EMS SYSTEMS OF CARE

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DISCLOSURES

- None

“SYSTEMS OF CARE”

Regionalized care for a patient with a **time-critical** or **specialty condition** from EMS assessment to definitive care at a designated hospital facility

Goal = to deliver the right resources to the right person, at the right place, at the right time

WHAT ARE THE MAIN SYSTEMS OF CARE?

- Trauma
- STEMI and Cardiac Arrest
- Stroke
- Burn
- Perinatal
- Pediatrics
- And more . . .

WHY IS THIS IMPORTANT FOR YOU?

REGION 11 CHICAGO EMS SYSTEM POLICY	Title: Participating Hospital Responsibilities
	Section: General
	Approved: EMS Medical Directors Consortium
	Effective: December 6, 2023

Attachment 1

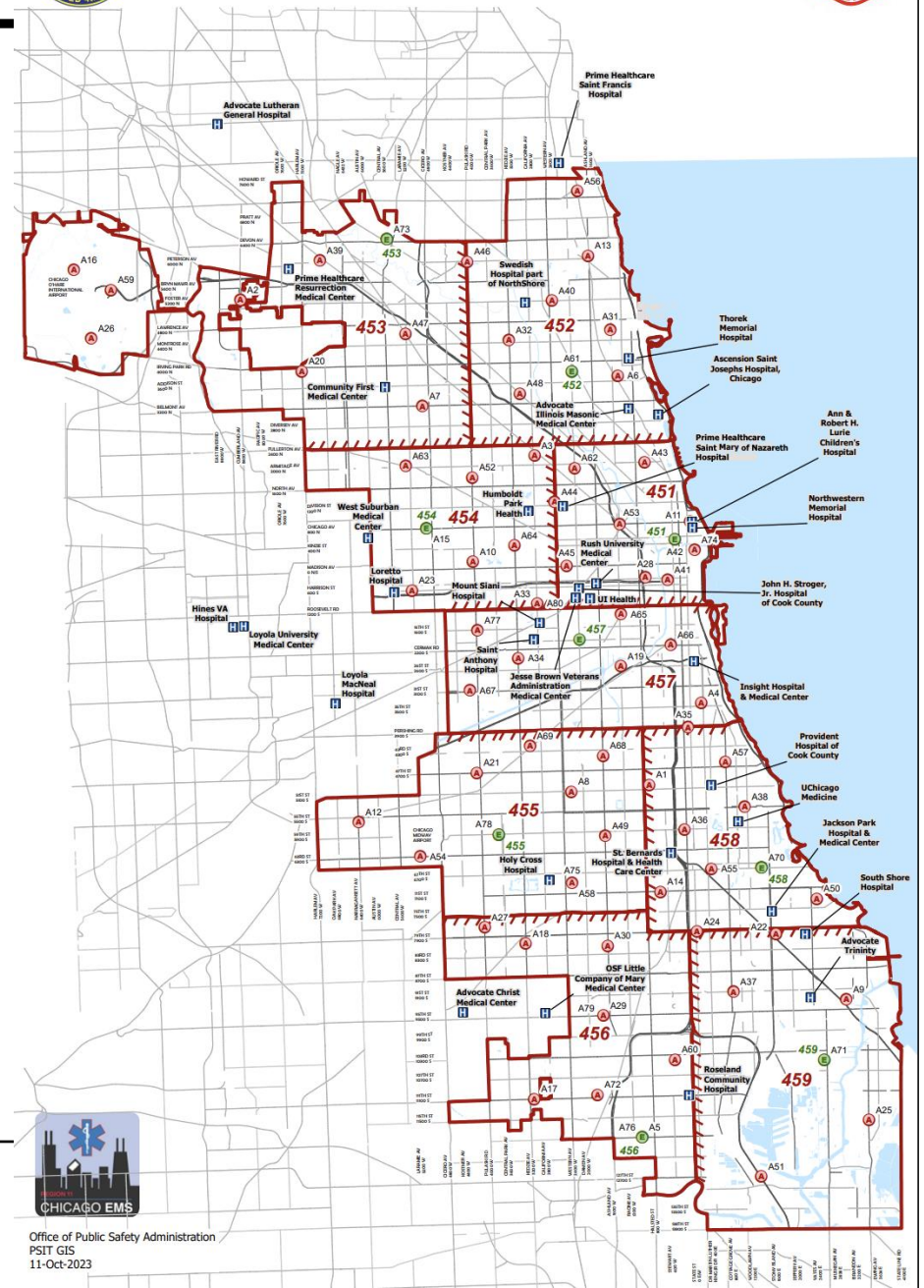
PARTICIPATING HOSPITALS

Advocate Christ Medical Center
Advocate Illinois Masonic Medical Center
Advocate Lutheran General Hospital
Advocate Trinity Hospital
Ann & Robert H. Lurie Children's Hospital of Chicago (Pediatrics ONLY)
Ascension Saint Joseph Hospital - Chicago
Community First Medical Center
Edward Hines, Jr. Veterans Affairs Hospital
Endeavor Health Swedish Hospital
Holy Cross Hospital
Humboldt Park Health
Insight Hospital & Medical Center
Jackson Park Hospital & Medical Center
Jesse Brown Veterans Affairs Medical Center
John H. Stroger, Jr. Hospital of Cook County
Loretto Hospital
Loyola MacNeal Hospital
Loyola University Medical Center
Mount Sinai Hospital
Northwestern Memorial Hospital
OSF Little Company of Mary Medical Center
Prime Healthcare Resurrection Medical Center
Prime Healthcare Saint Francis Hospital
Prime Healthcare Saint Mary of Nazareth Hospital
Provident Hospital of Cook County
Roseland Community Hospital
Rush University Medical Center
Saint Anthony Hospital
South Shore Hospital
St. Bernard Hospital & Health Care Center
Thorek Memorial Hospital
UChicago Medicine
UI Health
West Suburban Medical Center

Each hospital listed participates in the Chicago EMS System (Region 11) and is licensed by IDPH as providing Comprehensive Emergency Services.

Updated 8/8/25

Region 11 Participating Hospitals



REGION 11 CHICAGO EMS SYSTEM POLICY	Title: Systems of Care
	Section: Transportation
	Approved: EMS Medical Directors Consortium
	Effective: November 6, 2024

SYSTEMS OF CARE

I. PURPOSE

A. To define the Systems of Care for patients transported by EMS within Region 11.

B. To deliver the right resources to the right patient in the right place at the right time.

REGION 11 EMS SYSTEMS OF CARE - HOSPITAL DESIGNATIONS

Hospital	Burn	Pediatrics	Perinatal (Obstetric & Neonatal)	STEMI & Out of Hospital Cardiac Arrest (OHCA)	Stroke	Trauma	Ventricular Assist Device (VAD)
Advocate Christ Medical Center		PCCC	Level III	STEMI Center	CSC	Level I	VAD Center
Advocate Illinois Masonic Medical Center		EDAP	Level III	STEMI Center	TSC	Level I	
Advocate Lutheran General Hospital		PCCC	Level III	STEMI Center	CSC	Level I	
Advocate Trinity Hospital			Level II	STEMI Center	PSC		
Ann & Robert H. Lurie Children's Hospital of Chicago		PCCC	NO OB SERVICES			Level I Pediatric	
Ascension Saint Joseph Hospital - Chicago		EDAP	Level III	STEMI Center	PSC		
Community First Medical Center			NO OB SERVICES	STEMI Center	PSC		
Edward Hines, Jr. Veterans Affairs Hospital			NO OB SERVICES				
Endeavor Health Swedish Hospital			Level II	STEMI Center	PSC		
Holy Cross Hospital			NO OB SERVICES		PSC		
Humboldt Park Health			Level II	STEMI Center	PSC		
Insight Hospital & Medical Center			NO OB SERVICES		PSC		
Jackson Park Hospital & Medical Center			NO OB SERVICES				
Jesse Brown Veterans Affairs Medical Center			NO OB SERVICES				
John H. Stroger, Jr. Hospital of Cook County	Burn Capable	EDAP	Level III	STEMI Center	PSC	Level I Level I Pediatric	
Loretto Hospital			NO OB SERVICES				
Loyola MacNeal Hospital		EDAP	Level II	STEMI Center	PSC		
Loyola University Medical Center	Burn Center	PCCC	Level III	STEMI Center	CSC	Level I	VAD Center
Mount Sinai Hospital		EDAP	Level III	STEMI Center	PSC	Level I	
Northwestern Memorial Hospital		EDAP	Level III	STEMI Center	CSC	Level I	VAD Center
OSF Little Company of Mary Medical Center		EDAP	Level II	STEMI Center	PSC		
Prime Healthcare Resurrection Medical Center			Level II	STEMI Center	CSC		
Prime Healthcare Saint Francis Hospital		EDAP	NO OB SERVICES	STEMI Center	PSC	Level I	
Prime Healthcare Saint Mary of Nazareth Hospital		EDAP	Level II	STEMI Center	PSC		
Provident Hospital of Cook County			NO OB SERVICES				
Roseland Community Hospital			Level II				
Rush University Medical Center		PCCC	Level III	STEMI Center	CSC		VAD Center
Saint Anthony Hospital		EDAP	Level II		PSC		
South Shore Hospital			NO OB SERVICES				
St. Bernard Hospital & Health Care Center			NO OB SERVICES				
Thorek Memorial Hospital			NO OB SERVICES				
UChicago Medicine	Burn Center		Level III	STEMI Center	CSC	Level I	VAD Center
UChicago Medicine Comer Children's Hospital		PCCC	Level III			Level I Pediatric	
UI Health		PCCC	Level III	STEMI Center	CSC		
West Suburban Medical Center		EDAP	NO OB SERVICES	STEMI Center	PSC		

PCCC: Pediatric Critical Care Center
EDAP: Emergency Department Approved for Pediatrics

CSC: Comprehensive Stroke Center
TSC: Thrombectomy Stroke Center
PSC: Primary Stroke Center

REGION 11 CHICAGO EMS SYSTEM POLICY	Title: Systems of Care
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SYSTEMS OF CARE

I. PURPOSE

A. To define the Systems of Care for patients transported by EMS within Region 11.

B. To deliver the right resources to the right patient in the right place at the right time.

"REGIONALIZATION" = ORGANIZING PATIENTS AND HEALTHCARE PRACTITIONERS INTO A SYSTEM

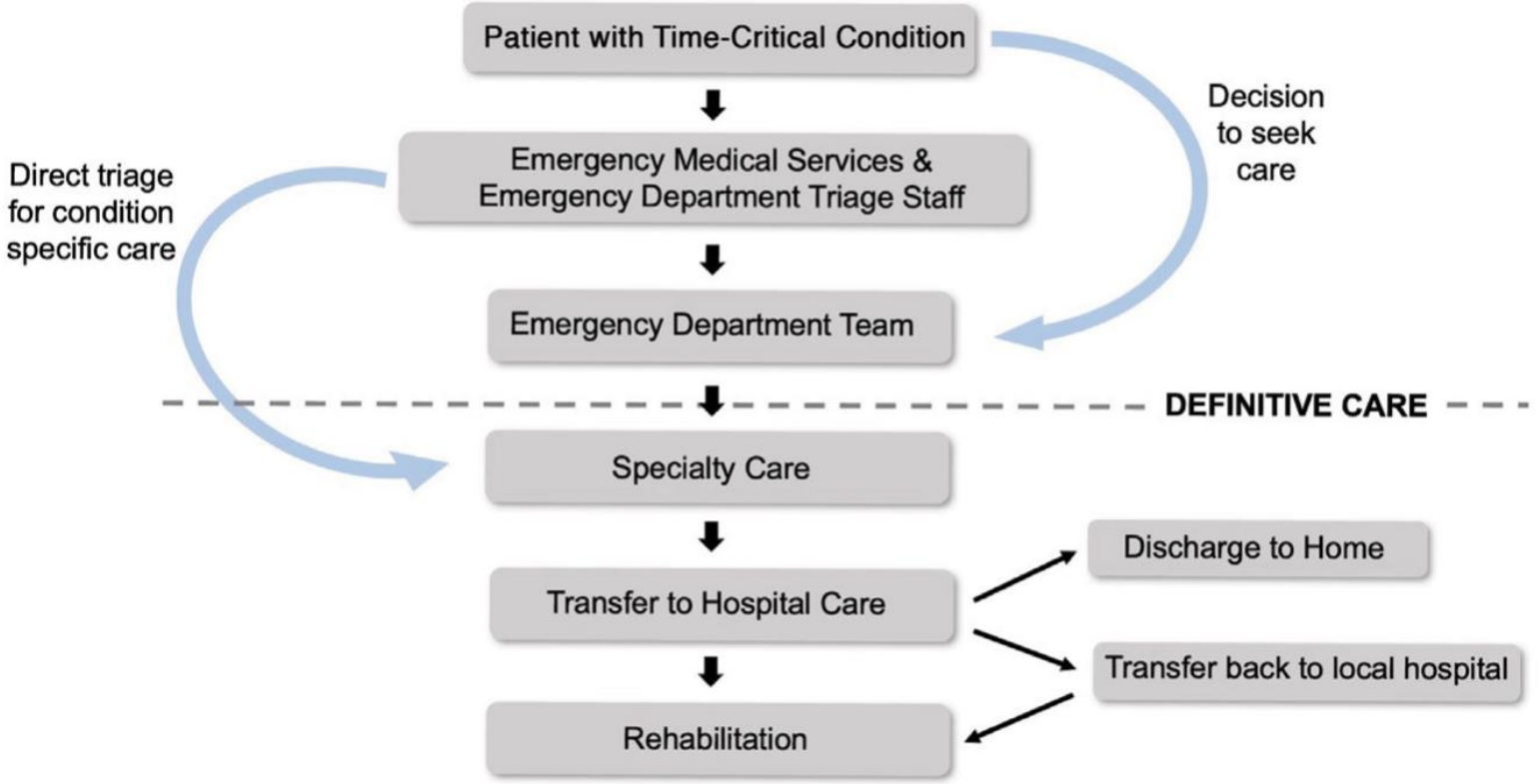
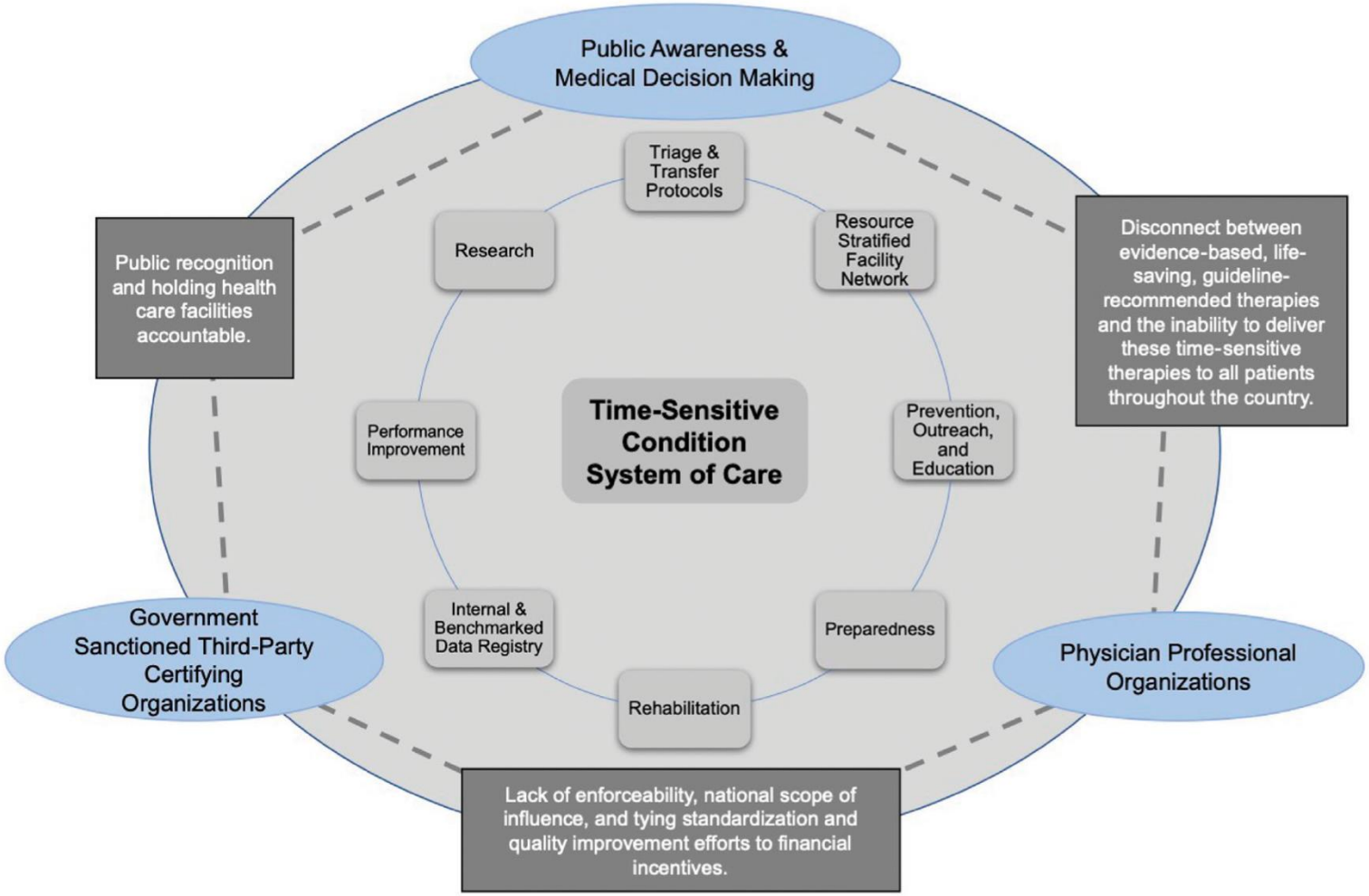


FIGURE 1 Flow diagram illustrating the standard sequencing of patient care for time-critical conditions

REGIONALIZED SYSTEMS OF ACUTE CARE

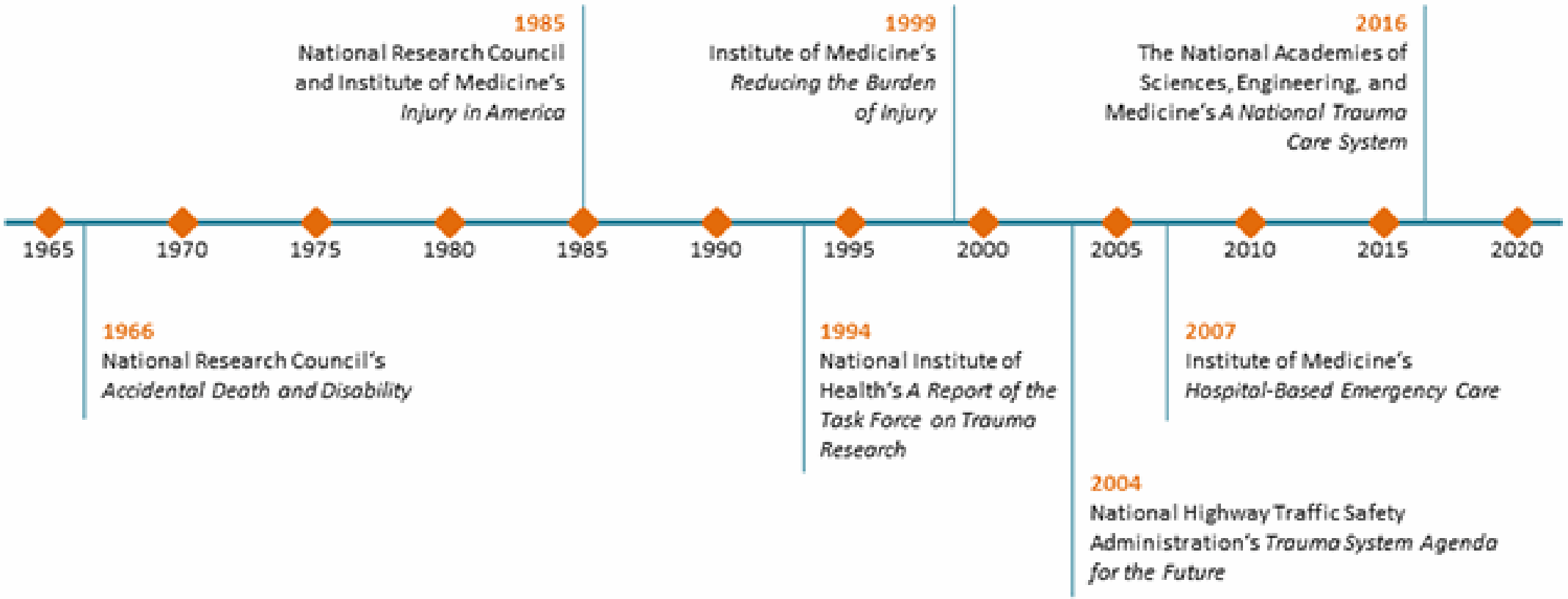


TRAUMA

FIRST IMPLEMENTED DURING CIVIL WAR 1861

- Triage
- Treatment
- Rapid transport to field hospitals
- Set the stage for injury management in future wars (and civilian trauma care)

BUILDING A NATIONAL TRAUMA SYSTEM OF CARE

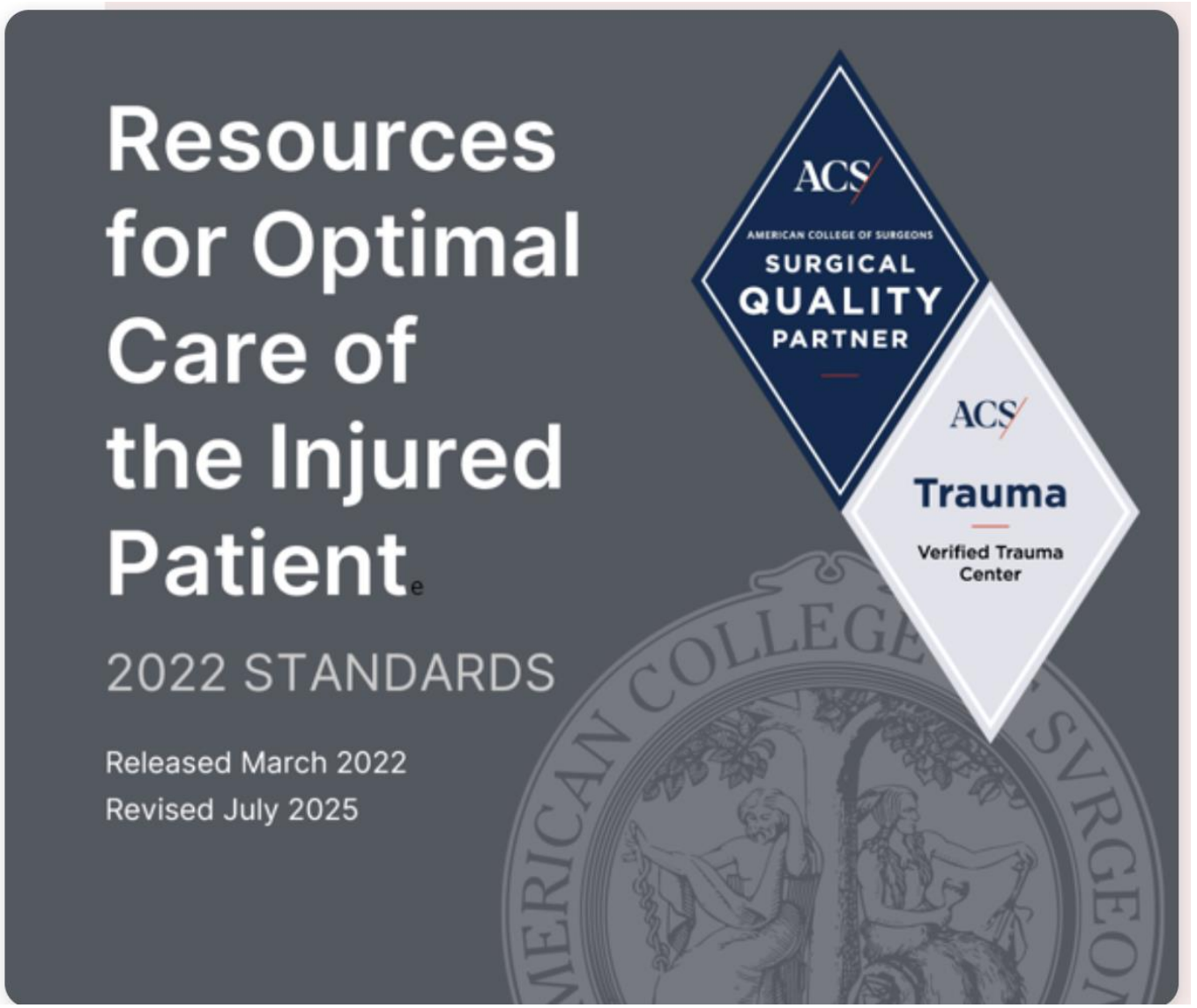


TRAUMA SYSTEM OF CARE

- The ultimate goal of this unified, integrated, strengthened trauma system is to achieve **maximum survival and maximal return to normal function following injury**

LEADERSHIP AND CRITERIA

- American College of Surgeons – Committee on Trauma (ACS – COT) - “Resources for Optimal Care of the Injured Patient”
- Designation – State agency generally follows ACS-COT standards mandated through legislative or regulatory authority for levels of trauma care, requirements of participation and associated penalties
- Verification – voluntary, evaluation process done by ASC for Level 1, II, III Trauma Centers



TRAUMA CENTER LEVELS

Table 1 Trauma center levels by the American College of Surgeons (ACS)

	Level-1	**Level-2**	**Level-3**	**Level-4**
Goal	Total care of every aspect of injury	Definitive care for all injured patients	Prompt assessment, resuscitation, surgery, intensive care and stabilization of injured patients and emergency operations.	Provide ATLS prior to transfer patients to higher level trauma center
Coverage	24 h of all specialties	24 h surgeons, neurosurgery, anaesthesiology, emergency medicine and radiology	24 h emergency medicine	Basic emergency department facilities
Volume	Minimum annual volume of severely injured patients	No minimum annual volume of severely injured patients	No minimum annual volume of severely injured patients	No minimum annual volume of severely injured patients

2021 NATIONAL GUIDELINES FOR THE FIELD TRIAGE OF INJURED PATIENTS OR "GUIDELINES"

National Guideline for the Field Triage of Injured Patients

RED CRITERIA
High Risk for Serious Injury

Injury Patterns

- Penetrating injuries to head, neck, torso, and proximal extremities
- Skull deformity, suspected skull fracture
- Suspected spinal injury with new motor or sensory loss
- Chest wall instability, deformity, or suspected flail chest
- Suspected pelvic fracture
- Suspected fracture of two or more proximal long bones
- Crushed, degloved, mangled, or pulseless extremity
- Amputation proximal to wrist or ankle
- Active bleeding requiring a tourniquet or wound packing with continuous pressure

Mental Status & Vital Signs

All Patients
- Unable to follow commands (motor GCS < 6)
- RR < 10 or > 29 breaths/min
- Respiratory distress or need for respiratory support
- Room-air pulse oximetry < 90%

Age 0–9 years
- SBP < 70mm Hg + (2 x age in years)

Age 10–64 years
- SBP < 90 mmHg or
- HR > SBP

Age ≥ 65 years
- SBP < 110 mmHg or
- HR > SBP

Patients meeting any one of the above RED criteria should be transported to the highest-level trauma center available within the geographic constraints of the regional trauma system

YELLOW CRITERIA
Moderate Risk for Serious Injury

Mechanism of Injury

- High-Risk Auto Crash
  - Partial or complete ejection
  - Significant intrusion (including roof)
    - >12 inches occupant site OR
    - >18 inches any site OR
    - Need for extrication for entrapped patient
  - Death in passenger compartment
  - Child (age 0–9 years) unrestrained or in unsecured child safety seat
  - Vehicle telemetry data consistent with severe injury
- Rider separated from transport vehicle with significant impact (eg, motorcycle, ATV, horse, etc.)
- Pedestrian/bicycle rider thrown, run over, or with significant impact
- Fall from height > 10 feet (all ages)

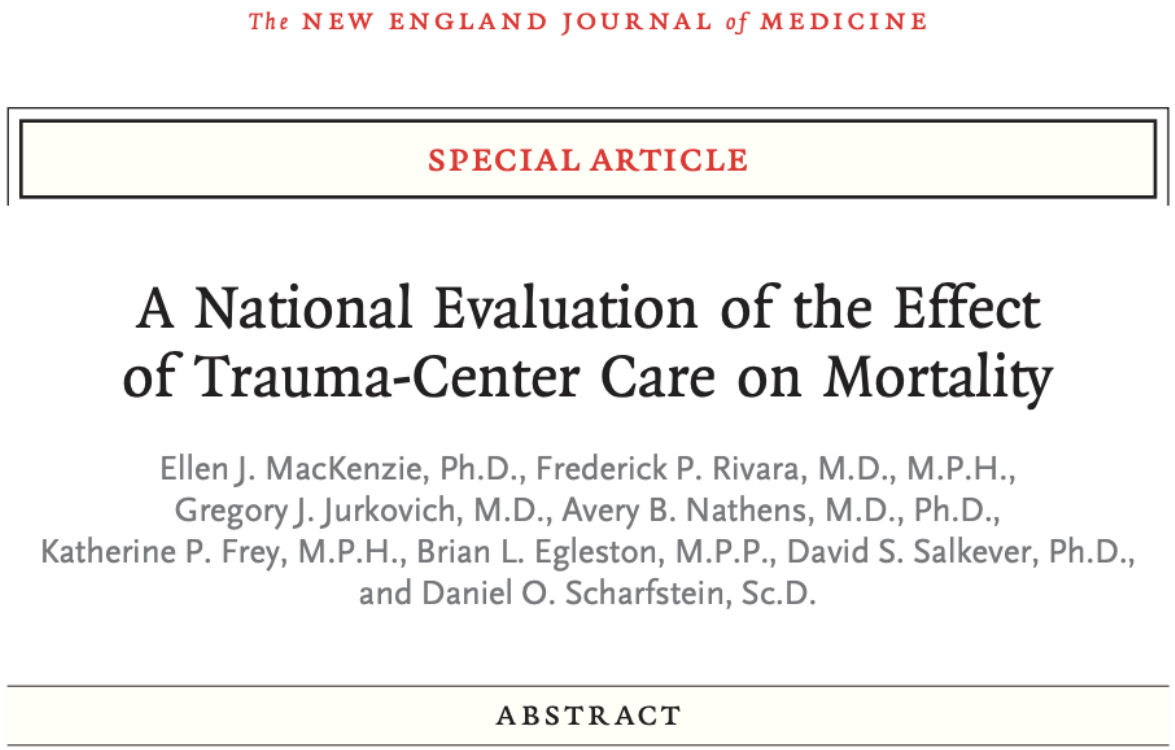
EMS Judgment

Consider risk factors, including:
- Low-level falls in young children (age ≤ 5 years) or older adults (age ≥ 65 years) with significant head impact
- Anticoagulant use
- Suspicion of child abuse
- Special, high-resource healthcare needs
- Pregnancy > 20 weeks
- Burns in conjunction with trauma
- Children should be triaged preferentially to pediatric capable centers

If concerned, take to a trauma center

Patients meeting any one of the YELLOW CRITERIA WHO DO NOT MEET RED CRITERIA should be preferentially transported to a trauma center, as available within the geographic constraints of the regional trauma system (need not be the highest-level trauma center)

OUTCOMES



The NEW ENGLAND JOURNAL of MEDICINE

SPECIAL ARTICLE

A National Evaluation of the Effect of Trauma-Center Care on Mortality

Ellen J. MacKenzie, Ph.D., Frederick P. Rivara, M.D., M.P.H., Gregory J. Jurkovich, M.D., Avery B. Nathens, M.D., Ph.D., Katherine P. Frey, M.P.H., Brian L. Egleston, M.P.P., David S. Salkever, Ph.D., and Daniel O. Scharfstein, Sc.D.

ABSTRACT

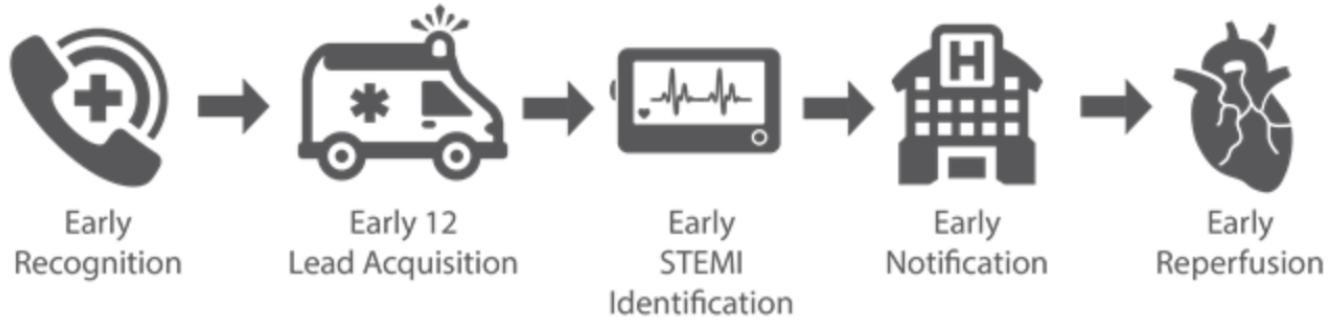
- From national data, risk adjusted mortality from trauma was 7.6% in designated Level 1 Trauma. Centers vs. 9.5% in undesignated trauma centers
- Meta-analysis showed 15% reduction in mortality after trauma system implementation

STEMI AND CARDIAC ARREST

Systems of Care Overview and Implementation Strategies

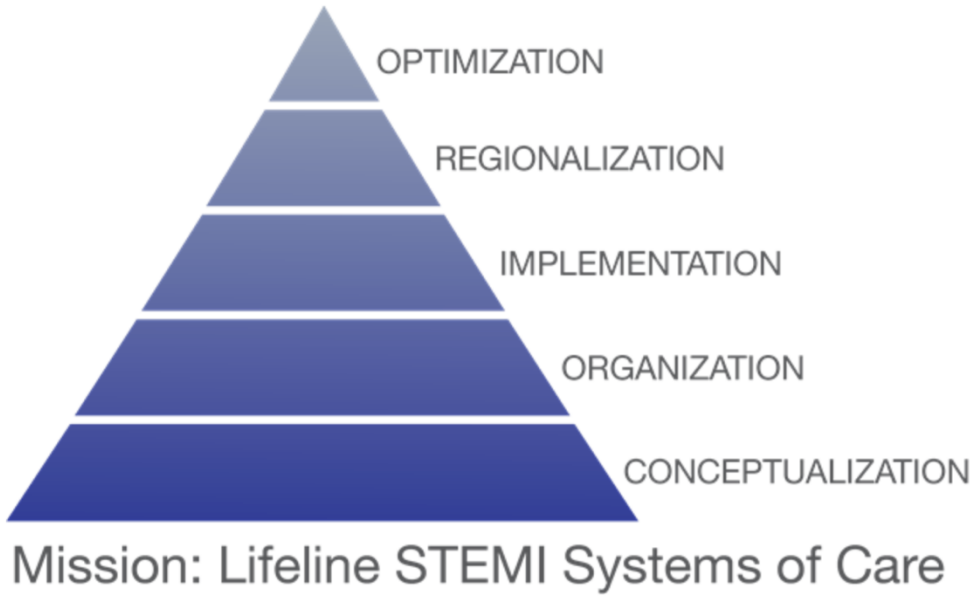
Why Mission: Lifeline®?

- To decrease the mortality and morbidity of the estimated 785,000 Americans who will have their first heart attack each year and the 470,000 Americans who will have a recurrent heart attack.
- To collaboratively coordinate care among 911 dispatch, EMS, interfacility transport teams, and the destination hospitals



- To aid in meeting AHA/TJC Primary Heart Attack and Acute Heart Attack Ready Certification Requirements
- To Save Lives

Mission: Lifeline Stages of STEMI Systems of Care Implementation

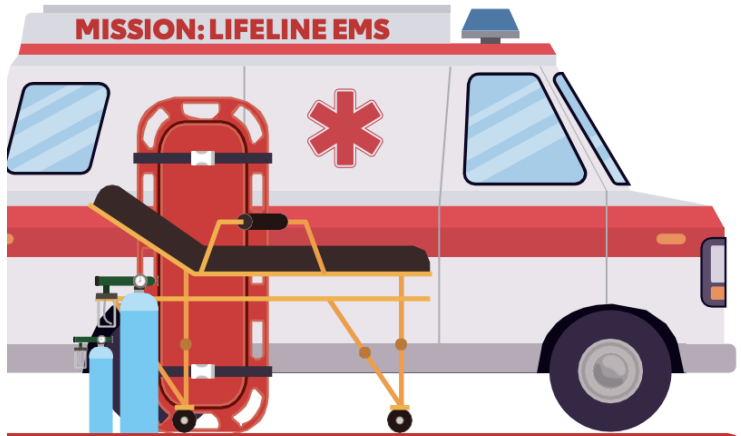


Conceptualization	• Identify all contributors to the system of care • Propose an implementation plan
Organization	• Form a small executive task force • Identify known gaps in STEMI care for the region • Gain consensus for uniform data collection • Plan implementation strategies and activities • Set measurable goals
Implementation	• Announce implementation plans, strategies, activities and goals • Each STEMI Receiving Center, EMS agency and STEMI Referring Hospital surveys for their baseline state • Identify areas requiring process change at the individual facility/agency level • Implement process changes • Share strategies • Perform continuous evaluation of process improvement activities
Regionalization	• Coordinate implementation strategies, activities and goals at a regional level • Survey regional processes • Convene stakeholders to adopt and implement like processes across the region • Share data (anonymized or identified)
Optimization	• Perform continuous evaluation of regional process improvement activities • Re-survey regional processes

American Heart Association.
Mission:Lifeline®
EMS

2024 EMS RECOGNITION CRITERIA

(based on 2023 data)



The American Heart Association is excited to continue recognizing **EMS** agencies **for applying the** most up-**to**-date evidence-based treatment guidelines to improve care and outcomes in the communities they serve.

Prehospital personnel are the first providers of care **to patients suffering** from cardiac emergencies. **The role of EMS in the** system-**of**-care **for these patients** is crucial and often sets the course for the patient's outcome.

For additional **Mission: Lifeline EMS** Recognition information, please visit www.heart.org/missionlifeline or email MissionLifeline@heart.org.

Mission: Lifeline EMS Award

AHAEMS1	Pre-arrival notification for suspected stroke
AHAEMS2	Documentation of last known well for patients with suspected stroke
AHAEMS3	Evaluation of blood glucose for patients with suspected stroke
AHAEMS4	Stroke Screen Performed and Documented
AHAEMS5	12-lead ECG performed within 10 minutes for suspected heart attack
AHAEMS6	Aspirin administration for STEMI-positive ECG
AHAEMS7	Pre-arrival notification ≤ 10 minutes for STEMI positive ECG

Volume Criteria: At least 4 patients for the calendar year (>1 STEMI patient and >1 Stroke Patient)

Mission: Lifeline System of Care Target Heart Attack Award

AHAEMS8	EMS First Medical Contact (FMC) to PCI ≤ 90 minutes for Patients with STEMI
AHAEMS9	Door to Thrombolytic Administration ≤ 30 minutes for Patients with STEMI

Volume Criteria: At least 4 STEMI patients for the calendar year

AWARD LEVELS

GOLD

Aggregated annual compliance of ≥75% for all required measures and Silver or Gold award in 2022

SILVER

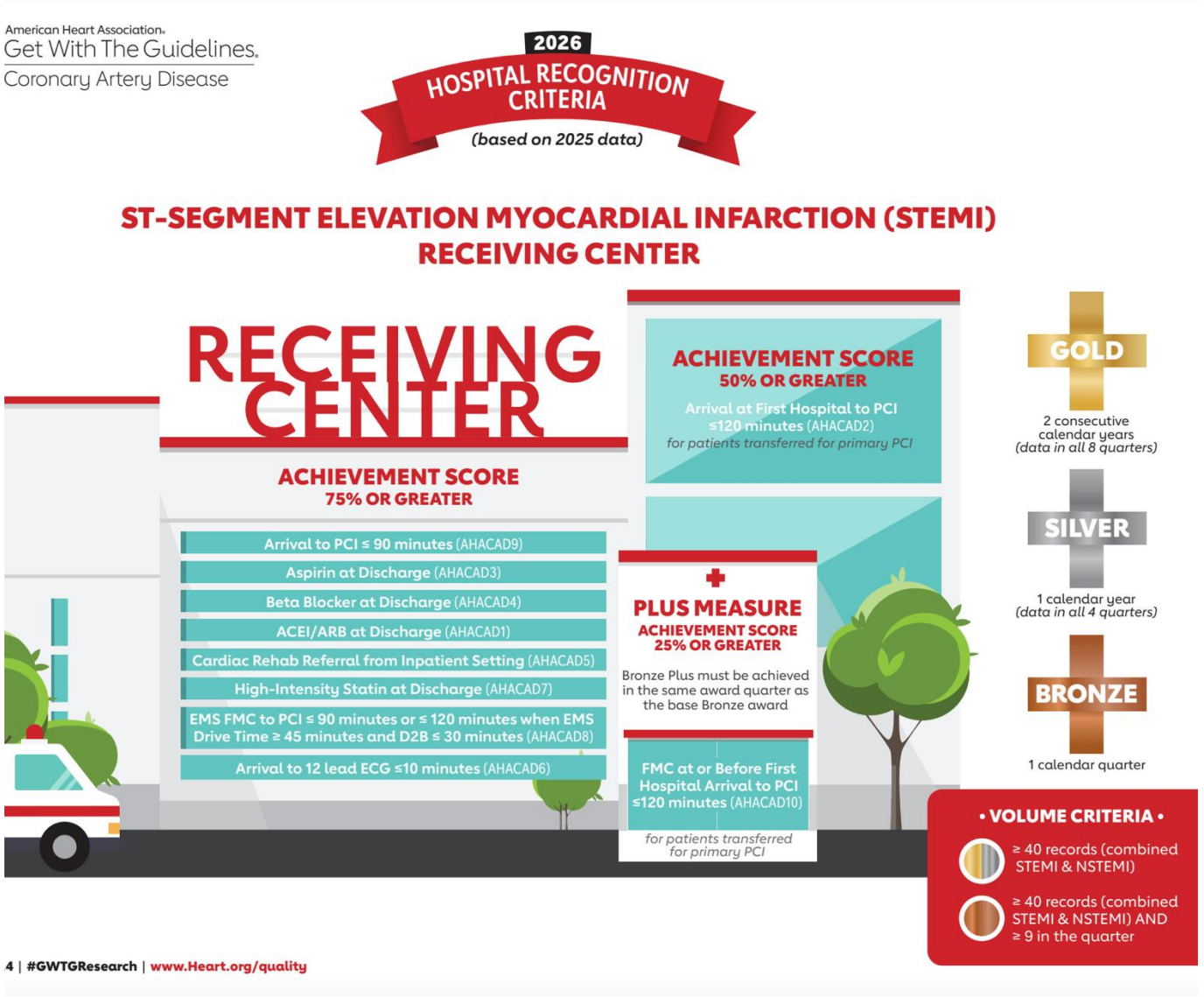
Aggregated annual compliance of ≥75% for all required measures

BRONZE

At least one calendar quarter of compliance ≥75% for all required measures

LEADERSHIP AND CRITERIA

- AHA and the American College of Cardiology (ACC) – Mission Lifeline Recognition Program, the Joint Commission - STEMI/Cardiac Program
- Centers that achieve certain time and guideline goals receive recognition on Gold, Silver, and Bronze levels respective to outcomes and compliance level



Circulation
Volume 144, Issue 20, 16 November 2021; Pages e310-e327
https://doi.org/10.1161/CIR.0000000000001025

AHA POLICY STATEMENT

Systems of Care for ST-Segment–Elevation Myocardial Infarction: A Policy Statement From the American Heart Association

Table 4. Level of Care Characteristics*

Heart attack level	AHAR hospital	PHAC	CHAC
Alternative name of heart attack level	Level III	Level II	Level I
Designation characteristics	24/7/365 STEMI referring hospital	24/7/365 PCI capable	24/7/365 STEMI receiving center: cardiac surgery on site, cardiogenic shock, advanced hemodynamic support, OHCA support
Annual PCI volume (institutional), n†‡	NA	≥150	≥400
Annual primary PCI institutional volume, n‡	NA	≥36	≥36
Annual PCI volume (provider), n‡	NA	≥50	≥50
Annual primary PCI volume (provider), n‡	NA	≥11	≥11
Circulatory support (IABP)	NA	Required	Required
Advanced circulatory support (eg, ECMO, LVAD)	NA	Not required	Required
Cardiac surgery on site	NA	Not required	Required
Cardiogenic shock support	NA	Not required	Required
Comprehensive postarrest care, including TTM	TTM required	TTM required	Comprehensive postarrest care including TTM required
Rapid response team	NA	Required	Required
Cardiothoracic intensive care unit	NA	Not required	Required
Coronary intensive care unit	NA	Required	Required
Cardiac rehabilitation services	Locally available	Locally available	Locally available
Fibrinolytic administration capability	Required	Required	Required
National AMI data registry participation	Required	Required	Required
Transfer agreement	Required transfer agreement in place with Level I or Level II facilities	Required transfer agreement in place with Level I (PHAC) when advanced levels of critical care needed	Required transfer agreements in place to accept patients from Level II and III facilities requiring advanced care
Regional system of care engagement	Required	Required	Required
Other criteria			Air medical transport with advanced circulatory support (eg, ECMO, LVAD) services

24/7/365 indicates 24 h/d, 7 d/wk, 365 d/y; AHAR, acute heart attack–ready; AMI, acute myocardial infarction; CHAC, comprehensive heart attack center; ECMO, extracorporeal membrane oxygenation; IABP, intra-aortic balloon pump; LVAD, left ventricular assist device; NA, not applicable; OHCA, out-of-hospital cardiac arrest; PCI, percutaneous coronary intervention; PHAC, primary heart attack center; STEMI, ST-segment–elevation myocardial infarction; and TTM, targeted temperature management.

*Requirements must be consistent with the most recent American Heart Association guidelines and statements.

†Definitive health care data for 2018 all-payer STEMI claims (AHAR hospital average annual volume, 96; PHAC average annual volume, 362).

‡American College of Cardiology/American Heart Association clinical competence statement 2013 (hospital and operators must meet volume or alternatives stated in the document).

Circulation

AHA SCIENTIFIC STATEMENT

Out-of-Hospital Cardiac Arrest Resuscitation Systems of Care

A Scientific Statement From the American Heart Association

ABSTRACT: The American Heart Association previously recommended implementation of cardiac resuscitation systems of care that consist of interconnected community, emergency medical services, and hospital efforts to measure and improve the process of care and outcome for patients with cardiac arrest. In addition, the American Heart Association proposed a national process to develop and implement evidence-based guidelines for cardiac resuscitation systems of care. Significant experience has been gained with implementing these systems, and new evidence has accumulated. This update describes recent advances in the science of cardiac resuscitation systems and evidence of their effectiveness, as well as recent progress in dissemination and implementation throughout the United States. Emphasis is placed on evidence published since the original recommendations (ie, including and since 2010).

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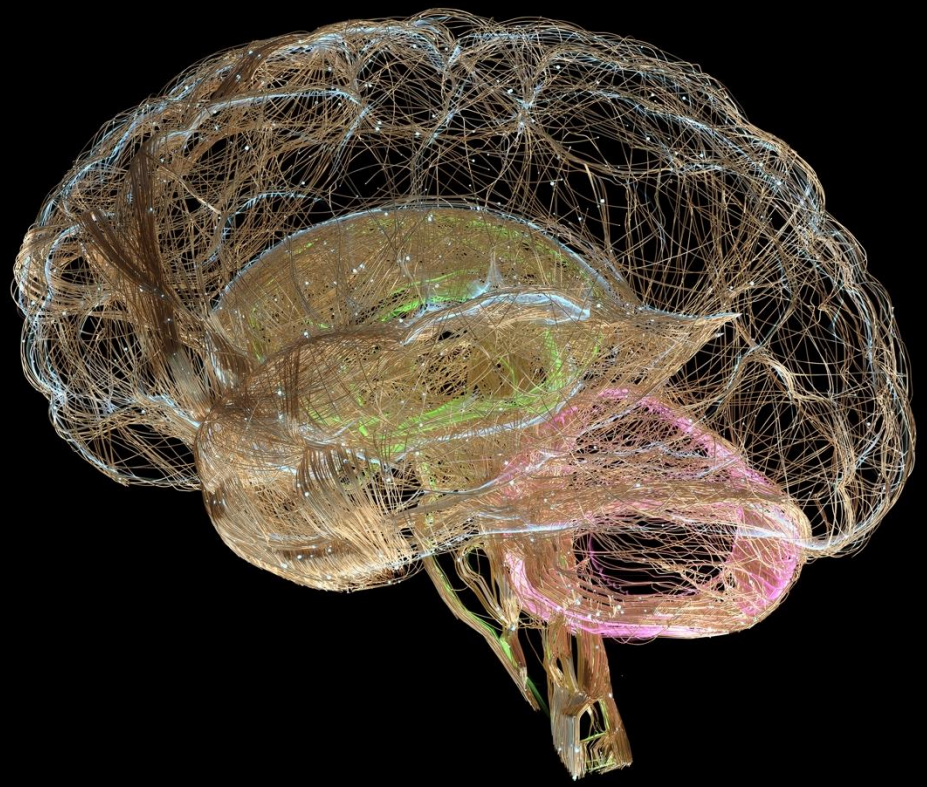
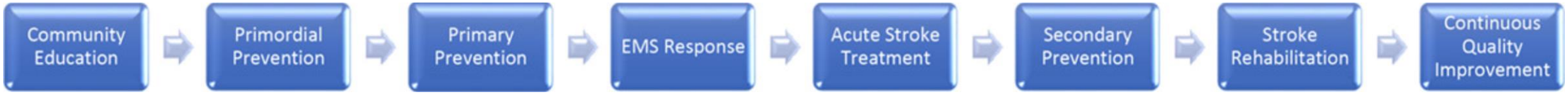
OUTCOMES

- Decreased chance of survival if PCI is delayed > 30 minutes
- Significant reduction in mortality in hospitals using process measures between EMS and hospitals for First Medical Contact to device time < 90 minutes

STROKE



STROKE SYSTEMS OF CARE



LEADERSHIP AND CRITERIA

- The Joint Commission (TJC) - Stroke Program with participation from the American Heart Association (AHA) and the American Stroke Association
- Specifications Manual for Joint Commission National Quality Standards
- Voluntary verification process through a Disease-Specific certification program

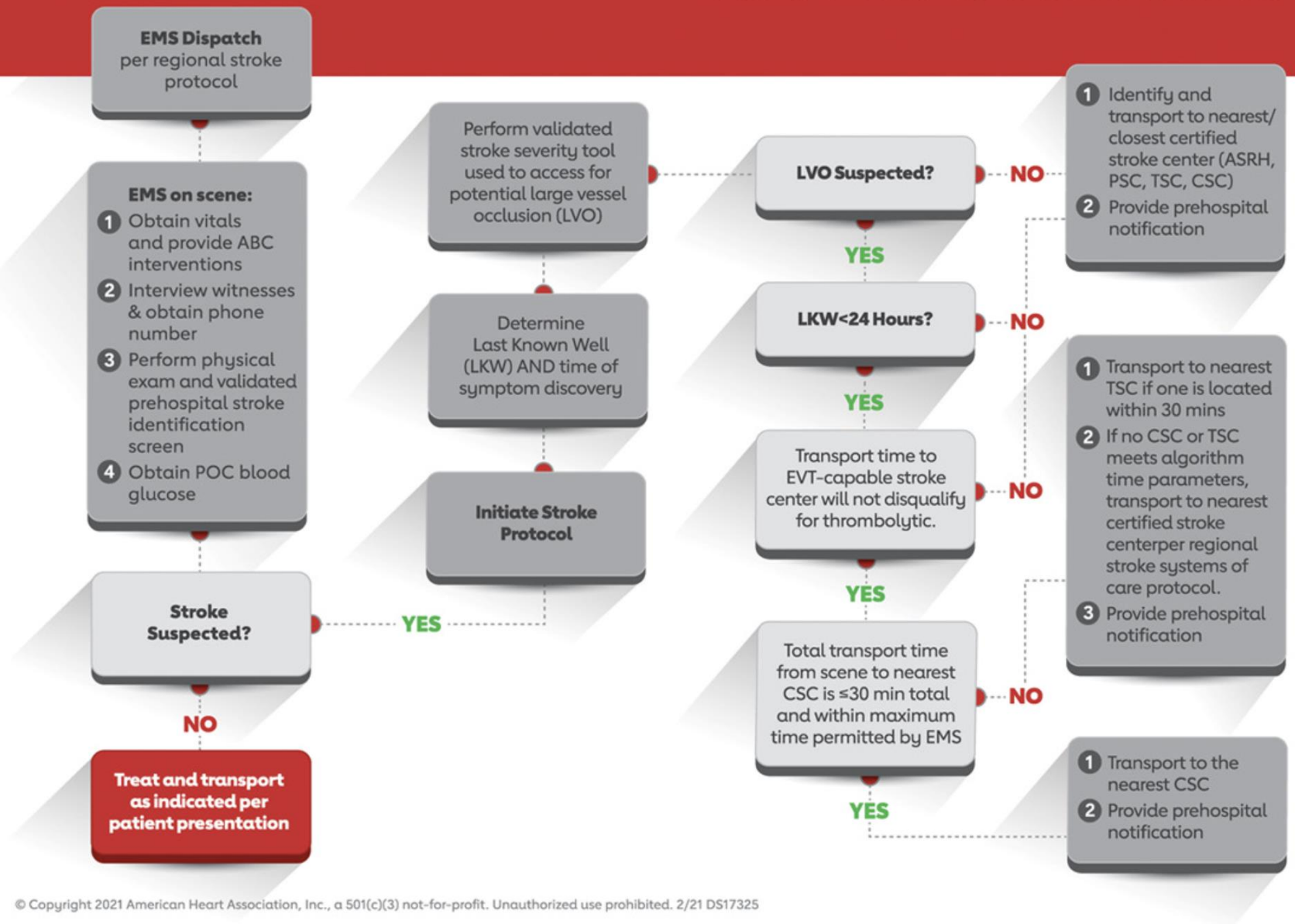
Table 1. Levels and Capabilities of Hospital Stroke Designation

	ASRH	PSC	TSC	CSC
Location	Likely rural	Likely urban/suburban	Likely urban	Likely urban
Stroke team accessible/available 24 h/d, 7 d/wk	Yes	Yes	Yes	Yes
Noncontrast CT available 24 h/d, 7 d/wk	Yes	Yes	Yes	Yes
Advanced imaging (CTA/CTP/MRI/MRA/MRP) available 24 h/d, 7 d/wk	No	Yes	Yes	Yes
Intravenous alteplase capable	Yes	Yes	Yes	Yes
Thrombectomy capable	No	Possibly	Yes	Yes
Diagnoses stroke pathogenesis/manage poststroke complications	Unlikely	Yes	Yes	Yes
Admits hemorrhagic stroke	No	Possibly	Possibly	Yes
Clips/coils ruptured aneurysms	No	Possibly	Possibly	Yes
Dedicated stroke unit	No	Yes	Yes	Yes
Dedicated neurocritical care unit/ICU	No	Possibly	Possibly	Yes

ASRH indicates acute stroke-ready hospital; CSC, comprehensive stroke center; CT, computed tomography; CTA, computed tomography angiography; CTP, computed tomography perfusion; ICU, intensive care unit; MRA, magnetic resonance angiography; MRI, magnetic resonance imaging; MRP, magnetic resonance perfusion; PSC, primary stroke center; and TSC, thrombectomy-capable stroke center.

American Heart Association.
Mission:Lifeline®
Stroke

EMERGENCY MEDICAL SERVICES ACUTE STROKE ROUTING



American Heart Association.
Get With The Guidelines.
Stroke

2025 HOSPITAL RECOGNITION CRITERIA

(based on 2024 data)

American Heart Association.
Target: Stroke

ACHIEVEMENT MEASURES >85% OR GREATER

GOLD
2 consecutive calendar years

SILVER
1 calendar year

BRONZE
1 calendar quarter and ≥30 patients

QUALITY MEASURES + AWARD

≥75% on at least 4 measures
*Must achieve Silver or Gold to be eligible

- **Dysphagia Screening** (AHASTR8)
- **Stroke Education** (AHASTR12)
- **Assessed for Rehabilitation** (AHASTR11)
- **LDL Documented** (AHASTR9)
- **NIHSS Reported** (AHASTR10)
- **Door to Needle ≤60 minutes** (AHASTR13)

TARGET: STROKE

(Minimum of 6 patients to be eligible)

HONOR ROLL
75% of applicable patients (AHASTR13)
Door-to-Needle ≤60 minutes

HONOR ROLL ELITE
85% of applicable patients (AHASTR13)
Door-to-Needle ≤60 minutes

HONOR ROLL ELITE PLUS

75% of applicable patients
Door-to-Needle ≤45 minutes
(AHASTR49)

&

50% of applicable patients
Door-to-Needle ≤30 minutes
(AHASTR48)

HONOR ROLL ADVANCED THERAPY
50% of applicable patients

Door-to-Device ≤90 minutes for Direct Arriving Patients

&

≤60 minutes for Transfer Patients (Within 6 hours or 24 hours)
(AHASTR114 & AHASTR115)


BURN

Guidelines for Burn Patient Referral

(Advice on Transfer and Consultation)

- These guidelines are designed to be used to aid in clinical decision making. If you have sustained a burn injury, please seek medical advice from a medical professional.
- Local and regional infrastructure, resources, and relationships may determine the necessity and timeliness of burn center referral.
- These guidelines are not meant to be definitive care recommendations. They may facilitate building the proper referral network within the local healthcare community.

	Immediate Consultation with Consideration for Transfer	Consultation Recommendation
Thermal Burns	• Full thickness burns • Partial thickness ≥10% TBSA* • Any deep partial or full thickness burns involving the face, hands, genitalia, feet, perineum, or over any joints • Patients with burns and other comorbidities • Patients with concomitant traumatic injuries • Poorly controlled pain	• Partial thickness burns <10% TBSA* • All potentially deep burns of any size
Inhalation Injury	• All patients with suspected inhalation injury	• Patients with signs of potential inhalation such as facial flash burns, singed facial hairs, or smoke exposure
Pediatrics (≤14 years, or <30 kg)	• All pediatric burns may benefit from burn center referral due to pain, dressing change needs, rehabilitation, patient/caregiver needs, or non-accidental trauma	
Chemical Injuries	• All chemical injuries	
Electrical Injuries	• All high voltage (≥1,000V) electrical injuries • Lightning injury	• Low voltage (<1,000V) electrical injuries should receive consultation and consideration for follow-up in a burn center to screen for delayed symptom onset and vision problems

LEADERSHIP AND CRITERIA

- Self-designation and American Burn Association (ABA) verification with Burn Center Verification Review Program – Verification Criteria
- Specialized Unit + ICU beds
- Transfer agreements for trauma care
- Surgeon and care team ratios
- Rehabilitation services, PT/OT, social and psych

OUTCOMES

- Regionalization of burn care in New York associated with care for patients in designated facilities in over 75% of the cases and a reduction in mortality by almost 50%

> Surg Infect (Larchmt). 2009 Oct;10(5):441-5. doi: 10.1089/sur.2009.050.

The development of a regional system for care of the burn-injured patients

Roger W Yurt [1], Palmer Q Bessey

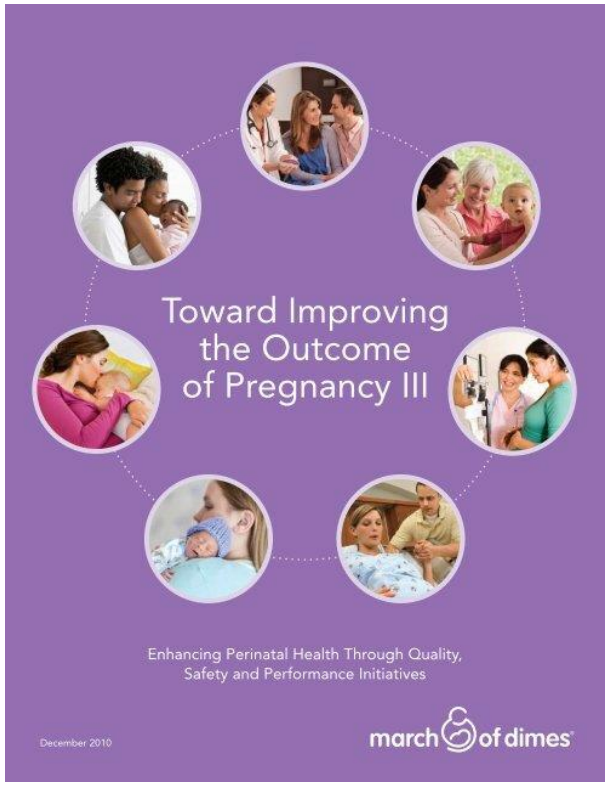
Affiliations + expand

PMID: 19943776 DOI: 10.1089/sur.2009.050

PERINATAL

LEADERSHIP AND CRITERIA

- **American Academy of Pediatrics – Levels of Neonatal Care, American Academy of Pediatrics Policy Statement**
- Recommendations for levels of perinatal care established in consortium with the March of Dimes through "Toward Improving the Outcome of Pregnancy (TOIC)
- These recommendations adopted by state perinatal programs and networks
- No national verifying agency



> Obstet Gynecol. 1975 Oct;46(4):375-84.

Toward improving the outcome of pregnancy Recommendations for the regional development of perinatal health services

G M Ryan Jr

PMID: 1165870

American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN™

FROM THE AMERICAN ACADEMY OF PEDIATRICS

Organizational Principles to Guide and Define the Child Health Care System and/or Improve the Health of all Children

POLICY STATEMENT

Levels of Neonatal Care

This Policy Statement was reaffirmed December 2021.

COMMITTEE ON FETUS AND NEWBORN

KEY WORDS

neonatal intensive care, high-risk infant, regionalization, maternal and child health, health policy, very low birth weight infant, hospital newborn care services, nurseries

ABBREVIATIONS

AAP—American Academy of Pediatrics
aOR—adjusted odds ratio
CI—confidence interval
CON—certificate of need
ELBW—extremely low birth weight
TIOP—"Toward Improving the Outcome of Pregnancy"
VLBW—very low birth weight

abstract

FREE

Provision of risk-appropriate care for newborn infants and mothers was first proposed in 1976. This updated policy statement provides a review of data supporting evidence for a tiered provision of care and reaffirms the need for uniform, nationally applicable definitions and consistent standards of service for public health to improve neonatal outcomes. Facilities that provide hospital care for newborn infants should be classified on the basis of functional capabilities, and these facilities should be organized within a regionalized system of perinatal care. *Pediatrics* 2012;130:587–597

TABLE 1 Definitions, Capabilities, and Provider Types: Neonatal Levels of Care

Level of Care	Capabilities	Provider Types[a]
Level I Well newborn nursery	• Provide neonatal resuscitation at every delivery • Evaluate and provide postnatal care to stable term newborn infants • Stabilize and provide care for infants born 35–37 wk gestation who remain physiologically stable • Stabilize newborn infants who are ill and those born at <35 wk gestation until transfer to a higher level of care	Pediatricians, family physicians, nurse practitioners, and other advanced practice registered nurses
Level II Special care nursery	Level I capabilities plus: • Provide care for infants born ≥32 wk gestation and weighing ≥1500 g who have physiologic immaturity or who are moderately ill with problems that are expected to resolve rapidly and are not anticipated to need subspecialty services on an urgent basis • Provide care for infants convalescing after intensive care • Provide mechanical ventilation for brief duration (<24 h) or continuous positive airway pressure or both • Stabilize infants born before 32 wk gestation and weighing less than 1500 g until transfer to a neonatal intensive care facility	Level I health care providers plus: Pediatric hospitalists, neonatologist, and neonatal nurse practitioners.
Level III NICU	Level II capabilities plus: • Provide sustained life support • Provide comprehensive care for infants born <32 wks gestation and weighing <1500 g and infants born at all gestational ages and birth weights with critical illness • Provide prompt and readily available access to a full range of pediatric medical subspecialists, pediatric surgical specialists, pediatric anesthesiologists, and pediatric opthalmologists • Provide a full range of respiratory support that may include conventional and/or high-frequency ventilation and inhaled nitric oxide • Perform advanced imaging, with interpretation on an urgent basis, including computed tomography, MRI, and echocardiography	Level II health care providers plus: Pediatric medical subspecialists[b], pediatric anesthesiologists[b], pediatric surgeons, and pediatric opthalmologists[b].
Level IV Regional NICU	Level III capabilities plus: • Located within an institution with the capability to provide surgical repair of complex congenital or acquired conditions • Maintain a full range of pediatric medical subspecialists, pediatric surgical subspecialists, and pediatric anesthesiologists at the site • Facilitate transport and provide outreach education	Level III health care providers plus: Pediatric surgical subspecialists

[a] Includes all providers with relevant experience, training, and demonstrated competence.
[b] At the site or at a closely related institution by prearranged consultative agreement.

NEONATAL/PERINATAL LEVEL	ILLINOIS DEFINITION	AAP DEFINITION
Level 0	No perinatal services provided	Not Applicable
Level I	≥ 36 weeks gestation; Infant ≥ 2500 Grams, no risk factors	≥ 35 weeks gestation who are physiologically stable
Level II	≥ 32 weeks gestation; ≥ 1500 grams; ≤ 6 hours ventilation	≥ 32 weeks gestation; ≥ 1500 grams; < 24 hours ventilation
Level II with Extended Neonatal Capabilities	≥ 30 weeks gestation; ≥ 1250 grams; assisted ventilation	Not Applicable
Level III	Complex healthcare issues	< 32 weeks; < 1500 grams; have medical or surgical conditions
Level IV	Not Applicable	Additional capabilities and experience in the care of the most complex and critically ill newborns infants

OUTCOMES

- Meta-analysis demonstrated significantly worse outcomes for very low birth weight and very preterm infants born at level 1 and level 2 centers compared to higher level centers
- Significant benefit for preterm infants when studied at a state level
- De-regionalization trends have negatively affected care outcomes

Meta-Analysis > Neonatology. 2025;122(Suppl 1):245-261. doi: 10.1159/000541384.
Epub 2024 Nov 6.

The Effectiveness of Regionalization of Perinatal Care and Specific Facility-Based Interventions: A Systematic Review

Ayesha Arshad Ali [1], Hamna Amir Naseem [1], Zoha Allahuddin [1], Rahima Yasin [1], Maha Azhar [1], Sawera Hanif [1], Jai K Das [1 2], Zulfiqar A Bhutta [1 3]

Affiliations + expand

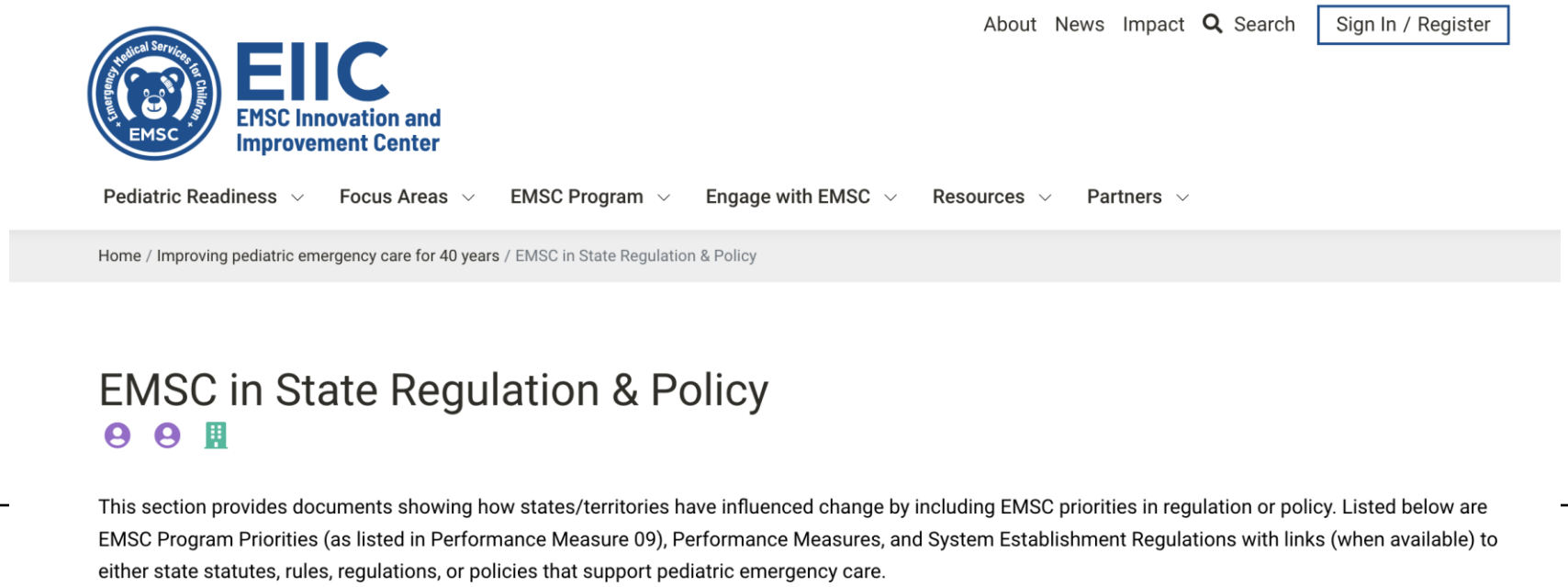
PMID: 39504943 PMCID: PMC11875419 DOI: 10.1159/000541384

PEDIATRICS


EMERGENCY RESPONSE
PREHOSPITAL CARE
HOSPITAL CARE
INTERFACILITY TRANSPORT
REHABILITATION
INJURY PREVENTION
Emergency Medical Services for Children
EMSC

PEDIATRICS SYSTEMS OF CARE

- Beyond trauma
- Beyond perinatal
- Importance of facility categorization



EMS for Children (EMSC) Program

Facility Recognition Process

Pediatric Readiness

Hospital Designations

Hospitals Designated as PCCC, EDAP, and SEDP

Since 1998, more than 100 Illinois hospitals and three Indiana hospitals have received recognition by the Illinois Department of Public Health for having the essential resources and capabilities in place to meet the emergency and critical care needs of seriously ill and injured children.

Hospitals are designated at one of the following three levels:

- Pediatric Critical Care Center (PCCC)
  - Note that the PCCC level also needs to meet EDAP requirements as well
- Emergency Department Approved for Pediatrics (EDAP)
- Standby Emergency Department for Pediatrics (SEDP)

Published in final edited form as:
Pediatrics. 2010 December ; 126(6): 1182–1190. doi:10.1542/peds.2010-1119.

The regionalization of pediatric health care: a state of the art review

Scott A. Lorch, MD, MSCE[1,2,3,4,5], **Sage Myers, MD**[1], and **Brendan Carr, MD**[2,5]

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[2]The University of Pennsylvania School of Medicine, Philadelphia, PA

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Abstract

Regionalization of health care is a method to provide high quality, cost-efficient health care to the largest number of patients. Within pediatric medicine, regionalization has been undertaken in two areas: neonatal intensive care and pediatric trauma care. The supporting literature for the regionalization of these areas demonstrates the range of studies within this field: studies of neonatal intensive care primarily compare different levels of hospitals, while studies of pediatric trauma care primarily compare the impact of institutionalizing a trauma system in a single geographic region. However, neither specialty has been completely regionalized, possibly because of methodologic deficiencies in the evidence base. Research with improved study designs, controlling for differences in illness severity between different hospitals; a systems approach to regionalization studies; and measurement of parental preferences will improve the understanding of the advantages and disadvantages of regionalizing pediatric medicine and ultimately optimize the outcomes of children.

JAMA Network Open

Original Investigation | Emergency Medicine

State and National Estimates of the Cost of Emergency Department Pediatric Readiness and Lives Saved

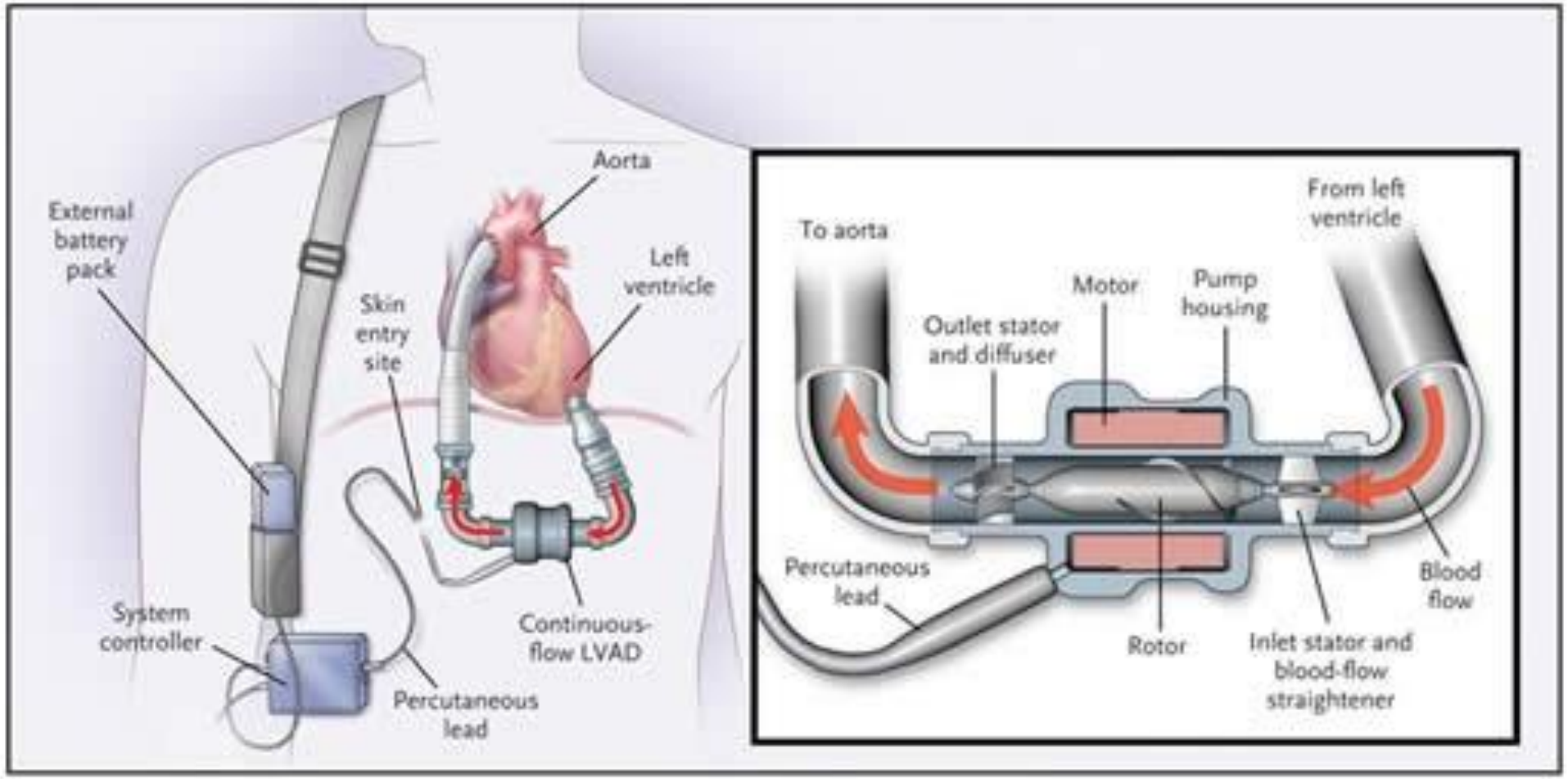
Craig D. Newgard, MD, MPH; Amber Lin, MS; Jeremy D. Goldhaber-Fiebert, PhD; Katherine E. Remick, MD; Marianne Gausche-Hill, MD; Randall S. Burd, MD, PhD; Susan Malveau, MS; Jennifer N. B. Cook, GCPH; Peter C. Jenkins, MD, MSc; Stefanie G. Ames, MD, MS; N. Clay Mann, PhD, MS; Nina E. Glass, MD; Hilary A. Hewes, MD; Mary Fallat, MD; Apoorva Salvi, MS; Brendan G. Carr, MD, MS; K. John McConnell, PhD; Caroline Q. Stephens, MD, MPH; Rachel Ford, MPH; Marc A. Auerbach, MD; Sean Babcock, MS; Nathan Kuppermann, MD, MPH

CONCLUSIONS AND RELEVANCE In this cohort study, raising all EDs to high pediatric readiness was estimated to prevent more than one-quarter of deaths among children receiving emergency services, with modest financial investment. State and national policies that raise ED pediatric readiness may save thousands of children's lives each year.

JAMA Network Open. 2024;7(11):e2442154. doi:10.1001/jamanetworkopen.2024.42154

VAD

VENTRICULAR ASSIST DEVICE



VENTRICULAR ASSIST DEVICE

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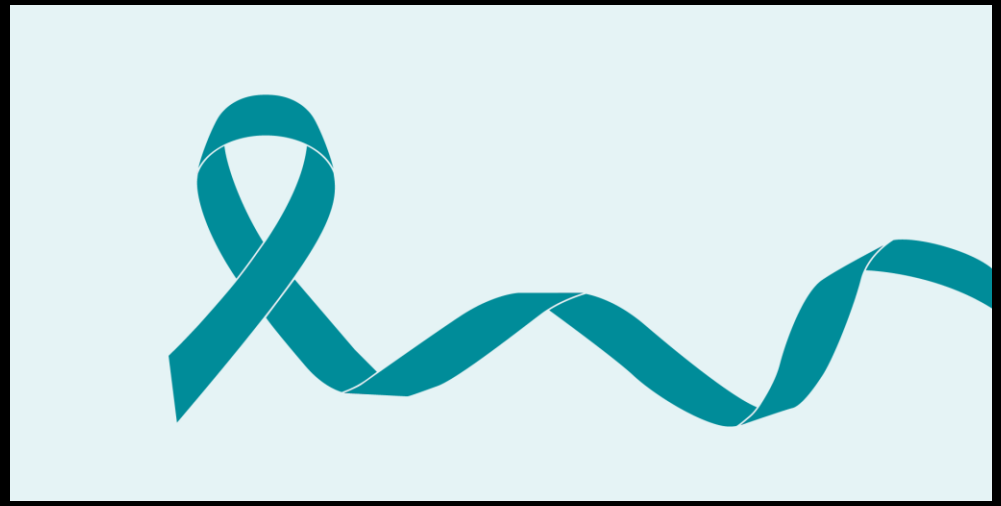
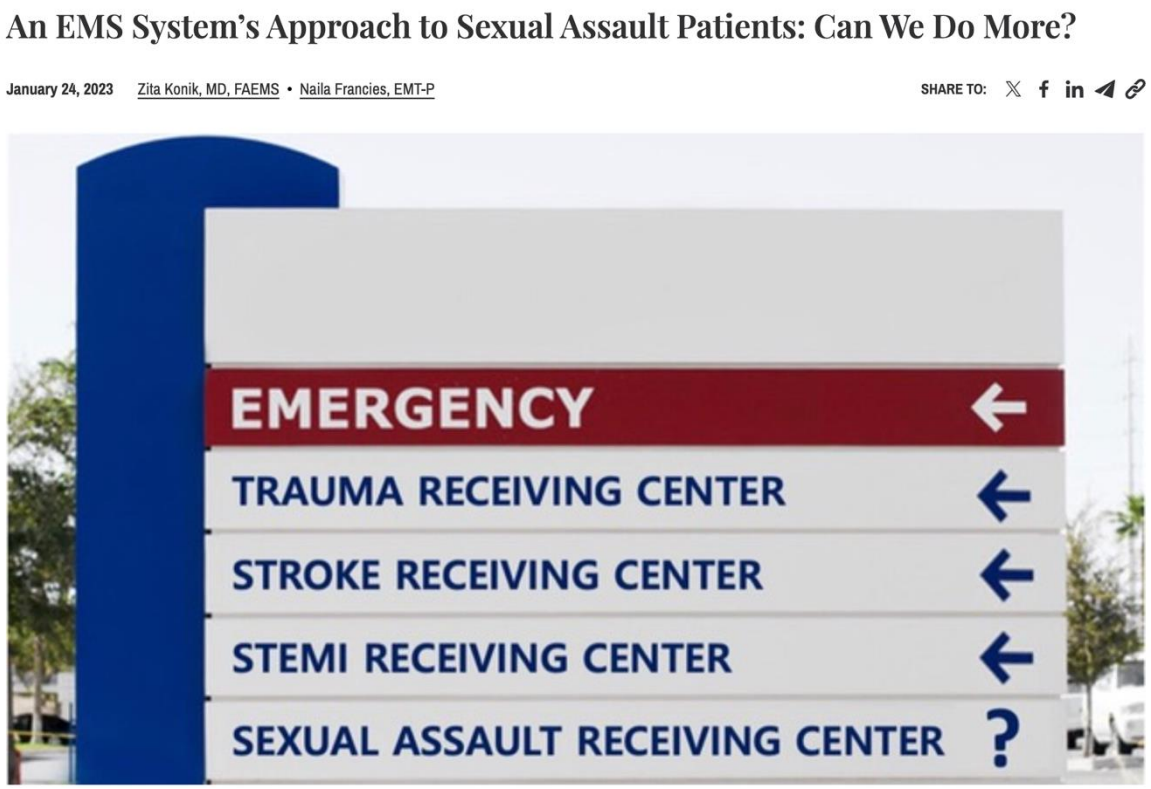
- Advanced Heart Failure
- Comprehensive Cardiac Center
- Comprehensive Heart Attack Center
- Primary Heart Attack Center
- Ventricular Assist Device

Benefits | What it Takes to be Certified

SEXUAL ASSAULT



SEXUAL ASSAULT TREATMENT CENTERS



- EMS treatment protocols
- Time-sensitive condition
- Multi-disciplinary approach
- Trauma-informed care
- Sexual Assault Nurse Examiner (SANE) forensic evaluation
- Hospital designations?
- Adult and Pediatric patient considerations
- EMS destination policies?

What is SASETA?

The Sexual Assault Survivors Emergency Treatment Act (410 ILCS 70/1) is an Illinois law that governs the healthcare that hospitals are required to provide to sexual assault survivors, establishes a statewide forensic evidence collection system, and creates a reimbursement program for the cost of care and evidence collection for victims who are not covered by private insurance or Medicaid.

Hospitals

Sexual Assault Survivors Emergency Treatment Act

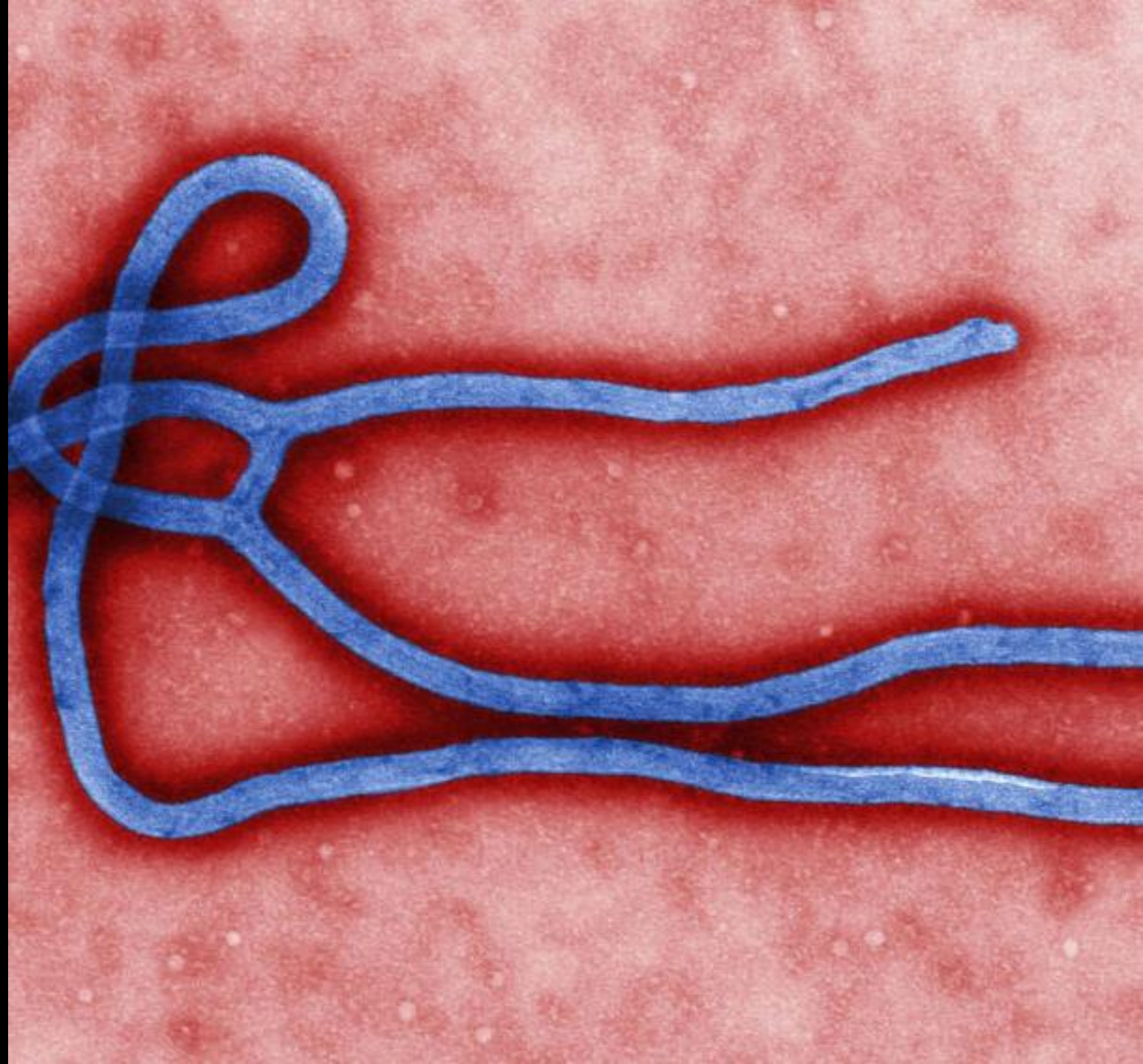
Hospital Medicare Certification

Transplant Programs

Sexual Assault Survivors Emergency Treatment Act

Every hospital required to be licensed by IDPH that provides general medical and surgical hospital services, shall provide either transfer services; hospital emergency services and forensic services for adults, with transfer of pediatrics; or hospital emergency services and forensic services for all ages to all sexual assault survivors in relation to injuries or trauma resulting from a sexual assault. Each facility operating under an Area Wide Plan is required to submit its individual plan along with the Area Wide Plan. Hospitals operating under an Area Wide Plan should coordinate with other facilities operating under the same Area Wide Plan on the timing of submission so that plans can be reviewed comprehensively.

SPECIAL PATHOGENS TREATMENT CENTERS (SPTC)



National Special Pathogen System (NSPS)

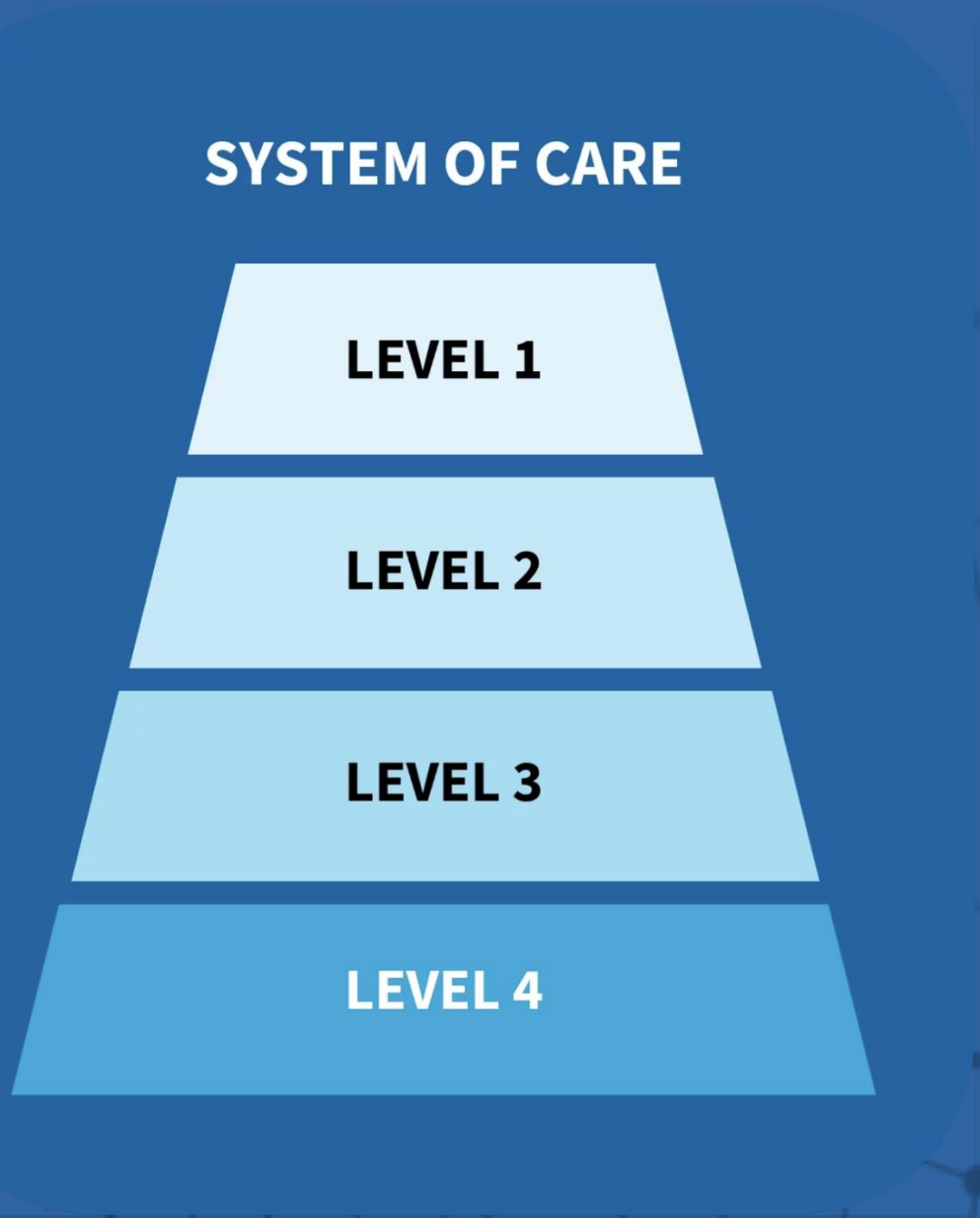
National Special Pathogen System Overview

The National Special Pathogen System (NSPS) helps the country **prepare** the health care system, **protect** the health care workforce, and **respond** to special pathogen events by coordinating special pathogen care across the United States.

The NSPS consists of a tiered System of Care, made up of health care facilities across the country, and is operationalized by the National Emerging Special Pathogens Training and Education Center (NETEC) as its Coordinating Body. Other health care and public health partners with capabilities in readiness, response, and recovery play a key role in supporting health care facilities across the country to respond to high-consequence infectious disease threats.

Figure 2. The NSPS – Target Operating Model Design

NETEC as the Coordinating Body will enable coordination and standardization across the NSPS, while the System of Care will provide care via tiered health care entities.



What will the System of Care Look Like?

Level 1: Regional Treatment Centers or RESPTCs: Level 1 facilities will serve as resource hubs for regions, providing highly specialized care delivery to patients suspected of or infected by a special pathogen. RESPTCs provide clinical care to patients of all ages and acuity. Level 1 facilities can care for patients for the duration of their illness.

Level 2: Special Pathogen Treatment Centers (SPTCs): Level 2 facilities have the capacity to deliver specialized care to clusters of patients suspected of or infected by a special pathogen and serve as the primary patient care delivery center. Level 2 SPTCs may be pediatric, adult, or both. Level 2 facilities can care for patients for the duration of their illness.

Level 3: Assessment Centers: Level 3 facilities are widely accessible care delivery facilities, able to conduct limited basic laboratory testing and stabilize and coordinate rapid patient transfer to a Level 1 or 2 facility to minimize impact to normal facility operations. Level 3 facilities can care for patients for 12-36 hours.

Level 4: All Other Healthcare Facilities: Level 4 facilities can identify, isolate, inform, & initiate stabilizing medical care; protect staff; and arrange timely patient transport to minimize impact to normal facility operations.

NATIONAL SPECIAL PATHOGEN SYSTEM STRATEGY

NSPS Guiding Principles

- **Patient- and community-centered** – Focus on improving patient care and outcomes, and consider the impact on and the needs of communities
- **Accountable** – Follow through on the expectations of NETEC as the Coordinating Body and the System of Care in service of patients and communities
- **Coordinated & collaborative** – Coordinate across public and private sectors in the NSPS design and implementation
- **High-quality & equitable** – Prioritize safety, timely escalation, effective triage, surge capacity, continuity of operations, and equity across the care delivery continuum for all special pathogens
- **Responsive** – Adapt quickly to internal and external forces and the evolution of the pathogen
- **Scalable & sustainable** – Develop, scale, and financially and cost-effectively sustain the system of care

Table 1. System of Care Levels
The table lists the System of Care levels, including their value propositions.

Level	Value Propositions
Level 4 *(Most health care entities in the U.S., including outpatient care facilities)*	Level 4 facilities can identify, isolate, inform, & initiate stabilizing medical care; protect staff; and arrange timely patient transport to minimize impact to normal facility operations.
Level 3 *(Approx. 200-300 facilities across the U.S.)*	Level 3 facilities are widely accessible care delivery facilities, able to conduct limited basic laboratory testing and stabilize and coordinate rapid patient transfer to minimize impact to normal facility operations.
Level 2 *(Approx. 100 facilities across the U.S.)*	Level 2 facilities have the capacity to deliver specialized care to clusters of patients suspected of or infected by a special pathogen and serve as the primary patient care delivery center.
Level 1 (*Approx. 10-20 facilities across the U.S.)*	Level 1 facilities will serve as resource hubs for regions, providing highly specialized care delivery to patients suspected of or infected by a special pathogen.

SUMMARY

- "Systems of Care" = Regionalized care for a patient with a **time-critical** or **specialty condition** from EMS assessment to definitive care at a designated hospital facility
- Goal = to deliver the right resources, to the right patient, at the right place, in the right time
- EMS SOC Examples = Trauma, STEMI + Cardiac Arrest, Stroke, Burn, Perinatal, Pediatrics, Sexual Assault, Special Pathogen Treatment Center . .

THANK YOU!

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AT THE FOREFRONT
UChicago Medicine
Emergency Medical Services

REGION 11
CHICAGO EMS