Subcommittee: Equitable Patient Care
Advisory Title: Geographic Inequities in the Provision of Rural Emergency Medical Services

Advisory Status: Interim
Date: November 7, 2024

Note: While air ambulance services have an important role in the provision of EMS service in rural and underserved areas, this advisory focuses on ground ambulance services

A. Executive Summary

The National Emergency Medical Services Advisory Council (NEMAC) recognizes the crucial role of equitable access to high-quality Emergency Medical Services (EMS) in ensuring the health and well-being of all Americans. However, persistent geographic inequalities exist in the provision of EMS in rural communities due to factors outlined below:

Healthcare Deserts

In the period 2005 through 2022, 186 rural hospitals closed, 119 of which were in small rural counties or isolated locations (Sheps, 2023). Of those hospitals that remain open, they often must shut down emergency, maternity, surgery, and crisis mental health services (North Caroline RHRP, 2022). Fragile EMS systems then collapse. In Wisconsin, for example, 41% of EMS agencies reported that there were periods of time when 911 calls went unanswered, 78% provided mutual aid due to a lack of staffing at the first EMS agency, and 41% of agencies operated with six or fewer staff members providing 80% of staffing hours. (WORH, 2023).

Disparities in funding and resources:

Rural EMS is largely funded by community resources. Readiness costs are not included, and revenue based solely on fee-for-service (transports) makes it difficult to maintain adequate staffing levels, advanced life support training, and equipment. Bake sales and raffles remain a mainstay in funding EMS services in rural America.

Geographic challenges:

Rural EMS services often have vast ambulance coverage areas; mountains, deserts, vast open plains, or rugged coastal terrain combine with severe weather conditions amplified by climate change. These factors, combined with the lack of funding that supports 24/7/365 (24 hours/day, 7 days/week, 365 days/year) readiness, make it difficult to reach patients in a timely manner. Response times over 60 minutes are not uncommon, in stark contrast to typical urban EMS service response time goals of 8 minutes or less.

Lack of coordination / communication

EMS systems are often fragmented and lack regional coordination. Lack of broadband networks hampers the advancement of 9-1-1 and Emergency Medical Dispatch (EMD) capable systems.

Morbidity and Mortality Rates:

Rural populations tend to be older, sicker, and poorer than their urban counterparts. (Dobis 2021).

Despite this dystopian outlook there are several opportunities and system improvements that require broad support to improve access and reliability of EMS in rural America to include:

Increase funding / research for EMS

Rural EMS agencies need adequate funding to sustain operations, improve reliability and perform research to improve patient outcomes.

Improve coordination of EMS systems

Improved coordination of scarce EMS resources towards value and population-based outcomes to ensure that patients receive the care they need when they need it.

Close the gaps in 911 and Emergency Medical Dispatch (EMD)

Enhance public access to 911 and its capacity to improve location accuracy, multimedia, and EMD capabilities.

Invest in Telemedicine and Community Paramedicine

Advance telemedicine and community paramedicine innovations to provide treatment-in-place options.

B. Recommendations

National Emergency Medical Services Advisory Council

Recommendation 1:

The Council shall biennially review rural access to EMS services in coordination with its biennial review of system finance. The biennial review should endorse and help prioritize recommendations to improve EMS access and reliability in known ambulance deserts.

National Highway Traffic Safety Administration (NHTSA)

Recommendation 1:

NHTSA should prioritize closing the gaps in 911 EMD-capable services in rural communities.

Recommendation 2:

NHTSA should work with the National Association of State EMS Officials (NASEMSO) to adopt a standardized set of agency licensure data elements and definitions for personnel, response capacity, service types, service areas in the NEMSIS dataset to improve understanding of rural EMS capacity and gaps at both the state and national levels. (2023, Nov. Gale)

Recommendation 3:

NHTSA should recommend to NASEMSO the adoption of the data elements outlined in recommendation #2 in its upcoming 2030 National EMS Survey.

Federal Interagency Committee on Emergency Medical Services

NEMSAC recommendations for consideration to FICEMS via NHTSA

Recommendation 1:

NEMSAC recommends FICEMS endorse the adoption of five recommendations made to the Secretary of Health and Human Services from the National Advisory Committee on Rural Health and Human Services regarding EMS in Rural Communities. (NACRHHS, 2022):

(1) Federal Office of Rural Health Policy (FORHP) to continue funding Geographic Information System (GIS) data collection on ambulance deserts and their impact on health care outcomes.

NEMSAC specifically recommends future GIS research should monitor for the expansion of ambulance deserts and integrate the data with GIS "heat-maps" of rural hospital closures, locations of pediatric-prepared facilities, trauma, cardiac, and stroke centers, and the new CMS designated Rural Emergency Hospital (REH) and USDA-defined persistent poverty areas. Recommended updates should be at least every 5 years due to the compounded threat from hospital closures in many of the same areas where ambulance services are near total collapse. This information can then be used by policymakers to prioritize limited resources to improve access to emergency medical care.

(2) Ensure in regulations and guidance that community paramedicine providers can deliver services to Medicare beneficiaries "incident to" the services of a physician/nonphysician practitioner and encourage that such policies allow for community paramedicine to practice under general rather than direct supervision.

(3) Support analysis of the use of onsite and enroute telehealth in EMS for appropriate triage care to identify future policy options.

(4) Consider CMS Ground Ambulance Data Collection System (GADCS) in future rulemaking on the Ambulance Fee Schedule. The HHS Secretary should also consider the Medicare Payment Advisory Board Commission (MedPac) study on standby costs to help inform future policy making on Medicare ambulance reimbursement.

(5) Direct the CMS Innovation Center to develop a pilot payment model that is focused on addressing chronic disease and EMS gaps from a population health perspective.

Recommendation 2:

NEMSAC recommends FICEMS engage Administration for Strategic Preparedness and Response (ASPR) through its Hospital Preparedness Program and Health Care Readiness Programs ensure EMS is a mandatory community partner when hospitals perform their Community Health Needs Assessments (CHNA). NEMSAC also recommends ASPR ensures

EMS has relevance to the Office of Disease Prevention and Health Promotion's (ODPHP) Healthy Peoples program so it relates EMS as a partner in its objective of reducing the proportion of people who can't get medical care when they need it.

Secretary of the Department of Transportation

NEMSAC recommendations for consideration to the Secretary of Transportation via NHTSA:

Recommendation 1:

Fund research specifically to define and address problems related to "ambulance deserts" through basic research, policy-relevant analyses, and geographic and graphical presentation of data. Complex social inequities affecting rural EMS impacts all citizens of the United States and the expansion of these deserts must stop.

Agencies/Administrations within the Department of Transportation

NEMSAC recommendations to other agencies or administrations within the USDOT via NHTSA.

None

C. Scope and Definition

While the advisory discusses geographic inequities faced in rural communities, inequities in access to EMS services exist in urban and other underserved areas. Separately NEMSAC intends to review those inequities with targeted solutions.

Geographic inequalities in the provision of emergency medical services (EMS) are a significant and growing problem in the United States. Rural and remote areas often have longer response times and lower quality of care than urban areas. Timely EMS is critical to mitigate outcomes of severe motor vehicle accidents, cardiac arrests, strokes-in-evolution, and pediatric emergencies.

Nationwide, the healthcare "climate" is undergoing fundamental change. Closures of hospitals and healthcare services have created "healthcare deserts" across the country. From 2005 through 2022 186 rural hospitals closed, 116 of which were in either in isolated or small rural areas (<50,000 population) (Shep, 2023). With every new hospital closure, there is a near universal call for government action.

In contrast, despite decades of EMS agencies shutting down services or being unable to sustain 24/7/365 service (24 hours per day, seven days per week, 365 days per year), there remains little action from patients, lawmakers, and the healthcare industry to improve system

reliability.

To address this problem, the Maine Rural Research Center engaged in the first known Geographical Information System (GIS) analysis documenting EMS coverage gaps in the United States (MRHRC, 2023). GIS analysis provides easily interpreted "heat maps" that color-code social-spatial inequities. Prior GIS studies have mapped hospital, maternity, and mental health "deserts" in the U.S. where services are inaccessible. With this first EMS study, the authors mapped populated areas without a licensed transporting ambulance service within 25 minutes response time, defined as an ambulance desert. Of the 41 states that reported data, 80% of counties across the nation have at least one ambulance desert with a total of 4.5 million people overall living in an ambulance desert. Some regions appear more underserved than others; states in the South and West have the most rural residents living in these deserts and eight states – Idaho, Montana, Nevada, New Mexico, Utah, Wyoming, North and South Dakota – have fewer than three ambulances covering every 1,000 square miles of land area. (MRHRC, 2023)

The delay in EMS response times predicts worse morbidity and morbidity outcomes in time-sensitive cardiac, stroke, and trauma care outcomes. For example, in post-crash care studies, two out of every 5 post-crash fatalities were initially alive while citizen responders waited for EMS to arrive. Although less than 20% of the nation's population live in rural areas, more than 40% of motor vehicle fatalities occur on those roadways. In these time-sensitive responses, it is not just the act of transport that saves a life; it is the bleeding that is stopped, the airway that is cleared, or the breath that is restored that saves the patient from death. For these reasons, the pivotal research documenting ambulance deserts will help guide policymakers in repairing an EMS system that is reverting to the 1960's when there were no ambulances responding to highway accidents or victims of cardiac arrest.

In addition to the Ambulance Desert research, at least two other subject matter expert (SME) workgroups have convened in the recent past to provide specific, targeted recommendations towards a reliable and accessible EMS system. In 2023, HRSA's Flex Monitoring Team (FMT) identified inconsistent data collection and reporting that hinders comprehensive understanding of the scope and severity of geographic disparities in EMS. The SME panel developed a consensus set of EMS licensure elements to standardize data elements for paid and volunteer (unpaid) staffing, response capacity, service levels, and areas covered, to allow policymakers to understand the system changes needed to improve resilience and thereby patient outcomes. This standardization does not currently exist.

In 2022, another SME workgroup from the National Advisory Council on Rural Health and Human Services proposed five recommendations to the Secretary of Health and Human Resources to improve access to EMS services in Rural America:

(1) Support ongoing research on ambulance deserts.
(2) Update regulations on community paramedicine.
(3) Fund projects using telehealth for appropriate triage care.
(4) Improve ground ambulance data collection and analysis of standby costs.
(5) Direct CMS Innovations Center to develop a pilot payment model focusing on chronic disease management and population health in the provision of EMS services.

NEMSAC endorses the recommendations made by expert panels in 2022-23 as a set of comprehensive, targeted, and achievable goals to reduce the geographic inequities in the provision of EMS services in rural areas of the United States.

D. Analysis

Rural EMS access and reliability is in a state of crisis. Nationwide, a growing number of EMS agencies are unable to respond to requests for service 24/7/365. Efforts such as NEMSAC's Advisory on the Star of Rights and NHTSA's EMS Agenda 2050 provide concrete strategies to mitigate the crisis. Until recently, however, GIS-resourced maps generating "heat" zones of underserved areas have not been utilized. These maps are critical for defining ambulance deserts for the benefit of federal and other SLTT entities to set policy, funding, regulation, and standardization expectations to prevent a total and complete collapse in rural EMS systems. Action plans that include improved regional EMS coordination, communications (EMD capable 911), readiness costs, and other rural-centric quality measures, along with innovations in telehealth and community paramedicine will build back better a sustainable rural EMS system.

E. Strategic Vision

Ensure equitable access to reliable emergency medical services for rural populations.

F. Strategic Goals

1. Elimination of "ambulance deserts."
2. Universal Enhanced-911 accessible from all state, local, federal and territorial roadways including computer-aided dispatch (CAD) and Emergency Medical Dispatch (EMD) pre-arrival instructions to provide life-saving instructions to bystanders in post-crash scenarios and other time-sensitive events (cardiac arrests, strokes, pediatric

emergencies).

3. Telehealth and community paramedicine EMS system integration to rural communities to provide the right care, in the right place, at the right time.

G. Crosswalks

In 2022, NEMSAC's Advisory on EMS Star of Rights addressed essential elements for the success of NHTSA's EMS Agenda 2050. The Star of Rights advisory recognized that EMS is in crisis from being underfunded, understaffed, and overwhelmed from increasing demands due to an aging population, the rise in chronic illnesses, the opioid epidemic and increased roadway fatalities. This crisis is disproportionally affecting rural populations.

H. References

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