

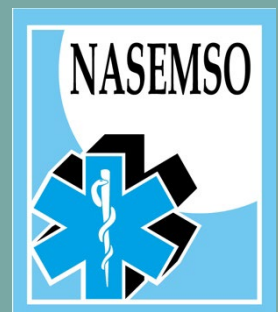
Measuring the Emergency Medical Services Workforce

IDENTIFYING PRIORITY UNKNOWNNS

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National Association of State EMS Officials
Falls Church, VA



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KEY POINTS

This report describes the results of a project conducted by NASEMSO and with the support of NHTSA Office of Emergency Medical Services, to identify high-priority questions about the emergency medical services (EMS) workforce for analysis and reporting at the state and national levels. In early 2024, NASEMSO convened two meetings, one with five state EMS officials and another with a technical expert panel, to clarify goals, feasibility considerations, priorities, and future steps for state EMS workforce analysis.

KEY FINDINGS WERE AS FOLLOWS:

- State-level EMS workforce analysis serves multiple goals, including allowing state officials to respond to policymakers with evidence about workforce needs, engage in ongoing workforce monitoring and planning, and draw comparisons with other states, all with the goal of ensuring an adequate, well-prepared, and resilient workforce to improve the health of the public.
- Significant challenges in conducting state EMS workforce analysis include aspects of the legal, operating, and political contexts of state government; resource limitations within state EMS offices; larger cultural trends; and changes in the EMS field itself.
- Important facilitators include multiple state and national organizations, including governments, professional associations, academic institutions, and private sector EMS companies, all of which can provide resources and assistance for EMS workforce analysis.
- Of the numerous EMS workforce analysis topics discussed, the three topic areas that emerged as highest priority for workforce supply information included (1) essential data on overall supply as well as distribution by geography, licensure level, work settings, and roles; (2) pathways into, within, and out of EMS practice; and (3) factors contributing to workforce attrition.
- Three high-priority EMS demand topic areas included (1) compensation levels and their relationship to maintaining sufficient staff, by geography and setting; (2) positions filled and vacant by geography, level, setting, and role; and (3) methods to compare supply with demand to measure workforce shortage, surplus, or maldistribution.
- This project extends NASEMSO's prior work, and is specific in determining state EMS workforce information needs. Further work engaging a broader set of state EMS officials, with the support of national entities, is needed to rigorously vet and prioritize EMS workforce questions and related data requirements.
- Because states vary widely in their resources and capabilities for EMS workforce analysis, future efforts will need to consider how to balance potentially competing needs and priorities, particularly when it comes to achieving sufficient standardization that will allow for comparable workforce information within and across states as well as nationally.

- Project participants expressed a strong desire to improve EMS workforce data collection and analysis through further development of questions and measures; support for more learning opportunities in EMS workforce analysis; and creation of practical collection, analysis, and reporting tools to advance these efforts.

INTRODUCTION

NASEMSO, as the lead national organization for state¹ EMS policy, plays an essential role in supporting the development of state systems to ensure high-quality EMS care. This role includes supporting states' efforts to develop and sustain a robust EMS workforce. To advance EMS workforce analysis, NASEMSO's earlier phases of its "Measuring the Emergency Medical Services Workforce" project, funded by U.S. Department of Transportation NHTSA OEMS, resulted in four reports produced in 2023 and available through the NASEMSO website:

1. *Understanding State EMS Office Capability and Recommendations for the Future*
2. *Identifying Ideal Measures and Processes*
3. *State Profiles, Successes, and Challenges to Implementation*
4. *Strategies for Workforce Measurement Implementation*

In 2024, NASEMSO initiated a fifth component of the work building on these and prior efforts² to support monitoring and development of the EMS workforce focused on data elements that can generate actionable information on workforce supply, characteristics, demand, and needs over time. This phase, which sought to identify and prioritize a preliminary set of core questions and data elements for state EMS workforce analysis, included the following tasks:

- Review of key EMS workforce documents and relevant workforce measurement documents from other health professions;
- Engagement of NASEMSO project pilot states to solicit input on EMS workforce data priorities;
- Facilitation of an in-person meeting of the NASEMSO EMS Workforce Guidelines Implementation Project Technical Expert Panel (TEP) members for further input on workforce data priorities; and
- Report of recommendations on priorities for state workforce analysis.

¹ Throughout this report, the word "state" refers to the 50 U.S. states, 5 U.S. territories, and the District of Columbia.

² E.g., *EMS Workforce Planning and Development: Guidelines for State Adoption*. NASEMSO, October 2014. Available at <https://nasemso.org/nasemso-document/ems-workforce-guidelines-11oct2013/>

NASEMSO engaged an external consultant with expertise in health workforce analysis and the EMS workforce to carry out these tasks in collaboration with NASEMSO leadership. This report summarizes key findings from input gathered during an online meeting on February 7, 2024, with EMS directors in the five project pilot states (Alaska, Indiana, Maryland, Mississippi, and Vermont) as well as a 1.5-day Technical Expert Panel (TEP) meeting held March 5-6, 2024. In addition to NASEMSO leaders and staff and the external consultant, a total of 16 persons attended the TEP meeting either in person in Columbus, OH, or online from the organizations in Box 1.

Box 1. Technical Expert Panel Meeting Participants

- National Registry of Emergency Medical Technicians (NREMT, meeting host)
- State EMS Offices:
 - Mississippi
 - Maryland
 - Vermont
- American Ambulance Association (AAA)
- Committee on Accreditation of EMS Programs (CoAEMSP)
- ESO
- International Association of Fire Fighters (IAFF)
- Interstate Commission for EMS Personnel Practice
- Joint Committee on Rural Emergency Care (JCREC)
- National Association of EMS Educators (NAEMSE)
- National Association of EMS Physicians (NAEMSP)
- National Volunteer Fire Council (NVFC)

The meeting consisted of brief presentations on NASEMSO’s prior project findings, the NREMT’s workforce research, EMS workforce analysis fundamentals, and state examples, but for most of the time, participants engaged in full-group and breakout discussions of the following topics:

- Goals for state EMS workforce measurement;
- Feasibility considerations for EMS workforce measurement: resources, opportunities, and challenges;
- Priority EMS workforce questions; and
- Recommendations for future steps to support state EMS workforce analysis.

At the end of the meeting, participants had the opportunity to vote individually on up to 10 EMS top-priority workforce supply and demand questions from a list nominated by the group. Thirteen participants submitted votes. The key findings presented below are based on these discussions and the prioritization process to identify key questions and inform needs.

GOALS FOR STATE EMS WORKFORCE MEASUREMENT

Meeting participants identified numerous ways that state EMS workforce measurement matters for both state and national EMS planning and policy. The panel’s discussion on goals for EMS workforce measurement largely focused on the need for individual practitioner supply data while acknowledging that the lack of EMS employer information was also a significant gap.

State policymakers expect state EMS officials to provide workforce information and insights to help guide resource allocation. As shown in NASEMSO’s prior reports for this project, however, most state EMS offices lack access to essential EMS workforce data, and even when they have

raw data, may not have the human resources to analyze and make use of it in a timely way. As one state EMS director succinctly described it, “I would like to more competently talk to decision-makers about the workforce” to identify gaps and assess the return on state investments. Relying on anecdotal rather than objective evidence on the state of the EMS workforce, state officials find themselves in a reactionary stance that prevents them from effectively driving the EMS workforce agenda. EMS officials may thus be less prepared than those in other health occupations, such as nurses, to articulate and advocate for workforce needs.

Another EMS director expressed a need to “understand the life cycle of EMS clinicians,” through collection of essential supply information on career and volunteer practitioners include retention and attrition factors as well as distribution by setting and geography. Information on the typical duration of clinically active practice, and uptake of newer “non-traditional” roles and career pathways, can help states identify strategies to ensure sufficient supply for 911 response, such as through expanding education and recruitment or improving retention. This information can also delineate other ways that EMS practitioners provide value in other healthcare settings.

State EMS officials also desired consistent measures to describe the workforce at the local and state levels as well as compare to national workforce benchmarks. National benchmarks could also inform federal policy and resource allocation. A challenge that complicates the ability of both state and national EMS organizations to engage in evidence-based discussions of the workforce with those within and outside the EMS field is the existence of dramatically varying national estimates of the size and composition of the EMS workforce. The lack of complete and accurate data on EMS workforce supply and demand also makes it difficult to critically evaluate published estimates, such as the HRSA’s Projections dashboard,³ which assumes approximate equilibrium between supply and demand in 2021 and projects a 41% oversupply of EMTs by 2036. The fact that the EMS workforce operates in varied settings and both paid and unpaid capacities presents a challenge for federal estimates that are based on data sources that do not capture complete information on all these types of EMS practitioners. For example, the U.S. Census Bureau’s American Community Survey does not count firefighters who are also EMS practitioners as part of the EMS workforce. These and other federal data sources, such as the Bureau of Labor Statistics, also do not count volunteers.

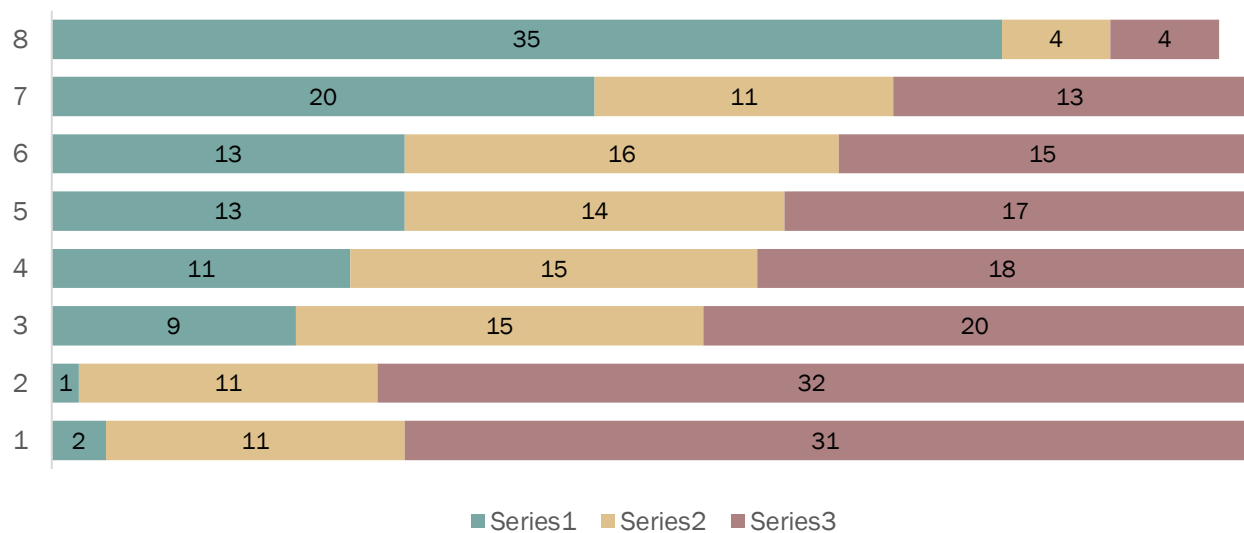
Beyond ensuring that all EMS practitioners are counted, a coordinated approach to producing reliable and valid state and national EMS workforce information may require revisiting and updating previously developed data definitions. In addition, simply having data is not enough: meeting participants described a need for technical assistance and practical tools to turn data into information that they can interpret and use to articulate needs to a variety of interested parties.

³ <https://data.hrsa.gov/topics/health-workforce/workforce-projections>

FEASIBILITY CONSIDERATIONS FOR EMS WORKFORCE MEASUREMENT: CHALLENGES, RESOURCES, AND OPPORTUNITIES

NASEMSO’s first report for this project, *Understanding State EMS Office Capability and Recommendations for the Future*, identified state EMS office capabilities and practices in EMS workforce data collection. Figure 1 shows that, among respondent’s to NASEMSO’s survey of state EMS offices in 2022, practice level was the only employment information queried that most states reported collecting. Most states either could not or did not collect other essential items such as employment status and job responsibilities.

Figure 1. State EMS Office Practices and Capabilities Collecting Data on Employment

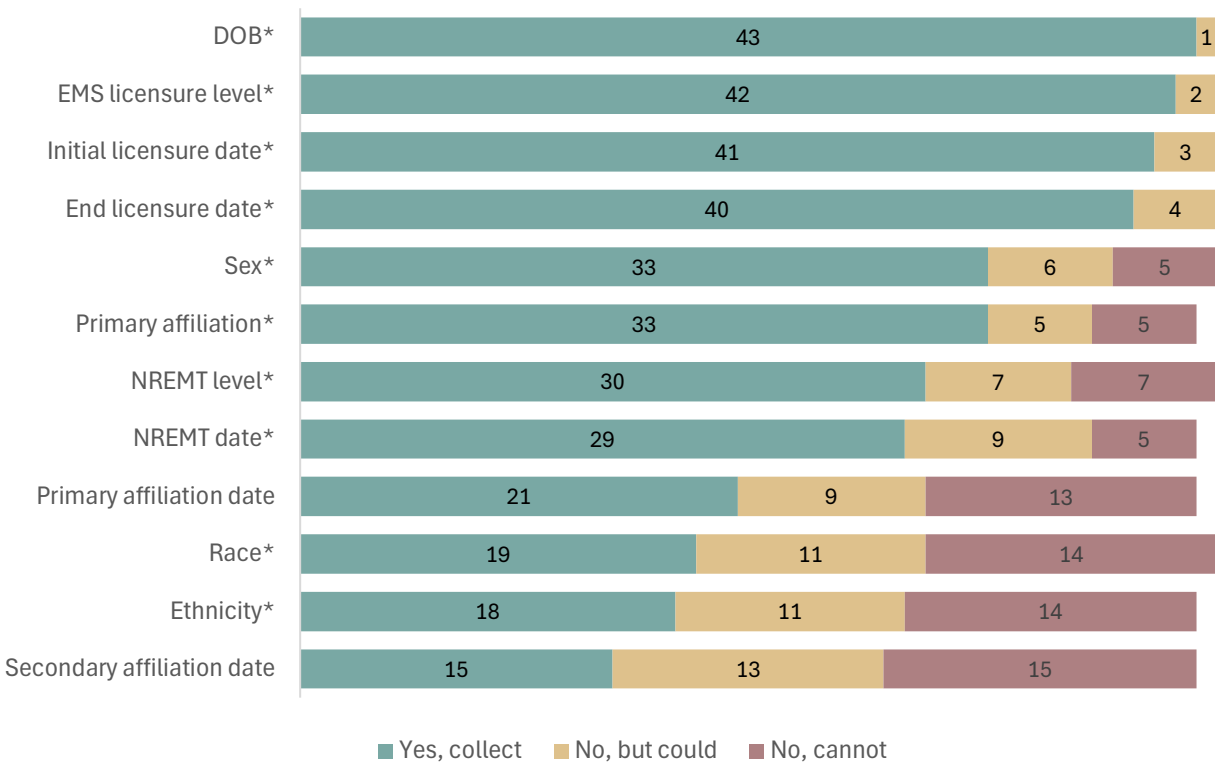


*Identified as an essential data element in NHTSA’s National Emergency Medical Services Workforce Data Definitions⁴

Figure 2 displays state EMS office collection of data on individual practitioner characteristics. Most states reported that they collected essential information such as date of birth, licensure level, and dates of licensure, but fewer than half collected information on affiliation dates, and a substantial minority were not able to collect information on race or ethnicity. These findings point to significant gaps in EMS offices’ ability to monitor the workforce in their states.

⁴ https://www.ems.gov/assets/National_EMS_Workforce_Data_Definitions_2013.pdf

Figure 2. State EMS Office Practices and Capabilities Collecting Data on Individual Practitioner Characteristics



*Identified as an essential data element in NHTSA’s National Emergency Medical Services Workforce Data Definitions⁵

TEP meeting participants discussed challenges, resources, and opportunities for EMS workforce measurement to help frame the discuss of EMS workforce information priorities. The assumption framing this conversation was that currently existing EMS workforce data availability and analysis resources will affect the feasibility and therefore the value that can be realized in pursuing the answer to each question of interest to state EMS officials. Understanding resources and constraints helps to identify realistic starting points to advance EMS workforce analysis. Participants identified a plethora of both challenges and facilitators for EMS workforce analysis in response to the following questions.

- What barriers or challenges do state EMS offices face to obtaining data, analyzing it, and making use of the information?
- What resources and opportunities exist to support this work?

⁵ https://www.ems.gov/assets/National_EMS_Workforce_Data_Definitions_2013.pdf

CHALLENGES TO EMS WORKFORCE ANALYSIS

Challenges to EMS workforce measurement and analysis that participants identified include the legal, operating, and political contexts of state government; limitations within state EMS offices; larger cultural trends; and changes in the EMS field itself. Not surprisingly, these challenges are often highly interrelated.

- ***The impact of state executive branch priorities and the political process.*** State EMS offices are affected by larger governmental decisions and processes that may determine the kinds of questions about the EMS workforce that can be asked and answered. Requests that state EMS officials limit their inquiry to particular kinds of solutions (for example, considering needs that can only be address in a budget-neutral way) can create a disincentive to conducting more comprehensive workforce analyses. Changing priorities and short funding time horizons can also work against investment in long-range EMS workforce planning and investments.
- ***Inattention to the EMS workforce except in times of crisis.*** The importance of the EMS workforce is heightened among policymakers during crises (e.g., the COVID-19 pandemic) or tragic events, but this attention quickly wanes, particularly when EMS struggles to quantify workforce needs in the way that other occupations, such as nursing, can.
- ***State EMS office resource constraints.*** Limited budget and staff prevent state EMS offices from collecting data and conducting workforce analysis. Even if staffing is robust, personnel may not have the expertise needed to analyze workforce data effectively.
- ***Lack of understanding about the time and expertise required for data collection and analysis.*** Along with a lack of expertise, state EMS office personnel may have unrealistic expectations regarding the speed and ease with which data can be gathered and analyzed.
- ***Variability in data availability, quality, and analysis practices.*** States vary significantly in their data collection and analysis practices, creating inconsistencies in workforce information available across the country. Furthermore, inconsistencies in data collection practices within or across states may result in incomplete or inaccurate data.
- ***Misconception that EMS offices have all require and standardized workforce data readily available.*** While EMS office personnel can identify EMS workforce questions and the data required answer them, policymakers and other interested parties may overestimate how much information is actually available and the workforce analysis capabilities of the EMS office. These assumptions can deprive the state EMS office of the investments it needs to produce the information that others are seeking.
- ***Lack of understanding about EMS among federal partners.*** Federal agencies may lack understanding of essential aspects of EMS workforce supply and deployment. This can lead to analysis and dissemination of data that are potentially erroneous or

- lack sufficient context for accurate interpretation (the example cited was HRSA's EMS workforce projections).
- ***Evolution of EMS occupations, roles, and organizations.*** Changes in EMS practice may require changes in workforce measurement. Imprecise or inappropriate measures that have not kept up with practice in newer roles and settings can hinder accurate estimates of workforce contributions—both at a single point in time and longitudinally. For example, understanding demand for EMS interfacility transfers, as opposed to 911 response, is particularly challenging.
 - ***Changes in attitudes about work.*** Related to evolution in EMS practices is a larger cultural shift in attitudes about work, particularly in the wake of the pandemic. Some EMS practitioners are increasingly prioritizing career options that offer better compensation and work/life balance. Past measures of workforce effort and engagement may not reflect current realities where staff are less likely to perform additional work that is uncompensated or overtime work.
 - ***Leadership turnover.*** High turnover of state EMS directors, only half of whom have a tenure of five years or more, can lead to shifting EMS office priorities that threaten long-range workforce planning.
 - ***Regulatory and privacy concerns.*** State EMS offices vary in their authorities over emergency medical response personnel and the data they can obtain about the workforce. These authorities may depend in part on whether the office is located in the state agency that typically conducts workforce analyses and specific prohibitions in state law about information that can be collected. Regulatory and privacy concerns can be complex to navigate and may limit the kinds of analyses that are possible to conduct.
 - ***Interagency collaboration.*** Coordinating efforts with other agencies for data sharing and analysis is not always possible due to differing priorities, systems, and protocols. For example, state departments of labor have significant workforce analysis expertise, but they may not have the time, incentive, or other resources to assist.
 - ***Diverse, decentralized EMS education programs and pathways.*** The variability and autonomy of training programs and educational pathways create complexity in collecting comprehensive state-wide education data.

RESOURCES AND OPPORTUNITIES TO SUPPORT EMS WORKFORCE ANALYSIS

In reflecting on available resources for EMS workforce analysis, one discussion participant noted that the challenges identified above can sometimes be turned into opportunities. Facilitators identified for state collection and analysis of EMS workforce data include multiple state and national organizations, including governments, professional associations, academic institutions, and private sector EMS companies.

- + ***State EMS advisory committees.*** State EMS advisory committees can provide a platform for identifying workforce needs, strategies, and policies. Committees can support state workforce analysis initiatives and connect state EMS offices with the wider EMS community to spur data collection and sharing of best practices.
- + ***State offices of rural health (SORHs) and the National Organization of State Offices of Rural Health (NOSORH).*** SORHs administer rural EMS initiatives, such as through the Medicare Rural Hospital Flexibility Grant Program. NOSORH helped found, with NASEMSO, the Joint Committee on Rural Emergency Care (JCREC) to support policy that can ensure access to high-quality rural EMS care. These partnerships and initiatives make NOSORH and SORHs key partners and resources for state EMS policy.
- + ***State health departments.*** Through their role licensing health care facilities, state health departments are a potential partner in efforts to improve EMS workforce data collection and analysis.
- + ***State departments of labor and workforce development programs.*** State labor departments generate labor market data and conduct workforce analysis, making them a natural partner for state EMS offices to tap into for expertise on market trends. Coordinating with state labor department data collection efforts can also ensure that state EMS office activities are not duplicative. Labor departments also administer workforce development programs and other resources that can benefit the EMS workforce and potential workforce analyses.
- + ***Other state EMS offices.*** A number of state EMS offices have devoted resources to EMS workforce data collection and analysis. The states who are leading the way can share promising practices for replication in other states. One example among several is South Carolina, which has established a data warehouse of EMS workforce information through a partnership between the state EMS office and state EMS association.
- + ***National Association of State EMS Officials (NASEMSO).*** NASEMSO has conducted multiple projects to improve state EMS workforce data collection and analysis. NASEMSO plays an important convening role with state EMS offices to identify needs and support state policy, planning, and to advance model, promising and standardized practices for EMS nationally.
- + ***Interstate Commission for EMS Personnel Practice (Compact States).*** The Commission has a statutory requirement to collect and facilitate the exchange of EMS licensure information between states. The Commission has created a licensure crosswalk and deduplicated personnel records across 24 states that are currently members of the EMS

Compact. These data offer tremendous value for EMS workforce analysis in the member states and nationally.

- + ***National Registry of Emergency Medical Technicians (NREMT)***. In its role as the national certifying body for EMTs and paramedics, the NREMT has comprehensive national data on the EMS workforce, including information on educational attainment. The NREMT and its partners have also created and promoted the National EMS ID, a unique lifetime identifier for EMS personnel, which has the potential to improve workforce tracking and analysis as the ID is more widely adopted in EMS databases. The NREMT also conducts workforce research and is available as a resource to provide methodological assistance to states conducting their own analyses.
- + ***National EMS Information System (NEMSIS)***. EMS data in both NEMSIS and state electronic patient care record (ePCR) systems can be used to derive information about the workforce. For example, even if it is not possible to identify complete personnel roster information in each agency, ePCR data can be used to analyze changes in call response times and the frequency and affiliation of EMS personnel practicing in the out of hospital setting. Lengthening response times could be an indicator of personnel shortage. Integration of the National EMS ID into NEMSIS provides an opportunity to create a unique identifier to facilitate EMS workforce analysis in states and nationally.
- + ***EMS software companies***. EMS software companies, including TEP members, have EMS workforce expertise, conduct their own analyses, and in some cases make available research databases. Some also provide licensure software and could be engaged to develop reporting tools for state EMS workforce analysis.
- + ***National and state health workforce analysis resources***. The HRSA-funded Health Workforce Technical Assistance Center (HWTAC) and Health Workforce Research Centers, located at academic institutions around the U.S., as well as health workforce centers in other states, offer health workforce analysis expertise, in some cases specific to EMS.
- + ***Centers for Medicare & Medicaid Services (CMS) volunteer EMS survey***. CMS has developed a methodology to measure volunteer effort in EMS for a sample survey of ambulances. Both the findings and the methodology from this effort can be used to improve future measurement and understanding of the volunteer workforce.

PRIORITY EMS WORKFORCE QUESTIONS

On the first day of the meeting, participants nominated priority EMS workforce questions in breakout groups and reported the results to the full group in response to the questions listed below.

- What are important questions about EMS workforce supply to answer at the state level? At a national level?
- What are important questions about EMS workforce demand to answer at the state level? At a national level?
- Are there other important EMS workforce questions (e.g., quality of care, health and safety)?

On the second day, participants reviewed a refined list of items they had nominated eliminating duplication, rephrased as workforce questions for data collection and analysis, and grouped by supply and demand topic areas. The facilitator asked participants to consider feasibility of implementing data collection and analysis when determining priorities.

Before voting, participants had the opportunity to provide additional feedback. An important topic not mentioned on day one and therefore not included among items for voting was the volunteer EMS labor force. Important questions about volunteers concerned understand level of reliance on volunteers, the appropriateness of doing so, and volunteer attrition. Notably, however, a valid and consistent method for defining and assessing the volunteer workforce is still needed (notwithstanding CMS's efforts noted earlier). This underscores the preliminary nature of the prioritize activity and the need for more widespread input and vetting before definitive priorities are agreed upon for development.

Meeting participants could submit up to 10 votes for workforce supply questions and 10 votes for workforce demand questions (20 total). Tables 1 and 2 display the results shaded by frequency of priority.

Highest priority EMS workforce supply questions (Table 1) included fundamental supply and distribution questions—the numbers of practitioners within a state overall and across geographies by level, settings, and roles. Understanding career pathways into, within, and out of EMS was also of high interest, including the related topic of access to EMS education, particularly in areas with no programs. The third high priority area, also closely related to career pathways, was factors that contribute to workforce attrition, including pay, working conditions, and wellbeing.

Measuring the EMS Workforce – Identifying Priority Unknowns

Table 1. Highest Priority EMS Workforce Questions for State EMS Offices to Address: Supply

OVERALL SUPPLY AND DISTRIBUTION OF THE EMS WORKFORCE	RESPONSES
What is the number of EMS practitioners—total, by level, by setting, and by role? <i>(includes patient care in ambulance, in other settings [e.g., community paramedicine, clinics], and non-patient care roles [e.g., education, administration])</i>	12
How are EMS practitioners distributed by geography—total, by level, by setting, and by role? <i>(includes patient care in ambulance, in other settings [e.g., community paramedicine, clinics], and non-patient care roles [e.g., education, administration])</i>	10
What are EMS career trajectories, i.e., the life course/duration of EMS practice?	8
Do the demographics of the EMS workforce match demographic diversity of the population?	5
How do demographic factors (e.g., aging) affect supply?	4
WORKFORCE DEVELOPMENT AND RECRUITMENT	RESPONSES
How do EMS practitioners break down in terms of career pathways into, within, and out of EMS?	9
Does the distribution (catchment area) of EMS education programs align with population distribution in the state? What are effective means to reach underserved areas that do not have programs?	8
What are effective methods to increase awareness of EMS to prepare and attract potential recruits who have appropriate expectations about the career?	6
What motivates new recruits to pursue a career in EMS?	6
To what extent can incentives—such as subsidized tuition or tuition/loan repayment through obligated service—attract people into EMS education?	6
What is the enrollment capacity of EMS education programs?	5
How can my state better align training requirements with national standards?	1
How can career counseling (e.g., in community colleges) be improved so as not to discourage potential recruits?	0
WORKFORCE RETENTION AND ATTRITION	RESPONSES
To what extent do pay, health/wellbeing issues, working conditions (e.g., deployment, system status, or station) or other factors contribute to attrition from EMS?	8
What types and levels of compensation do EMS practitioners received regionally and statewide, at different levels and in different roles and settings?	5

The highest priority EMS workforce demand question centered on understanding compensation statistics and what they revealed about maintaining adequate staffing levels within various geographies and work settings (Table 2). Other high priorities questions include basic data on total and vacant positions by geography, level, setting, and role, as well as understanding how to appropriately measure supply/demand mismatches to identify areas of shortage, surplus, or maldistribution.

Table 2. Highest Priority EMS Workforce Questions for State EMS Offices to Address: Demand

ECONOMIC MEASURES OF WORKFORCE DEMAND	RESPONSE
What are statistics on compensation, including benefits/incentives, and what levels and kinds of compensation are required to meet demand in different settings? What are feasible (adequate and affordable) staffing models in different geographies and settings?	11
How many resources are agencies devoting to overtime budgets or surge contracts?	4
POSITIONS AND VACANCIES OVERALL AND BY SUBGROUPS	
How many positions and vacancies exist—total, by level, by setting, by role—and how are they geographically distributed?	10
What are appropriate measures of supply/demand mismatch (shortage or surplus)—overall or due to geographic maldistribution?	9
How does demand for EMS practitioners (e.g., vacancies) compare with demand in other occupations?	6
What is a “normal” vacancy rate and what are indicators of an abnormal level of vacancies?	5
How many positions and vacancies exist for special certifications and roles (e.g., community paramedicine, critical care, wilderness, tactical)?	3
What are total staffed hours per agency?	3
DEMAND FOR NEW EDUCATION PROGRAM ENROLLEES AND COMPLETERS	
How many students are needed to enroll and complete programs to meet demand (total, by level, by setting, by role, by geography)?	8
What are call volumes and types (i.e., patient complaints) by community service area, and how do these translate to positions needed, by level?	8

WORKFORCE DEMAND BY PATIENT SERVICES/POPULATIONS AND TRENDS OVER TIME	
How will demographic changes (e.g., aging population, changes in burden of disease) affect workforce demand?	8
How will changes in reimbursement (e.g., new payment models for community paramedicine) affect demand for different EMS roles?	8
Are there changes in how EMS practitioners are employed/deployed (e.g., consolidation or shifts between settings) that will cause changes in demand by setting (e.g., hospital, fire, etc.)?	7
How many patients require transport to an emergency department vs. treat-in-place or transport to alternate destinations?	6

In addition to the supply and demand topics in Tables 1 and 2, participants nominated three other workforce topics in day one discussions that they could also vote for if any were higher priority than those listed above: (1) What is the health and wellbeing status of the EMS workforce, and what factors contribute to health and wellbeing? (2) What is the impact of state policies, such as designation of EMS as an essential service, on the workforce? (3) How can policies be improved to support the workforce (e.g., decriminalization of errors or other acts committed in practice)? Four respondents commented on these topics:

In terms of priority, it could be argued that the health and wellbeing of the EMS workforce is the foundational concern. Without a healthy and well-supported workforce, the effectiveness of any policies or operational improvements is likely to be limited. However, all these topics are interconnected. State policies have a direct impact on the health and wellbeing of the workforce, and likewise, policy improvements are often necessary to address health and wellbeing issues effectively. Therefore, a comprehensive approach that addresses all these aspects concurrently might be the most beneficial.

This [health and wellbeing] is a critical issue or priority.

The wellbeing of the EMS provider has always been overlooked. Mental wellbeing needs to be a priority in every agency.

This one [impact of state policies] seems essential for having EMS being paid for the work that they do within urban/rural settings. Definitely a policy that should be put forth in a collective manner of those involved in EMS/FIRE issues.

RECOMMENDATIONS FOR FUTURE STEPS TO ADVANCE STATE EMS WORKFORCE ANALYSIS

This project is a first step toward identifying priority questions that are important for states to answer that can aid in workforce planning, policy, and practice. Recommendations for future work to advance EMS workforce analysis fall into three main categories: further development of priority questions and measures, learning opportunities to support state EMS officials in conducting workforce analysis, and practical tools for EMS workforce analysis and reporting. Participants noted that NASEMSO can play a key role in supporting all these activities by coordinating efforts across states and providing templates and guidance to improve comparability of reporting nationally.

FURTHER DEVELOPMENT OF QUESTIONS AND MEASURES

Determining consensus priorities for measurement could build on the work begun in this project. While the perspectives of national organizations are important to inform this work, ensuring that the priorities of state EMS officials are well represented will require broader state participation. Preliminary work before further convening should include conducting a complete inventory and crosswalk of EMS workforce measures that states and national organizations have already developed or used, comparing with measures from other relevant health professions. One point of departure for this effort is the 2014 document, *EMS Workforce Planning and Development: Guidelines for State Adoption*.⁶ This preparation will ensure that candidate measures build from existing solutions.

The prioritization process itself should be systematic and involve a larger group of states as well as key EMS and workforce analysis experts. The Delphi method is a commonly used, rigorous process for developing professional guidelines that involves iterative rounds of input over time that converge toward consensus. The results of a Delphi process may be submitted for peer review and published in a journal, which can spur wider dissemination, greater adoption, and future efforts to build the field. After prioritizing EMS workforce questions, operationalizing their measurement requires development and piloting test of data collection instruments, revising as needed to arrive at final recommendations for the measure set.

LEARNING OPPORTUNITIES TO SUPPORT EMS WORKFORCE ANALYSIS

Ideas proposed to support learning among state EMS personnel include establishing learning collaboratives, both within individual states (e.g., including representations from state organizations such as departments of labor or academic institutions) and across states at a national level. States need assistance formulating appropriate questions and analyses as well

⁶ <https://nasemso.org/nasemso-document/ems-workforce-guidelines-11oct2013/>

as examples, such as case studies of successful EMS workforce data collection and analysis projects that can point to best practices.

PRACTICAL TOOLS FOR EMS WORKFORCE DATA COLLECTION, ANALYSIS, AND REPORTING

States need a practical toolkit with a step-by-step “road map” that offers both basic guidance (e.g., tracking the active workforce) and more advanced guidance (e.g., forecasting tools), including standard templates and data dictionaries for states to use in EMS workforce data collection, analysis, and reporting. EMS software vendors could also play a role in creating standard, automated report generation tools.

SUMMARY AND IMPLICATIONS

This convening of NASEMSO’s Technical Expert Panel members, including state EMS directors from the pilot project that led up to this activity, represented an initial effort to identify the goals and priorities for state EMS workforce analysis, as well as barriers and resources that affect what is possible. Among the many questions nominated, the three topic areas that emerged as highest priority for workforce supply information, as well as three high-priority demand areas. These topics areas are identified below.

Highest Priorities for Workforce Supply Information

- (1) essential data on overall supply as well as distribution by geography, licensure level, work settings, and roles;
- (2) pathways into, within, and out of EMS practice; and
- (3) factors contributing to workforce attrition.

Highest Priorities for Workforce Demand Information

- (1) compensation levels and their relationship to maintaining sufficient staff, by geography and setting;
- (2) positions filled and vacant by geography, level, setting, and role; and
- (3) methods to compare supply with demand to measure workforce shortage, surplus, or maldistribution.

States are at varying starting points and capabilities with regard to EMS workforce information. Beyond the need for more attention and resources to EMS workforce measurement generally, a key consideration is whether to focus future work on enabling all states to obtain and report the most essential workforce information, investing in a select cohort of states that can lead the way and provide models for others through development of more advanced capabilities, or some combination of these strategies. Different types of workforce analysis require different sources of data and methods, with supply data often easier to obtain than data needed for analyses of demand or for special topics such as workforce wellbeing and quality of care. Further

prioritization will need to assess the feasibility of conducting desired analyses, understanding that states may differ in their readiness.

In all of these conversations, the EMS field will need to grapple with several questions regarding data comparability. To what extent can states move toward more uniform data reporting standards while allowing for differences in state definitions of EMS practitioners at each level of licensure? To what extent should measure specifications conform to existing foundational EMS workforce measurement documents—enabling better understand of trends over time—versus undergo revisions to reflect changes in EMS workforce practice patterns and cultural understandings (for example, how to collect race data)? Do states wish to be able to compare EMS with other health or public safety workers or with federal data for better understanding of its relationship with other occupations?

Each of the priority topic areas identified in the TEP meeting comprises a set of multiple interrelated questions. Further work engaging a broader set of state EMS officials, with the support of national entities, is needed to rigorously vet and prioritize EMS workforce questions and related data requirements. Despite identifying numerous challenges, meeting participants expressed a strong desire to improve EMS workforce data collection and analysis through further development of questions and measures; support for more learning opportunities in EMS workforce analysis; and creation of practical collection, analysis, and reporting tools to advance these efforts.