

# Important Historical Efforts at Emergency Department Categorization in the United States and Implications for Regionalization

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## Abstract

This article is drawn from a report created for the American College of Emergency Physicians (ACEP) Emergency Department (ED) Categorization Task Force and also reflects the proceedings of a breakout session, "Beyond ED Categorization—Matching Networks to Patient Needs," at the 2010 *Academic Emergency Medicine* consensus conference, "Beyond Regionalization: Integrated Networks of Emergency Care." The authors describe a brief history of the significant national and state efforts at categorization and suggest reasons why many of these efforts failed to persevere or gain wider implementation. The history of efforts to categorize hospital (and ED) emergency services demonstrates recognition of the potential benefits of categorization, but reflects repeated failures to implement full categorization systems or limited excursions into categorization through licensing of EDs or designation of receiving and referral facilities. An understanding of the history of hospital and ED categorization could better inform current efforts to develop categorization schemes and processes.

ACADEMIC EMERGENCY MEDICINE 2010; 17:e154-e160 © 2010 by the Society for Academic Emergency Medicine

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Categorization of hospital emergency services (CHES) has been a long-sought objective in the larger effort to organize emergency care in the United States. Understanding what resources are avail-

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Received August 6, 2010; accepted August 22, 2010.

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able in a city, region, state, or nation is critical to developing a plan for both daily care and disaster care. CHES reflects the depth and breadth of services not only in emergency departments (EDs), but also in other hospital outpatient, inpatient, and rehabilitation services. Although the role of the ED is fundamental to the provision of emergency care, as reflected in the tremendous growth in education, training, specialization, and popularity with the public, CHES reflects all of the resources in a hospital that may be brought to bear in the response to a medical or surgical emergency. We describe recent efforts at categorization of hospital and ED emergency services in the United States and speculate on why these efforts have had limited effects on the overall design of emergency medical services (EMS) systems and the regionalization of emergency care services.

## SIGNIFICANT NATIONAL CATEGORIZATION EFFORTS

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The concept of categorizing EDs was first proposed by the National Academy of Sciences National Research Council in 1966 as a way to match critically ill patients with the appropriate health care facility.<sup>1</sup> In 1971, the American Medical Association (AMA) Commission on EMS held a conference to develop Guidelines for the Categorization of Hospital Emergency Capabilities, which were published in 1973.<sup>2</sup> A number

of organizations have advocated for this concept, and some have developed and implemented categorization of EDs with limited success.

### The Joint Commission

The (then) Joint Commission on the Accreditation of Healthcare Organizations, beginning in the early 1980s and continuing for a decade, categorized emergency services into one of four levels. The standards from 1994 can be found in Table 1.<sup>3</sup> Their stated intent was to assure that emergency care is provided by well-qualified individuals, and appropriate services are provided through a well-defined plan, based on community need and the defined capacity of the hospital. The process for validation of the categorization level during site surveys was overly time-consuming, and after a decade of including this as a part of the hospital accreditation process, these standards were eliminated.

While the Joint Commission did require that emergency services be provided 24 hours a day, Levels I through III could be met by having at least one physician experienced in emergency care on duty in the emergency care area. No mention was made of emergency medicine as a unique specialty. When addressing ED leadership: “The director, the deputy director, or other qualified physician in charge of a Level I or Level II emergency department/service has training and/or experience in a specialty appropriate (as determined by the medical staff) to the care and treatment of emergency patients.”<sup>3</sup> Internal medicine, surgery, orthopedic surgery, obstetrics/gynecology, pediatrics, and anesthesia on-call services were directly required in the higher Level (I and II) categories. A Level III facility did not require a physician to be present in the department, but rather this physician could be available within one-half hour. A Level IV facility did not require a physician be present. The requirements did speak to the need to provide services in the dominant languages in the community served. Further criteria called for proper transfer protocols similar to the eventual requirements of the Emergency Medical Treatment and Active Labor Act. Additional requirements for specific surgical services were made only of Level I and II facilities.

Currently, there does remain a voluntary method by which a hospital may become “certified” in trauma or

in the emergency care of a specific disorder. The Joint Commission’s certification processes for disease management services are based on “an assessment of compliance with relevant standards and criteria, the effective use of clinical guidelines and outcomes measurement.”<sup>3</sup> These disease-specific certifications are a voluntary means to certify entire hospitals as “centers” for the treatment of specific diseases. The core measurements for these programs are decided by the institution being certified and do not speak to capacity at all. For example, a rural hospital could become certified by the Joint Commission as a “center” for trauma care without any trauma surgeons or specialty surgical backup. If the hospital set a process to identify and transfer trauma patients and selected four quality measures to be submitted to the Joint Commission (two of which must be “clinical”), it could be certified as a “Center for Trauma.” Most of these “Disease Management Certifications” have not been in wide use, nor have they affected emergency services when used; the advanced certification of “primary stroke center” is an exception that employs process measurers and compliance standards that have not been universally accepted.

### American College of Surgeons—Committee on Trauma, Trauma Center Verification Program

Advances in trauma care in the 1960s and 1970s led to the recognition that trauma patient outcomes could improve with the diversion of critically injured patients to medical care facilities with comprehensive resources for such care. Development of such centers and the subsequent early trauma system focused on critically injured patients being triaged in the field and transported directly to large urban medical centers with concentrated resources for caring for trauma victims. Closer hospitals with fewer resources could be bypassed.

The American College of Surgeons (ACS) recognized the need for a more extensive and inclusive system that could allow all hospitals to participate at the level of their capability. The inclusive system serves two purposes: 1) it provides all centers with a means to assess and stabilize the conditions of patients before transport to Level I or II centers if indicated, and 2) it allows for

Table 1  
Joint Commission Standards for Emergency Services

Level	Detail
I	Comprehensive emergency care 24 hours a day with at least one physician experienced in emergency care on duty in the emergency care area. There is in-hospital physician coverage by members of the medical staff or by senior-level residents for at least medical, surgical, orthopedic, obstetric/gynecologic, pediatric, and anesthesia services. Other specialty consultation is available within approx. 30 minutes.
II	Emergency care 24 hours a day with at least one physician experienced in emergency care on duty and with specialty consultation available within approx. 30 minutes by members of the medical staff or by senior-level residents.
III	Emergency care 24 hours a day with at least one physician available to the emergency care area within approx. 30 minutes through a medical staff call roster.
IV	Specialty consultation is available by request of the attending medical staff member or by transfer. Reasonable care in determining whether an emergency exists, renders lifesaving first aid, and makes appropriate referral to the nearest organizations that are capable of providing needed services.

From The Joint Commission *Accreditation Manual for Hospitals*, 1994.<sup>3</sup>

less severely injured patients to be cared for within their communities. Recent evidence suggests that inclusive systems of trauma care are associated with a reduction in injury-related mortality within a region, compared with exclusive systems.<sup>4</sup>

In the 1980s and 1990s, the ACS developed a system of verifying medical center and trauma care system resources for trauma care. This verification system is voluntary and inclusive. The ACS manages the program and generates income from the verification process to pay for the program. The classification by ACS as a “trauma center” at any particular level of care is separate from many trauma center designation programs established by various states, EMS agencies, or other political authorities. The ACS states: “The designation of trauma facilities is a geopolitical process by which empowered entities, government or otherwise, are authorized to designate specific trauma receiving and referral facilities in a community or region. The ACS does not designate trauma centers; instead, it verifies the presence of the resources listed in Resources for Optimal Care of the Injured Patient.”<sup>5</sup> The ACS publishes a guideline used in assessing trauma centers and systems which it updates frequently.<sup>5</sup> Table 2 indicates the key elements related to ED categorization.

#### Macy Foundation Report

The Macy Foundation funded a conference chaired by L. Thompson Bowles, MD, PhD, on the “Role of Emergency Medicine in the Future of American Medical Care.”<sup>6</sup> One of the recommendations from the proceedings was that:

The Society for Academic Emergency Medicine (SAEM), the American College of Emergency Physicians (ACEP), and the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) should revise the classification of emergency departments. This classification should reflect the level of care available for emergency patients, and indicate whether or not the facilities are adequate and whether appropriately qualified and credentialed emergency physicians are available 24 hours a day. In addition, this classification of emergency departments should establish minimum qualifications for physicians, nurses, and other health professionals who provide services in emergency departments, with special attention to the qualifications of ‘moonlighters.’<sup>6</sup>

The United States currently does not have a system to classify EDs to inform the public about what level of care an ED is capable of providing or to facilitate EMS and disaster response planning or regionalization of care. The Foundation determined that a classification system for EDs that is comparable to the trauma center classification system, and that classifies hospital EDs on the basis of the level of sophistication of care it provides, should be developed.

#### Society for Academic Emergency Medicine (SAEM)

The Macy Report in 1994 charged the organizing bodies of emergency medicine to reclassify EDs to reflect the quality of care provided by the physicians working in the hospitals they serve. In response, SAEM organized a task force to address the recommendation. The task force consisted of several physicians, including Drs. Lewis Goldfrank, Philip Henneman, Louis Ling, John Prescott, Carlo Rosen, and Andrew Sama. This task force met and discussed the criteria necessary to classify an ED as a “Level 1 Emergency Center” or “EC.” This was posited as the highest standard that an ED could establish. The criteria to be classified as a Level 1 EC are documented in an article published in 1999 in *Academic Emergency Medicine*.<sup>7</sup> The criteria include the qualifications of the physicians, nursing staff, ancillary, and clerical staff including their educational requirements. The criteria also addressed the design of the ED, admitting staff of all specialties, and the equipment the ED should have on hand. It was the responsibility of the ED and hospital system to meet the requirements and then submit its application to SAEM to be considered for classification as a Level 1 EC.

Concerns were raised about the lack of an evidence base for the criteria and that the criteria focused only on the requirements for academic facilities. Two academic centers were categorized; the most recent was in 2003. These criteria have not been used since.

#### Institute of Medicine (IOM)

The 2007 report from the IOM titled “Hospital-Based Emergency Care: At the Breaking Point” recommended that a national effort at the categorization of emergency care facilities be formally pursued.<sup>8</sup> The report states:

Just as trauma centers are categorized according to their capabilities (i.e., Level I–Level IV/V), a standard national approach to the categorization of EDs that reflects their capabilities is needed so the cate-

Table 2  
American College of Surgeons—Committee on Trauma (ACS-COT) Key Elements related to ED Categorization efforts<sup>5</sup>

<p>The ACS-COT system is voluntary and does not force inclusion of all centers.</p> <p>The ACS-COT system requires large capital expenditures to attain verification.</p> <p>The ACS-COT system specifically addresses trauma care within a whole system, not overall emergency care.</p> <p>The ACS-COT system is able to use data on outcomes for trauma patients to support its verification system. This is a much more focused patient group than the overall population presenting to the emergency care system.</p> <p>The ACS-COT system specifies minimum trauma resource criteria to meet a particular level of classification.</p> <p>The ACS-COT verification and consultation programs involve multiple other specialty and interest groups in its evaluations for a more comprehensive approach.</p> <p>The ACS-COT system is supported by and partially derived from national mandates and governmental efforts; for example, the recent IOM report.</p>
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gories will be clearly understood by providers and the public across all states and regions of the country. To that end, the committee recommends that the Department of Health and Human Services and the National Highway Traffic Safety Administration, in partnership with professional organizations, convene a panel of individuals with multidisciplinary expertise to develop an evidence-based categorization system for emergency medical services, emergency departments, and trauma centers based on adult and pediatric service capabilities.<sup>8</sup>

This information could then be used to develop protocols for EMS providers to use in the transport of patients and to improve the regional coordination of patient flow, including directing patients to less crowded, but otherwise capable local EDs rather than to the highest-level center.

The IOM committee suggested that the design of the emergency care system should be similar to that of the trauma system that was originally developed by the Centers for Disease Control and Prevention and then advanced by the ACS. With this system, every hospital could undergo verification and designation as a Level I to Level IV/V trauma center, based on capabilities. The committee suggested that this concept be expanded beyond trauma care to include all serious illnesses and injuries. Initially the categorization may be based on the existence of a service, such as the ability to perform neurosurgery emergently. Then over time, the categorization process may include more detailed information, for example, the time to treatment, frequency of diversion, and ED boarding measures. They also suggested extending beyond hospitals to include pre-hospital EMS systems as well as clinics and urgent care providers.

Categories should be meaningful in differentiating types of emergency care available, yet be simple enough to be easily interpreted by EMS systems and the public at large. The committee members believed there is variability in initial and continuing education received by ED providers and therefore variability in the emergency care received by the public. They felt it important to define clearly what qualifies as competent care and what does not. The committee recommended that the "Department of Health and Human Services, in partnership with professional organizations, develop national standards for core competencies applicable to physicians, nurses, and other key emergency and trauma professionals, using a national, evidence-based, multidisciplinary process."<sup>8</sup> The core competencies developed should not simply represent the minimum level of capabilities that all ED providers must attain, but should be tiered and reflect the categorization of the EDs. EDs categorized at the highest levels should meet the most stringent competency requirements, while providers working in EDs with a lower categorization would meet less rigorous requirements.

## STATE CATEGORIZATION SCHEMES

There have been many attempts to categorize emergency care on the state and regional level. The impetus

for these efforts varies, ranging from organizational stakeholders to state legislative mandate. We review a few of the more notable and significant efforts identified by the ACEP Categorization Task Force members.

### Illinois

The Illinois trauma system is written into the state's administrative code, inspired by members of the Illinois College of Emergency Physicians (ICEP), and written in close collaboration with ICEP. Based on the ACS trauma criteria, an Illinois hospital can be designated as a Level I or II pediatric, adult, or pediatric and adult trauma center. The code includes basic trauma criteria for EMS triage and typical ACS requirements such as continuing medical education, policies, procedures, the availability of specialists, and transfer requirements. The code includes language specifically addressing required qualifications for non-board-certified emergency physicians. The code also has trauma center designations that mandate that there is at least one Level I trauma center serving each EMS region, unless waived by the Department of Public Health. This collaborative effort resulted in an ICEP and Illinois Department of Public Health cosponsored statewide trauma advisory committee that meets quarterly.

Illinois also has facility recognition criteria for adult and pediatric services. Illinois has three designations for EDs based on a brief description of a hospital's resources: standby, basic, and comprehensive. The state can also designate EDs as standby ED for pediatrics (SEDP), ED approved for pediatrics (EDAP), or pediatric critical care center (PCCC). Both programs require on-site surveys by state authorities. The Illinois legislature is currently finishing EMS and hospital codes to designate stroke centers, with the plan that EMS units will divert to those hospitals that meet certain criteria.

### California

In California the State EMS Authority, mandated by law to develop guidelines for "facility assessment," funded a pilot project for the development of vertical CHES that was piloted in the Sierra-Sacramento Valley and the northern California EMS regions in 1983. Vertical categorization criteria are usually specific to a related set of clinical conditions or a particular patient population, which can be termed clinical silos. In contrast, horizontal categorization criteria cover a broad range of clinical conditions and patient populations and are usually applied to the ED's general capabilities. The stated goals of the pilot project were to inventory the services provided in the regions' facilities and indicate appropriate patient-receiving points based on hospital capability and to provide information that can be used by physicians, hospitals, and hospital associations so that these providers can make informed decisions about how to develop, organize, and appropriately use health care resources in the EMS system.

Subsequently, the staff of the Alpine, Mother Lode, San Joaquin (AMLSJ) EMS agency decided to modify these pilot project criteria to approach vertical CHES from several new perspectives: reorganizing the categories for level of service (comprehensive, major, and

Table 3  
Updated CHES Criteria for Cardiovascular-Respiratory Emergencies—Draft from ACEP Categorization Task Force

	CHES Level of Cardiovascular/Respiratory Services	L	B	A	C
1	Licensed basic hospital services—medical, surgical, nursing, anesthesia, clinical laboratory, radiologic, pharmaceutical, and dietary		X	X	X
2	ED services—see separate criteria				
	Standby ED	X			
	Basic ED		X		
	Advanced ED			X	
	Comprehensive ED				X
	Central station monitoring			X	X
	Volume/pressure cycle ventilator(s)			X	X
	Transvenous pacemaker setup and supplies			X	X
	Bedside ultrasound			X	X
3	Cardiac laboratory/catheterization services				
	24/7/365 PTCA capability—minimum of __ procedures per year				X
	Elective coronary angiography capability—minimum of __ procedures per year			X	X
	Cardiac stress echo and/or stress electrocardiogram available within 8 hours			X	X
4	Inpatient care services				
	Cardiac care unit			X	X
	Intensive care unit		X	X	X
	Surgical intensive care unit				X
	Neurologic intensive care unit				X
5	Cardiovascular surgery service				
	Minimum of __ cardiovascular procedures requiring extracorporeal bypass procedures per year				X
	Minimum of __ vascular bypass procedures per year			X	X
6	Hemodialysis services				
	Acute hemodialysis services 24/7/365				X
	Inpatient hemodialysis services available __ days/week			X	
7	Nuclear medicine service				
	Coronary perfusion scanning capability daily			X	X
8	Laboratory/transfusion services				
	Access to 2 units O– blood for transfusion within 15 minutes			X	X
	Access to 5 units of T&CM blood within 30 minutes			X	X
	Access to T+CM blood for transfusion within 1 hour		X		
	Access to thawed platelets and plasma within 15 minutes			X	X
	Antibiotic and cardiac drug level monitoring			X	X
9	Radiology service				
	Interventional radiology services 24/7/365				X
	Interventional radiology services—elective			X	
	Angiography, peripheral vascular—24/7/365			X	X
	CT angiography 24/7/365				X
	CT angiography – elective			X	
	MR angiography				X
	Echocardiography—available 24/7/365			X	X
	Echocardiography—elective		X		
10	Cardiovascular research and training program including residency training in CV surgery and cardiology				optnl
11	Specialty availability				
	In-house 24/7/365				
	Cardiologist or cardiology resident				X
	General surgeon or general surgery resident				X
	Anesthesiologist or anesthesiology resident				X
	In-house or on-call and available within 15 minutes				
	Cardiologist experienced in interventional cardiology			X	X
	On-call and available within 30 minutes				
	Anesthesiologist			X	X
	Cardiologist		X	X	X
	General surgeon		X	X	X
	Gastroenterologist			X	X
	Hematologist			X	X
	Immunologist—infectious disease specialist			X	X
	Internist/family practitioner		X	X	X
	Nephrologist			X	X
	Neurosurgeon			X	X
	Orthopedic surgeon			X	X
	Psychiatrist				X
	Pulmonologist			X	X
	Nurse anesthetist under physician direction		X		

ACEP = American College of Emergency Physicians; CHES = Categorization of Hospital Emergency Services; L = limited; B = basic; A = advanced; C = comprehensive; PTCA = percutaneous transluminal coronary angioplasty; T&CM = type & cross match; MR = magnetic resonance.

so forth) to reflect the inherent distinctions between hospitals in California, redefining the clinical groupings (trauma, burns, etc.) to reflect trends in hospital specialization, revising categorization criteria to reflect actual hospital practice (while considering the need for verifiability) and revising the lists of clinical condition silos so that they would reflect the new criteria and support transfer triage and eventually field triage. The project included a set of nine clinical groupings (later expanded to 11: cardiovascular/pulmonary, general trauma, spinal injury, radiation/toxin, poison, burn, psychiatric, amputations, obstetric, and neonatal) each organized into four levels of emergency service capability: comprehensive, major, general, and basic. Comprehensive (level C) services were subdivided into two subcategories representing the distinction between large research-oriented, university-affiliated urban teaching hospitals (C') and medium-sized to large community hospitals (with or without residency programs) committed to providing specialized critical care services to patients in the particular clinical grouping (C). The verification process included responses from 116 hospitals to a self-assessment instrument, and analysis of the 629 criteria in the instrument for internal validity. This process identified 151 "suspect" criteria that merited further scrutiny. At that point, a verification team composed of a surgeon, an emergency physician, an ED nurse, and a hospital administrator visited all 26 of the hospitals in the AMLSJ EMS region to verify the responses of the hospitals to the self-assessment instrument. As a result, about 20% of the "suspect" criteria were validated, 25% were rephrased in the self-assessment instrument, 22% were eliminated, 8% were adjusted to a different assessment level, and 25% were refined (a combination of the above). The project results were published in 1987,<sup>9</sup> and a recently updated draft version of the criteria for categorization of cardiovascular-respiratory emergencies under this scheme are included in Table 3.

The California categorization effort was curtailed due to political and cost constraints and by the failure of the EMS Authority to mandate facility assessment by local EMS agencies. The project stopped after the completion of the criteria validation project and facility assessment in the AMLSJ EMS Region. No further efforts to conduct CHES in California have proceeded since.

Currently, California has three levels of EDs for licensing purposes, defined as follows:

- Standby ED—Physician on call—reasonably available services for urgent medical problems.
- Basic ED—Physician on duty—promptly available services for most medical emergencies.
- Comprehensive ED—comprehensive scope of services with in-house capabilities for managing all medical emergencies.

California also has a trauma center designation scheme based on a statewide trauma system, with regulations implemented through local EMS agencies using statewide trauma designation criteria. The state is also developing a statewide plan for stroke care and regional STEMI networks, and several local EMS agencies have implemented EDAP designations.

### Other State Efforts

There have been several other state efforts to categorize emergency care. Hawaii mandates that all hospitals that provide EMS be categorized every 1–3 years. Categorization is to be based on the original 1971 AMA Commission on EMS Guidelines for the Categorization of Hospital Emergency Capabilities.<sup>2</sup>

Maine defines EDs based on four levels of categorization. Levels I and II indicate facilities staffed by physicians with emergency medicine experience. The main difference between the two distinctions is reflected by the availability of in-house versus on-call specialty coverage for obstetrics and gynecology, pediatrics, surgery, orthopedics, anesthesia, and internal medicine. Level III facilities must have physicians available within 30 minutes and provide on-site coverage by physician extenders, while Level IV facilities are capable of rendering first aid but have no requirement of the availability or presence of physicians or physician extenders.

Tennessee has developed standards for the categorization of pediatric emergency care. The state describes four facility categories. The basic level of care indicates that a physician is available to provide emergency care but without access to inpatient pediatric beds. A primary-level facility has an emergency physician available at all times but without inpatient pediatrics. A general facility provides fully available emergency physicians with inpatient pediatric services, while a comprehensive center adds subspecialty pediatric care.

### CONCLUSIONS

There have been many attempts at categorizing EDs, hospitals, and emergency care in the past, primarily motivated by recommendations from medical and governmental institutions. These efforts have met with varied levels of success. Unfortunately, despite previous attempts, there has been no successful ongoing comprehensive national scheme. With the lack of a coordinated national system of categorization, accrediting bodies and individual states have developed their own criteria and processes to address the categorization of hospital emergency services. In most cases, these are limited to the categorization of ED services through licensing, or are focused around a limited number of clinical scenarios, such as major trauma or pediatric care, with an eye toward designation of specialized receiving and referral centers. Impediments to the successful implementation of categorization schemes have included lack of consensus on categorization criteria, lack of funding for these efforts, and resistance from hospitals on the local level, as well as difficulties with the implementation of these endeavors due to the demands placed on providers and the validation process. An understanding of the history of these attempts is important for the development of future efforts as well as for the regionalization of medical care in the United States.

The authors acknowledge the SAEM Regionalization Task Force and the ACEP Emergency Department Categorization Task Force. Much of this manuscript was based upon work done by the ACEP Categorization Task Force, in particular.

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