

Flex Monitoring Team Briefing Paper No. 8

Emergency Medical Services (EMS) Activities Funded by the Medicare Rural Hospital Flexibility Program

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The Flex Monitoring Team is a consortium of the Rural Health Research Centers located at the Universities of Minnesota, North Carolina at Chapel Hill, and Southern Maine. Under contract with the federal Office of Rural Health Policy (PHS Grant No. 5 U27RH01080-02-00), the Flex Monitoring Team is cooperatively conducting a performance monitoring project for the Medicare Rural Hospital Flexibility Program (Flex Program). The monitoring project is assessing the impact of the Flex Program on rural hospitals and communities and the role of states in achieving overall program objectives, including improving access to and the quality of health care services; improving the financial performance of Critical Access Hospitals; and engaging rural communities in health care system development.

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TABLE OF CONTENTS

INTRODUCTION	1
Background on the Rural and Frontier EMS Agenda for the Future.....	3
METHODS	4
RESULTS	6
EMS Attribute 1: Integration of Health Services.....	7
EMS Attributes 2: EMS Research & Evaluation.....	8
EMS Attribute 3: Legislation and Regulation	9
EMS Attribute 4: System Finance	10
EMS Attribute 5: Human Resources.....	11
EMS Attribute 6: Medical Oversight.....	12
EMS Attribute 7: Education Systems	13
EMS Attribute 8: Public Information, Education, and Relations	14
EMS Attribute 9: Prevention	15
EMS Attribute 10: Public Access	16
EMS Attribute 11: Communication Systems.....	17
EMS Attribute 12: Clinical Care & Transportation Decisions / Resources.....	18
EMS Attribute 13: Information Systems	19
Unclassified Activities	20
DISCUSSION AND CONCLUSIONS	21

INTRODUCTION

The Medicare Rural Hospital Flexibility Program (Flex Program) was established by the Balanced Budget Act (BBA) of 1997 with the overarching goal of strengthening and improving rural healthcare infrastructure. To reach this goal, BBA 1997 created two separate program components. The first is the formation of a new class of rural hospitals known as critical access hospitals (CAHs), which operate under a revised set of Medicare Conditions of Participation and receive cost-based reimbursement for services rendered to Medicare beneficiaries. The second component is a state-level grant program, administered by the federal Office of Rural Health Policy (ORHP). Grants to states may be used for a variety of purposes, including the following: planning and implementing a state rural health care plan, planning and implementing rural health networks, designating facilities as CAHs, and establishing or expanding programs for provision of Emergency Medical Services. As the agency responsible for providing guidance to grantees, ORHP has provided goals and objectives for grantees to follow when proposing, engaging in, and evaluating activities that promote the integration and strengthening of Emergency Medical Services (EMS).

The Flex Tracking Team¹, a collaborative group funded by ORHP from 1999 to 2003 to track the implementation of the Flex Program, monitored the progress of states in implementing their programs, including their EMS initiatives. During the first three years of state Flex grant funding, the Team found that progress towards integrating and strengthening rural EMS systems varied from state to state. After the first year of grant funding, few improvements in EMS could be attributed to the program.¹ Inexperience with EMS among state Flex program coordinators was cited as a significant factor in the lack of progress. Although improvements in EMS were limited, great strides had been made towards improving dialogue between state offices of rural health, EMS offices, rural hospitals, and the general EMS community, a critical first step towards achieving the program's overall goal.¹

Data and information collected from the second year of the Flex program show that states built upon year one activities.² In year two, many states expanded their Flex program activities to include funding for EMS personnel training programs and EMS needs assessments. Additionally, states focused on building healthcare networks involving EMS, funding "mini-grant" programs, and providing support for ongoing (non-Flex related) EMS improvement activities.

By year three, many states began to tackle some of the more pressing rural EMS challenges, a large proportion of which had been identified several years prior in a survey

¹ The Flex Tracking Team was composed of researchers from the Maine Rural Health Research Center at the University of Southern Maine, the Minnesota Rural Health Research Center at the University of Minnesota, the North Carolina Rural Health Research and Policy Analysis Center at the University of North Carolina at Chapel Hill, the Project Hope Walsh Center for Rural Health Analysis, the Rural Policy Research Center at the University of Nebraska, and the WWAMI Rural Health Research Center at the University of Washington.

of CAH administrators conducted by the Walsh Center for Rural Health Analysis.³ In year three, one third of all grant recipients proposed funding EMS system revenue enhancement activities such as billing and collection programs and training in an effort to increase rural EMS revenues. Some states, like Kansas, chose to fund EMS networking activities in an effort to help isolated EMS systems work together and consolidate training resources to improve recruitment and retention of EMS volunteers. Analysis of grant application budgets showed that EMS-related spending from year one to year three increased from \$1.7 million to \$4.3 million.³ The cataloging of year three activities led the Tracking Team to conclude that although Flex grant funding may be too small to make large and lasting differences in EMS, states have used program funding wisely by building upon knowledge and accomplishments in previous years through creation of a more coherent strategy for improving EMS.³

The Flex program is now entering its seventh year. The purpose of this report is to describe the EMS-related projects that states proposed to conduct in fiscal year 2004-2005. Since the first full year of funding, the number and range of EMS improvement activities proposed has increased substantially. Because of the variability across states in the specifics of EMS activities proposed in grant applications, a method was sought that would create a logical framework for classifying activities, in order to better understand the types of EMS challenges that states are trying to address with Flex funding. The project team identified the *Rural and Frontier EMS Agenda for the Future (R/F Agenda)*⁴ as an appropriate guide document for cataloging and describing state proposed activities. Released to the public in October, 2004, the *R/F Agenda* identified 14 problem areas or challenges in rural EMS (referred to as “Attributes”). The document was produced by advocates and experts from rural health and EMS communities, was made available for public comment during its construction, and is therefore a publicly guided document. Use of this document makes possible methodical classification of state Flex EMS activities across generally accepted problem areas in rural EMS, as the *R/F Agenda*’s fourteen attributes are well rooted within the EMS community and resonate well with those involved with rural EMS.

State Flex grant funds will never be sufficient to ameliorate all rural EMS problems. Use of the *R/F Agenda* for classifying state Flex activities not only allows for identification of EMS problem areas that are most frequently being addressed with the use of Flex grant funds, but also identifies those challenges that likely need to be addressed through other mechanisms. This report will provide the EMS, rural health, and federal policy constituencies with an overview of the extent to which nationally recognized rural EMS challenges are being addressed with Flex program funding.

Background on the Rural and Frontier EMS Agenda for the Future

The *Rural and Frontier EMS Agenda for the Future* is one of many EMS-focused agenda documents devoted to describing EMS systems nationally and guiding efforts to strengthen and improve EMS. The original EMS agenda document, the *EMS Agenda for the Future*, was published in 1996 and represents the first national description of EMS, identifying 14 distinct systems-level attributes that describe the most important aspects of the delivery of prehospital care.⁵ Following the 1996 agenda was the first in a series of publications addressing EMS education, the *EMS Education Agenda for the Future: A Systems Approach*,⁶ which highlighted the current status of education in EMS nationally. It also offered a description of a future series of publications intended to improve existing EMS education programs and ultimately raise all EMS education to a higher level.

A number of other agenda and agenda equivalent EMS-targeted documents were published prior to the Rural agenda. These include the *National EMS Research Agenda*,⁷ the *Emergency Medical Services Outcomes Project*,⁸ the *National EMS Information System and National Database Project*,⁹ and the *EMS Performance Measures Project*.¹⁰ All of these documents, but particularly the *EMS Agenda for the Future*, form the underpinning upon which the *Rural and Frontier EMS Agenda for the Future* was developed. That underpinning, as described in the original 1996 agenda document, is a general need for agencies, organizations, and individuals involved in EMS to evaluate their roles and chart a course for the future. However, the authors of the *R/F Agenda* recognized that there was a void in information devoted to specifically to rural EMS, and therefore produced the *R/F Agenda* with the intention of arming rural and frontier EMS providers with information to ensure that local systems will survive, advance, and grow in the future.⁴ Targeting local, state, and national makers of policy with rural/EMS relevant information was also an important goal of the *R/F Agenda*.

The *R/F Agenda* was developed over the course of many months. Contributors to the report included EMS experts, EMS professionals (EMTs, Paramedics, System administrators), EMS advocates, representatives from federal entities vested in EMS issues, physicians, rural Health advocates, and academicians. Public opinion and input was considered by authors and developers of the *R/F Agenda* to be very important. Throughout its development, Emergency Medical Technicians (EMTs), Paramedics, policymakers, members of the medical community, advocates of rural health, and members of the general public all had the opportunity to provide feedback on the content and direction of the document. Stories and anecdotes, as well as scientific evidence, made its way into the pages of the document. The *R/F Agenda* is therefore a community driven and constructed document highlighting the most salient challenges in rural and frontier EMS across 14 major aspects of EMS care delivery.

METHODS

To accomplish study goals, researchers from the Universities of North Carolina at Chapel Hill and Southern Maine reviewed Fiscal Year 2004-2005 Flex program grant proposals submitted to the federal Office of Rural Health Policy (ORHP) by 45 states. For each EMS activity, the research team summarized the activity, identified the financial and human resources allocated to carry out the activity, and assigned the activity to one or more of the 14 EMS attributes from the *R/F Agenda* (Table 1).

Table 1: 14 EMS Attributes from R/F Agenda

Integration of Health Services	Public Information, Education, and Relations
EMS Research	Prevention
Legislation and Regulation	Public Access
System Finance	Communication Systems
Human Resources	Clinical Care and Transportation Decisions/ Resources
Medical Oversight	Information Systems
Education Systems	Evaluation

Typically, each activity was assigned a primary or single EMS attribute. However, in cases where the activity fit into multiple attributes, a secondary and tertiary attribute was assigned. For the purpose of this report, the attributes “EMS Research” and “Evaluation” were combined. Also, an “Unclassified” category was created for activities investigators felt did not fall into one of the other 13 attributes.

Since multiple researchers reviewed the grant applications, the research team developed operational definitions for each attribute to ensure that attributes were consistently assigned across the different members of the team. Researchers at both Universities reviewed all activities with secondary or tertiary attributes or identified as “unclassified”. If the team came to a consensus, a single attribute falling under one of the 13 EMS attributes was assigned. After this review process, a secondary, tertiary, or “unclassified” attribute was only assigned to activities for which a consensus could not be reached.

Decisions as to which attribute to assign were based on the following criteria:

1. The description of the goals and objectives the activity was intended to address and their association with the description of the EMS attribute contained within the *R/F Agenda*;
2. The description of the activity and its association with the description of the EMS attribute;
3. The immediate and long term impact of the proposed activity. This criterion was used in situations where the immediate impact of an activity fell under one attribute, but the long term impact was classified under another. Where

- investigators felt an activity had a longer term impact, the activity would be catalogued under the associated attribute;²
4. Secondary and tertiary assignments were made available for activities that fell across multiple attributes;
 5. All abstracted activities were reviewed by researchers at both UNC and USM. Reassignment of attribute classifications were performed until consensus over activity classification was reached among all researchers.

Results are presented across the EMS attributes contained within the *R/F Agenda* and the “Unclassified” category. For each attribute, a map that shows the states involved in activity and the number of activities proposed by each state is provided. Brief descriptions of each attribute appear at the beginning of each section, followed by the team’s criteria for assigning an activity to the attribute. Finally, a discussion of the extent of state activities and examples of activities appear at the end of each section.

² For example, creating a new EMT certification program within a community college setting would be classified as an Education Systems activity, even though the short term impact would be to improve human resources. Activities associated with some aspects of EMS education, but with a shorter duration, would be catalogued with other activities targeting EMS human resources issues (e.g. EMT scholarship programs for furthering EMT education but formally focused on improving recruitment and retention).

RESULTS

Across the 45 states, Flex programs proposed a total of 239 EMS activities, of which 29 activities were classified to a secondary attribute. As shown in Table 2, the primary attributes that the majority of activities addressed were integration of health services (40.2%), human resources (13.0%), and education systems (13.4%). Many EMS activities did not clearly fall into any established EMS attribute, resulting in just over ten percent of activities falling into the “unclassified” category.

TABLE 2: Frequency of EMS activities receiving only a primary attribute assignment shown across EMS attributes

PRIMARY EMS ATTRIBUTE	NUMBER OF ACTIVITIES (%)
Integration of Health Services	96 (40.2)
EMS Research and/or Evaluation	22 (9.2)
Legislation and Regulation	3 (1.3)
System Finance	3 (1.3)
Human Resources	31 (13.0)
Medical Oversight	4 (1.7)
Education Systems	32 (13.4)
Public Information, Education, and Relations	6 (2.5)
Prevention	0 (0.0)
Public Access	1 (0.4)
Communication Systems	0 (0.0)
Clinical Care and Transportation Decision / Resources	4 (1.7)
Information Systems	11 (4.6)
Unclassified	26 (10.9)
TOTAL	239 (100.0)

In the next section, we will discuss each EMS attribute in more detail. For each attribute, we will provide background from the R/F Agenda document, the operational definition developed, a discussion of proposed activities, and examples of activities proposed.

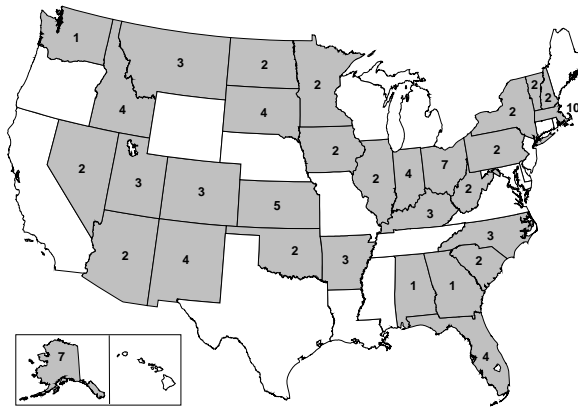
EMS Attribute 1: Integration of Health Services

Background: The *R/F Agenda* states that the provision of EMS does not happen in isolation.⁴ EMS systems integrated into local systems of care benefit the community by ensuring greater access and availability of EMS. Integrated systems also make available opportunities for expanding health care services. In light of the perceived benefits of integration, EMS experts highlight the fact that many small rural EMS systems have no formal or informal agreements with local, regional, or state health care systems and thus are not integrated. Lack of integrated EMS systems can mean many things for EMS and the communities they serve. For many rural and frontier residents, it may mean limited availability and limited access to advanced EMS care.

Criteria used to classify activities under this attribute: We classified activities under this attribute if they indicated support for any of the following: a) meetings between different parties, b) creating formal or informal agreements (e.g. mutual aid), c) new programs that involve EMS and other agencies, or d) expansion of EMTs and their role in providing health care (e.g. administering vaccinations, doing preventive checks, etc).

State Activities: Thirty-one states proposed a total of 96 activities with a primary attribute of integration. The frequency of integration of health services activities varied across states. A small number of activities (n=3) were also assigned a secondary attribute of integration. Example activities include those from Ohio, which has proposed strengthening the relationship with the state's division of EMS by continuing to

encourage participation in Flex Advisory Board meetings and by initiating bi-monthly conference calls. Florida planned, through a contractual agreement, to develop a statewide horizontal rural EMS network organization that will serve as a forum to identify, prioritize, and seek solutions and funding to address the common needs of rural EMS providers with the goal of improving access and quality of EMS services for rural residents. Utah has proposed enhancing coordination between field EMS personnel and their local hospitals by conducting a leadership seminar. Implementing EMS system improvement activities by coordinating efforts of Statewide Medical Director and EMS Regional Offices was proposed in New Mexico.



EMS Attributes 2: EMS Research & Evaluation³

Background: The lack of available and convincing EMS-related research is described in the *R/F Agenda*, as well as in other EMS agenda documents.^{4,7} Those concerned with a lack of EMS-related research feel its absence makes improvements in rural and frontier EMS systems more difficult. For example, new procedures or techniques are introduced regularly into the EMS field, requiring the stamp of approval by physicians supplying medical oversight. Some physicians and EMS systems directors are skeptical of new techniques that lack a substantial body of supporting research. In addition, strategies that work in urban environments may not work well in rural settings. Lack of uniformity and involvement from the community for evaluating EMS systems formally or informally is also identified as a major challenge. Given these concerns, EMS experts feel a strong commitment to rural-focused EMS research, and community participatory evaluation is needed.

Criteria used to classify activities under this attribute: We classified activities under this attribute if they indicated support for: a) state or local level evaluations or needs assessments of EMS systems, b) development of performance measures or quality improvement programs, or c) research programs or initiatives of any type.

State Activities: Sixteen states proposed a total of 22 EMS research/evaluation related activities. Four additional activities touched on aspects of research or evaluation and were assigned a secondary attribute EMS research/ evaluation (these are not shown in the map). Most of the proposed EMS research/evaluation activities involved conducting needs assessments. The areas of need that were focused on varied and included reviews of ongoing EMS training requirements in Vermont and analysis of systems configuration in Virginia. Several other activities focused on performing feasibility studies focused on system re-design for improving revenue. For example, Nebraska planned to conduct an EMS needs assessment in 10 counties. Their major goal is to examine the options for consolidation and the use of tiering (i.e., an ambulance service that has ALS capabilities and provides backup and support to squads with only BLS skills). Nevada proposes undertaking EMS financial impact-feasibility assessments in 3 communities, including assessments of hospital-based ambulance services conversion.



³ EMS Research and Evaluation are described in the *R/F Agenda* as two separate attributes (Attributes 2 & 14), but for study purposes, these attributes were combined.

EMS Attribute 3: Legislation and Regulation

Background: Currently, many different federal agencies contribute to funding EMS programs.¹¹ While the National Highway Traffic and Safety Administration (NHTSA) is a recognizable federal leader in EMS, no single agency fully supports or regulates EMS nationally. Since 1981, states and local governments have been the primary regulatory authority for EMS.¹² The level of regulatory and legislative authority states provide varies considerably.¹³ EMS experts attribute many difficulties in providing EMS care in rural and frontier areas to a lack of attention to legislation and regulation focused on the needs of rural and frontier EMS.⁴

Criteria used to classify activities under this attribute: We classified activities under this attribute if they indicated support for any of the following: a) establishment of new legislation and regulation at the state and local levels, b) change in management and coordination, c) creation or change in regulation, or d) creation of new or change in existing models and policies for delivery and logistics of operations.

State Activities: Only three activities were proposed that focused primarily on Legislation and Regulation. States proposing Legislation and Regulation related activities include Kentucky, Minnesota, and Vermont. Kentucky planned to include in the state health plan, regulatory changes that would affect EMS operations. Minnesota proposed establishing EMS policy and program development at the local level. Vermont has proposed creating new laws for establishing an EMS insurance program statewide. One



additional activity, proposed by Oklahoma, involves making presentations about EMS need and methods for improving EMS delivery to state legislators. Although this activity touches on aspects of Legislation and Regulation, only those activities with a primary classification of Legislation and Regulation are accounted for in the map. This Oklahoma activity received a primary attribute classification of Public Information, Education and Relations. Interestingly, no similarities were seen between descriptions of any activities.

EMS Attribute 4: System Finance

Background: Revenues for supporting public EMS systems can be classified into two main categories: 1) reimbursement for transportation, and 2) subsidies for maintaining readiness. The vast majority of reimbursement for transportation comes from the Centers of Medicare and Medicaid Services (CMS) ¹⁴ and represents 41% of total transports. ¹⁵ Not all transports are reimbursed, ¹⁶ thus subsidies from state and local governments are important sources of revenue for public EMS systems. Surveys of state EMS directors in 2000 and 2004 placed system finance among the top four most important issues for rural EMS systems. ^{17,18}

The *R/F Agenda* highlights challenges rural and frontier EMS systems have experienced with billing and obtaining subsidies to cover operating costs. According to the *R/F Agenda*, the way in which CMS reimburses should be reviewed and adjusted to take into account the long travel distances and lower number of transports typical in extremely rural and frontier areas. ⁴ Difficulties with reimbursement and local subsidies are considered major challenges for rural and frontier EMS systems.

Criteria used to classify activities under this attribute: We classified activities under this attribute if they indicated support for any of the following: a) creation of new or change in existing state or local level EMS financing mechanisms, or b) adoption of the new Medicare Ambulance Fee Schedule.

State Activities: Three states each proposed an EMS System Finance related activity. Alaska has proposed to help determine the best possible funding and allocation mechanism for EMS within the Denali Commission. Colorado planned to use a financial feasibility assessment to review the issue of cost-based reimbursement for EMS systems. Washington planned to offer training to maximizing billing capabilities. One additional activity in Oregon received a secondary



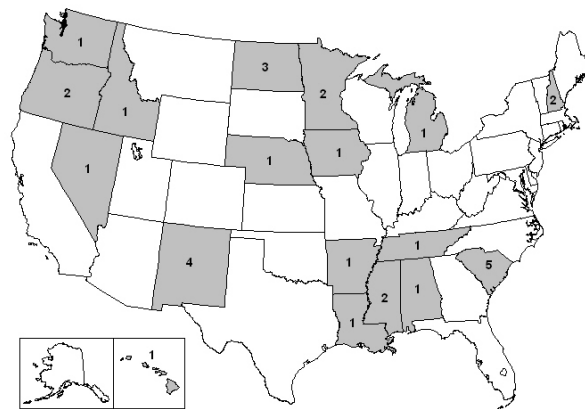
classification of System Finance (only the primary classification of activities is shown in maps), for an activity with a primary classification of Information Systems. Their proposed activity involves establishing a statewide inventory list of EMS equipment to improve system finances, statewide coordination, and equipment sharing.

EMS Attribute 5: Human Resources

Background: The cover story of the March, 2005, issue of Emergency Medical Services highlights the challenges faced by the EMS industry nationwide related to the recruitment of qualified personnel to fill vacant EMT and Paramedic positions.¹⁹ According to numerous sources, EMS providers in rural and frontier areas experience a more difficult time filling EMT and Paramedic positions than their urban counterparts.^{4,17,18,20,21} The *R/F Agenda* suggests that many factors contribute to challenges with EMS Human Resources. These include inadequate leadership and individuals with leadership skills in local EMS systems, increased demands on volunteers (e.g. commitments to family or working multiple jobs),⁴ waning volunteerism, lack of educational opportunities,²² and dissatisfaction with various aspects of the EMS occupation.

Criteria used to classify activities under this attribute: We classified activities under this attribute if they indicated support for any of the following: a) improving management practices and human resource training, b) recruitment and/or retention programs for volunteer or paid personnel, or c) programs targeting occupational safety. Many activities classified in the Education Systems attribute could overlap with the Human Resource attribute. To distinguish between these attributes, we looked for descriptions or activity characteristics pertaining to the activity's lifespan. Activities appearing to be limited to one-time activities were more likely classified under the Human Resource attribute. Conversely, educational programs intended to be offered more than once and over an extended period of time were classified as Education System activities.

State Activities: Eighteen states proposed a total of 31 EMS Human Resource related activities. New Mexico plans to design and conduct EMS director training, engage in a statewide recruitment and retention program, and develop EMS personnel plans. South Carolina plans to support an EMS leadership boot camp, EMS leader workshops and a conference, fund EMT scholarships, and support a public service announcement designed to



educate the public and recruit EMTs. Over half of the states with human resource-related activities proposed projects to address recruitment and retention (10 of 18 states). Five states specifically planned to offer a variety of scholarships to EMTs and Paramedics. For example, New Hampshire proposed funding two EMTs to attend a state EMS conference. Alabama has planned to offer mini-grants for scholarships targeting EMT-Basic and volunteer training. Several states proposed offering workshops and seminars covering EMS leadership development, grant writing, and management skills and tools development.

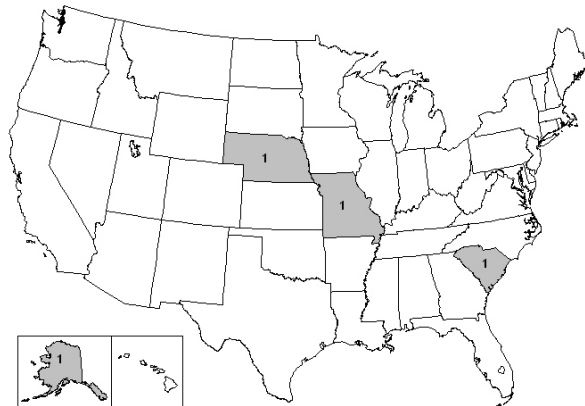
EMS Attribute 6: Medical Oversight

Background: Medical oversight is an essential component of an EMS system.²³ There are two common types of medical oversight: 1) Online medical direction whereby a physician advises the EMT or Paramedic over a radio or other form of communication; and 2) offline, where the EMT or Paramedic follows set protocols handed down by the state, regional, or local medical control physician. Standards or recommendations for developing a medical oversight program are available,^{24,25} however, several studies show that medical oversight of EMS systems at the state and local level frequently falls short of recognized standards or recommendations.^{26,27}

The *R/F Agenda* highlights many of the issues surrounding challenges with adequate medical direction in rural and frontier areas. Recommendations include offering training courses, creating state statutes requiring funding of medical directors, and establishing regional on-line oversight programs.

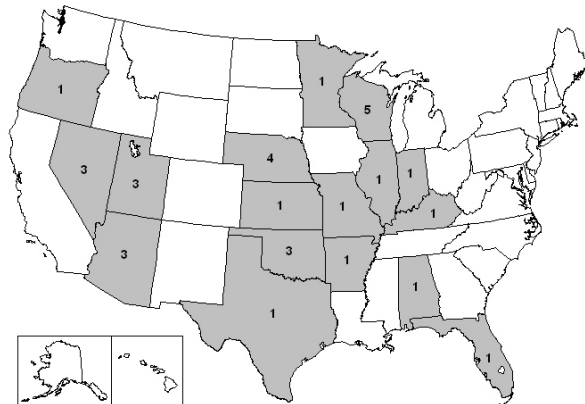
Criteria used to classify activities under this attribute: We classified activities under this attribute if they indicated support for any of the following: a) a full-time or part-time equivalent state or local level medical director position, b) creation of EMS medical director education programs, c) creation of local-regional-or-state medical director networks, or d) creation of new or changes in existing medical director policies. Education programs appearing to target more than just medical directors would likely be classified under the Education Systems attribute.

State Activities: Four states proposed a Medical Oversight related activity. For example, Alaska planned to fund a speaker to provide a day long session on quality improvement for EMS medical directors and administrators. Nebraska proposed providing technical assistance and training to medical directors by contracting with a physician consultant. The consultant will assist physicians in resolving difficult problems and conducting the Physical Medical Director's Training Course. Utah, New Mexico, and Iowa proposed activities that received a secondary classification assignment of Medical Oversight (only the primary classification of activities is shown in maps).



Background: The National Highway Traffic and Safety Administration (NHTSA) developed a national standard curriculum in 1971 that is updated periodically. However, availability and accessibility of EMS education and training programs varies from state to state, as does the type training an aspiring EMT has access to within educational programs. Access to quality initial EMS education and continuing education is a major focus for rural EMS advocates.⁴ Part of the access problem deals with the lack of a national level model for increasing availability and facilitating education from basic to advanced levels of certification.⁴ Adequate availability of education systems for educating EMS managers and upper EMS administration is also a problem for rural EMS.

State Activities: Seventeen states proposed a total of 32 Education Systems-related activities. Education systems activities appear unique to each state. For example, Wisconsin proposed five separate activities that focused on 1) organizing and facilitating meetings focused on EMT recruitment and training, 2) development of a statewide plan to recruit and train EMTs, 3) presenting findings to an EMS subcommittee composed of CAH executives, 4) construction of Advanced Life Support continuing education alternative programs, and 5) implementing and testing the program. Among the four activities proposed by Nebraska is a mentoring program for EMS instructors, with the goal of increasing the number of students that pass the National Registry Exam for EMTs. The mentors will identify any weaknesses in teaching methods by interviewing the instructors and observing them in a classroom setting. A plan of action will then be developed. Nevada proposed expanding its education and training opportunities available to EMS instructors in rural and frontier Nevada, including the provision of train-the-trainer education via the compressed video network and other new instructional technologies. Arizona proposed supporting first responder and/or basic trauma life support training for tribal members with the Arizona Emergency Medical Research Center and/or community colleges.



EMS Attribute 8: Public Information, Education, and Relations

Background: The *R/F Agenda* makes reference to a general lack of knowledge or awareness of EMS by rural and frontier community members. Further, the agenda highlights limited community involvement in determining the type and level of EMS service to be provided. The NHTSA Division of EMS has promoted several public education programs, including the Public Information, Education, and Relations (PIER) program. Additionally, the American College of Emergency Physicians promotes “EMS Week,” a nationally recognized, week-long EMS education initiative. Despite these efforts, members of rural and frontier communities lack adequate knowledge and awareness of their local EMS system. One study shows that rural citizens and medical practitioners have only a moderate level of awareness of their local EMS system’s capabilities at best.²⁸ The *R/F Agenda* calls on Federal and state EMS agencies to improve public EMS awareness and knowledge and recommends performing community assessments and continued development and distribution of EMS educational materials.

Criteria used to classify activities under this attribute: We classified activities under this attribute if they indicated support for any of the following: a) activities that target the public, a specific community, or a government body with EMS informational materials; or b) programs designed to provide EMS related information to special populations of health care providers.

State Activities: Four states proposed a total of six Public Information, Education, and Relations-related activities. Alaska planned to provide communities with CAHs a source of information on the nature and frequencies of events captured in existing databases, including Alaska Trauma Registry and Toxic Exposure Surveillance System. Louisiana proposed continuation of support for community education through the Office of Public Health-EMS network addressing Healthy People 2010 health topics. As the EMS coordinators schedule EMS training, Louisiana will also schedule the hospitals for Healthy People 2010 educational events. Oklahoma intends to hold meetings with the state EMS leadership and state legislative body in an effort to educate decision makers on the issues concerning rural EMS.



EMS Attribute 9: Prevention

Background: Rarely has EMS served as a central component in prevention program activities. Many state EMS offices have, however, assumed leadership roles in construction and dissemination of prevention materials and initiatives. Because of the unique role EMS systems play in the greater health care system, assuming the role as lead or co-leader in prevention services seems natural. The *R/F Agenda* highlights examples of prevention programs led by EMS organizations. These activities are limited in number due to many factors, including lack of human and material resources needed to carry out prevention activities. The *R/F Agenda* recommends EMS be included in prevention programs led by all levels of government.

Criteria used to classify activities under this attribute: We classified activities under this attribute if they indicated support for any of the following: a) programs to help reduce injuries, b) programs targeting specific diseases (e.g. strokes), or c) programs permitting EMTs and / or Paramedics to go beyond their typical scope of practice to help prevent unnecessary use of EMS.

State Activities: Investigators found that none of the proposed activities targeted or touched on aspects of this attribute.

EMS Attribute 10: Public Access

Background: Simply by living in a rural or frontier area, access to health care services in any form is limited compared to access in a suburban or urban environment. Access to EMS care is no exception. Because EMS is health care that comes to the patient rather than the patient to the service, EMS response and transport times can be significantly longer for rural versus urban emergencies. The *R/F Agenda* discussion of the Public Access attribute focuses on telecommunications challenges (e.g. 911). The *Agenda* also discusses challenges EMS systems have with their communications equipment and capabilities for communicating with one another and emergency department staff. In rural and frontier areas, many EMS systems use outdated equipment and compete with fire or police to use certain radio frequencies. The *R/F Agenda* links delays in access to needed emergency care to many of these communications challenges. The *Agenda* recommends that local, state, and Federal governments address these challenges through improvements in telecommunications, dispatch education, and development of formal plans for creating road-side call box programs/infrastructure, satellite communications protocols, and plans for eliminating dead spots in cellular networks.

Criteria used to classify activities under this attribute: We classified activities under this attribute if they indicated support for any of the following: a) improving availability of 911 as an emergency number, b) providing emergency call boxes on highways or other locales, c) implementing enhanced 911 capabilities or global positioning call technologies to better locate patients calling 911, d) or improving public emergency event monitoring capabilities.

State Activities: Only one state, Wyoming, proposed a Public Access related activity. Wyoming has planned to “Improve the access, availability, and quality of EMS and trauma services to EMS providers and CAHs.” No further detail was supplied. Personnel from CAH’s Wyoming EMS and the ambulance association have been included as key staff for this activity. They have identified key outcomes as improvements in access to competent quality EMS and Trauma services across the state, especially in rural and frontier areas. Wyoming will rely on the number of patients receiving timely EMS and trauma services as important measures of program success.



EMS Attribute 11: Communication Systems

Background: During the early development of EMS in the 1970s, the federal and state governments set aside special emergency radio frequencies for EMS, fire, and police. At the time, these radio frequencies and communication mediums met the needs of EMS systems in both rural and urban areas. As technology has changed, and as the demands and needs for EMS have altered, EMS has outgrown these systems and has, for some time, been in a state of telecommunications catch-up. Newer technologies for communicating with patients, first responders, fire, police, and other entities are currently in use by various public safety and health care organizations. To serve the public appropriately and efficiently, the *R/F Agenda* calls on the federal, state, and local governments supporting EMS to fund a communications needs assessment and then to use assessment results to make improvements, including providing access to the Internet and enhanced telehealth links.

Criteria used to classify activities under this attribute: We classified activities under this attribute if they indicated support for any of the following: a) improving existing communications systems (e.g. radio towers, frequency bands, etc), b) purchasing of communications equipment (e.g. radios, satellite navigation resources, etc), or c) creation of new or improving existing communications systems or protocols between health care and public safety services.

State Activities: No state proposed to directly address challenges with Communication Systems. One activity proposed by the state of Virginia, however, was assigned a secondary attribute of Communication Systems (only the primary classification of activities is shown in maps). This activity focused primarily on EMS Research and Evaluation. Virginia proposed funding an engineering study to provide optimal configuration of existing communications for the EMS system in Bath County. The activity will involve representatives from the Virginia Department of Health, state Office of EMS, Bath County EMS system, and external engineers.

EMS Attribute 12: Clinical Care and Transportation Decisions / Resources

Background: The *R/F Agenda* highlights several challenges within the Clinical Care Transportation Decisions/Resources attribute. First, most rural and frontier EMS systems experience low call volumes and typically provide only Basic Life Support (BLS) EMS services.^{4,29} Second, rural EMTs typically experience fewer patient contact hours than urban systems. Rural EMTs are more likely certified at the basic level, which means they are more likely to possess a limited skill set. This can present challenges when caring for patients in need of advanced care during a long transport. In such cases, high quality medical oversight can improve on-the-scene patient care when Paramedic level providers are unavailable. This attribute has a strong relation to the Medical Oversight attribute, but focuses primarily on a need to continually educate and train EMTs; whether that is through medical oversight or other types of programs (e.g. hospital based continuing education or other). Finally, few non-emergent transport services are available in rural areas. Non-emergent services are in high demand. Lack of non-emergent alternatives to EMS limits availability of providers and forces decisions about response and transportation that may lead to higher systems level costs.

Criteria used to classify activities under this attribute: We classified activities under this attribute if they indicated support for any of the following: a) development of newer practice and delivery protocols, b) creation of new or change in existing local, regional, or state level policies governing use of certain techniques, procedures, or medications, or c) programs supporting the offering of alternatives to EMS response or transportation.

State Activities: Three states proposed a total of 4 Clinical Care Transportation Decisions/Resources related activities. For example, Massachusetts proposed making visits to rural hospitals so discussions can be held focused on stroke services needs. They also proposed promoting rural hospitals' use of the "get with the Guidelines" program and standards. Massachusetts also has plans to work with Stroke Initiative partners to provide opportunities for more rural hospital and EMS training in stroke services. Montana intends to participate in a Rural Health Network Development Planning Grant involving the Critical Illness and Trauma Foundation, the leaders in an initiative to help CAHs and local EMS systems make sound decisions about appropriate levels of EMS care.



EMS Attribute 13: Information Systems

Background: In the early 1990s, EMS and emergency medicine experts, in conjunction with federal leadership, produced the National Highway and Traffic Administration *EMS Uniform Prehospital Dataset*.³⁰ This dataset, now known as the National EMS Information System (NEMSIS) project, was intended to supply states with a minimum set of pre-hospital variables to collect from all EMS entities. As of August, 2005, 52 state and territorial EMS offices have signed an agreement to support the NEMSIS data element project, but most states do not have the resources necessary to fund local level infrastructure development. In addition, many rural and frontier EMS systems continue to operate on an all-volunteer basis, and such systems oftentimes lack the technological and personnel resources necessary to begin collecting EMS data. *R/F Agenda* authors stress that the future of the *Agenda* is dependent on data and support the full implementation of the NEMSIS project nationwide.

Criteria used to classify activities under this attribute: We classified activities under this attribute if they indicated support for any of the following: a) creation of a state, regional, or local level data collection program, b) creation of information technology tools or guidelines, or c) programs for linking Emergency Department / Trauma Center and prehospital data.

State Activities: Eight states proposed a total of 11 Information Systems related activities. One of Alaska's three activities includes executing a contract for development of a proposed plan for statewide collection of EMS data from ground and air medical services as basis for quality assessment and patient care quality improvement. Nevada has also chosen to focus their attention on their state level data collection capabilities. They proposed expanding, monitoring, and evaluating the Nevada EMS Electronic Data

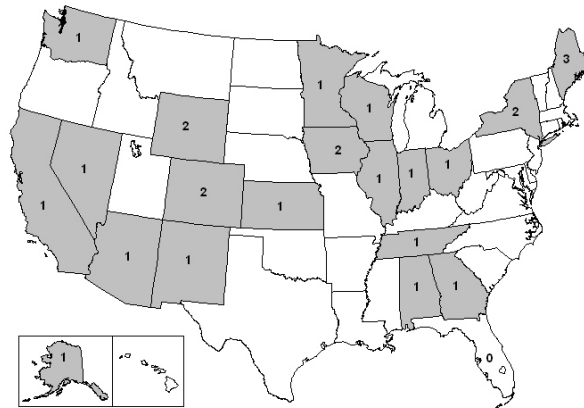
Systems (NEEDS) or palm pilot project among rural EMS personnel and rural hospitals. Mississippi has plans for producing information from their state data collection system. They have proposed using the MS EMS Information System (MEMSIS) to generate reports on ambulance response times for all CAH and potential CAH counties. Reports generated from the MEMSIS database will measure progress toward meeting Healthy People 2010's goal of a 10 minute response time. Utah has chosen to focus on educating individuals about data collection. They proposed funding individuals to attend a data summit. Individuals chosen will attend the Sand Key data management and EMS administration meeting to gain additional information on data collection, technology management, quality management, and EMS systems administration.



Unclassified Activities

Criteria used to classify activities under this attribute: Unclassified activities are those that could not be classified under any of the other attributes. These activities either did not target or touch on aspects of any of the 14 EMS attributes in the *R/F Agenda* or insufficient information was provided to be able to accurately classify the activity as falling in a specific attribute category. An example of the type of activity that we could not classify is a mini-grant program, which allows for the funding of a wide range of activities, many of which could potentially fall into multiple categories. We were also not able to classify activities that targeted multiple issues (e.g. training, education, information technology, quality improvement) when each issue appeared equally important in the activity description.

State Activities: Twenty-six EMS improvement activities from 20 different states were deemed “unclassified.” In addition to the provision of mini-grants, one type of activity that could not be classified was the purchase of EMS equipment. Examples include Alabama, where EMS equipment purchases will be made for 5 hospitals which include community EMS as part of their facility's operational expenses. Examples of equipment may include the following: adjustable patient stretchers, Jaws of Life, communication equipment, and cardiac monitors/defibrillators. Georgia plans to provide financial resources to communities without EMS providers to secure necessary equipment to position them as a viable partner with neighboring communities. Funding will be used to purchase ambulances, stretchers, Thumper CPR resuscitators, cardiac monitors, defibrillators, pacemakers, Jaws of Life, and pedimate child restraint systems. Other examples of activities that we could not classify include the creation of a prioritized workplan for EMS system improvement in New Mexico and funds to serve as members of the DHSS Facility Planning Workgroup to review and implement statewide plan for distribution of requests for facility funding and expansion in Alaska.



DISCUSSION AND CONCLUSIONS

This report utilizes the *Rural and Frontier EMS Agenda for the Future* as a guide document to catalog and classify over 200 EMS improvement activities proposed by 45 state Flex coordinators. Overall, in the 2004-2005 fiscal year few states proposed newly-designed activities. Rather, it appears that many Flex coordinators proposed using Flex funding to support ongoing activities aimed at improving EMS in rural areas. The use of Flex grant funds for EMS mini-grants also appears to be very popular among states. In general, Flex funding was used in diverse ways to improve EMS, consistent with the “flexibility” of the grant program.

Many states have chosen to use Flex grant funds to focus on three EMS challenges: promoting integration of health services, addressing human resource challenges, and improving EMS education systems. The large number of integration of health services-related activities that were proposed is consistent with the goals of the Flex Program, which supports integration at the community level but also within the state health infrastructure. This focus is also consistent with the emphasis the *R/F Agenda* places on the topic of integration, referring to the provision of EMS as a service that relies on relationships with other public safety and health care institutions as means for meeting the needs and demands of a community.

A wide variety of integration-related activities were proposed by states. For example, New Mexico proposed the implementation of an EMS system improvement activity to help coordinate efforts in the development of a statewide Medical Director and EMS Regional Office system. Ohio proposed strengthening relationships with the division of EMS through bi-monthly meetings and conference calls. Florida proposed supporting a statewide horizontal rural EMS network organization. On many different levels, these example activities likely promote integration of EMS into the large health care infrastructure. However, the lack of detail in the description of activities in grant applications prevents more in depth discussion of activities and their intended purpose. Based on available information contained within activity descriptions, it appears that a majority of activities target horizontal integration across EMS providers, rather than vertical integration between EMS systems and CAHs.

The frequency of activities targeting the challenges faced in human resources and education is evidence that difficulties with recruiting, retaining, and educating EMS personnel remains an overarching challenge for rural EMS systems across the country. It is well accepted in the EMS community that the industry is suffering from a shortage of EMTs and Paramedics.¹⁹ On more than one occasion, state EMS directors have identified recruitment and retention of EMS staff as the most salient issue facing rural EMS today.^{17,18}

Many states proposed funding scholarships for EMTs or supporting EMS management seminars and training. As seen with the activities targeting integration of health services, many of the proposed activities targeting human resources and education systems vary

considerably from one state to the next. South Carolina, for example, proposed four activities targeting both EMTs and EMS managers. They proposed funding EMT-Intermediate scholarships, funding an EMS leader “boot-camp,” holding educational and training workshops for EMS managers, and continuing to fund an EMS recruitment campaign initiated with previous Flex funding. New Hampshire is attempting to provide resources to individual EMTs for their attendance to local rural EMS conferences.

The Flex grant funds to states are intended to support a number of activities and programmatic concerns; support for EMS-related activities is only one of many foci. The focus of Flex program activities on challenges with human resources and education systems is a reasonable use of limited funding, as providing funding for scholarships and recruitment and retention programs is low cost relative to major structural improvement efforts (e.g. purchasing a new ambulance).

EMS has been identified as a natural partner of rural health care and the delivery network that composes rural systems of care.¹ According to the description of EMS contained within the *R/F Agenda*, many EMS systems fail to be recognized either by the local hospital or local medical community as a vital part of local health care delivery. This is indeed unfortunate, because in many rural and frontier areas, EMS may be the only or one of a limited number of health care services. The survival of rural EMS, in these communities in particular, is vitally important to insuring the health and safety of local rural and frontier communities.

The activities and initiatives described in this report show that EMS is recognized by many states to be critical to local emergency care. The frequency of integration of health services activities shows that Flex Program coordinators are in tune with the program’s overall goals and objectives for integrating EMS into local communities and rural health care networks, and that local EMS systems are likely open to some form of integration, whether it be minimally horizontal or completely vertical.

The EMS component of the Flex Program appears to have evolved since its beginnings in the late 1990s. As has been stated in previous reports, funding provided by the Flex Program for improving and strengthening EMS will not likely lead to solving all of rural EMS’s challenges. Given that the available funding under Flex needs to be used to address a number of programmatic concerns, states need to determine how they can use their available funding to leverage other resources to meet rural EMS challenges. Flex Program support for EMS in rural areas, however, does help insure the survivability of EMS systems, and in turn insure that rural and frontier citizens are safe and cared for.

This analysis is limited in that it only categorizes and describes EMS-related activities as states proposed them. Results from this analysis do not illustrate the effectiveness of individual Flex grantees to improve EMS systems. Rather, the results show the problem areas in rural EMS that individual states have chosen to focus on during the 2004-2005 Fiscal Year. Follow-up evaluations of the activities as implemented, and identification of strategies that are successful would be informative.

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