TRANSPORTATION RESEARCH
CIRCULAR
Number 424 April 1994

Research Problem Statements for Motorcycles and Mopeds

TRANSPORTATION RESEARCH BOARD / NATIONAL RESEARCH COUNCIL

TRANSPORTATION RESEARCH
CIRCULAR

Number 424, April 1994
ISSN 0097-8515

RESEARCH PROBLEM STATEMENTS FOR MOTORCYCLES AND MOPEDS

Jerome W. Hall, *Chairman*, Group 3 Council
Operation, Safety, and Maintenance of Transportation Facilities
Conrad L. Dudek, *Chairman*, Section B
Users and Vehicles Section

Subscriber category
IVB safety and human performance

Transportation Research Board
National Research Council
2101 Constitution Avenue, N.W.
Washington, D.C. 20418

TABLE OF CONTENTS

INTRODUCTION

The Transportation Research Board's Committee on Motorcycles and Mopeds presents this document containing suggestions for future motorcycle safety research. The document was developed during 1992 and 1993 by Committee members and friends of the Committee, and has been peer-reviewed carefully by the Committee.

Motorcycle safety programs are a relatively recent outgrowth or modification of programs developed for other modes of transportation. In fact, motorcycle-specific safety programs might never have developed if not for the increase in transportation accidents and fatalities during the late 1960s which concerned the nation enough to create the National Highway Traffic Safety Administration (NHTSA). The increase in motorcycle accidents, coupled with technical refinements to motorcycles themselves and a youth-oriented market, led NHTSA to make motorcycle safety one of its eighteen original highway safety issues and fostered the subsequent passage of a spate of state standards. All this was accomplished with a minimum of rigorous scientific research.

In recent years, motorcycle users have been targeted by tailored programs mandating rider training, alcohol responsibility, and helmet use. Yet, a decade and a half have passed since final data were collected for the seminal NHTSA-funded motorcycle research document, "Motorcycle Accident Cause Factors and Identification of Countermeasures". This still-cited work, conducted in Los Angeles at the University of Southern California, carefully examined those environmental, human, vehicle and other-driver characteristics that contributed to motorcycle accidents and provided a wealth of research-based motorcycle safety recommendations. Indeed, many federal and state program initiatives of the intervening years are rooted in that work. It is important to also note that U.S. motorcycle fatalities have dropped from an all time high of over 5,000 per year to less than half that number between 1981 and 1993.

The Motorcycle and Moped Committee suggests that future program development must be based on more contemporary research which recognizes the technical, demographic, market and regulatory evolution of the user and the motorcycle. This research would redirect resources or create entirely new projects based on data and marketplace changes not envisioned 15 years ago.

The Committee carefully debated the issue of suggesting a large, comprehensive, modern replication of the University of Southern California study and decided that the cost involved would make such an undertaking infeasible in the foreseeable future. In its place, the Committee asks transportation officials to consider undertaking one or more of the elements of such a study, as represented here in the form of independent proposals.

Technical Changes Suggesting New Research

The motorcycle of 1993 has evolved considerably from 1978 (the data collection year for the landmark USC study), with many technical improvements in safety and performance. Motorcycle manufacturers now build about half the modern street motorcycles with partial or complete bodywork featuring graphics which may be more visible to oncoming traffic. Full-time headlights have been a regulatory feature of motorcycles since the late 1970s, and variable-intensity, or modulating, headlamps have been allowed by federal statute since 1986. Neither of these features are supported by contemporary research. "Sportbikes" (racetrack inspired machines with power and brakes to match) and "Dual-Sport" motorcycles (which are street and off-road legal) have entered the market and show continuous popularity. Are these new classes of machines overrepresented in morbidity or mortality data?

Some popular motorcycles have linked front and rear brakes: are these better for beginners who, as the USC study showed, tend to overuse the rear brake? New brake technology in the form of anti-lock brakes should also be examined.

Motorcycle helmets, an integral part of motorcycle operation, have evolved into space-age, lightweight, highly visible pieces of personal protection. Even so, test standards for helmets are all but identical now to those of years ago. Are helmets of today better helmets and should test standards be examined anew?

Demographic Changes in the User Market

As the baby boom generation ages, the average motorcycle buyer is in his, or her, mid-30s today; not 25 or 26 years old as was the case during the USC study. As such, incentive-based safety programs must be carefully examined to see what appeals to older motorcyclists. Indeed, the growth of racetrack-oriented training programs in the 1980s has opened new avenues to reach older riders who seek to renew rusty or unused skills. Are these new training programs more effective in reducing accidents than other more traditional motorcycle training programs?

The Motorcycle Safety Foundation, a private, industry-funded advocate of improved motorcycle safety, estimates that over a million men and women have experienced hands-on training since the mid-1970s. Indeed, the very image of "rider training" has both emerged and changed radically since the mid-1970s. Despite statistics which now show four in ten fatal crashes involve an unlicensed operator, motorcyclists are still reluctant to undergo licensing tests, and filling even free training courses is difficult in some places. How do changes in the rider profile affect the overall relationship between training, licensure, and accidents?

Alcohol is involved in close to half the fatal crashes, but programs targeted at motorcyclists' use of alcohol didn't exist at the time of the USC research. At least two private or federally- supported programs now exist. Do they work? How could they work even better?

Market Changes Also Suggest Researchable Shifts

Motorcycles of the 1990s have larger engine displacements and often have very specific uses compared to the mid 1970s. Large, heavy touring machines are now easily capable of coast-to-coast operation. Sales of highly customized "cruiser bikes" appealing to short-distance riders seem to be increasing. Sportbike riders often wear fabulously colorful leatherwear and helmets. An entirely new market for street-legal bikes capable of extended off-road use (dual-sport machines) has added a dimension of family recreation to the vehicle mix. Do these groups have different incidence rates from which to draw inferences for program direction?

Regulatory Changes Require a Careful Look

The motorcycle user has been the subject of a great deal of regulatory activity in the past fifteen or so years. Much of this regulatory activity is related to helmets and mandatory helmet laws. The Committee decided against proposing a study of the efficacy of helmet use laws partly because this issue has been under study by NHTSA for some time and partly because it was judged unlikely that research findings would have a sweeping regulatory effect.

Instead, there are opportunities to study the cost-effectiveness of more pragmatic issues, particularly rider training initiatives, which have had mixed reviews. Requirements for "tougher" or novel operator licensing (such as stratified licensing which limits novices to smaller and less powerful motorcycles) offer another promising research topic.

When it became clear in the late 1970s that the federal government would not continue to fund training initiatives, user groups and industry officials developed self-supporting, dedicated-funding initiatives which were designed to support motorcycle safety into the foreseeable future. Yet these pools of money have recently been the target of budget balancing legislative initiatives. Cost-benefit research focusing on rider training and licensing legislation would demonstrate or deny the utility of this kind of legislation. Recent federal legislation requires high occupancy lanes be opened to motorcycle users, but there is little research to defend or deny this decision.

Finally, and by no means exhaustively, the Committee recognizes that changes in the motorcycle market itself have resulted in changes in the regulatory climate. The introduction of so-called Sportbikes and All-Terrain-Vehicles brought about enough regulatory interest to alert motorcycle dealers to the fact that they might share some liability for selling a motorcycle or ATV to an unqualified operator. Has the liability climate had an effect on motorcycle safety?

Summary

Over a period of two years, the Committee reviewed the questions posed above, and reduced the number of possible researchable proposals to ten. Then, by ballot, the Committee prioritized the proposals to reflect the order in which they should be implemented.

Two additional proposals dealing with helmet testing standards and fake helmet use were added following prioritization. In spite of the lack of a formal priority ranking for these two problem statements, the Committee agreed that these statements merited close consideration.

The Motorcycle and Moped Committee offers this document to the research community in hopes of stimulating studies which will make motorcycling safer and more enjoyable for the user, and make safety programs more defensible and cost-effective for federal, state and local transportation officials.

Gary L. Winn, Ph.D.
Chairman
Motorcycle and Moped Committee

Acknowledgments

The Chairman of the Motorcycle and Moped Committee wishes to acknowledge and thank the people who labored over two years to produce this important document. The group includes both committee members and committee "friends". David Taylor, Committee Secretary, and John Billheimer, Incoming Committee Chairman, have worked with the Chairman to produce the bulk of early-draft problem statements.

David Thom headed a subcommittee that produced the complex problem statements dealing with helmet standards and substandard helmets. Subcommittee members Rob Smith and Marcus Wigan assisted in developing these statements.

Finally, the experience and counsel of Jim McKnight and Jim Bensberg have improved the various versions of these problem statements and clarified the thought processes in their preparation. Rick Pain, Transportation Coordinator at TRB, has answered every question and safely fulfilled every expectation as he coordinated production. All Committee members contributed to the final review and revision of the product.

RESEARCH PROBLEM STATEMENTS

PROBLEM STATEMENT 1: ACCIDENT INCIDENCE AMONG LICENSED AND UNLICENSED RIDERS

Over 40% of the motorcyclists killed in traffic crashes each year are not properly licensed to operate a motorcycle. This includes riders whose licenses have been suspended or revoked, rank novices with no experience, and experienced riders who have never bothered to obtain a license or endorsement. It is suspected that unlicensed riders are over-represented in the fatality rate and that license status may affect risk of crash involvement. This cannot be known without a better understanding of the relative size and exposure of the populations involved.

Objective

Document the relative incidence of accidents of varying severity among licensed riders, riders whose licenses have been suspended or revoked, riders with expired licenses, and riders who have never had a license.

Key Words

Motorcycle licensing; motorcycle accidents; permits; license suspension and revocation; license expiration.

Related Work

Kraus, "Motorcycle License, Ownership, and Injury Crash Involvement," Insurance Institute for Highway Safety, 1970, Spurgeon.

Urgency/Priority

High. Population size must be documented first before any analysis of accident rates can be made. However, the high incidence of unlicensed riders (40% nationwide) among fatally injured riders suggests the problem is serious.

Costs

$200,000.

User Community

Motorcycle safety program administrators; legislators; motor vehicle department personnel; enforcement agencies; researchers; state and local traffic safety personnel.

Implementation

Better targeting of safety measures; improved education programs and licensing laws and procedures.

Effectiveness

Identification and targeting of high-risk riders; possible lowering of accident rate.

Priority

One of ten

PROBLEM STATEMENT 2: UNLICENSED MOTORCYCLISTS: INCIDENCE AND CAUSES

Because operating a motorcycle requires different skills than driving a car, all but one state require that motorcyclists obtain a motorcycle license endorsement. There is a low level of compliance with these requirements nationwide (NHTSA Fatal Accident Reporting System shows over 40% are not properly licensed). Unlicensed riders are probably over-represented in the fatality rate, but the total number of unlicensed riders is unknown. Motorcyclists without valid licenses are circumventing the tests requiring them to demonstrate minimum levels of skill and knowledge. Exposure data collection is part of this project.

Objective

Document the size of the unlicensed riding population in each state and relate this to state license practices, permit requirements, and sanctions.

Key Words

Motorcycle licensing, motorcycle accidents, learner permits, training; testing.

Related Work

Kraus, "Motorcycle License, Ownership, and Injury Crash Involvement," Insurance Institute for Highway Safety, 1970.

Urgency/Priority

Very high. The high and possibly overrepresented incidence of unlicensed riders (40% nationwide) among fatally injured riders suggests the problem has serious safety implications.

Costs

$200,000.

User Community

Motorcycle licensing agency personnel, motorcycle safety program administrators, legislators, enforcement agencies, researchers, state and local traffic safety personnel.

Implementation

Improved licensing education programs and licensing laws and procedures.

Effectiveness

Increased incidence of licensing among motorcyclists, possible lowering of motorcycle accident/fatality rate.

Priority

Two of ten

PROBLEM STATEMENT 3: EVALUATE EFFECTIVENESS OF TRAINING PROGRAMS

Over forty states have statewide motorcycle training programs, typically funded through motorcycle license or registration fees. Past attempts to assess the effectiveness of this training have shown mixed results; because of small sample sizes, mismatched control groups, etc. Recent research suggests that quantitative differences can be detected in the accident experience of the two groups.

Objective

To analyze the incidence of accidents and violations among matched trained and untrained riders to evaluate the impact of rider training.

Key Words

Motorcycle accidents, motorcyclist training, cohort analysis, motorcycle accidents.

Related Work

McDavid, et al. "Does Motorcycle Training Reduce Accidents?" Journal of Safety Research, 1989; McKnight, "Evaluation of the Pennsylvania Motorcycle Safety Program, 1987; Billheimer, Evaluation of the California Motorcyclist Safety Program 1991.

Urgency/Priority

High. Evidence documenting effectiveness of training could lead to expanded training programs, increased use of training as a mandatory licensing requirement, and lower accident rates.

Costs

$250,000.

User Community

State motorcycle safety administrators, riding instructors, legislators, researchers, national and local safety agencies.

Implementation

Guidelines for effective education programs, legislation establishing training programs and mandating training as a condition for licensing.

Effectiveness

Increased acceptance of training, greater numbers of training course graduates, possible lower accident rates.

Priority

Three of ten

PROBLEM STATEMENT 4: DRINKING AND RIDING PATTERNS OF MOTORCYCLISTS

Although the involvement of alcohol as a factor in motorcycle fatalities has declined over the last decade in both the U.S. and Canada, over half the fatally injured

riders in both of these countries still show some traces of alcohol in their blood. Recent Canadian research suggests that drinking motorcyclists have a higher relative risk of fatal collisions than automobile drivers, particularly at high BACs. Little is known of the drinking habits of motorcyclists and the incidence of alcohol involvement in injury and property damage accidents.

Objective

Document the drinking and riding patterns of motorcyclists through roadside surveys and assemble objective data on the BACs of motorcyclists involved in accidents of different injury severity.

Key Words

Alcohol involvement, BAC, motorcycle accidents.

Related Work

Maylaw and Simpson, Alcohol as a Risk Factor in Motorcycle Collisions, Proceedings of the 1990 International Motorcycle Safety Conference, Orlando, FL, November, 1990.

Urgency/Priority

Medium. Alcohol is involved in over half of the motorcycle fatalities in North America, but huge efforts attempting to change this fact have resulted in only small effect on this behavior.

Costs

$175,000.

User community

State and local traffic safety experts, motorcycle safety program administrators, legislators, enforcement agencies.

Implementation

Countermeasures, including legislation, enforcement, education, treatment and rehabilitation can be better targeted.

Effectiveness

Reduced incidence of alcohol as a contributing cause in motorcycle accidents; possible lowering of motorcycle accident rates.

Priority

Four of ten

PROBLEM STATEMENT 5: IMPROVED MOTORCYCLE BRAKING SYSTEMS

Research has shown that many motorcyclists involved in accidents often fail to use the full braking capability of their motorcycles. Fear of locking up the front wheels and capsizing is believed to be one reason that some motorcyclists tend not to use their front brakes, even in emergencies. New technologies have made anti-lock brakes and integrated braking systems available on some motorcycles, but their performance and related operational trade-offs are neither well understood nor widely accepted.

Objective

Compare the response and performance of various existing and potential integrated and other braking systems with that of conventional dual braking systems or anti-lock for a range of operators under various conditions including braking in a turn, adverse roadway conditions, etc..

Key Words

Anti-lock brakes; integrated brakes; dual brakes; stopping distance, rider experience.

Related Work

Mortimer, R, "Evaluation of the Motorcycle Rider Course," Accident Analysis and Prevention, 1984.

Urgency/Priority

Medium. Many motorcyclists do not possess the level of skill needed to achieve high level braking performance in emergency situations. Integrated braking systems may allow novice and less experienced riders to achieve substantially improved braking performances, under some conditions.

Costs

$100,000.

User Community

Motorcycle designers, motorcycle dealers, motorcyclists, researchers.

Implementation

Increased technical knowledge and understanding; possible performance standards; reports and consumer guidelines, expanded availability of integrated braking systems.

Effectiveness

Widespread availability and use of integrated braking systems could improve emergency stopping capability of novice and less experienced riders and lower accident rates.

Priority

Five of ten

PROBLEM STATEMENT 6: RELATIVE EFFECTIVENESS OF MOTORCYCLE CONSPICUITY MEASURES IN TRAFFIC

A variety of aids to conspicuity have been proposed including reflective helmets, dipped or modulating headlamps, daytime running lights, and fluorescent jackets. Off-road evaluation, static displays and computer simulations have provided insights into their relative effectiveness but road testing of conspicuity measures in traffic is desireable if effective measures are to be found to increase drivers' awareness of motorcyclists.

Objective

To test a variety of conspicuity measures to operator and to machines in order to determine their relative effectiveness under actual driving conditions.

Key Words

Conspicuity, daytime running lights, fluorescent helmets, reflective jackets, modulated headlights.

Related Work

Wulf, Hancock, and Rabini, "Motorcycle Conspicuity: An Evaluation and Synthesis of Influential Factors," Journal of Safety Research, December 1987; Olson, Motorcycle Conspicuity Restricted, "Human Factors, April, 1989; Donne, G.L., Research into Motorcycle Conspicuity and Its Implementation, SAE Technical Paper Series, 1990; Winn, G.L., "Two Important Trends in Motorcycle Safety Regulations: Rider Education and Conspicuity Improvements, SAE, 1987.

Urgency/Priority

Medium. Automobiles interfering with the right-of-way of motorcyclists is the chief cause of multi-vehicle motorcycle accidents.

Costs

$125,000.

User Community

Motorcycle designers, motorcyclists, legislators.

Implementation

Guidelines for motorcyclists, possible legislation, possible design specifications.

Effectiveness

Potential improvement in conspicuity, possible lowering of traffic accidents.

Priority

Six of ten

PROBLEM STATEMENT 7: STATISTICAL PROFILE OF THE U.S. MOTORCYCLIST

U.S. motorcyclists vary dramatically in age, operating patterns and experience, and the span of time they ride motorcycles. Some experiment as teenagers and never get licenses, some ride as students and quit in their early twenties, some ride for a lifetime. Good accident exposure rates require knowledge of who is riding, how much they ride, and how long they continue to ride.

Objective

To develop a statistical profile of U.S. motorcycle operators that documents their age, experience, riding habits, accident history, annual mileage, license status, and duration of riding.

Key Words

Motorcyclist demographics, motorcycle license, motorcycle accidents, vehicle miles traveled.

Related Work

Surveys undertaken by the Motorcycle Industry Council every five years.

Urgency/Priority

Low. Knowledge of individual and regional motorcycle operating differences would be useful for interpreting accident statistics and licensing data and for planning training and public information programs.

Costs

$175,000.

User Community

NHTSA, state safety program administrators, licensing agencies, researchers, consultants.

Implementation

Motorcyclist demographic data.

Effectiveness

Improved measures of effectiveness for nationwide studies of accidents, licensing, etc.

Priority

Seven of ten

PROBLEM STATEMENT 8: IDENTIFICATION AND MITIGATION OF HAZARDS TO MOTORCYCLISTS IN THE ROAD ENVIRONMENT

The road environment itself is often overlooked as a motorcycle hazard. For example, accident analyses in other countries suggest that rider collisions with guardrails account for a disproportionate number of fatalities on urban freeways. Research is needed to compare the characteristics of motorcycle accident sites vis a vis auto accident sites, identify hazards in the road environment, and propose cost-effective hazard mitigation techniques.

Objective

Compare the characteristics of motorcycle and auto accident sites, identify motorcycle hazards in the road environment, and explore techniques for mitigating these hazards.

Key Words

Guardrails, potholes, berm, railroad tracks, gratings, motorcycle accidents.

Related Work

Anderson, R.W., "Motorcyclists: Ignored by Road Researchers and Designers" Trans Safety Reporter, 1989; Dornhan, M., "Guardrails and Passive Safety for Motorcyclists," Society of Automotive Engineers, 1987; Quincy R., et al., "Motorcycle Impacts with Guardrails," Transportation Research Circular N341, 1988.

Urgency/Priority

Low. Several aspects of the road environment (e.g. unprotected guardrails) represent hazards for motorcycle operators in the event of accidents. Identification and mitigation of these hazards could reduce accident frequencies and save lives.

Costs

$150,000.

User Community

State and local traffic engineers, safety program administrators, state motor vehicle department.

Implementation

Hazard mitigation (e.g. guardrail protection) at specific accident sites, warning language in licensing manuals. Incorporate findings into motorcycle training curricula.

Effectiveness

Possible lowering of motorcycle fatalities/injuries

Priority

Eight of ten

PROBLEM STATEMENT 9: EVALUATION OF MOTORCYCLIST INFORMATION CAMPAIGNS

Many public information campaigns are undertaken annually on a statewide or nationwide basis to convince motorcyclists to take training, ride sober, use protective equipment, obtain a motorcycle license, or take other safety precautions. Little if any attempt is made to evaluate whether these campaigns reach their desired audience, are understood, and induce the desired behavioral changes.

Objective

Document the effectiveness of motorcyclist information campaigns in reaching their intended target, and effecting desirable changes in the behavior of motorcyclists.

Key Words

Motorcyclist information.

Related Work

Simpson & Mayhem, "The Promotion of Motorcycle Safety: Training, Education and Awareness," Health Education Research, 1990; Sauer, Billheimer, "Evaluation of the California Motorcyclist Safety Program," 1991.

Urgency/Priority

Low. There is a need to document the effectiveness of motorcyclist awareness campaigns so that promising channels of communication can be pursued in other jurisdictions and successful campaigns can be expanded to other audiences.

Costs

$100,000.

User Community

State motorcycle safety administrators, national and local safety agencies, researchers, consultants.

Implementation

Guidelines for more effective motorcyclist information programs, expanded use of tasks approaches and communications channels.

Effectiveness

Greater motorcyclist awareness of safety issues.

Priority

Nine of ten

PROBLEM STATEMENT 10: COMPARISON OF MOTORCYCLE AND AUTOMOBILE CRASH CAUSES

Left-turning automobiles which violate the right-of-way of motorcyclists account for a large number of motorcycle accidents. The common post-crash complaint of the auto driver, "I didn't see him coming," has been cited as support for research into motorcycle conspicuity. However, left-turning autos also violate the right-of-way of other autos, leading to similar complaints

and excuses. Research comparing accident causes in car-car and car-motorcycle collisions is needed.

Objective

Extend conspicuity investigations to car-car crashes to isolate the incidence of "failure to see" as an accident cause and probe the similarities and differences with car-motorcycle crashes.

Key Words

Accident causes, left-turning; conspicuity, distance estimation.

Related Work

Accident causation studies of Hurt, et al (1981) and Williams and Hoffman (1977); study of conspicuity issues by Olson (1989).

Urgency/Priority

Low. Comparison of distance estimation and crash causes between cars and motorcycles will shed light on important issue of conspicuity and perhaps suggest useful safety measures.

Costs

$175,000.

User Community

Motorcycle designers, researchers, traffic engineers.

Implementation

Understanding of the similarities and differences between car-car and car-motorcycle crashes will illuminate conspicuity questions, suggest avenues for accident prevention.

Effectiveness

Potential improvements in motorcycle conspicuity and safety.

Priority

Ten of ten

PROBLEM STATEMENT 11: MOTORCYCLE HELMET IMPACTS

Current helmet standards (specifically DOT and Snell) conflict in the velocity, g-force limits, and dwell time of impacts during testing. Very little is known about the nature of head impacts that occur in motorcycle accidents. Helmets meeting standards that require them to protect the head from high velocity impacts are designed so that more harmful force is transmitted to the head in lower velocity impacts. Very little is also known about the frequency and intensity of impacts on different locations of helmets in accidents, calling the specifications of testing area into question.

Objective

To document the frequency, severity and duration of impacts to the head of motorcyclists in accidents, allowing current standards to be revised to specify testing procedures that will improve helmet design effectiveness in accidents.

Key Words

Helmets, motorcycle accidents, helmet standards.

Related Work

Thom and Hurt, "Conflicts of Contemporary Motorcycle Safety Helmet Standards", Proceedings of 1990 International Motorcycle Safety Conference.

Urgency/Priority

Many questions regarding how helmet design and testing can produce a device that is most effective in reducing head and neck injuries must go unanswered in a national climate of increased helmet use due to current federal incentives and penalties for state mandatory helmet use laws.

Costs

$100,000.

User Community

DOT/NHTSA, legislators, helmet manufacturers, motorcyclists, motorcycle safety researchers.

Implementation

Improved helmet standards

Effectiveness

Possible lowering of motorcycle accident head and/or neck injuries, and fatalities.

Priority

None

PROBLEM STATEMENT 12: USE, ACCIDENT INVOLVEMENT AND ACCIDENT PERFORMANCE OF NONCOMPLIANT MOTORCYCLE HELMETS

In states with mandatory helmet use laws, some manufacturers make and sell noncompliant (fake) helmets that can be used to circumvent the mandatory helmet use law. Many of these helmets are labeled as novelty items, yet are used by motorcyclists in traffic. While laboratory tests have shown such fake helmets fail the test criteria of Federal Motor Vehicle Safety Standard (FMVSS) 218, the impact of these helmets on injuries and deaths is unkown.

Objective

Determination of the incidence and effect of these noncompliant helmets in all states, or mandatory use law states.

Key Words

Motorcycle helmet, FMVSS 218, DOT/NHTSA.

Related Work

FMVSS 218 compliance testing by the Office of Vehicle Safety Compliance, DOT/NHTSA. Helmet use surveys funded by NHTSA.

Urgency

High. The use of fake helmets may result in increased motorcycle fatalities and underestimation of helmet law effectiveness.

Cost

$200,000

User Community

DOT/NHTSA, CDC, and other public health agencies.

Implementation

Investigate motorcycle accident data and medical information in mandatory helmet use states with scientific examination of accident-involved helmets to determine both helmet accident performance and its relationship to compliance or noncompliance with FMVSS 218.

Effectiveness

This data collection would allow quantification of any increased injuries or fatalities where non-compliant helmets are used to circumvent mandatory helmet use laws.

Priority

Unrated.