

DEMS 5082 -Medical and Public Health Issues in Disasters – An Introduction (Fall 2016)

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Course Description: expanded

Disasters and emergencies almost always have a significant impact on the health of the affected population in the short and long-term. The goal of this course is to provide relevant background knowledge regarding public health and medical care for future disaster management academics and professionals. This course will address the common and important health issues that arise during both sudden and chronic emergencies, for victims and responders. Public health and logistics of response to medical issues will be discussed at a level designed to meet the knowledge requirements of a disaster management professional without a medical background, though students with previous training in the field are welcome.

Prerequisites

Recommended (not required): GS/DEMS 5020 3.00 Disasters - Concepts and Causes; GS/DEMS 5030 3.00 Social and Behavioural Dimensions of Disasters

Course Outline (weeks 6-10 may change order, depending on guest speaker availability)

Week 1: Introduction and history of “Disaster Medicine”

Discussion - course objectives, expectations, evaluation. Review of origins and modern disaster medical response and public health endeavours. Modern epidemiology and disease surveillance tools.

Week 2: Common health issues in common disasters

Direct trauma -period of injury: immediate/rapid/delayed, Environmental exposure, Technological disruption, Rescue/Recovery issues, Infections post-event: wounds (including tetanus), crowding-related, endemic; Chronic conditions worsen. Post-disaster psychosocial dynamics. Disaster-specific health issues – e.g. crush syndrome in earthquakes with building collapse. Vulnerable populations review.

Week 3: Logistics of providing health care during and after emergencies

Medical and Health Incident Management ? Injury distribution and timeline? Triage history, definition, approach, protocols. “Needs Assessments”. Domestic vs. International Events: DMAT dispatch. Lessons learned?

Week 4: Health-related disaster myths and evidence-based practices

Role abandonment, safe burial practices, disease outbreaks, “panic”, etc – origins, truths and half-truths, exceptions. Standards of care and evidence-based approaches discussed.

Week 5: Pandemic preparedness & Chemical/biological weapons -related health care issues

Defining a pandemic. Why plan? Historical and future diseases: influenza as pandemic planning prototype, intentional biological agent dissemination recognition/possible pathogens... Who should plan? How to plan? Testing the plan? Resources

Week 6: Hospital Response: Applied Pandemic Planning/Hospital Preparedness/Hospital evacuation: Guest speaker(s)

GTA hospitals' Ebola preparedness strategy and application/influenza/hospital codes and response (may be 2 separate topic weeks)

Week 7: Mass Gatherings/Mass casualty events/ Intentional incidents

Mass Gatherings –planned, injuries/illnesses predictable, co-ordination of 1st aid, area hospital preparedness : e.g. “Code Orange” hospital drills for Pan Am 2015 Games vs. Planned event + intentional harm: greater mortality and morbidity, coordinated response pre-arranged - improved outcomes? (Boston 2013, Paris 2015); CBRNE unique challenges reviewed.

Week 8: Psychological effects of disasters for victims and responders and Long-term health effects of disasters for victims and responders - may be discussed over 2 weeks, depending on guest speaker availability.

Disaster psychiatry definition and unique challenges, case studies, common themes, overview of symptoms and disorders, screening, psychological First Aid, risk factors for psychological illness post-disaster, rescuer response. Case studies for long-term outcomes: physical injuries and recovery process in affected population: self-reported symptoms? Next generation? Rescuers?

Week 9: Mass Gatherings: Applied Planning and Response (Guest speaker)

Week 10: Complex humanitarian emergencies (Guest speaker, likely MSF staff) – challenges of health care delivery in emergency settings complicated by population migration, conflict, etc.

Week 11: Student Presentations

Week 12: Student Presentations

*dates and/or speakers may change

Evaluation – 4 P's

1. Topic proposal for essay and subsequent presentation, due week 4. (handing this in sooner will make your work easier.) Approximately 2 pages. Select topic, justify relevance and interest, include some references. (10%)
2. Paper – 4000 words (rough guideline, including references), due week 8. Research and critical analysis of a recent (<25 years, unless compelling reason exists) international or domestic disaster/emergency event. Discuss the response as it pertained to health care delivery and/or public health issues – challenges, opportunities, well-done actions/points for improvement. May compare/contrast response evolution to 2-3 similar events at same location. (50%) Papers will not be accepted after week 9 of course.
3. Presentation – 15-20 minutes & 5-10 min discussion (<25 min total). Due week 11-12 – random draw for date. Please summarize and present the most useful and interesting research and analysis from your paper for benefit of your colleagues. (30%)
4. Class participation – please come to class and participate in discussions. Please sign attendance sheet. (10%)

Suggested Reading Material

This is not a mandatory reading list, nor is it all-encompassing. These are papers that I have found to be interesting and useful; you may find many of them to be so as well. Links to articles will be posted on Moodle when feasible. Additional readings will likely be suggested during the course.

Texts – general overview

Ryan, James M., et al. *Conflict and catastrophe medicine: a practical guide*. Springer Science & Business Media, 2014.

ABC of Conflict and Disaster – 12 article series in *BMJ*, 2005

History and Common health issues in common disasters

Dara, S., et al. (2005). Worldwide disaster medical response: An historical perspective. *Critical Care Medicine*. 33(1) Supplement:S2-S6.

Jones, J. Mother Nature's Disasters and Their Health Effects: A Literature Review. *Nursing Forum* (April 2006), 41 (2), pg. 78-87

Mitchell, GW. 2008. *Disaster Medicine and Public Health Preparedness* VOL. 2/SUPPL. 1

Noji, E. (2005) Public health issues in disasters. *Critical Care Medicine*. 33(1) Supplement:S29-S33

Parrish, H; Baker, A; Bishop, F. 1964. *Epidemiology in Public Health Planning for Natural Disasters*. *Public Health Reports*. Vol. 79, No. 10.

Smith E,Wasiak J, Sen A, Archer F, Burkle FM Jr.:Three decades of disasters: A review of disaster-specific literature from 1977–2009. *Prehosp Disaster Med* 2009;24(4):306–311.

WHO. *Risk reduction and emergency preparedness : WHO six-year strategy for the health sector and community capacity development*.

Leaning, J., & Guha-Sapir, D. (2013). Natural disasters, armed conflict, and public health. *New England journal of medicine*, 369(19), 1836-1842.

Logistics of providing health care during and after emergencies

Annas, G. Standard of Care — In *Sickness and in Health and in Emergencies*. *N Engl J Med* 362;22. June 3, 2010

Briggs, S. (2005).Disaster management teams. *Current Opinion in Critical Care*. 11(6):585-589.

Crippen et al. *Disaster medicine: the caring contradiction*. *Critical Care* 2010, 14:133

Hamilton et al. (2009). *Houston's Medical Disaster Response to Hurricane Katrina: Part 2: Transitioning From Emergency Evacuee Care to Community Health Care*.*Annals of Emergency Medicine*. 53(4):515-527

Pan American Health Organization. *Humanitarian supply management in logistics in the health sector*. PAHO, 2001.

Prezant,D, et al. (2005). Effects of the August 2003 blackout on the New York City healthcare delivery system: A lesson for disaster preparedness. *Critical Care Medicine*. 33(1) Supplement:S96-S101

Health-related disaster myths and evidence-based practices

Auf der Heide, E. The Importance of Evidence-Based Disaster Planning. *Ann Emerg Med.* 2006;47:34-49.

De Ville de Goyet, C. (2007). Epidemics after natural disasters: A highly contagious myth. *Natural Hazards Observer*, XXXI(3), 15/11/2007.

Kirkis, E. J. (2006). A myth too tough to die: The dead of disasters cause epidemics of disease. (*Am J Infect Control* 2006;34:331-4.)

Pandemic preparedness

Heyman, David. Model Operational Guidelines for Disease Exposure Control. Washington, D.C.: The Center for Strategic & International Studies Homeland Security Program; 2005. At http://www.csis.org/media/isis/pubs/051102_dec_guidelines.pdf

Booth, C.; Stewart, T. (2005). Severe acute respiratory syndrome and critical care medicine: The Toronto experience. *Critical Care Medicine.* 33(1) Supplement:S53-S60.

Burkle, F. Population-based Triage Management in Response to Surge-capacity Requirements during a Large-scale Bioevent Disaster. *ACAD EMERG MED* November 2006, Vol. 13, No. 11

Low, D; McGeer, A. (2010). Pandemic (H1N1) 2009: assessing the response. *CMAJ.* 182(17)

Team, WHO Ebola Response. "Ebola virus disease in West Africa—the first 9 months of the epidemic and forward projections." *N Engl J Med* 371.16 (2014): 1481-95.

Chemical/biological weapons and terrorism-related health care issues

Centers for Disease Control and Prevention (CDC). (2007). Bioterrorism Overview. Retrieved April 27, 2009, from Emergency Preparedness and Response: <http://www.bt.cdc.gov/bioterrorism/overview.asp>

Guillemin, J. (2006). Scientists and the history of biological weapons. *EMBO reports* VOL 7, S45-49

Karwa, M *et al.* Bioterrorism: Preparing for the impossible or the improbable. *Crit Care Med* 2005 Vol. 33, No. 1 (Suppl.)

Khadori, N. Potential Agents of Bioterrorism: Historical Perspective and an Overview. In *Bioterrorism Preparedness*. Nancy Khadori, Ed. 2006

Riedel, S. Biological warfare and bioterrorism: a historical review. *BUMC PROCEEDINGS* 2004;17:400–406

World Health Organization (WHO). (2004). Public health response to biological and chemical weapons : WHO guidance (2 ed.). Geneva: WHO.

Long-term health effects of disasters and emergencies

Cook, A *et al.* 10th Anniversary Review: Natural disasters and their long-term impacts on the health of communities. *J. Environ. Monit.*, 2008, 10, 167–175

Johnson, J and S. Galea. Disasters and Population Health. In K.E. Cherry (ed.), *Lifespan Perspectives on Natural Disasters*. 2009.

Psychological aspects of disasters for victims and responders

Alexander DA, Klein S: First responders after disasters: A review of stress reactions, at-risk, vulnerability, and resilience factors. *Prehospital Disast Med*. 2009;24(2):87–94.

Becker, S. (2007). *Journal of Child and Adolescent Psychiatric Nursing*. Volume 20, Issue 3 (p 148-155)

Garakani, A. *et al*. General disaster psychiatry. *Psychiatr Clin N Am* 27 (2004) 391–406

Krug, E et al. (1998). Suicide After Natural Disasters. *N Engl J Med*.338:373-8.

Complex humanitarian emergencies

Burkle, Frederick. "Complex humanitarian emergencies: A review of epidemiological and response models." *Journal of Postgraduate Medicine* Apr.-June 2006. Academic OneFile. Web. 19 Jan. 2011.

Toole, M; Waldman,R. (1997).The Public Health Aspects Of Complex Emergencies And Refugee Situations. *Annual Review of Public Health*. Vol. 18: 283-312.

Moss, W et al. (2006). Child health in complex emergencies. *Bulletin of the World Health Organization*. 84:58-64.

Schull MJ, Shanks L: Complex emergencies: Expected and unexpected consequences. *Prehosp Disast Med* 2001;16(4):192–196.

Aliyu, Alhaji. "Management of disasters and complex emergencies in Africa: The challenges and constraints." *Annals of African Medicine* 14.3 (2015): 123.