



FIGURE 1—Two-Stage Filtration Unit Constructed at Ban Som, Changwat Korat, Thailand, 1973 (side view)

The objectives of testing the filter units used for village water supply were to seek design improvements involving greater simplicity of construction, to oversee operational problems under actual village conditions, to quantify the filter performance in improving water quality, and to evaluate villager acceptance of the treated water for drinking, cooking, and domestic purposes.

Continuous testing of the coconut fiber/burnt rice husks filter was carried out at a number of field installations from 1974 to 1977. The accumulated data, using turbidity, iron, and coliforms as the main parameters, show that this type of two-stage filter, while not achieving results equal to slow

sand filtration, does achieve removals of particulates to produce an effluent meeting recommended WHO International Drinking Water Standards. The significant difference between the two approaches is the fact that the two-stage process can handle waters of high turbidity (usually the case for Southeast Asia), whereas the slow sand filter is limited to relatively low raw water turbidities. Also, the two-stage process operates at 10 to 15 times higher filtration rates than the slow sand filter, and incorporates significant absorption capability for removing tastes and color. Moreover, by use of additional stages higher levels of removals can be achieved if desired. Effluent turbidities were generally below 5 JTU (Jackson Turbidity Units) from raw water turbidities which ranged from 15 to 150 JTU. Coliforms removals averaged 60 to 85 per cent with individual samples ranging from zero to 100 per cent removal, but bacteriological removals were insufficient to reach "potable" standards without the addition of some simple disinfection. Iron removals varied from 80 to 95 per cent. Filter media were changed only once every three to five months at the various village installations.

It is believed the quality of effluent from the two-stage process represents a reasonably good quality for most villages where investment in more expensive water treatment plants (rapid sand filtration or slow sand filtration) simply cannot be afforded. The two-stage filter also serves as a simple first stage investment in a multi-stage development process to improve water supply/sanitation services in rural areas. Further information can be obtained from the author.

REFERENCES

1. World Health Organization, Community Water Supplies—A Critical Situation. WHO Chronicle 23, No. 8, 1969.
2. World Health Organization, Community Water Supply—The Next Ten Years. WHO Chronicle 25, No. 2, 1971.
3. World Bank, Issues in Village Water Supply. Public Utilities Dept. Report No. 793, Washington, DC, 1975.
4. Feacham RG: Water supplies in low-income communities of developing countries. Journal of the Environmental Engineering Division, Proceedings ASCE 101, no. EE5, 1975.

Who Bought the Cars in Which People are Injured? An Exploratory Study

SUSAN P. BAKER, MPH

An argument often made against requiring motor vehicles to meet federal safety standards is that purchasers

Address reprint requests to Susan P. Baker, MPH, c/o Office of the Chief Medical Examiner, 111 Penn Street, Baltimore, MD 21201. Ms. Baker is also Associate Professor, Dept. of Health Services Administration, Johns Hopkins School of Hygiene and Public Health. This paper, submitted to the Journal April 3, 1978, was revised and accepted for publication July 18, 1978.

should be free *not* to invest in their own protection. Since it is their personal safety that is at stake, the argument runs, safety features should be optional. This argument was used, for example, by vehicle manufacturers, editorial writers, members of the Congress, and others who opposed the "passive restraint" standard, which will require new passenger cars to provide front seat occupants with automatic crash protection, such as airbags or seatbelts that do not require action by the occupant in order to be fastened.

The argument that the buyer of a new car is making a decision concerning only his own safety rests on a premise that the person injured in a vehicle is the same as the person who initially bought the vehicle and selected its optional equipment. Despite frequent use of the argument, there has been no attempt to measure the validity of that premise. Therefore, the present study was undertaken to explore the question of how many people injured in passenger vehicles are actually the owners and original purchasers of those vehicles.

Methods

The crashes studied occurred during 1977 in Baltimore County, Maryland. This county has extensive rural, suburban, and urban portions but excludes the central city of Baltimore. Vehicle ownership among its residents is similar to the national average of one car for every two persons.

Reports were obtained from the Maryland State Police for 200 injury-producing crashes. "Possible" injuries (defined by police coding instructions as "momentary unconsciousness, claims of injuries that are not evident, limping, complaint of pain, nausea, and hysteria") were disregarded. The 200 cases were the first 50 such reports filed for each of the months of January, March, May, and July; they represented approximately one-fourth of all injury crashes that occurred during those months.

The analysis was subsequently limited to those 137 crashes in which at least one occupant of a car or station wagon was injured.* The following information was obtained for each injured occupant: age, sex, seating position, injury severity, and apparent relationship to the owner of the vehicle.

The Maryland Motor Vehicle Administration provided information on whether the owner at the time of the crash

*In the 63 other injury-producing crashes, the injured people were not the occupants of cars or station wagons.

was the original purchaser of the vehicle. This information was obtained for 88 per cent of the cars and station wagons in which people were injured.

Results

The 137 crashes resulted in injury to 172 occupants of 147 cars and station wagons. Twenty-nine (17 per cent) of the injured were categorized by police as having incapacitating injuries and 134 (78 per cent) were taken directly to hospitals for treatment. There were no fatalities in the sample.

A minority of those injured (41 per cent) owned the vehicles in which they were injured (Table 1). On the basis of age, sex, name, and address, 8 per cent were categorized as spouses of the owner and 14 per cent as children of the owner; 37 per cent apparently were not related to the owner.

Sixty-four per cent of the injured were less than 30 years old. Only 33 per cent (34 out of 102) of the injured who were 16-29 years of age owned the vehicles in which they were injured, compared to 59 per cent (36 out of 62) of those age 30 or older.

Twenty-one per cent of the injured drivers (25 out of 119) neither owned the vehicle nor appeared to be related to the owner. The same was true of 74 per cent of the injured passengers (39 out of 53).

Not more than 51 per cent of the injured people were occupants of vehicles whose owners were the original purchasers (the actual percentage was between 37 per cent and 51 per cent, depending upon the status of the "unknowns") (Table 1). Even if all 12 injured owners for whom purchase information was unknown were the original purchasers, then only 39 of the 172 injured people, or 23 per cent, were both owners and original purchasers of the cars in which they were injured.

The true proportion of injured people who were the owners and original purchasers was probably less than 20 per cent, since most of the missing information was for

TABLE 1—Relationship of Injured Person to Owner, and Whether Vehicle Owner was Original Purchaser

Was Owner Original Purchaser?	Probable Relationship of Injured Person to Owner				TOTAL	(%)
	Owner	Spouse ¹	Child ²	Non- Relative ³		
No	31	5	14	34	84	49
Yes	27	8	7	22	64	37
Unknown	12	1	3	8	24	14
TOTAL	70	14	24	64	172	100
Per Cent	41	8	14	37	100	

1) Injured person age 21 or older and of opposite sex from owner; same last name and address. (In 6 of the 14 cases, the owner's age was also known and was within a few years of the injured person's. If the age used as a cutoff had been 19 or 25, this would only have changed the per cent categorized as spouses to 9 per cent or 6 per cent, respectively.)

2) Injured person < 21 and/or of same sex as owner; same last name. (The oldest was 22, and all but one lived with owner.)

3) Last name not the same. (All but 4 lived at different address.)

younger owners, who were less commonly the original purchasers of their vehicles. Excluding "unknowns," 9 out of 26 (35 per cent) of the injured owners younger than age 30 were the original purchasers, compared to 18 out of 32 (56 per cent) of the older owners.

Discussion

Fewer than one-fourth of the injured occupants studied were the owners and original purchasers of the vehicles in which they were injured. Most of the injured would have had no opportunity to influence the choice of safety features, had such features been optional when the car was initially purchased. Even if it were assumed that all spouses participated in decisions on optional equipment, not more than 28 per cent (48) of all the injured were likely to have influenced such decisions (i.e., the 39 owners and 9 spouses injured in cars whose owners were or may have been the original purchasers).

The notion that parents have a right to make the decisions regarding their children's safety is not consistent with other product safety standards, such as those for drugs, lawn mowers, and toys. If children are nevertheless added to the above figures, original purchasers and their families comprised only one-third of the injured, at most.

As is true nationally,² the majority of injured occupants in the sample were less than 30 years old. Those younger than 30 were less likely than older people to own the cars in which they were injured, and injured owners younger than age 30 were less likely to be the original purchasers. Thus, young people are not only at high risk of injury (in the US, ages 15–24 comprise about 20 per cent of the population and 40 per cent of the injured occupants),² but they are less likely than their elders to have determined the options on the cars in which they are injured.

The results of this exploratory study suggest that if car safety features are left to the option of the purchaser, the purchasers themselves will represent only a small minority of those placed at increased risk of serious injury by failure to select a safety option. The importance of the underlying issue is underscored not only by the toll of injuries and deaths among motor vehicle occupants, but by the demonstrated benefits of existing federal motor vehicle safety standards. The 1966–1970 standards for required safety features—including outside mirrors, penetration resistant windshields, energy absorbing steering columns, padded instrument panels, and seat belts—are estimated to have prevented more than 25,000 deaths between 1966 and 1975.^{3, 4} Only a fraction of that benefit might have been realized if safety features had been left to the discretion of new car buyers.

REFERENCES

1. Department of Transportation. Federal Motor Vehicle Safety Standards, Occupant Restraint Systems, Final Rule. Federal Register 42:128:34289–34304, July 5, 1977.
2. National Safety Council. Accident Facts 1977 Edition. Chicago: National Safety Council, 1977.
3. Robertson LS: State and federal new-car safety regulation: Effects on fatality rates. Accident Analysis and Prevention 9:151, 1977.
4. National Highway Traffic Safety Administration. Effectiveness, Benefits, and Costs of Federal Safety Standards for Protection of Passenger Car Occupants. Washington, DC: U.S. Dept. of Transportation, July 7, 1976.

ACKNOWLEDGMENTS

This investigation was supported by the Insurance Institute for Highway Safety and the Maryland Medical-Legal Foundation. The author is indebted to the Maryland State Police and Motor Vehicle Administration for making the data available, and to Dr. William Haddon, Jr., president of the Insurance Institute for Highway Safety, for suggesting the study and offering valuable comments on the manuscript.

The Emergency Psychiatry Experience at Philadelphia's 1976 Bicentennial Summer Celebration

DONALD A. WEST, MD, AND HERBERT DIAMOND, MD

Introduction

In the summer of 1976, Philadelphia experienced both the Bicentennial Celebration and the 41st International Eu-

Address reprint requests to Donald A. West, MD, Assistant Professor, Department of Psychiatry, 620 Camino De Salud NE, University of New Mexico School of Medicine, Albuquerque, NM 87131. Dr. Diamond is Medical Director, The West Philadelphia Community Mental Health Consortium, Inc., and Associate Professor of Psychiatry, School of Medicine, University of Pennsylvania. This paper, submitted to the Journal April 10, 1978, was revised and accepted for publication July 25, 1978.

charistic Congress of the Roman Catholic Church. It was estimated that 15 million people would visit the city between April and November: six times the two-and-a-half million who visit in a normal year. Due to its strategic location between the Philadelphia International Airport and the city's rail terminals and its proximity to the city's major convention complex, the West Philadelphia Community Mental Health Consortium, Inc., a community mental health center (CMHC), anticipated that its Psychiatric Emergency Services would become heavily involved.

Guidelines for planning were non-existent, since the literature documenting the medical and psychiatric experience