AMERICAN ACADEMY OF FAMILY PHYSICIANS

Recommended Curriculum Guidelines for Family Medicine Residents

Disaster Medicine

This document was endorsed by the American Academy of Family Physicians.

Introduction

Each family medicine residency program is responsible for its own curriculum. The AAFP Commission on Education's Subcommittee on Graduate Curriculum has created this guide as an outline for curriculum development, and it should be tailored to the needs of the program. Through a series of structured and/or longitudinal experiences, the curricula below will support the overall achievement of the core educational competencies defined by the Accreditation Council for Graduate Medical Education and provide guideposts to program requirements specific to family medicine. For updates and details, please refer to the ACGME website at www.acgme.org. Current AAFP Curriculum Guidelines may be found online at www.aafp.org/cg. These guidelines are periodically updated and endorsed by the AAFP and, in many instances, other specialty societies, as indicated on each guideline.

Preamble

Disasters come in many forms, and the specialty of family medicine is uniquely positioned at the health care system front line to help detect possible threats, support other responding agencies, allocate resources and provide patient care during all disasters that might strike a community. Since assistance from elsewhere may not be immediately available, every family physician should know how to support their community in times of crisis. Thus, disaster medicine is a crucial part of the residency curriculum and should encompass a full spectrum of disaster types and responses. This curriculum was developed to help prepare residents for the critical role they will play in preparing for and responding to the disasters of tomorrow.

Disasters can destroy a substantial portion of the community's medical resources and take a considerable toll on life. Educational principles of disaster medicine include preparatory drills, triage, evacuation, coordinated local and federal responses, public health, vector management and personal safety. During the recovery phase, when

situations are improving but not yet back to normal, continuity of operations must be addressed to sustain the business of health care. This phase presents its own set of challenges for physicians who are recovering along with their communities.

The number and severity of natural disasters, as well as the domestic and foreign terrorism events in recent decades, have brought increased focus on disaster response. Specifically, there is a need for a standardized response to speed the implementation of relief and decrease the potential harm caused by the chaos inherent to such situations. In the United States, the National Incident Management System has been developed to facilitate a timely, coordinated and effective response to disasters ranging from small, local incidents to events of national magnitude.

Effective planning, coordination and execution are keys to successful disaster response. Identification of hazards, mitigation plans and exercise debriefings capture lessons learned and facilitate strategic plan revisions. When tailored to the needs of the individual, psychological debriefings performed by trained health care professionals allows for the healing of both victims and responders.

While the focus of the specific objectives in this curriculum is domestic disasters, most of the principles covered may also be applied to international disaster responses. Disasters might occur on or near national land and sea borders. Other disasters, by their nature or magnitude, invite international or multinational response efforts, and future family physicians should also learn about working with international agencies.

Cultural, equity, inclusiveness and diversity considerations should be included in disaster planning. Cultural issues may influence individual and group preparedness and response to disasters. Those with poor health or financial equity may have more difficulty during a disaster. Understanding the diversity of the population and including the diverse population can improve the process of preparing, responding and communicating during these events.

Patient Care

At the completion of residency, residents should be able to:

1. Respond to disasters
    a. Use the disaster “life cycle” to outline the response
        i. Prepare
            1) Determine what is the most likely disaster in the area
            2) Perform a “hazard vulnerability assessment,” looking at risks in the area (e.g., earthquakes on the West Coast, tornadoes in the Midwest, hurricanes on the East and Gulf Coasts, blizzards in the North, infectious disease outbreaks everywhere)
            3) While focusing on the likelihood of an adverse event, take an “all-hazards” approach and use general planning to allow for response to any disaster
            4) Consider space, staff and stuff (or supplies)

a) Space includes physical space to manage the event, such as areas to treat victims, space for responders to take breaks and the ability for victims to get to the facility
b) Staff goes beyond physicians to all the responders required to provide care and otherwise support the response to the incident and keep the medical system working, including nurses, pharmacists, technicians, security, environmental service personnel, food service providers and more
c) Stuff includes the materials, medications, personal protective equipment, food, water and other supplies needed for health care workers to do the job

ii. Mitigate
1) Act before a disaster to decrease the impact on the system, includingadjusting schedules, postponing elective events, providing preventive care and vaccines and educating patients and providers

iii. Respond
1) Put plans into action
2) Organize the response based on the Hospital Incident Command System (explained below)
3) Create a flexible and scalable response dependent on the needs

iv. Recover
1) Return to normal activities and review the incident
2) Begin to re-evaluate preparedness
3) Review records to make sure financial recovery is also possible

2. Prepare and plan for disasters
a. Personnel
i. Identify who will be in charge and other roles (see HICS below)
ii. Identify who will be available and their roles
iii. Conduct drills
iv. Check with your state for programs to register health care workers (e.g., Disaster Healthcare Volunteers in California)
v. Notify Medical Reserve Corps
vi. Create go-bags for the institution with printouts of contact information and addresses of all residents, faculty and staff, including emergency and alternative contact information in anticipation of potential communication system failures
vii. Create individual go-bags

b. Maintain adequate supplies; specific equipment and supplies required will depend on the nature and the scope of the disaster
i. For care of acute injuries, include tetanus shots, antibiotics, analgesics, intravenous fluids and supplies for splinting, casting, wound care and suturing
ii. For care of acute illnesses, include analgesics, antibiotics, antihistamines, antiemetics, inhalers, psychotropics
iii. For care of chronic diseases, include insulin, inhalers, diuretics, antihypertensives, oxygen, psychotropics, oral diabetes medications

iv. Include tables of alternatives to allow for ready conversion of day-to-day medications to stockpiled medications (e.g., fosinopril to lisinopril)
v. In response to terrorist attacks, include antibiotics, antidote kits
1) Centers for Disease Control and Prevention's Strategic National Stockpile CHEMPACK (antidotes) program
vi. CDC's SNS push packs and managed inventory (biologics and antibiotics) program
vii. Public health medications (e.g., antibiotics for tuberculosis)

c. Maintain logistical supplies
i. Food and water
ii. Sanitation equipment, toilets, supply maintenance, waste disposal
iii. Soaps, disinfectants, sanitizers
iv. Personal protective equipment
v. Basic office supplies
vi. Automated external defibrillator
vii. Tarps
viii. Infrastructure-independent communication equipment (point-to-point interoperable radios)

3. Understand the principles and practices of various triage systems
a. Triage means "to sort" and has a goal
b. Provide the most good for the most people
c. Include bioethics input during planning in case demand exceeds supply during a disaster
d. Understand the multiple systems of triage, which are primarily designed for prehospital care to determine which patients went to the hospital first
e. Create a method of marking or "tagging" patients
i. Example tagging system:
1) Minor injury: green
2) Moderate injury/delayed need: yellow
3) Life-threatening injury/immediate need: red
4) Deceased or expected to die: black
ii. Triage systems include:
1) Simple triage and rapid treatment
2) Sort, assess, life-saving interventions, treat/transport
3) Pediatric triage (JumpSTART)

4. Perform clinical skills in a disaster
a. Care in an austere environment
i. Provide effective care (including improvised medical techniques) in a setting of extremely limited resources
b. Have a broad scope of practice
c. Supervise clinical nurses and technicians in expanded roles
d. Use clinical diagnostic skills in the absence of partial or full radiology, laboratory and other ancillary support
e. Use ingenuity to devise effective therapeutic interventions with limited availability of medication varieties and quantities in the following situations:
i. Acute illnesses and injuries

ii. Chronic medical conditions

f. Recognize when chronic diseases may be left untreated for a short duration to facilitate wise utilization of resources
g. Consider additional training:
    i. Basic life support and first aid
    ii. Basic trauma training
    iii. Prehospital trauma life support
    iv. International trauma life support
    v. Advanced trauma life support
    vi. Advanced cardiac life support
    vii. Pediatric advanced life support
    viii. National Disaster Life Support Foundation training
    ix. Stop the Bleed program
h. Know the psychosocial considerations for the following groups of people in a disaster:
    i. Individual survivors presenting to the facility
    ii. Patients with special needs (e.g., pregnant patients; children; elderly; those who have an underlying mental health problem; those with a vision, hearing or mobility impairment)
    iii. Patients enrolled in methadone maintenance programs or on other chronic narcotic pain medications
    iv. Witnesses to the disaster (post-traumatic stress disorder)
    v. Family and friends of the missing, injured or dead
    vi. The "worried well" and those with minor injuries and high anxiety
    vii. Provide psychological first aid for victims and responders (e.g., American Red Cross psychological first aid workshop DSCLS206A or equivalent)

5. Consider logistics
    a. Location for decontamination, triage, clinical care and responders' sleeping/eating areas
    b. Needs for those with mobility, visual or other health impairments
    c. Communication
        i. Be aware of language and interpreter needs, including needs for those who are hearing impaired
        ii. Be aware of needs for the intellectually disabled or individuals with dementia or other impairments
        iii. Use an emergency alert system for physicians, employees and staff
        iv. Have a predesignated rally point to account for all residents and staff
        v. Have plans to monitor and utilize social media
        vi. Use radios
        vii. Use telephones (wired, wireless and satellite)
        viii. Use messaging (texting, messaging apps)
        ix. Use computers (internet)
        x. Use runners or couriers
        xi. Use visual signage
    d. Maintain human resources (including relief for first responders)
    e. Maintain supplies (medical, food, water, shelter)

f. Evacuate patients needing higher levels of care or personnel requiring evacuation from increasingly unsafe environments
g. Ensure there are toileting and sanitation services
h. Provide animal care and control in a shelter for disaster survivors
    i. Some may not want to leave their pets
    ii. Some may have service animals
6. Debrief
    a. Create a plan for ongoing briefings and post-event debriefing
    b. Timing, location, participants (should always include a public information officer)
    c. Evaluate and critique the disaster response (avoid blame and capture lessons learned to improve responses in the future)
        i. Communications are often cited as being inadequate and should be addressed in the planning prior to the event

Medical Knowledge

Family medicine residents should demonstrate the ability to apply knowledge of the following:

1. Key definitions
    a. Disasters
    b. Mass casualties
    c. Triage
    d. Terrorism
    e. Continuity of operations
2. Types of disasters
    a. Can be a component of any of the following categories: chemical, biological, radiologic, nuclear, explosive
    b. Can be natural, accidental or deliberate (possibly terrorism)
        i. Chemical agents
            1) Cholinergic agents
                a) Organophosphorus pesticides
                b) Nerve agents
                c) Tabun (GA)
                d) Sarin (GB)
                e) Soman (GD)
                f) VX
            2) Fourth-generation agents/Novichok
            3) Blister agents
                a) Sulfur mustard
                b) Nitrogen mustard
                c) Lewisite
                d) Phosgene oxime
            4) Choking agents
                a) Chlorine
                b) Ammonia

c) Phosgene
d) Chloropicrin
e) Diphosgene

5) Blood agents
   a) Hydrogen cyanide
   b) Cyanogen chloride
   c) Arsine
6) Caustic agents
   a) Hydrofluoric acid
7) Opioids
   a) Fentanyl
8) Riot control agents (tear gas)
   a) (2-chloroacethophenone
   b) Chlorobenzylidene
   c) Oleoresin capsicum
9) Other toxic substances
   a) Convulsants
      i) Strychnine
      ii) Hydrazine
10) Toxic metals
   a) Arsenic
   b) Beryllium
   c) Cadmium
   d) Hexavalent chromium
   e) Lead
   f) Mercury
11) Organic solvents
   a) Benzene
   b) Gasolene
   c) Toluene

ii. Biological agents
1) Category A agents (high risk) – highest priority diseases that pose a risk to national security, are easily transmitted, have high morbidity and mortality, would have a major public health impact and cause panic and require special public health preparedness
   a) Anthrax (*Bacillus anthracis*)
   b) Botulism (*Clostridium botulinum*)
   c) Plague (*Yersinia pestis*)
   d) Smallpox (Variola major)
   e) Tularemia (*Francisella tularensis*)
   f) Viral hemorrhagic fever
      i) Marburg
      ii) Ebola
      iii) Lassa
      iv) Machupo (Bolivian hemorrhagic fever)
2) Category B agents – moderate priority diseases with lower morbidity and

mortality and more difficult to disseminate
a) Brucellosis (*Brucella*)
b) Food bacterium
i) *Escherichia coli*
ii) Salmonella
iii) Shigella
3) Biologic toxins
a) Ricin (castor beans)
b) Epsilon toxin (*Clostridium perfringens*)
c) Enterotoxin type B (*Staphylococcus aureus*)
d) Q Fever (*Coxiella burnetii*)
e) Glanders (*Burkholderia mallei*)
f) Typhus (*Rickettsia prowazekii*)
4) Viral encephalitis
a) Venezuelan equine encephalitis
b) Eastern equine encephalitis
c) Western equine encephalitis
5) Water supply threats
a) *Vibrio cholerae*
b) *Cryptosporidium parvum*
6) Category C agents – high-priority diseases that have the potential to cause significant morbidity and mortality and are emerging pathogens that could be engineered for mass dispersion
a) Influenza
b) Hantavirus
c) Coronavirus
i) COVID-19
ii) Severe acute respiratory syndrome
iii) Middle East respiratory syndrome

iii. Radiological and nuclear
1) Improvised radiologic device
2) Dirty bomb or radiological dispersal device
3) Nuclear power plant accident
4) Occupational accidents
a) Transportation accident (when radioactive materials are being transported)
5) Cobalt, cesium and technetium; also consider radiation safety in diagnostic radiology and radiologic oncology settings

iv. Explosives and blast injury
1) High pressure that results in injury
2) Primary blast injury due to high pressure can result in pulmonary barotrauma, tympanic membrane rupture, eye rupture, concussion
3) Secondary injury due to propelled fragments and debris resulting in penetrating injuries
4) Tertiary injury from strong blast winds and pressure that accelerate the body and result in blunt force injury from contact with the ground or other

immobile objects or structure collapse
5) Quaternary blast injuries from an explosive product, such as heat and light, resulting in burns and toxic fumes
6) Quinary blast injuries due to the post-explosive environment and can include chemicals and radiological injuries if the blast was part of a “dirty bomb”

v. Mass shootings, stabbings, purposeful vehicle attacks and acts of violence
vi. Meteorologic
1) Hurricane (wind and water event)
2) Tornado and other wind events
3) Blizzard and other cold events
4) Heat events
5) Wildfire
a) Add fire disaster plan preparation for residents, faculty and staff

vii. Geologic
1) Earthquake and tsunami
2) Volcanic eruption
3) Flood
4) Landslide

viii. Transportation and infrastructure
1) Mass casualties from an airplane, bus, train or other vehicle crash
2) Building or bridge collapse
3) Loss of utilities – electricity, water, computer
a) Accidental
b) Cyberterrorism or threat

3. Detection and communication
a. Guidelines, regulations, policies and procedures, reimbursement requirements (e.g., National Response Framework, Stafford Act, Public Health Service Act, Title 42 U.S. Code Part B)
b. Local facility evacuation procedures
c. Hospital and/or clinic regulations; state, county and local regulations
i. The Joint Commission and other accreditation organizations (e.g., Det Norske Veritas)

Interpersonal Communication

At the completion of residency, residents should be able to:

1. Understand the need to be prepared for disasters that may strike a community
2. Understand the importance of teamwork in planning, preparing for and participating in a disaster response event, including the importance of good leadership and “followership” during a time of crisis
3. Understand the value of excellent communication skills in a time of crisis
4. Understand the necessity of staying calm and remaining focused at a time when there is maximal chaos and confusion
5. Understand the principles of triage, which has as its basic concept trying to do the

most good for the most people and to maximize benefit when limited resources preclude comprehensive care for all of those affected
6. Understand the need for resourcefulness when the common supplies, personnel, communication and transportation are not available
7. Demonstrate awareness of local, state and national systems of detection and communication utilized in public health disasters
8. Promote a safe environment where patients and others involved in their care can actively engage in their care decisions
9. Assist patients and others involved in their care in locating reputable medical information on the internet and other sources
10. Discuss internet safety and protection of health information

Systems-Based Practice

At the completion of residency, residents should be able to:

1. Understand federal disaster programs
    a. National Disaster Medical System, U.S. Department of Health and Human Services
        i. Disaster Medical Assistance Teams
        ii. Federally deployed Incident Management Team
        iii. Disaster Mortuary Operational Response Teams
        iv. Victim Identification Center Team
        v. Trauma and Critical Care Teams
        vi. National Veterinary Response Teams
    b. Federal Emergency Management Agency
    c. Medical Reserve Corps
        i. U.S. network of community-based units
        ii. Initiated and established by local organizations aimed at meeting the public health needs of their communities
        iii. Provides for more local control of the response
2. Understand incident management and support systems
    a. Incident Command System is the basic structure, with HICS specialized for the institutional health care environment
    b. Unity of command (everyone answers to a single leader)
    c. Span of control (every leader supervises four to seven others)
    d. Incident commander, the minimum need for calling an incident is an IC; all other positions are optional in this scalable structure
    e. Command staff (part of the leadership team and all report to the IC)
        i. Safety officer
        ii. Public information officer/media relations
        iii. Medical/technical expert
        iv. Liaison officer
    f. General staff leadership in each of the four following areas:
        i. Operations (the “doers”)
            1) Roles in providing care and frontline work

2) Family physicians are often in this role
ii. Planning (the “thinkers”)
1) Family physicians can help anticipate upcoming needs
2) May need to adjust the response to the incident as it moves forward
iii. Finance (the “payers”)
1) Track expenses for reimbursement
2) Document costs and expenses
iv. Logistics (the “getters”)
1) May be a role for anyone in the incident to be flexible and help when needed
2) Essential to the “stuff” of the “space, staff, stuff”

g. Unified command (multiple organizations working together)
i. Often takes multiple organizations to respond to a large incident
ii. Each organization maintains its structure and communicates through liaison officers
iii. May be different names for the location of the leadership for an incident; the concept remains the same

h. Emergency operations center
i. Incident command post
ii. Hospital command center
iii. Internal coordination with key clinic and hospital personnel
iv. External coordination with local community emergency resources and regional or national response teams
1) Other responders and local hospitals
2) Local health department
3) Police and fire officials
4) Emergency medical services
5) Other community organizations (e.g., religious organizations and the Red Cross involved in shelter and other care)
6) Local Office of Emergency Management
7) State Office of Emergency Management
8) Federal teams (as above in NDMS and FEMA section)
v. In general, requests for services, personnel or supplies go up the chain, and those closest on the chain handle the requests if possible (e.g., a request would go from a clinical department to the hospital to the county to the region to the state to the federal level; there may be other entities involved in a local area)

i. Execution of disaster response
i. Safety and security (disaster responders are of no value if they become victims)
1) Decontamination
a) Site setup and security
b) Trained personnel
c) Clean and dirty areas demarcated
d) Cleaning agents available
e) Plenty of water available

f) Environmental Protection Agency regulations understood
g) Self-directed decontamination

ii. Resource protection (e.g., Occupational Safety and Health Administration)
1) Care of the responder
2) Rehabilitation of responder resources
3) Prevention of heat and dehydration injuries, especially in the hazmat or hot weather environment

iii. Personal protective equipment
1) Face masks and respirators (e.g., simple mask, N95, powered air-purifying respirator, controlled air-purifying respirator), including training, fit testing and medical clearance, as appropriate
2) Use of powered air-purifying respirators
3) Personal protective clothing (e.g., Level A, B, C, D protection)
a) Indications
b) Donning and doffing of equipment
4) Mission-oriented protective posture gear
5) Protective clothing (e.g., boots, gloves, long pants, long-sleeved shirts, insect repellent, Tyvek suit)

iv. Handwashing and sanitizing stations

v. Security (include law enforcement in the planning and execution process when possible)
1) Crowd and traffic control
2) Protection of relief workers and those seeking aid
3) Protection of medications, food, supplies and water

j. Environmental hazards
i. Damaged infrastructure (e.g., downed electrical power lines, damaged roads and buildings, hazardous chemicals)
ii. Building debris as a hazard to pedestrian and passenger travel
iii. Infectious hazards (e.g., human and animal victim corpses, exhumed bodies from disturbed cemeteries, contaminated water)

k. Mental health concerns
i. Psychological first aid for victims and responders
ii. Referral resources are available for victims who need additional care

Practice-Based Learning

At the completion of residency, residents should be able to:

1. Demonstrate knowledge of the principles of personal, family and community preparedness
   a. Lead in the education of the public
   b. Anticipate the most likely hazards to a facility
   c. Know their role when events occur
2. Demonstrate a basic knowledge of NIMS and its ICS, including applications pertaining to the planning, coordination and execution of disaster responses at the local, state and national levels (ICS training modules 100, 200 and 700 from

FEMA.gov)
3. Demonstrate knowledge of the principles of safety in disaster responses,including personal protective equipment, decontamination, universal precautions, blood-borne pathogens
    a. Basic force protection (care of the responder) and disaster scene security
    b. Stop the Bleed program

Professionalism

At the completion of residency, residents should be able to:

1. Demonstrate basic skills in planning for contingencies in populations of all ages, as well as planning the slower phases of individual and community recovery
2. Demonstrate awareness of principles and policies for ensuring ongoing access to health care for people of all ages and backgrounds facing disaster
3. Demonstrate awareness of laws and regulations to protect the health and safety of people and communities affected by disaster
4. Demonstrate awareness of implicit bias, particularly in relationship to race and ethnicity

Implementation

1. Implement disaster medicine training in family medicine residency programs during the three years of residency training
2. Community response to local disasters and participation in a local medical unit can enhance the longitudinal disaster medical curriculum by providing direct experience and training to residents and community members
3. Incorporate training in the community medicine rotation
4. Residents should engage in practice scenarios and visit local response agencies to discuss disaster response plans
5. Meet with key leaders in the community to discuss strategies for how the community will mobilize in case of a disaster
6. Use lectures, workshops, scenario discussions and participation in drills at the hospital and clinic during training
7. Participate in the planning, execution and evaluation of emergency management drills
8. Become familiar with the responsibilities of the residents' credentialing hospital in the event of an internal or external disaster

Resources

Disaster and Mass Casualty Care

Born CT, Briggs SM, Ciraulo DL, et al. Disasters and mass casualties: I. General principles of response and management. *J Am Acad Orthop Surg.* 2007;15(7):388-396.

Briggs SM, Brinsfield KH, eds. *Advanced Disaster Medical Response Manual for Providers*. Boston, MA: Harvard Medical International; 2003.

Goldschmitt D, Bonvino R, eds*. Medical Disaster Response: A Survival Guide for Hospitals in Mass Casualty Events*. Boca Raton, Fl.: CRC Press; 2009.

Hogan DE, Burstein JL. *Disaster Medicine*. 2nd ed. Philadelphia, Pa.: Lippincott Williams & Wilkins; 2007.

Iserson K. *Improvised Medicine: Providing Care in Extreme Environments*. Columbus, Ohio: McGraw-Hill Professional; 2011.

Noji EK. Public health in the aftermath of disasters. *BMJ*. 2005;330(7504):1379-1381.

Peleg K, Kellermann AL. Enhancing hospital surge capacity for mass casualty events. *JAMA*. 2009:302(5):565-567.

Phillips SJ, Knebel A, eds. Mass medical care with scarce resources: a community planning guide. www.govinfo.gov/app/details/GOVPUB-HE20-PURL-LPS80107

Robert T. Stafford Disaster Relief and Emergency Assistance Act. www.fema.gov/disaster/stafford-act

Subbarao I, Lyznicki JM, Hsu EB, et al. A consensus-based educational framework and competency set for the discipline of disaster medicine and public health preparedness. *Disaster Med Public Health Prep*. 2008;2(1):57-68.

U.S. Department of Homeland Security, Federal Emergency Management Agency. Center for Domestic Preparedness. Framework for Healthcare Emergency Management. Module 7: Hazard and Vulnerability Analysis. 2016.

U.S. Department of Homeland Security, Federal Emergency Management Agency. National Response Framework. 3rd Edition. 2016.

Redmond AD. Natural disasters. *BMJ*. 2005;330(7502):1259-1261.

Special Populations

Barfield WD, Krug SE. Disaster preparedness in neonatal intensive care unit. *Pediatrics.* 2017;139(5):e20170507.

Dyer CB, Regev M, Burnett J, Festa N, Cloyd B. SWiFT: a rapid triage tool for vulnerable older adults in disaster situations. *Disaster Med Pub Health Prep.* 2008;2(S1):S45-S50.

Hagen JF Jr, American Academy of Pediatrics Committee on Psychosocial Aspects of Child and Family Health, Task Force on Terrorism. Psychosocial implications of disaster or terrorism on children: a guide for the pediatrician. *Pediatrics.* 2005;116(3):787-795.

Krug SE, Chung S, Fagbuyi DB, et al. American Academy of Pediatrics. Ensuring the health of children in disasters. *Pediatrics*. (2015;136(5):e1407–e1417.

Seaman J, Maguire S. ABC of conflict and disaster. The special needs of children and women. *BMJ*. 2005:331(7505):34-36.

Chemical, Biologic, Radiologic, Nuclear, Explosives

Gosden C, Gardener D. Weapons of mass destruction–threats and responses. *BMJ.* 2005;331(7513):397-400.

Schep LJ, Slaughter RJ, McBride DI. Riot control agents: the tear gases CN, CS and OC—a medical review. *J R Army Med Corps*. 2015;161(2):94-99.

U.S. Army Medical Research Institute of Chemical Defense. *Medical management of chemical casualties handbook*. 4th ed. 2007. www.globalsecurity.org/wmd/library/policy/army/other/mmcc-hbk_4th-ed.pdf

U.S. Army Medical Research Institute of Infectious Diseases. *Medical management of biological casualties handbook*. 7th ed. 2011.

U.S. Department of Health and Human Services. CHEMPACK program overview. https://chemm.hhs.gov/chempack.htm

Williams M, Armstrong L, Sizemore DC. Biologic, Chemical, and Radiation Terrorism Review. www.ncbi.nlm.nih.gov/books/NBK493217/

CDC. Radiation Emergencies. www.cdc.gov/radiation-emergencies/about/index.html

U.S. Army Medical Department. U.S. Army Medical Research Institute of Infectious Diseases. https://usamriid.health.mil/

U.S. Department of Defense Blast Injury Research Coordinating Office. What is blast injury? https://blastinjuryresearch.health.mil/index.cfm/blast_injury_101/what_is_blast_injury

U.S. Department of Health and Human Services, Public Health Emergency. National Disaster Medical System: https://aspr.hhs.gov/ndms/Pages/default.aspx

U.S. Environmental Protection Agency. Chemical Warfare Agents. www.epa.gov/emergency-response/chemical-warfare-agents

Ethical and Psychologic Issues

Freedy JR, Simpson WM Jr. Disaster-related physical and mental health: a role for the family physician. *Am Fam Physician*. 2007;75(6):841-846.

Trotter G. *The Ethics of Coercion in Mass Casualty Medicine.* Baltimore, Md.: Johns Hopkins University Press; 2007.

WHO. Psychological first aid: Guide for field workers. https://iris.who.int/bitstream/handle/10665/44615/9789241548205_eng.pdf

Rahmani M, Muzwagi A, Pumariega AJ. Cultural factors in disaster response among diverse children and youth around the world. *Curr Psychiatry Rep*. 2022;24(10):481-491.

Conflict and Displaced Persons

Centers for Disease Control and Prevention. Rapid establishment of an internally displaced persons disease surveillance system after an earthquake–Haiti, 2010. *MMWR Morb Mortal Wkly Rep*. 2010;59(30):939-945.

Ryan JM, Mahoney PF, Macnab C. Conflict recovery and intervening in hospitals. *BMJ.* 2005;331(7511):278-280

WHO. Disease control in humanitarian emergencies. A field manual. Communicable disease control in emergencies. www.who.int/publications/i/item/9241546166

Website Resources

American Academy of Family Physicians. www.aafp.org

American College of Surgeons Committee on Trauma. Stop the Bleed. www.stopthebleed.org

American College of Surgeons. ATLS. www.facs.org/quality-programs/trauma/education/advanced-trauma-life-support/

American Heart Association. ACLS course materials. https://shopcpr.heart.org/courses/acls

American Heart Association. PALS. https://cpr.heart.org/en/courses/pals-course-options

American Red Cross. Psychological first aid: Guide for field workers. https://iris.who.int/bitstream/handle/10665/44615/9789241548205_eng.pdf

CDC. Emergency preparedness and response. https://emergency.cdc.gov/

The Center for Hospital Incident Command System. Education and training. https://calhospital.org/calhospitalprepare/hics/

Cornell University Law School Legal Information Institute. 42 U.S. Code Part B – All-Hazards Emergency Preparedness and Response.

www.law.cornell.edu/uscode/text/42/chapter-6A/subchapter-XXVI/part-B

Federal Emergency Management Agency training. www.fema.gov/training

International Trauma Life Support. www.itrauma.org/about-us/

Joint Commission Resources. Emergency Management. www.jointcommission.org/resources/patient-safety-topics/emergency-management/

National Disaster Life Support Foundation. www.ndlsf.org

Occupational Safety and Health Administration. www.osha.gov/

U.S. Department of Health and Human Services. Administration for Strategic Preparedness and Response, Response Operations. https://aspr.hhs.gov/ResponseOperations/Pages/default.aspx

Prehospital Trauma Life Support. www.naemt.org/education/PHTLS/

Team Life Support Inc. The JumpSTART Pediatric MCI Triage Tool. www.jumpstarttriage.com/lander

OSHA. Toxic Metals. www.osha.gov/toxic-metals

Website Resources for Disaster Relief Abroad

American Red Cross. International disaster responders. www.redcross.org/volunteer/volunteer-opportunities/volunteer-internationally.html

Council on Foreign Relations. Humanitarian relief organizations. www.cfr.org/defense-and-security/humanitarian-intervention

International Committee of the Red Cross. www.icrc.org/en

United Nations. Global Issues. Humanitarian and Disaster Relief Assistance. www.un.org/en/our-work/deliver-humanitarian-aid

U.S. Department of State Bureau of Consular Affairs. What the Department of State Can and Can't Do in a Crisis. https://travel.state.gov/content/travel/en/international-travel/emergencies/what-state-dept-can-cant-do-crisis.html

Sphere Project. The Sphere Handbook: Humanitarian Charter and Minimum Standards in Humanitarian Response. https://handbook.spherestandards.org/en

Revised 9/2024 by Kaiser Permanente, Fontana, CA