based on normalizing data; and through trends or changes in trends. Each method provides a different result.

For example, according to absolute numbers, male drivers between the ages of 16 and 35 are highly overrepresented in weekend nighttime accidents. But if the data are normalized, then teenage drivers are overrepresented on a per-vehicle-mile basis and older drivers are overrepresented because they drive more frequently at night. Normalized data also suggest different countermeasures. For the teenage driver, the problem is one of skill or attitude, and training may be a useful countermeasure. For the male driver between 20 and 35, the problem is one of nighttime exposure, and the countermeasure would involve reducing that exposure. For the elderly driver, the problem is a combination of low exposure with increased risk per mile or unit of exposure.

Different data treatments can determine the success or failure of a safety program. For example, NHTSA has pointed to the declining fatality rate per 100 million vehicle miles as evidence of the success of national highway and motor vehicle safety programs; in its critique of the grant program, the U.S. General Accounting Office emphasized the increase in absolute numbers of fatalities since 1965 and therefore questioned the value of the program.

Policy considerations may also differ, depending on whether the focus is on total exposure or on risk per unit of exposure. For example, a recent study claimed that driver education was causing teenage fatalities. While teenagers in fact have a higher rate of accidents per mile driven, most of the increase in fatalities cited in the study was due not to a change in risk per mile, but rather to increased exposure resulting from the availability of high school driver education.

How then shall we use accident records for problem analysis and planning? The accident record systems lend themselves to analysis of total numbers of accidents, and our methods of correcting the exposure are relatively weak. If we use total numbers of accidents as our measure of success, we may find ourselves defining alternative transportation systems (mass transit) as highway safety programs. This may be appropriate; then again, we may not want to spend our limited safety funds on mass transit.

In all probability, there is no single measure applicable to all situations. But it will be our task to find appropriate ways of using accident statistics to define problems and to manage highway safety programs.

INTRODUCTION AND CONFERENCE PURPOSE

Wayne S. Ferguson, Virginia Highway and Transportation Research Council

When the need for this conference was established by the Transportation Research Board's Committee about a year and one-half ago, we did not envision the environment in which highway safety practitioners would find themselves today. Certainly the need to curb inflation and to promote real economic growth is of such national significance that, if deep cuts in federal spending are now necessary in many areas of federal activity, we would not argue that this program alone ought to be exempted. We would maintain, I believe, that unsuccessful programs ought to be cut and successful ones sustained. Have we been successful? Apparently, many people think not. We need to assess both where we are and how we got here.

To be sure, things are not as bad as they might be. But the funding levels proposed for FY 1982 and beyond reflect a substantial retreat from the commitments of resources to highway safety that began in 1966-1967. And we need to ask, Have we in the state and community programs done our jobs so well that further effort is not needed? Or have we done so poorly that further financial commitment seems, in investment terms, a poor risk? I am afraid that the answer is, We don't know.

I believe that the U.S. General Accounting Office noted in its October 1980 report to Congress that the state and community highway safety programs are a poor investment alternative in these days of lowered expectations of government.

If we were business people meeting here today to discuss the condition of our companies or our industries and the prospects were for 65-70 percent reductions in operating revenues, it is almost a certainty that we would know precisely how and why we had come to this position. We would be working on recovering our lost markets and lost customers.

But those of us promoting and selling improved highway transportation safety through the state and community grants program do not know what has been successful and what has not. I think part of the problem derives from the fact that we have not recognized that the bits and pieces of highway safety information we collect and maintain must be organized into a management information system to effectively plan, analyze, and oversee the highway transportation system. We have not defined our problems clearly enough and identified those factors amenable to countermeasures through the grant system.

Industry spends millions analyzing its products and its markets and carefully tailoring its short- and long-range plans to the changing environment. In comparison, we spend a pittance on identifying and analyzing those characteristics of the highway traffic crash problem so that we can sharply focus on the goals and objectives of our spending programs.

If we are ever to sharpen the focus of our programs, we must find a way to make our management information systems more useful. We hope this conference will provide a start.

TRAFFIC RECORDS ANALYSIS IN TEXAS

Barry Lovelace and John Staha, Texas State Department of Highways and Public Transportation

In Texas we use the traffic record as a source of data for three levels of problem identification and analysis: macro, midrange, and micro. This three-layer concept has been adopted as a means for "layering" into problem identification for decision making. The purpose of the macro level is for statewide comparisons and problem assessment. It consists of problem identification by using the Fatal Accident Reporting System (FARS) at a gross level and will not be discussed here. The midrange level is the basis for resource allocation; the micro level is used for treatment. Texas uses different techniques for each:

- SAVE CITY/SAVE COUNTY is a decision model used for midrange analyses. Cities and counties are rank-ordered by accident count and rate to form a basis for resource allocation.
- CASESTUDY and Traffic Accident Profile (TAP) are two computer programs used for microlevel analyses. The purpose of CASESTUDY is to retrieve information on individual accidents to identify problems in specific areas. TAP melds