



Development of a Disaster Medicine Curriculum for a Medical Student Elective

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What I'm going to talk about

- I' ll talk about
 - Why!
 - Goals
 - Audience
 - Credentialing
 - Content
 - Response
- This is a HUGE topic... and we could talk for hours



Why?

● **Disaster....**

Unthinkable...

Won't happen here...

That's other places...

(like California!)



Imperative!

- On October 18, 2007, President Bush issued HSPD-21 outlining an augmented plan for public health and disaster medical preparedness.
- HSPD-21 specifically calls for the creation of the discipline of “disaster healthcare” using the accepted definition of “disaster medicine.”





There is NO disaster that does not have a medical component.

Mission: To build resilient Oklahomans through education on disaster medical care, preparedness, response, and recovery.

Vision: The Oklahoma Disaster Institute leads and coordinates efforts to develop and provide core curricula, education, training and research in all-hazards disaster health care across the state of Oklahoma.

The Study Of Disaster Medicine Is Easy In Oklahoma...

- We are 'blessed' with disasters...
 - This presents abundant 'opportunity to excel'
 - But.... It's difficult to excel... without preparation.



Lone Grove, OK



Disaster Medicine

- Disaster Medicine is NOT practice as usual.
- DM is NOT confined to a single specialty's skills
 - Isn't even confined to physician related skills
- Does require a completely different mindset.
- Does require an intimate knowledge of logistics



Disaster Medicine

- DM can be separated into:
 - Clinical – one-to-one patient care, often in austere conditions
 - Tactical (small unit tactics) – Patient scene care in the aggregate
 - Efficient small unit operations
 - How to get to the patient or how to get medical care to the patient
 - Includes victim rescue and triage
 - Strategic
 - How to get the beans, bullets, and bandaids to the providers
 - How to limit or prevent the spread of disease
 - How to get the provider (small units) to the patient areas



Threats in Oklahoma

- Hazardous weather
 - Tornado/heavy weather
 - Ice storm – with extended service disruption.
- Fires
 - Internal fires
 - Wildfires
- Floods
- Hazardous Materials Release
- Human Threat
- Utility Failure



Hazardous Weather

- May be the most likely reason for involvement of a health care facility in Oklahoma in a



^
Sumter Regional Hospital
Americus, GA



< Picher, OK tornado



Oklahoma Ice Storms



Floods

- **Some of the most shocking scenes from Hurricane Katrina came from nursing homes.**
- **In Louisiana, about 100 residents died when they were trapped or abandoned in retirement centers.**
 - **We really need to talk about ethics later!**



Floods

- **St. Rita's Nursing Home in St. Bernard Parish was flooded during Hurricane Katrina, killing 34 residents.**
- **Louisiana's attorney general charged the owners of the home, Salvador A. Mangano and Mable B. Mangano, with negligent homicide. (Subsequently acquitted)**



Erlich Schlegel / Dallas Morning News / Corbis



(Dina Rudick / The Boston Globe)

Why is this important?

"The Audience"

- **Physicians, Nurses, Pharmacists, PA's**
 - **May be involved in the disaster?**
 - **May be recipients of patients from the disaster?**
 - **May be unable to use 'normal' resources for their own patients.**
- **Must be self sufficient**
 - **YOYOg6 is a very good rule.**



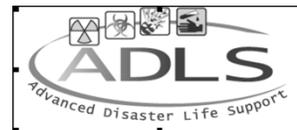
Where can I get education about disasters and emergency management functions?

- **Core Disaster Life Support course**
 - Recommended for all nursing home staff
 - 4 hour course
 - May be done online
- **Basic Disaster Life Support course**
 - Recommended for all patient care professionals
 - RN, LPN, pharmacy, EMS, PA, Physicians...
 - 8 hour course OU offers 12 times per year.
 - AMA CME offered for professionals



More Training

- **Advanced Disaster Life Support Course**
 - 16 hour (2 day course) for medical providers
 - Hands on experience
 - Simulations
 - Disaster drills
 - Protective gear introduction
 - 16 hours CME – AMA.
 - OU – 4 times per year.
 - OU training is funded by the State Department of Health. Free to all OK residents (and taxpayers).



NDLS 'gaps'

- NDLS
 - Wonderful Idea
 - Only a 3 day course
 - Little tactical emphasis
 - No Competency-based training involved.



FEMA Courses

- FEMA Courses
- Available at:
<http://training.fema.gov/>
- Both online and in-house courses are available.
 - Incident Command Structure ICS 100 (basic), 200 (more basic)
 - Hospital incident command structure courses available.
- Exercise planning courses (3 day) HSEEP available .
 - Not much 'tactical' disaster medicine here.



American Red Cross



- Chapters in most large cities in Oklahoma
- Not just aid after the emergency, but teaching **BEFORE** the emergency.
 - 'The Red Cross helps people prevent, prepare for and respond to emergencies.'
 - First Aid
 - CERT - (Tulsa's CERT authority is the Tulsa chapter of ARC).
(OKC's CERT authority is Oklahoma City Emergency Management)
 - <http://www.citizencorps.gov/cert/index.shtm>



Current Advanced Training Available

- EMDM (European Master in Disaster Medicine)
 - Known the world over
 - 1+ year course
 - Online curriculum
 - Residency based training for 2 weeks
 - Thesis required
 - Few American graduates
 - At OU we have the largest aggregate of alumni of EMDM in the United States

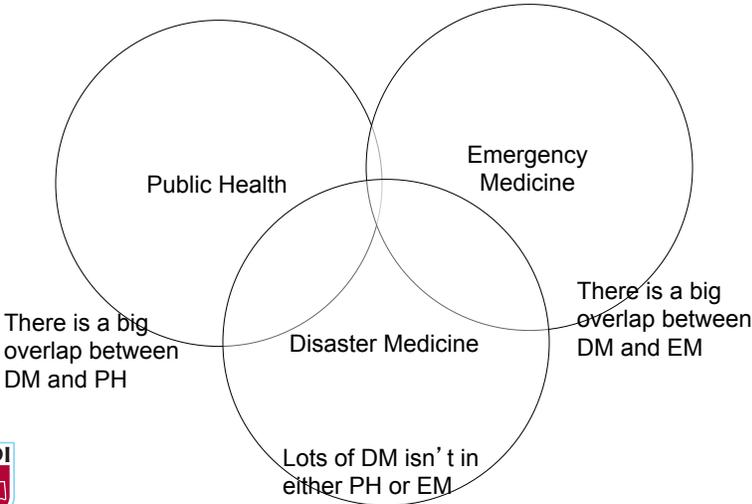


Current Advanced Training Available

- MPH(with specialty in Disaster Preparedness)
 - Known the world over
 - 1-2+ year course
 - Online curriculum (Tulane)
 - Onsite curriculum (most places)
 - Capstone required
 - Many American graduates
 - We have on our faculty 2 OU grads, Harvard grad, and a soon-to-be Tulane grad.
 - Emphasis is on Public Health – Not Disaster Medicine



The Gaps....



What is Disaster Medicine

We have multiple definitions

- Disaster medicine is the area of physician medical specialization serving the dual areas of providing medical care to disaster survivors and providing medically related disaster preparation, disaster planning, disaster response and disaster recovery leadership throughout the disaster life cycle. *American Board of Disaster Medicine*



Goal:
Design a program of study in disaster medicine tailored to the 4th year medical student at the University of Oklahoma School of Community Medicine - Tulsa



Steps in Developing a Competency Based Curriculum

- Conduct needs assessment
 - Identify general and specific competencies addressed by a given experience
 - Write goals and objectives
 - Determine learning methods
 - Determine assessment methods
-
- Accreditation Council for Graduate Medical Education (ACGME) Outcome Project 2006



If we build it... will they come?



Needs Assessment... getting the Dream

2008 DM Survey

- We surveyed the attendees of the 2008 Disaster Medicine Symposium to see if they were interested and how they viewed disaster medicine education.
- The survey component was held at the Tulsa site.
 - We had about 200 attendees in Tulsa.

105 survey responses/ ~200 participants



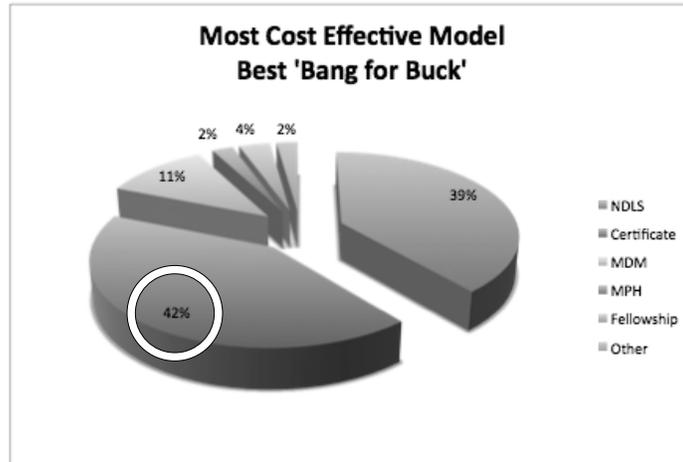
2008 DM Survey

- On a scale from 1-10 with 10 representing most need, our respondents indicated a score of 8.7 that Oklahoma needed more training in disaster medicine.
- On a scale from 1-10 with 10 representing most preparedness, our respondents indicated an average score of 6.6 in their preparedness to handle a disaster.

105 survey responses/ ~200 participants

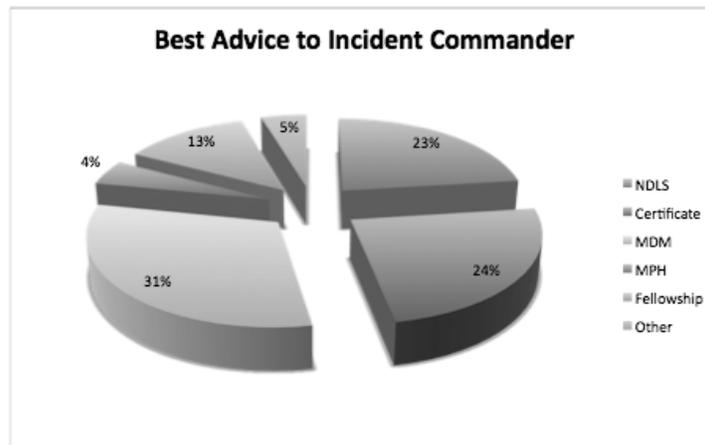


2008 DM Survey



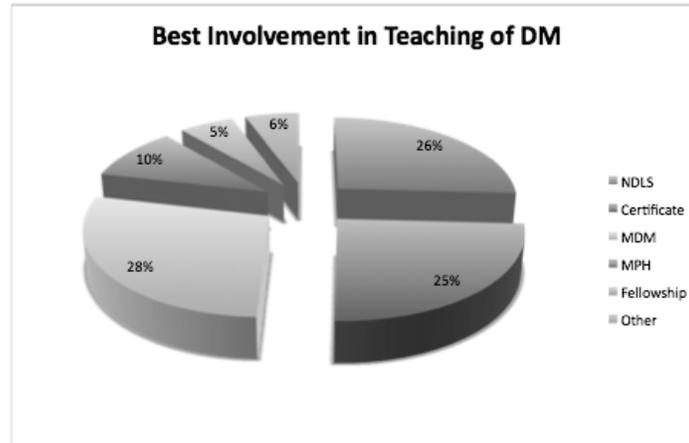
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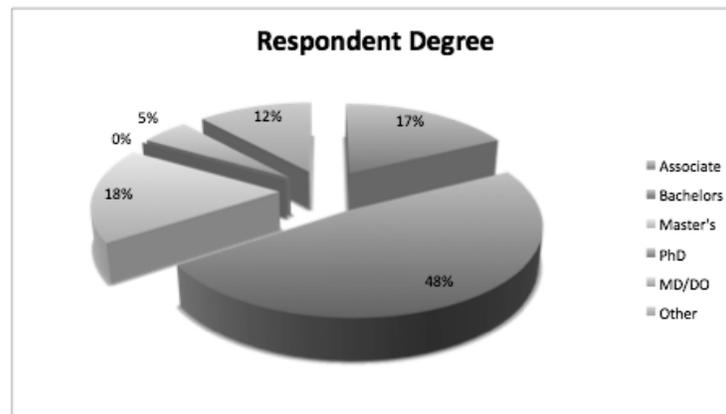
105 survey responses/ ~200 participants

2008 DM Survey



MDM, followed by NDLS, then Cert.

2008 DM Survey



Is this the audience that will apply?

Is it real?

- **In 2007-2008, a survey of family physicians showed that only:**
 - **17.2% believed that they were receiving adequate preparation and training for natural disasters.**
 - **26.2% felt adequate for pandemic influenza**
 - **13.4% felt adequate for radiological events.**



A Public Health Problem

- **The vast majority of practicing physicians and physicians-in-training have not received adequate education and training to enable them to respond to disasters.**
- **Despite repeated calls to improve preparedness training for health professionals, disaster medicine has yet to achieve an important place in the undergraduate and graduate medical education programs in the United States.**



Is it taught in Medical School?

- **126 Colleges of Medicine in the United States**
- **2005**
 - **49 required disaster medicine training within the curriculum**
 - **17 had an elective.**
- **2008**
 - **77 Required disaster medicine within curriculum: 61% of all colleges.**
 - **23 had an elective (OKLAHOMA IS ONE).**



Competency

- **Specific knowledge element, skill or ability**
- **Objective and measurable**
- **Required for effective job performance**
- **Leads to achieving the objectives of the organization**
 - **Examples**
 - **Recognize an illness as potentially resulting from exposure to a biological terrorism agent**
 - **Recognize dehydration status in cholera victim**
 - **Formulate plan of treatment**
 - **Recognize airway management problem in 1 trauma victim among 9 other in your shelter area.**



What should be included in the core content?

- Concepts and Philosophy
 - Definitions
 - All Hazards Approach
 - Comprehensive Emergency Management
 - Incident Management Systems
- Strategic, Tactical (operational), Clinical Goals
 - Strategic – often very well handled in MPH programs
 - Tactical – Not covered in current programs
 - Clinical – Some coverage (diseases, WMD... not so good with trauma)



Core Competencies

- One of the essential core competencies of a disaster medical board certification is incident command
 - How to work like fire departments, police departments and emergency operation centers throughout the United States.
 - Otherwise, medical providers remain in silos that don't talk to each another.
 - This isn't taught well by most courses
 - Even NDLS didn't teach this well.
 - We had to add it.
 - Without IC, we won't be able to 'play well with others.'



Core Competencies

- **Disaster behavioral health**
- **Disaster law**
- **Disaster planning**
- **Disaster preparation**
- **Disaster recovery**
- **Disaster response**
- **Disaster safety**
- Medical consequences of disaster and terrorism
- Medical contingency planning
- Decontamination
- Injury Prevention for both during and after the disaster
 - Population
 - Responders



Core Competencies

- **Medical implications of natural disaster and manmade disasters including both accidents and terrorism**
- **Medical planning and preparation for natural disaster and manmade disasters**
- Medical response to natural hazards disasters
- Medical response to weapons of mass destruction and other terrorism
- Medical implications in recovery from disaster and terrorism



Core Competencies

- **Medical surge, surge capacity and triage**
- **Psychosocial implications of disaster and terrorism**
- **Psychosocial triage and early care of psychological casualties of disaster.**
- Research in disaster medicine
- Ethics in disaster medicine
 - Scarce resource allocation
 - Shift from individual to population health care
- Logistics in disaster medicine.
 - JIT /Transportation
 - Storage and spoilage
 - Distribution



Core Competencies

- **Unfortunately we don't yet have a certifying body that can test, validate, and substantiate these core competencies.**
 - **Board of Disaster Medicine does exist but...**
 - Suggests NDLS as a training for taking their boards.
 - No residency or supported fellowship
 - No nationally agreed upon curriculum (like MPH).
 - **Both the American College of Emergency Physicians and the Society for Academic Emergency Medicine have been developing a suggested core teaching for residents and medical students.**
- **EMDM has been developing core competencies.**



If we build it... will they come?



We think so.

Who? The Target Audience

- **Broad base of appeal:**
 - Don't just want emergency physicians... or even just physicians
 - Physicians
 - Physician Assistants
 - Nurses
 - EMT-Paramedics
 - ?Pharmacist
 - ?Respiratory
 - ??? Administrators ???
 - NOT standalone – need to be a medical provider in order to do disaster medicine!



OU –SoCM- Tulsa response

- **2009 – Started elective in Disaster Medicine**
- **2010 – Students started rotation**
- **2012 – Required rotation for medical students (Proposed requirement).**



Objectives

- **Define what 'is' a disaster.**
- **Understand the importance and uses of a threat analysis.**
- **To be able to perform a threat analysis of a site identifying both common and potentially catastrophic events and mitigation responses for these threats.**



Objectives

- **Discuss the nature of injury or illness and changes in relation to the different types of disasters (natural, environmental, biological, chemical, nuclear, social, and armed conflicts.)**
- **Understand the use of a 'play book' prepared in advance of a disaster to mitigate the effects of that disaster.**
- **Demonstrate the START system of field triage as a 'start' for triage systems**



Objectives

- **Discuss sorting of casualties, resuscitation and stabilization, preparing casualties for transport and evacuation, distribution of casualties to hospitals.**
- **Demonstrate how the Incident Command System enhances the effectiveness of a multidisciplinary team within the context of a disaster.**
- **List the components and responsibility of the medical response in a disaster.**



Subjects:

- Incident command system
- Natural Disasters
 - Heavy weather including lightning, T-storms, tornadoes, hurricanes
 - Floods, tsunamis
 - Earthquake
 - Volcanoes
 - Wildfires
 - Winter storms/ice storms
 - Drought



Subjects:

- Man-made disasters
 - Traumatic and explosive events
 - Nuclear and radiological weapon attacks
 - Biological events and attacks
 - Chemical events and attacks
 - Fires and burns
 - Transportation accidents



Subjects:

- **Mass-fatality incidents**
- **Medical decontamination**
- **Personal protection**
- **Public health agencies and their role**
- **Health care facility and disaster planning**
- **Risk communication**
- **Legal issues of disaster response.**



GOALS OF MCI MANAGEMENT

- **Greatest good for greatest number**
- **Management of Resources (usually scarce)**
- **DON' T RELOCATE THE DISASTER!**



Types of Mass Casualties

- **Low Impact ~ 5-10 patients**
 - A little stressful
 - Called a Multiple Casualty Incident (MCI) by some
 - Often no ICS or only a supervisor
- **High Impact 10--50 patients – Resources Challenged**
 - A lot of stress but the local folks can usually handle
 - “Some” Systems can handle this
 - Lot of Stress for most systems
 - Sometimes called a Mass Casualty Scene or Incident
 - Often a single IC



Types of Mass Casualties

- **Disaster**
 - Destroys the regional emergency system
 - Usually it's a disaster in multiple areas
 - JOINT ICS activated (and needed)
 - Extra resources may be needed
 - Federal or State resources activated



Rotation

- **This is a community service rotation**
- **A broad base of understanding the field of disaster medicine**
 - **Relationship to clinical practice**
 - **Relationship to emergency medicine**
- **Possibly... if a disaster occurs during the rotation, the student's training may become 'hands-on' rapidly.**



Pre-Requisites

- **ICS 100, 200, 700, 800**
 - **We allow the student to complete these courses within the first 48 hours**
- **Pre-test to determine the underlying level of knowledge of disaster medicine.**
- **Instructor's permission**



Week 1.

- **Definitions**
 - **The relationship between EM, PH, and DM.**
 - **The definitions**
 - **Discussion of Threat Analysis**
 - **What is a 'play book'**



Discussion of specific disasters

- **Types of Disasters**
 - **Expected pathology**
 - **Kinds of injuries**
 - **Treatment of these injuries**



Discussion of specific disasters

- **Man-made Disasters**
- **Natural Hazards**



Week 3: Incident Command System

- **ICS – history**
- **Stafford Act and implications**
- **Local, state, and federal response**



Week 4: Disaster Management

- **Discussion and reading points for the student**
- **Risk management: Deficinitons, Prevention, Warning, Situational awareness.**
- **Public Awareness and Information**
- **Triage in the disaster situation**
- **Medical disaster planning**

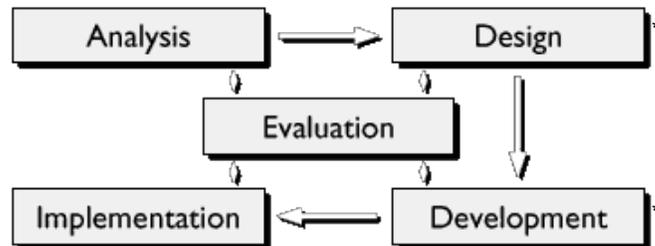


Week 4: Disaster Management

- **Medical planning for vulnerable populations**
- **Management of Fatalities**
- **Veterinary disaster planning**
- **Communications in a disaster**
- **NGO' s, planning and organization.**



Development Cycle



This will be an ongoing development cycle



How Many –(so far)

- 2010 5 Medical Students
- 2011 3(so far) Medical Students
 - 2 Residents (1 Occ Health w/MPH) and 1 EM Resident
- 2012 The Dean has asked us to provide DM education to EVERY medical student at OU-SoCM.



Future Directions

- Standardize disaster nomenclature
- Develop competencies as basis for course design
- Enhance use of information technology
 - Software/hardware to create realistic simulated disasters and training
- Develop measures of effectiveness
 - Does education save lives?



Oklahoma Disaster Institute

- Our very own Oklahoma Disaster Institute offers a yearly symposium on one aspect of disaster medicine each year.
 - This year's symposium was on Austere Medicine...
"what to do when the lights go out."
 - We are still planning next year's offering.
 - OU is planning a 15 credit Certificate in Disaster Medicine



SitREP - Summary

- **This is a Situation Report.**
 - **Who you are.**
 - **Where you are.**
 - **What you have.**
 - **How many are affected.**
 - **What you have done.**
 - **What you need.**



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