

**Analysis of best practices and research:
Emergency Response Infrastructure in Iowa**

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Background

This paper provides the Emergency Services Interim Study committee with appropriate research and evidenced-based knowledge of one segment of emergency response: Emergency Medical Service (EMS). This will detail the infrastructure of EMS systems and EMS training systems. I believe the committee will benefit from this knowledge in these ways:

- A dedicated education infrastructure exists and functions well, and this legislation is an opportunity to build on the success and identify opportunities to improve the overall emergency response system;
- The nature of emergency response is changing and the integration of emergency response education and infrastructure is needed based on current research in Iowa and nationally;
- Education infrastructure must include accreditation and education standards to ensure the best possible practices for the training of our Responders and the benefit of our citizens;
- This report and the potential for collaboration prototypes positions Iowa to be a lead candidate in a proposed grant project that would provide Iowa with a significant multi-million dollar funding to build a collaboration demonstration project.

History and Guiding Strategies

While historically, emergency medical services practice dates back centuries, contemporary Emergency Medical Services began with the National Academy of Sciences report on Death and Disability on the Highways, published in 1966. In the following 40 years, this document has become known as the “white paper” and it identified highway traffic accidents as a leading cause of death and disability and attempted to recommend a system to meet that critical medical need. As a result the current national agency for EMS overview is the Department of Transportation.

Over time, the EMS system evolved and in many cases partnered closely with the fire service in our communities. However, according to an **Institute of Medicine** report, **Emergency Care Emergency Medical Services at the Crossroads, 2006**, 45 percent of EMS services are associated with fire department. The remainder of EMS systems are not part of a fire system, and many different models of Emergency Medical Services and emergency response exist. Anecdotally, in the suburb of West Des Moines, the EMS service has from time to time been: part of the fire department, part of the police department, and an independent third service. Time and community needs often change the organization of emergency response.

The current system infrastructure of Emergency Medical Services delivery includes a National Standard Curriculum and a National Scope of Practice Model. In general, EMS providers and States follow these national guidelines for EMS education and practice. However, as often occurs, individual states modify the scope of practice, and sometimes the title of EMS providers. Those modifications exist, as they do in law enforcement and in the fire service, and do not specifically alter the results of the research or the intent of this paper.

As EMS has matured, several critical documents have been authored to guide the system development across the country and in Iowa. **The National EMS Education and Practice Blueprint, 1993**, set the stage for a series of documents that guides EMS system development today. *The EMS Agenda for the Future, 1996*, provides an outline of where EMS is headed and where system development can have the most impact for patient outcomes and system improvement.

Following that publication, the *EMS Education Agenda for the Future, 1998*, set out to identify standards for education of EMS providers. Finally, the *Rural and Frontier EMS Agenda for the Future, 2000*, identified the unique needs of Rural and Frontier EMS services as compared to their urban counterparts.

The terrorism events of 2001 dramatized the significant need for closer collaboration between all emergency response entities. Hurricane Katrina identified the need for integrating multiple agencies beyond the traditional emergency response units to be part of the planning activities and the response itself. What we know locally is fire, EMS, law enforcement, public health, emergency management, veterinary and many other response groups need to be better integrated to fully serve the needs of Iowans. This is a lesson we learned in Iowa earlier during the floods of 1993.

Research to describe the state of Emergency Care in the US

In June 2006, the Institute of Medicine, part of the National Academy of Sciences published its thorough investigative research about emergency care in the United States. It published three focused reports: one on hospital based care, **Hospital Based Emergency Care At The Breaking Point, 2006**; one on EMS, **Emergency Medical Services At The Crossroads, 2006**; and one on EMS for children, **Emergency Care for Children Growing Pains, 2006**.

One of the key findings of the EMS report is that all **emergency response units have multiple roles** now more than at any other time. This finding concludes the question of priorities is no longer: fire OR emergency medical services OR public health, but rather, fire AND emergency medical services AND public health. Your committee has been presented with many statistics about fire departments, personnel and responses in Iowa. It is important to share the findings of the **Institute of Medicine report** which paint a clear picture and evidence based statistics about the changes seen in emergency response.

The IOM report quotes the **US Fire Administration, 2003**, stating that fire department responses (the number of total calls for service) are up 5.2% from the prior year. That figure alone justifies the need for continued expanded funding of the fire services.

The report goes on with encouraging news about the number of fire responses (actual fires). Due to better public education, better building codes, and other community actions, the number of fires is down 6.1 percent.

The increase in total calls comes from two critical areas:

- The first area is mutual aid, which is the call from a community to another neighboring community to assist in a response because of the size of the response or the need for additional resources. Mutual Aid responses were up 11.1 percent.
- Calls for Medical aid is the other growth area, increasing 5.6 percent. The report also points out that 60% of fire department responses are for medical aid.

The nature of these growing response needs mandates system development that is built around collaboration and integration of response.

Role of Volunteers

The volunteer has been the backbone of the fire service for centuries and recently, the backbone of the EMS system in many communities and rural areas. The current status of volunteers in the state is one which deserves further study and a systems-minded appraisal of the best organization structure to be able to meet the emergency needs of Iowans.

What is important is to have a full understanding about what is and is not working within the volunteer system in each community. While doing the best practice research, some trends were identified.

- In any county in Iowa, there may be enough volunteers, with adequate training and availability, to support the community needs; but there may not be enough to support the total number of number of EMS and Fire services.
- While hometown pride is a vital part of Iowa life, it is necessary for services to work together to share resources and integrate county-wide emergency response needs so that all emergency responders can be integrated.
- One of the best ways to reinforce and promote this necessity of integration is to be certain the Emergency Response Training Centers are integrated with the existing EMS education infrastructure.

- EMS and public health and fire / EMS department are the health care safety net for citizens who cannot access health care traditionally. This mission, in addition to the emergency response mission, requires a more integrated and collaborative approach to planning.
- The age of EMS workers in Iowa is older than average and creates issues that need to be addressed before the workforce retires or ages out.

In my four county best practice study of EMS and local public health integration, I also studied the age demographics of the EMS responders in the county. My research continues to look at all 99 counties and will conclude by year end. As a summary of my research, I share this information:

Nationally the age demographics of the workforce generally reflects the age of the population of working age. For example 11.1 percent of all workers are age 55 – 64 and 3.1 percent of the workforce is older than 65 years.

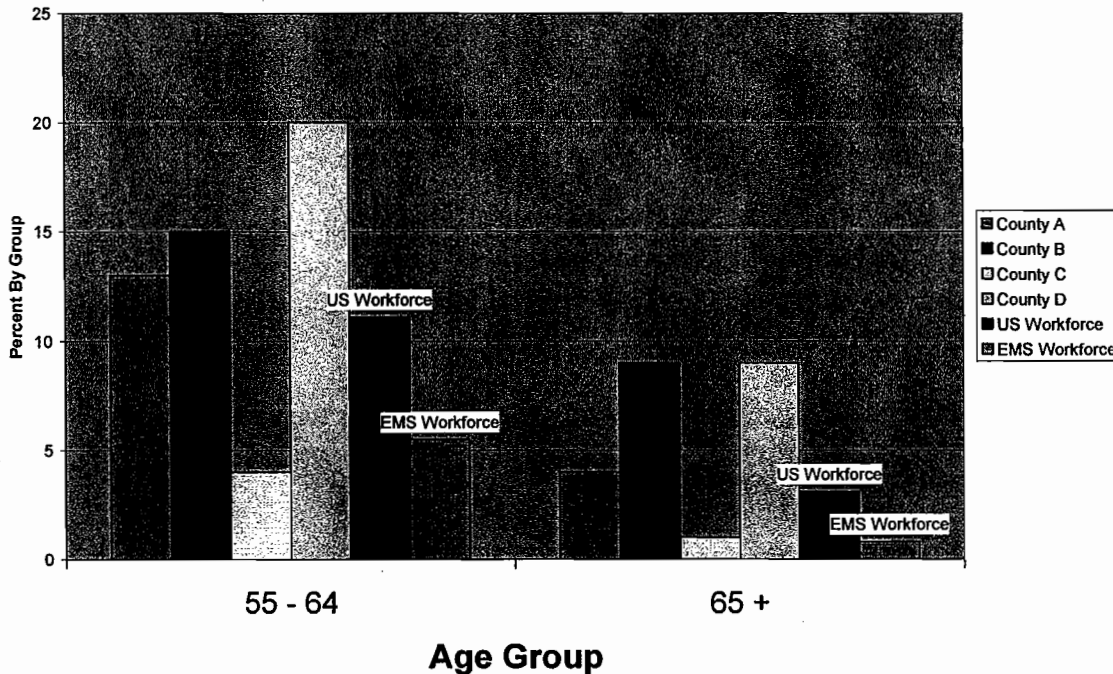
Being an EMT is a profession in that it is physically and emotionally taxing. Nationally, only 5.5 percent of the EMS workforce is between ages 55 and 64 and 0.8 percent is 65+. There is no established data to reflect a specific age that an EMT can or cannot perform the duties, and we are tremendously blessed in Iowa to have volunteers and workers of all age groups. However, the graying of the EMS workforce in Iowa suggests the potential for retirement, injury, and other family or health reasons to leave the profession.

In the four best practice counties studied, the age breakouts are as follows:

| | Age 55-64 | Change compared to national workforce | Change compared to National EMS workforce | Age 65+ | Change compared to national workforce | Change compared to National EMS workforce |
|----------|-----------|---------------------------------------|---|---------|---------------------------------------|---|
| County A | 13% | +2% | +8% | 4% | +1% | +3% |
| County B | 15% | +4% | +10% | 9% | +6% | +6% |
| County C | 4% | -7% | -2% | 1% | -2% | - |
| County D | 20% | +9% | +15% | 9% | +5% | +8% |

In these 4 counties 10 EMS responders are age 70 or older.

Age Distribution of EMS Workers



With this EMS worker age demographic information, the potential shortages begin to have significant population health care implications.

In one of the counties studies, there is no hospital. Three of the four counties are Governor's Health Provider Shortages Areas as designated in 2003. Not only is there a lack of front line health professionals, but the EMS safety net is graying rapidly. The research suggests that these counties are working toward better EMS, public health fire and emergency management collaboration because they see the trends and want to take action now to protect their citizens and be ready to respond in the coming years.

Iowa's Best Practice Models - Moving from Silos

As documented throughout this report, however, fragmentation, silos, and entrenched interests prevail throughout emergency and trauma care. The organization of federal government programs that support and regulate emergency and trauma care services to a large degree reflect the fragmentation of emergency and trauma care services at the local level.

-- Institute of Medicine EMS At the Crossroads, 2006

The opportunity for integration and collaboration at the state level will influence the collaboration and integration at the local level. At the state level, the example can help tear down the silos, or reinforce them

The resulting product of my study is program analysis and suggested models of organization as a **continuum of collaboration**. The counties are listed here by alpha characters to increase emphasis on the organization structure and community needs, rather than the particular size or geography of the county itself. Each of the models in this continuum could be applied to Iowa's smallest or largest counties. The reader should note that the county that is the most integrated is also the county with the youngest EMS workforce and is not a health care provider shortage area. Further study could be done to explore if there is a significant relationship.

Association – *County B in the study*

At the simplest level, **Association** describes counties in which fire, EMS, public health, private ambulance services, hospitals and emergency management leadership now each other and from time to time participate in training opportunities with each other. The relationship is political, based on personal relationships, rather than formal. Typically counties at the association level do not have regularly scheduled meetings or conversations with each entity; however, there may be frequent meetings when two or more of the parties are in attendance.

Cooperation – *County A in the study*

The next stage on the continuum is Cooperation. In the cooperation stage, an employee of one of the agencies has a vested interest, co-employment, or voluntary participation in a separate group. In the studied county, a Public Health Department employee also serves as an officer of the county EMS association. In this model, the employee may also be a leader of a local fire or rescue service.

This cooperation leads to a better communication infrastructure as well as additional accountability. The relationship is more political and personal relationship based than business based.

Collaboration - *County D in the study*

Collaboration in the continuum describes a relationship where one of the agencies also reports to and is employed by public health. In this arrangement, the business model provides communication, cross role collaboration. The collaborative model helps organize county wide physical and human resources for the best use on a day to day and disaster scenario.

Integration – *County C in the study*

Integration is achieved when a formal business structure is lead and coordinated by the lead department and all participating stakeholders and response entities meet on a

scheduled basis to exchange information, agree of priorities and identify opportunities to work together. This structure takes time, and often takes the constant persistence of all members to work to their best ability to support the integrated model.

Understanding this organization continuum positions Iowa as a leader and creates opportunity for grant money.

The Institute of Medicine report recommends a Health Resources and Services Administration (HRSA) demonstration program with funding over 5 years to identify organizational strategies for integration. Last year, Iowa's Tom Harkin introduced and S 1108 and a similar measure was introduced in the US House (HR 2525). These bills proposed similar demonstration projects. Should these recommendations become law, Iowa has the opportunity to be one of the recipients of this grant project as a continuation of the work begun under this Iowa Regional Emergency Response training appropriation.

Existing Iowa EMS Education Infrastructure

16 Community Colleges, 2 hospital based education programs, and 1 four year college based (private) make up the state authorized training programs for Emergency Medical Services education. The Iowa Law Enforcement Academy is also an authorized training center and provides Law Enforcement First Responder training to students. Access is convenient to all areas of the state and classes are offered both full time and part time and also daytime and evening hours making it possible for students to attend courses that meet their personal schedules.

Paramedic certification is provided consistently at 3 - 4 sites. It is also provided occasionally by other of the training programs. Two paramedic programs are now accredited, a third is likely to be accredited next year, and many of the community college programs are considering accreditation for their programs. Accreditation is consistent with the vision of the previously mentioned **EMS Education Agenda for the Future** and is one of the key recommendations of the **Institute of Medicine report**.

Continuing education provided through these training centers and their host institutions employ education best practices, and can seek to be a role model for this Regional Emergency Response Training Center concept. *Accredited institutions*, such as the community colleges, make solid partners in the education process. *Program accreditation* is another best practice which according to the IOM report, should be mandated. There is an accreditation process for certification in the fire services, but none at this time for the education process. The **Agenda for the Future** and **Institute of Medicine** both endorse a single accrediting body for Paramedic education.

Finally, the quality of instructors needs to be consistent with the expectations of today's career minded students. Students should be able to enroll in these courses knowing the accreditation means their rights will be respected and the quality of the process that determines success is fair and equitable. Instructors and educators should be have

degrees or be working towards completion and should all be moving towards advanced degrees, again, as outlined CAAHEP accreditation guidelines.

Conclusion

I hope the research provided here shares with the committee evidence to support the original goals of this paper:

- A dedicated education infrastructure exists and functions well, and this legislation is an opportunity to build on the success and identify opportunities to improve the overall emergency response system.
- The nature of emergency response is changing and the integration of emergency response education and infrastructure is needed based on current research in Iowa and nationally
- Education infrastructure must include accreditation and education standards to ensure the best possible practices for the training of our Responders and the benefit of our citizens.
- This report and the potential for collaboration prototypes positions Iowa to be a lead candidate in a proposed grant project that would provide Iowa with a significant multi-million dollar funding to build a collaboration demonstration project.

I want to again thank the committee for allowing me to share this important research and the finding of the people most familiar with the infrastructure of emergency response. If I can be of further service to the committee, I hope you will feel free to call on me.