Implementation of Flex EMS Supplemental Funding Projects: Year One Activities

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SUMMARY

- Eight states were funded to develop sustainable models of rural emergency medical services (EMS) or identify rural EMS quality measures and improve EMS data reporting.

- Projects in the models of care cohort include: community paramedicine, telemedicine, alternate destinations, treat-no-transport, and workforce retention.

- Projects in the quality measures/data reporting cohort include: identification of rural-relevant quality measures, improvement in EMS quality data reporting, and implementation of an out-of-hospital cardiac arrest registry.

- First year activities focused on project planning, implementation, and gathering baseline data.

- COVID-19 presented challenges and opportunities for grantees in their first year implementation processes.

INTRODUCTION

The Medicare Rural Hospital Flexibility (Flex) Program funds State Flex Programs (SFPs) to develop initiatives to strengthen rural health care delivery systems involving Critical Access Hospitals (CAHs) and rural emergency medical services (EMS). This work typically occurs under Program Area 4: Rural EMS Improvement (for the 2019-2023 funding cycle). SFPs may undertake work in the following optional activity areas: statewide rural EMS needs assessment and action planning; community-level rural EMS assessments and action planning; EMS operational improvement; and EMS quality improvement.[1]

EMS serves as a vital link to rural health care systems, but rural EMS and ambulance agencies face unique challenges in providing sustainable pre-hospital care including low call volumes, long transport distances, lack of resources, decreased financial reimbursement, reliance on volunteers, an aging workforce, and difficulty meeting increased educational standards.[2] In addition, studies have shown that rural EMS agencies struggle with quality improvement and data reporting, two activities necessary to improve quality and sustainability.[3-6]

In recognition of these challenges, the Federal Office of Rural Health Policy (FORHP) issued a notice of funding opportunity[7] for up to eight grantees to conduct projects to improve access to quality emergency medical care in rural communities through two focus areas: developing sustainable models of care, and identifying rural-relevant quality metrics and improving data reporting. Four states were selected in each area. (See Tables 1 and 2 below.) The goal of this supplemental funding is to improve access to quality emergency medical care in rural communities. FORHP's stated purpose of this grant program is to "build an evidence base for rural EMS activities in the Flex Program by funding the implementation of demonstration projects of sustainable rural EMS models and quality metrics, and by sharing the results of those projects with rural EMS stakeholders."[7]

Flex Monitoring Team (FMT) members from the University of Southern Maine are conducting a multi-year evaluation of the supplemental EMS grant. The goal of this evaluation is to assess the design, implementation, and early impact of the eight EMS supplemental grantees' projects. In this paper we describe the eight projects and discuss the implementation progress of the grantees, the impact of COVID-19 on their projects, challenges they encountered, and factors that helped them address these challenges and facilitate implementation. We discuss the role of the SFPs, and conclude with recommendations to support the evaluation of project activities over the remainder of the funding cycle.

METHODOLOGY

In the first year of the funding cycle (September 1, 2019 - August 31, 2020), we examined each grantee's project to identify implementation challenges and assess their output and outcome measures. We drew our initial information from the grant applications, work plans, and logic models for each grantee. We developed a data tracking tool to collect data from grantees on their process and outcome measures and to document project implementation and progress over time. The tracking tool consists of a spreadsheet with a common set of implementation questions for all eight grantees and a separate tab with a table of the output and outcome measures identified by each grantee for their projects. The implementation questions capture qualitative information about project status and successes, challenges encountered, and lessons learned. These questions provide the grantees with an opportunity to update the FMT evaluation team on their project status, modifications, partnerships, and provide input on the impact of Flex Program funding. Grant recipients submitted tracking and implementation data for the first seven months (September 2019 through March 2020) of Year 1 in April 2020. In the future, grantees will be asked to report their tracking data semi-annually in March and September of each project year.

We conducted individual interviews with each of the eight grantees in May and June 2020 to obtain additional information on the implementation status of their projects, explore their implementation barriers, and examine the alignment of their proposed outputs and outcomes measures with their project activities. These interviews were conducted through Zoom using a set of semi-structured interview questions tailored to their specific proposals along with the tracking and implementation data received from the grantees in April.

GRANTEE DESCRIPTIONS

Eight SFPs were awarded three-year supplemental funding by FORHP to conduct demonstration projects in one of two focus areas: developing sustainable models of rural EMS care (Table 1) and identifying rural-relevant EMS quality measures and improving EMS data reporting (Table 2). Four SFPs were awarded funding in each activity area.

TABLE 1: EMS Supplemental Grantee Activities: Sustainable Models of Care

COHORT 1: Sustainable Models of Care
Arizona is implementing the **A**rizona **R**ural **E**MS **A**dvanced Telemedicine **D**emonstration **I**nitiative (AzREADI) to improve access to timely, high-quality and cost-efficient rural EMS care through an EMS-based telemedicine program. Cost recovery for this program is anticipated to come from Arizona's Medicaid Treat and Refer Program. Two fire-based EMS services will pilot this program, which seeks to reduce unnecessary air-medical transports and ambulance transports to hospital emergency departments (EDs) as well as to ensure the provision of high-quality, sustainable pre-hospital care. To accomplish this, AzREADI will be using a shared telemedicine platform to link basic life support (BLS) ambulance providers to board-certified physicians. AzREADI is partnering with FirstNet telecommunications to expand wireless broadband capabilities. Data collection for the project is through REDCap, a secure web application for building and managing online surveys and databases.
Ohio is funding three rural community paramedicine (CP) sites with the goal of creating a sustainable and replicable statewide model. The primary focus of the CP sites will be to reduce 30-day readmissions, ambulance transports, and ED visits. As part of the evaluation of these three sites, Ohio will collect data on the costs associated with implementing and operating the CP sites, revenue streams, health outcomes, staffing patterns, timelines, barriers to implementation, and other relevant information. The results will inform the development of an instructional guide for other Ohio EMS agencies seeking to develop a CP program.
South Carolina will work with three to six EMS agencies located in rural counties without a hospital. The goal is to bolster the agencies' ability to treat patients in the settings most appropriate for their immediate needs. The agencies will receive technical assistance and support to implement one of three models: (1) community paramedicine; (2) telehealth/treat-no-transport, which allows EMS agencies to treat patients at the scene and avoid transportation to the ED; and (3) alternate destinations, which allows patients to be transported to urgent care facilities, doctors' offices, or emergency rooms, depending on the acuity of the situation. Upon selection of the EMS agencies for each model, South Carolina will develop agency cohorts to facilitate information sharing and encourage peer-to-peer support among the agency directors. South Carolina will seek reimbursement for the community paramedicine program and the alternative destination models.
Washington is focused on workforce recruitment and retention, leadership development, and community engagement to help rural communities develop and implement strategies to increase the sustainability of rural EMS agencies. The state will target at-risk rural agencies, particularly those with low scores on the *Attributes of a Successful Rural Ambulance Service* assessment tool, large service areas, low call volumes, and higher ratios of volunteers (including BLS-only personnel). Washington will help agencies remove barriers to recruitment by offering scholarships for training, and plans to develop training curricula and cross-training opportunities (including EMT to AEMT and the potential to train as Medical Assistants and Community Health Workers) to improve retention. Each participating agency will create an action plan focused on the project's core elements, while the state will establish a Rural EMS Learning Action Network for participating rural EMS agencies. The network will support accountability through visibility of results, create a forum for peer transfer of promising practices, and establish a peer culture to review progress on action plans.

TABLE 2: EMS Supplemental Grantee Activities: Quality Measures and Data Reporting

COHORT 2: Quality Measures and Data Reporting
Florida's Feasible, **A**ctionable, **I**mpactful, and **R**elevant (FAIR) Rural EMS Measurement Project is designed to improve access to quality EMS care in Florida's rural areas and also be a national model for rural EMS quality measures. The goal is to have 100% of rural EMS agencies submit National EMS Information System (NEMSIS) performance data to the State EMS Office. This will be accomplished by providing training and support in data reporting as well as instruction in and upgrades to the most current version of NEMSIS. An additional goal is to increase the percentage of rural EMS agencies participating in Biospatial, a cloud-based biosurveillance system that uses EMS data collected in NEMSIS and other health data sources to provide near real-time data and analytics, including clinical and operational reporting. Florida's EMS agencies will use Biospatial for quality improvement, benchmarking, and patient care. Florida has created a steering committee with state and national subject matter experts and industry leaders to develop a set of rural-relevant EMS measures, and plans to submit at least 20 of those measures to the National Quality Forum for endorsement.
Kentucky's "Committed to the Heart" initiative is focused on improving out-of-hospital cardiac arrest survival rates among the 26 rural counties served by the state's 28 CAHs. A central component is the phased rollout of CARES (Cardiac Arrest Registry to Enhance Survival), a secure, web-based data management system that links data on out-of-hospital cardiac arrest from 911, EMS run reports, and hospital discharge and is used to improve care and increase survival rates. Data can be compared at the local, state, and national level to identify promising practices to improve local EMS cardiac care. Kentucky also plans to increase bystander CPR readiness at the community level by increasing the number and availability of CPR trainings offered in rural communities served by CAHs. In conjunction with the bystander training, the state will also inventory automated external defibrillators (AEDs) in rural communities, assist with registering unlisted devices on the National AED Registry, and offer AED instruction.
New Mexico's project is designed to improve the quality of rural EMS care delivered by improving the data collection and reporting capacity of rural EMS agencies. The state plans to train rural EMS managers, staff, and medical directors on the use of the New Mexico EMS Tracking and Reporting System (EMSTARS). Topics will include how to accurately input data, generate meaningful reports, and understand QI-relevant data to make changes to improve patient care. New Mexico Flex Program's vision is to expand and enhance training, technical assistance, and consultation by providing the tools necessary to improve EMS performance and capacity while strengthening partnerships with the NM Department of Health, the state EMS Bureau, and the Eastern New Mexico EMS Corporation Region III.
North Dakota's project, led by the Center for Rural Health, is focused on the development of a set of rural-relevant EMS quality measures for data collection and reporting. Guided by an EMS Quality Improvement (QI) Steering Committee, the Center will work with the North Dakota EMS Association and the Department of Health's Division of EMS to identify subject matter experts. They will engage a sample of participating rural EMS agencies in the identification of data gaps and rural-relevant EMS measures through a multistep Delphi (iterative group) process to reach consensus decisions. This process will involve an assessment and review of the state EMS data repository and comparisons with a national rural EMS database. Continuous training for the participating EMS agencies will be made available via the Project ECHO platform to reach rural EMS personnel, build local skills and capacity in data collection, and instruction in the use of data to improve processes and quality of EMS care.

FINDINGS

Implementation Progress

As part of the application process, grantees submitted logic models and detailed workplans describing the activities and strategies necessary to implement their proposed initiatives. These first year activities included processes to gather stakeholder input and baseline information, develop and convene steering or advisory committees, and establish contractual agreements with the EMS agencies selected to participate in the pilot projects. Grantees typically allocated time and resources in the first year to engage statewide partners and local medical providers, including EMS medical directors, on the proposed models of care or quality reporting initiatives. Several planned to conduct training sessions on EMS data collection and analysis with rural agencies to enhance their capacity to participate in the demonstration projects. All grantees planned for regular in-person contact with the EMS agencies, steering committees, and statewide partners each year of the demonstration. Unfortunately, the onset of the COVID-19 pandemic in early 2020 (approximately halfway through the project year) complicated grantees' ability to conduct these important engagement and training activities.

COVID-19 Pandemic Impact on Implementation

The onset of COVID-19 in early 2020 impacted the implementation and operation of the eight projects, although the effects of the pandemic were more significant for some grantees than others. However, grantees reported a number of common issues, including communication barriers, hiring freezes, staffing shortages, and restrictions on in-person meetings.

For several grantees, communication with state agencies, EMS providers, and CAHs was difficult after personnel were diverted to pandemic-related activities, transferred to other departments, or furloughed. Changes to communications channels delayed the implementation of projects in these instances. In Florida, the state EMS Director and the state EMS Medical Director played key roles in the project's steering committee discussions, and when they were deployed to work on COVID-19, these communications were put on hold. For many rural EMS agencies, COVID-19 further exacerbated existing staffing shortages. Washington's staffing shortages led some candidate EMS agencies to decline participation. Kentucky was unable to hire a state-level coordinator for its Cardiac Arrest Registry to Enhance Survival (CARES) registry project due to a hiring freeze implemented after the onset of COVID-19. As a result, project staff did not have access to the software to run the baseline data necessary to support the rollout of the project. South Carolina noted that staffing shortages and COVID-19-related demands among target rural EMS agencies hindered their ability to provide baseline data on their capacity and needs. As a result, recruitment of rural EMS agencies for project initiatives was delayed.

Restrictions on travel and face-to-face meetings during the COVID-19 pandemic required several grantees to revise their meeting schedules and hold planned meetings virtually using telephone and videoconferencing technology. Several grantees noted that virtual meetings cannot fully replace face-to-face meetings as in-person meetings encourage buy-in by participants and provide insight into project questions and issues that may not surface easily during virtual encounters.

Despite COVID-19's disruption to communications, travel, and face-to-face meetings, two grantees, Arizona and Florida, reported that COVID-19 helped to encourage interest in their

projects. Arizona's project coordinator reported that the onset of COVID-19 has driven interest in the use of telehealth technology, provided insight into local EMS needs, and helped inform the direction of their project activities. Florida's project coordinator reported rural EMS providers have shown increased interest in the use of its Biospatial biosurveillance tool as a result of COVID-19. Project staff have been able to demonstrate the value of Biospatial as a tool to track COVID-19 cases and trends as well as improve the quality of EMS services. Project staff reported that participation in Biospatial increased from 12 to 50 percent of rural EMS agencies since the onset of COVID-19.

Additional Challenges

In addition to the COVID-19-related implementation challenges discussed above, grantees noted that they faced challenges on project, agency, and state levels. Several project staff explained that they faced a learning curve to understand all the moving parts of the grant and quickly implement the pilot projects. Other grantees noted that the complexity of their proposed projects created additional implementation challenges. Although South Carolina's project allows participating EMS agencies to select from one of three models to best meet their needs, it did require the grantee to develop separate protocols, training materials, and reporting requirements for each model. The complexity in Arizona's project lies in the need to select telemedicine partners, identify software and hardware vendors, test equipment, and develop data collection mechanisms.

At the agency level, grantees noted that may rural EMS agencies lack grant writing capacity which hinders their ability to apply to participate in pilot projects. Others highlighted the chronic understaffing at rural EMS agencies making it difficult for them to engage in the demonstration projects. Some grantees mentioned that cumbersome state contracting requirements created difficulties in distributing funds to participating EMS agencies on a timely basis. A few grantees reported that they needed to forge new relationships in state agencies due to organizational restructuring or staff redeployment due to COVID-19 responsibilities.

Factors Facilitating Project Implementation

Grantees identified several factors that facilitated the implementation of their pilot projects and helped them address COVID-19-related challenges or other implementation barriers. These factors included partnerships with EMS stakeholder organizations and state agencies, strong project leadership, the use of established evidence-based models, and regular communication with project participants and stakeholders.

Partnerships: All grantees emphasized the importance of project partners and stakeholders in the success of their implementation efforts. Important relationships at the local level include CAHs, Rural Health Clinics, Federally Qualified Health Centers, other rural medical facilities, and community health organizations. All grantees have close relationships with their state and regional EMS associations, and five states include their state hospital associations as partners. Other grantees described positive partnerships with state public health and/or EMS departments. One specific type of partnership noted by several grantees involved the use of subject matter experts. North Dakota and Florida, for example, are using experts and industry leaders to help identify rural-relevant quality measures. Ohio contracts with the Paramedic Foundation to provide community paramedicine training and Kentucky is working with the American Heart Association for technical support on its cardiac arrest-focused initiatives.

Project Leadership: Several grantees identified the importance of hiring project coordinators with rural EMS experience as their expertise and connections can support the ongoing success of their projects. Project coordinators for Arizona and Washington, hired under their grants, have EMS experience that enabled them to easily communicate with contracted EMS agencies. The EMS coordinator for the North Dakota project has national experience with EMS data and organizations and, as a result, is well-positioned to work with state data and recruit subject matter experts for their advisory panel. Florida's project coordinator's extensive EMS experience helped build connections with rural EMS agencies and convince them to participate in the data reporting project.

Reliance on Evidence-Based Models: South Carolina explained that the Centers for Medicare & Medicaid Services' Emergency Triage, Treat, and Transport (ET3) program[8] helped ease the development of its Alternate Destination and Treat-No-Transport projects given their similar goals of improving quality of care and lowering costs by reducing unnecessary ambulance transports to the ED. The conceptual framework of the ET3 model informed the development of South Carolina's two project options which, according to its application, are intended to prepare rural EMS agencies to participate in ET3 and other evolving EMS payment models.

Regular Project Communication: When the lead contact for one of Ohio's three community paramedicine projects was furloughed, the contact person at one of the other sites took on that role for both sites, which streamlined communication and allowed the project to proceed. Florida's EMS project coordinator made a concerted effort to stay in close communication with the rural EMS agencies, especially during the onset of COVID-19, to provide support and encouragement to help keep their project on track. Targeted communication by the Washington EMS project coordinator helped secure rural EMS participation in its initiative.

ROLE OF STATE FLEX PROGRAMS

The eight SFP grantees have responsibility for managing the overall implementation of the demonstration projects, with operational project direction most often the responsibility of either the Flex Coordinator or a project coordinator hired specifically for their expertise in EMS and project management. These project coordinators spoke highly of the support provided by the State Offices of Rural Health in facilitating networking with stakeholders and community organizations, and their responsiveness to contractual and regulatory issues related to the implementation of the pilot projects. SFPs also facilitate information sharing between EMS agencies and CAHs, including best practices on topics such as out-of-hospital cardiac arrest, community paramedicine, and data reporting. Additionally, SFPs help promote and support leadership training opportunities for rural EMS staff to encourage workforce recruitment and retention.

ADAPTING PROJECTS IN RESPONSE TO COVID-19

Use of Virtual Communication Technologies

Grantees reported that the onset of COVID-19 in early 2020 disrupted their implementation plans. One significant change involved the transition to virtual communication platforms and other electronic tools to compensate for restrictions on travel and face-to-face meetings. South Carolina's EMS project coordinator developed an electronic survey to collect baseline data on the capacity and needs of rural EMS agencies to support recruitment efforts. Arizona's project

coordinator reported that implementation delays provided an opportunity for additional virtual training on data tracking systems as well as the testing of telemedicine devices. New Mexico held its trainings for EMS service chiefs, providers, and medical directors virtually after the cancellation of state and regional EMS conferences. Washington's project manager explained that COVID-19-related restrictions on face-to-face meetings reduced long-standing resistance from rural and remote EMS agencies on the use of virtual meeting technology to conduct training sessions. This will be beneficial even when in-person meeting restrictions are lifted as it will reduce the travel time and costs of conducting meetings and trainings in rural areas.

Revising Logic Models, Workplans, and Timelines

As our interviews with grantees were conducted relatively early in the pandemic (late May/early June 2020), grantees were just beginning to identify the short term impact of COVID-19 on their project activities. At the time, few grantees reported that they had undertaken significant revisions to their workplans and timelines. As the effects of COVID-19 continue to impact EMS agencies and will likely to do so for the foreseeable future, grantees would benefit from re-examining their workplans, timelines, logic models, and project activities to adapt their projects to this changed environment.

EVALUATION RECOMMENDATIONS

Given FORHP's intent to use this funding program to build an evidence base for rural EMS activities in the Flex Program and to share the results of funded projects with rural EMS stakeholders, it is important that the output and outcome measures identified by grantees be logically sequenced and aligned to collect the desired evidence. In recognition of the three-year funding cycle, it is important that grantees prepare an evidence-based chain of outcomes that rolls up process and output measures related to project implementation (year 1) as well as short and intermediate term outcome measures related to project activities (years 2 and 3). The chain of outcomes should support and document progress toward long term outcomes. They should also be tied to planned project activities and identify data sources to support the selected measures. Grantees should further document project strategies and activities to support dissemination of promising practices and enable other SFPs' rural EMS stakeholders to explore the implementation of similar initiatives.

NEXT STEPS

The next phase of this evaluation will focus on the output and outcome measures proposed by the eight grantees for their projects as well as the alignment of those measures with project activities. Source documents will include their original applications, workplans, and logic models as well as their non-competing continuation applications, workplans, and progress reports. The FMT will also conduct interviews with grantees and project staff to review their chains of outcomes and data sources as well as provide feedback to the grantees on the alignment of their measures with project activities. Information collected through this process will be used to update the measures in their tracking reports.

In addition, the FMT will also continue its ongoing monitoring of the activities and outcomes of the eight projects using their semi-annual data tracking reports, their non-competing continuation applications, progress reports, and data collected through periodic interviews with the grantees and project staff. A policy brief will be produced at the end of the grant year.

REFERENCES

1. National Rural Health Resource Center, Technical Assistance Services Center. *Medicare Rural Hospital Flexibility Program Structure for FY 2019 – FY 2023*. Accessed November 26, 2019. https://www.ruralcenter.org/sites/default/files/Flex%20Program%20Structure%20 for%20FY%2019%20-%20FY%2023%20v1.0.pdf

2. King N, Pigman M, Huling S, Hanson B. *EMS Services in Rural America: Challenges and Opportunities.* 2018. https://www.ruralhealthweb.org/NRHA/media/Emerge_NRHA/ Advocacy/Policy%20documents/05-11-18-NRHA-Policy-EMS.pdf

3. Gale J, Coburn AF, Pearson K, Croll Z, Shaler G. Developing Program Performance Measures for Rural Emergency Medical Services. *Prehosp Emerg Care*. Mar-Apr 2017;21(2):157-165. doi:10.1080/10903127.2016.1218978

4. Gale J, Pearson K, Jonk Y. *Exploring State Data Sources to Monitor Rural Emergency Medical Services Performance Improvement.* 2020. Briefing Paper #43. https://www.flexmonitoring. org/publication/exploring-state-data-sources-monitor-rural-emergency-medical-services- performance

5. Howard I, Cameron P, Wallis L, Castren M, Lindstrom V. Quality Indicators for Evaluating Prehospital Emergency Care: A Scoping Review. *Prehosp Disaster Med*. Feb 2018;33(1):43-52. doi:10.1017/s1049023x17007014

6. Mashoufi M, Ayatollahi H, Khorasani-Zavareh D. A Review of Data Quality Assessment in Emergency Medical Services. *Open Med Inform J*. 2018;12:19-32. doi:10.2174/1874431101812010019

7. Federal Office of Rural Health Policy. *Medicare Rural Hospital Flexibility Program–– Emergency Medical Services Supplement. Notice of Funding Opportunity.* 2019. HRSA-19-095.

8. Centers for Medicare & Medicaid Services. *Emergency Triage, Treat, and Transport (ET3) Model*. Updated May 29, 2020. Accessed July 7, 2020. https://innovation.cms.gov/innovation- models/et3

9. Ferrell J. *Florida uses Biospatial to measure EMS system performance.* Updated May 7, 2019. Accessed July 20, 2020. https://www.biospatial.io/article-performance- benchmarks-20190509

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