

# Characteristics and Challenges of Rural Ambulance Agencies – A Brief Review and Policy Considerations

---

*Prepared by the  
RUPRI Health Panel -*

Keith J. Mueller, PhD  
Andrew F. Coburn, PhD  
Alana Knudson, PhD  
Jennifer P. Lundblad, PhD, MBA  
Timothy D. McBride, PhD

*Lead Author –*  
A. Clinton MacKinney, MD, MS

---

**January 2021**



## ACKNOWLEDGEMENTS

This report was supported through a cooperative agreement with the Federal Office of Rural Health Policy (FORHP), Health Resources and Services Administration (HRSA), US Department of Health and Human Services (HHS), under cooperative agreement/grant #U18RH30805. The information, conclusions and opinions expressed in this report are those of the authors and no endorsement by FORHP, HRSA, or HHS is intended or should be inferred. A special thanks to Sue Nardie for her careful editing.

Table of Contents

Key Findings ..... 1

Introduction ..... 1

Characteristics and Challenges ..... 1

Policy Considerations ..... 7

Conclusion..... 10

References ..... 11

## Key Findings

Rural ambulance agencies, a fundamental component of the rural emergency medical services (EMS) system, are challenged by the following issues:

- long distances and challenging terrain that prolong emergency response and transport times,
- insufficient payment by insurers to cover standby and fixed costs,
- a changing workforce that has historically relied on volunteers but increasingly must include paid personnel,
- a lack of regional EMS plans to coordinate services, and
- insufficient State and Federal policy coordination across oversight agencies.

Specific public policies to address rural ambulance agency challenges could include the following:

- Increase ambulance payment to adequately cover reasonable standby and fixed costs.
- Consider EMS an essential service, the same as firefighting and law enforcement.
- Collect rural ambulance agency workforce data to better understand workforce needs.
- Expand the scope and authority of the Federal Interagency Committee on EMS to address rural ambulance agency payment and workforce challenges.

## Introduction

Every year, nearly 10 million rural Americans receive EMS care.\* There are 23,272 ambulance agencies in the U.S.<sup>1</sup> and 73 percent of those agencies report serving rural areas.<sup>2</sup> Thus, rural Americans rely on EMS professionals to deliver life-saving emergency care every day. Rural Americans expect and deserve an EMS system that is ready and capable of caring for their emergency treatment and transportation needs. Although EMS is a multifaceted system of care, it is ambulance services, inclusive of emergency care and medical transportation, that comes to mind when most people think of EMS. Yet, many rural ambulance agencies that are fundamental to the EMS system are in jeopardy. Rural ambulance agencies are challenged to deliver timely and high-quality emergency services due to an often inadequate financing system and an increasing inability to rely on a volunteer workforce. This Rural Policy Research Institute Health Panel (RUPRI Panel) policy paper examines current rural ambulance agency characteristics and challenges, and identifies public policy considerations designed to stabilize rural ambulance agencies.

## Characteristics and Challenges

The RUPRI Panel identifies five important rural ambulance service characteristics and challenges:

- 1. Rural geographies may prolong emergency response and transport times and are associated with worse patient outcomes.**

---

\*Derived from total 2018 EMS run estimates (National Association of State EMS Officials. "2020 National Emergency Medical Services Assessment." [www.nasemso.org](http://www.nasemso.org)) multiplied by the rural U.S. population percentage of 19 percent.

Large geographic ambulance coverage areas, occasionally challenging terrain and weather, and delayed vehicle crash or other emergency notifications lead to prolonged time between the emergency incident and patient arrival at the hospital. For conditions requiring rapid treatment, such as heart attack, stroke, sepsis, and severe trauma, delays in EMS activation and prolonged emergency-transport times (EMS personnel arrival on scene is twice as long in rural areas as in urban areas<sup>3</sup>) can result in increased death and disability. For example, 2002 research found that 30 percent of rural patients (compared to 8 percent of urban patients) fatally injured in a motor vehicle crash arrived at the hospital more than one hour post-crash.<sup>4</sup> The first hour following severe trauma is considered the “golden hour,” the time during which severe-trauma victims are most likely to benefit from definitive medical care. Furthermore, when an ambulance crew is responding to a call, that crew and its equipment are not available for another, concurrent emergency. Distant emergency sites and transport destinations, and consequent prolonged transportation times, exacerbate ambulance and crew shortages. Now, nearly 20 years after the 2002 report, the implications of rural-urban emergency response and transport time disparities warrant updated EMS research.

Rural hospital closures further exacerbate rural EMS transport-time challenges. Since 2005, 176 rural hospitals have closed.<sup>5</sup> For rural hospitals who were receiving emergency response patients or who were providing ambulance services, the mean transport time prior to a hospital closure was 14.2 minutes. The mean transport time increased to 25.1 minutes after hospital closure, a statistically significant increase of 10.9 minutes or 76.4 percent.<sup>6</sup> Importantly, consideration of mean transport times does not adequately recognize those transport times that are significantly greater than the mean and consequently could negatively impact patient outcomes.

## **2. EMS financing and payments do not adequately cover standby and fixed costs and place ambulance agencies at financial risk.**

Historically, ambulance agencies were strictly an emergency transportation system; little clinical emergency care was provided in the field. In fact, early emergency transport vehicles often served two functions, ambulance and hearse. But as the emergency triage and clinical treatment knowledge base developed, so too did the skills, expertise, equipment, and roles of emergency response personnel. Now, ambulance agencies have matured from *suppliers* of emergency transportation to *providers* of emergency health care. This distinction between supplier of transportation and provider of health care is important because ambulance payment systems remain rooted in transportation roles. Thus, ambulance transportation payments may not fully cover health care provider costs, such as necessary clinical training and medical equipment.

Ambulance agencies are typically supported by fee-for-service public and private insurance *payments* and other *funding* sources (i.e., tax revenue, charitable contributions, and grants). However, in much of rural America, population losses weaken fiscal and economic health, eroding tax revenue available to fund health care programs.<sup>7</sup> Ambulance service payments for individual ambulance runs represent a mix of service-based and transportation-based revenues. The Centers for Medicare & Medicaid Services (CMS) employs the Ambulance Fee Schedule, and commercial payers tend to mirror CMS payment policies. The Bipartisan Budget Act of 2018 extended ambulance add-on payments until 2022 to include a 2.0 percent increase for transports originating in urban areas, a 3.0 percent increase for transports originating in rural areas, and a 22.6 percent increase for transports originating in areas that are within the lowest 25th percentile of all rural areas arrayed by population density (“super-rural bonus”

payments).<sup>8</sup> Fee schedules currently do not pay for ambulance services that do not result in transportation to a hospital, for example, in cases where a patient refuses ambulance transport or the crew is called to simply lift a patient off the floor. In a 2018 analysis of 37 states, approximately 5 percent of EMS patient transports were from the scene to a destination other than an ED.<sup>9</sup> These patient transports may not have been reimbursed.

Medicare makes fee-for-service payments to ambulance agencies based on a mix of clinical service and transportation-based charges. However, reliance on fee-for-service revenue can be particularly problematic for rural ambulance agencies. The primary costs incurred by a rural ambulance agency are related to maintaining emergency response readiness, but the primary revenue received by an ambulance service is payment for patient transport. As with many rural emergency services, ambulance agencies have significant *standby costs*, that is, personnel and equipment costs necessary to maintain readiness to respond to emergencies at any time. Similarly, *fixed costs* like ambulance purchase and equipment, remain constant regardless of service volumes. Standby costs are a type of fixed costs, but particularly relevant in emergency situations where capacity to respond must be immediately available. Unlike urban ambulance agencies that can spread standby and fixed costs over a high volume of ambulance runs, rural agencies experience proportionally greater standby and fixed costs per run than do their urban counterparts. While detailed cost data are not available, a 2015 U.S. Department of Health & Human Services (HHS) Report to Congress indicates that per-run ambulance costs decline with higher run volumes.<sup>10</sup> Low-volume, rural EMS systems are typically unable to achieve such economies of scale.

With few exceptions in very remote areas where ambulance agencies are greater than 35 miles apart, Medicare does not pay for ambulance services based on cost, as most Critical Access Hospital (CAH) services are paid. CAH cost-based reimbursement was implemented to reduce the negative financial impact of low service volumes, but is unavailable for ambulance services operated by many CAHs. Thus, CAHs are disincentivized to maintain ambulance agencies and many CAHs have sold their ambulance departments. An ambulance fee-for-service payment system combined with CAH cost-based reimbursement thwart rural health service consolidation efforts that otherwise might more effectively deal with low service volumes. The Frontier Community Health Integration Program (FCHIP – a Center for Medicare & Medicaid Innovation demonstration that ended in 2019) allowed participant CAHs to be paid reasonable costs for ambulance services irrespective of other ambulance services located within a 35-mile drive of the CAH.<sup>11</sup> One FCHIP participant hospital realized a significant ambulance revenue increase during the model. Other FCHIP participants could not take advantage of the new payment because their ambulance agencies had already been sold.<sup>12</sup> Lessons from the FCHIP demonstration could help stabilize the critical service that financially distressed rural ambulance agencies offer.

Ambulance funding is distinct from run-based fee-for-service payments. Ambulance agencies may be partially funded by taxes (e.g., from ambulance districts, counties, and local governments). Rural ambulance agencies may try to offset financial shortfalls with direct charitable contributions or from agency-sponsored events (e.g., bake sales and pancake breakfasts); both are difficult and inconsistent revenue sources. Ambulance agencies may be integrated in a fire department (46 percent of ambulance agencies) or operate as a hospital department (43 percent of ambulance agencies),<sup>13</sup> each receiving different payments and/or funding. These governance arrangements may be problematic in rural areas due to rural hospital financial distress and closures.<sup>14,15</sup> Other ambulance agency funding may include public and private grants to support personnel training or equipment purchase.

In addition to inadequate payment and unpredictable funding, there is evidence that unbilled care costs and unpaid debt are higher for ambulance agencies than for other health care providers. In 2018, 10 percent of all national health expenditures were out-of-pocket;<sup>16</sup> that is, insurers did not pay these costs and patients were personally responsible for paying them. In contrast, a 2016 report documented that 43 percent of EMS charges were considered private pay (or out-of-pocket) – over 4 times higher than the national out-of-pocket health care expenditure rate.<sup>17</sup> The financial burden of unpaid out-of-pocket costs is likely compounded in rural ambulance agencies that do not have the administrative capacity to properly bill patients, or choose not to bill patients who are neighbors and friends.

As the clinical knowledge base of emergency care has expanded, so have ambulance personnel training needs and costs. In many cases, community expectations have forced rural ambulance agencies to upgrade their workforce from EMT-Basic to Paramedic. Higher salaries commensurate with added EMT certifications, competition for Paramedic staff, and additional training costs have all placed financial burden on small, low-volume ambulance agencies. Yet, personnel and training are relatively fixed costs (training needs vary by personnel, not by revenue-generating ambulance runs). Mandatory standby costs often preclude training investments, risking staff competency and patient health.

**3. A mixed volunteer and paid workforce, and a limited number of personnel experience and training opportunities, jeopardizes rural ambulance agency staffing supply, stability, and clinical capability.**

Over one million EMS professionals are licensed in the U.S.,<sup>18</sup> and their scope of work is changing. As noted above, the clinical knowledge base of emergency care, and prehospital emergency care in particular, has expanded dramatically, resulting in differing levels of ambulance crew capabilities. The National Registry of Emergency Medical Technicians offers four EMS certifications – Emergency Medical Responder, Emergency Medical Technician, Advanced Emergency Medical Technician, and Paramedic – demonstrating the range of ambulance crew capabilities.<sup>19</sup> These ambulance agency capabilities and certifications require continuing education, with costs beyond the means of many low-volume rural ambulance agencies, even though continuing education may be most important in the rural EMS setting, where fewer runs offer less opportunity for on-the-job training and experience.

Of particular concern are “high-risk, low-volume” clinical events (e.g., heart attacks and strokes) where clinical competence is of utmost importance. A low volume of high-risk clinical event experiences may contribute to diminishing critical care skills necessary to effectively treat critically ill patients. Therefore, with fewer high-risk clinical events from which to gain clinical experience, rural ambulance agency crews likely require more frequent training than their urban counterparts. Hence, continuing education opportunities are that much more important to maintain rural ambulance crew competence.

Rural ambulance agencies employ a pay status continuum that includes volunteers, paid volunteers (pay for run-time only), and full or part-time employees. EMT compensation is low compared to other health care and first responder personnel (see adjacent table).<sup>20,21,22,23</sup> In 2003, National Registry of Emergency Medical Technicians data showed that volunteers make up the majority of the EMS in rural areas.<sup>24</sup> Yet, volunteerism is in decline.<sup>25</sup> Although compensation costs associated with volunteers may be lower, a volunteer workforce is less

2019 Compensation Comparison		
	Hourly Wage	Annual Salary
EMTs	\$16.50	\$34,320
Police Officers	\$30.47	\$63,380
Fire Fighters	\$23.85	\$49,620
LPNs	\$22.23	\$46,240

stable, increasing overall costs for recruitment and retention. Furthermore, ambulance crew training costs remain, and are likely more challenging to finance in low-volume rural ambulance agencies.

Due to demographic and economic factors, the potential rural ambulance crew workforce pool is shrinking. The rural population is both declining<sup>26</sup> and aging. The commuting distance traveled for employed rural workers (residing in noncore, not adjacent counties) increased 25 percent from 2007 to 2016, compounding the potential ambulance crew workforce reduction as volunteers must be physically present to be on-call.<sup>27</sup>

Finally, the reality of the difficult nature of EMS work makes volunteering challenging for many rural community members. Ambulance crew mortality is three times higher than for the average worker, as is the risk of injury (e.g., bloodborne and airborne pathogens, patient violence, lifting injuries, and vehicle crashes).<sup>28</sup> Yet only 11 states monitor on-the-job EMS injuries.<sup>29</sup> Workplace injury risk may be particularly concerning for the rural ambulance agency volunteers because Workers' Compensation coverage for volunteers is highly variable.<sup>30</sup>

#### **4. Inadequate regional EMS planning leads to inefficiencies in EMS coverage across rural areas, resulting in either persistent shortages or inappropriate duplication of services.**

In 1973, the EMS Systems Act created a grant program to develop regional EMS systems. About 300 EMS regions were established. However, the program was plagued by coordination problems between the Department of Health, Education, and Welfare and the Department of Transportation (DOT). By 1981, regional system development efforts ceased when the program was eliminated. Funding moved to a block grant program to the states. Although block grants were provided to states to develop EMS systems, funding was sharply cut, and over the following decades states pursued their own priorities, resulting in a diversity of approaches to EMS system development.<sup>31</sup> However, some states have developed ambulance service areas. For example, Minnesota's Emergency Medical Services Regulatory Board assigns primary ambulance service areas in eight geographic regions.<sup>32</sup> California has 33 local EMS systems that provide emergency medical services for California's 58 counties.<sup>33</sup> The degree of national ambulance agency shortage and service area overlap is unclear. However, due to rural ambulance service characteristics and challenges outlined herein, it is likely that rural ambulance agency shortages outweigh ambulance service area overlap.

The 2007 Institute of Medicine (IOM) report *Emergency Medical Services: At the Crossroads* called for a "coordinated, regionalized, accountable" system of emergency care.<sup>34</sup> However, instead of ambulance agency regionalization that ensured adequate access to ambulance services and reduced overlap of ambulance coverage areas, regional initiatives were developed for time-sensitive medical emergencies, such as heart attack, trauma, and stroke. Although critically important, these initiatives did not address the more global need for EMS system coordination and regionalization.

To distribute ambulance services more efficiently, dynamic load-responsive ambulance deployment uses ambulance run data to predict geography-based and time-based need for ambulance services.<sup>35</sup> Ambulances and crews are "staged" at locations predicted to need ambulance services, thus rationalizing ambulance distribution. Although the dynamic load-responsive ambulance deployment system has merit in many rural areas, it is less useful in frontier areas and other low population density rural areas where ambulance run volumes are low, transport distances are high, and ambulance and



crew availability is limited. Furthermore, dynamic load-responsive ambulance deployment generally occurs within an ambulance agency, not between ambulance agencies.

## **5. Fragmented Federal and State oversight and funding weaken policy focus on critical rural EMS challenges.**

At both the Federal and State levels, jurisdiction for EMS oversight and funding is fragmented. This fragmentation has contributed to inadequate planning to appropriately allocate EMS resources, collect quality data to support improvement activities, and support EMS services most in need. Despite significant funding related to EMS, little Federal funding is designated for ambulance agency support, including rural ambulance agency support. For example, in 2002 and 2003, EMS providers received only 4 percent of the \$3.38 billion allocated by the Department of Homeland Security to enhance emergency preparedness.<sup>36</sup>

Currently, the DOT, HHS, Department of Defense, Department of Homeland Security, Federal Aviation Administration (FAA), and Federal Communications Commission all have at least some jurisdiction over the EMS system.<sup>37</sup> Although HHS is responsible for Medicare and Medicaid payment and DOT is responsible for some emergency vehicle regulation, other Federal jurisdictions overlap. A consequence of this disorganization (among other issues) is that ambulance agencies are primarily regulated by the states. The National Highway Traffic and Safety Administration (NHTSA), within the DOT, has historically supported state-based EMS efforts. The Federal Interagency Committee on EMS includes representatives from multiple departments and is staffed by NHTSA. The committee meets twice yearly, but its last report to Congress was in 2013.<sup>38</sup>

State EMS offices serve in an administrative role for EMS planning, coordination, and leadership responsibilities, and a regulatory role for EMS agencies and personnel.<sup>39</sup> State EMS offices receive funding from up to 19 Federal sources, varying by administration and congressional priorities.<sup>40</sup> State EMS office funding from the State is similarly fragmented, originating from up to 10 sources. Researchers note that State EMS office funding data “beg and yet defy interpretation.”<sup>41</sup> Across the states, funding of from State general funds for State EMS offices declined 10 percent from 2014 to 2018.<sup>42</sup> The fragmented approach to EMS regulation, oversight, financing, and other assistance lacks strategic focus and inadequately supports struggling rural ambulance agencies.

The Committee on the Future of Emergency Care in the United States Health System noted that a “true federal lead agency is required if its vision of a coordinated, regionalized, and accountable emergency care system is to be fully realized.”<sup>43</sup> In 1981, the Omnibus Budget Reconciliation Act (OBRA) eliminated the categorical federal funding to states established by the 1973 EMS Systems Act, and instead provided block grants to states. Since then, coordinated and regional EMS systems envisioned by the act’s authors and the committee have not been well-developed. Admittedly, the tasks of regionalizing rural ambulance service areas (to reduce shortages and duplications) and adequately funding rural ambulance agencies across the nation is challenging. However, this situation is particularly problematic for low-volume rural ambulance agencies where the challenges of large geographic services areas, inadequate payment to cover standby and fixed costs, and a significant volunteer workforce require appropriate allocation of Federal, State, and local resources to ensure reasonable access to EMS services for all Americans.

## 6. Air ambulance utilization is expanding faster, more costly, and more dangerous than ground ambulance transport.

Air ambulance agencies are a critical component of rural ambulance services, where long distances and transport times may require the rapidity of air transport. Furthermore, air ambulance services may be available when ground ambulances are not.

Between 2012 and 2017, the number of air ambulance helicopter bases in the U.S. increased 15 percent, and geographic coverage increased 23 percent. About 60 percent of the new helicopter and fixed wing aircraft bases are in rural areas.<sup>44</sup> In total, there are 1,411 air ambulances.<sup>45</sup>

The Airline Deregulation Act of 1978 has prevented states from regulating air ambulance charges.<sup>46</sup> From 2008 to 2017, the average price of an air ambulance trip increased 144 percent (from \$11,414 in 2008 to \$27,894 in 2017) for helicopters and 166 percent (from \$15,684 in 2008 to \$41,674 in 2017) for fixed wing aircraft.<sup>47</sup> In 2017, 69 percent of air ambulance transports were out of the patient's insurance network, meaning that the patient was responsible for an additional charge (balanced bill).<sup>48</sup> A U.S. Government Accountability Office study found that almost all consumer complaints regarding air ambulance services involved balanced bills of over \$10,000.<sup>49</sup>

Air ambulance crashes result in an average of 11 deaths per year.<sup>50</sup> In comparison, there are an average of 33 fatalities in ground ambulance crashes each year.<sup>51</sup> However, the ground ambulance run numbers and miles traveled is greater than for air ambulances. Efforts are underway to address air ambulance costs and safety to ensure that rural Americans have access to air ambulance service. Part of that effort could be to increase ground ambulance availability and ambulance crew capability, making air ambulance care less necessary.

## Policy Considerations

### Payment

The National Academies of Medicine (formerly the Institute of Medicine [IOM]) have defined EMS as a *public good*. "A public good is commonly understood simply as a good, such as education or fire protection, that offers public benefits, which justify government support."<sup>52</sup> Consequently, EMS may also be considered an *essential service*. A 2014 study examined the concept of *essential service* and found reference in State statutes that deem certain employees essential who must report to work under adverse conditions.<sup>53</sup> Essential service has been defined in terms of an employee's right to strike and further defined as a service to which every citizen should be guaranteed access. The American Ambulance Association suggests that contacting 911 and expecting an ambulance to arrive is an "essential health benefit."<sup>54</sup> In 2004, the IOM's publication, *Quality through Collaboration: The Future of Rural Health* listed EMS (and primary, dental, and mental health care) as essential health care services.<sup>55</sup> In 2006, Mueller and MacKinney listed emergency services (and primary care and public health) as services that should be local.<sup>56</sup> And the Patient Protection and Affordable Care Act of 2010 lists emergency service as an essential health benefit covered by qualified insurance plans.<sup>57</sup> Currently, 11 states include EMS as an essential service.<sup>58</sup> A review of four State statutes suggests some differences, but states commonly mandate that counties provide basic EMS services. Counties are given discretion when implementing EMS, and funding is dedicated to counties to meet EMS requirements.<sup>59</sup>

To deliver its indispensable care, an essential service must be adequately funded. Yet even in states that identify EMS as a statute-defined essential service, payment is often insufficient to cover significant standby and fixed costs required to maintain a rural ambulance agency. The problem of underpayment is particularly acute in low-volume rural areas where fee-for-service revenue is low.

The Bipartisan Budget Act of 2018 requires HHS to collect cost, revenue, utilization, and other information determined appropriate by the Secretary from providers and suppliers of ground ambulance services starting January 1, 2020, and continuing through 2024. Ambulance agencies, including those located in rural and frontier areas, will report cost data to the Medicare Ground Ambulance Data Collection System.<sup>60</sup> The information will be forwarded to the Medicare Payment Advisory Commission, which will then report to Congress regarding the appropriateness of ground ambulance payment.

The RUPRI Panel recommends the following ambulance agency payment considerations:

- **Based on findings from the Medicare Ground Ambulance Data Collection System, CMS could consider adjusting rural ambulance payment to cover reasonable ambulance standby and fixed costs.**
- **CMS could consider adjusting the Ambulance Fee Schedule to reflect ambulance agencies more fully as health care *providers* than transportation *suppliers* by increasing base payments.**
- **CMS could consider continuing ambulance add-on payments beyond 2022 until the Ambulance Fee Schedule is adjusted to fully reflect reasonable standby and fixed costs.**
- **All states could consider designating EMS as an essential service and provide adequate funding to counties to ensure reasonable access to EMS services.**

### Workforce

The EMS workforce is an essential component of the rural EMS system.<sup>61</sup> Rural ambulance agencies disproportionately rely on volunteers or paid volunteers (payment for runs only) to staff ambulances and provide emergency services. A 2008 report suggested there are minimal quantifiable data about the ambulance agency workforce. Yet, “qualitative evidence suggests that retaining workers is a challenge, with poor management practices, low wages and benefits, lack of career ladders, and injuries and disability contributing to turnover.”<sup>62</sup> The Occupational Safety and Health Administration (OSHA) regulations do not cover public sector employees, paid or otherwise.<sup>63</sup> Thus, ambulance and other EMS workers who are employees of a county or locality would not be protected under OSHA regulations. The 2014 *EMS Workforce Planning & Development – Guidelines for State Adoption* provides specific workforce guidelines for State EMS officers and recommendations for State EMS planners, State and Federal legislators and regulators, and other policy makers.<sup>64</sup>

The RUPRI Panel recommends the following ambulance agency workforce considerations:

- **Acquire essential ambulance agency workforce and other data to better understand workforce needs and projections.**
- **Maintain a healthy ambulance agency workforce by applying Occupational Safety and Health Administration guidelines to public sector employees, ambulance service equipment, and workplace processes.**
- **Support ambulance agency volunteers by providing free continuing education programs, offering low-deductible State-employee health insurance plans, and extending Workers’ Compensation coverage.**

- **Develop Center for Medicare & Medicaid Innovation demonstrations that test new ambulance agency workforce models, such as community paramedicine programs not limited to paramedics and cross coverage between ambulance personnel and emergency department technicians.**

### Distribution

With critical financial and workforce capacity challenges facing rural ambulance agencies, it is important to ensure the most efficient distribution of limited rural EMS capacity. The precarious status of some rural ambulance agencies may be, in part, exacerbated by maldistribution of ambulance services. As envisioned by the 1973 EMS System Act, coordination and regionalization of EMS is needed. The Medicare Rural Hospital Flexibility (Flex) Program (through its mandate to establish or expand the provision of rural EMS in communities with CAHs) and Flex Program coordinators may be appropriate vehicles to facilitate rural EMS planning.<sup>65</sup> In addition to a need for EMS coordination and regionalization, community-based EMS planning can help match EMS services to community need. The *Rural and Frontier EMS Agenda for the Future*, a report published by the National Rural Health Association in 2004, proposed the Informed Community Self-Determination model of community-engaged planning to help communities and local EMS agencies co-design EMS services that fit with local resources and capacities and that reflect community preferences.<sup>66</sup>

The RUPRI Panel recommends the following ambulance agency distribution considerations:

- **Absent a Federal program such as was envisioned in the 1973 EMS System Act, State EMS agencies, EMS advocacy groups, and Flex Program coordinators could consider developing statewide, regional EMS plans to ensure access to, and sustainability of, rural EMS agencies.**
- **Flex Program EMS funding could be increased and separated from Flex Program quality improvement funding to specifically target EMS needs such as Informed Community Self-Determination initiatives support.**
- **Although participation in rural EMS regionalization efforts could be considered for all ambulance agencies receiving Federal payments, individual rural communities could have the opportunity to expand EMS beyond required services if supported by local resources.**

### Jurisdiction

The NHTSA Office of EMS (within the DOT) has historically served as the informal lead Federal agency for EMS.<sup>67</sup> However, HHS provides ambulance service payment through Medicare and Medicaid. HHS (through Medicare) is also leading the Medicare Ground Ambulance Data Collection System, which will collect ambulance cost and quality data. States regulate ground ambulances. The FAA regulates air ambulances. And various Federal agencies (e.g., the Centers for Disease Control and Prevention and the Health Resources and Services Administration) support emergency care through focused grants. Yet proportionally few Federal funds for emergency care flow directly to EMS, despite the EMS roles of health care, public health, and public safety provider. The National Academies of Science noted that too often local EMS systems are not well integrated with any of these groups and therefore receive inadequate support from each of them. “EMS has a foot in many doors, but no clear home.”<sup>68</sup>

The RUPRI Panel recommends the following ambulance agency jurisdiction considerations:

- **Congress could consider requiring yearly reports from the Federal Interagency Committee on EMS.**

- **Congress could consider expanding the Federal Interagency Committee on EMS to include other departments with resources to support rural ambulance agencies, such as the departments of Agriculture, Labor, and Commerce.**
- **The Federal Interagency Committee on EMS could map resources available to specifically support rural ambulance agencies and disseminate that information to State EMS offices.**
- **The Federal Interagency Committee on EMS could offer specific recommendations to address rural ambulance workforce and payment challenges, and allocate resources to areas of greatest need.**
- **The Federal Interagency Committee on EMS could use data collected by the Medicare Ground Ambulance Data Collection System to design and recommend ambulance quality improvement strategies.**

## Conclusion

Most Americans would agree that EMS emergency care and transportation should be available in all jurisdictions, 24 hours a day, 365 days a year. But universal access to emergency care is in jeopardy in rural areas where people live, work, or recreate. Yet, only 11 states have codified EMS in State statute as an essential service. Factors that challenge sustained access to rural EMS include the following:

- Rural ambulance agency payments inadequately cover standby and fixed costs.
- A rural EMS volunteer workforce is no longer sustainable due to demographic, economic, and other factors.
- Underdeveloped regional EMS planning leads to inadequate rural EMS coverage and potential ambulance service area overlap.
- The presence of multiple Federal EMS jurisdictions weakens the focus on the needs of rural ambulance agencies.

This RUPRI Panel policy brief describes important rural ambulance agency characteristics and challenges and offers specific Federal policy considerations designed to help create the rural ambulance service that all rural Americans deserve.

## References

---

- <sup>1</sup> National Association of State EMS Officials. 2020 National Emergency Medical Services Assessment. May 2020. Accessed November 21, 2020. [https://nasems.org/wp-content/uploads/2020-National-EMS-Assessment\\_Reduced-File-Size.pdf](https://nasems.org/wp-content/uploads/2020-National-EMS-Assessment_Reduced-File-Size.pdf)
- <sup>2</sup> Federal Interagency Committee on Emergency Medical Services. 2011 National EMS Assessment. U.S. Department of Transportation, National Highway Traffic Safety Administration, DOT HS 811 723, Washington, DC, 2012.
- <sup>3</sup> Mell HK, Mumma SN, Hiestand B, Carr BG, Holland T, Stopyra J. Emergency Medical Services Response Times in Rural, Suburban, and Urban Areas. *JAMA Surg*. 2017;152(10):983–984. doi:10.1001/jamasurg.2017.2230
- <sup>4</sup> Institute of Medicine. (2007). *Emergency Medical Services: At the Crossroads*. Washington, DC: The National Academies Press. Accessed November 20, 2020. <https://doi.org/10.17226/11629>
- <sup>5</sup> University of North Carolina. Cecil G. Sheps Center for Health Services Research. 176 Rural Hospital Closures: January 2005 – Present (134 since 2010). Accessed November 20, 2020. <https://www.shepscenter.unc.edu/programs-projects/rural-health/rural-hospital-closures/>
- <sup>6</sup> Troske S, Davis AF. *Do Hospitals Closures Affect Patient Time in an Ambulance?* Lexington, KY: Rural and Underserved Health Research Center; 2019. Accessed November 20, 2020. <https://ruhrc.uky.edu/publications/do-hospital-closures-affect-patient-time-in-an-ambulance/>
- <sup>7</sup> Chapman J. Rural Response to Coronavirus Could Be Hampered by Years of Population Loss. PEW. Accessed December 15, 2020. <https://www.pewtrusts.org/en/research-and-analysis/data-visualizations/2020/rural-response-to-coronavirus-could-be-hampered-by-years-of-population-loss>
- <sup>8</sup> Centers for Medicare & Medicaid Services. Ambulance Fee Schedule Public Use Files. Accessed November 21, 2020. <https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AmbulanceFeeSchedule/afspuf>
- <sup>9</sup> National Association of State EMS Officials. 2020 National Emergency Medical Services Assessment. May 2020. Accessed November 20, 2020. [https://nasems.org/wp-content/uploads/2020-National-EMS-Assessment\\_Reduced-File-Size.pdf](https://nasems.org/wp-content/uploads/2020-National-EMS-Assessment_Reduced-File-Size.pdf)
- <sup>10</sup> U.S. Department of Health & Human Services (2015). Report to Congress Evaluations of Hospitals’ Ambulance Data on Medicare Cost Reports and Feasibility of Obtaining Cost Data from All Ambulance Providers and Suppliers. Accessed November 20, 2020. <https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AmbulanceFeeSchedule/Downloads/Report-To-Congress-September-2015.pdf>
- <sup>11</sup> Centers for Medicare & Medicaid Services. Frontier Community Health Integration Project Demonstration - Frequently Asked Questions. Accessed November 20, 2020. <https://innovation.cms.gov/innovation-models/frontier-community-health-integration-project-demonstration/faq>
- <sup>12</sup> Rural Policy Research Institute Center for Rural Health Policy Analysis. Frontier Community Health Integration Project Assessment. Not yet released. November 20, 2020.
- <sup>13</sup> Federal Interagency Committee on Emergency Medical Services. 2011 National EMS Assessment. U.S. Department of Transportation, National Highway Traffic Safety Administration, DOT HS 811 723, Washington, DC, 2012.
- <sup>14</sup> University of North Carolina. Cecil G. Sheps Center for Health Services Research. (2020). Rural Hospital Closures January 2005 – Present. Accessed August 15, 2020. <https://www.shepscenter.unc.edu/programs-projects/rural-health/rural-hospital-closures/>
- <sup>15</sup> Holmes, G. M., Kaufman, B. G., & Pink, G. H. (2017). Predicting Financial Distress and Closure in Rural Hospitals. *The Journal of Rural Health*, 33(3), 239–249. Accessed November 21, 2020. <https://doi.org/10.1111/jrh.12187>
- <sup>16</sup> Centers for Medicare & Medicaid Services. NHE Fact Sheet. Accessed August 15, 2020. <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NHE-Fact-Sheet>
- <sup>17</sup> National EMS Advisory Council (2016). Committee Report and Advisory. Accessed November 20, 2020. [https://www.ems.gov/NEMSAC-advisories-and-recommendations/2016/NEMSAC\\_Final\\_Advisory\\_EMS\\_System\\_Funding\\_Reimbursement.pdf](https://www.ems.gov/NEMSAC-advisories-and-recommendations/2016/NEMSAC_Final_Advisory_EMS_System_Funding_Reimbursement.pdf).

- 
- <sup>18</sup> National Association of State EMS Officials. 2020 National Emergency Medical Services Assessment. May 2020. Accessed November 20, 2020. [https://nasemsso.org/wp-content/uploads/2020-National-EMS-Assessment\\_Reduced-File-Size.pdf](https://nasemsso.org/wp-content/uploads/2020-National-EMS-Assessment_Reduced-File-Size.pdf)
- <sup>19</sup> National Registry of Emergency Medical Technicians. Accessed November 21, 2020. <https://www.nremt.org/rwd/public>
- <sup>20</sup> Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, EMTs and Paramedics. Accessed November 20, 2020. <https://www.bls.gov/ooh/healthcare/ems-and-paramedics.htm>
- <sup>21</sup> Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, Police and Detectives. Accessed November 20, 2020. <https://www.bls.gov/ooh/protective-service/police-and-detectives.htm>
- <sup>22</sup> Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, Firefighters. Accessed November 20, 2020. <https://www.bls.gov/ooh/protective-service/firefighters.htm>
- <sup>23</sup> Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, Licensed Practical and Licensed Vocational Nurses. Accessed November 20, 2020. <https://www.bls.gov/ooh/healthcare/licensed-practical-and-licensed-vocational-nurses.htm>
- <sup>24</sup> Institute of Medicine. (2007). *Emergency Medical Services: At the Crossroads*. Washington, DC: The National Academies Press. Accessed December 15, 2020. <https://doi.org/10.17226/11629>
- <sup>25</sup> Grimm, Robert T., Jr., and Dietz, Nathan. 2018. Where Are America's Volunteers? A Look at America's Widespread Decline in Volunteering in Cities and States. Research Brief: Do Good Institute, University of Maryland. Accessed March 4, 2020. [https://dogood.umd.edu/sites/default/files/2019-07/Where%20Are%20Americas%20Volunteers\\_Research%20Brief%20\\_Nov%202018.pdf](https://dogood.umd.edu/sites/default/files/2019-07/Where%20Are%20Americas%20Volunteers_Research%20Brief%20_Nov%202018.pdf)
- <sup>26</sup> Cromartie, J. (n.d.). Rural America at a Glance, 2017 Edition. 6. Accessed March 4, 2020. <https://www.ers.usda.gov/publications/pub-details/?pubid=85739>
- <sup>27</sup> RUPRI Center for Rural Health Policy Analysis. Analysis of LEHD-LODES V7 data for 2007 and 2016. 2020.
- <sup>28</sup> National Highway Traffic Safety Administration (2008) EMS Workforce for the 21st Century: A National Assessment. Accessed November 20, 2020. [https://www.ems.gov/pdf/EMSWorkforceReport\\_June2008.pdf](https://www.ems.gov/pdf/EMSWorkforceReport_June2008.pdf)
- <sup>29</sup> National Association of State EMS Officials. 2020 National Emergency Medical Services Assessment. May 2020. Accessed November 20, 2020. [https://nasemsso.org/wp-content/uploads/2020-National-EMS-Assessment\\_Reduced-File-Size.pdf](https://nasemsso.org/wp-content/uploads/2020-National-EMS-Assessment_Reduced-File-Size.pdf)
- <sup>30</sup> Beckman, Kristen (2017) Workers comp expands for volunteer responders in some states. *Business Insurance*. Accessed March 4, 2020. <https://www.businessinsurance.com/article/00010101/NEWS08/912311812/Workers-comp-expands-for-volunteer-responders-in-some-states>
- <sup>31</sup> Institute of Medicine. (2007). *Emergency Medical Services: At the Crossroads*. Washington, DC: The National Academies Press. Accessed November 20, 2020. <https://doi.org/10.17226/11629>
- <sup>32</sup> Minnesota Emergency Medical Services Regulatory Board. Accessed March 4, 2020. <https://mn.gov/emsr/ambulanceservices/primary-service-area-description.jsp>
- <sup>33</sup> California Emergency Medical Services Authority. Accessed March 4, 2020. <https://emsa.ca.gov/local-em-agencies/>
- <sup>34</sup> Institute of Medicine. (2007). *Emergency Medical Services: At the Crossroads*. Washington, DC: The National Academies Press. Page 105. Accessed November 20, 2020. <https://doi.org/10.17226/11629>
- <sup>35</sup> Ibid, page 65.
- <sup>36</sup> Ibid.
- <sup>37</sup> National Highway Traffic Safety Administration. Office of EMS. Federal Partners. Accessed March 4, 2020. <https://www.ems.gov/partners.html>
- <sup>38</sup> Federal Interagency Committee on EMS. Accessed March 4, 2020. <https://www.ems.gov/ficems.html>
- <sup>39</sup> National Association of State EMS Officials. 2020 National Emergency Medical Services Assessment. May 2020. Accessed November 20, 2020. [https://nasemsso.org/wp-content/uploads/2020-National-EMS-Assessment\\_Reduced-File-Size.pdf](https://nasemsso.org/wp-content/uploads/2020-National-EMS-Assessment_Reduced-File-Size.pdf)
- <sup>40</sup> Ibid.
- <sup>41</sup> Ibid. Page 154.
- <sup>42</sup> Ibid.
-

- 
- <sup>43</sup> Ibid.
- <sup>44</sup> United States Government Accountability Office. AIR AMBULANCE: Available Data Show Privately-Insured Patients Are at Financial Risk. GAO-19-292. March 2019.
- <sup>45</sup> The Association of Air Medical Services (AAMS) CUBRC, Public Safety & Transportation Group. Poster developed from the ADAMS database (2017 data) available at <http://www.ADAMSairmed.org>.
- <sup>46</sup> Caron C. Families Fight Back Against Surprise Air Ambulance Bills. NYT Parenting. September 14, 2019. Accessed November 21, 2020. <https://www.nytimes.com/2020/04/17/parenting/air-ambulance-bills.html>
- <sup>47</sup> Health Care Cost Institute. Air Ambulances – 10 Year Trends in Costs and Use. Accessed November 21, 2020. <https://healthcostinstitute.org/emergency-room/air-ambulances-10-year-trends-in-costs-and-use>
- <sup>48</sup> United States Government Accountability Office. AIR AMBULANCE: Available Data Show Privately-Insured Patients Are at Financial Risk. GAO-19-292. March 2019.
- <sup>49</sup> Ibid.
- <sup>50</sup> Henry C. Looking Back at 10 years of Air Medical Accidents. Accessed November 21, 2020. <https://aams.org/looking-back-10-years-air-medical-accidents/>
- <sup>51</sup> Smith N. A National Perspective on Ambulance Crashes and Safety. EMSworld.com. September 2015.
- <sup>52</sup> Van Milligan M, Mitchell III JP, Tucker J, Arkedis J, Carvalho D. (2014). An Analysis of Prehospital Emergency Medical Services as an Essential Service and as a Public Good in Economic Theory. (Report No. DOT HS 811 999a). National Highway Traffic Safety Administration. Page 12. Accessed March 4, 2020. [https://www.ems.gov/pdf/advancing-ems-systems/Reports-and-Resources/Prehospital\\_EMS\\_Essential\\_Service\\_And\\_Public\\_Good.pdf](https://www.ems.gov/pdf/advancing-ems-systems/Reports-and-Resources/Prehospital_EMS_Essential_Service_And_Public_Good.pdf)
- <sup>53</sup> Ibid, pages 11-12.
- <sup>54</sup> Ibid, page 10.
- <sup>55</sup> Institute of Medicine. 2005. *Quality Through Collaboration: The Future of Rural Health*. Washington, DC: The National Academies Press. Accessed March 4, 2020. <https://doi.org/10.17226/11140>
- <sup>56</sup> Mueller, K. J., & MacKinney, A. C. (2006). Care Across the Continuum: Access to Health Care Services in Rural America. *The Journal of Rural Health*, 22(1), 43–49. Accessed March 4, 2020. <https://doi.org/10.1111/j.1748-0361.2006.00010.x>
- <sup>57</sup> Patient Protection and Affordable Care Act, 42 U.S.C. § 18001 S. 1302 (2010).
- <sup>58</sup> Edwards, Erika. (2019) What if you call 911 and no one comes? Inside the collapse of America’s emergency medical services. NBC News. Accessed March 4, 2020. <https://www.nbcnews.com/health/health-care/there-s-shortage-volunteer-ems-workers-ambulances-rural-america-n1068556>
- <sup>59</sup> Van Milligan et al. An Analysis of Prehospital Emergency Medical Services as an Essential Service and as a Public Good in Economic Theory. Page 12.
- <sup>60</sup> Centers for Medicare & Medicaid Services. Medicare Ground Ambulance Data Collection System. Accessed March 4, 2020. <https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AmbulanceFeeSchedule/Ground-Ambulance-Services-Data-Collection-System>
- <sup>61</sup> National Highway Traffic Safety Administration. (2011). The Emergency Medical Services Workforce Agenda for the Future. Accessed March 4, 2020. [https://www.ems.gov/pdf/2011/EMS\\_Workforce\\_Agenda\\_052011.pdf](https://www.ems.gov/pdf/2011/EMS_Workforce_Agenda_052011.pdf)
- <sup>62</sup> National Highway Traffic Safety Administration (2008) EMS Workforce for the 21st Century: A National Assessment. Page 11. Accessed March 4, 2020. [https://www.ems.gov/pdf/EMSWorkforceReport\\_June2008.pdf](https://www.ems.gov/pdf/EMSWorkforceReport_June2008.pdf)
- <sup>63</sup> Occupational Safety and Health Administration. Standard interpretations. Standard number: 1975.3. 1996. Accessed November 20, 2020. <https://www.osha.gov/laws-regs/standardinterpretations/1996-06-11>
- <sup>64</sup> National Association of State Emergency Medical Services Officials (2013). EMS Workforce Planning & Development Guidelines for State Adoption. Accessed March 4, 2020. <https://nasemso.org/wp-content/uploads/EMS-Workforce-Guidelines-11Oct2013.pdf>
- <sup>65</sup> U.S. Congress Title XVIII, §1820(g)(1) and (2) of the Social Security Act (42 U.S.C. 1395i-4(g)(1) and (2)).
- <sup>66</sup> McGinnis K. Rural and Frontier EMS Agenda for the Future (2004). National Rural Health Association. Accessed March 4, 2020. Available at <https://www.ruralcenter.org>
- <sup>67</sup> National Highway Traffic Safety Administration. Office of EMS. Federal Partners. Accessed March 4, 2020. <https://www.ems.gov/partners.html>
- <sup>68</sup> Institute of Medicine. (2007). *Emergency Medical Services: At the Crossroads*. Washington, DC: The National Academies Press. Page 38. Accessed November 20, 2020. <https://doi.org/10.17226/11629>



## About the Authors

---

*The RUPRI Health Panel is led by Keith J. Mueller, PhD. He can be contacted at (319) 384-3832, or by email [keith-mueller@uiowa.edu](mailto:keith-mueller@uiowa.edu).*

**Andrew F. Coburn, PhD**, is research professor emeritus of public health and senior fellow in the Maine Rural Health Research Center, Muskie School of Public Service, University of Southern Maine. His rural research and publications focus on health financing and delivery system reform, insurance and health access, rural telehealth use, rural long term services and supports, and Medicaid policy. He is a member of the Medicare Rural Hospital Flexibility Monitoring Team Project in which he and his colleagues at USM and at the Universities of North Carolina-Chapel Hill and Minnesota are assisting states and Critical Access Hospitals around the country improve their financial, quality, and population health capacity and performance.

**Alana D. Knudson, PhD**, is a project area director in the Public Health Research Department at NORC at the University of Chicago and is based in NORC's Bethesda, Maryland office. She also serves as the co-director of the Walsh Center for Rural Health Analysis. Dr. Knudson's expertise includes rural health research, public health systems research, health services research, and evaluation projects.

**Jennifer P. Lundblad, PhD, MBA**, is president and CEO of Stratis Health, an independent nonprofit quality improvement organization based in Bloomington, Minnesota, that leads collaboration and innovation in healthcare quality and patient safety. Dr. Lundblad has an extensive background in leadership, organization development, and program management in both nonprofit and education settings.

**A. Clinton MacKinney, MD, MS**, is a clinical associate professor in the Department of Health Management and Policy, College of Public Health, University of Iowa. He is also a board-certified family physician. He is the deputy director of the RUPRI Center for Rural Health Policy Analysis.

**Timothy D. McBride, PhD**, is a professor at the Brown School, at Washington University in St. Louis. He also serves as one of the principal analysts in the RUPRI Center for Rural Health Policy Analysis, and serves in many state and federal roles, including serving as chair of the state of Missouri's MOHealthNET Oversight Committee, which oversees the state's Medicaid program.

**Keith J. Mueller, PhD**, is the Rural Health Panel chair. Dr. Mueller is the head of the Department of Health Management and Policy in the University of Iowa, College of Public Health, where he is also the Gerhard Hartman professor and the director of RUPRI and its Center for Rural Health Policy Analysis.

## About the Rural Policy Research Institute

---

The Rural Policy Research Institute (RUPRI) provides unbiased analysis and information on the challenges, needs, and opportunities facing rural America. RUPRI's aim is to spur public dialogue and help policymakers understand the rural impacts of public policies and programs. RUPRI is housed within the College of Public Health at the University of Iowa. RUPRI's reach is national and international and is one of the world's preeminent sources of expertise and perspective on policies impacting rural places and people. Read more at [www.rupri.org](http://www.rupri.org).