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Development of Competencies for Disaster Medicine Fellowships

An Information Paper

*Created by members of the Disaster Preparedness & Response Committee,
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A workgroup of the 2013-14 Disaster Preparedness & Response Committee was assigned to create this information paper, "Development of Competencies for Disaster Medicine Fellowships."

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Overview:
The committee was tasked with the development of a disaster medicine fellowship curriculum. Following assignment of this task, discussion was held by the committee as to the intended purpose a fellow is being trained for, and the potential needs of organizations or political bodies for trained physicians within a disaster environment.

The outcome of this discussion is presented in this report. At the outset, discussion changed from curriculum development to competencies. Without defined competencies, it is very difficult to develop a curriculum, plus the strengths and weaknesses of various fellowships would make it difficult to develop a single curriculum useful for all programs. However, competencies are general enough that fellowships can develop curriculums to satisfy the requirement in a manner best suited for their programs.

To even develop competencies for a disaster fellowship, not only desired outcomes of the fellow are required, but knowledge of the underlying educational base of the fellow is also needed.

The committee believes that the objectives of a disaster medicine fellowship are:

1. Have physicians trained in providing care in an austere environment with the capability of treating any age, any sex, any medical or trauma problem to the limit of their resources.
2. Lead development and training of facilities and personnel in emergency management.
3. Manage an event (disaster) at the local, regional and potentially state-wide level.
4. Provide expertise in emergency management including public health issues with prevention and treatment expertise.
5. Be able to deploy overseas to an event with the ability to work seamlessly with hosting countries medical establishment and political entities.
6. Guide policies as related to disaster medicine.
7. Encourage research related to disaster medicine and emergency management.
8. Encourage publishing on topics related to emergency management and disaster medicine.

In essence, the committee believes that a disaster medicine fellowship should train the fellow to be competent in all aspects of a disaster from providing direct medical care, to understanding public health concerns as well as management of an event.

The ability to provide care in any type of situation is what compels us to limit a disaster fellowship to emergency medicine or equivalently trained physicians. This is not to say that surgeons, family medicine, internal medicine, and pediatric physicians are not welcome in disaster management, but their ability to provide direct care with limited manpower is constrained.

To achieve these goals, the committee has provided:
-A list of recommend source literature (books)
-Recommended FEMA ICS courses to be completed prior to the end of fellowship
-Recommended competencies
-Pre-requisites for entry into a fellowship

In addition, the committee (not wanting to re-invent the wheel) has based its recommendations on the CDC, WHO and AMA recommendations for disaster training. The committee has also added additional competencies not included in the above.

Finally, the committee believes, somewhat strongly, that a major pre-requisite into entry of an approved disaster medicine fellowship is board certification or eligibility in emergency medicine or equivalent. The major reason is that the successful fellow if deployed to an event would have to be able to treat any

problem presenting to the site within the resources available. Therefore, the physician would have to be able to treat trauma, minor and major, adult and pediatric patients, minor and critical patients, etc. No other specialty besides emergency medicine provides the ability to provide such a broad spectrum of high quality care. In addition, technically, the emergency medicine competencies include emergency medical services which do interface with emergency management.

The duration of the fellowship could be either a 1-year or 2-year fellowship depending on the prior training of the fellow. Most likely the competencies should require a 2-year fellowship.

Following are the competencies recommended by the committee, as well as books and training courses. In addition, resources developed by members of the committee are attached as appendices.

Disaster Medicine Fellowship
Books:

Wilderness Medicine	Paul S Auerbach
Disaster Medicine	Ciottone, et al
Emergency Medicine	Tintinalli
Small Animal Practice	Saunders
Improvised Medicine	Iserson
Disaster Medicine	Keonig and Schultz

Courses:
FEMA:
ICS 100, 200, 700, 800
ICS 300, 400

Other:
ACLS, BLS
ATLS
BDLS, ADLS versus AHLS
PALS or APLS

Disaster Core Competencies

Objectives: **Goals:**

1. **Risk and Crisis Communication**

Engages with stakeholders (e.g., partners, public) to facilitate two-way communication and provide information regarding the existence, nature, and/or severity of risks and hazards affecting health, safety, and the environment.

1. Create documents and reports that communicate content (e.g., ideas, concepts, information) in an organized manner.
2. Tailor communication to the identified audience.
3. Use appropriate methods of communication based on the purpose of the communication, message content, urgency, and sensitivity/confidentiality of message.
4. Observe and interpret non-verbal behavior.
5. Use multiple channels of communication to disseminate information to the public.
6. Coordinate the development and delivery of event-specific information based on scientific principles of risk communication to inform the public, health care providers, and members of the response community.
7. Convey complex public health information clearly and simply to individuals affected by a public health incident or are potentially at risk.
8. Communicate information regarding public health roles, capacities, and legal authority accurately to

emergency response partners including other public health agencies, other health agencies, and other government agencies) during planning, drills and actual emergencies.

9. Adapt communication style and techniques to culturally diverse situations.
10. Follow up with others in order to ensure communication resulted in the intended effect.

2. Preparedness Improvement (or Prevention, Protection, and Response Improvement)

Participates in the preparedness cycle of planning, training, equipping, exercising, and evaluating in order to correct and improve the organization's operational capabilities. Enhances the community's ability to support prevention, protection, response, and recovery efforts.

1. Develop strategies to evaluate performance and identify developmental opportunities.
2. Change future behavior, or adapt plans, based on performance evaluations and feedback.
3. Learn from both successes and failures to better prepare for future incidents.
4. Participate in training activities (e.g., drills, exercises, simulations) to prepare for public health incidents.
5. Ensure that the organization has a written, updated plan for major categories of emergencies.
6. Integrate the organization's response plan into the Incident Command or Unified Command System used by other responders (such as Fire, Police and EMS) in the jurisdiction.
7. Establish response roles for diverse public health incidents.
8. Identify resources required to respond to public health incidents.
9. Demonstrate a readiness to apply professional skills to a range of emergency situations during regular drills.
10. Apply public health principles to planning and implementing public health interventions.
11. Develop policies to facilitate a quick and effective emergency response.
12. Advocate policy development in public health.
13. Apply the theory and principles that drive public health policy.
14. Consider the impact of in the design and implementation of public health programs.

3. **Incident Management System**

Functions in accordance with the National Response Framework and in the context of the agency's response to public health emergencies.

1. Apply principles of Incident Command System (ICS)
2. Incident action plan (complete, read, interpret)
3. Apply project management principles to ensure public health preparedness and response objectives are achieved on time and with available resources.
4. Breakdown work structures, sequence events using network diagrams, and identify critical paths (e.g., gantt charts)
5. Describe the role of public health during diverse emergency situations.
6. Describe the chain of command and management system (incident command system) for emergency response in the jurisdiction.
7. Identify and locate the agency emergency response plan.
8. Identify limits of responsibility and authority, and resources for referring matters that exceed these limits.

4. **Surveillance and Detection**

Conducts systematic collection, analysis, and interpretation of health information and data (e.g., environmental monitoring) to achieve early warning of health threats, early detection of health events, and overall situational awareness to guide and inform countermeasures in a disaster or public health emergency.

1. Reporting
2. Identify sources, quality, and limitations of surveillance data.
3. Take action in response to a potential or emerging threat.
4. Recognize unusual events that might indicate an emergency and describe appropriate action (e.g., communicate clearly within the chain of command.)

5. **Preparedness and Response Strategies and Interventions**

Select and implement prevention, containment, and control measures.

1. Adapts public health response to meet public health needs appropriate to the situation.
2. Modifies plans and practice in consideration of changes in public need.

6. **Investigation and Analysis**

Investigates and researches the nature of current, emerging, or potential public health threats.
1. Consider available resources to analyze, interpret, and evaluate public health matters and determines existing and needed capabilities to meet public health needs.
2. Develop protocols and other data collection methods based on a research plan.
3. Identify knowledge gaps in existing public health data and information.
4. Utilize data to address scientific, political, ethical, and social public health issues.
5. Verify accuracy and reliability of data resources.
6. Share and/or disseminate relevant public health findings with appropriate agencies and contacts.
7. Analyze qualitative and quantitative data.

7. **Safety and Protection**

Ensures health and safety of self and others.
1. Demonstrate proficiency in the assessment, selection, and use of health and safety measures (e.g., technology, equipment, devices, situations)
2. Demonstrate effective use of personal protective equipment (PPE)
3. Demonstrate effective use of emergency communication equipment.
4. Demonstrate an understanding of both preventative strategies and curative strategies for prevalent health problems.
5. Describe potential options and safety precautions for citizen protection in the event of a various public health emergencies.
6. Adhere to applicable industry regulations, guidelines, and safety precautions related to the use of PPE and other devices.
7. Demonstrate correct use of all communication equipment used for emergency communication (phone, fax, radio, etc.)

8. **Psychological Aspects**

Anticipates, plans for, recognizes, and facilitates response to the psychosocial aspects of public health emergencies.
1. Communicate information in a manner that is sensitive to the situation
2. Consider the psychological effect of the event, and potential reactions to information.
3. Make referrals
4. Self, others, workforce, and public

9. **Situational Awareness**

Maintains an awareness of the critical elements of an emergency by seeking, filtering, and processing information from available sources. Supports collective awareness through the provision of information.

1. Identify sources of information relevant to critical elements of an emergency
2. Use tools (e.g., communication) to support situational awareness
3. Review situation reports to remain up-to-date on a crisis.
4. Attend to new information and adapt activities as appropriate.
5. Contribute to the content of the situational report.
6. Maintain an awareness of own behavior and consider the perspectives of others to resolve or avoid cultural issues or misinterpretations.
7. Identify general indicators and epidemiological clues that may signal the onset or exacerbation of a disaster or public health emergency

10. **Collaboration, Connectivity, and Community Relations**

Utilizes a network of traditional and non-traditional partners to identify and pursue preparedness and response goals.

1. Maintain a current directory of partners and identify appropriate methods of contact in emergencies.
2. Use established communication systems for coordination among the response community during a public health incident.
3. Maintain regular communication with emergency response partners.
4. Apply and interpret measures of public health (e.g., risk factors, protective factors), in community health improvement initiatives.
5. Consider community needs when developing and implementing public health policy.
6. Foster community participation and involvement in public health initiatives.
7. Evaluate the impact of public health programs on different populations and cultures and use data to make evidence-based program decisions.
8. Identify and address community health problems by applying principles of public health.
9. Create or leverage opportunities to develop new partnerships.
10. Maintain agreements with partners from within the jurisdiction and from other jurisdictions to foster teamwork, information sharing, and cooperation.

11. Explain how various organizations, positions, and roles contribute to carrying out public health's core functions and essential services.
12. Develop partnerships with other agencies that have authority in public health-related situations; clarify roles and responsibilities.
13. Apply strategies to resolve conflicts.
14. Interact appropriately based on the situation.
15. Interact appropriately with persons from diverse cultural, socioeconomic, educational, racial, ethnic, and professional backgrounds.
16. Interacting with vulnerable populations
17. Building an integrated response team
18. Interacting with community stakeholders

11. Decision Making and Prioritizing

Makes timely decisions in conditions of high uncertainty. Determines priorities, anticipates consequences, and takes action.
1. Identify emerging issues and take action to react or prepare.
2. Articulate the criteria used to make a decision.
3. Consider the input of others to inform decisions.
4. Work with others to reach consensus.
5. Make decisions within the IMS structure.
6. Collaborate with relevant stakeholders (e.g., partners) in decisions that may affect them
7. Use feedback from others to inform future decisions.
8. Develop solutions and make decisions based on limited or uncertain information.
9. Develop creative solutions for complex problems, and/or modify previous solutions in order to meet the needs of novel situations.
10. Search for new or innovative ways to solve problems.
11. Understand where the appropriate authority or jurisdiction lies when making decisions on particular issues.
12. Manage conflict that may arise from sensitive/controversial decisions.

12. Public Health Legal Authority

Acts in compliance with public health emergency laws, statutes, and regulations (i.e., local, tribal, state, federal).
1. Demonstrate an understanding of the role of law and government in promoting and protecting the health of the public.
2. Identify specific functions of governmental public health agencies in assuring population health.

3. Evaluate and review public health laws of the jurisdiction to ensure they are current.
4. Identify and address problems and challenges facing public health law by applying principles of public health information systems.
5. Describe the scope of states' powers to protect public health, safety and general welfare.
6. Identify and apply provisions of relevant government health code within designated area of expertise and practice.
7. Describe the basic legal process; including how laws are made, amended, and enforced.
8. Integrates legal policies and regulations into the practice of public health.
9. Adheres to confidentiality law in the collection and release of data.
10. Discuss public health consequences frequently seen in disasters and public health emergencies
11. Identify all ages and populations with functional and access needs who may be more vulnerable to adverse health effects in a disaster or public health emergency
12. Identify strategies to address functional and access needs to mitigate adverse health effects of disasters and public health emergencies
13. Describe common public health interventions to protect the health of all ages and populations affected by a disaster or public health emergency

13. Responsible and Ethical Conduct

Acts in accordance with the organization's ethical priorities, standards, and guidance during emergency situations and ensures the continuity of operations.
1. Consider ethical dilemmas to inform action in ethically ambiguous situations faced in the context of a crisis situation.
2. Maintain currency by completing relevant training and other developmental opportunities.
3. Apply ethical guidelines in the context of crisis situations.
4. Develop, disseminate, articulate, and reiterate ethical standards of public health practice.
5. Interact sensitively and respect diverse cultural, political, and policy differences.

14. Hazard, Vulnerability, and Risk Assessment

Assesses hazards and vulnerabilities that put the public at risk; devotes scarce resources in order to prevent, protect, and respond.
1. Assess pre-impact and ongoing conditions that are relevant to public risk.

2. Assess population composition and demographics to determine unique vulnerabilities, risk factors, and/or required public health needs including availability and use of health services.
3. Describe the meaning of "All-hazards".
4. Demonstrate knowledge of relevant planning scenarios.
5. Apply technical knowledge to contribute to the execution of emergency response activities and planning scenarios.

15. Personal Preparedness

1. Demonstrate personal and family preparedness for disasters and public health emergencies
2. Prepare a personal/family disaster plan
3. Gather disaster supplies/equipment consistent with personal/family plan
4. Practice one's personal/family disaster plan annually
5. Describe methods for enhancing personal resilience, including physical and mental health and well-being, as part of disaster preparation and planning

16. Organizational and Community Response Plans

1. Explain one's role within the incident management hierarchy and chain of command established within one's organization/agency in a disaster or public health emergency
2. Prepare a personal professional disaster plan consistent with one's overall agency, organizational, and/or jurisdictional plan
3. Explain mechanisms for reporting actual and potential health threats through the chain of command/authority established in a disaster or public health emergency
4. Practice one's personal professional disaster plan in regular exercises and drills

17. Personal Safety Measures

1. Explain general health, safety, and security risks associated with disasters and public health emergencies
2. Describe risk reduction measures that can be implemented to mitigate or prevent hazardous exposures in a disaster or public health emergency

18. Surge Capacity Assets

1. Describe the potential impact of a mass casualty incident on access to and availability of clinical and public health resources in a disaster or public health emergency

      2. Identify existing surge capacity assets which could be deployed in a disaster or public health emergency

19. Clinical Management of All Ages and Populations of Practice

1. Discuss common physical and mental health consequences for all ages and populations affected by a disaster or public health emergency
2. Explain the role of triage as a basis for prioritizing or rationing health care services for all ages and populations affected by a disaster or public health emergency
3. Discuss basic lifesaving and support principles and procedures that can be utilized at a disaster scene

20. Legal Principles to Protect the Health and Safety of All Ages, Populations, and Communities

1. Describe legal and regulatory issues likely to be encountered in disasters and public health emergencies
2. Describe legal issues and challenges associated with crisis standards of care in a disaster or public health emergency
3. Describe legal issues and challenges associated with allocation of scarce resources implemented in a disaster or public health emergency
4. Describe legal statutes related to health care delivery that may be activated or modified under a state or federal declaration of disaster or public health emergency

21. Short- and Long-Term Considerations for Recovery

1. Describe clinical considerations for the recovery of all ages and populations affected by a disaster or public health emergency
2. Discuss public health considerations for the recovery of all ages and populations affected by a disaster or public health emergency
3. Identify strategies for increasing the resilience of individuals and communities affected by a disaster or public health emergency
4. Discuss the importance of monitoring the mental and physical health impacts of disasters and public health emergencies on responders and their families

22. International Response (NATO)

1. Be fully operational within 3 to 5 days,
2. Be self-sufficient with minimal need for support from the local communities,
3. Have basic knowledge of the health situation and language and respect for the culture,
4. Include health professionals in selected specialties,

5. Ensure capacity for sustainability, including appropriate technology, and
6. Ensure a detailed agreement between recipient and donor as to responsibility for all costs.
7. Ensuring professional and ethical standards,
8. Accelerating deployment capability and capacity,
9. Matching services with supply and demand,
10. Creating a register of FMT provider organizations,
11. Establishing teams by specialty, experience, services, and bed capacity,
12. Standardizing data collection and reporting,
13. Ensuring that procedures are performed only by those licensed to do so in their own country,
14. Ensuring that FMTs are staffed by personnel with experience in humanitarian settings, and
15. Implementing processes to supervise less experienced personnel.

23. International Response

1. Just in time Training, prior to deployment:
   a. Overview of medical care in country
   b. Medical laws in country
   c. Overview of country's legal system
   d. Overview of country's history, geography
2. Training in cultural diversity within various countries
3. Use of non-traditional care providers within a disaster.

24. Recovery

1. Understanding of maintenance of business continuity during a disaster
2. Understanding of recovery following a disaster for:
   Businesses
   Hospitals/ Medical Assets
   Populations

25. Interfacing

1. Understanding interfacing with law enforcement, including the different priorities by law enforcement
2. Understand how to interface with military services in providing care, transport and situation control.

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CROSS-DISCIPLINARY COMPETENCY AND PROFESSIONALIZATION IN DISASTER MEDICINE AND PUBLIC HEALTH
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Appendix 1:

OBJECTIVE #5
Develop a model curriculum (competencies) for Disaster Medicine Fellowships.

AIM
Examine curricula and competencies of existing Disaster Medicine (DM) Fellowships in order to understand the current status of fellowships and perform a gap analysis for content that could be recommended.

METHODS
Disaster Medicine Fellowships were identified by using the SAEM Fellowship directory and general internet search. Once identified, these programs were divided up amongst 3 committee members. Attempts were made to contact the programs by email +/- phone call, in an attempt to request information regarding their curricula or target competencies. For those programs where information was not able to be obtained in direct communication, a review of their website was performed, looking for online descriptions of their curricula. That information was then compared to NATO and CDC Core Competencies, with additional competencies/content areas programs provided recorded as well.

ASSESSMENT
In review of the existing fellowships, the following observations were made:
- There are currently 19 DM and EMS/DM programs.
- Fourteen are joint EMS/DM programs (73.7%), while 5 (26.3%) are primary DM fellowships.
- Fellowships consisted of 1-year programs (5, 26.3%), 1- or 2-year programs (8, 42.1%) with opportunities for advanced degrees with the 2-year options, and mandatory 2-year programs (6, 31.6%).
- Additional degrees offered included MA, MS, MPH, and research certificates.

- Programs seem to regularly address roles, integration of systems, preparedness and response, and clinical management, consistent with NATO and CDC Core Competencies, as well as content areas of CBRNE, terrorism and tactical EMS.
- Some areas commonly not discussed on program websites or in curricular descriptions include: personal and family preparedness and safety, surge capacity and concepts, legal and ethical considerations, preparedness/process improvement, situational awareness and decision making, hazard/vulnerability risk assessments, recovery processes, international response, volunteer management, and special populations.

Of note, true assessment of program curricula, content, and instruction cannot be fully assessed in the manner in which this was conducted, and there are then associated limitations in the data.

SUMMARY RECOMMENDATIONS
In summary, there are just less than 20 DM fellowship programs currently existing, the majority of which are joint EMS/DM programs. Most of the fellowships have either an option for a second year of study or mandate a second year as part of the program, with the opportunity for obtaining a MS or MPH available in most of these extended learning circumstances. Content commonly covers the basics of planning and response to disasters/emergencies, with a predominant EMS component, but also extends to the medical/clinical management of related injuries and illnesses. Areas not reported as frequently tend to be the more in-depth concepts of ethical/legal considerations, risk assessment, process improvement, recovery, international response, and special populations.