

**EMS Workforce Agenda for the Future
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I. Introduction

One of the most important components of an EMS system is its workforce. The ability of an EMS system to deliver high quality prehospital emergency care depends upon a qualified and capable workforce. However, in the past 40 years of modern EMS, clinical care issues have dominated the research literature, with little attention paid to the workforce beyond its education and training. As a result, the understanding of workforce issues and methods of addressing them vary greatly across both state and local levels. While some EMS systems appear to have been successful in meeting their workforce needs, there is no broad national effort in place to develop, identify, or share best practices in recruitment, retention, worker health and safety, or other EMS workforce issues.

In recent years, awareness of the urgency of EMS workforce issues has increased. Media and anecdotal reports of EMS worker shortages, problems with recruitment and retention, declining volunteerism, low worker pay and poor employment benefits, and concerns about worker health and safety issues have raised questions about the viability of the workforce. Recent national disasters have brought new attention to the vital roles EMS workers play in community health and public safety.

In many localities, the demand for EMS is perceived to be increasing. Many EMS workers and industry leaders believe that urgent action is needed to ensure enough qualified EMS workers in the future. As the nation faces an older and increasingly diverse population, overall workforce shortages, and the possibility of global events such as pandemic influenza outbreaks, it is clear that more attention must be devoted to assuring the viability of the EMS workforce.

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II. Vision, Purpose, and Elements of the Agenda

Vision

We envision a future where all EMS systems are able to recruit a sufficient number of well educated, adequately prepared, and appropriately credentialed EMS workers who are valued, well-compensated, healthy, and safe.

Purpose

The *EMS Workforce Agenda for the Future* (“EMS Workforce Agenda”) builds on the findings of the recently published *EMS Workforce for the 21st Century: A National Assessment* (“EMS Workforce Assessment”). The purpose of the EMS Workforce Agenda is to provide a vision for the future and to suggest strategies to help assure a robust and capable EMS workforce in the 21st century.

Elements of the EMS Workforce Agenda

Figure 1 (p. 5) presents a model for the EMS Workforce Agenda that depicts its essential elements: data and research, education and certification, workforce planning and development, as well as workforce health, safety, and wellness. The successful implementation of the EMS Workforce Agenda depends upon a coordinated systems approach involving the efforts of national, state, and local EMS agencies, and a variety of stakeholder organizations. A proposed National EMS Workforce Technical Assistance Center will help coordinate these efforts by collecting and disseminating EMS workforce best practices, promoting EMS workforce research, and providing EMS workforce technical assistance to local, state, and federal EMS agencies. A summary of the essential elements of the EMS Workforce Agenda is included here.

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Data and Research – Current and accurate EMS workforce data and research are necessary to facilitate effective, evidence-based workforce planning. Action needs to be taken to cultivate a robust body of research in this field. The national EMS community needs to develop an integrated system of uniform workforce data collection. Pertinent data on the EMS workforce, including compensation, the number of paid and volunteer workers, and the number of enrollees and graduates of education programs, should be collected at the local and state levels and reported nationally, with regular updates.

Education and Certification – Quality EMS education is needed to develop superior EMS personnel, capable of delivering excellent prehospital health care. The education and certification proposals in this document are based on the *EMS Education Agenda for the Future: A Systems Approach* (“EMS Education Agenda”).¹ The EMS Education Agenda has the overarching objective of improving the efficiency of the national EMS education process through development of five interdependent components – the National EMS Core Content, the National EMS Scope of Practice Model, the National EMS Education Standards, National EMS Education Program Accreditation, and National EMS Certification. The EMS Education Agenda calls for all states to adopt National EMS Certification as the basis for EMS licensure, as well as for accreditation of all EMS education programs.

Workforce Planning and Development – An evidence-based approach to EMS workforce supply management is needed to predict the future supply of EMS workers and the demand for their services across the range of geographic service areas. All levels of EMS will benefit from taking a proactive approach to meeting future demand for workers, including volunteers. To be effective, workforce planning and development will require access to current and accurate data on the EMS workforce.

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Health, Safety, and Wellness – Ongoing collection of workforce illness and injury data through a national EMS Workforce Injury and Illness Surveillance Program (EMS-WIISP)² is needed to assure a healthy and safe workforce in the future. Data collected through the EMS-WIISP will provide the foundation for evidence-based safety standards and practices and help to promote a culture of safety in EMS.

The four elements of the EMS Workforce Agenda and the goals and methods described in this document are intended to be applicable across the spectrum of EMS systems.

National EMS Workforce Technical Assistance Center – Given the diversity of EMS systems in the United States, development of the essential elements of the EMS Workforce Agenda will require coordination between national, state, territorial, tribal, private, and local EMS stakeholders. A proposed *National EMS Workforce Technical Assistance Center* (TAC) would facilitate the efforts of EMS stakeholders. Essential stakeholders may include, but are not limited to, the following:

- EMS workers
- EMS employers
- State EMS offices
- Local and tribal EMS systems and provider agencies
- Certification and accreditation organizations
- Education programs and institutions
- National, state, and local EMS organizations
- Federal EMS agencies
- Public health agencies
- Private EMS providers

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- Rural health agencies

Figure 1 is a model of the essential elements of the EMS Workforce Agenda. The vision of the future EMS workforce is central to the EMS Workforce Agenda, with the four essential elements each overlapping the vision. EMS stakeholders and the TAC are embedded within the vision and each of the four elements. The TAC is discussed in more detail later in this document.

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Figure 1. Essential Elements of the EMS Workforce



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III. Prior Work on the EMS Workforce

In response to a growing desire within the EMS community to ensure a robust and capable workforce, NHTSA initiated a national EMS workforce project in 2005. The first step of the EMS Workforce for the 21st Century Project was a systematic and in-depth assessment of the national EMS workforce, including primary data collection, a synthesis of existing data and research, and the input of key EMS workforce experts and national stakeholders. The findings of the EMS Workforce Assessment, fully reported in a previous document,³ are summarized by the following critical issues.

Data

An important finding from the EMS Workforce Assessment is that much of the data necessary for evaluating the adequacy of EMS workforce supply is either not collected or has substantial limitations that impede its use in workforce planning. The most basic workforce statistics, such as workforce size, cannot be accurately estimated using available data. National sources of workforce data do not account for the complexities of the EMS workforce. For example, the Bureau of Labor Statistics Occupational Employment Statistics (BLS-OES) database does not distinguish between EMTs and paramedics, does not have a category for EMTs cross-trained as fire fighters, and does not include volunteer EMS workers. Given that BLS-OES is designed to include only individuals who work for pay, it will likely never be a source of data on volunteer EMS workers. Estimates of the size of the EMS workforce based on BLS-OES data therefore undercount the EMS workforce by an unknown amount. The inability to accurately estimate EMS workforce size is a severe problem for EMS workforce planning because workforce size is an important indicator of workforce demand. It is impossible to

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accurately predict future demand for EMS workers without knowing the current number of workers.

Education and Certification

In addition to the limitations described above, certification and licensure requirements for EMS workers create a confusing picture due to differing types and levels of certification and licensure available across the states. Furthermore, data on the emerging workforce (e.g. student and educational programs data) are also limited. For example, the U.S. Department of Education's National Center for Education Statistics (NCES), does not distinguish between EMT and paramedic education programs and does not capture data from all educational programs. Another source of educational programs data, the American Medical Association, only collects data from accredited paramedic programs and does not collect data from any EMT programs. The lack of complete data on students in the EMS educational pipeline hinders efforts to assess supply of workers in the near future.

Recruitment and Retention

Qualitative findings from the EMS Workforce Assessment stressed the importance of recruitment and retention to meeting the demand for EMS services. Concern about recruitment and retention issues was widespread although specific problems were reported to vary by geographical and regional factors. There was also substantial interest among key stakeholders over how to increase EMS workforce diversity. Other key qualitative findings included concern about low wages and lack of employee benefits, career ladders, or other means of promoting employee growth, advancement, and satisfaction. There was little awareness of effective models for recruitment and retention.

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Quantitative data from the Longitudinal Emergency Medical Technician Attributes and Demographics Study (LEADS) regarding workforce satisfaction and retention present a picture of a workforce that is fairly satisfied.⁴ However, we know little about which workers leave a job to seek a position in another EMS agency and those that permanently leave the EMS workforce. We also know little about factors that impede or enhance career growth and worker development in the field. Without accurate information on these types of factors, efforts to improve working conditions, create more satisfying career models, and recruit and retain more workers are likely to remain ineffective.

Management

The EMS Workforce Assessment revealed that the relationship between EMS managers and staff was a concern across sectors. Yet there is little to no evidence of training and education courses geared toward teaching EMS workers the fundamentals of leadership and organizational management. LEADS survey results suggest that paramedics are less satisfied than EMTs with their supervisors.⁵ This may be due to the larger investment in time and education required for paramedics, leading them to form higher expectations of management. The management structure in EMS systems and agencies and the competency of EMS managers are important components of any long-term strategy to enhance worker retention.

Rural and Volunteer EMS Workforce

It is especially difficult to assess the issue of adequate distribution of EMS workers and other resources across geographic areas. The EMS Workforce Assessment found that in rural areas, issues of critical concern were (1) the recruitment of an adequate number of workers; (2) the ability to offer compensation and incentives that will increase retention of workers; and (3)

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the overall financing system for rural EMS. The sustainability of the rural EMS workforce must be a key focus in implementation of the EMS Workforce Agenda.^{6,7}

The EMS Workforce Assessment also focused on the critical contribution of the volunteer EMS workforce to meeting demand for EMS services. Little is known about the size, distribution, composition, or demographics of the volunteer EMS workforce or about factors related to satisfaction and retention among volunteers.^{8,9} Yet, there was general agreement that volunteers are, and will likely continue to be, an essential component of the EMS workforce, particularly in rural areas. Issues unique to volunteer EMS workers are therefore crucial concerns for EMS workforce research and planning.

Health and Safety

Health and safety were raised as major concerns in the EMS Workforce Assessment.¹⁰ Many key informants expressed concern over what they perceived as a lack of emphasis in the field on following safety and injury prevention protocols. Some informants spoke of a need to develop a “culture of safety” in EMS, while others pointed to a strong concern over inadequate health insurance for workers in this high-risk field. In addition, there has been considerable attention from EMS researchers to the high rates of worker injury and the lack of systematic collection of worker illness and injury data.^{11, 12, 13}

Compensation: Pay and Benefits

In the EMS Workforce Assessment, pay and benefits were among the factors most frequently cited as having an impact on recruitment and retention. Most informants indicated that pay in the field is generally too low given the level and types of responsibilities held by EMS workers. Several informants stated that municipal and fire-based EMS services often have higher

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pay than hospital-based and private EMS services. Additionally, many believe that benefits, such as health insurance and retirement plans for EMS workers are inadequate.

Salary data from the Bureau of Labor Statistics support the perception that EMS workers receive relatively low compensation for the work that they do. Comparisons of the median combined wages of EMTs/paramedicsⁱ to the wages of other public safety workers in 2005 showed that the median hourly wage was \$12.54 for EMTs/paramedics, compared to \$26.82 for firefighters and \$22.25 for police/patrol officers.¹⁴

Benefits for EMTs and paramedics were evaluated using LEADS data. Analysis of the LEADS data showed that 24.5% of EMTs lacked insurance coverage, compared to 9.6% of paramedics. Overall, 17.5% of EMS workers are without health insurance coverage.¹⁵

Professional Identity and Status

Most key informants interviewed for the EMS Workforce Assessment perceived the public as having generally favorable perceptions of EMS agencies and workers. However, there was a general perception that EMS has a low public profile compared to the fire service. It was also noted that some members of the public seem unaware that EMTs and paramedics have skills that are vitally important in emergency situations. Most thought the general visibility of EMS and the public's perception of the field influence the recruitment and retention potential of EMTs and paramedics.

ⁱ Recall that the BLS-OES data do not distinguish EMTs from paramedics.

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IV. Elements of the EMS Workforce Agenda

The process of building the EMS Workforce Agenda used the findings of the EMS Workforce Assessment, steering committee guidance, and input from a group of national stakeholders – composed of EMS industry leaders, experts from professional organizations, educational and credentialing organizations, public and private providers, state and federal EMS agencies, and other stakeholder groups. All levels of the national EMS community will continue to be involved throughout the implementation of the EMS Workforce Agenda.

The remainder of this document further defines and discusses the four elements of the EMS Workforce Agenda. It examines the current circumstances of each element (“where we are”) and then discusses goals pertaining to each element. To provide a tangible, realistic target date to work toward, the goals are discussed in terms of “where we want to be in the year 2020.” The document then proposes steps toward developing the four elements of the EMS workforce agenda and achieving the goals contained herein (“how to get there”).

A. Data and Research

Workforce data and research are essential to ensuring a capable and robust EMS workforce for the future as they provide the foundation for evidence-based workforce planning. To answer specific questions about the workforce, present EMS workforce data exists in a variety of forms including, research or technical organizations that warehouse data, academic databases of independently collected data, administrative databases of government entities such as licensing boards and private organizations (e.g. certification boards). Workforce research often includes scientifically designed studies, as well as less rigorous market surveys. Just as clinical research is necessary to guide patient care protocols and clinical decision making, workforce research is necessary to guide workforce development planning.

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Where We Are

The *National EMS Research Agenda* (“EMS Research Agenda”), developed through the coordination of a team of investigators and EMS stakeholder organizations, identifies “two primary barriers that have inhibited the development of a strong research program in EMS: a paucity of well-trained researchers with an interest in EMS research and a lack of reliable funding sources to support research.”¹⁶ In general, workforce research has not been given as much emphasis as other aspects of EMS. Until we have more fundamental knowledge about the EMS workforce, most of the other components of this workforce agenda will be difficult to address.

The EMS Workforce Assessment¹⁷ found that much of the current data necessary for evaluating the adequacy of EMS workforce supply is flawed or unavailable. The size of the existing workforce is unknown due primarily to a lack of information about volunteer EMS workers and cross-trained firefighter-EMTs. Similarly, it is not known how many students are in the educational pipeline to become EMS workers because there is not a central information source on education providers.

The gaps and inadequacies in knowledge about the EMS workforce are striking in comparison to what is known about other public safety and health care professions, and these shortcomings can have real consequences for the EMS workforce. Current national estimates severely undercount the workforce. If based on the same data sources, projections of workforce demand will underestimate future demand for EMS workers.

The National Emergency Medical Services Information System (NEMSIS)ⁱⁱ is a major effort to establish a nationwide network for the collection of EMS event data. It has established two datasets – the Demographics Dataset and the EMS Dataset. The first contains demographic

ⁱⁱ Sponsoring organizations are NHTSA, CDC, HRSA, University of Utah, UNC Chapel Hill.

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variables for EMS agencies, while the EMS Dataset includes information that describes a complete EMS patient care event.

Prior to the implementation of NEMSIS, national data on EMS incidents were scarce. This scarcity imposed a general limitation on EMS research. Although NEMSIS was not developed with the objective of increasing and improving EMS workforce research, the data it collects could greatly enhance the ability to research the impact of workforce factors, such as ambulance configuration, on patient outcomes.

Where We Want To Be In 2020

Data

In 2020, basic EMS workforce data, including workforce size and compensation information, will be known and accessible. In addition to data on these broad characteristics, there will be a source for comprehensive, current, and accurate data on the EMS workforce and its characteristics at the local, state, and national levels. These data will be updated regularly and will include the following:

- Workforce size and demographics
- Workforce composition
 - Practice levels
 - Volunteer and paid workforce
- Pipeline/educational program enrollees and graduates
- Certification and licensure status
- Worker health and safety
- Retention and turnover rates
- Compensation

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Research

In 2020, there will be a cadre of well-trained researchers, including some with backgrounds as EMS providers, who will specialize in EMS workforce studies. To support and maintain this development, formal mentorship programs in EMS workforce research will be created. These programs will include research fellowships at academic, research, and professional organizations. In addition, federal support will be increased for EMS workforce research and relevant agencies will be actively engaged in addressing workforce issues.

There will be widespread dissemination of the EMS Research Agenda and resources available to researchers. These are to include a regularly updated list of potential grant and funding sources for EMS workforce research, a list of top research priorities, and an annual index of EMS workforce research publications.

Local EMS - Data and Research

Local EMS agencies will provide workforce data to their states on an ongoing basis and will incorporate workforce data collection processes into their systems. Local EMS educational programs will regularly provide educational data to their state EMS offices. Local EMS leaders will use research to guide policy and workforce planning within their states and organizations.

State EMS - Data and Research

State EMS offices will have systems in place to collect data from local agencies and educational institutions and to report a portion of the data to a national EMS workforce database. Examples include demographic characteristics, educational background, system configuration, recruitment and retention, and injury and illness statistics. State EMS officials will have a clear understanding of the importance of workforce research in local, state, and national EMS

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workforce assessment and will conduct state-level workforce research. States will provide tools and resources to guide local agencies in the use of data, research, and workforce planning.

National EMS - Data and Research

There will be a comprehensive national EMS workforce dataset. To ensure that the data are compatible with other national EMS data sources, uniform inclusion criteria and definitions will be made. Data from the Bureau of Labor Statistics will more accurately represent the composition of the EMS workforce. Volunteer workforce data will also be available at a national level. A reliable stream of funding for EMS workforce research will be available from government agencies, foundations, non-profit organizations, professional associations, and private sources. There will be qualified researchers prepared to ask and answer important research questions, and they will be able to draw on national workforce datasets to frame and answer these research questions. EMS workforce research will be disseminated throughout national, state, and local EMS organizations.

How to Get There

Data

Improving the quality and scope of EMS workforce data will take a national effort. Stakeholders must increase their awareness of the need for quality EMS workforce data and be prepared to take part in the development of a network for collecting such data. A universally shared set of EMS workforce data terms and definitions must be developed and used. In addition to improving knowledge about the size, composition, and location of the EMS workforce, it is critical to develop the following:

- Terms and definitions that adequately account for volunteerism in EMS
- Terms and definitions that adequately account for EMS workers trained as firefighters

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The quality and scope of EMS educational program data needs improvement. EMS education programs should become accredited and regularly provide data to national agencies such as the National Center for Education Statistics (NCES). A national effort will be needed to lead the development of common data definitions for educational programs and graduates including all levels of EMS providers and all types of education providers. Data definitions should address public, proprietary, and agency-based education programs, as well as both EMT and paramedic programs. Educational issues are discussed more extensively in the education section of this agenda.

The EMS community must continue to coordinate with the Bureau of Labor Statistics (BLS), the National Center for Education Statistics (NCES), and other agencies to improve national data collection, estimates of EMS workforce size, and projections of future workforce supply and demand. For example, improvements to current BLS data must include distinguishing EMTs from paramedics and identifying EMS workers who are cross-trained and working in fire-based or other systems.

Research

We need to promote the value of EMS workforce research and its necessity for effective workforce planning to local, state, and national EMS organizations. The following steps must be taken:

- Develop a cadre of researchers with excellent research skills and an appropriate background in EMS to conduct ongoing EMS workforce research

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- Develop reliable funding sources for EMS workforce research through advocacy with government agencies, foundations, non-profit organizations, professional associations, and private sources^{18, iii}
- Create a searchable index of EMS workforce research that will be available to researchers, and local and state workforce planners.

B. EMS Education and Certification

Understanding the relationship of EMT and paramedic education to issues of worker recruitment, retention, satisfaction, diversity, and supply of and demand for workers, is fundamental to understanding the nation's EMS workforce supply. EMS is dependent upon its education programs to produce graduates with the educational foundation to become highly competent workers. In addition, changes in the EMS education system may impact the availability of workers. In June 2000, NHTSA initiated a major effort to restructure EMS education with the release of the *EMS Education Agenda for the Future: A Systems Approach*.¹⁹ The EMS Education Agenda is discussed in more detail below.

Where We Are

The state of EMS education in the United States is difficult to assess because of inadequate data and variability across states. NHTSA's National Standard Curricula are used by most states. While these curricula provide a common framework for EMS education, consistency across states has not been achieved. The majority of states require National Registry of Emergency Medical Technicians (NREMT) certification at both the EMT and paramedic levels and several require it one or the other. However, five states do not require NREMT certification

ⁱⁱⁱ The National EMS Research Agenda proposes the following: "Additional annual funding in an amount equal to 1% of the annual expenditure on EMS systems should be allocated for research into the effectiveness of those systems. This would mean approximately \$50 million would be available for research each year."

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at all.²⁰ There are also inconsistent state policies regarding recertification. Most states do not require national recertification. Most states do have some requirements for continuing education. It is unknown how many states have a process for monitoring the continuing competency of their EMS workforce. The lack of consistency in education and certification is reflected in the differing scopes of practice and job titles or licensure categories that are found in different states. In addition to the inconsistencies in practices for validating the competencies of EMS workers, there is no process to validate the skills of EMS educators.

The variations in EMS education and EMS provider certification and licensing are barriers to the mobility of the EMS workforce. Variations in certification/licensure requirements make it difficult for EMTs and paramedics to move easily across state lines. The absence of a seamless reciprocity could make an EMS career less attractive to potential recruits. The ability of EMS workers to respond to a large-scale disaster across state lines is a related issue. The major objective of the EMS Education Agenda is to establish a national system of EMS education similar to that which exists for most other allied health professions. The EMS Education Agenda includes five components for meeting this objective. Two of these components, a *National EMS Core Content*²¹ describing the entire domain of out-of-hospital care and a *National EMS Scope of Practice Model*²² defining the levels and entry-level competencies of out-of-hospital EMS providers, have been completed. The three other components, still in development, are National EMS Education Standards, National EMS Education Program Accreditation, and National EMS Certification.

Although the EMS Education Agenda addresses obstacles to becoming employed across state lines, it does not address the obstacles to responding to large-scale, out of jurisdiction emergencies. In 2004, the Department of Homeland Security released its plan for a National

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Incident Management System (NIMS).²³ NIMS is a comprehensive approach to emergency incident management that requires all public and private sector personnel, “with a direct role in emergency management and response,”²⁴ to become certified through the National Emergency Responder Credentialing System (“NIMS credentialing”), which is currently under development. NIMS credentialing will entail meeting minimum standards for education, training, competencies, and other qualifications of various emergency response professions, and it will allow for quick verification of the credentials of emergency response personnel in the event of a cross-jurisdictional incident.²⁵

Where We Want To Be In 2020

EMS Education

In 2020, the EMS education system will be nationally integrated. EMS workers will have the ability to move across state lines and obtain EMS employment with minimal disruption due to successful implementation of the EMS Education Agenda. EMS workers will be required to take continuing education and there will be a uniform process for assuring competence throughout their careers in EMS. There will be a system that permits nationally certified, state licensed EMS workers to respond across jurisdictional lines in the event of large-scale emergencies. Pertinent data on all EMS education programs and graduates will be tracked at the national level, allowing for estimates of the future workforce supply. EMS educators will be certified to ensure that they can train graduates who will possess the knowledge, competencies, and skills to provide high quality EMS services.

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How to Get There

There needs to be nationwide implementation of the EMS Education Agenda.²⁶

Implementation of the EMS Education Agenda will require support from a broad range of EMS stakeholder agencies and organizations, and should include the following:

- All EMS Education programs need to be accredited at the national level, with accreditation recognized by all states, and a priority on accreditation for paramedic programs
- A graduated phase-in plan for existing programs will need to be developed for implementation of national accreditation
- All EMS educational programs need to report enrollment and graduation data to the National Center for Education Statistics (NCES) or some other national data repository
- All out of hospital EMS providers need to have their knowledge, skills, abilities and competencies verified through national certification that is recognized as a basis for licensure in all states
- Scopes of practice, titling, and licensure categories for EMS workers need to be common across states
- Grants and technical assistance should be provided to help states and education programs/institutions implement the EMS education agenda
- Re-certification needs to be national and common requirements across states are necessary for achieving reciprocity in the EMS system
- The development of the EMS education infrastructure must be supported at the state and federal levels

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In conjunction with the EMS Education Agenda, we need to implement the NIMS National Emergency Responder Credentialing System. A NIMS credential, based upon state EMS licensure and the national EMS certification, will enable EMS workers to respond to cross-jurisdictional emergencies. Preparedness education should be integrated into the National EMS Education Standards and use of preparedness funding to support accredited EMS education programs should be enabled.

Local EMS/State EMS – Education and Certification

At the local and state level, EMS education programs must be nationally accredited, licensure laws/regulations must be consistent with the National EMS Scope of Practice Model, and states must use National EMS Certification as a basis for EMS state licensure. Education programs must report data to the National Center for Education Statistics (NCES) or some other national body that permits disaggregation by practice level and location.

National EMS – Education and Certification

NIMS credentialing²⁷ needs to be implemented throughout the nation and linked to implementation of the EMS Education Agenda. The development of the EMS educational infrastructure must be supported at the federal level. Educator credentialing and maintenance of certification among EMS providers are important components of the movement towards professional certification and they need to be addressed by the national EMS community.

C. Workforce Planning and Development

Workforce planning is the process of turning what is known about the workforce into plans, activities, and tools to ensure there will be enough workers to meet demand at each of the different practice levels. At a very basic level, workforce planning is a methodical process of measuring the difference in size between the current workforce and the predicted future demand

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for workers. Based on the size of this difference, steps can be taken by local agencies, systems, and states to meet the future demand for workers. Workforce planning can also account for other important factors such as the types of skills that will be required to meet a population's EMS needs, and the impact of emerging technologies on workforce demand, including changes in the roles of EMS workers.

Where We Are

Workforce planning has been practiced for decades within industry and business, and more recently has been widely used in government. The National Academy of Public Administration (NAPA), an organization chartered by Congress to improve government at all levels, outlined the importance of workforce planning in government in a May 2000 white paper titled *Building Successful Organizations: A Guide to Strategic Workforce Planning*.²⁸ Many public and private organizations have developed their own workforce planning models. Aside from variations in terminology, the processes are similar. Most workforce planning models include factors such as:

- Current data on workforce supply (number of workers; number of students in pipeline) and demand (vacancy and turnover rates)
- Worker compensation, including pay, benefits, and other incentives
- “Environmental” factors, including
 - Geographic factors and population demographics that impact need for EMS services
 - Regulations and numbers and types of other providers in the region
- Economics and cost analysis, including budget considerations

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- Evaluation of models of planning and development model to determine that organizational objectives are being met

Workforce shortages are the most consistently identified workforce concern of EMS employers. Key informant interviews demonstrate that leaders in the field are worried about the continuing viability of the EMS workforce. There is concern with issues such as recruitment, retention, diversity, and having enough workers to fulfill the mission of providing quality emergency care to service populations. Many employers express frustration over an inability to compensate their workers appropriately due to systemic barriers in EMS system funding and reimbursement. Despite these concerns, local agencies/systems and state EMS agencies receive little guidance on workforce planning.

Key informant interviews conducted for the EMS assessment report suggest that there has been more success with recruitment than retention. However, a “big picture” concept of workforce planning, based on an understanding of workforce supply, demand, and need, is largely absent. Workforce planning is not a common subject of EMS literature and the workforce assessment revealed no systematic workforce planning approach in the EMS industry. Local agencies and systems, and some states, have attempted to address their workforce needs in the absence of an understanding of workforce planning, but express frustration due to the lack of models or best practices to follow.

In particular, there is little information on strategies for the recruitment and retention of volunteers. Key informants expressed a desire to know more about what motivates people to be volunteer EMTs and what factors make recruitment and retention more likely. For example, some volunteers are compensated through receipt of benefits or stipends, but it is not known how

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many volunteers are compensated or if compensation has a relationship with recruitment and retention.

Where We Want To Be In 2020

In 2020, EMS provider organizations will be aware of best practices in workforce planning and will have tools to assist them in implementing those practices. Local EMS providers and systems will receive workforce planning tools from their state EMS offices and technical assistance on using them. EMS workforce research will have produced valid information on important issues such as:

- Recruitment
- Retention
- Workforce diversity
- Use of volunteer workers
- Assessment of future supply and demand
- Assessment of changing roles
- Impact of changing technology
- Staffing configurations and patient outcomes
- Staffing configurations and job satisfaction

Local EMS – Workforce Planning and Development

Local EMS systems and agencies will be familiar with the concepts of workforce planning and local EMS managers will have access to workforce planning guides, tools, and expertise through their state EMS offices and the national workforce resources. They will be able to analyze local EMS workforce supply and demand, identify future needs, and identify gaps between the present supply and demand and estimated future supply and demand. Local EMS

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systems and agencies will be able to prepare plans to eliminate gaps and build the needed future workforce. They will be aware of potential workforce problems before they impact patient care. Local EMS systems and agencies will have access to information on best practices in recruitment, retention, and pipeline evaluation and management. With ready access to state and national EMS workforce data they will be able to monitor trends and compare their local issues with state and national workforce issues.

State EMS – Workforce Planning and Development

Workforce planning will be understood and promoted by state EMS offices. State EMS officials will use the broad principles of workforce planning to guide planning in their states. In cooperation with national workforce resources, states will disseminate educational programs, materials, guides, tools, and resources among EMS agencies for local workforce planning.

National EMS – Workforce Planning and Development

There will be a broad understanding of EMS workforce planning and the dynamics and application of the following workforce issues:

- Supply, demand, and need
- Pipeline assessment
- Workforce turnover, recruitment, and retention
- Impact of affiliation requirements on recruitment
- Effective models for projecting workforce need

Government and private EMS associations will support workforce planning by assisting in the education of states and local agencies in workforce planning and supporting national workforce data collection and workforce research.

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How to Get There

We need to demonstrate at a national level that systematic workforce planning is a vital practice for ensuring a robust and capable EMS workforce. In general, professional EMS organizations should acknowledge the importance of workforce planning and encourage state EMS offices to engage in the following activities:

- Fund workforce planning resources within their states
- Provide workforce planning education to local systems and agencies
- Assist in the identification of best practices in workforce planning
- Support workforce planning by helping local agencies obtain necessary data and statistics
- Use statewide data to project trends and potential future demands

D. Health, Safety, and Wellness

The health, safety, and overall wellness of workers are essential for ensuring a capable and robust workforce. Given the nature of EMS work, EMTs and paramedics are vulnerable to serious, potentially fatal risks including, but not limited to, automobile crashes, musculoskeletal injuries, infectious diseases, and assaults. Understanding the impact of these and other health risks on the ability of EMS systems to deliver high-quality prehospital health care is essential to EMS workforce planning. Furthermore, many leaders in the EMS field would prefer to see more emphasis on the overall wellness of EMS workers; that is, they would prefer workplace policies and culture to support the physical and mental health of EMS workers, and to encourage self-responsibility through both on- and off-the-job behaviors that would decrease their overall risk of illness and injury.

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Where We Are

The EMS Workforce Assessment found that the health, safety, and wellness of EMS workers are of great concern to the field. Key informant interviews revealed that many leaders in EMS think that EMS workers, including managers, place inadequate emphasis on following on-the-job safety protocols. To a certain extent, this was attributed to overworked staff and overburdened agencies and systems. Several specific concerns were cited, including:

- Inconsistencies in standards for emergency vehicle operations
- Lack of training in safe emergency vehicle operations
- Black boxes on ambulances frequently go unused, although they could reveal important information about the causes of ambulance crashes
- Lack of evidence-based workplace safety precautions and procedures
- Inconsistent reporting of accidents, injuries, and “near-misses”

There have been various efforts through national associations in the EMS and fire fighting profession, as well as by EMS researchers, to bring more attention to EMS health and safety issues such as scene safety, ambulance vehicle safety and seat belt use, infectious disease control, and physical fitness. However, evaluation of existing interventions and development of new interventions have suffered from a lack of focused national attention. To date, there is no national level illness and injury surveillance program for EMS workers and there has been no comprehensive national assessment of EMS workforce health and safety. Experts interviewed for the EMS Workforce Assessment frequently cited illness and injury among EMS workers as a major workforce concern.²⁹

A recent NHTSA sponsored project and report titled *Feasibility for an EMS Workforce Safety and Health Surveillance System* (2007)³⁰ provided substantial justification for developing

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a surveillance system of EMS illness and injury. A literature review conducted for the project found that the injury rate in EMS is high compared to other industries.³¹ One study states that the occupational fatality rate for EMS workers is more than twice the national average.³²

The feasibility report included several notable conclusions. The authors found that factors such as the unknown size of the EMS workforce and the variety of EMS organizations pose difficulties for EMS health and injury surveillance. Various data systems were identified in the report, including the Census of Fatal Occupational Injuries,³³ the Fatal Analysis Reporting System,³⁴ and the National Electronic Injury Surveillance System.³⁵ The authors concluded that although these systems contribute to our understanding of EMS workforce illness and injury and could potentially contribute more, no single system can serve as a comprehensive source of surveillance data for EMS workforce illness and injury. The report recommended that a comprehensive surveillance program should rely upon integrated data systems through which data would be shared and aggregated, and that EMS stakeholders should work together with data holders/owners to encourage analysis and dissemination of information on EMS workforce illness and injury. Finally, the report recommended that a National EMS Workforce Injury and Illness Surveillance and Program (EMS-WIISP) should be established with the ultimate goal of improving the health and safety of EMS workers.³⁶

Where We Want To Be In 2020

In 2020, the health and safety of the EMS workforce will be an industry wide priority. Injuries and illnesses affecting the workforce will be understood in terms of causes, consequences, and costs and they will be identified and tracked through a national EMS workforce injury and illness surveillance program. New threats to workforce health and safety, including those resulting from large-scale events, will be identified early. Effective intervention

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programs, guided by ongoing research and outcome evaluation will be developed and used. The impact of illness and injury on the EMS workforce will be understood, including the health outcomes of workers, recruitment, retention, job performance, worker satisfaction, and monetary costs to EMS systems. Worker injury and illness prevention practices, including evidence-based, proactive risk-based strategies, will be integral to the EMS culture at local, regional, state, and national levels. A culture of safety and wellness will exist within the workforce, where safe work practices will be taught, performed and supported by all members of the workforce, including management. The EMS community at large will place a high value on workforce wellness.

Local EMS – Health, Safety, and Wellness

Local EMS systems and agencies will promote, by every means necessary, a culture of safety in EMS, including the development and use of best practices for worker health and safety. They will ensure that their workers are provided the necessary material resources and other support for following best practices in health and safety. Local EMS systems and agencies will report worker illnesses and injuries.

State EMS – Health, Safety, and Wellness

State EMS agencies will continue their EMS Workforce regulatory role and they will act as conduits for sharing information and resources with local EMS systems and agencies, including:

- Best practices for illness and injury prevention
- Best practices for worker wellness
- Material resources for illness and injury prevention, and wellness programs
- Technical support for collection and management of illness and injury data

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State EMS agencies will also facilitate communication between national and local EMS agencies by collecting data on all reported incidents of occupational-related illness and injury for EMS workers in their states, as well as illness and injury reduction and control practices in their states. They will perform quality control checks before reporting data.

National EMS – Health, Safety, and Wellness

An EMS-Workforce Injury and Illness Surveillance Program will exist at the national level. It will coordinate with states over the collection and the reporting of illness and injury data to the EMS-WIISP. The program will advocate for resources to develop the data collection infrastructure and provide technical assistance to states.

How to Get There

Making EMS worker health, safety, and wellness a priority at all levels will require a better understanding of EMS worker illness and injury and appropriate intervention and prevention strategies. The first step is to create an integrated program for EMS occupational health and safety surveillance. Data for EMS personnel will evaluate exposures and risk of illnesses, injuries, and fatalities. A National EMS Workforce Injury and Illness Surveillance Program (EMS-WIISP) will be initiated, with the intent of integrating data from existing surveillance systems to guide development of effective strategies to reduce the risk of illness and injury for the EMS workforce. These will include strategies for the local, state, and national levels, including surveillance, intervention, evaluation, and prevention.

The EMS-WIISP will be guided by the findings and goals of the *National Occupational Research Agenda: National Public Safety Sub-Sector Agenda for Occupational Safety and Health Research and Practice in the U.S.*³⁷ Continual surveillance of EMS workforce health and safety is necessary to guide and direct intervention strategies, leading to the prioritization of

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prevention efforts (at the local, state, and national levels) and to enable the mitigation of potential new risks to workforce health and safety. In addition to surveillance, a review of all relevant literature and feedback from individual workers, managers, and experts should be conducted to ensure a complete assessment of the workforce health status. The EMS-WIISP will contribute to ensuring a healthy and safe EMS workforce for the future.

An effective program of illness and injury surveillance and research would be the basis for an illness and injury profile of the EMS workforce, and should include data such as:

- Types and prevalence of illness and injury
- Incidence of disability and mortality
- Etiologic nature of illness and injury in EMS workers
- Workforce demographics
- Crash fatalities, injuries and near-misses.

Data obtained from the EMS-WIISP will enable comprehensive research on fundamental questions concerning worker illness and injury, including the following:

- Risk of experiencing illness and injury
- Impact of illness and injury upon workforce
- Impact of illness and injury upon the EMS industry, including
 - Recruitment
 - Retention and turnover
 - Economic cost to industry

In addition to funding and cultivating research of illness and injury among EMS workers, there are a variety of steps that could be taken to develop a culture of workplace safety and wellness. For example, the policies, procedures, training, and programs in industries with similar

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risk profiles, such as trucking and shipping, may be shared and evaluated with EMS to establish clear safety practices and procedures in the workplace. Successful wellness programs could also be identified and tailored to the EMS community. Regular forums for sharing best practices with other provider groups could be established and awareness of the culture of safety could be extended into educational programs, so that new workers would enter the field with a broader appreciation for their own safety and well-being and that of their peers.

Additionally, the EMS industry could commit to implementation of the strategic goals for occupational health and safety put forth in the report of the National Public Safety Sub-Sector Agenda for Occupational Safety and Health Research and Practice in the U.S.³⁸ In the draft version of their National Occupational Research Agenda (NORA), this group identified five strategic goals for Emergency Medical Services. In short, these goals are:

- “Reduce traumatic injury and fatalities among EMS personnel associated with vehicle crashes...”
- “Reduce traumatic injuries among EMS personnel that occur during movement of patients and equipment...”
- “Reduce hazardous exposures to EMS personnel through effective design and use of PPE, and proper work practices...”
- “Identify and implement effective policies among EMS agencies regarding work organization factors to reduce related illnesses and injuries...”
- “Create an integrated occupational health and safety surveillance data system for Emergency Medical Service (EMS) personnel and evaluate risks for their exposures, illnesses, injuries, and fatalities...”

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V. A Systems Approach to the EMS Workforce

The EMS Workforce Agenda is an ambitious undertaking involving complex components and numerous groups of stakeholders. It also complements other existing projects and programs, such as NEMSIS and NIMS.

In Figure 1 (p. 5) of this document, the primary components of the EMS Workforce Agenda were presented in relation to one another, as well as to a proposed National EMS Workforce Technical Assistance Center (TAC). To briefly restate, the four components of the EMS Workforce Agenda for the future are:

- Data and research
- Education and certification
- Workforce planning and development
- Worker health, safety, and wellness

These four components are mutually reinforcing and are dependent upon one another. Workforce data and research are particularly important to the three other components. Comprehensive, current, and accurate workforce data provide the foundation for empirical research on the workforce.

The National EMS Workforce Technical Assistance Center

The National EMS Workforce Technical Assistance Center (TAC) will facilitate the systematic collection of national EMS workforce data in coordination with the NEMSIS TAC. It will provide guidance in the development of the four primary components of the workforce agenda, especially as they relate to the collection, management, and use of EMS workforce data. The TAC will facilitate research into EMS workforce issues by providing technical assistance for

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using common sources of EMS data. It will also facilitate communication between various stakeholders in the collection and use of EMS workforce data. These stakeholders include:

- EMS workers
- EMS employers
- State EMS offices
- Local and tribal EMS systems and provider agencies
- Certification and accreditation organizations
- Education programs and institutions
- National, state, and local EMS organizations
- Federal EMS agencies
- Public health agencies
- Private EMS providers
- Rural health agencies

Additional activities of the TAC will include increasing awareness of the need for current and accurate data, providing technical assistance to improve EMS workforce data quality, participating in efforts to improve national EMS workforce injury and illness surveillance, and integrating the EMS-WIISP with a national workforce database. Finally, the TAC website will function as a clearinghouse of information on EMS workforce research, including information on upcoming and new research projects as well as providing access to the findings from completed studies.

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VI. Conclusion

Recent interest in learning about the EMS workforce and addressing the needs of EMTs and paramedics are encouraging developments. The struggle to maintain a workforce of adequate size, with the exemplary skills needed to meet higher demand for services, has led EMS provider agencies to demand new approaches to recruiting, training, and retaining their workers. The EMS community has recognized the importance of taking an active and evidence-based approach to planning for a capable and robust EMS workforce; this includes calling for a renewed emphasis on workforce health and safety. The EMS Workforce Assessment was the first major step towards realizing this goal. The EMS Workforce Agenda is the second major step in this process.

EMS stakeholders throughout the nation assisted with the development of this vision and strategy to assure a capable, robust, and healthy EMS workforce. The EMS Workforce Agenda will assist EMS leaders in making informed decisions as they advance the future of the EMS profession.

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