



A Guide for Enhancing Rural Emergency Medical Services

NCHRP Report 500-15

One of a Series of Guides to Help States Improve Highway Safety

Improved EMS Delivery can Reduce Fatalities on Rural Roads

The Problem

About 80 percent of the nation's roads are in rural areas, but only 40 percent of vehicle miles traveled are on rural roads and only 21 percent of the population lives in rural areas. So it may surprise some people that a disproportionate number of severe crashes and fatalities—58 percent of all traffic fatalities—occur in rural areas. The toll is significant. In 2004 crashes in rural areas claimed 24,975 lives.

These crashes present special challenges for Emergency Medical Services providers. Compared with urban areas, a greater percentage of rural crashes result in multiple fatalities (11 percent), 25 percent are head-on crashes and 24 percent are rollovers with 17 percent involving people ejected.

Response times are typically longer, and many EMS tasks fall on volunteers, who provide up to three-quarters of the EMS services in rural areas. Volunteers often lack adequate financial resources, must use aging or inadequate equipment, lack training opportunities close to home, and have difficulty in maintaining skills due to low call volumes. Many operate in areas with gaps in telecommunications, lack proper medical direction, must perform in the absence of local medical facilities, and do not have access to regionalized systems of specialized EMS care.

Absent adequate funds and resources, system managers need to look at alternative solutions to achieve improved outcomes. This guide focuses on achievable alternatives, focusing on two fundamental issues: minimizing response times for personnel and equipment to treat crash victims, and improving the medical care afforded victims.



Objectives and Representative Strategies

- ✓ **Integrate services to enhance EMS capabilities.**
 - Facilitate development of regional resources.
 - Integrate support of EMS into rural hospital financing programs.
 - Require all communications systems to be interoperable with surrounding and state jurisdictions.
- ✓ **Provide and/or improve management and decision-making tools.**
 - Develop resource and performance standards unique to the specific rural EMS.
 - Identify and evaluate model rural EMS operations.
 - Provide evaluation results to elected and administrative officials.

✓ **Provide better education opportunities for rural EMS.**

- Utilize technology-based instruction
- Require first care training for all public safety emergency response personnel, including law enforcement officers.
- Provide EMS training in high schools in rural areas.

✓ **Reduce time from injury to appropriate definitive care.**

- Improve cellular telephone coverage in rural areas.
- Improve compliance of rural 9-1-1 centers with FCC wireless “phase II” automatic location capability.
- Utilize GPS technology to improve response time.

✓ **Related strategies:** Public information programs, better enforcement of traffic laws, improving safety management systems, and strategies detailed in other emphasis area guides.

How the Implementation Guide Helps You

The guide lists practical countermeasure strategies categorized by relative cost to implement. Many of these strategies have been formally evaluated to demonstrate effectiveness. Others lack formal evaluation, but have been implemented with promising results.

The guide lays out the technical attributes of each countermeasure strategy in detail: target audience, expected effectiveness, keys to success, potential difficulties, appropriate measures and data, and associated need for support services.



The guide discusses organizational, institutional, and policy issues; issues affecting implementation time; costs involved; training and other personnel needs; and legislative needs (if any).

Web-Based Support for More Information

Backing up the guide is a series of appendixes and exhibits that provide in-depth information useful to anyone implementing this part of the Strategic Highway Safety Plan, together with a collection of documents providing background, data, and information of significant value to state and local implementers.

This guide is one in a series developed to assist states in their efforts to improve highway safety. Copies of the plan, the guides, the Integrated Safety Management System, the Self-Assessment Tool, and related documents, may be obtained on the Internet at safety.transportation.org.



Printed copies of the guides and the Integrated Safety Management Process can be obtained from:

Transportation Research Board

National Cooperative Highway Research Program
500 Fifth St., NW
Washington, DC 20001-2721

Telephone: 202-334-3213

Implementing the AASHTO Strategic Highway Safety Plan