



Education



THE 2016 MODEL OF THE CLINICAL PRACTICE OF EMERGENCY MEDICINE

Francis L. Counselman, MD,[†] Kavita Babu, MD,^{‡§} Mary Ann Edens, MD,^{||¶} Diane L. Gorgas, MD,^{***}
 Cherri Hobgood, MD,^{†††} Catherine A. Marco, MD,^{*‡‡} Eric Katz, MD,^{§§|||} Kevin Rodgers, MD,^{††¶¶}
 Leonard A. Stallings, MD,^{##***†††} Michael C. Wadman, MD,^{||‡‡‡} for the 2016 EM Model Review Task Force,
 Michael S. Beeson, MD,^{*} and Julia N. Keehbauch^{*} for the American Board of Emergency Medicine

^{*}American Board of Emergency Medicine, East Lansing, Michigan, [†]Department of Emergency Medicine, Eastern Virginia Medical School, and Emergency Physicians of Tidewater, Norfolk, Virginia, [‡]Society for Academic Emergency Medicine, Des Plaines, Illinois, [§]Division of Medical Toxicology, Department of Emergency Medicine, University of Massachusetts Medical School, Worcester, Massachusetts, ^{||}American College of Emergency Physicians, Irving, Texas, [¶]Department of Emergency Medicine, Louisiana State University Health Sciences Center Shreveport, Shreveport, Louisiana, [#]Residency Review Committee for Emergency Medicine, Chicago, Illinois, ^{**}Department of Emergency Medicine, Ohio State University, Columbus, Ohio, ^{††}Department of Emergency Medicine, Indiana University School of Medicine, Indianapolis, Indiana, ^{‡‡}Department of Emergency Medicine, Wright State University Boonshoft School of Medicine, Dayton, Ohio, ^{§§}Council of Emergency Medicine Residency Directors, Irving, Texas, ^{|||}Department of Emergency Medicine, Maricopa Integrated Health Systems, Phoenix, Arizona, ^{¶¶}American Academy of Emergency Medicine, Milwaukee, Wisconsin, ^{##}Emergency Medicine Residents' Association, Irving, Texas, ^{***}Department of Emergency Medicine, East Carolina University Brody School of Medicine, Greenville, North Carolina, ^{†††}Department of Internal Medicine, Division of Pulmonary, Critical Care, and Sleep Medicine, East Carolina University Brody School of Medicine, Greenville, North Carolina, and ^{‡‡‡}Department of Emergency Medicine, University of Nebraska Medical Center, Omaha, Nebraska
 Reprint Address: Julia N. Keehbauch, American Board of Emergency Medicine, East Lansing, MI 48823

OVERVIEW

Emergency medicine (EM) has a scientifically derived and commonly accepted description of the domain of its clinical practice. That document, “The Model of the Clinical Practice of Emergency Medicine” (EM Model), was developed through the collaboration of six organizations: the American Board of Emergency Medicine (ABEM), the administrative organization for the project, the American College of Emergency Physicians (ACEP), the Council of Emergency Medicine Residency Directors (CORD), the Emergency Medicine Residents' Association (EMRA), the Residency Review Committee for Emergency Medicine

(RRC-EM), and the Society for Academic Emergency Medicine (SAEM). Development of the EM Model was based on an extensive practice analysis of the specialty. The practice analysis relied on both empiric data gathered from actual emergency department visits and several expert panels (1). The resulting product was first published in 2001, and has successfully served as the common source document for all EM organizations (2,3). One of its strengths is incorporating the reality that EM is a specialty driven by symptoms not diagnoses, requiring simultaneous therapeutic and diagnostic interventions.

The task force that developed the EM Model recommended that a new task force, composed of representatives from all six organizations, be formed every 2 years to assess the success of the document in accomplishing its objective of supporting the ongoing development of the specialty of emergency medicine; to consider

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alterations to the EM Model suggested by the collaborating organizations; and to recommend changes to the six sponsoring organizations.

The initial 2-year review occurred in 2003, with representatives from each of the six organizations suggesting changes and reporting how their respective organizations had used the document. The initial 2-year update was published in *Annals of Emergency Medicine* and *Academic Emergency Medicine* in 2005 (4,5). Subsequently, a task force met every 2 years to review the EM Model and recommend changes (6–13). In 2013, a seventh organization, the American Academy of Emergency Medicine (AAEM), was added as a collaborating organization. In 2014, the collaborating organizations made the decision to review the EM Model on a 3-year review cycle. This article provides a brief review of the original EM Model, along with the changes to the EM Model as recommended by the 2016 EM Model Review Task Force. Significant changes occurred with the 2016 review, including extensive revision of Category 17, Toxicologic Disorders. A summary of all 2016 changes and an update on current uses of the EM Model by the seven collaborating EM organizations are also included in this article.

THE EM MODEL

The EM Model is a three-dimensional description of EM clinical practice. The three dimensions are patient acuity; physician tasks; and a listing of medical knowledge, patient care, and procedural skills. All of these dimensions are interrelated and used concurrently by a physician when providing patient care. The emergency physician's initial approach is determined by the acuity of the patient's presentation. While assessing the patient, the physician completes a series of tasks in collecting information. Through this process, the physician is able to select the possible etiologies of the patient's problem from the listing of medical knowledge, patient care, and procedural skills. Through simultaneous application of all three components, the physician is able to determine the most probable diagnosis and implement a treatment plan for the patient. Hence, the three dimensions of the EM Model are interrelated and applied concurrently in the practice of EM. The three dimensions, as revised in 2016, are included in Tables 1–3 and Supplementary Table 1.

The Accreditation Council for Graduate Medical Education requires each specialty to develop outcomes-based milestones for resident performance within the six general (core) competencies (ie, patient care, medical knowledge, practice-based learning and improvement, interpersonal skills, professionalism, and system-based

practice). The six general competencies are an integral part of the practice of EM and are embedded in the EM Model (14,15). The EM Model is closely aligned with the general competencies, using section headings with similar terminology.

The EM Model is designed for use as the core document for the specialty. It provides the foundation for developing medical school and residency curricula, certification examination specifications, continuing education objectives, research agendas, residency program review requirements, and other documents necessary for the definition, skills acquisition, assessment, and practice of the specialty. In conjunction with the EM Model, these six general competencies construct a framework for evaluation of physician performance and curriculum design to further refine and improve the education and training of competent emergency physicians. The six competencies and the EM Model also form the core of ABEM Maintenance of Certification. For further information on this program see ABEM's website, www.abem.org.

CHANGES IN THE EM MODEL

The 2016 EM Model Review Task Force met to consider changes based on input received from the seven collaborating organizations. Each organization was asked to comment on how it uses the EM Model, identify changes in practice or updated evidence, and

Table 1. Matrix of Physician Tasks by Patient Acuity

Physician Tasks	Patient Acuity		
	Critical	Emergent	Lower Acuity
Prehospital care			
Emergency stabilization			
Performance of focused history and physical examination			
Modifying factors			
Legal issues			
Professional issues			
Diagnostic studies			
Diagnosis			
Therapeutic interventions			
Pharmacotherapy			
Observation and reassessment			
Consultation			
Transitions of care			
Prevention and education			
Documentation			
Multiple patient care			
Team management			
Mass casualty/disaster management			
Patient-centered communication skills			
Prognosis			

Table 2. Patient Acuity Definitions

Critical	Emergent	Lower Acuity
Patient presents with symptoms of a life-threatening illness or injury with a high probability of mortality if immediate intervention is not begun to prevent further airway, respiratory, hemodynamic, or neurologic instability.	Patient presents with symptoms of an illness or injury that may progress in severity or result in complications with a high probability for morbidity if treatment is not begun quickly.	Patient presents with symptoms of an illness or injury that have a low probability of progression to more serious disease or development of complications.

to recommend changes in the document that would address any deficiencies. [Supplementary Table 2](#) lists the changes recommended by the 2016 EM Model Review Task Force and accepted by the seven organizations.

CURRENT USES OF THE EM MODEL

AAEM

The AAEM uses the EM Model as a reference document to identify topics for annual conference programming.

Table 3. Physician Task Definitions

Physician Task	Definition
Prehospital care	Participate actively in prehospital care; provide direct patient care or on- or off-line medical direction or interact with prehospital medical providers; assimilate information from prehospital care into the assessment and management of the patient.
Emergency stabilization	Conduct primary assessment and take appropriate steps to stabilize and treat patients.
Performance of focused history and physical examination	Effectively interpret and evaluate the patient's symptoms and history; identify pertinent risk factors in the patient's history; provide a focused evaluation; interpret the patient's appearance, vital signs and condition; recognize pertinent physical findings; perform techniques required for conducting the examination.
Modifying factors	Recognize age, gender, ethnicity, barriers to communication, socioeconomic status, underlying disease, and other factors that may affect patient management.
Professional issues	Understand and apply principles of professionalism and ethics pertinent to patient management.
Legal issues	Understand and apply legal concepts pertinent to the practice of emergency medicine.
Diagnostic studies	Select and perform the most appropriate diagnostic studies and interpret the results, eg, electrocardiogram, emergency ultrasound, radiographic and laboratory tests.
Diagnosis	Develop a differential diagnosis and establish the most likely diagnoses in light of the history, physical, interventions, and test results.
Therapeutic interventions	Perform procedures and nonpharmacologic therapies, and counsel.
Pharmacotherapy	Select, prescribe, and be aware of adverse effects of appropriate pharmaceutical agents based upon relevant considerations such as intended effect, financial considerations, possible adverse effects, patient preferences, institutional policies, and clinical guidelines; and monitor and intervene in the advent of adverse effects in the emergency department.
Observation and reassessment	Evaluate and re-evaluate the effectiveness of a patient's treatment or therapy, including addressing complications and potential errors; monitor, observe, manage, and maintain the stability of one or more patients who are at different stages in their work-ups.
Consultation	Collaborate with physicians and other professionals to help guide optimal management of patients.
Transitions of care	Arrange for patient admission, discharge (including follow-up plan), observation, or transfer and transitions of care as appropriate, and communicate these arrangements effectively with patients, family, and involved health care team members.
Prevention and education	Apply epidemiologic information to patients at risk; conduct patient education; select appropriate disease and injury prevention techniques.
Documentation	Communicate patient care information in a concise and appropriate manner that facilitates quality care and coding.
Multiple patient care	Prioritize and implement the evaluation and management of multiple patients in the emergency department, including handling interruptions and task switching, in order to provide optimal patient care.
Team management	Coordinate, educate, or supervise members of the patient management team and utilize appropriate hospital resources.
Mass casualty/disaster management	Understand and apply the principles of disaster and mass casualty management including preparedness, triage, mitigation, response, and recovery.
Patient-centered communication skills	Establish rapport with and demonstrate empathy toward patients and their families; listen effectively to patients and their families.
Prognosis	Forecast the likely outcome of a medical disease or traumatic condition.

ABEM

The ABEM uses the EM Model to define its examination specifications. Each question or structured case used in any ABEM examination is referenced to the EM Model. Every test and examination that ABEM develops is based on a blueprint derived directly from the EM Model.

ACEP

The ACEP uses the EM Model primarily as the basis for its educational activities. In addition, the ACEP Academic Affairs Committee uses the EM Model to align programming with academic educational needs. This information is used to develop a comprehensive list of web-based educational resources that can be incorporated into residency curricula.

CORD and the RRC-EM

The integration of the competencies into the EM Model meets the program requirements of the RRC-EM that the six core competencies are included in residency training. The EM Model is a major tool for CORD and EM program faculty to use when integrating the competencies into the training, residency curricula, and evaluation of residents.

EMRA

The EMRA uses the EM Model as a reference document to identify content at risk for testing on the in-training and certification examinations.

SAEM

The SAEM uses the EM Model as a reference document to identify topics and plan programming. In summary, the EM Model is accomplishing the intended purposes for which it was developed. The 2016 review of the EM Model resulted in significant changes and clarifications, including comprehensive review and revision of Category 17, Toxicologic Disorders. Several EM organizations are using the EM Model to support the ongoing development of the specialty of EM. The complete updated 2016 EM Model can be found on the websites of each of the seven collaborating organizations.

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SUPPLEMENTARY DATA

Supplementary data related to this article can be found at <http://dx.doi.org/10.1016/j.jemermed.2017.01.040>.

REFERENCES

1. Hockberger RS, LaDuca A, Orr NA, et al. Creating the model of a clinical practice: the case of emergency medicine. *Acad Emerg Med* 2003;10:161–8.
2. Core Content Task Force II. The Model of the Clinical Practice of Emergency Medicine. *Ann Emerg Med* 2001;37:745–70.
3. Core Content Task Force II. The Model of the Clinical Practice of Emergency Medicine. *Acad Emerg Med* 2001;8:660–81.
4. Hockberger RS, Binder LS, Chisholm CD, et al. The Model of the Clinical Practice of Emergency Medicine: a 2-year update. *Ann Emerg Med* 2005;45:659–74.
5. Hockberger RS, Binder LS, Chisholm CD, et al. The Model of the Clinical Practice of Emergency Medicine: a 2-year update. *Acad Emerg Med* 2005;12:543–58.
6. Thomas HA, Binder LS, Chapman DM, et al. The 2003 Model of the Clinical Practice of Emergency Medicine: the 2005 update. *Ann Emerg Med* 2006;48:e1–17.
7. Thomas HA, Binder LS, Chapman DM, et al. The 2003 Model of the Clinical Practice of Emergency Medicine: the 2005 update. *Acad Emerg Med* 2006;13:1070–3.
8. Thomas HA, Beeson MS, Binder LS, et al. The 2005 Model of the Clinical Practice of Emergency Medicine: the 2007 update. *Acad Emerg Med* 2008;15:776–9.
9. Thomas HA, Beeson MS, Binder LS, et al. The 2005 Model of the Clinical Practice of Emergency Medicine: the 2007 update. *Ann Emerg Med* 2008;52:e1–17.
10. Perina DG, Beeson MS, Char DM, et al. The 2007 Model of the Clinical Practice of Emergency Medicine: the 2009 update. *Acad Emerg Med* 2011;18:e8–26.
11. Perina DG, Beeson MS, Char DM, et al. The 2007 Model of the Clinical Practice of Emergency Medicine: the 2009 update. *Ann Emerg Med* 2011;57:e1–15.
12. Perina DG, Brunett CP, Caro DA, et al. The 2011 Model of the Clinical Practice of Emergency Medicine. *Acad Emerg Med* 2012;19:e19–40.
13. Counselman FL, Borenstein MA, Chisholm CD, et al. The 2013 Model of the Clinical Practice of Emergency Medicine. *Acad Emerg Med* 2014;21:574–98.
14. Chapman DM, Hayden S, Sanders AB, et al. Integrating the Accreditation Council for Graduate Medical Education Core Competencies into the Model of the Clinical Practice of Emergency Medicine. *Ann Emerg Med* 2004;43:756–9.
15. Chapman DM, Hayden S, Sanders AB, et al. Integrating the Accreditation Council for Graduate Medical Education Core Competencies into the Model of the Clinical Practice of Emergency Medicine. *Acad Emerg Med* 2004;11:674–85.