

*Abridgment*

# Factors Contributing to Abnormal Accident Reporting

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## ABSTRACT

A research project in Alabama addressed the problem of abnormal reporting of traffic accidents. More than one-eighth of the state's police chiefs were interviewed by telephone to determine investigation and reporting practices, procedural difficulties, and compliance with accident reporting provisions of the Alabama Code. In addition, one-fourth of the cities in the survey received thorough site visits. The study sample of 50 cities was composed of those that reported far too few or far too many collisions, and a control group that reported near the average number for their size. These cities had been targeted for further study by regression and confidence-band analyses. The research staff found the most important factor in abnormal accident reporting to be the attitude of the police chief. Another prominent factor appeared to be insufficient contact between state officials and local investigating officers. In addition, local officers did not understand the final use of accident data. For under-reporting cities, the major problems included withholding accident reports, a lack of knowledge (or interest) on the part of the police chief, and use of neighboring cities to prepare reports. These items also tended to appear frequently in smaller jurisdictions. In general, over-reporting sites were found to have hazardous situations rather than weak reporting practices. They were usually typified by high traffic volumes, knowledgeable and aggressive police chiefs, and good accident-reduction programs. At the conclusion of the study suggestions were made to provide targeted education to police chiefs, to strengthen training in police academies, and to improve communications between state agencies and local police departments.

The Alabama Code requires the reporting of all traffic accidents that are investigated by local law enforcement agencies. A research project was conducted to determine compliance with the Code and to identify reasons for noncompliance. The search for reasons for noncompliance, especially as related to the police chief, is documented.

## IDENTIFICATION OF ABNORMAL REPORTING LOCATIONS

Regression analyses and confidence-band studies were applied to 423 cities and 67 counties in Alabama. Many variables (traffic volumes, registered vehicles, drivers' licenses, population, and so forth) were examined before population was determined to be the best prediction variable. Twenty-five cities, but no counties, were identified as outliers, falling far above or far below the predicted number of accidents. A second statistical analysis found that 21 cities had extremely erratic

year-to-year reporting patterns, and these cities were added to the outlier group. Details of these studies have been published elsewhere (1,2).

## TELEPHONE SURVEY

A telephone questionnaire was prepared to examine factors that were likely to influence the number of reported accidents. These included items such as traffic volumes, police training, the police chief's attitude, length of chief's service, investigating and reporting practices, private property collisions, and identification and correction of high accident locations.

## Conducting the Study

The study population was divided into a matrix of four city-size groups and two reporting levels (over-reporting and under-reporting cities). For each population class, the number of control sites was balanced against the number of outlier and erratic reporting sites, thus yielding 50 cities.

The police chief for each city was contacted by telephone, the objectives of the project were explained, and the interviewer posed questions from a prepared list. As the interview progressed, additional topics were introduced as necessary to expand the material or to explore situations unique to the city. Where pertinent, the chief's comments were recorded for amplification of the questionnaire.

## Results

Following the interview period, the results were tabulated and compared by using the Student's t-test. Because of the small sample size in some cells of the classification matrix, statistical conclusions were not always possible. Unfortunately, some items (e.g., traffic volumes) had to be dismissed because of variability in the chiefs' understanding of the topic. The remainder of this paper deals with the remaining factors found to most directly influence the quality of accident reporting.

## Chief's Assessment of Accident Situation

A series of questions addressed the police chief's knowledge of the accident situation in his city. For example, police chiefs were asked to estimate the number of accidents and the percentage of injuries. The estimated and reported accidents were compared to find the percentage difference. In almost all cases, the chiefs overstated the number of accidents. The reasons for overestimating collisions could have been either a lack of knowledge on the subject or failure to report all accidents to the state. In either case, the trend toward overestimation was obvious.

Chiefs in the under-reporting cities averaged about a 770 percent error, as shown by Figure 1. Control cities exhibited more than a 130 percent error, whereas the chiefs in over-reporting cities had

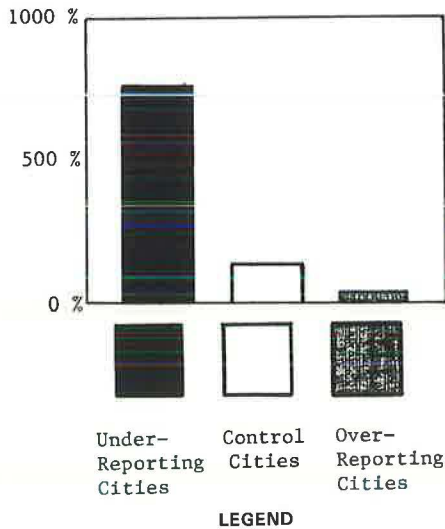


FIGURE 1 Error in chiefs' estimate of annual accidents.

reasonable estimates, with less than a 40 percent error. The higher the reporting level, the closer the chiefs' estimates were to the actual number of accidents. The under-reporting cities had significantly weaker estimates, as confirmed by the Student's t-test.

The analysis of estimated accidents suggests that the chiefs in under-reporting cities are least knowledgeable of the accident situation. The chiefs in over-reporting jurisdictions appear to have a uniformly satisfactory assessment of the situation, often citing traffic volumes and other factors, which suggests that their problem may be caused by hazardous traffic conditions rather than reporting deficiencies. The chiefs' estimates of other accident statistics support these findings.

Training

The amount and quality of training received by law enforcement personnel influence accident reporting. New officers are required to undergo a vigorous 240-hr general training program, which includes accident reporting, at one of Alabama's law enforcement academies. The number of staff officers receiving training in the past 5 years was found to be high, with the control group registering 94 percent (see Figure 2).

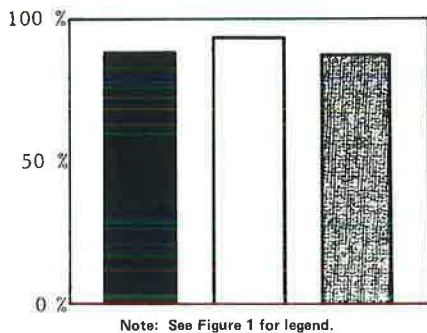


FIGURE 2 Percentage of police officers receiving detailed accident training in past 5 years.

A much lower percentage of chiefs had received training (Figure 3). Officers already on duty when the training requirements were enacted did not have to attend the academies. This explains why the chiefs have less accident training; they are generally older and exempt from training under the "grandfather" clause. This lack of training may help explain some chiefs' weak grasp of the local situation. It may also account for a virtual void of knowledge of accident summary reports. When queried, only a few of the chiefs were aware of the reports furnished by the Alabama Highway Department or of accident-reduction programs. This is a major weakness in the use of accident data.

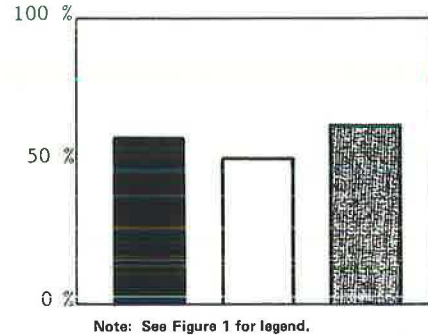


FIGURE 3 Percentage of cities where chief of police received detailed accident training.

In summary, it appears that the vast majority of law enforcement personnel has received training, with chiefs being significantly less trained than other staff personnel.

Investigation and Reporting

One portion of the survey was designed to determine if cities performed their own investigation and reporting or if they depended on other agencies for help. This is a possible source of error, because outside jurisdictions that assist in reporting accidents may be erroneously credited with their occurrence. Figure 4 indicates that under-reporting locations consistently used other jurisdictions. Smaller cities were also prone to use other jurisdictions to help gather and report accident information. The Student's t-test indicated that under-reporting sites were significantly different from other locations.

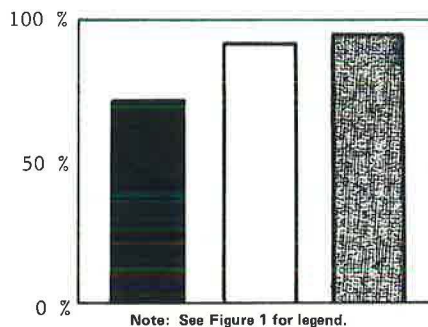


FIGURE 4 Percentage of cities that prepare all of their own accident reports.

### Processing of Accident Reports

Local law enforcement officials are required to mail copies of completed accident report forms to the Department of Public Safety (DPS) within 24 hr of completing an accident investigation. The majority of the study sites complies with this regulation, as shown by Figure 5. However, under-reporting cities are seriously deficient in this area. Forty percent of these jurisdictions withhold some or all of their reports (statistically significant). One of the prime reasons that these cities appear to have a low accident level is that they simply do not report accidents to the DPS.

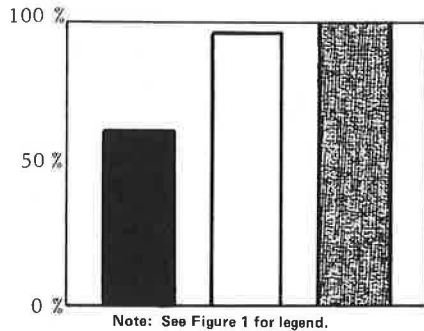


FIGURE 5 Percentage of cities that forward accident reports to the DPS.

### Other Items

Factors such as the stability of police leadership, reporting of private property accidents, and reporting of accidents outside of the city limits were also investigated during the study. In general, these data supported other findings; however, conclusions were not as easy to draw as those for topics discussed previously. The research staff considered and evaluated these other items when formulating conclusions and recommendations at the end of the project.

### FIELD STUDIES

After the telephone survey uncovered some of the reasons for atypical reporting, a program of site visits was conducted to supply more detail. The investigators used a questionnaire at each site to gather information from the chief, the dispatcher, and investigating officers. Eleven cities were included in this phase of the project.

The main purposes of the field visits were to confirm telephone findings, to add insights to those findings, and to assist the research staff in formulating recommendations. Because of small sample sizes, statistical inferences could not be drawn. The results of the field studies are given in the following sections.

### Training

Training of police chiefs was noticeably lacking. Few of the chiefs were aware that accident summary reports are generated and distributed by the Alabama Highway Department. Still fewer knew how to interpret and use such reports to alleviate dangerous situations. More important, many chiefs were not generally aware of what types of accident data were

gathered in the field to produce these reports. These areas should be addressed and improved.

### Assessment of Accident Situation

Questions were added to the field visit questionnaire to provide more information about police chiefs' understanding of the local accident situation. Small sample sizes made it hard to detect clear trends, but it appears that the chiefs in over-reporting cities, along with those in large cities, were more aware of the factors that control the overall accident situation. This reinforced the findings of the telephone survey.

### Investigating and Reporting

The police chiefs in all reporting and population categories indicated similar investigating and reporting techniques. One noticeable trend was that a large percentage of the under-reporting cities used a threshold value (below which they would not investigate and report an accident). Although some threshold values were found for other cities, it was most pronounced for under-reporting cities.

### Processing of Accident Reports

A very clear picture of accident data processing was obtained by asking questions of radio dispatchers and file clerks in each city. Clerks in some cases provided responses that contradicted those of the police chiefs. For example, some chiefs in under-reporting cities stated that reports were sent in as soon as they were completed, whereas their clerks indicated otherwise.

### Interviews with Investigating Officers

Interviews with investigating officers provided information from a different perspective. It was clear to the research staff that police officers do not understand how accident data are used in making traffic engineering decisions, nor do they gather data with such uses in mind. Administrators of engineering and safety organizations need to provide input to police training curricula.

### General Observations

In at least three cities high traffic volumes were found to be the primary cause for the level of accidents. These were all over-reporting locations, which demonstrates that population might not be the best way to predict accidents at these locations. However, such sites cannot be found without visits to identify the unusual conditions.

Another factor that became obvious during this part of the study was that there was very little contact with the DPS. Officers were generally unaware of what the DPS required of them.

### SUMMARY

A search for reasons for abnormal accident reporting is described. This is one part of a project to improve accident data in Alabama. This portion of the research project was successful in that both the telephone survey and the site visits supplied useful data.

The project staff used tabulated responses from these studies and subjective judgment to devise ways to improve reporting.

1. The most important factor in the quality of accident reporting is the attitude of the police chief. The staff strongly believed that all other factors shrink in significance in comparison. Perhaps the most effective way to improve accident data might be to conduct a strong educational program aimed at chiefs. The program should include the use of Alabama Highway Department summary reports and accident-reduction efforts.

2. Patrolmen do not understand the final use of accident data. Law enforcement academy curricula should be modified to explain such uses. (Academy instructors received additional training in a subsequent project.)

3. The DPS should initiate contact with local entities. This could be in the form of a monthly newsletter reminding cities of their responsibilities, or a series of visits to jurisdictions known to have trouble with accident reporting. The DPS contact would demonstrate concern, would motivate local law enforcement officers to improve the quality of reporting, and would educate new administrators if the high rate of turnover continues.

In summary, there are simple and direct ways in which significant gains may be accomplished through improved communications. They require minimal resources and planning times, and can be put into

practice in the near future to improve accident data and thus improve the quality of traffic safety programs.

#### ACKNOWLEDGMENT

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#### *Abridgment*

## Impact Evaluation of Lexington – Fayette County Traffic Alcohol Program

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#### ABSTRACT

In an attempt to lower the number of alcohol-related accidents, a comprehensive program of countermeasures was implemented in Lexington - Fayette County, Kentucky. The program involved a coordinated effort among the Division of Police, the judicial system, rehabilitation program administrators, educational institutions, and the local news media. Included in the program were (a) officer training to spot driving under the influence (DUI), (b) deployment of officers for DUI enforcement, (c) a public information campaign, and (d) development and implementation of an effective alcohol education program. An evaluation of the Traffic Alcohol Program (TAP) that began on May 1, 1982, is given. Information collected for the analysis included accident data, arrest and adjudication data, and personal opinion data obtained by means of a questionnaire

survey. Accident data were collected for 2 years before TAP and 1 year into the program. A 25 percent sample of arrest and adjudication data was collected 1 year before and 1 year during TAP. The questionnaire was sent to 2,500 registered vehicle owners. Results from before-and-after comparisons and time-series analyses indicated that alcohol-related accidents decreased significantly as a result of TAP. The number of DUI arrests increased from 929 in the year before TAP to 4,427 during the first year of TAP. The program was found to be cost effective with a benefit-cost ratio greater than 2. More than half of the respondents of the survey indicated that TAP increased their chance of DUI arrest.

In an attempt to lower the number of fatalities, injuries, and property-damage alcohol-related accidents, a comprehensive program of countermeasures