# QUALITY THROUGH COLLABORATION:

## THE FUTURE OF RURAL & FRONTIER EMERGENCY MEDICAL SERVICES IN THE U.S. HEALTH SYSTEM



U.S. Department of Health and Human Services
Health Resources and Services Administration (HRSA)
Office of Rural Health Policy (ORHP)

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# Foreword

The events of 9/11 and the hurricane season of 2005 brought the need for improved emergency capabilities and responses to the forefront of the American public and its policy makers. Emergency Medical Services, or the prehospital phase of the broader emergency care system, represents a key component of a well-planned response to large scale emergencies. The same can be said for the thousands of calls for medical assistance each and every day.

Rural areas are not exempt from the need for EMS. In fact, in many regards the need is greater. Injury rates are higher in rural areas of America. Travel distances to acute care facilities are longer. The resources and capacities to treat complex illnesses or traumatic emergencies may not be available in rural and frontier communities, resulting in secondary transfers to distant tertiary care facilities.

Recognizing the critical nature of EMS, several agencies, organizations, and institutions have addressed the issue at the Federal level. Beginning in 2004, seven important documents have emerged that address rural EMS in some fashion. The Institute of Medicine has been responsible for the publication of four of these documents. The first was released late in 2004 and is titled *Quality Through Collaboration: The Future of Rural Health*, the latter three volumes were released early in 2006 as specific subcomponents of the future of emergency care series and are titled *Hospital-Based Emergency Care: At the Breaking Point, Emergency Medical Services: At the Crossroads* and *Pediatric Emergency Care: Growing Pains.*

The *Rural and Frontier EMS Agenda for the Future* was released in 2005. The National Rural Health Association (NRHA), the National Organization of State Offices of Rural Health (NOSORH), and the National Association of State EMS Officials developed the document with input from rural EMS providers across the country. The *Rural Hospital Flexibility Program Strategic Plan*, again issued in 2005, developed by the Technical Assistance and Service Center and program grantees, addressed several EMS related themes. Last, but not least, the HRSA Trauma and EMS Program published the *Model Trauma System Planning and Evaluation Guide* in 2005.

Each of these documents is a landmark in its own right. However, for policy makers at the Federal, State, and local levels, the plethora of guiding documents can seem daunting, at best. The purpose of this document is to create a translation between and among the various guiding documents. In doing so, consistent themes emerge from the various works, strengthening the rationale and need to address key issues. The Office of Rural Health Policy has used *Quality through Collaboration: the Future of Rural Health* as a touchstone since its publication and administration approval. The document you are currently reading supports the findings and recommendations contained in *Quality Through Collaboration* by cross-referencing them to the other documents. In doing so, a clear picture of needs and priorities achieved by consensus emerges across several different expert panels and processes. We hope that you will also find it useful.

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## INTEGRATING RURAL EMS INTO THE HEALTH CARE QUALITY DEBATE

Improving the quality of health care services has become a key focus of the health care industry, State and Federal government payors, commercial insurers, employers, and increasingly, patients and the general public. Federal agencies such as the Centers for Medicare and Medicaid Services (CMS) are exploring ways to reimburse health care providers for delivering effective, high quality services (a strategy usually referred to as "pay for performance.") Employer coalitions such as the Leapfrog Group are looking for ways to reduce medical errors, encourage public reporting of clinical outcomes, and reward doctors and hospitals for improving quality and safety. Provider coalitions such as the Hospital Quality Alliance (HQA), a joint effort of the American Hospital Association, the Federation of American Hospitals, and the Association of American Medical Colleges (along with CMS and the Joint Commission on the Accreditation of Healthcare Organizations), are urging hospitals to permit an array of clinical quality measures to be reported publicly on the CMS-run Hospital Compare website (www.hospitalcompare.hhs.gov).

### What about rural?

Large areas of the United States (particularly rural and frontier areas) continue to lack consistent access to these services.

Unfortunately, rural health care has been only peripherally involved in these discussions. Rural health care leaders and advocates, however, are keenly interested in integrating rural issues into the quality debate. With the November 2004 publication of *Quality through Collaboration: The Future of Rural Health*, the Institute of Medicine's Committee on the Future of Rural Health Care charted an agenda for rural communities to fulfill the six aims set forth in the Institute of Medicine's 2001 report *Crossing the Quality Chasm: A New Health System for the 21st Century* to make health care safe, effective, patient-centered, timely, efficient, and equitable. The Institute of Medicine (IOM) committee on the Future of Rural Health Care proposed a five-pronged strategy to address the quality challenges in rural communities:

Strategy 1: Adopt an integrated, priority approach to addressing both personal and population health needs at the community level.

Strategy 2: Establish a stronger quality improvement support structure to rural health systems and professionals in acquiring knowledge and tools to improve quality.

Strategy 3: Enhance the human resource capacity of rural communities, including the education, training, and deployment of health care professionals, and the preparedness of rural residents to engage actively in improving their health and health care.

Strategy 4: Monitor rural health care systems to ensure that they are financially stable and provide assistance in securing the necessary capital for system redesign.

Strategy 5: Invest in building an information and communication technology (ICT) infrastructure, which has enormous potential to enhance health and health care over the coming decade.

The Institute of Medicine believes that adoption and implementation of this multi-faceted strategy is necessary to enhance quality, to build focused rural community health *systems*, and to bring rural providers fully into the national debate on improving health care quality, safety, and performance.

**So where does EMS fit in the "Quality Agenda?"**

In its 2004 report, the Committee on the Future of Rural Health explicitly recognized EMS as part of the *core set* of health care services that are of greatest need in rural areas, while also noting concerns regarding insufficient access to EMS because of constraints caused by long-standing shortages of qualified EMS professionals in many rural areas. They also recognized the importance of EMS in ensuring timely care in emergency situations, and the unique aspects of rural EMS due to long distances to definitive care. The committee further noted that because rural care processes are different from those in urban areas, the data that are necessary for quality improvement purposes are different. They pointed out that data on emergency care, stabilization and transfer services are of great importance in rural areas, and EMS involvement in quality improvement efforts is, therefore, critical.

As noted in the Foreword, this paper was created with the purpose of serving as a companion document to *Quality Through Collaboration*. The focus is to encourage policy makers, health care providers, and most importantly, EMS officials and providers, to recognize the importance of including rural and frontier EMS in the national discussion about health care quality. It is meant to promote discussion regarding specific ways that rural and frontier Emergency Medical Services (EMS) providers can engage in the rural health care quality movement.

Specifically, the objectives of the paper are to:

1) Provide recommendations on building the best possible emergency care "system" in rural America. These recommendations will be presented in a framework based on the five strategies outlined in *Quality Through Collaboration*, but other recent studies and reports will also be examined in detail. Improving the quality of emergency care has been an important (and in some cases primary) focus of other influential publications in recent years including the *Rural Hospital Flexibility Program Strategic Plan*, the *Rural and Frontier EMS Agenda for the Future, The HRSA Model Trauma System Planning and Evaluation* and the IOM *Future of Emergency Care* series (which includes *Hospital-Based Emergency Care: at the Breaking Point, Emergency Medical Services at the Crossroads*, and *Emergency Care for Children: Growing Pains*).

2) Propose new opportunities for collaboration to further rural EMS quality of care among key stakeholders in rural EMS including the National Association of State EMS Officials; the National Organization of State Offices of Rural Health, the National Rural Health Association and other rural health advocates; EMS collaboratives such as the North Central EMS Institute, Critical Illness and Trauma Foundation, rural health resource and technical assistance centers including the Rural Emergency Medical Services and Trauma Technical Assistance Center, Federally-funded rural health research centers, and Federal agencies including the Office of Rural Health Policy, NTHSA, CMS and others.

**Organization of This Document**

The five priority strategies in *Quality Through Collaboration* will be addressed in turn. In each section, following a discussion of the IOM rural quality report, recommendations from other key policy reports that related to the IOM recommendations will be listed. Each bullet is followed by parentheses to show the source of the recommendation (FSP = *FLEX Program Strategic Plan*, RFEMS = *Rural and Frontier EMS Agenda for the Future*; MTSPE = *Model Trauma System Planning and Evaluation*, IOM-FEC = IOM *Future of Emergency Care* series). A brief description of each of these documents is presented in Appendix A.

Particular attention will be given to key themes that are shared in common among the reports mentioned above. By bringing attention to key consistent themes in these recent reports, the authors hope to create an active dialogue across the traditional "silos" of rural health and Emergency Medical Services, which could lead to the development of a well-funded, broad-based model rural EMS system that would help ensure access to high quality emergency care in America's rural and frontier areas.

## QUALITY THROUGH COLLABORATION: PRIORITY STRATEGIES

### Strategy I: An Integrated Approach to Improving Health

The first strategy proposed by the IOM Committee on the Future of Rural Health was to formulate an integrated approach to addressing the personal health care and population health needs of rural communities. The report provides a broad range of actions that could be adopted at both the personal health care system level and the community level to improve health status. They suggested an integrated framework that would lead to a more optimal allocation of scarce financial resources devoted to improving the quality of health in rural communities.

One specific point of discussion in *Quality Through Collaboration* in this discussion related to EMS was:

> *Timely access to emergency care is a primary concern for rural citizens. The IOM committee recognizes timely care means something different in rural and urban areas, and in rural communities', emergency care is the primary concern in regard to timely care.*

The report points out that residents who are far from a source of definitive care depend on EMS to ensure that they receive timely access to care. This means EMS must : 1) be adequately equipped to care for patients who may have long travel distances before reaching a hospital; 2) be able to communicate with Emergency Department (ED) physicians and specialists to ensure appropriate, timely medical direction, and 3) be able to transport patients as quickly and as safely as possible. The key role EMS plays in ensuring timely access to care also is reflected in numerous recommendations of the *Flex Program Strategic Plan*, *Rural and Frontier EMS Agenda for the Future*, the *Model Trauma System Planning and Evaluation*, and the *Future of Emergency Care* series.

These recommendations include:

- Promote integration of rural EMS operations into local networks and other activities designed to strengthen rural EMS. [FSP]
- Plan, integrate and regulate, at the State level, aero-medical, critical care transport, and other statewide or region-wide systems of specialty care and transportation. Consider the evolving role of telehealth resources and their application to EMS patient management and medical oversight. …. [RFEMS, Clinical Care & Transportation Decisions/Resources Chapter]
- Facilitate a State-level process, guided by an appropriate multi-disciplinary committee, to ensure inclusive systems of trauma care and other time critical emergency care that define the roles of rural and frontier hospitals…. [RFEMS, Clinical Care & Transportation Decisions/Resources Chapter]

- The emergency care system of the future should be one in which all participants (from 9-1-1 to ambulances to EDs) fully coordinate their activities and integrate communications to ensure seamless emergency and trauma services for the patient. [IOM-FEC]

- The Federal government should support the development of national standards for emergency care performance measurement; categorization of all emergency care facilities; and protocols for the treatment, triage, and transport of prehospital patients. [IOM-FEC]

In addition, the IOM *Quality Through Collaboration* report notes the high death rate of unintentional injury in rural areas, an issue of specific interest to EMS:

> *There are salient differences between rural and urban communities in terms of health behaviors and environmental threats that must be addressed to improve community health. One threat to health highlighted in the IOM report is the age-adjusted death rate for unintentional injury that is much higher in both males and females in rural areas than in urban environments.*

Addressing the issue of unintentional injury is a natural fit for rural EMS providers. EMS is a critical part of the trauma system that addresses the continuum of care: from prevention to treatment to rehabilitation for unintentional injuries. In rural areas, reducing rates of unintentional injuries will have a marked impact on community health status. Reducing rates of unintentional injury is one of the key objectives derived from *Healthy People 2010*, a document based on a broad consultation process, built on the best scientific knowledge, and designed to measure programs over time. Unintentional injury is one of ten leading health indicators in *Healthy People 2010*, and the leading causes of unintentional injury, motor vehicle crashes and homicides, are often predictable and preventable. By becoming engaged in prevention of unintentional injury, rural EMS can have a considerable impact on local communities.

Related recommendations *from other policy documents include:*

- Make prevention one of the EMS-based community health service roles of adequately staffed rural/frontier EMS provider agencies. [RFEMSA, Prevention Chapter]
- Among local, State, Federal, and national EMS and public health agencies (and other agencies with prevention roles), cooperatively develop and fund community health advocacy roles and prevention programs for rural/frontier EMS personnel that are mutually beneficial. [RFEMSA, Prevention Chapter]
- Federal agencies and national organizations with prevention roles should channel existing [injury prevention] programs through State EMS agencies to local EMS provider agencies. [RFEMSA, Prevention Chapter]

- Provider agency policy/procedures and innovative incentives, EMS curricula, and accreditation, and other standards target EMS provider health, safety and prevention. [RFEMSA, Prevention Chapter]
- The trauma system should contribute to reducing the entire burden of injury in a State, region, or community. Therefore, it should integrate all three phases of injury prevention into planning and practice. The trauma system should produce improved health status outcomes, such as reduced injury occurrence and better clinical outcomes for injured patients. [MTSPE, Three Phases of Injury Prevention Chapter]
- Emergency care is broader than EMS and encompasses the full continuum of services involved in emergency medical care, including EMS, hospital-based ED and trauma care, specialty care, bystander care, and injury prevention. [IOM – FEC EMS: *At the Crossroads*]

**Strategy II: Quality Improvement Activities in Rural Areas**

Chapter Two of *Quality Through Collaboration* emphasizes the unique needs of rural health care providers in developing infrastructure to support quality improvement activities. The chapter emphasizes the use of practice guidelines and protocols, computer-aided decision support, standardized performance measures, data feedback capabilities, and QI processes and resources. They particularly focused on systems quality improvement, which is critical for EMS since EMS is involved in all phases of rural care, including triage, stabilization and transfer, and is part of many "handoffs" during patient encounters. The Committee on the Future of Rural Health Care states:

> *An important role for rural providers is triage, stabilization and transfer of emergency cases. This process involves numerous "handoffs" that can negatively affect the timeliness of service delivery and provides an opportunity for miscommunication and medical errors. QI efforts need to focus on the continuum of care with special emphasis on these handoffs.*

However, for such a system to exist, much greater collaboration will be necessary among and between medical providers. True multidisciplinary workgroups must be employed to develop and implement, through consensus, protocols for emergency care services. Also, it must be recognized that in this new system, not all prehospital patient encounters will result in transfers. Thus, it is important that ambulance services be reimbursed for services rendered to patients who are not transferred to a hospital. As such, in addition to recommendations regarding QI systems, payment reform recommendations are also included in this section. It is also important for the Federal government to ensure that existing rules do not unnecessarily stifle discussions among health care providers formally working on quality improvement efforts. Rule changes should be implemented to enhance communication among providers *during* emergencies as well as during discussions about *quality improvement*.

Related recommendations *from recent publications that relate to this topic*:

- Require performance improvement programs (including clinical quality and patient safety) at the hospital and community levels… [FPSP]
- Emphasize optimal interdisciplinary care of the ill or injured patient, including complex event management such as cardiac arrest and multiple casualty incidents. [ RFEMSA, Education Systems Chapter]
- Link/integrate EMS data systems with other relevant health information systems at all levels such as public health surveillance, crash, medical examiner, hospital discharge, and emergency department…. [RFEMSA, Information Systems Chapter]
- Encourage multi-system data collection for specific research and performance improvement purposes. [RFEMSA, Information Systems Chapter]

- Fund the availability of training and toolkits to encourage effective local service/system quality improvement processes. [RFEMSA, Evaluation Chapter]
- Ensure a mechanism for the on-going support and review of the NHTSA "Guide to Performance Measures" and "Leadership Guide to Quality Improvement for Emergency Medical Services Systems," and encourage their use in services and systems. [RFEMSA, Evaluation Chapter]
- The Federal government should support the development of national standards for the following: emergency care performance measurement; categorization of all emergency care facilities; and protocols for the treatment, triage, and transport of prehospital patients. [IOM-FEC EMS: *At the Crossroads*]
- The lead agency should strive for inclusiveness (all-facility and EMS system participation) by developing the process improvement program statewide. This program should include facilities in the most remote areas of the State, for example, rural clinics and primary care centers in locations such as parks. [MTSPE, Application of the Core Functions of Public Health to Trauma Systems Chapter]
- Implement the following Federal reimbursement reforms for emergency and interfacility EMS clinical care and operations: call-components performed by first-response, ALS intercept, ambulance, and other EMS response agencies that should be eligible for reimbursement (not duplicated on any given call) should include emergency response, assessment, treatment, triage, and transportation or other disposition that may, or may not, involve traditional transportation. [RFEMSA, System Finance Chapter]
- The National Highway Traffic Safety Administration, in partnership with professional organizations, should convene a panel of individuals with multidisciplinary expertise to develop evidence-based model prehospital care protocols for the treatment, triage, and transport of patients. [IOM-FEC EMS: *At the Crossroads*]
- The Centers for Medicare and Medicaid Services (CMS) should convene an ad hoc work group with expertise in emergency care, trauma, and EMS systems in order to evaluate the reimbursement of EMS and make recommendations regarding inclusion of readiness costs and permitting payment without transport. [IOM-FEC EMS: *At the Crossroads*]
- The U.S. Department of Health and Human Services should adopt rule changes to the Emergency Medical Treatment and Active Labor Act (EMTALA) and the Health Insurance Portability and Accountability Act (HIPAA) so that the original goals of the laws are preserved, but integrated systems may further develop. [IOM-FEC *Hospital-Based: Emergency Care at the Breaking Point*]

**Strategy III: Strengthening Human Resources**

The IOM Committee on Rural Health recognized that human resources are critical assets in every rural community's efforts to enhance individual and population health and suggested that the current health care workforce is poorly prepared to "address the quality challenge."

The Committee recommended that:

> *Congress should provide appropriate resources…to expand experientially based workforce training program in rural areas to ensure that all health care professionals master the core competencies…*

The Committee recognizes the following core competencies:

1) Providing patient-centered care;
2) Working in interdisciplinary teams;
3) Employing evidence-based practice;
4) Applying quality improvement methodologies; and
5) Utilizing informatics.

For *all* disciplines, the committee demanded changes to continuing education as well as new provider training programs and recommended increasing or enhancing experiential learning programs in rural environments, recruiting rural faculty and students, and expanding distance education.

The Committee on Rural Health, in discussing EMS education specifically, noted that the volunteer nature of rural EMS exacerbates the staffing challenges of rural ambulance services. It is a challenge to offer training programs that meet the needs of volunteers, who have limited time and may be reticent to drive long distances for education. With increasing reliance on two incomes in many rural households, volunteers may find it difficult to find the time necessary to devote to continuing education. Recognizing this, the Committee suggested that technology-based distance learning is the key to the future of EMS education. The Committee also recognized the importance of creative recruitment and retention strategies for rural America, but the report focused on recruitment/retention strategies of medical professionals and overlooked any specific recommendations on EMS.

Other recently published policy documents have included extensive series of recommendations focused on a number of aspects of workforce development and enhancement. First, there are a group of recommendations that suggest the creation of tools and funding, to be deployed at the State and community level, to enhance recruitment and retention programs, including volunteer incentive programs which address the unique aspects of volunteer ambulance services that are common to America's rural areas.

Specific recommendations include:

- Foster the development of a culture of volunteerism and community service through local schools in partnership with community agencies. [RFEMSA, Human Resources Chapter]
- Development of a national model to enhance career mobility within EMS practice levels, and between EMS and other health professions, to enhance the ability of rural/frontier areas to retain health workers who wish to gain new skills or advance or change health careers. [RFEMSA, Education Systems Chapter]
- Recognition of the need for flexible scheduling to accommodate the lifestyle realities of rural volunteers. [RFEMSA, Education Systems Chapter]

A second set of recommendations from these reports focus specifically on ways the education system must be structured to meet the needs of rural EMS professionals who need access to continuing education:

- Fund at the State and national levels a Rural/Frontier EMS Education and Training Initiative including:
    - Funding to geographic areas which considers progress in completing community EMS assessments and informed self-determination processes;
    - Funding through State EMS offices where needed, to develop effective systems of training and education program/system quality review and approval;
    - Development of flexible models for the implementation of a national model, including certificate and college-based programs, for providing basic, intermediate, and advanced EMS training and continuing education to rural/ frontier areas and its implementation through State EMS offices. [RFEMSA, Education Systems Chapter]
- Subsidization of training courses and continuing education programs and the instructor, equipment supply, and technical assistance infrastructure necessary to make them accessible to rural/frontier areas. [RFEMSA, Education Systems Chapter]
- The use of interoperable systems of telemedicine and distance learning to improve the accessibility of training courses, effective quality improvement, and continuing education programs. [RFEMSA, Education Systems Chapter]
- Incentives to increase the involvement of university medical centers and area health education centers to provide outreach educational programs to rural and frontier areas. [RFESMA, Education Systems Chapter]
- Improved rural/frontier accessibility to training programs in emergency medical dispatch, critical incident stress management, and occupational safety training; as well as continuing education programs with curriculum content geared to rural/frontier application as appropriate. [RFEMSA, Education Systems Chapter]
- Encouraging the development of realistic, dynamic patient simulators and mannequins for case-based and psychomotor skill training and critical-decision making improvement. Support for the development of patient simulator outreach programs. [RFEMSA, Education Systems Chapter]

- The committee recommends that States link rural hospitals with academic health centers to enhance opportunities for professional consultation, telemedicine, patient referral and transport, and continuing professional education. [IOM-FEC Hospital-Based: Emergency Care at the Breaking Point]
- Development of State/regional stockpiling, and sharing of expensive training devices such as mannequins and patient simulators. [RFEMSA, Education Systems Chapter]
- Ongoing assessment by rural/frontier EMS agencies and local hospitals of their resources and needs, and searching for common educational opportunities. [RFEMSA, Education Systems Chapter]
- The lead agency assists in ensuring a competent workforce through evaluation, training, and education and monitors the availability and effectiveness of trauma systems. [MTSPE, Application of the Core Functions of Public Health to Trauma Systems Chapter]
- States should strengthen the EMS workforce by requiring national accreditation of paramedic education programs, accepting national certification for State licensure, and adopting common EMS certification levels. [IOM-FEC EMS: *At the Crossroads*]

A final group of recommendations specifically highlight the need for leadership and management training for both service chiefs and EMS medical directors. Ambulance service directors often rise "through the ranks" and are not trained to oversee the business of running an EMS service. Administrative aspects of running a service may be overlooked and poorly administered. Similarly, EMS medical directors very rarely receive training specific to their role of overseeing an ambulance service[s].

These recommendations are:

- A national EMS service leadership and service management training model should be developed and shared with all State, territorial and tribal governments. This model should include successful practices in EMS volunteer and paid human resources management. [RFEMSA, Human Resources Chapter]
- Improved rural/frontier accessibility to a training program for service managers which includes EMS leadership, public and elected official advocacy, public education, grant-writing, data collection, research, governing board management, and volunteer management among other topics. [RFEMSA, Education Systems Chapter]
- Ensuring the delivery of quality emergency medical services to rural populations is also complicated by the make up and skill level of prehospital EMS personnel, and associated issues of management, funding, and medical direction for rural EMS systems. [IOM – FEC EMS: *At the Crossroads*]
- Prepare and protect rural/frontier emergency and primary care physicians to serve as EMS medical directors and assure adequate systems of performance improvement to support their activities. [RFEMSA, Medical Oversight Chapter]

- Review all existing EMS medical oversight courses and establish a Rural/Frontier EMS Medical Directors Course which should be made available and distributed through multiple mechanisms to allow maximum access by EMS Medical Directors. [RFEMSA, Medical Oversight Chapter]
- EMS medical oversight must be introduced in medical schools and included in the curriculums of primary care residency programs. [RFEMSA, Medical Oversight Chapter]
- The committee believes that physicians who provide medical direction for EMS systems should meet standardized minimum requirements for training and certification that are reflective of their responsibilities. [IOM-FEC EMS: *At the Crossroads*]

**Strategy IV: Finance**

*Quality Through Collaboration* stresses that payment systems must ensure the financial stability of rural health care systems in order to ensure that these systems can invest in human resources, information and communications technology, and quality improvement efforts. The report demands that "pilot" pay-for-performance systems must be tested with demonstration projects in rural areas to ensure these systems do not harm the rural health care delivery system.

Furthermore, they suggest that pay-for-performance systems for rural areas may need to involve linkages of several types of health care providers, which would most certainly include EMS. They also encourage rural health care providers to work collaboratively with other community leaders to develop community-wide initiatives aimed at improving health behaviors, with the goal of examining community health system effectiveness at addressing the quality aims of the IOM "Quality Chasm" series (safety, effectiveness, efficiency, patient-centeredness, timeliness, and equity).

*Quality Through Collaboration* discussed current funding for various health system sectors. For EMS, they noted that the majority of revenue is derived from transport fees, while the remainder of revenue comes from State and local taxes. The report notes that transport-based reimbursement is problematic for low-volume rural EMS providers whose costs are not necessarily linked to transport volume, but rather reflect the maintenance of a state of readiness.

Funding recommendations appearing in other key policy documents deal with several aspects of the financing of EMS. Several promote enhanced funding of State EMS offices to help them advance rural EMS issues. Others propose specific mechanisms through which local ambulance services would be more equitably reimbursed for the services they provide. These alternative payments systems would alleviate the financial strain imposed by a system that reimburses on the basis of transport and thus, does not reflect the cost of preparedness for low-volume rural ambulance services. Other recommendations encourage better access to grant funding, and specifically to preparedness funding. *The Rural and Frontier EMS Agenda for the Future* specifically implores CMS and other payors to reimburse rural EMS providers for a broad range of prevention and primary care services beyond emergency care. Authors of the *Agenda* recognize that declining populations in some remote areas will also result in declining numbers of health professionals. EMS is likely to be the last "link" in the health care safety net for many of these areas; paying cross-trained personnel with EMS training for preventive, primary care, and emergency services may be the only way to ensure access to care in the remote countryside.

Recommendations include:

- Adequately fund the State EMS lead agency to enable it to carry out its designated responsibilities. [RFEMSA, Legislation and Regulation Chapter]

- Create funding incentives and legislation models to help State EMS lead agencies acquire sufficient legal basis, authority, resources, and leadership to broadly develop and implement EMS systems on an ongoing basis and to provide sufficient flexibility to adapt to the unique needs of rural/frontier EMS. [RFEMSA, Legislation and Regulation Chapter]
- Implement the following Federal reimbursement reforms for emergency and interfacility EMS clinical care and operations [RFEMSA, System Finance Chapter]:
    - Call-components performed by first-response, ALS intercept, ambulance and other EMS response agencies that should be eligible for reimbursement (not duplicated on any given call) should include emergency response, assessment, treatment, triage, and transportation or other disposition that may, or may not, involve traditional transportation.
    - Retrospective review of medical necessity should not be done for emergency response calls.
    - Immediately implement the patient condition codes model from the Negotiated Rule-Making process.
    - Remove the "35 mile" restriction on cost-based reimbursement for EMS agencies that are owned and operated by Critical Access Hospitals.
    - Employ definitions of "access" and "rural" (and its degrees) in reimbursement, which will help to maintain an adequate rural/frontier EMS infrastructure
    - Consider a "critical access ambulance service" definition or other means to ensure a minimal level of EMS infrastructure in all geographic areas.
    - Ensure that interfacility transports that are "appropriate" from an EMTALA perspective are fairly reimbursed and not subjected to retrospective medical necessity determinations.
    - Adopt reimbursement practices that encourage patient treatment and recovery at the facility closest to the patient's home that is desired by the patient and capable of providing the care required at the given stage of recovery.
    - Facilitate the use of subscription services as a part of the overall funding of the EMS safety net infrastructure, in cooperation with State insurance authorities.
    - Consider a single fiscal intermediary for all EMS providers, and develop a "successful practice" guide to assist EMS providers in maximizing billing efficiency and accuracy.
- Form and fund through county, regional, State or Federal tax dollars, rural/frontier EMS operational or service-contracting networks in those areas where they provide economies of scale, improved access to EMS care, improved quality and/or increased tax payer value. [RFEMSA, System Finance Chapter]

- Make Federal and State domestic preparedness and response funding programs such as those of the U.S. Department of Homeland Security, CDC, HRSA, and the Office for Domestic Preparedness (ODP) available explicitly and categorically to EMS systems and providers including private and for-profit agencies. [RFEMSA, System Finance Chapter]
- CMS, MCOs and other third-party payers should fund EMS-based community health care pilot projects and define EMS personnel as reimbursement-eligible care-providers under physician medical oversight for primary care, prevention, and other services they render. [RFEMSA, System Finance Chapter]
- The goal of trauma system financing is to provide the public with a consistent, reliable, and readily available health care safety net for injured patients. [MTSPE, System Finance Chapter]
- Financial resources are needed to support the EMS system response for trauma care. Funds are needed to train EMS personnel to care for injured individuals. Although some EMS providers volunteer their time to care for injured patients, in many locations, salary support must be included in financial planning. Financial support for a medical director to provide oversight, protocols for care, and performance improvement guidance is required. Local EMS agencies also must have the resources for ambulances, as well as the equipment and supplies for patient care. [MTSPE, System Finance Chapter]
- Funding should be increased for the emergency medical component of preparedness – both EMS and hospital-based – especially for personal protective equipment, training, and planning. [IOM-FEC EMS: *At the Crossroads*]
- To determine whether incentives are properly aligned, CMS should investigate whether Medicare and Medicaid payment methodologies should be revised to support payment for emergency care services in the most appropriate setting (including treat and release). [IOM-FEC EMS: *At the Crossroads*]

**Strategy V: Building an Information and Communication Technology (ICT) Infrastructure**

The IOM Committee on the Future of Rural Health believes information and communication technology is a powerful tool that has great potential to produce improvements in the quality of patient care. The committee recognizes that there are key issues and challenges for rural providers to develop the necessary infrastructure to support a "paperless" health care system, and they advance recommendations to help address these issues.

Where does EMS fit into this discussion? With current discussions emphasizing the use of telemedicine, electronic health records, electronic bedside physician order entry systems, e-prescribing, etc. it may not be readily apparent how EMS providers might benefit from this transition to a paperless system. The IOM suggests several possibilities, however. For example, they discuss studies of cardiac emergencies where data transfer capabilities allowed physicians to monitor electrocardiograms during prehospital care to assess the need for administration of thrombolytics. Another recent study found benefits in the use of abdominal sonography for prehospital care. A Vermont study found benefit in linking trauma surgeons to rural emergency departments via videoconferencing in the initial treatment of trauma patients. These studies suggest important benefits for rural EMS in developing more advanced information and communications technologies to support prehospital patient care. In fact, the *Rural and Frontier EMS Agenda for the Future* and the IOM *Future of Emergency Care* explored an even broader range of information technology issues. One focus was the enhanced use of telemedicine and interactive media for distance learning. A second theme was technology to enhance emergency notification, including systems such as 9-1-1, crash notification systems, and home monitoring technologies. A third theme was enhanced interoperable communication systems, and a fourth was the use of EMS information systems for enhanced evaluation and performance improvement purposes, as well as public health surveillance purposes.

Recommendations include:

- Recognition [within the education model] that EMS education will be provider-need specific, conducted with varied teaching techniques emphasizing hands-on training, and (where appropriate) distance learning to assist the transfer of learning and retention of essential skills and knowledge so as to provide state-of-the-art rural emergency care. [RFEMSA, Education Systems Chapter]
- The use of interoperable systems of telemedicine and distance learning to improve the accessibility of training courses, effective quality improvement, and continuing education programs. [RFEMSA, Education Systems Chapter]
- A variety of learning methods should be used. Web-based learning opportunities that can be later archived are one cost-effective way to educate a large number of persons. [MTSPE, Application of the Core Functions of Public Health to Trauma Systems Chapter]

- Ensure telephonic or other access to completed Enhanced 9-1-1 (i.e. including accurate physical addressing) and Wireless Enhanced 9-1-1 (i.e. with geolocation of the calling device) through effective Federal and State programs, mandates and funding. [RFEMSA, Public Access Chapter]
    - State EMS offices should consider a patient-centered, medical leadership initiative to encourage E-9-1-1 and WE-9-1-1 system completion where other approaches have failed.
    - Federal funding for State and local public safety communications development should consider progress toward E-9-1-1 and WE-9-1-1 systems completion.
- Integrate Automatic Crash Notification (and other Intelligent Transportation System and Department of Defense technology) and health event advice lines into the process of EMS public access and EMS resource deployment. [RFEMSA, Public Access Chapter]
- States should establish formal plans for roadside call-box, satellite, and/or cellular networks to effectively cover all rural/frontier primary roads. [RFEMSA, Public Access Chapter]
- As home health monitoring devices and automated remote diagnostic technology develop, EMS leaders should pursue roles for EMS in their use to further EMS-based community health services. [RFEMSA, Public Access Chapter]
- Conduct comprehensive State EMS communications needs assessments upon which to base Federal, State, and local investment in communications infrastructure improvement. [RFEMSA, Communication Systems Chapter]
- The Universal Service Program fund, Federal Communications Commission, frequency allocation and other national public safety communications organizations and agencies should work to assure that rural/frontier EMS communications are enhanced. [RFEMSA, Communication Systems Chapter]
- Rededicate radio spectrum to EMS and other public safety use. [RFEMSA, Communication Systems Chapter]
- Explore EMS applications of innovative communications and resource management technologies. Encourage Federal and State agencies to provide pilot funding and access to their agencies' technology developers and resources for this purpose. [RFEMSA, Communication Systems Chapter]
- EMS leaders should continue to develop ongoing paths of communication with State and Federal telecommunications interoperability and Intelligent Transportation Systems industry planning entities. [RFEMSA, Communication Systems Chapter]
- Implement and maintain a local EMS information system at every local EMS service/agency. Maintain data on every EMS event in a manner which is timely and able to drive the quality of the EMS system service and patient care delivery. [RFEMSA, Information Systems Chapter]
- Link/integrate EMS data systems with other relevant health information systems at all levels such as public health surveillance, crash, medical examiner, hospital discharge, and emergency department, including CDC surveillance monitoring systems. [RFEMSA, Information Systems Chapter]

- The following information technologies could significantly enhance emergency care: (1) dashboard systems that track and coordinate patient flow; (2) communications systems that enable ED physicians to link to patients' records or providers; (3) clinical decision-support programs that improve decision making; (4) documentation systems for collecting and storing patient data; (5) computerized training and information retrieval; and (6) systems to facilitate public health surveillance. Given their demonstrated effectiveness in the emergency care setting, the committee recommends that hospitals adopt robust information and communications systems to improve the safety and quality of emergency care and enhance hospital efficiency. The committee recognizes that the appropriate prioritization of and investment in these approaches will vary based on each institution's resources and needs. [IOM-FEC Hospital-Based Emergency Care: At the Breaking Point]
- The trauma management information system (MIS) is used to facilitate ongoing assessment and assurance of system performance and outcomes and provides a basis for continuously improving the trauma system including a cost-benefit analysis. [MTSPE, Application of the Core Functions of Public Health to Trauma Systems Chapter]
- Communications among EMS, public safety, public health, and other hospital providers is even more problematic given the technical challenges associated with developing interoperable networks. As a result of these challenges and the need for improved coordination, the committee recommends that hospitals, trauma centers, EMS agencies, public safety departments, emergency management offices, and public health agencies develop integrated and interoperable communications and data systems. [IOM FEC EMS: *At the Crossroads*]
- Nevertheless, the use of telemedicine and distance learning allows previously inaccessible training to penetrate remote areas and new, more realistic and dynamic patient simulators to allow case-based honing of critical skills and decision making. [IOM-FEC: EMS: *At the Crossroads*]
- The development of automatic crash notification (ACN) technology, now becoming more widely available, has further improved emergency response, providing immediate and increasingly detailed crash information to dispatchers automatically, even before anyone on scene places a call. [IOM-FEC EMS: *At the Crossroads*]

## CONCLUSION: RURAL HEALTH AND EMERGENCY MEDICAL SERVICES: SHARED GOALS

The Institute of Medicine charged their Committee on the Future of Rural Health with recommending priority objectives and identifying changes in polices and programs to enhance the quality of care in rural areas.

The IOM similarly charged their Committee on the Future of Emergency Care in the U.S. Health System with developing recommendations to improve the emergency care system in this country.

Developers of the *Rural and Frontier EMS Agenda for the Future* specifically addressed the bridge between rural health and EMS, noting that EMS must be integrated into the broader rural health system.

The Model Trauma System Planning and Evaluation Document explicitly linked the trauma system and public health.

The staff of the Office of Rural Health Policy's Rural Hospital Flexibility Program has created a set of recommendations designed to influence program development, primarily within States, through the Rural Hospital Flexibility (FLEX) Program, which has a focus on rural health issues including EMS.

It is likely that all of the stakeholders from these various groups envisioned that their recommendations would influence policy-making and funding allocations at local, State and Federal levels. Indeed, many stakeholders are developing strategies to implement recommendations outlined in these respective documents.

The intended value of the "crosswalk" of these recent publications is to highlight how much common ground exists among a broad-based and influential set of providers, policy makers, and other stakeholders with interests in rural and frontier EMS.

An incredibly diverse array of stakeholders participated in the development of these key documents. Some groups that have not been specifically highlighted earlier in this report are the National Association of State EMS Officials (the key association linking State EMS programs at a national level), the National Organization of State Offices of Rural Health (the national organization representing all 50 State rural health offices), the Rural EMS & Trauma Technical Assistance Center, and the National Rural Health Association. Clearly, a diverse and broad-based set of stakeholders is currently engaged in policy discussions about the future of rural EMS and trauma care. This synergy is exciting and suggests that the time is right for advocates and policy-makers to pursue a common strategy to ensure a bright future for rural and frontier EMS in this country.

## APPENDIX A: REFERENCES/LIST OF KEY DOCUMENTS

The following is a list of key documents published in the last 3 years that formed the basis for this comparative report.

1) Institute of Medicine of the National Academies (2005). *Quality Through Collaboration: The Future of Rural Health*. Washington, DC: The National Academies Press. www.nap.edu.

As part of a Institute of Medicine quality initiative, the IOM produced two reports, *To Err is Human: Building a Safer Health System and Crossing the Quality Chasm: A New Health System for the 21st Century*. These reports highlighted serious problems with the overall quality of care delivered in the United States. *Quality Through Collaboration* is part of a third phase of the IOM's quality initiative focused on operationalizing the vision of a future health system described in the *Quality Chasm* report.

2) McGinnis, K.K. (2004). *Rural and Frontier EMS Agenda for the Future*. Kansas City, MO: National Rural Health Association.

Funded by the Office of Rural Health Policy, this document was the result of a consensus-building process overseen by the National Association of EMS Officials and the National Organization of State Offices of Rural Health. Comments were accepted from around the country through an interactive Web site and a national consensus meeting in a process lasting a little over 1 year. The purpose was to create a vision for rural EMS, building upon the seminal work of the National Highway Traffic Safety Administration's 1996 *EMS Agenda for the Future*.

3) Health Resources and Services Administration, Office of Rural Health Policy. *Rural Hospital Flexibility Program Strategic Plan.*

The Rural Hospital Flexibility Program is a Federal initiative that provides funding to State governments to strengthen rural health. The program allows small hospitals the flexibility to reconfigure operations and be licensed as Critical Access Hospitals (CAHs), offers cost-based reimbursement for Medicare acute inpatient and outpatient services to CAHs, encourages the development of rural health networks, and provides annual grants to State Offices of Rural Health to help implement a CAH program in the context of broader initiatives to strengthen the rural health care infrastructure. The strategic objectives of the program are outlined in a strategic plan. The plan can be found online at http://ruralhealth.hrsa.gov/funding/FlexStratPlan.asp.

4) Institute of Medicine of the National Academies (2006). *Future of Emergency Care: Hospital-Based Emergency Care*. Washington, DC: The National Academies Press. www.nap.edu.

The Institute of Medicine's Committee on the Future of Emergency Care in the United States Health System was convened in 2003 to examine the state of emergency care in the United States; to create a vision for the future of emergency care, including trauma care; and to make recommendations to help the Nation achieve that vision. Their findings and recommendations are presented in three reports. One report, *Hospital-Based Emergency Care: At the Breaking Point*, explores the changing role of the hospital emergency department and describes the national epidemic of overcrowded emergency departments and trauma centers.

5) Institute of Medicine of the National Academies (2006). *Future of Emergency Care: Emergency Care for Children: Growing Pains.* Washington, DC: The National Academies Press. www.nap.edu.

The Institute of Medicine's Committee on the Future of Emergency Care in the United States Health System was convened in 2003 to examine the state of emergency care in the U.S., to create a vision for the future of emergency care, including trauma care, and to make recommendations to help the Nation achieve that vision. Their findings and recommendations are presented in three reports. The second report, *Emergency Care for Children: Growing Pains*, describes the unique challenges of emergency care for children.

6) Institute of Medicine of the National Academies (2006). *Future of Emergency Care: Emergency Medical Services at the Crossroads.* Washington, DC: The National Academies Press. www.nap.edu.

The Institute of Medicine's Committee on the Future of Emergency Care in the United States Health System was convened in 2003 to examine the state of emergency care in the United States, to create a vision for the future of emergency care, including trauma care, and to make recommendations to help the Nation achieve that vision. Their findings and recommendations are presented in three reports. The third report, *Emergency Medical Services At the Crossroads*, describes the development of EMS systems over the last 40 years and the fragmented system that exists today.

7) U.S. Department of Health and Human Services, Health Resources and Services Administration (2006). *Model Trauma System Planning and Evaluation*.

This document was developed through a collaborative process involving an incredible array of professional organizations and Federal agencies. It is a guide to modern statewide trauma system development. Its purpose is to provide trauma care professionals, public health officials, and health care policy experts with the direction to use the public health approach, a scientifically proven method, when developing and evaluating trauma systems. Extensive information on the model can be found online at http://www.hrsa.gov/trauma/model.htm.

## APPENDIX B: ACKNOWLEDGEMENTS

Data for the statistical analysis component of this study was made available by the National Registry of EMTs (NREMT), who approved the plan of analysis December 13, 2005. We would like to extend a special thanks to the Longitudinal EMT Attributes and Demographics Study (LEADS) committee. Without access to the LEADS survey data, this study would not have been possible.

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