Recommended Curriculum Guidelines for Family Medicine Residents

Disaster Medicine

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

Introduction

This Curriculum Guideline defines a recommended training strategy for family medicine residents. Attitudes, behaviors, knowledge, and skills that are critical to family medicine should be attained through longitudinal experience that promotes educational competencies defined by the Accreditation Council for Graduate Medical Education (ACGME), www.acgme.org. The family medicine curriculum must include structured experience in several specified areas. Much of the resident’s knowledge will be gained by caring for ambulatory patients who visit the family medicine center, although additional experience gained in various other settings (e.g., an inpatient setting, a patient’s home, a long-term care facility, the emergency department, the community) is critical for well-rounded residency training. The residents should be able to develop a skillset and apply their skills appropriately to all patient care settings.

Structured didactic lectures, conferences, journal clubs, and workshops must be included in the curriculum to supplement experiential learning, with an emphasis on outcomes-oriented, evidence-based studies that delineate common diseases affecting patients of all ages. Patient-centered care, and targeted techniques of health promotion and disease prevention are hallmarks of family medicine and should be integrated in all settings. Appropriate referral patterns, transitions of care, and the provision of cost-effective care should also be part of the curriculum.

Program requirements specific to family medicine residencies may be found on the ACGME website. 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.
Please note that the term “manage” occurs frequently in AAFP Curriculum Guidelines. “Manage” is used in a broad sense to indicate that the family physician takes responsibility for ensuring that optimal, complete care is provided to the patient. This does not necessarily mean that all aspects of care need to be directly delivered personally by the family physician. Management may include appropriate referral to other health care providers, including other specialists, for evaluation and treatment.

Each residency program is responsible for its own curriculum. This guideline provides a useful strategy to help residency programs form their curricula for educating family physicians.

Preamble

Disasters come in many forms, and family physicians stand at the frontline to help detect possible threats, support other responding agencies, help allocate resources, and provide patient care during all disasters that might strike a community. It is critical that any disaster medicine curriculum 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 the disasters of tomorrow.

Members of the local health care system are among the first to respond when a disaster strikes. Because assistance from elsewhere may not be immediately available, every family physician should know how to respond to assist their community.

Some disasters can result in the destruction of a considerable portion of the community’s medical resources and take a considerable toll on life. The skills and principles of disaster medicine that residents should learn about include triage, evacuation, coordinating local and federal responses, managing 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. Recovery presents its own set of challenges for physicians who are recovering along with their communities.

Since the events of September 11, 2001, there has been an increased focus on the standardization of disaster response in an effort to speed the implementation of relief and decrease the iatrogenic component of the chaos inherent to such situations. In the United States, the National Incident Management System (NIMS) has been developed in an attempt 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, developing 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 allow healing for both victims and responders.
While the focus of the specific objectives in this curriculum is domestic disasters, the majority 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 learn about working with international agencies, as well.

**Competencies**

At the completion of residency training, a family medicine resident should be able to:

- Have a basic knowledge of NIMS and its Incident Command System (ICS), including applications pertaining to the planning, coordination, and execution of disaster responses at local, state, and national levels. This should include ICS training modules 100, 200, and 700 from [FEMA.gov](http://FEMA.gov) (Systems-based Practice)
- Understand the importance of personal, family, and community preparedness and the responsibility of the family medicine resident to lead in the education of the public (Professionalism)
- Be familiar with the key hazards to your facility and your role when disaster events occur (Systems-based Practice)
- Have a basic understanding of the primary importance of safety in disaster responses, including personal protective equipment, decontamination, universal precautions, blood borne pathogens, basic force protection (care of the responder), and disaster scene security (Medical Knowledge)
- Understand the principles of triage and have the ability to effectively perform triage in a disaster setting in order to maximize utility of scarce medical resources (Patient Care)
- Possess the clinical competence to provide effective care in a setting of extremely limited resources and otherwise austere environments (includes improvised medical techniques) (Patient Care)
- Understand psychological first aid (PFA) and caring for responders, and when to apply this set of techniques (Systems-based Practice)

**Attitudes and Behaviors**

The resident should demonstrate attitudes and behaviors that encompass:

- Understanding of the need to be prepared for disasters that may strike a community
- Understanding of 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
• Understanding of the value of excellent communication skills in a time of crisis
• Understanding of the necessity of staying calm and remaining focused at a time when there is maximal chaos and confusion
• Understanding of the principles of triage to maximize benefit when limited resources preclude comprehensive care for all of those affected
• Understanding of the need for resourcefulness when the usual supplies, personnel, communication, and transportation are not available

Knowledge

In the appropriate setting, the resident 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. Natural
      i. Meteorological (e.g., hurricane, tornado, blizzard, heat, cold wave)
      ii. Geological (e.g., earthquake, volcanic eruption, flood)
      iii. Other (e.g., wildfires, explosion, disease outbreak)
   b. Accidental
      i. Transportation accidents resulting in mass casualties (e.g., airplane, bus, train, multiple vehicle incidents)
      ii. Transportation accidents resulting in hazardous materials release
      iii. Structural accidents (e.g., building or bridge collapse)
      iv. Agricultural or industrial accidents (e.g., hazardous chemical or biological exposure)
      v. Radiological accidents
         1) Consider health care sources of radiation, including cobalt, cesium, and technetium
         2) Consider radiation safety in diagnostic radiology and radiologic oncology settings
   c. Intentional or violent
      i. Criminal acts (in which the focus of the act is the victims)
         1) Bombings
         2) Shootings
            a) Consider hospital and clinic scenarios, which physical security may be compromised, such as active shooter events
      ii. Acts of terrorism (in which the focus of the act is society)
1) Bombings
2) Shootings (e.g., mass shootings, active shooter)
3) Nuclear and radiological attacks (“dirty bombs”)
4) Biological attacks
   a) Bacteria (e.g., anthrax, cholera, plague, tularemia, Q fever)
   b) Virus (e.g., smallpox, Venezuelan equine encephalitis, hantavirus, SARS, pandemic influenza, viral hemorrhagic fevers)
   c) Toxin (e.g., botulinum, staphylococcal enterotoxin B)
5) Chemical agent attacks
   a) Nerve agents (e.g., tabun [GA], sarin [GB], soman [GD], ethyl sarin [GE], VX, V sub X, other organophosphates to include insecticides and pesticides)
   b) Blister agents (e.g., lewisite, mustard)
   c) Precursors (e.g., chlorosoman, chlorosarin)
   d) Choking agents (e.g., phosgene, chlorine)
   e) Blood agents (e.g., hydrogen cyanide, cyanogen chloride)
   f) Riot control agents (e.g., tearing agents, vomiting agents)
   g) Other chemical agents used in industry (e.g., polonium, phosgene)

3. Response to disasters
   a. Preparation for disaster events
      i. Personnel
         1) Identify who will be in charge (see Incident Command System [ICS] below)
         2) Identify who will be available and their roles
         3) Conduct drills
      ii. Maintain adequate supplies; specific equipment and supplies required will depend on the nature and the scope of the disaster
         1) Suggested medications and related supplies
            a) For care of acute injuries (e.g., tetanus shots; antibiotics; analgesics; intravenous [IV] fluids; supplies for splinting, casting, wound care, and suturing)
            b) For care of acute illnesses (e.g., analgesics, antibiotics, antihistamines, antiemetics, inhalers, psychotropics)
            c) For care of chronic diseases (e.g., insulin, inhalers, diuretics, antihypertensives, oxygen, psychotropics, oral diabetes medications)
               i) Tables of substitution in order to allow for ready conversion of day-to-day medications to stockpiled medications (e.g., fosinopril to lisinopril)
            d) For response to terrorist attacks (e.g., antibiotics, antidote kits)
               i) CDC’s Strategic National Stockpile (SNS) CHEMPACK (antidotes) Program
               ii) CDC’s SNS Push packs and managed inventory (biologics and antibiotics) program
            e) Public health medications (e.g., antibiotics for tuberculosis)
      2) Logistical supplies
a) Food and water
b) Sanitation equipment, toilets, supply maintenance, and waste disposal
c) Soaps, disinfectants, sanitizers
d) Personal protective equipment
e) Basic office supplies
f) Infrastructure-independent communication equipment (point-to-point interoperable radios)

iii. Guidelines, regulations, policies and procedures, and reimbursement requirements (e.g., National Response Framework, Stafford Act, Public Health Service Act, Title 42 U.S Code Part B)
   1) Local facility evacuation procedures
   2) Hospital and/or clinic regulations
   3) State, county, and local regulations
   4) The Joint Commission and other accreditation organizations (e.g., Det Norske Veritas [DNV])
   5) National Disaster Medical System
      a) Disaster Medical Assistance Teams
      b) Hospital evacuation
      c) Disaster Mortuary Operational Response Teams
      d) Logistics Response Assistance Teams
      e) Veterinary Medical Assistance Teams
      f) Other teams
   6) Federal Emergency Management Agency (FEMA)
   7) Medical Reserve Corps (U.S. Department of Health and Human Services)

b. Coordination of response
   i. ICS as basis, with Hospital Incident Command Systems (HICS) specialized for the institutional health care environment
      1) Unity of command (everyone answers to a single leader)
      2) Span of control (every leader supervises 4 to 7 others)
      3) Incident Commander (in charge, the minimum need for calling an incident is an Incident Commander)
   4) Command Staff
      a. Safety Officer
      b. Public Information Officer/Media Relations
      c. Medical/Technical Expert
      d. Liaison Officer
   5) General staff
      a. Operations (the “doers”)
      b. Planning (the “thinkers”)
      c. Finance (the “payers”)
      d. Logistics (the “getters”)
   6) Unified command (multiple organizations working together)
   7) Emergency operations center versus incident command post versus hospital command center
   ii. Internal coordination with key clinic and hospital personnel
iii. External coordination with local community emergency resources and regional or national response teams
   1) Local Office of Emergency Management
   2) State Office of Emergency Management
   3) Federally deployed Incident Response Coordination Team (IRCT)

c. Execution of disaster response
   i. Safety (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 (EPA) regulations understood
         g) Self-directed decontamination
         h) Resource protection (Occupational Safety and Health Administration [OSHA], et al)
            i) Care of the responder
            ii) Rehabilitation of responder resources
            iii) Prevention of heat and dehydration injuries, especially in the hazmat or hot weather environment
      2) Personal protective equipment
         a) Face masks and respirators (e.g., simple mask and N95 respirator), including training, fit testing, and medical clearance, as appropriate
         b) Use of powered air-purifying respirators (PAPR)
         c) Personal protective clothing (e.g., Level A, B, C, D protection and indications, including donning and doffing of equipment, Mission-Oriented Protective Posture [MOPP] gear)
      3) Security (include law enforcement in the planning and execution process, when possible)
         a) Crowd and traffic control
         b) Protection of relief workers and those seeking aid
         c) Protection of medications, food, and water
      4) Environmental hazards
         a) Damaged infrastructure (e.g., downed electrical power lines, damaged roads and buildings, hazardous chemicals)
         b) Building debris as a hazard to pedestrian and passenger travel
         c) Infectious hazards (e.g., human and animal victim corpses, exhumed bodies from disturbed cemeteries, contaminated water)
      5) Mental health hazards
         a) Psychological First Aid (PFA) for victims and responders
         b) Referral resources available for victims who need additional care
   ii. Triage
      1) Location
      2) Personnel involved
      3) Principles and practice of various triage systems
a) Triage tags (i.e., black, green, yellow, red)
b) General understanding of various triage systems and how they should be interoperable (e.g., Simple Triage and Rapid Treatment [START]; JumpSTART; Seniors Without Families Triage [SWiFT]; Sort, Assess, Lifesaving Interventions, Treatment/Transport [SALT])

iii. Clinical skills
1) Care in an austere environment
   a) Broad scope of practice
   b) Ability to supervise clinical nurses and technicians in expanded roles
   c) Clinical diagnostic skills in the absence of partial or full radiology, laboratory, and other ancillary support
   d) Effective therapeutic interventions with limited availability of medication varieties and quantities
      i) Acute illnesses and injuries
      ii) Chronic medical conditions
      iii) Ingenuity in devising treatments
   e) Recognition when chronic diseases may be left untreated for a short duration to facilitate wise utilization of resources
2) Psychosocial considerations
   a) Individual survivors presenting to the facility
   b) Patients with special needs (e.g., pregnant women, children, elderly, those who have an underlying mental health problem, homebound patients)
   c) Patients enrolled in methadone maintenance programs or on other chronic narcotic pain medications
   d) Witnesses to the disaster (post-traumatic stress disorder [PTSD])
   e) Family and friends of the missing, injured, or dead
   f) The "worried well" and those with minor injuries and high anxiety
   g) PFA for victims and responders

iv. Logistics
1) Location for decontamination, triage, clinical care, and responders’ sleeping/eating areas
2) Communication
   a) Radios
   b) Telephones (wired, wireless, and satellite)
   c) Messaging (texting, messaging apps)
   d) Computers (internet)
   e) Runners or couriers
   f) Visual signage
3) Human resources (including relief for first responders)
4) Supplies (medical, food, water, and shelter)
5) Evacuation of patients needing higher levels of care or personnel requiring evacuation from increasingly unsafe environments
6) Toileting and sanitation services
7) Pet care and control

v. Debriefing
1) Timing, location, and participants
2) Evaluation and critique of response (avoid blame and capture lessons learned to improve responses in the future)
   a) Communications are often cited as being inadequate and should be addressed in the planning prior to the event.

**Skills**

In the appropriate setting, the resident should demonstrate the ability to independently perform or appropriately refer the following:

1. Planning, preparation, and practice of emergency response system
   a. Based on the ICS
      i. Planning skills
         1) Develop a plan
            a) Interagency coordination
            b) Development and utilization of checklists
               i) Supplies and equipment
               ii) Jobs and responsibilities
            c) Develop a Hazards and Vulnerability Analysis (HVA) based on available internal and external data, judging the likelihood of various events and their potential impact on lifeline and medical services
        2) Practice the plan by conducting drills
           a) Drills can be tabletop discussions, active with no victims, active with simulated victim participants, or live activities, such as mass participation events (marathons, triathlons, concerts, etc.)
           b) Participation
           c) Evaluation and feedback
      ii. Effective team participation
          1) Leadership and “followership”
          2) Staying calm and focused under pressure
          3) Use members of the team effectively
          4) Closed-loop communication
             a) Situation, Background, Assessment, Recommendation (SBAR)
          5) Unity of command
      iii. Effective communication
          1) With victims, communities, journalists, and government officials
             a) Conform to any unified communication strategy to which local officials have agreed
          2) With other responders
             a) Local health department
             b) Police and fire officials
             c) Emergency medical services (EMS)
             d) Other community organizations (e.g., religious organizations)
          3) Employing various technologies effectively, including social media
2. Triage skills
   a. Basic Life Support (BLS) procedures and first aid
   b. Basic trauma training (Pre-hospital Trauma Life Support [PHTLS], International Trauma Life Support [ITLS])
   c. Categorization of patients (e.g., triage tags, military triage, and other models)

3. Safety issues (see Knowledge 3.c.2.a-c)
   a. Wearing of appropriate personal protective equipment
      i. Gas masks, face masks, and respirators
      ii. Protective clothing (e.g., boots, gloves, long pants, long-sleeved shirts, and insect repellent)
   b. Set up and use of decontamination systems

4. Medical and surgical skills (emphasis on basic courses appropriate for the broad spectrum of care a family physician is expected to provide)
   a. Advanced Trauma Life Support (ATLS) procedures
   b. Advanced Cardiac Life Support (ACLS) procedures
   c. Advanced Life Support in Obstetrics (ALSO) procedures
   d. Neonatal Resuscitation Program (NRP) procedures
   e. Pediatric Advanced Life Support (PALS) procedures
   f. Comprehensive Advanced Life Support (CALS) procedures (incorporates other advanced life-support courses into a single course with emphasis on the needs in rural and limited-resource settings)
   g. The S.T.A.B.L.E. Program for neonatal stabilization
   h. National Disaster Life Support Foundation (NDLSF) procedures
      i. Core Disaster Life Support (CDLS) base minimum
      ii. Basic Disaster Life Support (BDLS), required for Advanced Disaster Life Support (ADLS)
      iii. ADLS (recommended)

5. Psychological first aid (e.g., American Red Cross DSCLS206A or equivalent)

Implementation

Implementation of this curriculum should take place in family medicine residency programs in block format and longitudinally over the three years of residency training. Community response to local disasters, as well as participation in a local Medical Reserve Corps unit can enhance the longitudinal disaster curriculum by providing direct experience and training.
The block training can be incorporated in the community medicine rotation. During this phase, the resident should engage in practice scenarios (e.g., on paper, in person, via computer simulations) and visit local response agencies to discuss disaster response plans. It is critical for the residents to meet with key leaders to discuss how the community will mobilize in case of a disaster. The knowledge and experience of working with these individuals will help the physician in planning, developing, training for, and participating in disaster preparedness programs at his or her future practice locations. In addition, as a part of the block training, residents should receive formal ICS training and certification, starting with ICS-100 and ICS-700, at a minimum. Completion of ICS-200 is preferred. Classroom and online self-study modes of instruction are available.

The longitudinal training over a three-year residency will consist primarily of lectures, workshops, scenario discussions, and participation in drills at the hospital or clinic. It is important for the resident to participate in both the execution and evaluation of the emergency management drills. The experience gained and lessons learned will be of great value for later use in the development of, and participation in, disaster preparedness programs in the communities where residents ultimately practice.

In addition to drills, residents should participate in the emergency management planning for their parent hospital. Residents should be thoroughly familiar with their responsibilities to their credentialing hospital in the event of an internal or external disaster.

**Resources**


**Website Resources**


American College of Surgeons. Advanced Trauma Life Support.  

www.heart.org/HEARTORG/CPRAndECC/HealthcareTraining/AdvancedCardiovascularLifeSupportACLS/Advanced-Cardiovascular-Life-Support-ACLS_UCM_001280_SubHomePage.jsp.

www.heart.org/HEARTORG/CPRAndECC/HealthcareTraining/Pediatrics/Pediatric-Advanced-Life-Support-PALS_UCM_303705_Article.jsp.


American Red Cross Psychological First Aid. http://www.redcross.org/m/saf/12-steps-for-psychological-first-aid#arcmobile.


Comprehensive Advanced Life Support (CALS). Rural Emergency Medical Education. www.calsprogram.org/.


The S.T.A.B.L.E. Program. [https://stableprogram.org/](https://stableprogram.org/).


**Website Resources for Disaster Relief Abroad**


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