

Community Paramedicine in Rural Areas: State and Local Findings and the Role of the State Flex Program

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PURPOSE

Community paramedicine is a quickly evolving field in both rural and urban areas as Emergency Medical Services (EMS) providers look to reduce the use of EMS services for non-emergent 911 calls, overcrowding of emergency departments, and healthcare costs. In rural areas, community paramedics help fill gaps in the local delivery system due to shortages of primary care physicians and long travel times to the nearest hospital or clinic.

This study examined the evidence base for community paramedicine in rural communities, the role of community paramedics in rural healthcare delivery systems, the challenges faced by states in implementing community paramedicine programs, and the role of the state Flex programs in supporting development of community paramedicine programs. Additionally, the study provides a snapshot of community paramedicine programs currently being developed and/or implemented in rural areas.

APPROACH

Our approach combined a survey of state EMS officials and directors of state Offices of Rural Health (SORHs) and/or state Flex coordinators with in-depth follow-up interviews between January and September 2013 of these state-level personnel and local EMS and hospital providers in selected states. We also reviewed state Flex grant applications from 2010-2012 to examine state work plans and funding to support community paramedicine initiatives. Additionally, we conducted a literature review of peer-reviewed healthcare journals as well as articles and reports from the trade literature and the EMS industry which focused on the integration of EMS into local healthcare delivery systems.

BACKGROUND

Medicare Rural Hospital Flexibility Program Context

The Medicare Rural Hospital Flexibility Program (Flex program), created by Congress in 1997, provides grants to 45 state Flex programs to support the implementation of initiatives to strengthen the rural health care infrastructure. Participating state Flex programs are required to undertake activities to support hospitals and communities in the following core areas:

1. Improving the quality of services provided by Critical Access Hospitals (CAHs);
2. Improving the financial and operational performance of CAHs;
3. Developing local/regional systems of care with CAHs as the hub,

Key Findings

- Many rural community paramedicine programs are in pilot stages.
- Most community paramedics work within an expanded role rather than an expanded scope of practice, the latter requiring legislative or regulatory change.
- Funding and reimbursement for community paramedicine services are major challenges for the sustainability of community paramedicine programs.
- Data collection is vital for community paramedicine programs to be able to show value, including shared saving and patient outcomes.
- Collaboration at local and state levels is essential for buy-in, and partnering with the State Office of Rural Health is especially helpful in the early development and outreach efforts for rural community paramedicine programs.

enhancing the community engagement of CAHs, and integrating EMS into those local and regional systems of care;

4. Facilitating the conversion of eligible hospitals to Critical Access Hospital status.

The third core area of integrating EMS into the local and regional system of care suggests a conceptual home for the community paramedicine approach and emerging models as well as a strategic home for how Flex programs can respond to community paramedicine initiatives. Previous work by the Flex Monitoring Team¹⁻⁴ has identified the persistent challenges state Flex programs have faced in supporting the improvement and integration of EMS and the development of regional systems of care.

Rural Context

Access to health care services in rural areas is challenged by fragmented and uncoordinated delivery systems, poorly resourced primary care services, geographically isolated providers, and rural populations that tend to be older and sicker than in urban areas.⁵ Hospital readmission rates are high for all Medicare beneficiaries; research has shown that nearly one in five patients are readmitted within 30 days of discharge, with many more returning to the emergency room.⁶⁻⁹ Additional demographics show that a large segment of the U.S. population lives in medically underserved rural areas, with rural counties accounting for 63-77% of designated Health Professional Shortage Areas.^{10,11} Rural adults residing in these shortage areas were also less likely to have a regular primary care provider.¹² According to the 2010 National Advisory Committee on Rural Health and Human Services, there were only 55 rural primary care physicians for every 10,000 people in rural areas compared to the estimated 95 per 10,000 needed.¹³ For 57 million Americans, a trip to the physician's office may require a lengthy drive and considerable expense.^{11,14,15} One-fifth of the U.S. population lives in rural, remote, and/or frontier areas, yet only 10% of the nation's physicians practice in these areas.^{16,17} A coordinated system of care is part of a strategy for health improvement and was recently cited as a strategy for reducing hospital readmissions by bridging the gaps between settings of care.^{18,19}

Filling the Gap: Community Paramedicine

Community paramedicine provides a way to fill this gap in rural areas that either have limited primary care services or lack them entirely. According to the *National Consensus Conference on Community Paramedicine*, "Community paramedicine provides care for patients at home or in other non-urgent settings outside of a hospital under the supervision of a physician or advanced practice provider.

Community paramedicine can expand the reach of primary care and public health services by using EMS personnel to perform patient assessments and procedures that are already in their skill set."²⁰

The specific roles and services of a community paramedic are determined by community health needs and in collaboration with local public health departments and medical directors.²¹

While there is no universal definition, there are common themes which define both the field of community paramedicine and the role of the community paramedic:

- **An emerging field** in healthcare where Emergency Medical Technicians (EMTs) and Paramedics operate in expanded roles in an effort to connect underutilized resources to underserved populations.²¹ Community paramedics are also seen as part of an emerging concept of **mobile integrated healthcare** which proposes to integrate the larger spectrum of community healthcare and technology: telemedicine, mental health, social services, nurse triage lines, and public safety.²²
- **A model of care** whereby paramedics apply their training and skills in "non-traditional" community-based environments (outside the usual emergency response/transport model). The community paramedic may practice within an "expanded scope" (applying specialized skills/protocols beyond that which he/she was originally trained for), or "expanded role" (working in non-traditional roles using existing skills).²³
- **An organized system of services**, based on local need, which are provided by EMTs and paramedics integrated into the local or regional health care system and overseen by emergency and primary care physicians.²⁴

These definitions arise from numerous organizations, focus groups, and EMS-focused agenda documents which describe EMS systems and guide efforts to strengthen and improve EMS.^{21,21,25-37}

According to a recent survey of EMS professionals, community paramedicine programs that emphasize reducing readmissions were identified as one of the most common models in rural areas, with "primary care/physician extender" models most common in the frontier areas.³⁸

However, community paramedicine is not the only model to seek to fill the gap and provide coordination of care in rural areas. Other models include Community Health Aides, Community Health Workers, Community Care Teams, and most recently, Primary Care Technicians. A recent

article in *Health Affairs*³⁹ presents the case for using primary care extenders (“technicians”) from the field of EMS as a new model to help fill the gap in primary care coverage. Thus, the role and functions of these primary care technicians matches those of a community paramedic: they receive clinical training, provide in-home visits, work under medical direction, manage patients with chronic conditions, and help to prevent hospital readmissions.

Scope of the Problem: Issues and Challenges Facing Community Paramedicine in Rural Areas

One of the challenges facing the field of community paramedicine is the potential overlap with other health care professionals such as those mentioned above as well as home health care professionals. Wang⁴⁰ notes that in pilot community paramedicine programs or those that are rapidly implemented, the lack of clarification on the expanded roles for the community paramedic may cause resistance from other health care professionals.

Issues of recruitment, retention, and medical direction are dominant in any discussion of rural EMS, along with geographic barriers, inadequate opportunities and limited financial resources for training.^{20,41,42} Community paramedicine programs will need to address these challenges as well as issues of licensure, scope of practice,⁴¹ integration, and, importantly, reimbursement.⁴⁴

EMS services have predominantly focused on the transport of patients for emergent conditions. Over time, however, the use of EMS and ambulance services for non-emergent, low-acuity situations (sprains, flu-like symptoms, etc.) has increased.⁴⁴ For example, in Nebraska, 62% of all emergency transports in 2011 were considered non-emergent.⁴⁵ Although the Centers for Medicare and Medicaid Services (CMS) modified the Ambulance Fee Schedule in 2002 for EMS emergency transport to include inter-facility specialty care transport, the model for EMS still remains transport-based and reimbursed accordingly; non-transport services are not typically reimbursed by third party payers. The concept of EMS providing a “treat and referral” or a “treat and release” service was not built into the EMS payment model, yet this type of service, in many cases, is currently being provided by rural EMS personnel.^{25,29,42,46} Innovative financial models for non-emergency transport are also being considered at the federal level.⁴⁶

STATE AND LOCAL PERSPECTIVES ON COMMUNITY PARAMEDICINE

In the fall of 2012, we emailed a preliminary survey to directors of all state EMS agencies and SORHs to identify states with rural community paramedicine programs. Based on responses, we conducted phone

interviews with key state and local stakeholders to gather further information about these programs. As of September 2013, we had interviewed 35 community paramedicine stakeholders in 17 states. Additionally, we interviewed the both the co-founder of the International Community Paramedicine organization and the Director of Provincial Programs for the Emergency Health Services in Nova Scotia for background information on the development of community paramedicine programs (see Appendix A).

In general, the majority of the rural community paramedicine programs about which we learned are in development or pilot stages. Colorado has the longest history of rural community paramedicine development. Minnesota has the most developed community paramedicine programs, but they are primarily based in the metropolitan area around Minneapolis; they have recently expanded to rural areas. Maine launched 12 pilot community paramedicine programs in 2013, with all but two in rural areas.

We categorized our interviews with the states according to the following themes, which will be discussed in more detail below.

- Collaboration and Stakeholder Involvement
- Expanded Role vs. Expanded Scope, Medical Direction, and Legislative Barriers
- Education and Training
- Funding and Reimbursement
- Integration with Other Health Providers and the Rural Healthcare Delivery System
- Data Collection and Outcomes Evaluation
- Role of the SORH and the state Flex program

Collaboration and Stakeholder Involvement

Overall, we learned from our interviews with state officials and local EMS providers that stakeholder involvement and buy-in are essential elements in the successful implementation of a community paramedicine program. In Colorado, for example, a number of important associations are at the table in discussions related to community paramedicine programs. The Colorado Department of Health and Environment is a key stakeholder. Additional stakeholders include the Colorado Rural Health Center, the nursing association, and the medical society. The Colorado Rural Health Center, the administrative home for the SORH and Flex offices, has provided meeting facilitation and financial support to the community paramedicine program as well as incorporating presentations from staff of the Western Eagle County Ambulance District (WECAD) community paramedicine program at their annual Rural Health conference.

Maine is an example of how existing state-level relationships have helped to quickly and substantially implement 12 Community Paramedicine pilot sites across the state. Both the state EMS director and the director of the Rural Health and Primary Care program at the Maine Centers for Disease Control & Prevention (SORH) reinforced the fact that their long-standing collaboration has allowed them to convene joint meetings of Critical Access Hospital quality improvement groups and EMS personnel to discuss issues related to community paramedicine.

In Georgia, stakeholder groups convened by the SORH have developed planning grants funded by the SORH for community paramedicine pilot sites. The Wisconsin SORH, working with the Baraboo County EMS, has obtained buy-in from stakeholders including the county and local public health departments, the visiting nurses association, the Ho-Chunk tribal nation, and, importantly, the local hospital, which has given permission to allow access to their electronic health record (EHR) once the community paramedicine program is up and running.

In Nebraska, the Rural Nebraska Regional Ambulance Network (RNRAN) took the lead in moving the community paramedicine program along. The stakeholder group included the state EMS/Trauma program staff, paramedics, state EMS Medical Director, the director of Creighton University's EMS educational program, home health, EMS coordinator at a large urban hospital, a community college representative, and the Elkhorn Logan Valley Public Health department. The SORH was also included in this effort. Nebraska has three community paramedicine programs underway: one rural (Kearney), one suburban (Scottsbluff), and one urban (Omaha, which is currently under development).

Although the following states did not have community paramedicine programs underway at the time of our study, the SORH/Flex program and/or the state EMS offices in Arizona, Iowa, North Dakota, and New Hampshire are each collaborating to bring interested parties together in their states to discuss community paramedicine issues, set strategies, and determine priorities for community paramedicine programs and pilot sites.

Expanded Role or Expanded Scope, Medical Direction, and Legislative Barriers

There is some concern across the states that establishing a community paramedicine program might require authorizing legislation for a new

scope of practice for paramedics, or, at a minimum, an additional level of licensure. The majority of state EMS directors with whom we spoke are opposed to legislative changes regarding the community paramedic's scope of practice, and many note that their current statutes allow for an expanded role—outside of emergency transport—for the paramedic. Both Basic and Advanced level paramedics are the primary personnel considered for community paramedic services due to the advanced training they receive. State EMS scope of practice regulations will determine the extent to which EMTs can perform these services.

The key is to provide medical direction and oversight for the paramedic when providing community-based services. Medical direction is most often provided by the EMS Medical Director, a licensed physician who provides oversight and medical control for the paramedic. This level of oversight is built into all current community paramedicine programs, and medical direction can come from the EMS medical control, the hospital emergency physician, or the primary care provider (PCP). However, it is still an issue in some of the more rural areas where there is a shortage of full-time medical directors.²⁰

At the local level, EMS chiefs and medical directors are also hesitant to increase the paramedic's scope of practice. They understand that, with additional education and clinical training on chronic disease management, paramedics can utilize their existing skills in a community or home setting. EMS providers and state EMS directors were both quick to assure us that this expanded role for community paramedics was not taking away jobs from other health care professionals, such as home health providers, but, rather, was filling the gaps in the healthcare delivery system to meet the specific needs of the rural community.

Maine and Wisconsin both required legislative action in order to authorize the development of community paramedicine pilot programs; no changes were made in paramedic licensure. Minnesota's legislature established a reimbursement mechanism through Medicaid for services provided by community paramedics. Minnesota's legislation changed the list of Medicaid-approved services. Nebraska also received legislative approval in 2012 to change the definition of emergency medical services without expanding the scope of practice.

Education and Training

Community paramedicine is also viewed as a way of recruiting and retaining paramedics.⁴⁷ In many rural areas where call volume is low, it provides rural paramedics with a means to keep their clinical skills

sharp. For those paramedics looking to further their career opportunities, several educational institutions (e.g. Colorado Mountain College in Colorado and Hennepin Technical College in Minnesota) have developed community paramedicine certificate programs.²⁷ Most require a designated number of classroom (or online) hours in addition to a clinical rotation.¹⁷ Hennepin Technical College's Community Paramedic curriculum includes 112 hours of classroom instruction (64 hours of face-to-face or via interactive television and 48 hours of online instruction) and 196 hours of clinical training, which can be arranged in eight EMS regions in the state.

In the case of Humboldt County, Nevada, EMS personnel take online courses through Colorado Mountain College and complete their clinical training at the local hospital. Three Abbeville County (South Carolina) paramedics as well as the agency's EMS director and deputy director have also taken the online coursework provided by Colorado Mountain College. Following their local clinical rotations, they completed their clinical training with MedStar Mobile Healthcare in Fort Worth, Texas. MedStar also provides a 2-day intensive training on community paramedicine for EMS personnel, hospital administrators and communications staff.

In Prosser, Washington, the local CAH which operates the EMS service worked locally with Heritage University in Yakima to develop its own training program. Heritage University patterned their program on the Colorado Mountain College curriculum, which emphasizes communication skills, disease-specific education, wound care, and patient education information.

In Maine's 12 recently-launched community paramedicine pilots, the local EMS agencies either provide the training in-house with their partner healthcare organization or have their paramedics take courses at nearby community colleges. Currently, there is no statewide training program or requirements.

Each of the pilot community paramedicine sites in Nebraska have completed approved national curriculum and training requirements.

Funding and Reimbursement

While there are many advantages to community paramedicine's approach to an integrated system of care, several challenges exist, chief among them funding and reimbursement.^{48,20} Funding for many community paramedicine programs is provided primarily from local resources, with many local EMS agencies covering the cost of the community paramedic out of their operational budgets.

State support (funding and/or reimbursement) for pilot projects is either very limited or non-existent.

Currently, only Minnesota has managed to secure state (Medicaid) reimbursement for community paramedic services. Some hospitals that own their own ambulance services provide financial support for their community paramedicine programs in the belief that they will ultimately generate cost savings through reduced readmissions. (Nebraska, Nevada, and Maine are examples). South Carolina (Abbeville Area Medical Center and County EMS) and Washington (Prosser Memorial Hospital and EMS) are using foundation and federal grant funds, respectively, for their pilot community paramedicine programs. Colorado's funding stream for their community paramedicine program includes local foundation support; additionally, they are looking to local hospitals to reimburse for community paramedic services to offset the cost of an additional FTE community paramedic.

Each of the Maine community paramedicine pilot projects is self-funded according to the pilot project application guidelines. One pilot project, based in a municipal fire-rescue unit is funded by the municipality; others EMS agencies that are hospital-owned are funded for their community paramedic personnel and equipment needs through the general operating budgets of the hospital. The EMS-based pilot projects provide their own funding to support the project.

Concerns were raised in many of our interviews about the willingness of hospitals and EMS agencies to continue to support community paramedicine programs in the absence of long-term secure third party reimbursement.

Another more promising reimbursement strategy is that of cost-avoidance—or shared savings, a strategy being developed in urban locations. This shared savings strategy is one in which the community paramedicine program shares the savings for reducing readmissions; if the patient is readmitted within 30 days, the community paramedic program does not get paid. We learned that Lifeguard Ambulance Service is working with St. Vincent's Hospital in Birmingham, Alabama on a pilot hospital readmission prevention project with two urban and two rural hospitals. The participants are exploring different shared savings strategies including bundled payments and an at-risk payment methodology where Lifeguard would receive a percentage of the cost savings for each patient not readmitted within 30 days, with no payment if the patient is admitted within that 30-day window. Lifeguard's payment methodologies have attracted interest from payers and area hospitals in the Birmingham area.

Similarly, MedStar has engaged in numerous discussions and negotiations on a shared savings model with hospitals, hospice agencies, and an

Accountable Care Organization (ACO) which has a risk-sharing arrangement with a Medicare managed care organization. MedStar is currently reimbursed through a “fee-for-referral” approach and is moving toward a shared savings model in which they would split the savings with the hospital 80/20 for preventing a readmission within 30 days.^{49,50}

The only rural example of a negotiated shared savings arrangement, that we are aware of, is Colorado’s Eagle County Ambulance District (formerly WECAD) which has an arrangement with an area hospital to recoup a portion of the savings that results from preventing readmissions. As mentioned previously, they are also pursuing reimbursement arrangements with another area hospital, which will allow for expansion of FTEs for community paramedics.

Integration with Other Health Providers and the Rural Healthcare Delivery System

One common theme that arose during our interviews was the importance of developing community paramedicine services within the context of a community’s unique identified needs. Community paramedicine experts recommend undertaking a community health assessment prior to developing a program at the local level.^{21,35} Using information on identified needs, community paramedics can work with their medical directors as well as local emergency department and PCPs, public health departments, home health agencies, and other providers to develop services to address those needs.

Based on our interviews, services commonly provided by community paramedics include physical assessment; medication compliance and reconciliation; post-discharge follow-up (within 24-72 hours as directed by the hospital, PCP, or medical director); chronic disease management (usually for congestive heart failure, AMI, or diabetes); patient education; home safety assessment/fall risk prevention; immunization/flu shots; and referrals to either medical or social services. (See Appendix C.)

According to our respondents, care coordination is the focus of many integration activities between community paramedics and other local health care providers. For example, the Abbeville Area Medical Center (a CAH in South Carolina) is collaborating on activities with Abbeville County EMS to provide expanded care coordination services including the use of community paramedics for community and home-based care. Community paramedics will conduct physician-ordered home visits for patients identified by the hospital or EMS.

Prosser Memorial Hospital in Washington, also a CAH, is the recipient of a three-year CMS Innovation Grant to implement a hospital-based community paramedic program, targeting patients at high risk of

readmission, who were then placed into one of three cohorts: 1) Patients who had been hospitalized 5 or more times in the past 18 months. 2) Surgical patients with high risk of infection, and 3) Patients the doctors considered to be at high risk for readmissions. Initial results showed that nearly one-third of the patients identified across the three cohorts needed some type of intervention from the community paramedic, with the most common being reminders to take medications and helping schedule follow-up doctor visits.⁵¹

The goal of Eagle County Ambulance in Colorado is to integrate community paramedics into the local system of care; for example, trained community paramedics will assist the PCP to ensure patients receive proper follow up care. To that end, Eagle County Ambulance prepared a Community Paramedic Protocols Manual⁵² to guide community paramedics in their work with PCPs. Eagle County community paramedics are trained to assist with wound care, post-discharge follow-up, chronic disease management (asthma, diabetes, obstructive sleep apnea, etc.) and provide home visits/assessments in response to a medical provider’s order. They partner with home health providers, and link the patient information back to the PCP or connect the patient to a PCP if they don’t have one.

Maine’s 12 pilot community paramedicine programs, still in the early stages of operation, plan to provide a variety of care coordination services, from chronic disease management to medication reconciliation and home safety checks. All 12 programs have identified the need to work with PCPs and the hospitals to address the ongoing needs of patients with diabetes, congestive heart failure, chronic obstructive pulmonary disease and asthma as a way to help reduce hospital admissions or readmissions.

Data Collection and Outcomes Evaluation

Results from our interviews suggest that data collection and program evaluation are important considerations for community paramedicine providers and state policymakers in the development of local programs. Evaluation data on program performance and outcomes are necessary to demonstrate program value to funders, hospitals, and third party payers and build an evidence base for community paramedicine programs. Ideally, our respondents noted that this should be done during program development to establish required data elements, relevant outcomes, and data collection strategies.

As they work on the development and implementation of their community paramedicine programs, states and localities are also working on their data collection efforts. The data collected

for these programs depend on the type of services provided, and whether they are affiliated with a CAH or hospital system. (See Appendix B for types of services and Appendix C for types of data collected.) Some programs focus on process measures such as patient satisfaction,⁵³ and ensuring that all patients served by community paramedics without a medical home have one within a certain number of visits. Other programs look to reduce hospital readmissions, the risk of injuries sustained in falls among elderly patients, and medical and prescription costs; as such, their data collection strategies will reflect the desired outcomes of their programs.

The community paramedicine program at Prosser Memorial Hospital has already realized a significant decrease in cohort 2 (surgical patients with high risk of infection) due to the follow-up wound care provided by the community paramedics.

Several EMS agencies have modified or are in the process of modifying their run reports to allow for documentation of the community paramedic home visit. Eagle County Ambulance ties their community paramedicine visit information on their run reports into the regional Health Information Exchange (HIE). Maine is working at the local and state levels to incorporate EMS information into HealthInfoNet, the state's HIE. Georgia's State Office of EMS and Trauma has created a separate electronic EMS pre-hospital care report for community paramedics, based on non-transport issues, which can be emailed or faxed to the hospital or the PCP, depending on where the initial order originated. It is also logged into the state run report database.

The Abbeville, South Carolina CAH is using its two-year grant from the Duke Endowment to implement a community paramedicine project in partnership with the local EMS agency. They plan to track individual health outcomes on an anticipated patient population of 100-300 residents of Abbeville County who are frequent users of inpatient, outpatient, emergency department, and emergency medical services. They will also track realized cost savings. Specifically, they project a 6% increase in patient satisfaction rates, a 20% reduction in the number of non-emergent 911 ambulance transports, and savings of more than \$25,000 for prevented ED admissions for non-emergent conditions. The South Carolina Rural Health Research Center will be conducting the program evaluation.

Role of the State Office of Rural Health and the State Flex Program

According to our interviews, partnering with SORHs is helpful in all phases of community paramedicine program development, but is especially useful in early development and outreach efforts. SORHs can

help provide seed funding, technical assistance, outreach, and facilitation of stakeholder meetings

Additionally, our interviewees noted that partnering with local, regional, and state stakeholders not only provides buy-in for community paramedicine programs, but also establishes a network of resources to support the implementation and sustainability of local community paramedicine programs, with continuity and potential replication across the state.

State Flex programs are required to include at least one of the following activities in their work plans under the core area of Health Systems Development and Community Engagement:⁵⁴

1. Support CAHs, communities, rural and other hospitals, EMS, and other community providers in developing local and/or regional health systems of care;
2. Support inclusion of EMS into local/regional systems of care and/or regional and state trauma systems;
3. Support CAHs and communities in conducting or collaborating on assessments to identify unmet community health and health service needs.
4. Support CAHs and communities in developing collaborative projects/initiatives to address unmet health and health service needs.
5. Support the sustainability and viability of EMS within the community. [Optional Objective]

In 2010-2011, five state Flex programs undertook community paramedicine activities as part of their work plans to support rural health systems development and EMS. In 2012, the number nearly doubled, with nine states including community paramedicine initiatives in their state Flex grant applications. Six of those states provided targeted funding for community paramedicine training and training materials; all nine provided facilitation of stakeholder meetings and outreach efforts.

POLICY CONSIDERATIONS

Community paramedicine programs have the ability to fill gaps in rural health care delivery systems, providing a role in the care coordination of patients at risk for hospital readmission, and meeting the needs of the rural community where there is a shortage of primary care providers. Integrating community paramedics into the delivery system is one of the challenges. State EMS agencies and SORHs are vital players in disseminating information about community paramedicine programs and bringing stakeholders to the table, including local EMS agencies, home health agencies, public health departments, social service agencies, Critical Access

Hospitals, Rural Health Clinics, and Federally Qualified Health Centers among others.

Financial support for community paramedic services is another significant challenge, especially in rural areas. SORHs and state EMS agencies can work together with local and regional hospitals, primary care providers, and insurance companies to develop incentive structures and reimbursement mechanisms to allow community paramedics to assess and treat patients in their homes. Securing Medicaid reimbursement for services provided by community paramedics may require changes in state legislation or regulation. The Minnesota experience provides a model for such changes, in which only the list of Medicaid-approved services was changed to encompass those provided by community paramedics. An approach which does not require legislative changes is the shared savings model currently in use by Eagle County Paramedic Services in Colorado and MedStar in Texas, and is under consideration in Alabama. This negotiated contract approach provides incentive to prevent hospital readmissions.

Patient centered medical homes (PCMHs), health homes, and ACOs may offer opportunities to integrate community paramedics into the healthcare delivery system. Collaboration appears to be an important key for the success of community paramedicine programs based on our interviews. Additionally, partnering with a hospital may provide more options for reimbursement strategies.

Data collection and evaluation strategies are crucial elements to be considered during the development of a community paramedicine program and necessary to document the value of the service to the local delivery system as well as for policymakers, funders, and third party payers. An evaluation plan focusing on initial, intermediate and long-term process and outcome measures will provide important data necessary to develop long term support for community paramedicine programs. These evaluation results will also contribute to the development of the evidence-base for community paramedicine, and thus provide SORHs and Flex programs with documentation and models to support the facilitation and viability of community paramedicine programs.

In order to demonstrate cost-savings and value to rural communities, community paramedicine programs will need to quantify the detailed costs for their services, and understand the local market conditions and service territory.²⁰ Additional important data elements include numbers of visits, types of visits, percentage of readmitted patients, and numbers of ED transports avoided.

Finding a “home” to serve as a public repository for information on all aspects of community

paramedicine is a necessary outgrowth of this emerging field. Such a repository will be of interest to other state and federal agencies and local communities. Information and resources relevant to community paramedicine posted to a publicly available website could include data and resources on medical direction, data collection, regulatory and statutory issues, and funding and reimbursement issues.

Role of the State Office of Rural Health and Flex Program

- Assist with community health needs assessment efforts
- Assist with community paramedicine outreach efforts
- Encourage and facilitate stakeholder involvement
- Ensure data collection and evaluation efforts
- Provide resources for training and training materials for community paramedics

To view or download the full report, please visit the Flex Monitoring website at <http://flexmonitoring.org>

For more information, please contact Karen Pearson at karenp@usm.maine.edu

REFERENCES

1. Gale J, Lenardson J, Gregg W, et al. *State Initiatives Funded by the Medicare Rural Hospital Flexibility Grant Program*. Portland, ME: Flex Monitoring Team;2007. Briefing Paper No. 15.
2. Gale JA. *Developing Regional STEMI Systems of Care: A Review of the Evidence and the Role of the Flex Program*. Portland, ME: University of Southern Maine, Flex Monitoring Team;2011. Briefing Paper No. 29.
3. Gregg W, Jennings N, Dickerson C. *State Flex Program EMS/Trauma Activities and Integration of Critical Access Hospitals into Trauma Systems*. Minneapolis, MN: Flex Monitoring Team;2010. Briefing Paper No. 27.
4. Patterson D, Gale JA, Loux SL, Yousefian AE, Slifkin R. *Emergency Medical Services (EMS) Activities Funded by the Medicare Rural Hospital Flexibility Program*. Minneapolis, MN: Flex Monitoring Team; February, 2006.
5. RUPRI Rural Health Panel, MacKinney AC, Mueller KJ, et al. *Pursuing High Performance in Rural Health Care*. Columbia, MO: RUPRI Rural Futures Lab;2012. Foundation Paper No. 4.
6. Goodman DC, Fisher ES, Chang C-H. After Hospitalization: A Dartmouth Atlas Report on Readmissions among Medicare Beneficiaries. In *The Revolving Door: A Report on U.S. Hospital Readmissions*. Princeton, NJ: Robert Wood Johnson Foundation; 2013:7-30.
7. Jencks SF, Williams MV, Coleman EA. Rehospitalizations among Patients in the Medicare Fee-for-Service Program. *N Engl J Med*. Apr 2 2009;360(14):1418-1428.
8. Klees BS, Wolfe CJ, Curtis CA. *Brief Summaries of Medicare and Medicaid: Title XVIII & Title XIX of the Social Security Act as of November 1, 2010*. Baltimore, MD: Centers for Medicare and Medicaid Services, Office of the Actuary;2010.
9. Mor V, Intrator O, Feng Z, Grabowski DC. The Revolving Door of Rehospitalization from Skilled Nursing Facilities. *Health Aff (Millwood)*. Jan-Feb 2010;29(1):57-64.
10. HRSA Data Warehouse. *Designated Health Professional Shortage Areas Statistics*. Washington, DC: U.S. Department of Health & Human Services, Health Resources and Services Administration, Bureau of Clinician Recruitment and Service;2013.
11. Ewing J. Rural Rx: A Program Developed in New Mexico May Change How Health Care Is Delivered in Rural America. *State Legis*. May 2012;38(5):20-22.
12. Doescher MP, Fordyce MA, Skillman SM, Jackson JE, Rosentblatt RA. *Persistent Primary Care Health Professional Shortage Areas (HPSAs) and Health Care Access in Rural America*. Seattle, WA: WWAMI Rural Health Research Center; September, 2009. Policy Brief.
13. National Advisory Committee on Rural Health and Human Services. *2010 Report to the Secretary: Health and Human Service Issues*. Washington, DC: NACRHHS;2010.
14. Economic Research Service. *Rural Definitions: National and State Indicator Tables*. [Data files].2012, July 5. Available at: http://www.ers.usda.gov/datafiles/Rural_Definitions/National_and_State_Indicator_Tables/ruraldefinitions.xls. Accessed January 29, 2014.
15. National Conference of State Legislatures. *Home and Community-Based Services: Meeting the Long-Term Care Needs of Rural Seniors*. Washington, DC: NCSL;2011. Rural Health Connection brief.
16. Alfero C, Barnhart T, Bertsch D, et al. *The Future of Rural Health*. Kansas City, MO: National Rural Health Association; February, 2013.
17. Wingrove G, Laine S. Community Paramedic: A New Expanded EMS Model. *Domain3*. 2008(Fall):32-37.
18. Boutwell A, Jencks S, Nielsen GA, Rutherford P. *State Action on Avoidable Rehospitalizations (STAAR) Initiative: Applying Early Evidence and Experience in Front-Line Process Improvements to Develop a State-Based Strategy*. Cambridge, MA: Institute for Healthcare Improvement;2009.
19. McDonald KM, Schultz E, Albin L, et al. *Care Coordination Atlas Version 3*. Rockville, MD: Agency for Healthcare Research and Quality; November, 2010. AHRQ Publication No.11-0023-EF.
20. Patterson D, Skillman SM. *National Consensus Conference on Community Paramedicine: Summary of an Expert Meeting*. Seattle, WA: University of Washington; February 2013.

21. Office of Rural Health Policy. *Community Paramedicine Evaluation Tool*. Rockville, MD: U.S. Department of Health and Human Services, Health Resources and Services Administration, ORHP; March, 2012.
22. Goodwin J. A Mobile Revolution: Finding a New Seat at the Healthcare Table. *EMSWorld*. July 2013;42(7):30-39.
23. International Roundtable on Community Paramedicine. *IRCP Vision and Mission Statements*. 2013, Available at: <http://www.ircp.info/>. Accessed July 5, 2013.
24. McGinnis K. *Rural and Frontier Emergency Medical Services: Agenda for the Future*. Kansas City, MO: National Rural Health Association;2004.
25. Joint Committee on Rural Emergency Care. *Improving Access to EMS and Health Care in Rural Communities: A Strategic Plan*. Washington, DC: National Association of State EMS Officials; July, 2010.
26. Joint Committee on Rural Emergency Care. *Rural EMS Committee 2012 Workplan*. Washington, DC: National Association of State EMS Officials; National Organization of State Offices of Rural Health;2012.
27. Joint Committee on Rural Emergency Care, National Association of State Emergency Medical Services Officials, National Organization of State Offices of Rural Health. *State Perspectives Discussion Paper on Development of Community Paramedic Programs*. Washington, DC: NASEMSO; December 2010.
28. Kizer KW, Shore K, Moulin A. *Community Paramedicine: A Promising Model for Integrating Emergency and Primary Care*. Davis, CA: University of California-Davis, Institute for Population Health Improvement; July, 2013.
29. National Highway Traffic Safety Administration. *EMS Agenda for the Future*. Columbus, OH: US Department of Transportation and Department of Health and Human Services; August, 1996.
30. National Highway Traffic Safety Administration. *2011 National EMS Assessment*. Washington, DC: U.S. Department of Transportation, National Highway Traffic Safety Administration;2012.
31. Nolan M. *Community Paramedicine: Submission to the Standing Committee on Health*. Manitoba, Canada: Emergency Medical Services Chiefs of Canada (EMSCC); December, 2011.
32. Office of Rural Health Policy. *Rural and Frontier EMS Agenda for the Future: A Service Chief's Guide to Creating Community Support of Excellence in EMS*. Rockville, MD: U.S. Department of Health and Human Services, Health Resources and Services Administration, Office of Rural Health Policy;2007.
33. Patterson DG, Skillman SM. *A National Agenda for Community Paramedicine Research*. Seattle, WA: University of Washington, WWAMI Rural Health Research Center; February, 2013.
34. Richmond NJ. *A New Paradigm for EMS: From Prehospital to out-of-Hospital Care*. Presented at the The EMS State of the Sciences Conference (A Gathering of Eagles); February 23, 2013; Dallas, TX.
35. Ryan JH, Montera CA, Ward L, Creek K, Berdoulay C, Robinson A. *Community Paramedic Program Handbook: Western Eagle County Health Services District*. Denver, CO: Colorado Department of Public Health and Environment, Emergency Medical Services Division;2011.
36. Sayre MR, White LJ, Brown LH, McHenry SD. National EMS Research Agenda. *Prehosp Emerg Care*. Jul-Sep 2002;6(3 Suppl):S1-43.
37. Womble M, DeTienne J, Wingrove G. *Community Paramedicine: Integrating EMS with Primary Care*. Washington, DC: Joint Committee on Rural Emergency Care; June, 2011.
38. National Association of Emergency Medical Technicians. *Community Paramedicine/ Mobile Integrated Healthcare Survey Summary*. Washington, DC: NAEMT; October, 2013.
39. Kellermann AL, Saultz JW, Mehrotra A, Jones SS, Dalal S. Primary Care Technicians: A Solution to the Primary Care Workforce Gap. *Health Aff (Millwood)*. November 1, 2013 2013;32(11):1893-1898.
40. Wang H. *Community Paramedicine*. 2011, January Available at: <http://ircp.info/Portals/11/Downloads/Research/Community%20Paramedicine%20Summary%20of%20Evidence%20-%20Hui%20Wang%20%202011%20January%2028.pdf>.

41. National Cooperative Highway Research Program. *Guidance for Implementation of the Aashto Strategic Highway Safety Plan. Volume 15: A Guide for Enhancing Rural Emergency Medical Services*. Washington, DC: Transportation Research Board of the National Academies;2005. NCHRP Report 500.
42. Rowley T. Solving the Paramedic Paradox. *Rural Health News*. Fall 2001;8(3):1-6.
43. Bigham BL, Kennedy SM, Drennan I, Morrison LJ. Expanding Paramedic Scope of Practice in the Community: A Systematic Review of the Literature. *Prehosp Emerg Care*. Jul-Sep 2013;17(3):361-372.
44. Niska R, Bhuiya F, Xu J. National Hospital Ambulatory Medical Care Survey: 2007 Emergency Department Summary. *Natl Health Stat Report*. Aug 6 2010(26):1-31.
45. Crawford CZ. *The Feasibility and Role of Community Paramedicine in Nebraska*. Omaha, NE: Nebraska Department of Health and Human Services, EMS/Trauma Program;2011.
46. National Highway Traffic Safety Administration, Office of the Assistant Secretary for Preparedness and Response, Health Resources and Services Administration. *Innovation Opportunities for Emergency Medical Services: A Draft White Paper*. Washington, DC: U.S. Department of Health and Human Services; July 15, 2013.
47. McGinnis K. EMS in the Flex Program: *Community Paramedicine and Other Considerations*. Presented at the 2011 National Conference on State Flex Programs; July 10-11, 2011; Portland, ME.
48. Munjal K, Carr B. Realigning Reimbursement Policy and Financial Incentives to Support Patient-Centered out-of-Hospital Care. *JAMA*. Feb 20, 2013;309(7):667-668.
49. Agency for Healthcare Research and Quality, AHRQ Innovations Health Care Exchange. *Trained Paramedics Provide Ongoing Support to Frequent 911 Callers, Reducing Use of Ambulance and Emergency Department Services*. 2012, February 13. Available at: <http://www.innovations.ahrq.gov/content.aspx?id=3343>. Accessed June 8, 2013.
50. Medstar Emergency Services. *Mobile Healthcare Programs--Overview*. 2013. Available at: <http://www.medstar911.org/community-health-program/>. Accessed July 5, 2013.
51. Mund E. What a Rural CP Program Is Revealing *EMSWorld*. 2013, May 1. <http://www.emsworld.com/article/10932227/what-a-rural-cp-program-is-revealing>. Accessed September 18.
52. Eagle County Paramedic Services. *Community Paramedic Protocols Manual*. Eagle County, CO: Eagle County Paramedic Services and Community Paramedic;2013.
53. Shah MN, Caprio TV, Swanson P, et al. A Novel Emergency Medical Services-Based Program to Identify and Assist Older Adults in a Rural Community. *J Am Geriatr Soc*. Nov 2010;58(11):2205-2211.
54. National Rural Health Resource Center, Technical Assistance and Services Center (TASC). *Support for Health System Development and Community Engagement*. 2013. Available at: <http://ruralcenter.org/tasc/ncc/health-system-community-engagement>. Accessed August 29, 2013.

Appendix A. State and Local Respondents

State	SORH / Flex	State EMS	Local EMS	Other	Notes "other" category personnel
AL	x		x	x	QI Director, St. Vincent's Hospital
AZ	x	x			Both Flex Coordinator and SORH Director
CO	x		x		
GA	x	x		x	President, EMS Association
IA	x	x			
ID			x		Email
ME	x	x	x	x	Pilot CP project coordinators
MN	x				SORH Director plus 3 SLORH staff members
ND	x				
NE			x	x	Scottsbluff EMS Director; NE Region EMS Specialist
NH		x			Written response on behalf of SORH
NV			x		
NY				x	Medical Faculty U-Rochester Medical School
PA	x				
SC	x		x		
TX			x		Director, MedStar Mobile Healthcare
WA				x	Qi Director, Prosser Memorial Hospital
WI	x		x		
Nova Scotia					Director of Provincial Programs, EHS, Dept. Health & Wellness
Community Paramedic.org					Co-Founder

Appendix B. Goals and Types of Community Paramedic Services

Goals	
Care Coordination	
Prevention of Hospital Readmission	
Reduction in Non-Emergent 911 Calls and Transport	
Services	
Assessment	Medication Administration
Blood Draws/Lab Work	Medication Reconciliation
BP/Vitals	Newborn Wellness Checks
Chronic Disease Management	O ₂ Saturation Checks
Diabetes Care	Patient Education
EKG	Referral (Medical or Social Services)
Falls Prevention	Transport to Doctor Appointments
Flu Shots	Weight Monitoring (CHF fluid retention)
Gait Assessment	Wellness Screening
Home Safety Assessment	Wound Care
Immunizations	

Appendix C. Types of Data Collected

Modified Run Report
Patient Satisfaction with CP/EMS
Provider Satisfaction with CP/EMS
Number of Scheduled PCP visits within 7 days
Number of Referrals to Other Services
Number of Hospital Admissions within 30 days
Number of Home Visits
Number of Assessments for Fall Risk
Number of Prevented Admissions for Non-Emergent Conditions
Number of Ambulance Transports for Non-Emergent 911 Calls
Number of 911 Calls from Frequent Users
Number of Patients Provided Medication Reconciliation and Management
Number of Patients Provided Disease-Specific Education and Treatment Management

Appendix D. Maine Community Paramedicine Pilot Programs

Maine Community Paramedicine Pilot Programs	Affiliation	Date of Operation	Urbanicity	Activities
Calais Fire and EMS	Municipal (Fire-Rescue)	June 2013	rural	In-home management of chronic diseases (CHF, COPD, hypertension); physical assessments/vital signs; medication reconciliation/compliance; home safety assessments, blood draws; 12-Lead EKG
Castine Fire Rescue	Volunteer	August 2013	rural	Focus on prevention; chronic disease management; monitor vital signs; home safety checks; medication reconciliation; diet/weight monitoring; wound care; other physician-directed care/treatment within scope of practice
Charles A Dean EMS	Hospital-based	December 2013	rural	In-home management of chronic diseases (CHF, COPD/Asthma, Diabetes); medical assessments; wound care/assessment; medication reconciliation/compliance; home safety assessments, phlebotomy, blood glucose analysis; non-emergent cardiac monitoring and infusion maintenance. All within ME Scope of Practice
Crown Ambulance	Hospital-based	September 2013	rural	Chronic disease management/monitoring (Diabetes, CHF, post MI conditions and other coronary syndromes; COPD/Asthma); blood glucose testing; wound assessment; routine eye exams; draw labs as needed; weight monitoring; medication reconciliation; spirometry testing and management of O2 delivery services
Delta/Winthrop EMS (2 services combined)	Private EMS Service	March 2013	urban	Address needs of recently discharged patients and recovering surgical patients; episodic assessment of patients with multiple comorbidities (i.e. CHF, COPD); weight/O2 saturation assessments; home safety assessments for at-risk patients; wound assessment;
Lincoln County Health Care	(mix of hospital and healthcare system and several local EMS services)	January 2014	rural	Post-discharge services; monitoring of chronic illnesses (i.e. Diabetes, CHF); readmission preventions; wound care assessments; diagnostic testing
Mayo EMS	Hospital-based	September 2013	rural	Address needs of cardiac (including post MI/Cardiac rehab) and diabetic patients with routine screenings, ECGs, medication reconciliation; blood glucose measurements/trends

Appendix D, continued

North Star EMS	Hospital-based	September 2013	rural	Reduce # of ER visits and hospital admissions by monitoring at-risk patients with multiple medical conditions; patient education; post-discharge surgical patients without home health services; home safety assessment; medication reconciliation; episodic assessments of weight, BP, oximetry, heart rate
Northeast Mobile Health	Private EMS Service	May 2013	urban	Reduce hospital admissions/readmissions by monitoring patients with chronic diseases and those with high risk of traumatic injury; patient evaluation/assessment; fall risk assessment; patient education; well-being checks
Searsport	Private EMS Service	September 2013	rural	Develop and implement fall prevention program; facilitate immunization and dental clinics; track patients with chronic diseases (esp. diabetes); well-check visits and assessments as directed by physician
St. George EMS	Volunteer (some paid staff)	September 2013	rural	Address identified community needs of diabetes, respiratory distress, hypertension, post surgical/post discharge patients; blood draws; episodic assessment/care; medication reconciliation/compliance or other services directed by the PCP
United Ambulance	Private EMS Service	August 2013	urban	Focus on non-emergent 911 callers to decrease the number of time the ambulance is utilized for these situations; work to reduce re-hospitalization rates for chronic disease patients (CHF, COPD, Diabetes); well-being checks; home safety inspection (including fall risk assessment); blood glucose monitoring and patient assessment

Appendix E. Selected Resources

Source	Web Address	Description
Community Paramedic website	http://www.communityparamedic.org/	Links to information and resources on community paramedic courses and curriculum
Community Paramedicine Insights Forum	http://cpif.communityparamedic.org/	Monthly webinars on practical experiences and issues related to community paramedicine
Community Paramedicine: A Promising Model for Integrating Emergency and Primary Care	http://www.ucdmc.ucdavis.edu/iph/Programs/CAHPF/resources/IPHI_CommunityParamedicineReport_Final%20070913.pdf	Provides a brief history of EMS in California, overview of community paramedicine nationally and internationally, and summary of California stakeholder discussions on role of community paramedicine in the state
HRSA Community Paramedicine Evaluation Tool	http://www.hrsa.gov/ruralhealth/pdf/paramedicevaltool.pdf	Community assessment tool for developing a community paramedicine program
International Roundtable on Community Paramedicine	http://ircp.info/	Website to promote international exchange of information on community paramedicine
MedStar Mobile Healthcare: AHRQ Service Delivery Innovation Profile	http://www.innovations.ahrq.gov/content.aspx?id=3343	Summary of MedStar's urban mobile health programs using community paramedics
Minnesota Community Paramedic Initiative	http://gatheringofeagles.us/2013/Saturday/Conterator-CP.pdf	Conference presentation in 2013 providing background and information on the Minnesota CP program
Mobile Integrated Healthcare/Community Paramedicine online interactive map	http://paramedicfoundation.org/jnemsif-survey/	Map and description of all community paramedicine programs reported through the survey by NAEMT. Locations organized by urban, suburban, rural, and super rural
NAEMT Community Paramedicine/Mobile Integrated Healthcare Survey Summary (Oct. 2013)	http://www.naemt.org/Files/11.1.13_CommunityParamedicineReport.pptx	Powerpoint summary of the MIH/CP survey; See link to interactive map above
National Agenda for Community Paramedicine Research	http://depts.washington.edu/uwrhrc/uploads/CP_Age	Goal was to discuss ways to foster rigorous evaluation and research on community paramedicine
National Consensus Conference on Community Paramedicine: Summary of an Expert Meeting	http://depts.washington.edu/uwrhrc/uploads/CP_Rep	Conference attendees representing EMS, SORH, local CP programs, healthcare professions and organizations, met in 2012 to identify consensus areas of policy and practice around six key issues for community paramedicine
State Perspectives Discussion Paper on Development of Community Paramedic Programs	http://www.nasemso.org/Projects/RuralEMS/documents/CPDiscussionPaper.pdf	Published by the Joint Committee on Rural Emergency Care (JCREC), National Association of State Emergency Medical Services Officers (NAEMSO) and the National Organization of State Offices of Rural Health (NOSORH)
Western Eagle County Community Paramedic Program Handbook	http://www.naemt.org/Libraries/NAEMT%20Documents/WECAD%20Community%20Paramedic%20Handbook.sflb	Provides guidance for local EMS agencies to partner with local public health department to develop a community paramedic program