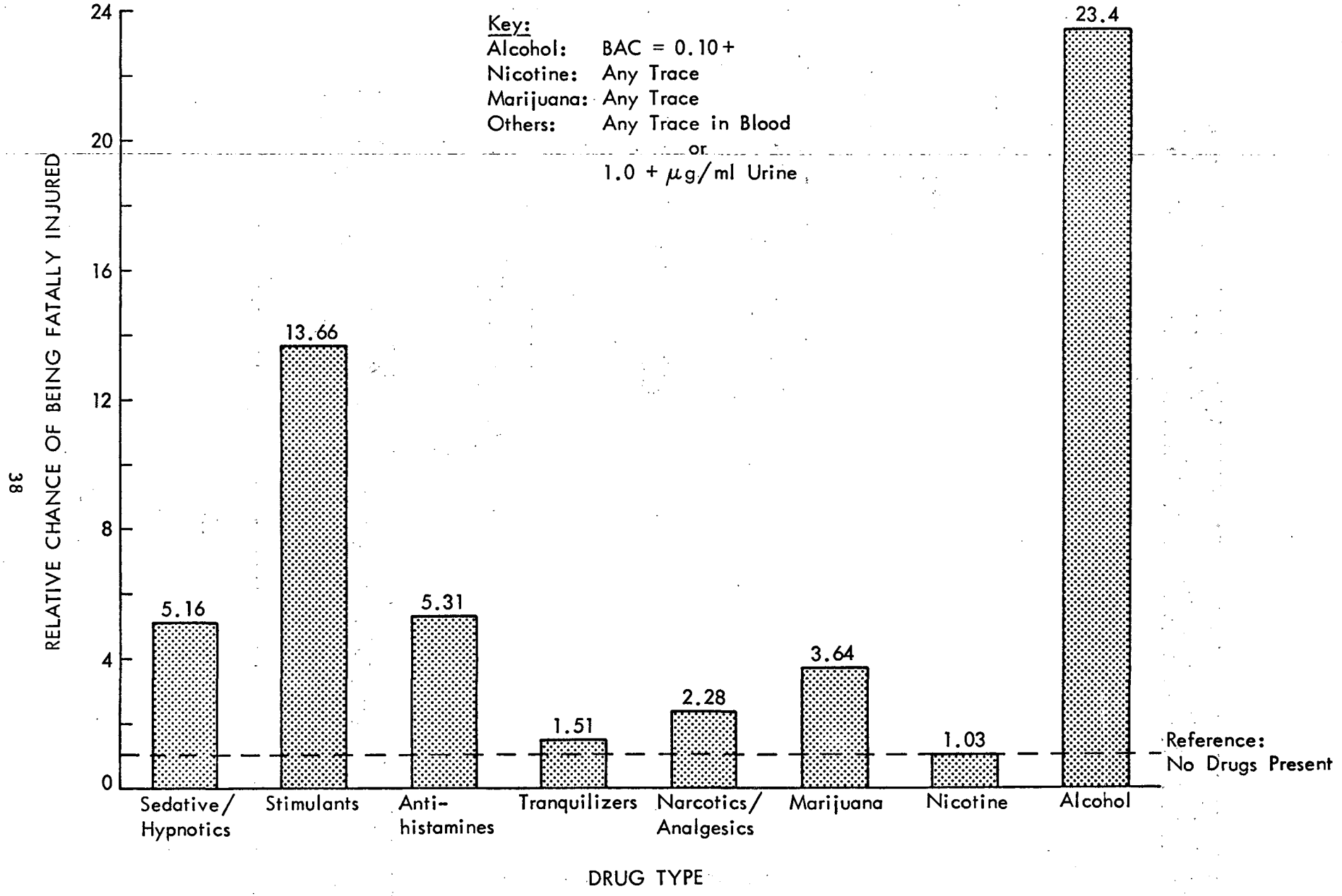

Figure 3 - Relative Chances of Being Fatally Injured

This percentage is dominated by the findings relative to sedative/hypnotic drugs. The relative chance is several times as large for drivers evidencing stimulants, although this finding is based on a smaller sample size, as shown in Table XVIII.

It is, of course, relevant to determine the effect of the amount of drug on the relative chance of being fatally injured. As will be evident, the small sample sizes, particularly for living drivers, preclude carrying this analysis very far. Moreover, the determination of the amount of drug is confounded by the fact that two fluids--blood and urine--are involved. The relative importance of findings from one fluid over those from the other fluid is unclear.

In the results reported on previous pages, two levels of drugs, beyond the null level, were considered: "Level A" and "Total". By differencing these two, "Level B" can be obtained. This consists of drivers in whom no drugs were detected in the blood and only small amounts (< 1.0 µg/ml) were confirmed in the urine. Examination of Tables XVIII and XIX shows that only two types of drugs were detected in Level B amounts among living drivers--sedative/hypnotics and tranquilizers. Nine of 763 living drivers evidenced slight amounts of sedative/hypnotics, compared to 22 of 503 fatally injured drivers. These data indicate a relative chance of being fatally injured of 3.71, if there is a slight amount of this drug type in the system. The chance increases to 5.16 for "Level A" of drugs. Unfortunately, the trend appears to be in the opposite direction for tranquilizers. However, as discussed in Subsection III-C-1, these findings reflect the anomalous meprobamate detections among Lincoln drivers, so should not be taken seriously.

One could define a third (and presumably higher) level of drug impairment by considering only those in whom any drugs were detected in the blood. On this basis, the relative chance of being fatally injured increases to 14.41.

It is not possible to test, directly, whether the changes in the relative chance of being fatally injured differ significantly from zero because the values are ratios of living and fatally injured driver findings. However, logically equivalent tests can be made of the <u>differences</u> found between living and fatally injured drivers. That is, it is not possible to test the hypothesis, A/B = 1 but it is commonplace to test the related hypothesis, A-B = 0. Specifically, we compared the difference in percentage points of living and fatally injured drivers at Level A and the comparable difference in drivers having lesser indications of drugs. This was done for sedative/hypnotics, tranquilizers, and all drugs. In no case was the difference significant. In other words, no significant effect of drug <u>amount</u> on the chances of being fatally injured could be detected.

Table XXI shows data similar to those in Tables XVIII and XIX, but for marijuana, nicotine, and alcohol. The alcohol data are further grouped according to BAC. As is often done*, the readings of 0.01 have been combined with the zero readings and placed in a category called "negative." This procedure is followed because it is often difficult to determine whether a Breathalyzer reading of 0.01 is a true indication that the driver had been drinking or whether it is a "zero" within the precision limitations of the instrument. The added column related to alcohol is a restatement of the next-to-last column but normalized to 1.00 for sober drivers, in agreement with standard practice.

TABLE XXI

COMPARATIVE DATA FOR OTHER DRUGS

Drug	Living Drivers		Fatally Injured Drivers		Relative Chance of Being Fatally Injured	
	No.	Percent	No.	Percent		
Marijuana[a/]	69	6.0	44	21.9	3.64	
Nicotine[b/]	550	53.5	284	54.9	1.03	
Alcohol BAC						
Negative[c/]	897	78.5	301	44.0	0.56	(1.00)[d/]
0.02-0.04	139	12.2	25	3.7	0.30	(0.54)
0.05-0.09	66	5.8	37	5.4	0.94	(1.68)
0.10-0.14	32	2.8	67	9.8	3.50	(6.25)
0.15+	9	0.8	254	37.1	47.16	(84.21)

a/ Based on lip swab test. Data subject to correction because of preliminary nature of techniques employed.

b/ Based on urine.

c/ Less than 0.02.

d/ Normalized to 1.00 for "negative" BAC.

* See, for example, "Alcohol Safety Action Projects--Evaluation of Operations, 1972, Volume 2, Detailed Analyses," Chapter 2, ASAP Program Evaluation Methodology and Overall Program Impact, U.S. Department of Transportation, National Highway Traffic Safety Administration, DOT-HS-800-874.

The basic findings of Table XXI are also plotted in Figure 3. The relative chances of being fatally injured in an automobile crash are apparently about the same after smoking marijuana as when being at Level A for any of the aforementioned 41 drugs, taking collectively. There is no measurable effect of nicotine usage on the chances of fatal injury in a crash. By far the most influencing drug is alcohol. The data presented herein indicate that the chances of being in a fatal crash are 23.4 times as great if under the influence of alcohol than if sober, when "under the influence" is defined as hving a BAC of 0.10 or more.

Further insight on alcohol may be gained through Figure 4. There, the normalized relative chance of being fatally injured is displayed as a function of BAC range. These data agree conceptually with many previous, well-known findings including the famous Grand Rapids study.* The data show the commonly observed "dip" in the curve at low BAC's but, thereafter, an exponentially increasing danger as the BAC increases. Insufficient living driver data are available to further subdivide the category, 0.15+, although this is a very large category among fatally injured drivers as shown by Table XX. Indeed, several fatally injured drivers evidenced BAC's over 0.50! Live drivers at this level are indeed rare.

F. Drinking and Driving

A Breathalyzer was used in the survey of living drivers to determine their blood alcohol concentration (BAC). The major findings have already been alluded to in Subsections III-C and III-E. The detailed findings are given here together with an examination of correlates to the drivers' BAC's.

Table XXII shows the BAC findings. Overall, 3/8 of the drivers stopped had been drinking and nearly 4% could be presumed drunk, on the basis of a BAC of 0.10 or more. There was no significant difference in the BAC findings between the two survey locations.

The surveys were conducted at about 2 dozen sites in each of two communities. The sites were visited an average of three times each, at the time of day corresponding to the time of an earlier fatal crash. The site-by-site findings are displayed in Appendix E. There is little evidence that any of these sites is statistically more likely to have produced drunk drivers than the others, time of day being taken into account.

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* Borkenstein, R. F., R. F. Crowther, R. P. Shumate, W. P. Ziel, and R. Zylman, "The Role of the Drinking Driver in Traffic Accidents," Department of Police Administration, Indiana University, March 1964. All accidents, not just fatals, were included.

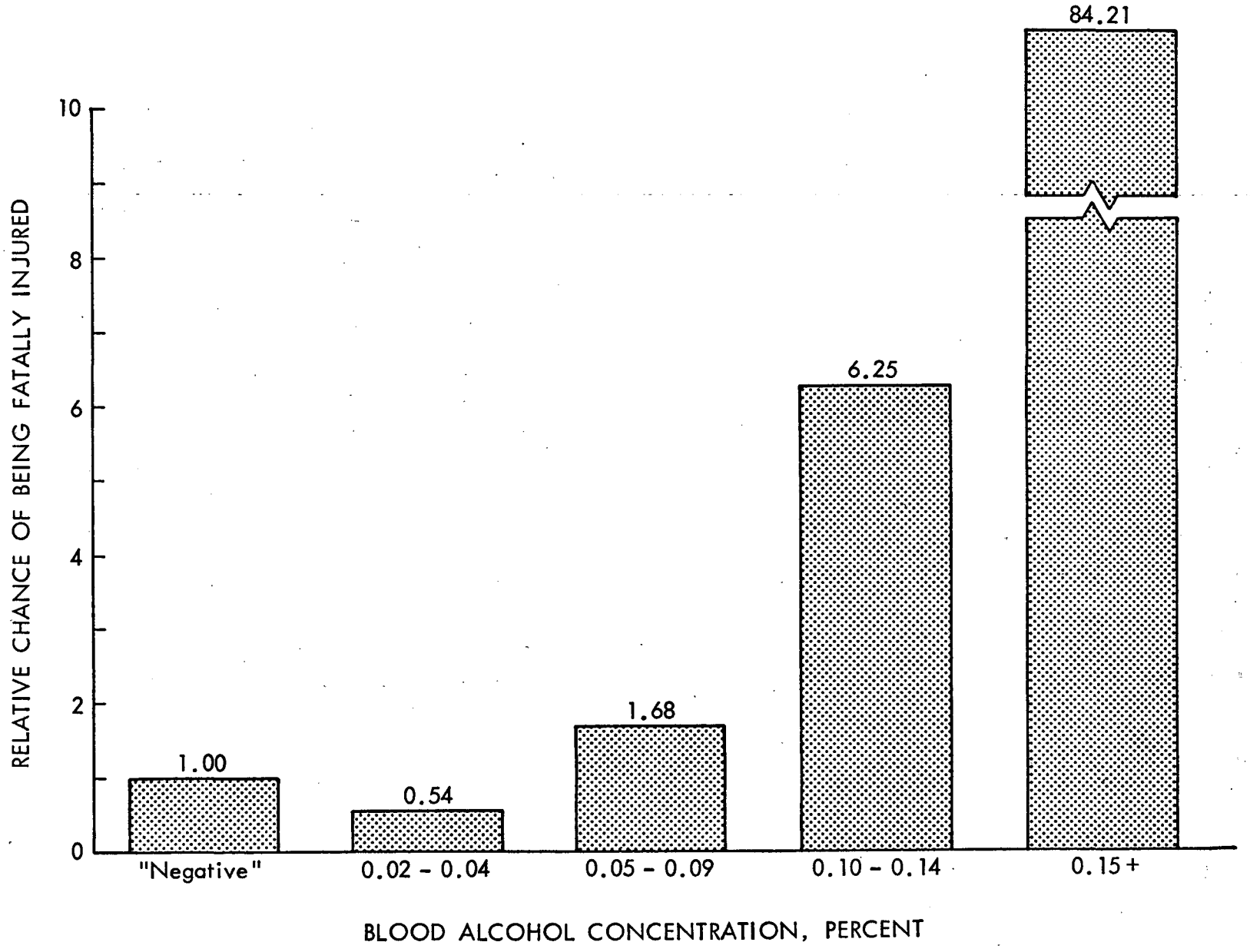

Figure 4 - Effect of Amount of Alcohol on Chances of Being Fatally Injured

TABLE XXII

BLOOD ALCOHOL RESULTS

BAC	Lincoln		Dade Co.		Total	
	Number	Percent	Number	Percent	Number	Percent
0.00	373	63.76	352	61.22	725	62.50
0.01	73	12.48	99	17.22	172	14.83
0.02	46	7.86	33	5.74	79	6.81
0.03	12	2.05	23	4.00	35	3.02
0.04	17	2.91	8	1.39	25	2.16
0.05	16	2.74	6	1.04	22	1.89
0.06	11	1.88	6	1.04	17	1.47
0.07	4	0.68	8	1.39	12	1.03
0.08	2	0.34	4	0.70	6	0.52
0.09	5	0.85	4	0.70	9	0.78
0.10	4	0.68	5	0.87	9	0.78
0.11-0.14	12	2.05	11	1.91	23	1.98
0.15-0.19	3	0.51	6	1.04	9	0.78
0.20+	0	0.00	0	0.00	0	0.00
Not Taken	7	1.20	10	1.74	17	1.47
Total	585	100.00	575	100.00	1,160	100.00

A number of relationships between certain variables and BAC were tested by means of the χ^2 statistic for significance. The results are summarized in Table XXIII. Comments concerning positive findings are given in the paragraphs below.

TABLE XXIII

CORRELATES TO DRINKING AND DRIVING

Variable	Confidence Level of Relationship	
	Lincoln	Dade County
Day of Week	Not Significant	Not Significant
Time of Day	$\alpha < 0.01$	$\alpha < 0.01$
Observation of Impairment	$\alpha < 0.01$	$\alpha < 0.01$
Car Age	$\alpha < 0.10$	Not Significant
Car Condition	Not Significant	$\alpha < 0.025$
Driver Age	$\alpha < 0.10$	$\alpha < 0.05$
Driver Income	$\alpha < 0.10$	Not Significant
Driver Education	Not Significant	Not Significant
Driver Employment Status	Not Significant	Not Significant
Taking Prescription Drug	$\alpha < 0.10$	Not Significant
Taking Nonprescription Drug	Not Significant	Not Significant
Admits Recent Drinking	$\alpha < 0.01$	$\alpha < 0.01$
Had Been Smoking	Not Significant	Not Significant

The day of week was found unrelated to BAC distribution, but time of day was significantly related. The relationship is exemplified in Table XXIV. In both cities the majority of the drinking and nearly all of the drunk driving was detected in the late evening and the early morning hours. This result was expected, and is in complete agreement with the findings of numerous researchers who have conducted alcohol surveys.

The survey coordinator made a visual observation of each driver stopped and recorded his impression of the level of impairment of the driver. His observations were found to be strongly and positively correlated with the BAC results.

Car age and car condition were recorded and compared with level of BAC. Weak relationships were found. In Lincoln, the drivers of older cars were slightly more likely to have been drinking than drivers of newer models, although this relationship did not carry into the high BAC levels. In Dade County, drivers with higher BAC's were found to be somewhat more likely to have been driving cars in poor condition than were drivers at large.

TABLE XXIV

TIME OF DAY VS PERCENTAGE OF DRINKING AND DRIVING

a. Lincoln, Nebraska

Time	Had Been Drinking (BAC = 0.01+)	Light Drinking (BAC = 0.01-0.04)	Moderate Drinking (BAC = 0.05-0.09)	Drunk Driving (BAC = 0.10+)
0000-0800	51.5 (86/167)	30.5 (51/167)	14.4 (24/167)	6.6 (11/167)
0800-1600	20.5 (16/78)	17.9 (14/78)	2.6 (2/78)	0.0 (0/78)
1600-2000	25.1 (46/183)	21.9 (40/183)	2.7 (5/183)	0.5 (1/183)
2000-2400	38.1 (56/147)	29.3 (43/147)	4.8 (7/147)	4.1 (6/147)
Total	35.5 (204/575)	25.7 (148/575)	6.6 (38/575)	3.1 (18/575)

b. Dade County, Florida

Time	Had Been Drinking (BAC = 0.01+)	Light Drinking (Bac = 0.01-0.04)	Moderate Drinking (BAC = 0.05-0.09)	Drunk Driving (BAC = 0.10+)
0000-0800	47.3 (71/150)	32.7 (49/150)	8.7 (13/150)	6.0 (9/150)
0800-1600	30.5 (46/151)	28.5 (43/151)	2.0 (3/151)	0.0 (0/151)
1600-2000	31.3 (26/83)	27.7 (23/83)	1.2 (1/83)	2.4 (2/83)
2000-2400	38.9 (70/180)	26.7 (48/180)	6.1 (11/180)	6.1 (11/180)
Total	37.8 (213/564)	28.9 (163/564)	5.0 (28/564)	3.9 (22/564)

Driver age was related to BAC in each of the communities, but not in the same way in each community. In Lincoln, older drivers (40 years or more) were underrepresented in the moderate to heavy drinking category. In Dade County, teen-age drivers were underrepresented in all positive BAC categories.

Driver education and employment status were not related to BAC. Neither were admissions to taking prescription or nonprescription drugs, except for a weak relationship regarding prescription drugs in Lincoln. There, only two of the 38 drivers who had been drinking moderately (BAC of 0.05-0.09) admitted to be taking prescription drugs, whereas about 20% of the drivers at large said they were taking a prescription drug. Because the level of significance is not high, we are inclined to suspect that it may be an anomolous finding.

The drivers' admissions of the amount of recent drinking correlated very strongly with the BAC findings obtained subsequently, indicating a general tendency for the motorists to be honest, at least as regards this question.

Finally, no relationship could be found between the drivers' recent use of alcohol and his smoking of tobacco.

G. Other Findings

Appendix B contains tabulations of motorists' answers to the questions asked during the survey (see Appendix A for the survey instrument). Some of these responses were discussed in Subsections III-A and III-F. This subsection is primarily concerned with those questions and answers related to the taking of drugs and medications.

A few preliminary comments concerning interpretation of some of the tabulations should be made. The question "numbers" refer, for convenience, to later keypunch operations. "Questions" 1 through 74 were encoded on one card, and the remainder on a second card. (Laboratory findings were encoded on a third card.) After surveying began, several common "write-in" answers were assigned special codes. A code 97 was used with Question 147 if the Breathalyzer was inoperative. Code 3 of Question 149 was interpreted to mean that the sample was insufficient and a mailer was supplied to the respondent. Code 8 on Question 151 was used when a nurse was unavailable.

Each driver was asked a series of questions concerning drugs and medications. First, he was asked whether he was taking any prescription drugs and if so, how often, how recently, for what reason, and the name of the drug. Following this, he was asked similar questions concerning nonprescription pills or medications. Finally, he was asked specifically if he was taking any stimulants, sedatives, or tranquilizers.

The findings to these questions are summarized in Table XXV. Dade County residents were far more likely to be taking nonprescription drugs than were Lincoln drivers ($\alpha < 0.0001$). The findings were dominated by vitamins and minerals, which the drivers placed in the category, "pills and medications." Other nonprescription pills and medications were twice as prevalent in Lincoln. Lincoln drivers were also more likely to be taking prescription drugs, especially two or more prescriptions simultaneously and frequently ($\alpha < 0.05$). Only 14 drivers out of the total number questioned admitted to be taking a stimulant. Far more said they were taking sedatives, particularly in Dade County. Twenty-six drivers said they were taking tranquilizers.

TABLE XXV

DRIVERS ADMITTING TAKING DRUGS

Drug Type	Community	
	Lincoln, %	Dade County, %
Prescription	19.69	18.61
Nonprescription	23.37	30.37
Vitamins/Minerals	7.79	22.69
Other	15.58	7.68
Stimulant	1.73	0.71
Sedative	1.56	5.50
Tranquilizer	2.59	1.96

Of those drivers who said they were currently taking either prescription or nonprescription drugs, 75 to 80% had taken it within the last 24 hr. However, only 40% of the drivers admitting taking stimulants, sedatives or tranquilizers, had taken them that recently.

The reasons for taking drugs were different in the two communities. In Lincoln, the drivers were significantly ($\alpha < 0.005$) more likely to be taking prescription drugs for symptomatic relief, whereas Dade County drivers were more apt to be taking them because of an infectious disease. Dade County residents were significantly more likely ($\alpha < 0.0001$) to be taking nonprescription drugs for nutritional deficiencies, whereas Lincoln drivers tended to be taking these drugs also for symptomatic relief.

A complete list of all drugs which drivers mentioned during the survey is included as Appendix C. During the interview, the name of the drug was recorded. During the later editing process each drug was classified into one of 25 groups, also shown in Appendix C. The large range of prescription drug types, coupled with the relatively common response that the driver did not know what drug he was taking, made impractical an analysis of significance for prescription drug types. However, an analysis was done concerning nonprescription drugs. It was found that Dade County drivers were significantly more likely ($\alpha < 0.0001$) to say they were taking vitamins and minerals, whereas Lincoln drivers were more likely to admit taking analgesics and antipyretics.

A separate tabulation was made of certain responses of those drivers who were later determined, by laboratory analysis, to have been taking one of the 41 tested drugs. Because of the small number involved, formal statistical procedures were not employed, but rather the data were examined qualitatively for major trends. A comparison of the drug-taking drivers with other drivers is given in Table XXVI. There were relatively few differences between survey communities. The cars driven by the drug users tended to be newer and in better condition than those of drivers at large. No other consistent trend was found.

TABLE XXVI

COMPARISON OF DRIVERS TAKING DRUGS WITH OTHER DRIVERS

	Unusual Feature of Drug Users	
Characteristic	Lincoln	Dade County
Day of Week	None	None
Time of Day	None	More apt to be early evening
Car Age	Newer	Newer
Car Condition	Better	Better
Age	Older	None
Income	None	Higher
Education Level	None	None
Employment Status	None	None

Finally, the admissions of drug usage were examined for the 23 Lincoln drivers and 21 Dade County drivers in whom drugs were detected. These are tabulated in Table XXVII. In this table, all prescription and nonprescription drugs mentioned by these drivers are included. For example, sedative/hypnotic drugs were detected in 11 Lincoln drivers. Four of them did not admit taking any drugs, but the others did. They mentioned, collectively, 23 drugs of which one was a tranquilizer, two were analgesics or antipyretics, three were hormones or steroids, two were sedatives or hypnotics, etc.

About half of the drug-using drivers admitted taking one or more drugs, compared with 20 to 30% of the drivers at large. This difference was expected; however, it is obvious that many of the drivers did not want to mention their drugs and medications. This level of reluctance is not observed relative to the use of alchol.

It is clear from Table XXVII that many of these drivers were taking more than one drug. In particular, the drivers in whom sedative/hypnotic drug types were found and who admitted to taking any medications averaged three drugs each. This same average applies to the smaller number of drivers in whom analgesic narcotics were detected. Finally, it is noteworthy that only one of the 11 Lincoln drivers in whom meprobamate was detected admitted taking any drugs.

H. Refusals

Approximately 22% of the motorists stopped at random would not agree to participate in the survey. Generally, little is known about these drivers. However, the supervisor usually was able to observe the driver and record some information for later comparative purposes. These observations are summarized in Table XXVIII and compared with similar observations of drivers who accepted the interview.

A key observation is the supervisor's estimate of driver impairment (see Appendix B). Those who refused were significantly more likely to be estimated as impaired than were those who accepted ($\chi^2(1) = 19.53$, $\alpha < 0.0001$). As shown in Subsection III-F, such estimates were positively correlated with BAC. For example, of those estimated as not impaired but for whom a BAC was later taken, 32.5% had been drinking light-to-moderate amounts, and 2.77% were drunk (BAC of 0.10 or more). The corresponding figures for those estimated as impaired were 43.6% and 18.18%, respectively. Applying these percentages to the refusers indicates that the previously stated results concerning drinking and driving should be revised upward by a small amount. The percentage of drinking drivers, overall, was probably closer to 37.0% rather than 36.6%; the percentage of drunk drivers closer to 3.75% than 3.52%.

TABLE XXVII

COMPARISON OF ADMITTED AND DETECTED DRUGS IN LIVING DRIVERS

a. Lincoln

	Drugs Detected in Blood or Urine				
	Tranquilizers	Stimulants and Anorectics	Sedatives and Hypnotics	Antihistamines	Analgesic Narcotics
Total Drivers	11	1	11	2	2
Drivers Not Admitting Drugs	10	0	4	0	1
Drivers Admitting Drugs	1	1	7	2	1
Total Drugs Admitted	3	2	23	2	4
Individual Drug Types Admitted					
Tranquilizers	0	0	1	0	0
Analgesics and Antipyretics	0	0	2	0	0
Hormones and Steroids	1	0	3	0	0
Sedatives and Hypnotics	0	0	2	0	0
Anti-Infective Agents	0	1	1	0	2
Vitamins and Minerals	0	0	3	0	0
Anticholinergics	0	0	2	0	0
Antiasthmatics	0	0	3	1	0
Antiarthritics	0	0	2	0	0
Miscellaneous	0	0	0	1	0
Unknown	2	1	4	0	2

TABLE XXVII (Concluded)

b. Dade County

	Drugs in Blood and Urine					
	Tranquilizers	Stimulants and Anorectics	Sedatives and Hypnotics	Antihistamines	Analgesic Narcotics	Miscellaneous
Total Drivers	1	2	13	3	2	1
Drivers Not Admitting Drugs	1	0	8	0	0	1
Drivers Admitting Drugs	0	2	5	3	2	0
Total Drugs	0	2	13	4	6	0
Individual Drug Types Admitted						
Stimulants and Anorectics	0	0	3	0	1	0
Sedatives and Hypnotics	0	0	1	0	0	0
Anti-Infective Agents	0	1	1	1	1	0
Vitamins and Minerals	0	1	5	0	1	0
Antihistamines	0	0	0	2	0	0
Anticoagulants	0	0	0	0	1	0
Diuretics and Uricosurics	0	0	1	0	0	0
Miscellaneous	0	0	0	0	1	0
Unknown	0	0	2	1	1	0

Refusals were slightly more common among blacks and other non-whites. The difference was only marginally significant, however ($\chi^2(2) = 4.96$, $\alpha < 0.10$). In Table XXVI it is stated that drug users were somewhat more likely to be driving cars which were newer or in better condition than non-users. Table XXVIII shows that refusers were more likely to be driving newer cars ($\chi^2(2) = 8.14$, $\alpha < 0.025$) or cars in poor condition (not significant). The impact on the drug findings of not having samples from the refusers is therefore unclear, but undoubtedly miniscule.

As stated earlier, about one-fourth of the drivers who agreed to participate in the survey did not provide a blood sample for later analysis. The reasons were many, but predominantly the result of driver refusal to this request. A second sizable group were minors, of whom blood could not legally be taken. Small groups were not asked for a blood sample for health reasons, because a suitable vein could not be readily located, or because a nurse was temporarily unavailable (see Appendix B).

Even though there were almost no findings of drugs in the blood samples taken from living drivers, it is reasonable to inquire whether those from whom no flood sample was taken might be more or less likely to have been taking drugs. To this end, their responses to questions about drug usage were examined (see Table XXIX). No significant differences for any of the five drug types displayed in the table were found for the young drivers, based on a series of 2 x 2 analyses. Among refusers, the only significant difference detected was in regard to prescription drugs. The refusers were less likely to admit to taking prescription drugs than the others ($\chi^2(1) = 4.98$, $\alpha < 0.05$).

Thus, all evidence indicates that the drug findings are not understated because of a lack of blood samples from all motorists who otherwise cooperated.

TABLE XXVIII

CHARACTERISTICS OF DRIVERS WHO REFUSED INTERVIEW

	Refused Interview	Accepted Interview
Estimated Impairment?		
No	290 (20.88%)	1,099 (79.12%)
Yes	38 (40.42%)	56 (59.57%)
Race		
White	260 (21.17%)	968 (78.83%)
Black	42 (26.25%)	118 (73.75%)
Other	28 (29.17%)	68 (70.83%)
Car Age		
0 - 3 yr	180 (24.13%)	566 (75.87%)
4 - 9 yr	135 (21.95%)	480 (78.05%)
10+ yr	15 (12.50%)	105 (87.50%)
Car Condition		
Excellent	169 (21.98%)	600 (78.02%)
Fair	134 (21.20%)	498 (78.80%)
Poor	25 (29.76%)	59 (70.24%)

TABLE XXIX

DRIVERS WHO ADMITTED TAKING CERTAIN TYPES OF DRUGS

	Total Sample	Refused to Give Blood	Under Age[a/]
Taking prescription drug(s)	222 (19.15%)	20 (13.51%)	13 (16.88%)
Taking nonprescription drug(s)	310 (26.84%)	44 (27.85%)	20 (25.97%)
Taking stimulants	14 (1.23%)	4 (2.58%)	3 (3.90%)
Taking sedatives	40 (3.51%)	7 (4.52%)	2 (2.60%)
Taking transquilizers	26 (2.28%)	5 (3.22%)	2 (2.60%)

a/ Too young to request blood from.

IV. CONCLUSIONS AND RECOMMENDATIONS

The activities reported upon herein indicate several things. They indicate, first of all, that it is possible to stop motorists randomly and secure the cooperation of most of them in providing fluid samples for drug analysis. Secondly, the results of these drug analyses and similar results from fatally injured drivers indicate that the amount of drug usage among fatally injured drivers is significantly higher than that among living drivers. The true magnitude of the difference is not obtainable from this work, nor was it meant to be, but indications are that it is on the order of four times, for the group of 41 drugs tested as a whole. The magnitude of the difference is undoubtedly higher for some drug types, such as stimulants. And, the results of this work reconfirmed that alcohol is by far the most abused drug among drivers.

By and large, the procedures used in the project were satisfactory and need not be revised. An exception to this is the marijuana sampling procedure which, although not yielding any false positives among control samples in this study, is not yet efficient enough for many purposes. Also, laboratory procedures concerning aspirin, salicyclic acid and meprobamate should be reviewed.

A major need is to better quantify the qualitative findings presented in this report. The quantification process requires two things: (1) a larger sample size of living drivers; and (2) a properly selected living-driver population from which the sample is drawn. The driver population should accurately reflect drivers at risk at the times and places of those fatal crashes which result in the comparative fatally-injured driver samples.

Finally, it is recommended that a reexamination of the meaning of the level of drug concentration be undertaken. The variety of drugs being tested must be taken into account as well as the concentration of the drug and the fluid in which it is found.

APPENDIX A

SURVEY INSTRUMENT

ROADSIDE DRUG USAGE SURVEY

Sample Number 1 ___ ___ ___ ___
1 2 3 4 5
(Column "2" is Community Number)

Sampling Period ___
6

Location Number ___ ___
7 8

9. Area Type
1( ) Rural
2( ) Suburban
3( ) Urban

10. Road Type
1( ) Freeway Exit
2( ) City Street - One Way
3( ) City Street - Two Way - 4 or more Lanes
4( ) City Street - Two Way - 2 or 3 Lanes
5( ) Highway - Divided
6( ) Highway - Two Way - 4 or more Lanes
7( ) Highway - Two Way - 2 or 3 Lanes

11. Relative Traffic Volume
1( ) Low
2( ) Medium
3( ) High

12. Day of Week (on which survey began)
1( ) Monday
2( ) Tuesday
3( ) Wednesday
4( ) Thursday
5( ) Friday
6( ) Saturday
7( ) Sunday

Date ___ ___ ___ ___ ___ ___
13 14 15 16 17 18
day month year

Time Interview Began (24-hour clock) ___ ___ : ___ ___
19 20 21 22
(Code midnight as 00:00)

1-Hour, 1-Way Traffic Count ___ ___ ___ ___
23 24 25 26

EVIDENCE OF DRUG USAGE

27. ( ) Glassy, bloodshot eyes
28. ( ) Dilated eye pupils
29. ( ) Contracted eye pupils
30. ( ) Slurred speech
31. ( ) Drowsiness
32. ( ) Unsteadiness
33. ( ) Profuse perspiration
34. ( ) Cracked or very dry lips
35. ( ) Depressed
36. ( ) Euphoria
37. ( ) Odor of marihuana
38. ( ) Odor of alcohol
39. ( ) Open bottle or can
40. ( ) Other

41. Estimate of Impairment
1( ) None
2( ) A little
3( ) A lot
4( ) Don't know

42. Sex
1( ) Male
2( ) Female

43. Race
1( ) White
2( ) Black
3( ) Latin
4( ) Oriental
5( ) American Indian
6( ) Other (specify) _____

44. Driver Seat Belt
1( ) None
2( ) Not used
3( ) Used
4( ) Belt and harness
5( ) Unknown

45. Number of people in car ___
45

46. Car Age
1( ) Late model (0-3 years)
2( ) Intermediate (4-9 years)
3( ) Old (10 years or older)

47. Car Model
1( ) Family car (sedan, etc.)
2( ) Sporty and high performance (hot rods)
3( ) Station Wagon
4( ) Compacts (Pinto, Maverick, etc.)
5( ) Foreign compacts (VW, Renault, etc.)
6( ) Minibus
7( ) Truck-pickup
8( ) Motorcycle
9( ) Other _____

48. Car Condition
1( ) Excellent
2( ) Fair
3( ) Poor

49. Interview
1( ) Accepted, willing
2( ) Accepted, unwilling
3( ) Refused, excuse or polite
4( ) Refused, belligerent

_____
Supervisor

_____
Nurse

_____
Recorder

50. What city or town do you live in, and what county?
1( ) Lincoln, Nebraska
2( ) Metropolitan Dade County, Florida
3( ) Surrounding towns in county
4( ) Other rural areas in the county
5( ) Adjacent counties
6( ) Outstate
7( ) Other state
8( ) Part time resident of survey community

51. With whom do you live?
1( ) Alone
2( ) Spouse and children
3( ) Spouse
4( ) Parent
5( ) Other relative
6( ) A friend
7( ) A group (Halfway House, Salvation Army, commune, etc.)
8( ) Other (specify) _____

52. In what age group do you fall? (Show Card 1)
1( ) 16-17
2( ) 18-19
3( ) 20-24
4( ) 25-29
5( ) 30-39
6( ) 40-49
7( ) 50-59
8( ) 60-69
9( ) 70 or over

53. What is the total annual income for you or your family? (Show Card 1)
1( ) Less than $1,000
2( ) $1,000 - $2,499
3( ) $2,500 - $4,999
4( ) $5,000 - $7,499
5( ) $7,500 - $9,999
6( ) $10,000 - $14,999
7( ) $15,000 - $19,999
8( ) $20,000 or more

54. What is the highest educational level you've attained?
1( ) 6th grade or less
2( ) 7 - 9th grade
3( ) High school, incomplete
4( ) High school graduate
5( ) Special, non-college training (i.e., business, trade, technical, etc.)
6( ) College, incomplete
7( ) College graduate
8( ) 1 year or more graduate work

55. What is your present employment status?
1( ) Unemployed, not looking for work
2( ) Unemployed, looking for work
3( ) Retired
4( ) Housewife
5( ) Full-time student
6( ) Working full-time
7( ) Part-time employed
8( ) Part-time student
9( ) Other (specify) _____

56. Are you coming from your home, work, friend's house, or where?
1( ) Own home
2( ) Friend's or relative's home
3( ) Work or school
4( ) Appointment (meeting, shopping, business)
5( ) Sport or recreational facility
6( ) Restaurant
7( ) Bar, tavern or private club
8( ) Just driving around
9( ) Other (specify) _____

57. Are you currently taking medication which has been prescribed by a physician? If so, how often do you take the medication?

	Prescriptions 1st 57	Prescriptions 2nd 58	Prescriptions 3rd 59	Non-Prescriptions 1st 60	Non-Prescriptions 2nd 61	Non-Prescriptions 3rd 62	Stim. 63	Sed. 64	Tran. 65	
More than 4 times a day	1( )	( )	( )	( )	( )	( )	( )	( )	( )	1
4 times a day	2( )	( )	( )	( )	( )	( )	( )	( )	( )	2
3 times a day	3( )	( )	( )	( )	( )	( )	( )	( )	( )	3
2 times a day	4( )	( )	( )	( )	( )	( )	( )	( )	( )	4
Once a day	5( )	( )	( )	( )	( )	( )	( )	( )	( )	5
Several times a week	6( )	( )	( )	( )	( )	( )	( )	( )	( )	6
Several times a month	7( )	( )	( )	( )	( )	( )	( )	( )	( )	7
When needed	8( )	( )	( )	( )	( )	( )	( )	( )	( )	8
Not taking (skip to next sequence)	9( )	( )	( )	( )	( )	( )	( )	( )	( )	9

66. How long has it been since you last took the medication?

	Prescriptions 1st 66	Prescriptions 2nd 67	Prescriptions 3rd 68	Non-Prescriptions 1st 69	Non-Prescriptions 2nd 70	Non-Prescriptions 3rd 71	Stim. 72	Sed. 73	Tran. 74	
Less than 1 hour	1( )	( )	( )	( )	( )	( )	( )	( )	( )	1
1 - 4 hours	2( )	( )	( )	( )	( )	( )	( )	( )	( )	2
4 - 8 hours	3( )	( )	( )	( )	( )	( )	( )	( )	( )	3
8 - 12 hours	4( )	( )	( )	( )	( )	( )	( )	( )	( )	4
12 - 24 hours	5( )	( )	( )	( )	( )	( )	( )	( )	( )	5
1 - 7 days ago	6( )	( )	( )	( )	( )	( )	( )	( )	( )	6
1 - 2 weeks ago	7( )	( )	( )	( )	( )	( )	( )	( )	( )	7
2 - 4 weeks ago	8( )	( )	( )	( )	( )	( )	( )	( )	( )	8
> 4 weeks ago	9( )	( )	( )	( )	( )	( )	( )	( )	( )	9

(Key Punch: New Card, "2" in Col. 1, DUP Col's. 2 - 5)

106. For what reason are you taking the medication?

	Prescriptions 1st 106	Prescriptions 2nd 107	Prescriptions 3rd 108	Non-Prescriptions 1st 109	Non-Prescriptions 2nd 110	Non-Prescriptions 3rd 111	Stim. 112	Sed. 113	Tran. 114	
Symptomatic relief	1( )	( )	( )	( )	( )	( )	( )	( )	( )	1
Nutritional deficiency	2( )	( )	( )	( )	( )	( )	( )	( )	( )	2
Infectious disease	3( )	( )	( )	( )	( )	( )	( )	( )	( )	3
Hormonal imbalance	4( )	( )	( )	( )	( )	( )	( )	( )	( )	4
Heart and vascular ailment	5( )	( )	( )	( )	( )	( )	( )	( )	( )	5
Kidney ailment	6( )	( )	( )	( )	( )	( )	( )	( )	( )	6
Anti-convulsant	7( )	( )	( )	( )	( )	( )	( )	( )	( )	7
Other	8( )	( )	( )	( )	( )	( )	( )	( )	( )	8
Unknown	9( )	( )	( )	( )	( )	( )	( )	( )	( )	9

115. Would you please tell us the type or name of the medication.

____ ____ _____
115 116 Write in

58. Any other prescriptions? (Etc.)

117. Name or type

____ ____ _____
117 118 Write in

59. Any other prescriptions? (Etc.)

119. Name or type

____ ____ _____
119 120 Write in

60. Have you taken any other pills or medicines recently (non-prescription)? (Etc.)

121. Name or type

____ ____ _____
121 122 Write in

61. Any other pills or medicines? (Etc.)

123. Name or type

____ ____ _____
123 124 Write in

62. Any other pills or medicines? (Etc.)

125. Name or type

____ ____ _____
125 126 Write in

63. Are you currently using any pills or medicines that help you stay awake, pep you up, help you lose weight, or cheer you up; pills that are often called stimulants, such as Dexamyl, Dexedrine, Elavil, Preludin, No-Doz, and the like? (Etc.)

64. Are you currently using any pills or medicines to help you sleep at night; pills that are often called sedatives such as Seconal, Phenobarbital, Doriden, Sleep-Eze, and the like? (Etc.)

65. Are you currently using any pills or medicines to help you calm down or keep you from getting nervous and upset; pills that are often called tranquilizers such as Miltown, Equanil, Librium, Valium, Compoz, and the like? (Etc.)

127. Are you currently taking two or more types of pills or medicines at the same time? (If "yes" ask -- How often do you take them? Exclude hospitalization.)
1( ) No -- go to question 136
2( ) Daily
3( ) Weekly
4( ) Monthly

128. What are they?

____ ____ _____
128 129 Write in

____ ____ _____
130 131 Write in

____ ____ _____
132 133 Write in

____ ____ _____
134 135 Write in

136. Drinking is an accepted part of business and social activity for many people. Do you ever drink alcoholic beverages? (If "yes" ask -- How many drinks have you had in the last 4 hours?)

XX ____ Enter number
98 ( ) None
99 ( ) Don't drink -- Go to question 147

138. How long ago did you finish your last drink?

XX ____ Enter number of minutes
99 ( ) Longer than 99 minutes

140. Are you currently taking any pills or medicines and drinking alcoholic beverages at the same time? (If "yes" ask -- How often do you do it?)
1( ) No -- go to question 147
2( ) Daily
3( ) Weekly
4( ) Monthly

141. Which drugs do you take?

____ ____ _____
141 142 Write in

____ ____ _____
143 144 Write in

____ ____ _____
145 146 Write in

147. Now, I'd like you to blow into this tube. This is part of the procedure for gathering data for this survey.

XX ____ ____ (Enter BAC)
147 148
98 ( ) Negative or zero reading
99 ( ) Refused

149. This completes the questioning. The results of the Breathalyzer test will be available in about two minutes. While you are waiting for the results, I would like you to give us a urine sample. We have a toilet facility in this van for your convenience.
1( ) Accepted, willing
2( ) Accepted to mail
3( ) Accepted, other--_____
4( ) Refused, excuse or polite
5( ) Refused, belligerent

150. As another part of the procedure for gathering data for this survey, I would like you to give us a sample of blood. This sample will be drawn by Ms. _____ who is a registered nurse.
1( ) Offered plan 0
2( ) Offered plan 1
3( ) Offered plan 2
4( ) Offered plan 5
5( ) Offered plan 10
6( ) Not applicable

151. Blood sample
1( ) Given, willing
2( ) Given, unwilling
3( ) Refused, excuse or polite
4( ) Refused, belligerent
5( ) Not requested-under age
6( ) Not requested-health reason
7( ) Could not locate vein

152. As a final part of the interview, I would like you to let us collect a lip swab sample from you. This is just another way of testing for certain drugs and medications which may leave residues in the saliva or on the lips.
1( ) Positive test
2( ) Negative test
3( ) Sample to be analyzed later
4( ) Refused, excuse or polite
5( ) Refused, belligerent

Thank you very much for your cooperation and for your time.

APPENDIX B

RESPONSES FROM SURVEY INSTRUMENT

Question		Lincoln		Dade County	
		No.	Percent	No.	Percent
9	AREA TYPE	712		777	
	RURAL	243	34.13	183	23.55
	SUBURBAN	469	65.87	459	59.07
	URBAN	0	0.00	135	17.37
10	ROAD TYPE	712		778	
	FREEWAY EXIT	0	0.00	0	0.00
	CITY ST ONE WAY	0	0.00	0	0.00
	CITY ST TWO WAY GE 4 LN	308	43.26	285	36.63
	CITY ST TWO WAY 2-3 LN	223	31.32	235	30.21
	HWY DIV	126	17.70	204	26.22
	HWY TWO WAY GE 4 LN	0	0.00	37	4.76
	HWY TWO WAY 2-3 LN	55	7.72	17	2.19
11	TRAFFIC VOLUME	712		778	
	LOW	34	4.78	167	21.47
	MEDIUM	361	50.70	303	38.95
	HIGH	317	44.52	308	39.59
12	DAY OF WEEK	711		778	
	MON	75	10.55	91	11.70
	TUES	73	10.27	96	12.34
	WED	96	13.50	70	9.00
	THURS	156	21.94	169	21.72
	FRI	182	25.60	169	21.72
	SAT	129	18.14	183	23.52
	SUN	0	0.00	0	0.00
27	EVIDENCE OF DRUG USAGE	25		29	
	GLASSY,BLOODSHOT EYES	2	8.00	5	17.24
	DILATED PUPILS	2	8.00	3	10.34
	CONTRACTED PUPILS	1	4.00	3	10.34
	SLURRED SPEECH	3	12.00	10	34.48
	DROWSINESS	3	12.00	7	24.14
	UNSTEADINESS	0	0.00	6	20.69
	PROFUSE PERPIRATION	0	0.00	0	0.00
	LIPS VERY DRY OR CRACKD	1	4.00	0	0.00
	DEPRESSED	0	0.00	1	3.45
	EUPHORIA	0	0.00	0	0.00
	ODOR OF MARIHUANA	0	0.00	1	3.45
	ODOR OF ALCOHOL	15	60.00	11	37.93
	OPEN BOTTLE OR CAN	3	12.00	2	6.90
	OTHER	1	4.00	1	3.45
41	ESTIMATE OF IMPAIRMENT	708		775	
	NONE	675	95.34	714	92.13
	A LITTLE	28	3.95	45	5.81
	A LOT	5	.71	16	2.06
	DON"T KNOW	0	0.00	0	0.00
42	SEX	711		778	
	MALE	711	100.00	778	100.00
	FEMALE	0	0.00	0	0.00

Question		Lincoln		Dade County	
		No.	Percent	No.	Percent
43	RACE	710		774	
	WHITE	692	97.46	536	69.25
	BLACK	11	1.55	149	19.25
	LATIN	5	.70	69	8.91
	ORIENTAL	0	0.00	1	.13
	AMERICAN INDIAN	2	.28	0	0.00
	OTHER	0	0.00	19	2.45
44	DRIVER SEAT BELT	711		776	
	NONE	104	14.63	33	4.25
	NOT USED	502	70.60	474	61.08
	USED	77	10.83	196	25.26
	BELT AND HARNESS	5	.70	13	1.68
	UNKNOWN	23	3.23	60	7.73
45	NO PEOPLE IN CAR	709		778	
	ONE	378	53.31	463	59.51
	TWO	213	30.04	209	26.86
	THREE	66	9.31	52	6.68
	FOUR	33	4.65	27	3.47
	FIVE	16	2.26	18	2.31
	SIX	3	.42	4	.51
	SEVEN	0	0.00	5	.64
	EIGHT	0	0.00	0	0.00
	NINE OR MORE	0	0.00	0	0.00
46	CAR AGE	707		774	
	LATE MODEL (0-3YRS)	326	46.11	420	54.26
	INTERMEDIATE (4-9YRS)	295	41.73	320	41.34
	OLD (10YRS OR GREATER)	86	12.16	34	4.39
47	CAR MODEL	707		776	
	FAMILY CAR (SEDAN ETC)	372	52.62	498	64.18
	SPORTY	83	11.74	51	6.57
	STATION WAGON	45	6.36	43	5.54
	COMPACTS (PINTO ETC)	76	10.75	71	9.15
	FOREIGN COMPACTS	48	6.79	73	9.41
	MINIBUS	9	1.27	8	1.03
	TRUCK-PICKUP	65	9.19	26	3.35
	MOTORCYCLE	6	.85	3	.39
	OTHER	3	.42	3	.39
48	CAR CONDITION	710		775	
	EXCELLENT	361	50.85	408	52.65
	FAIR	306	43.10	326	42.06
	POOR	43	6.06	41	5.29
49	INTERVIEW	711		777	
	ACCEPTED WILLINGLY	568	79.89	546	70.27
	ACCEPTED UNWILLINGLY	16	2.25	29	3.73
	REFUSED-EXCUSE,POLITE	126	17.72	200	25.74
	REFUSED-BELIGERENT	1	.14	2	.26

Question		Lincoln		Dade County	
		No.	Percent	No.	Percent
50	CITY,TOWN,COUNTY RESIDE	584		575	
	LINCOLN NEBRASKA	495	84.76	2	.35
	METRO. DADE COUNTY FL	0	0.00	511	88.87
	SURROUND. TOWNS IN CO	21	3.60	0	0.00
	RURAL AREAS IN COUNTY	5	.86	5	.87
	ADJACENT COUNTIES	19	3.25	36	6.26
	OUTSTATE	36	6.16	12	2.09
	OTHER STATE	5	.86	9	1.57
	PART TIME RESIDENT	3	.51	0	0.00
51	WITH WHOM DO YOU LIVE	584		575	
	ALONE	76	13.01	92	16.00
	SPOUSE AND CHILDREN	202	34.59	215	37.39
	SPOUSE	116	19.86	115	20.00
	PARENT	106	18.15	110	19.13
	OTHER RELATIVE	14	2.40	16	2.78
	FRIEND	51	8.73	18	3.13
	GROUP(SAL.ARMY ETC.)	5	.86	1	.17
	OTHER	14	2.40	8	1.39
52	AGE GROUP	596		594	
	16-17	18	3.02	24	4.04
	18-19	70	11.74	48	8.08
	20-24	166	27.85	97	16.33
	25-29	95	15.94	87	14.65
	30-39	84	14.09	120	20.20
	40-49	74	12.42	92	15.49
	50-59	54	9.06	72	12.12
	60-69	26	4.36	40	6.73
	70 OR OVER	9	1.51	14	2.36
53	TOTAL ANNUAL INCOME	576		559	
	UNDER $1,000	21	3.65	15	2.68
	1,000-2,499	28	4.86	24	4.29
	2,500-4,999	61	10.59	28	5.01
	5,000-7,499	92	15.97	70	12.52
	7,500-9,999	96	16.67	105	18.78
	10,000-14,999	158	27.43	144	25.76
	15,000-19,999	71	12.33	86	15.38
	20,000 OR GREATER	49	8.51	87	15.56
54	EDUCATION	582		575	
	6TH GRADE OR LESS	9	1.55	35	6.09
	7-9TH GRADE	33	5.67	43	7.48
	HIGH SCHOOL-INCOMPLETE	66	11.34	71	12.35
	HIGH SCHOOL GRADUATE	153	26.29	149	25.91
	SPECIAL TRAINING	41	7.04	16	2.78
	COLLEGE INCOMPLETE	173	29.73	160	27.83
	COLLEGE GRADUATE	57	9.79	61	10.61
	YEAR OR MORE GRADUATE	50	8.59	40	6.96

Question		Lincoln No.	Lincoln Percent	Dade County No.	Dade County Percent
55	EMPLOYMENT STATUS	583		575	
	UNEMPLOYED,NOT LOOKING	3	.51	8	1.39
	UNEMPLOYED LOOKING	9	1.54	15	2.61
	RETIRED	15	2.57	33	5.74
	HOUSEWIFE	0	0.00	1	.17
	FULL-TIME STUDENT	114	19.55	59	10.26
	WORKING FULL-TIME	412	70.67	444	77.22
	PART-TIME EMPLOYED	26	4.46	8	1.39
	PART-TIME STUDENT	1	.17	3	.52
	OTHER	3	.51	4	.70
56	WHERE COMING FROM	583		574	
	OWN HOME	166	28.47	114	19.86
	FRIEND OR RELATIVE HOME	98	16.81	106	18.47
	WORK OR SCHOOL	118	20.24	115	20.03
	APPOINTMENT	37	6.35	100	17.42
	SPORT OR REC. FACILITY	25	4.29	33	5.75
	RESTAURANT	43	7.38	45	7.84
	BAR,TAVERN,PRIVATE CLUB	25	4.29	22	3.83
	JUST DRIVING AROUND	9	1.54	14	2.44
	OTHER	62	10.63	25	4.36
57	HOW OFTEN PRES. MEDICINE	584		575	
	MORE THAN 4 TIMES/DAY	6	1.03	1	.17
	4 TIMES A DAY	12	2.05	10	1.74
	3 TIMES A DAY	13	2.23	8	1.39
	2 TIMES A DAY	26	4.45	17	2.96
	ONCE A DAY	32	5.48	35	6.09
	SEVERAL TIMES A WEEK	3	.51	3	.52
	SEVERAL TIMES A MONTH	2	.34	1	.17
	WHEN NEEDED	21	3.60	32	5.57
	NOT TAKING	469	80.31	468	81.39
58	ANY OTHER PRESCRIPTIONS	574		574	
	MORE THAN 4 TIMES/DAY	2	.35	1	.17
	4 TIMES A DAY	5	.87	1	.17
	3 TIMES A DAY	3	.52	0	0.00
	2 TIMES A DAY	8	1.39	4	.70
	ONCE A DAY	15	2.61	12	2.09
	SEVERAL TIMES A WEEK	0	0.00	1	.17
	SEVERAL TIMES A MONTH	1	.17	1	.17
	WHEN NEEDED	4	.70	5	.87
	NOT TAKING	536	93.38	549	95.64
59	ANY OTHER PRESCRIPTIONS	573		574	
	MORE THAN 4 TIMES/DAY	0	0.00	0	0.00
	4 TIMES A DAY	0	0.00	0	0.00
	3 TIMES A DAY	2	.35	1	.17
	2 TIMES A DAY	1	.17	2	.35
	ONCE A DAY	4	.70	8	1.39
	SEVERAL TIMES A WEEK	0	0.00	0	0.00
	SEVERAL TIMES A MONTH	0	0.00	1	.17
	WHEN NEEDED	0	0.00	0	0.00
	NOT TAKING	566	98.78	562	97.91

Question		Lincoln		Dade County	
		No.	Percent	No.	Percent
60	HOW OFTEN NON-PRES MED	582		573	
	MORE THAN 4 TIMES/DAY	4	.69	1	.17
	4 TIMES A DAY	2	.34	4	.70
	3 TIMES A DAY	6	1.03	4	.70
	2 TIMES A DAY	12	2.06	17	2.97
	ONCE A DAY	42	7.22	100	17.45
	SEVERAL TIMES A WEEK	6	1.03	13	2.27
	SEVERAL TIMES A MONTH	5	.86	2	.35
	WHEN NEEDED	59	10.14	33	5.76
	NOT TAKING	446	76.63	399	69.63
61	ANY OTHER NON-PRES	565		566	
	MORE THAN 4 TIMES A DAY	1	.18	0	0.00
	4 TIMES A DAY	1	.18	0	0.00
	3 TIMES A DAY	3	.53	1	.18
	2 TIMES A DAY	3	.53	2	.35
	ONCE A DAY	6	1.06	13	2.30
	SEVERAL TIMES A WEEK	0	0.00	3	.53
	SEVERAL TIMES A MONTH	0	0.00	1	.18
	WHEN NEEDED	10	1.77	8	1.41
	NOT TAKING	541	95.75	538	95.05
62	ANY OTHER NON-PRES	565		565	
	MORE THAN 4 TIMES/DAY	0	0.00	0	0.00
	4 TIMES A DAY	0	0.00	0	0.00
	3 TIMES A DAY	1	.18	0	0.00
	2 TIMES A DAY	0	0.00	0	0.00
	ONCE A DAY	2	.35	4	.71
	SEVERAL TIMES A WEEK	0	0.00	0	0.00
	SEVERAL TIMES A MONTH	0	0.00	0	0.00
	WHEN NEEDED	2	.35	1	.18
	NOT TAKING	560	99.12	560	99.12
63	TAKING ANY STIMULANTS	578		564	
	MORE THAN 4 TIMES/DAY	0	0.00	0	0.00
	4 TIMES A DAY	0	0.00	0	0.00
	3 TIMES A DAY	0	0.00	0	0.00
	2 TIMES A DAY	2	.35	1	.18
	ONCE A DAY	2	.35	0	0.00
	SEVERAL TIMES A WEEK	1	.17	1	.18
	SEVERAL TIMES A MONTH	1	.17	0	0.00
	WHEN NEEDED	4	.69	2	.35
	NOT TAKING	568	98.27	560	99.29
64	TAKING ANY SEDATIVES	577		564	
	MORE THAN 4 TIMES A DAY	0	0.00	0	0.00
	4 TIMES A DAY	1	.17	0	0.00
	3 TIMES A DAY	0	0.00	0	0.00
	2 TIMES A DAY	2	.35	1	.18
	ONCE A DAY	1	.17	6	1.06
	SEVERAL TIMES A WEEK	0	0.00	9	1.60
	SEVERAL TIMES A MONTH	1	.17	8	1.42
	WHEN NEEDED	4	.69	7	1.24
	NOT TAKING	568	98.44	533	94.50

Question		Lincoln No.	Lincoln Percent	Dade County No.	Dade County Percent
65	TAKING ANY TRANQUILIZERS	579		562	
	MORE THAN 4 TIMES A DAY	0	0.00	0	0.00
	4 TIMES A DAY	1	.17	0	0.00
	3 TIMES A DAY	1	.17	0	0.00
	2 TIMES A DAY	2	.35	0	0.00
	ONCE A DAY	6	1.04	2	.36
	SEVERAL TIMES A WEEK	1	.17	0	0.00
	SEVERAL TIMES A MONTH	0	0.00	2	.36
	WHEN NEEDED	4	.69	7	1.25
	NOT TAKING	564	97.41	551	98.04
66	HOW LONG SINCE 1ST PRE	115		106	
	LESS THAN 1 HOUR	6	5.22	3	2.83
	1-4 HRS.	14	12.17	10	9.43
	4-8 HRS.	20	17.39	17	16.04
	8-12 HRS.	27	23.48	22	20.75
	12-24 HRS.	28	24.35	22	20.75
	1-7 DAYS AGO	8	6.96	15	14.15
	1-2 WEEKS AGO	6	5.22	10	9.43
	2-4 WEEKS AGO	2	1.74	5	4.72
	OVER 4 WEEKS AGO	4	3.48	2	1.89
67	HOW LONG SINCE 2ND PRES	41		24	
	LESS THAN 1 HR.	2	4.88	0	0.00
	1-4 HRS	3	7.32	1	4.17
	4-8 HRS	11	26.83	2	8.33
	8-12 HRS	10	24.39	8	33.33
	12-24 HRS.	8	19.51	5	20.83
	1-7 DAYS AGO	0	0.00	2	8.33
	1-2 WEEKS AGO	3	7.32	3	12.50
	2-4 WEEKS AGO	0	0.00	2	8.33
	OVER 4 WEEKS AGO	4	9.76	1	4.17
68	HOW LONG SINCE 3RD PRES	13		12	
	LESS THAN 1 HR.	1	7.69	1	8.33
	1-4 HRS	1	7.69	0	0.00
	4-8 HRS	2	15.38	2	16.67
	8-12 HRS	1	7.69	5	41.67
	12-24 HRS	2	15.38	2	16.67
	1-7 DAYS AGO	0	0.00	0	0.00
	1-2 WEEKS AGO	0	0.00	0	0.00
	2-4 WEEKS AGO	0	0.00	2	16.67
	OVER 4 WEEKS AGO	6	46.15	0	0.00
69	HOW LONG SINCE 1ST NONP	126		172	
	LESS THAN 1 HR	11	8.73	4	2.33
	1-4 HRS	10	7.94	6	3.49
	4-8 HRS	14	11.11	17	9.88
	8-12 HRS	19	15.08	42	24.42
	12-24 HRS	30	23.81	59	34.30
	1-7 DAYS AGO	17	13.49	29	16.86
	1-2 WEEKS AGO	8	6.35	6	3.49
	2-4 WEEKS AGO	5	3.97	5	2.91
	OVER 4 WEEKS AGO	12	9.52	4	2.33

Question		Lincoln		Dade County	
		No.	Percent	No.	Percent
70	HOW LONG SINCE 2ND NONP	26		29	
	LESS THAN 1 HR	1	3.85	1	3.45
	1-4 HRS	2	7.69	2	6.90
	4-8 HRS	1	3.85	3	10.34
	8-12 HRS	5	19.23	6	20.69
	12-24 HRS	5	19.23	9	31.03
	1-7 DAYS AGO	3	11.54	4	13.79
	1-2 WEEKS AGO	0	0.00	0	0.00
	2-4 WEEKS AGO	2	7.69	2	6.90
	OVER 4 WEEKS AGO	7	26.92	2	6.90
71	HOW LONG SINCE 3RD NONP	8		7	
	LESS THAN 1 HR	0	0.00	0	0.00
	1-4 HRS	0	0.00	0	0.00
	4-8 HRS	0	0.00	0	0.00
	8-12 HRS	0	0.00	2	28.57
	12-24 HRS	2	25.00	1	14.29
	1-7 DAYS AGO	2	25.00	0	0.00
	1-2 WEEKS AGO	0	0.00	0	0.00
	2-4 WEEKS AGO	0	0.00	2	28.57
	OVER 4 WEEKS AGO	4	50.00	2	28.57
72	HOW LONG SINCE STIMULANT	10		5	
	LESS THAN 1 HR	0	0.00	0	0.00
	1-4 HRS	1	10.00	0	0.00
	4-8 HRS	0	0.00	1	20.00
	8-12 HRS	1	10.00	0	0.00
	12-24 HRS	1	10.00	2	40.00
	1-7 DAYS AGO	4	40.00	2	40.00
	1-2 WEEKS AGO	0	0.00	0	0.00
	2-4 WEEKS AGO	0	0.00	0	0.00
	OVER 4 WEEKS AGO	3	30.00	0	0.00
73	HOW LONG SINCE SEDATIVE	8		25	
	LESS THAN 1 HR	0	0.00	1	4.00
	1-4 HRS	0	0.00	1	4.00
	4-8 HRS	1	12.50	3	12.00
	8-12 HRS	1	12.50	1	4.00
	12-24 HRS.	1	12.50	4	16.00
	1-7 DAYS AGO	2	25.00	6	24.00
	1-2 WEEKS AGO	1	12.50	6	24.00
	2-4 WEEKS AGO	0	0.00	0	0.00
	OVER 4 WEEKS AGO	2	25.00	3	12.00
74	HOW LONG SINCE TRAN	14		10	
	LESS THAN 1 HR	0	0.00	0	0.00
	1-4 HRS	2	14.29	0	0.00
	4-8 HRS	0	0.00	1	10.00
	8-12 HRS	1	7.14	1	10.00
	12-24 HRS	3	21.43	1	10.00
	1-7 DAYS AGO	4	28.57	4	40.00
	1-2 WEEKS AGO	0	0.00	2	20.00
	2-4 WEEKS AGO	0	0.00	0	0.00
	OVER 4 WEEKS AGO	4	28.57	1	10.00

Question		Lincoln		Dade County	
		No.	Percent	No.	Percent
106	WHY TAKING 1ST PRES	112		107	
	SYMPTOMATIC RELIEF	55	49.11	30	28.04
	NUTRITIONAL DEFICIENCY	3	2.68	4	3.74
	INFECTIOUS DISEASE	9	8.04	20	18.69
	HORMONAL IMBALANCE	4	3.57	4	3.74
	HEART-VASCULAR AILMENT	16	14.29	11	10.28
	KIDNEY AILMENT	0	0.00	3	2.80
	ANTI-CONVULSANT	1	.89	0	0.00
	OTHER	24	21.43	34	31.78
	UNKNOWN	0	0.00	1	.93
107	WHY TAKING 2ND PRES	40		24	
	SYMPTOMATIC RELIEF	16	40.00	6	25.00
	NUTRITIONAL DEFICIENCY	1	2.50	1	4.17
	INFECTIOUS DISEASE	2	5.00	3	12.50
	HORMONAL IMBALANCE	1	2.50	1	4.17
	HEART-VASCULAR AILMENT	8	20.00	4	16.67
	KIDNEY AILMENT	2	5.00	0	0.00
	ANTI-CONVULSANT	1	2.50	0	0.00
	OTHER	7	17.50	9	37.50
	UNKNOWN	2	5.00	0	0.00
108	WHY TAKING 3RD PRES	12		12	
	SYMPTOMATIC RELIEF	1	8.33	2	16.67
	NUTRITIONAL DEFICIENCY	1	8.33	0	0.00
	INFECTIOUS DISEASE	0	0.00	1	8.33
	HORMONAL IMBALANCE	0	0.00	1	8.33
	HEART-VASCULAR AILMENT	2	16.67	4	33.33
	KIDNEY AILMENT	0	0.00	0	0.00
	ANTI-CONVULSANT	0	0.00	0	0.00
	OTHER	3	25.00	4	33.33
	UNKNOWN	5	41.67	0	0.00
109	WHY TAKING 1ST NON-PRES	127		171	
	SYMPTOMATIC AILMENT	82	64.57	44	25.73
	NUTRITIONAL DEFICIENCY	42	33.07	121	70.76
	INFECTIOUS DISEASE	0	0.00	1	.58
	HORMONAL IMBALANCE	0	0.00	0	0.00
	HEART-VASCULAR AILMENT	0	0.00	0	0.00
	KIDNEY AILMENT	0	0.00	0	0.00
	ANTI-CONVULSANT	0	0.00	0	0.00
	OTHER	3	2.36	5	2.92
	UNKNOWN	0	0.00	0	0.00
110	WHY TAKING 2ND NON-PRES	25		28	
	SYMPTOMATIC RELIEF	13	52.00	7	25.00
	NUTRITIONAL DEFICIENCY	9	36.00	20	71.43
	INFECTIOUS DISEASE	0	0.00	1	3.57
	HORMONAL IMBALANCE	0	0.00	0	0.00
	HEART-VASCULAR AILMENT	0	0.00	0	0.00
	KIDNEY AILMENT	0	0.00	0	0.00
	ANTI-CONVULSANT	0	0.00	0	0.00
	OTHER	0	0.00	0	0.00
	UNKNOWN	3	12.00	0	0.00

Question		Lincoln		Dade County	
		No.	Percent	No.	Percent
111	WHY TAKING 3RD NON-PRES	7		7	
	SYMPTOMATIC RELIEF	2	28.57	2	28.57
	NUTRITIONAL DEFICIENCY	1	14.29	3	42.86
	INFECTIOUS DISEASE	0	0.00	0	0.00
	HORMONAL IMBALANCE	0	0.00	0	0.00
	HEART-VASCULAR AILMENT	0	0.00	0	0.00
	KIDNEY AILMENT	0	0.00	0	0.00
	ANTI-CONVULSANT	0	0.00	0	0.00
	OTHER	0	0.00	0	0.00
	UNKNOWN	4	57.14	2	28.57
112	WHY TAKING STIMULANT	10		5	
	SYMPTOMATIC RELIEF	2	20.00	0	0.00
	NUTRITIONAL DEFICIENCY	1	10.00	0	0.00
	INFECTIOUS DISEASE	0	0.00	0	0.00
	HORMONAL IMBALANCE	0	0.00	0	0.00
	HEART-VASCULAR AILMENT	0	0.00	0	0.00
	KIDNEY AILMENT	0	0.00	0	0.00
	ANTI-CONVULSANT	0	0.00	0	0.00
	OTHER	6	60.00	5	100.00
	UNKNOWN	1	10.00	0	0.00
113	WHY TAKING SEDATIVE	6		24	
	SYMPTOMATIC RELIEF	2	33.33	5	20.83
	NUTRITIONAL DEFICIENCY	0	0.00	0	0.00
	INFECTIOUS DISEASE	0	0.00	0	0.00
	HORMONAL IMBALANCE	0	0.00	0	0.00
	HEART-VASCULAR AILMENT	1	16.67	0	0.00
	KIDNEY AILMENT	0	0.00	0	0.00
	ANTI-CONVULSANT	0	0.00	0	0.00
	OTHER	3	50.00	19	79.17
	UNKNOWN	0	0.00	0	0.00
114	WHY TAKING TRANQUILIZER	13		11	
	SYMPTOMATIC RELIEF	8	61.54	4	36.36
	NUTRITIONAL DEFICIENCY	0	0.00	0	0.00
	INFECTIOUS DISEASE	0	0.00	0	0.00
	HORMONAL IMBALANCE	0	0.00	0	0.00
	HEART-VASCULAR AILMENT	1	7.69	0	0.00
	KIDNEY AILMENT	0	0.00	0	0.00
	ANTI-CONVULSANT	0	0.00	0	0.00
	OTHER	3	23.08	5	45.45
	UNKNOWN	1	7.69	2	18.18

Question		Lincoln		Dade County	
		No.	Percent	No.	Percent
115	TYPE OF 1ST PRESCRIPTION	112		108	
	TRANQUILIZERS	6	5.36	17	15.74
	ANALGESICS/ANTIPYRETICS	9	8.04	4	3.70
	STIMULANTS/ANORECTICS	5	4.46	2	1.85
	HORMONES/STEROIDS	5	4.46	3	2.78
	SEDATIVES/HYPNOTICS	1	.89	2	1.85
	ANTI-INFECTIVE AGENTS	13	11.61	23	21.30
	VITAMINS/MINERALS	4	3.57	4	3.70
	ANTIDIABETICS	6	5.36	8	7.41
	ANTIHISTAMINES	3	2.68	5	4.63
	ANTICOAGULANTS	0	0.00	0	0.00
	ANALGESIC NARCOTICS	1	.89	4	3.70
	ANTICHOLINERGICS	2	1.79	0	0.00
	DIURETICS/URICOSURICS	4	3.57	2	1.85
	ANTIASTHMATICS	6	5.36	3	2.78
	ANTIARTHRITICS	0	0.00	1	.93
	ANTISPASMODICS	0	0.00	0	0.00
	ANTACIDS/INTESTINAL ABS	2	1.79	2	1.85
	LAXATIVES	0	0.00	0	0.00
	ANESTHETICS	1	.89	1	.93
	MARIJUANA	0	0.00	0	0.00
	LSD	0	0.00	0	0.00
	HASHISH	0	0.00	0	0.00
	MESCALINE	0	0.00	0	0.00
	MISCELLANEOUS	4	3.57	5	4.63
	UNKNOWN	40	35.71	22	20.37
117	TYPE OF 2ND PRESCRIPTION	38		26	
	TRANQUILIZERS	4	10.53	0	0.00
	ANALGESICS/ANTIPYRETICS	0	0.00	1	3.85
	STIMULANTS/ANORECTICS	2	5.26	3	11.54
	HORMONESISTEROIDS	3	7.89	2	7.69
	SEDATIVES/HYPNOTICS	2	5.26	2	7.69
	ANTI-INFECTIVE AGENTS	3	7.89	2	7.69
	VITAMINS/MINERALS	2	5.26	2	7.69
	ANTIDIABETICS	0	0.00	1	3.85
	ANTIHISTAMINES	3	7.89	0	0.00
	ANTICOAGULANTS	0	0.00	0	0.00
	ANALGESIC NARCOTICS	0	0.00	0	0.00
	ANTICHOLINERGICS	0	0.00	0	0.00
	DIURETICS/URICOSURICS	5	13.16	6	23.08
	ANTIASTHMATICS	0	0.00	0	0.00
	ANTIARTHRITICS	0	0.00	0	0.00
	ANTISPASMODICS	1	2.63	1	3.85
	ANTACIDS/INTESTINAL ABS	0	0.00	1	3.85
	LAXATIVES	0	0.00	1	3.85
	ANESTHETICS	0	0.00	0	0.00
	MARIJUANA	0	0.00	0	0.00
	LSD	0	0.00	0	0.00
	HASHISH	0	0.00	0	0.00
	MESCALINE	0	0.00	0	0.00
	MISCELLANEOUS	2	5.26	0	0.00
	UNKNOWN	11	28.95	4	15.38

Question		Lincoln		Dade County	
		No.	Percent	No.	Percent
119	TYPE OF 3RD PRESCRIPTION	7		12	
	TRANQUILIZERS	1	14.29	2	16.67
	ANALGESICS/ANTIPYRETICS	0	0.00	1	8.33
	STIMULANTS/ANORECTICS	0	0.00	1	8.33
	HORMONES/STEROIDS	0	0.00	0	0.00
	SEDATIVES/HYPNOTICS	0	0.00	0	0.00
	ANTI-INFECTIVE AGENTS	0	0.00	0	0.00
	VITAMINS/MINERALS	1	14.29	1	8.33
	ANTIDIABETICS	0	0.00	0	0.00
	ANTIHISTAMINES	0	0.00	0	0.00
	ANTICOAGULANTS	0	0.00	1	8.33
	ANALGESIC NARCOTICS	0	0.00	0	0.00
	ANTICHOLINERGICS	0	0.00	0	0.00
	DIURETICS/URICOSURICS	2	28.57	1	8.33
	ANTIASTHMATICS	0	0.00	0	0.00
	ANTIARTHRITICS	0	0.00	0	0.00
	ANTISPASMODICS	0	0.00	0	0.00
	ANTACIDS/INTESTINAL ABS	0	0.00	1	8.33
	LAXATIVES	0	0.00	0	0.00
	ANESTHETICS	0	0.00	0	0.00
	MARIJUANA	0	0.00	0	0.00
	LSD	0	0.00	0	0.00
	HASHISH	0	0.00	0	0.00
	MESCALINE	0	0.00	0	0.00
	MISCELLANEOUS	0	0.00	1	8.33
	UNKNOWN	3	42.86	3	25.00
121	TYPE OF 1ST NON-PRE	126		170	
	TRANQUILIZERS	0	0.00	0	0.00
	ANALGESICS/ANTIPYRETICS	42	33.33	20	11.76
	STIMULANTS/ANORECTICS	0	0.00	0	0.00
	HORMONES/STEROIDS	0	0.00	0	0.00
	SEDATIVES/HYPNOTICS	1	.79	0	0.00
	ANTI-INFECTIVE AGENTS	2	1.59	0	0.00
	VITAMINS/MINERALS	42	33.33	127	74.71
	ANTIDIABETICS	0	0.00	0	0.00
	ANTIHISTAMINES	23	18.25	12	7.06
	ANTICOAGULANTS	0	0.00	0	0.00
	ANALGESIC NARCOTICS	0	0.00	0	0.00
	ANTICHOLINERGICS	0	0.00	0	0.00
	DIURETICS/URICOSURICS	0	0.00	0	0.00
	ANTIASTHMATICS	1	.79	1	.59
	ANTIARTHRITICS	1	.79	0	0.00
	ANTISPASMODICS	0	0.00	0	0.00
	ANTACIDS/INTESTINAL ABS	7	5.56	4	2.35
	LAXATIVES	0	0.00	0	0.00
	ANESTHETICS	0	0.00	0	0.00
	MARIJUANA	0	0.00	0	0.00
	LSD	0	0.00	0	0.00
	HASHISH	0	0.00	0	0.00
	MESCALINE	0	0.00	0	0.00
	MISCELLANEOUS	3	2.38	3	1.76
	UNKNOWN	4	3.17	3	1.76

Question		Lincoln		Dade County	
		No.	Percent	No.	Percent
123	TYPE OF 2ND NON-PRE	26		28	
	TRANQUILIZERS	0	0.00	0	0.00
	ANALGESICS/ANTIPYRETICS	8	30.77	4	14.29
	STIMULANTS/ANORECTICS	0	0.00	0	0.00
	HORMONES/STEROIDS	0	0.00	0	0.00
	SEDATIVES/HYPNOTICS	0	0.00	0	0.00
	ANTI-INFECTIVE AGENTS	0	0.00	0	0.00
	VITAMINS/MINERALS	11	42.31	20	71.43
	ANTIDIABETICS	0	0.00	0	0.00
	ANTIHISTAMINES	4	15.38	3	10.71
	ANTICOAGULANTS	0	0.00	0	0.00
	ANALGESIC NARCOTICS	0	0.00	0	0.00
	ANTICHOLINERGICS	0	0.00	0	0.00
	DIURETICS/URICOSURICS	0	0.00	0	0.00
	ANTIASTHMATICS	1	3.85	0	0.00
	ANTIARTHRITICS	0	0.00	0	0.00
	ANTISPASMODICS	0	0.00	0	0.00
	ANTACIDS/INTESTINAL ABS	0	0.00	0	0.00
	LAXATIVES	0	0.00	0	0.00
	ANESTHETICS	0	0.00	0	0.00
	MARIJUANA	0	0.00	0	0.00
	LSD	0	0.00	0	0.00
	HASHISH	0	0.00	0	0.00
	MESCALINE	0	0.00	0	0.00
	MISCELLANEOUS	1	3.85	0	0.00
	UNKNOWN	1	3.85	1	3.57
125	TYPE OF 3RD NON-PRE	5		6	
	TRANQUILIZERS	0	0.00	0	0.00
	ANALGESICS/ANTIPYRETICS	0	0.00	0	0.00
	STIMULANTS/ANORECTICS	0	0.00	0	0.00
	HORMONES/STEROIDS	0	0.00	0	0.00
	SEDATIVES/HYPNOTICS	0	0.00	0	0.00
	ANTI-INFECTIVE AGENTS	0	0.00	0	0.00
	VITAMINS/MINERALS	2	40.00	4	66.67
	ANTIDIABETICS	0	0.00	0	0.00
	ANTIHISTAMINES	1	20.00	0	0.00
	ANTICOAGULANTS	0	0.00	0	0.00
	ANALGESIC NARCOTICS	0	0.00	0	0.00
	ANTICHOLINERGICS	0	0.00	0	0.00
	DIURETICS/URICOSURICS	0	0.00	0	0.00
	ANTIASTHMATICS	1	20.00	0	0.00
	ANTIARTHRITICS	0	0.00	0	0.00
	ANTISPASMODICS	0	0.00	0	0.00
	ANTACIDS/INTESTINAL ABS	0	0.00	1	16.67
	LAXATIVES	0	0.00	1	16.67
	ANESTHETICS	0	0.00	0	0.00
	MARIJUANA	0	0.00	0	0.00
	LSD	0	0.00	0	0.00
	HASHISH	0	0.00	0	0.00
	MESCALINE	0	0.00	0	0.00
	MISCELLANEOUS	0	0.00	0	0.00
	UNKNOWN	1	20.00	0	0.00

Question		Lincoln		Dade County	
		No.	Percent	No.	Percent
127	TWO OR MORE TYPES?	574		563	
	NO	542	94.43	536	95.20
	DAILY	30	5.23	22	3.91
	WEEKLY	0	0.00	3	.53
	MONTHLY	2	.35	2	.36
128	WHAT ARE THEY	28		20	
	TRANQUILIZERS	0	0.00	4	20.00
	ANALGESICS/ANTIPYRETICS	3	10.71	0	0.00
	STIMULANTS/ANORECTICS	2	7.14	1	5.00
	HORMONES/STEROIDS	2	7.14	0	0.00
	SEDATIVES/HYPNOTICS	1	3.57	1	5.00
	ANTI-INFECTIVE AGENTS	1	3.57	3	15.00
	VITAMINS/MINERALS	4	14.29	6	30.00
	ANTIDIABETICS	2	7.14	3	15.00
	ANTIHISTAMINES	0	0.00	1	5.00
	ANTICOAGULANTS	0	0.00	0	0.00
	ANALGESIC NARCOTICS	0	0.00	0	0.00
	ANTICHOLINERGICS	0	0.00	0	0.00
	DIURETICS/URICOSURICS	1	3.57	0	0.00
	ANTIASTHMATICS	1	3.57	0	0.00
	ANTIARTHRITICS	0	0.00	0	0.00
	ANTIPASMODICS	0	0.00	0	0.00
	ANTACIDS/INTESTINAL ABS	2	7.14	0	0.00
	LAXATIVES	0	0.00	0	0.00
	ANESTHETICS	0	0.00	0	0.00
	MARIJUANA	0	0.00	0	0.00
	LSD	0	0.00	0	0.00
	HASHISH	0	0.00	0	0.00
	MESCALINE	0	0.00	0	0.00
	MISCELLANEOUS	1	3.57	0	0.00
	UNKNOWN	8	28.57	1	5.00
130	WHAT ARE THEY?	26		20	
	TRANQUILIZERS	2	7.69	0	0.00
	ANALGESICS/ANTIPYRETICS	1	3.85	2	10.00
	STIMULANTS/ANORECTICS	0	0.00	0	0.00
	HORMONES/STEROIDS	1	3.85	1	5.00
	SEDATIVES/HYPNOTICS	0	0.00	1	5.00
	ANTI-INFECTIVE AGENTS	1	3.85	0	0.00
	VITAMINS/MINERALS	6	23.08	9	45.00
	ANTIDIABETICS	0	0.00	1	5.00
	ANTIHISTAMINES	3	11.54	0	0.00
	ANTICOAGULANTS	0	0.00	0	0.00
	ANALGESIC NARCOTICS	0	0.00	0	0.00
	ANTICHOLINERGICS	0	0.00	0	0.00
	DIURETICS/URICOSURICS	2	7.69	2	10.00
	ANTIASTHMATICS	0	0.00	0	0.00
	ANTIARTHRITICS	0	0.00	0	0.00
	ANTISPASMODICS	0	0.00	0	0.00
	ANTACIDS/INTESTINAL ABS	0	0.00	0	0.00
	LAXATIVES	0	0.00	0	0.00
	ANESTHETICS	0	0.00	0	0.00
	MARIJUANA	0	0.00	1	5.00
	LSD	0	0.00	0	0.00
	HASHISH	0	0.00	0	0.00
	MESCALINE	0	0.00	0	0.00
	MISCELLANEOUS	2	7.69	0	0.00
	UNKNOWN	8	30.77	3	15.00

Question		Lincoln		Dade County	
		No.	Percent	No.	Percent
132	WHAT ARE THEY?	9		7	
	TRANQUILIZERS	0	0.00	1	14.29
	ANALGESICS/ANTIPYRETICS	0	0.00	0	0.00
	STIMULANTS/ANORECTICS	1	11.11	0	0.00
	HORMONES/STEROIDS	0	0.00	0	0.00
	SEDATIVES/HYPNOTICS	0	0.00	1	14.29
	ANTI-INFECTIVE AGENTS	0	0.00	0	0.00
	VITAMINS/MINERALS	2	22.22	4	57.14
	ANTIDIABETICS	0	0.00	0	0.00
	ANTIHISTAMINES	0	0.00	0	0.00
	ANTICOAGULANTS	0	0.00	0	0.00
	ANALGESIC NARCOTICS	0	0.00	0	0.00
	ANTICHOLINERGICS	0	0.00	0	0.00
	DIURETICS/URICOSURICS	3	33.33	0	0.00
	ANTIASTHMATICS	0	0.00	0	0.00
	ANTIARTHRITICS	0	0.00	0	0.00
	ANTISPASMODICS	0	0.00	0	0.00
	ANTACIDS/INTESTINAL ABS	0	0.00	0	0.00
	LAXATIVES	0	0.00	0	0.00
	ANESTHETICS	0	0.00	0	0.00
	MARIJUANA	0	0.00	0	0.00
	LSD	0	0.00	0	0.00
	HASHISH	0	0.00	0	0.00
	MESCALINE	0	0.00	0	0.00
	MISCELLANEOUS	0	0.00	0	0.00
	UNKNOWN	3	33.33	1	14.29
134	WHAT ARE THEY?	4		2	
	TRANQUILIZERS	0	0.00	1	50.00
	ANALGESICS/ANTIPYRETICS	1	25.00	0	0.00
	STIMULANTS/ANORECTICS	0	0.00	0	0.00
	HORMONES/STEROIDS	0	0.00	0	0.00
	SEDATIVES/HYPNOTICS	0	0.00	0	0.00
	ANTI-INFECTIVE AGENTS	0	0.00	0	0.00
	VITAMINES/MINERALS	2	50.00	1	50.00
	ANTIDIABETICS	0	0.00	0	0.00
	ANTIHISTAMINES	0	0.00	0	0.00
	ANTICOAGULANTS	0	0.00	0	0.00
	ANALGESIC NARCOTICS	0	0.00	0	0.00
	ANTICHOLINERGICS	0	0.00	0	0.00
	DIURETICS/URICOSURICS	0	0.00	0	0.00
	ANTIASTHMATICS	0	0.00	0	0.00
	ANTIARTHRITICS	0	0.00	0	0.00
	ANTISPASMODICS	0	0.00	0	0.00
	ANTACIDS/INTESTINAL ABS	0	0.00	0	0.00
	LAXATIVES	0	0.00	0	0.00
	ANESTHETICS	0	0.00	0	0.00
	MARIJUANA	1	25.00	0	0.00
	LSD	0	0.00	0	0.00
	HASHISH	0	0.00	0	0.00
	MESCALINE	0	0.00	0	0.00
	MISCELLANEOUS	0	0.00	0	0.00
	UNKNOWN	0	0.00	0	0.00

Question		Lincoln		Dade County	
		No.	Percent	No.	Percent
136	DRINKS LAST 4 HRS	584		573	
	NONE	359	61.47	329	57.42
	ONE	53	9.08	63	10.99
	TWO	41	7.02	39	6.81
	THREE	22	3.77	20	3.49
	FOUR	17	2.91	12	2.09
	FIVE	12	2.05	3	.52
	SIX	10	1.71	2	.35
	SEVEN-NINE	5	.86	1	.17
	10-14	2	.34	1	.17
	15-19	1	.17	0	0.00
	20 OR MORE	0	0.00	2	.35
	DON"T DRINK	62	10.62	101	17.63
138	HOw LONG AGO?	408		163	
	UNDER 5 MIN	4	.98	4	2.45
	5-9 MIN	7	1.72	12	7.36
	10-19 MIN	22	5.39	19	11.66
	20-59 MIN	43	10.54	31	19.02
	60-98 MIN	26	6.37	29	17.79
	99 OR OVER	306	75.00	68	41.72
140	PILLS/ALCOHOL SAME TIME?	517		493	
	NO	502	97.10	460	93.31
	DAILY	11	2.13	18	3.65
	WEEKLY	1	.19	6	1.22
	MONTHLY	3	.58	8	1.62
141	WHICH DRUGS DO YOU TAKE?	18		21	
	TRANQUILIZERS	0	0.00	0	0.00
	ANALGESICS/ANTIPYRETICS	1	5.56	1	4.76
	STIMULANTS/ANORECTICS	2	11.11	1	4.76
	HORMONES/STEROIDS	1	5.56	0	0.00
	SEDATIVES/HYPNOTICS	0	0.00	0	0.00
	ANTI-INFECTIVE AGENTS	0	0.00	1	4.76
	VITAMINS/MINERALS	2	11.11	5	23.81
	ANTIDIABETICS	1	5.56	2	9.52
	ANTIHISTAMINES	1	5.56	1	4.76
	ANTICOAGULANTS	0	0.00	0	0.00
	ANALGESIC NARCOTICS	0	0.00	0	0.00
	ANTICHOLINERGICS	0	0.00	0	0.00
	DIURETICS/URICOSURICS	1	5.56	0	0.00
	ANTIASTHMATICS	0	0.00	0	0.00
	ANTIARTHRITICS	0	0.00	0	0.00
	ANTISPASMODICS	0	0.00	0	0.00
	ANTACIDS/INTESTINAL ABS	1	5.56	0	0.00
	LAXATIVES	0	0.00	0	0.00
	ANESTHETICS	0	0.00	0	0.00
	MARIJUANA	4	22.22	6	28.57
	LSD	0	0.00	0	0.00
	HASHISH	0	0.00	0	0.00
	MESCALINE	0	0.00	0	0.00
	MISCELLANEOUS	1	5.56	0	0.00
	UNKNOWN	3	16.67	4	19.05

Question		Lincoln		Dade County	
		No.	Percent	No.	Percent
143	WHICH DRUGS DO YOU TAKE?	11		12	
	TRANQUILIZERS	2	18.18	0	0.00
	ANALGESICS/ANTIPYRETICS	0	0.00	1	8.33
	STIMULANTS/ANORECTICS	0	0.00	1	8.33
	HORMONES/STEROIDS	0	0.00	1	8.33
	SEDATIVES/HYPNOTICS	0	0.00	0	0.00
	ANTI-INFECTIVE AGENTS	0	0.00	0	0.00
	VITAMINS/MINERALS	2	18.18	4	33.33
	ANTIDIABETICS	0	0.00	1	8.33
	ANTIHISTAMINES	0	0.00	1	8.33
	ANTICOAGULANTS	0	0.00	0	0.00
	ANALGESIC NARCOTICS	0	0.00	0	0.00
	ANTICHOLINERGICS	0	0.00	0	0.00
	DIURETICS/URICOSURICS	1	9.09	1	8.33
	ANTIASTHMATICS	0	0.00	0	0.00
	ANTIARTHRITICS	0	0.00	0	0.00
	ANTISPASMODICS	0	0.00	0	0.00
	ANTACIDS/INTESTINAL ABS	0	0.00	0	0.00
	LAXATIVES	0	0.00	0	0.00
	ANESTHETICS	0	0.00	0	0.00
	MARIJUANA	0	0.00	0	0.00
	LSD	0	0.00	0	0.00
	HASHISH	1	9.09	0	0.00
	MESCALINE	0	0.00	0	0.00
	MISCELLANEOUS	1	9.09	0	0.00
	UNKNOWN	4	36.36	2	16.67
145	WHICH DRUGS DO YOU TAKE?	5		5	
	TRANQUILIZERS	0	0.00	0	0.00
	ANALGESICS/ANTIPYRETICS	0	0.00	0	0.00
	STIMULANTS/ANORECTICS	1	20.00	0	0.00
	HORMONES/STEROIDS	0	0.00	0	0.00
	SEDATIVES/HYPNOTICS	0	0.00	1	20.00
	ANTI-INFECTIVE AGENTS	0	0.00	0	0.00
	VITAMINS/MINERALS	1	20.00	3	60.00
	ANTIDIABETICS	0	0.00	0	0.00
	ANTIHISTAMINES	0	0.00	0	0.00
	ANTICOAGULANTS	0	0.00	0	0.00
	ANALGESIC NARCOTICS	0	0.00	0	0.00
	ANTICHOLINERGICS	0	0.00	0	0.00
	DIURETICS/URICOSURICS	1	20.00	0	0.00
	ANTIASTHMATICS	0	0.00	0	0.00
	ANTIARTHRITICS	0	0.00	0	0.00
	ANTISPASMODICS	0	0.00	0	0.00
	ANTACIDS/INTESTINAL ABS	0	0.00	1	20.00
	LAXATIVES	0	0.00	0	0.00
	ANESTHETICS	0	0.00	0	0.00
	MARIJUANA	0	0.00	0	0.00
	LSD	0	0.00	0	0.00
	HASHISH	0	0.00	0	0.00
	MESCALINE	0	0.00	0	0.00
	MISCELLANEOUS	0	0.00	0	0.00
	UNKNOWN	2	40.00	0	0.00

Question		Lincoln		Dade County	
		No.	Percent	No.	Percent
147	BAC	585		575	
	NONE	373	63.76	352	61.22
	01	73	12.48	99	17.22
	02	46	7.86	33	5.74
	03	12	2.05	23	4.00
	04	17	2.91	8	1.39
	05	16	2.74	6	1.04
	06	11	1.88	6	1.04
	07	4	.68	8	1.39
	08	2	.34	4	.70
	09	5	.85	4	.70
	10	4	.68	5	.87
	11-14	12	2.05	11	1.91
	15-19	3	.51	6	1.04
	20 OR MORE	0	0.00	0	0.00
	REFUSED	0	0.00	6	1.04
	BREATHALYZER KAPUTT	7	1.20	4	.70
149	URINE SAMPLE	585		574	
	ACCEPTED WILLINGLY	392	67.01	400	69.69
	ACCEPTED TO MAIL	113	19.32	105	18.29
	ACCEPTED, OTHER	75	12.82	62	10.80
	REFUSED, EXCUSE/POLITE	4	.68	7	1.22
	REFUSED, BELLIGERENT	1	.17	0	0.00
150	BLOOD SAMPLE OFFERED	585		574	
	OFFERED PLAN 0	134	22.91	111	19.34
	OFFERED PLAN 1	111	18.97	110	19.16
	OFFERED PLAN 2	104	17.78	104	18.12
	OFFERED PLAN 5	96	16.41	103	17.94
	OFFERED PLAN 10	80	13.68	93	16.20
	NOT APPLICABLE	60	10.26	53	9.23
151	BLOOD SAMPLE	585		574	
	GIVEN, WILLINGLY	468	80.00	369	64.29
	GIVEN, UNWILLINGLY	1	.17	2	.35
	REFUSED, EXCUSE/POLITE	32	5.47	126	21.95
	REFUSED, BELLIGERENT	0	0.00	1	.17
	NOT REQUESTED-UNDER AGE	46	7.86	31	5.40
	NOT REQUESTED-HEALTH	15	2.56	15	2.61
	COULD NOT LOCATE VEIN	23	3.93	22	3.83
	NO NURSE	0	0.00	8	1.39
152	LIP SWAB TEST	585		574	
	POSITIVE	11	1.88	8	1.39
	NEGATIVE	566	96.75	311	54.18
	ANALYZED LATER	4	.68	246	42.86
	REFUSED, EXCUSE/POLITE	4	.68	9	1.57
	REFUSED, BELLIGERENT	0	0.00	0	0.00

APPENDIX C

MEDICATIONS AND DRUGS MENTIONED IN SURVEY

Drug Groups

1. Tranquilizers
2. Analgesics and Antipyretics
3. Stimulants and Anorectics
4. Hormones and Steroids
5. Sedatives and Hypnotics
6. Anti-infective Agents
7. Vitamins and Minerals
8. Antidiabetics
9. Antihistamines
10. Anticoagulants
11. Analgesic Narcotics
12. Anticholinergics
13. Diuretics and Uricosurics
14. Antiasthmatics
15. Antiarthritics
16. Antispasmodics
17. Antacids and Intestinal Absorbents
18. Laxatives
19. Anesthetics
20. Marijuana
21. L.S.D.
22. Hashish
23. Mescaline
24. Miscellaneous
25. Unknown

Group 1--Tranquilizers

1. Librium
2. Valium
3. Tranquilizer
4. Reserpine
5. Sinequan
6. Equanil
7. Serap
8. Meprobamate
9. Aldomet
10. Anti-hypertension
11. Triauil 4-25
12. Oldoral (for hypertension)
13. Stelazine
14. Medication for hypertension
15. Librax

Group 2--Analgesics and Antipyretics

1. Aspirin
2. Analgesics
3. Bufferin
4. Exedrin
5. Parafon-farte
6. Pyrosal
7. Colchicine
8. Indocin
9. Tylenol
10. Darvon
11. Empirin
12. Anacin
13. Four way cold tablets

Group 3--Stimulants and Anorectics

1. No-Doz
2. Coke
3. Speed
4. Amphetamines
5. Cocaine
6. Diet pill
7. Elavil
8. White Cross (slang for amphetamines)
9. Digitalis
10. Nitroglycerin
11. Digohin
12. Digitoxin
13. Dexedrine

Group 4--Hormones and Steroids

1. Testosterone
2. Steroid
3. Thyroid capsules
4. Thyroid medication
5. Cortisone
6. Cytomel
7. Proloid

Group 5 - Sedatives and Hypnotics

1. Nytol
2. Sleeping capsule - Dalmane
3. Phenaphen
4. Phenobarbital
5. Carbromal
6. Unknown sleeping pill (prescription)
7. Quaalude
8. Seconal
9. Na Butisol
10. Sominex
11. Dalmane
12. Methaqualone
13. Tuinal

Group 6 - Anti-infective Agents

1. Penicillin
2. Tetracycline
3. Erythromycin
4. Antibiotic to flush kidney stones
5. Decongestant shot (antibiotic)
6. Polycillin
7. Medication for ear infection
8. Sumycin
9. Antibiotic prescription for arm infection
10. Micrin
11. V. cillin K
12. Chinacrin
13. Medication for fungus
14. Pentids
15. Griseofulvin
16. Achromycin
17. Terramycin
18. INH (for T.B.)
19. Fulvicin (for fungus)
20. Cortisporin (for ear)
21. Antibiotic
22. Skin antibiotic

Group 7 - Vitamins and Minerals

1. Multiple vitamins
2. Calcium tablets
3. Vitamin C
4. Vitamin E
5. Vitamin A
6. Natural vitamins
7. Vitamin B_{12} shot
8. Iron pills
9. Theragram - M
10. Ironized Yeast
11. Cup $\overline{c}$ K
12. Nutrilite
13. Ascorbic acid
14. R_1 vitamin
15. Kaon
16. Neolite vitamins
17. B-Complex
18. Geritol
19. Multiple vitamin theragram
20. Wheat Germ vitamin
21. Yeast tablets
22. Potassium
23. Duo CVP vitamins
24. Iberet
25. Micebrin - T
26. Unicap mineral and iron
27. Folic acid
28. Pantothenic acid
29. Brewers yeast
30. Kelp (iodine)
31. Lecithin
32. Dolomite

Group 8 - Antidiabetics

1. Insulin
2. Green tablet for diabetes
3. DBI (for diabetes)
4. Lente Insulin
5. Orinase

Group 9 - Antihistamines

1. Ornade
2. Contac
3. Actifed
4. Dristan
5. Triaminic
6. Dimetane
7. Novahistine
8. Allerest
9. Ornade Spansules
10. Nyquil
11. Pyribenzamine
12. Sinustat (Sinutabs?)
13. Coricidin - D
14. Chlortrimeton
15. Sinus tablets
16. Antihistamine

Group 10 - Anticoagulants

1. Coumadin

Group 11 - Analgesic Narcotics

1. Codeine
2. Demerol
3. Methadone
4. Percodan

Group 12 - Anticholinergics

1. Belladonna
2. Donnatal

Group 13 - Diuretics and Uricosurics

1. Colbenemid
2. Benemid
3. Diuril 500
4. Hydro Diuril
5. Estrex (Esidrix?) (for fluid control)
6. Renese
7. Esmarin
8. Diuretics
9. Lasix

Group 14 - Antiasthmatics

1. Tedral
2. Primatine Mist inhaler
3. Vaponefrin
4. Bronkotabs
5. Quibron
6. Asthma spray
7. Asthma medication
8. Isuprel

Group 15 - Antiarthritics

1. Pain pill for arthritis
2. Cama

Group 16 - Antispasmodics

1. Dilantin

Group 17 - Antacids and Intestinal Absorbents

1. Donnagel
2. Kolantyl gel
3. Kaopectate
4. Gelusil
5. Pepto Bismol
6. Diarrhea pill
7. Na Bicarbonate
8. Alka-Seltzer
9. Medication for hyperacidity
10. Rolaids
11. Maalox

Group 18 - Laxatives

1. Metamucil

Group 19 - Anesthetics

1. Local anesethetic

Group 20 - Marijuana

1. Pot - Marijuana

Group 21 - L.S.D.

1. L.S.D.

Group 22 - Hashish

1. Hashish

Group 23 - Mescaline

1. Mescaline

Group 24 - Miscellaneous

1. Choloxin
2. Listerine throat lozenges
3. Atromid - S
4. Vicks super cough syrup
5. Enzymes for digestion aid
6. Antabuse
7. Roniacol
8. Lomotil
9. Equagesic
10. Sucrets
11. Zyloprim
12. Vicks 44
13. Leukeran
14. Quinidine

Group 25 - Unknown

1. Allergy shots
2. Cold capsules
3. Tirantian
4. Injection for sex improvement
5. Cough syrup (prescription)
6. Stomach muscle relaxant
7. Home remedy for colds
8. Normacine
9. Unknown medication for acne
10. Lisison
11. Medication to prevent rheumatic fever
12. Pain pills (for broken wrist)
13. Medication for duodenal ulcer
14. Leipin hydrate
15. Pain pills for back
16. Unknown medication for throat infection
17. Unknown medication for sleeping
18. Capsule for ringworm
19. Bile salt
20. Eye drops
21. Prescription for enlarged blood vessels in lung
22. Blood thinner
23. Throat lozenges
24. Aldiuril
25. Vibrin
26. Diazide (for high blood pressure and insomnia)
27. Eledrex (for blood pressure)
28. Drops for glaucoma
29. Clantijell
30. Bromo
31. Unknown medication for high cholesterol
32. Pain pills for infected tooth
33. Serispan
34. Green pill for aging
35. Shot to build up antibodies in blood
36. Medication for strained rib
37. Medication for ulcers
38. Red pill for headache
39. Hay fever medication
40. Mystahimine
41. Stomach medication
42. Ovilden
43. Fuirinal
44. Nerve pills

Group 25 - Unknown (concluded)

45. Leg pain pills
46. Metro
47. Benimz
48. Lackatines
49. Unknown tablet for medication
50. Rithersin
51. Pain pill
52. Muscle relaxant
53. Medication for bruised elbow
54. Necicated
55. High blood pressure medication

APPENDIX D

FATALLY INJURED DRIVER DRUG FINDINGS

LEGEND FOR APPENDIX D

Amitryp	amitryptilene	Lobe	lobeline
Amo	amobarbital	Mep	meperidine
Amphet	amphetamine	Mepro	meprobamate
Barb(s)	barbiturate(s)	Mesc	mescaline
Buta	butabarbital	Meth	methamphetamine
Buto	butobarbital	Methaq	methaqualone
Chlordiaz	chlordiazepoxide	Morph	morphine
Chlorphen	chlorpheniramine	MPD	methylphenidate
Chlorprom	chlorpromazine	MPYL	methapyriline
Cocaine	cocaine	Nalor	nalorphine
Code	codeine	Pento	pentobarbital
DET	diethyltryptamine	Pheno	phenobarbital
Diaz	diazepam	Phenylprop	phenylpropanolamine
Diphen	diphenhydramine	Prom	promazine
DMMA	2,5-dimethoxy-4-methylamphetamine	Propox	propoxyphene
		Quin	quinine
DMT	dimethyltryptamine	Seco	secobarbital
DPH	diphenylhydantoin	Thior	thioridazine
Gluteth	glutethimide	Trifluo	trifluoperazine
HDM	hydromorphone	Tripel	tripelennamine
Imip	imipramine		

Drug amounts in µg/ml. Trace indications (less than 0.1 µg/ml) indicated by tr. Asterisk indicates sample unavailable or inadequate.

MRI Sample Code	BAC	Urine	Blood	Bile
4	.038	Pheno (1.2)	-	-
6	-	Amphet (0.2	-	-
22	-	Pheno (tr)	-	Pheno (1.1)
31	-	Pheno (tr)	Pheno (3.5)	*
37	-	Amphet (1.9)	-	-
54	.500	Pheno (2.0)	Pheno (3.6)	-
67	.212	Pheno (4.9)	Pheno (tr)	-
72	.175	Amphet (0.1)	-	*
94	.500	-	-	Amo (0.3)
102	-	Chlorprom (tr)	-	Amo (6.2)
105	.325	-	-	Amo (4.3)
106	.280	-	-	Trifluo (2.2)
117	-	Quin (13.4)	-	*
120	.240	*	-	Mepro (1.2)
122	.300	-	-	Meth (0.4)
124	-	Chlorprom (11.4)	-	*
128	-	Pento (0.3)	-	-
130	.010	-	-	Mepro (12.2)

MRI Sample Code	BAC	Urine	Blood	Bile
148	-	*	-	Meth (1.1)
160	-	-	Gluteth (0.2)	-
163	-	Diaz (0.5)	-	Buto (1.0)
165	.071	-	-	Seco (0.8)
170	-	Pento (1.4)	-	*
173	.122	-	-	Seco (0.5)
175	.129	-	Meth (1.2)	Mepro (0.8)
177	-	Amo (0.1)	-	Pheno (3.7)
178	-	*	-	Phenylprop (3.0)
179	-	Amphet (tr)	-	Mepro (0.4) Seco (0.5)
190	.160	-	-	Buto (0.4)
193	.221	Phenylprop (7.8)	-	-
199	.177	-	-	DPH (0.7)
203	.112	Phenylprop (12.9) Pheno (3.0)	-	*
209	-	Buto (0.8)	-	*
211	.153	*	-	Amo (0.9) Pheno (0.3)
214	.015	Diaz (tr)	-	Phenylprop (34.0)

MRI Sample Code	BAC	Urine	Blood	Bile
215	.170	-	-	Buta (31.0)
216	-	Buto (1.8) Meth (0.1)	-	*
217	-	*	-	Amo (1.3)
219	-	Phenylprop (0.1)	-	-
221	.231	Amo (tr)	-	Amo (0.8) Mepro (4.1)
222	.220	Mepro (1.0)	-	Mepro (3.3)
224	.200	*	-	Amo (0.2)
227	-	Amo (3.4) Pento (4.1) Amphet (14.0) Phenylprop (4.0)	Pheno (0.2) Amo (4.8)	Amo (0.8) Seco (1.2) Buta (11.4)
230	-	Mepro (0.7 DPH (tr) Meth (tr) Phenylprop (tr)	-	-
231	.114	Chlorphen (0.5) Phenylprop (0.3 Morph (0.1)	-	-
238	.118	*	-	Phenylprop (6.3)
239	.006	Pheno (18.0)	-	Buto (0.2)
241	.006	*	Mepro (0.3)	-
242	.088	Pheno (1.4) Chlorprom (tr) Quin (tr) Code (tr) Tripel (0.4)	-	Pheno (170.0) Meth (3.3) Chlorprom (6.0)

MRI Sample Code	BAC	Urine	Blood	Bile
244	.331	-	-	Buta (7.0)
249	-	Chlordiaz (0.5)	-	-
250	.193	-	-	Buta (2.9)
252	.150	Pento (1.0)	Pento (0.7)	Pento (8.6)
268	.105	-	-	Mep (0.2)
273	.296	Meth (tr) Quin (0.3)	-	-
277	-	Buta (7.3) Amo (7.5)	-	-
280	.005	Pheno (8.5)	-	Buta (8.3)
283	.222	-	-	Pheno (6.0) Amphet (0.4)
284	.254	Phenylprop (5.8)	-	-
286	-	-	-	Pheno (9.3) Buta (0.7)
291	.082	*	MPD (0.6) Chlorprom (1.7)	*
294	-	-	-	Phenylprop (5.7) Buta (0.4)

MRI Sample Code	BAC	Urine	Blood	Bile
296	.242	Morph (0.9) Meth (0.3) Gluteth (0.7) DPH (0.3)	-	Morph (1.6) HDM (3.2)
299	.249	Phenylprop (0.7)	-	Phenylprop (0.4)
301	.208	Methaq (tr) Chlordiaz (0.2)	-	Pheno (1.9)
302	-	Diaz (tr) Imip (0.5)	-	*
305	.279	Methaq (tr) Pheno (3.6 Lobe (12.0)	-	*
306	-	Mepro (2.4)	-	*
307	.270	-	-	Pento (2.0)
309	.126	-	-	Mepro (31.0)
310	.157	Meth (0.5)	-	-
311	-	*	-	Mepro (4.9)
317	.008	Chlordiaz (16.0) DMT (0.1)	-	-
320	.158	Imip (0.1)	-	-
322	.288	Amo (0.2)	-	-
324	.151	Amo (1.0)	Amphet (tr)	-
326	-	-	-	Buta (11.0) DPH (2.1)

MRI Sample Code	BAC	Urine	Blood	Bile
327	-	-	Meth (tr) Amphet (0.1)	*
330	-	*	Gluteth (0.8)	*
335	.187	-	-	Amo (0.2) Phenylprop (1.2)
336	-	Amo (0.8) Seco (0.3)	-	*
337	.284	Pheno (2.2)	Gluteth (0.1)	-
338	.065	Phenylprop (2.2) Methaq (0.9) Diphen (0.4)	-	-
343	.123	Pento (2.0)	-	Mepro (3.3)
346	-	*	-	Seco (1.7)
348	.170	Pento (tr) Buto (tr) Buta (1.6)	-	-
349	-	Chlordiaz (10.0)	-	-
351	-	Gluteth (1.0	-	HDM (9.1)
353	.293	*	DMT (tr) Chlorprom (tr) Imip (0.27)	*
374	.329	-	Imip (0.1)	-

MRI Sample Code	BAC	Urine	Blood	Bile
375	-	*	-	MPD (0.8)
376	-	Trifluo (22.0) Imip (tr)	-	Imip (0.2) Trifluo (18.4)
381	-	-	-	Gluteth (0.9) Mepro (0.1)
383	.130	-	-	Phenylprop (0.2)
389	-	Phenylprop (tr)	Amo (0.1)	-
390	-	DMT (0.2)	-	-
394	-	*	MPYL (tr) Cocaine (2.7) Lobe (0.5)	-
404	-	*	Amo (0.7)	-
430	.112	Pento (1.1)	Pento (0.3) Buta (1.4)	-
458	-	Pheno (5.6)	Pheno (2.9)	Pheno (1.4) Buto (2.7)
459	.107	Mep (4.5)	-	*
465	-	*	Pheno (0.5)	*
470	.342	Seco (2.2)	-	-
474	-	Pheno (0.8)	Pheno (0.2)	*
497	.140	Morph (2.2) Methadone (0.7)	-	*
507	.297	Pheno (0.1)	-	-

MRI Sample Code	BAC	Urine	Blood	Bile
528	-	Pheno (1.2)	Pheno (0.5)	-
542	.322	Pheno (1.3)	Pheno (2.5)	-
576	-	Phenylprop (5.1) Seco (1.6)	-	*
606	.183	Mepro (tr) Seco (2.5)	-	-
613	-	Mepro (0.7) Seco (0.9)	-	-
621	.346	*	Pheno (0.4)	-
624	-	Phenylprop (1.0)	-	-
632	-	Chlorphen (0.1)	-	-
634	.418	-	-	Phenylprop (20.2)
636	.307	Methadone (1.0)	-	-
690	.148	Meth (0.1)	-	-
694	.010	Trifluo (25.0)	-	-
696	-	MPD (7.1)	-	-
706	.025	Amo (0.6)	-	Amo (2.5)
709	.214	-	-	Pheno (0.5)

MRI Sample Code	BAC	Urine	Blood	Bile
75	-	Amphet (tr) Meth (tr)	-	-
84	.080	Meth (tr)	-	-
85	.025	Meth (tr)	-	-
96	-	Pheno (tr)	-	-
98	-	Amphet (tr)	-	-
127	.130	Amphet (tr)	-	-
176	.170	Phenylprop (tr)	-	-
258	*	Amphet (tr)	*	-
359	.143	*	Pheno (tr)	-
403	-	Pheno (tr)	-	-
407	.085	-	Lobe (tr)	-
710	.135	-	Meth (tr)	-

APPENDIX E

DETAILED ALCOHOL FINDINGS

TABLE E-1

SITE-BY-SITE RESULTS FOR LINCOLN, NEBRASKA

Site No.	Location	Day	Time	Motorists Stopped	Refusals	BAC's	BAC 0	0.01-0.04	0.05-0.09	0.10-0.14	0.15+
2	48th and Y Street	Weekday	2200	41	10	31	19	9	2	1	0
4	40th and O Street	Weekday	0100	25	3	22	9	8	4	1	0
5	40th and O Street	Weekend	0400	27	4	23	11	10	1	1	0
6	3145 O Street	Weekday	1800	42	10	32	24	8	0	0	0
7	905 S. 27th Street	Weekday	0100	46	4	42	17	13	6	4	2
8	1340 N. Cotner Street	Weekend	0300	21	3	18	8	7	3	0	0
9	1045 N. 27th Street	Weekend	1900	54[a]	15	32	24	3	5	0	0
10	2801 Cornhusker Highway	Weekend	1500	60	11	49	38	10	1	0	0
16	2101 W. O Street	Weekday	0300	23	9	14	7	7	0	0	0
18	3245 A Street	Weekend	0300	24	6	18	8	3	4	3	0
19	3245 A Street	Weekday	2200	27	5	22	12	9	1	0	0
20	2801 Cornhusker Highway[b]	Weekday	2200	38	5	33	21	8	2	1	1
25	70th and Vine	Weekday	0300	3	0	3	2	0	1	0	0
27	366 N. 48th Street	Weekday	2200	32	10	22	16	6	0	0	0
31	1940 Cornhusker Highway	Weekday	0100	27	3	24	9	8	5	2	0
33	48th and Alyesworth	Weekend	0900	36	7	29	24	5	0	0	0
35	56th and R Street	Weekend	1700	43	5	38	34	4	0	0	0
36	2780 South Street	Weekday	1800	47	5	42	33	9	0	0	0
41	2605 N. 27th Street	Weekday	1900	60	8	52	35	14	2	1	0
42	Highway 2 and 21st Street	Weekday	2400	36	4	32	22	7	1	2	0
Total				712[a]	127	578	373	148	38	16	3

a/ Includes seven for whom BAC was not obtained because of Breathalyzer malfunction.
b/ Alternate: 3101 Cornhusker Highway.

TABLE E-2

SITE-BY-SITE RESULTS FOR DADE COUNTY, FLORIDA

Site No.	Location	Day	Time	Motorists Stopped	Refusals	BAC's	BAC 0	0.01-0.04	0.05-0.09	0.10-0.14	0.15+
1	N.W. 27th Avenue and W. Flagler Street	Weekday	1400	38	13	25	19	5	1	0	0
2	S.W. 71st Avenue and S.W. 8th Street[a/]	Weekday	1900	33	13	20	9	11	0	0	0
3	1800 South Bayshore Drive	Weekday	2300	31	8	23	10	10	3	0	0
4	W. 12th Avenue and 74th Street	Weekday	1300	19	3	16	15	1	0	0	0
5	6800 Coral Way	Weekday	2100	25	2	23	16	4	2	0	1
6	Ludlam Road and Miami Lakes Drive	Weekday	2400	25	9	16	10	6	0	0	0
7	3139 N. Miami Avenue	Weekday	1400	30[c/]	9	20	14	6	0	0	0
8	N.W. 10th Avenue and 22nd Street	Weekday	1700	26	7	19	13	5	0	1	0
9	N.W. 79 Street and 27th Avenue	Weekday	2400	25	11	14	9	5	0	0	0
10	N.E. 7th Avenue and 127th Street	Weekday	1500	38	13	25	18	7	0	0	0
11	N.W. 135th Street and N.W. 2nd Avenue[b/]	Weekday	2200	34	11	23	15	5	0	3	0
12	Red Road and 86th Street S.W.	Weekday	0100	29	7	22	13	7	1	1	0
13	12555 N.W. 17th Avenue	Weekday	2000	27	4	23	19	2	1	1	0
14	17107 Biscayne Blvd.	Weekday	2300	27	10	17	12	5	0	0	0
15	1353 N.W. 57th Avenue	Weekday	0200	28	7	21	10	5	4	2	0
16	Kendall Drive and 95th Avenue	Weekend	1900	37	8	29	20	9	0	0	0
17	N.W. 62nd Street and 8th Avenue	Weekend	2200	33[c/]	6	25	19	5	0	1	0
18	9348 N.W. 22nd Avenue	Weekend	0100	31	6	25	18	3	2	1	1
19	18990 N.W. 2nd Avenue	Weekend	1300	42	3	39	30	9	0	0	0
20	1001 N.W. 54th Street	Weekend	2100	41	12	29	9	10	5	3	2
21	3640 S. Dixie Highway	Weekend	0100	36	12	24	15	6	2	1	0
22	N.W. 27nd Avenue and 83rd Street	Weekend	1400	46[c/]	13	32	14	16	2	0	0
23	N.W. 27th Avenue and Peri Street	Weekend	2400	37	8	29	11	12	4	1	1
24	N.E. 163rd Street and 19th Avenue	Weekend	0300	40	14	26	14	9	1	1	1
Total				778[c/]	209	565	352	163	28	16	6

a/ Alternate: 6925 S.W. 8th Street.

b/ Alternate: N.E. 135th Street and N.E. 2nd Court.

c/ Includes four for whom BAC was not obtained because of Breathalyzer malfunction.