REGIONAL
Committees on Trauma

RCOT Field Program
RMOCC Webinar Series

Regional Medical Operations Command Centers

Many can't live without them.

David S. Shapiro, MD, MPH, CPHQ, FACS, FCCM

Disclosures

- No related disclosures

- The information to follow is my opinion only, and not that of the ACS or the ACS COT, despite images borrowed from the ACS.

Trigger Warning: Some things will make you think.

Objectives

- Not to frighten
- To prepare & understand


SYSTEMIC SAFETY EFFORT
• Mental Health Response Team
• Crisis Intervention Training (CIT)
• Community Outreach Program
Mental Health Response Team
Mental Health Response Team
Crisis
Community
Community
CONNECTICUT MODEL
WEST HARTFORD LOCAL ACCESS ER - STABILIZATION
TRANSFER INITIATED
84
EAST
HARTFORD
CRITICAL CARE TRANSPORT
TRANSFER SUMMARY
CRITICAL CARE
HARTFORD HEALTHCARE / UCONN HEALTH
- LARGE URBAN ACADEMIC CENTER -
NEURO-TRAUMA BAY

INFOGRAPHIC SUMMARY: TRAUMA CENTER ACCESS (ACS-COT VERIFIED)

Access to American College of Surgeons Committee on Trauma-Verified Trauma Centers in the US, 2013-2019

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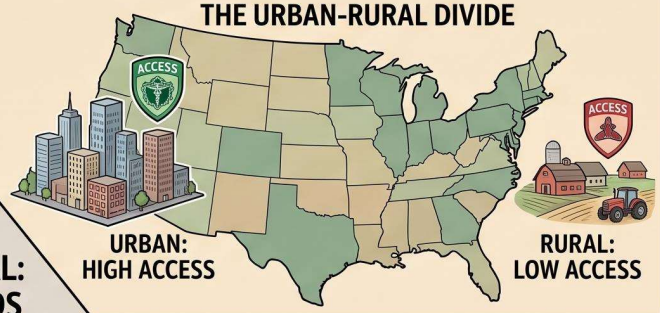
et al, dinactory by Author Affiliation | Article Information

TRENDS (2013-2019)

RESEARCH GOAL:
Evaluate **TRENDS**
while identifying
DISPARITIES

GEOGRAPHIC DIFFERENCES

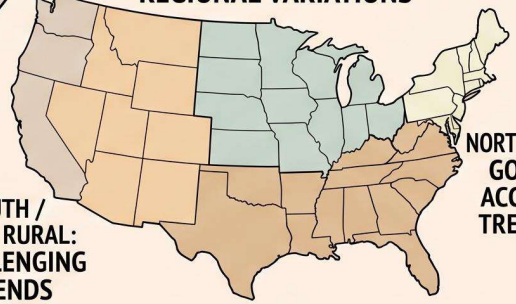
THE URBAN-RURAL DIVIDE



URBAN:
HIGH ACCESS

RURAL:
LOW ACCESS

REGIONAL VARIATIONS



NORTHEAST:
GOOD
ACCESS
TRENDS

SOUTH /
WEST RURAL:
CHALLENGING
TRENDS

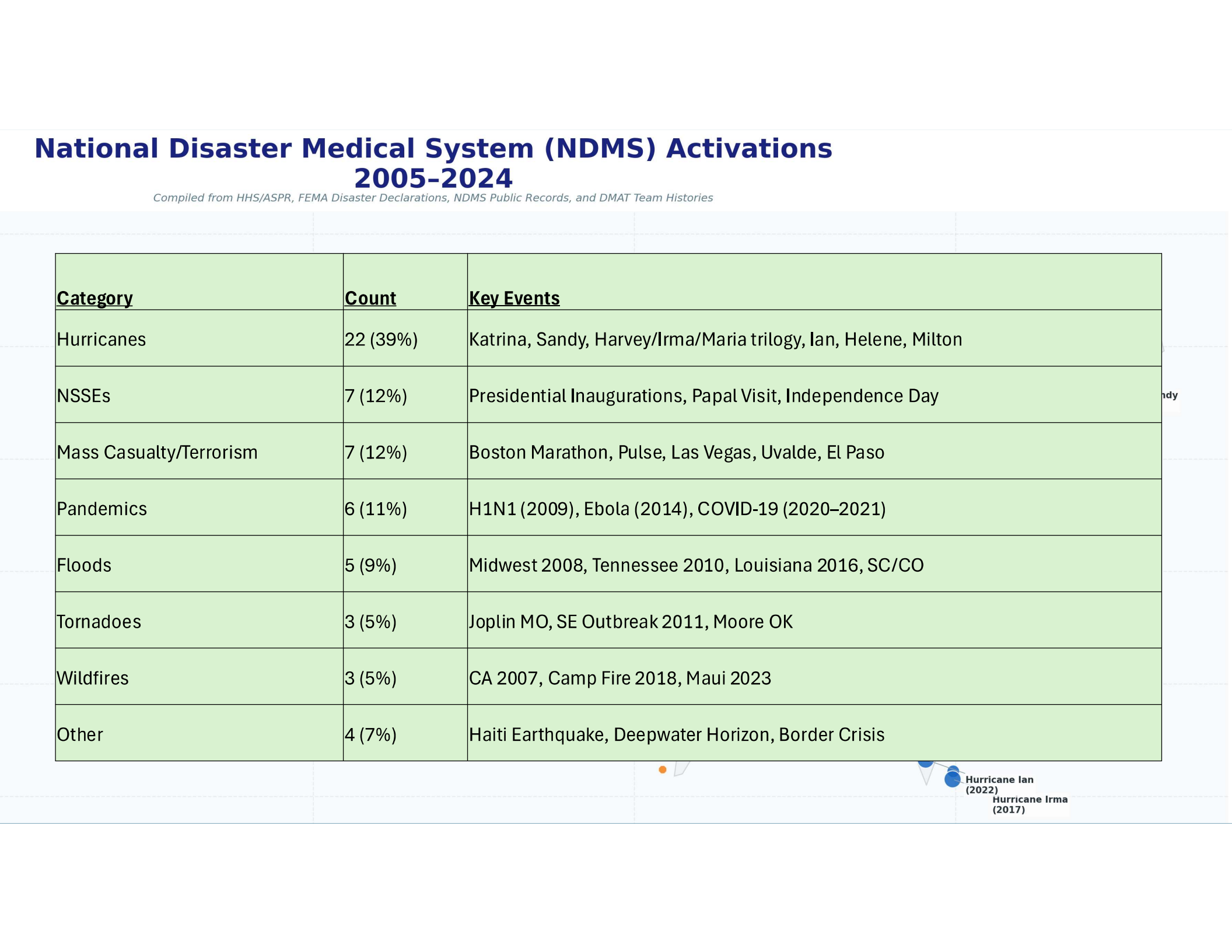
CALL TO ACTION (Inspired by 2016 NASEM REPORT):
AVOID PREVENTABLE DEATHS

- INCREASE RURAL COVERAGE
- STRENGTHEN NATIONAL HEALTHCARE INFRASTRUCTURE
- IMPROVE DATA & RESEARCH

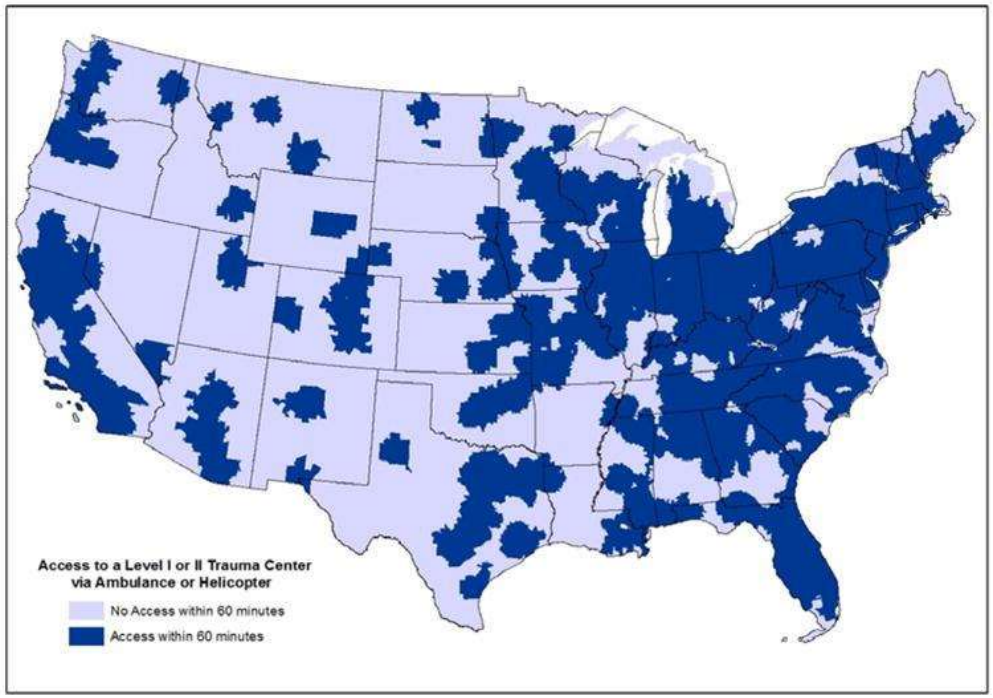
National Disaster Medical System (NDMS) Activations 2005–2024

Compiled from HHS/ASPR, FEMA Disaster Declarations, NDMS Public Records, and DMAT Team Histories

Category	Count	Key Events
Hurricanes	22 (39%)	Katrina, Sandy, Harvey/Irma/Maria trilogy, Ian, Helene, Milton
NSSEs	7 (12%)	Presidential Inaugurations, Papal Visit, Independence Day
Mass Casualty/Terrorism	7 (12%)	Boston Marathon, Pulse, Las Vegas, Uvalde, El Paso
Pandemics	6 (11%)	H1N1 (2009), Ebola (2014), COVID-19 (2020–2021)
Floods	5 (9%)	Midwest 2008, Tennessee 2010, Louisiana 2016, SC/CO
Tornadoes	3 (5%)	Joplin MO, SE Outbreak 2011, Moore OK
Wildfires	3 (5%)	CA 2007, Camp Fire 2018, Maui 2023
Other	4 (7%)	Haiti Earthquake, Deepwater Horizon, Border Crisis



The US Does Not Have a Trauma System



Carr et al, "Disparities in Access to Trauma Care in the US"
Injury 48(2):332 – 338, 2017

Islands of excellence
in a sea of chaos

WHY SHOULD
WHERE YOU LIVE
DETERMINE
IF YOU LIVE?

The US Does Not Have a complete disaster System

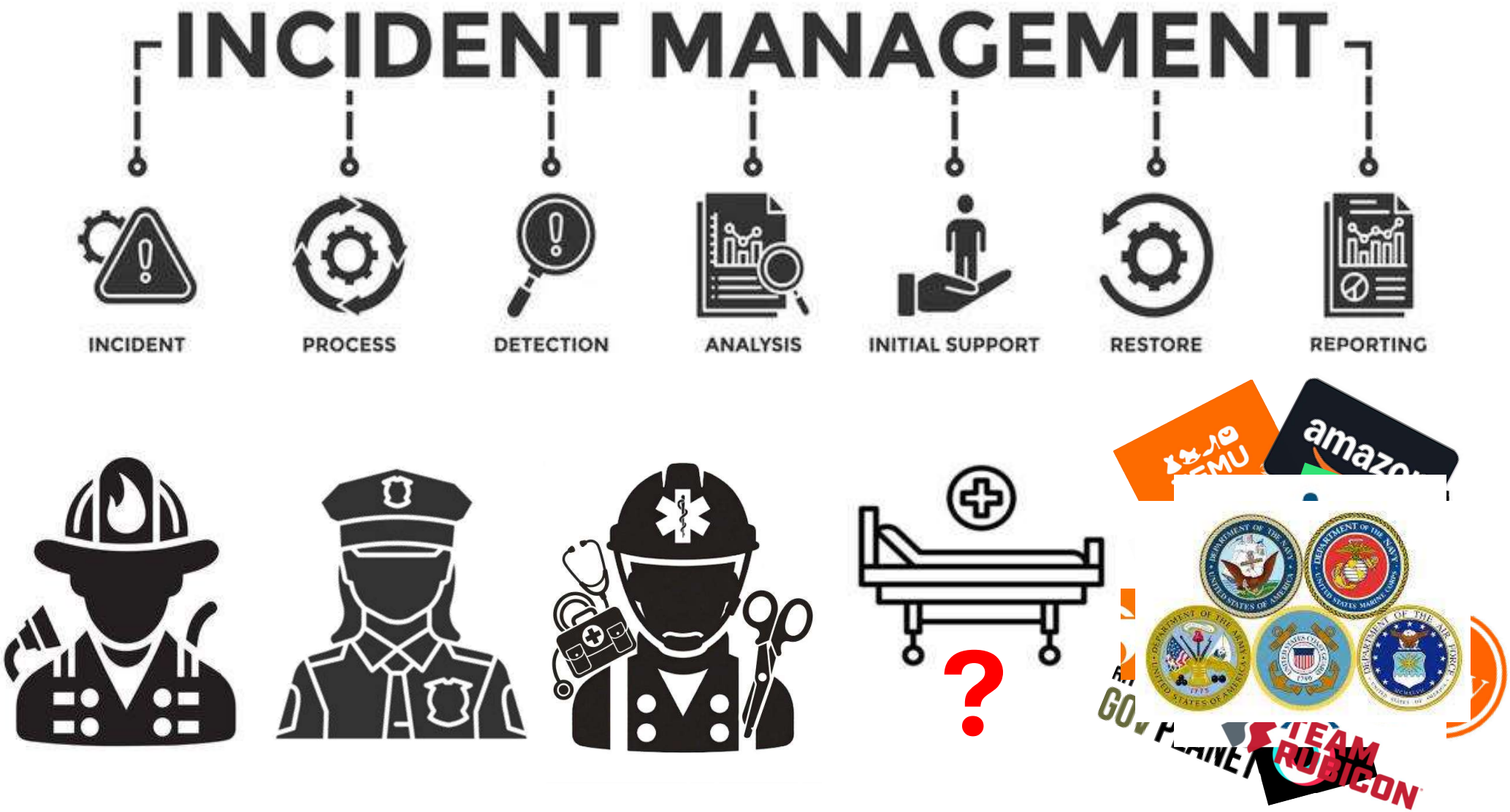
~~The US Does Not Have a Trauma System~~

What we DO have

- **Trauma Centers**
  - Committed hospitals
  - Committed healthcare professionals
- **Committed Organizations**
- **Some Committed Regions/States**

Challenges

- **Uneven Access to Timely Care**
  - Trauma care deserts
  - Limited capability
  - EMS resources
- **Financial Challenges**
- **Difficulties with System Collaboration**


INCIDENT MANAGEMENT
INCIDENT
PROCESS
DETECTION
ANALYSIS
INITIAL SUPPORT
RESTORE
REPORTING
?
amazo
TEAM RUBICON

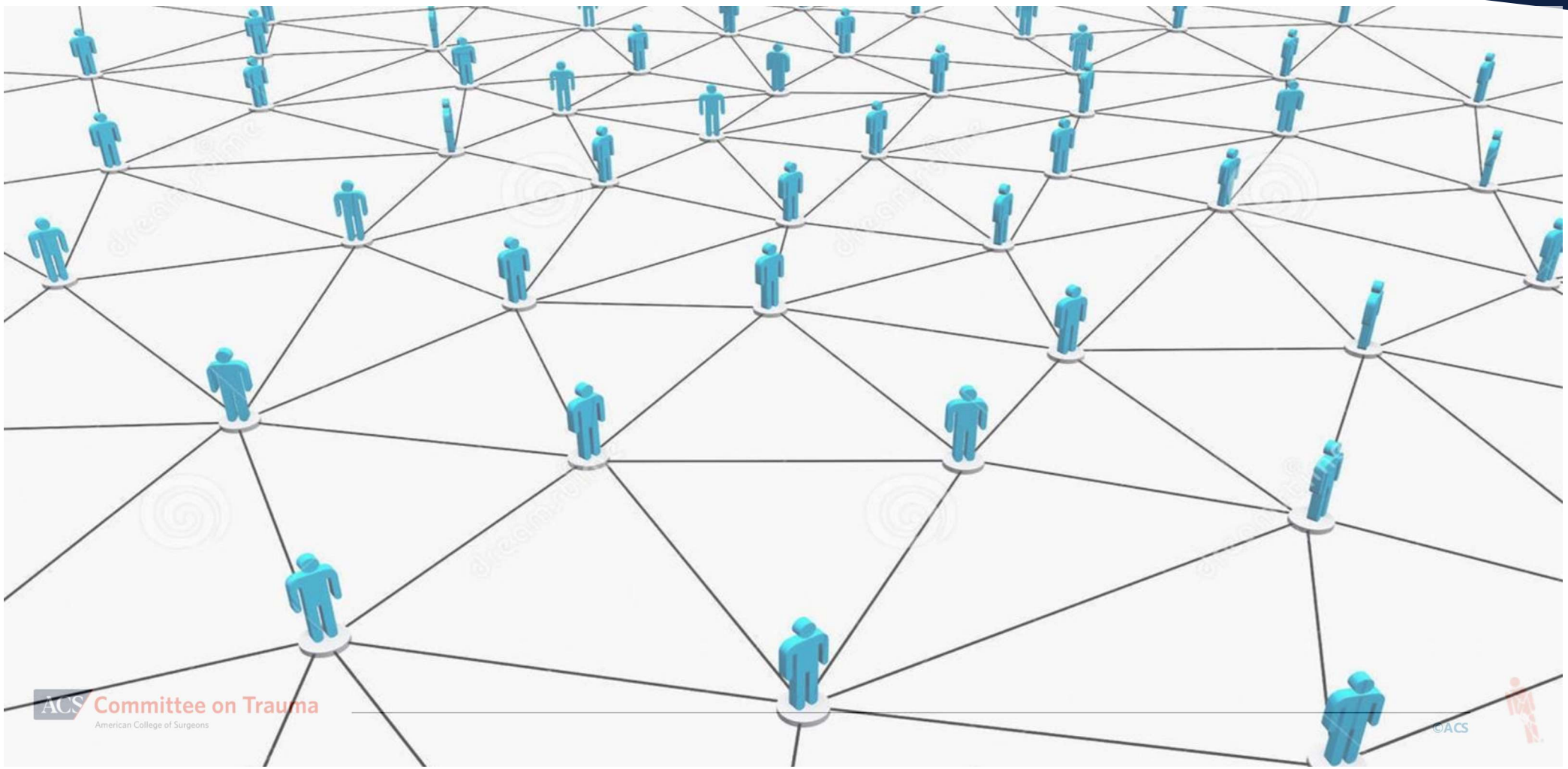
RMOCC

Regional Medical Operations Coordinating Center

"A construct for regional patient distribution to avoid or mitigate crisis conditions by equitably deploying health care resources across a state, territory, or region"

Network of RMOCCs

Basis for National Trauma and Emergency Preparedness System



National Trauma and Emergency Preparedness System (NTEPS)

Based on network of Regional Medical Operations Coordinating Centers (RMOCCs)

- **Vision**
  - Timely & high-quality trauma care
  - Equitable access for all injured
  - Focus on entire continuum of care, from prevention to long-term outcomes
  - ***Coordinated care for individual injuries to mass population events***

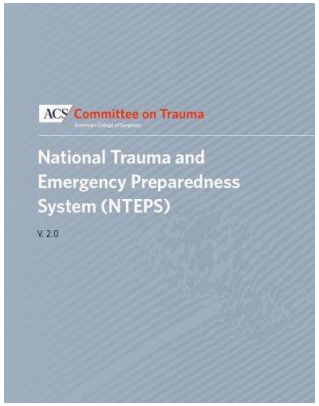
- **Mission**
  - ***Oversee coordination of resource & patient/casualty distribution in daily and mass population events***
  - Develop system standards & benchmark regional system performance
  - Synthesize & disseminate knowledge
  - Promote uniform community outreach for prevention & resiliency

"Daily coordination of trauma care **keeps the engine of disaster response warm and running…."**

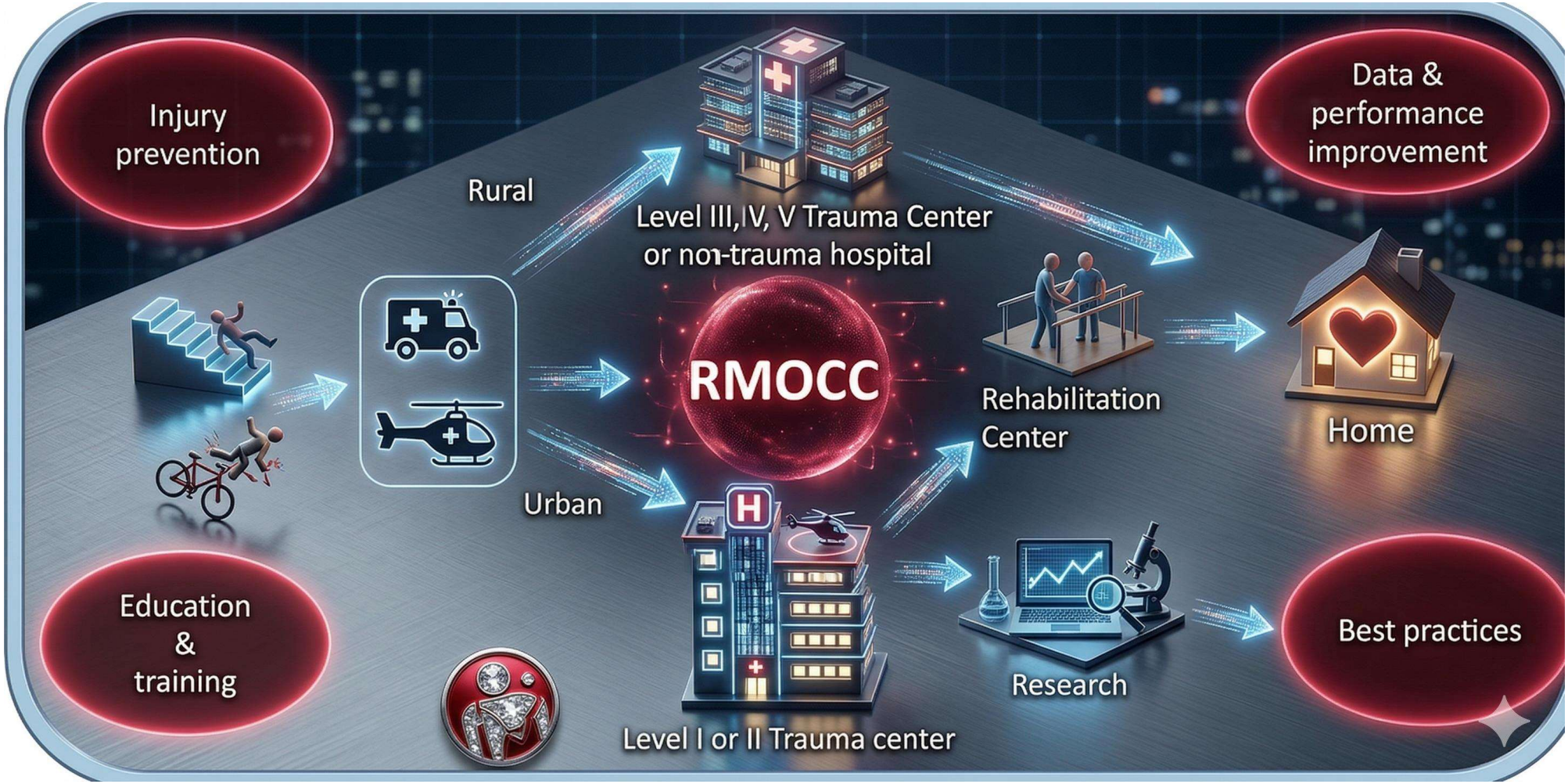
National Trauma and Emergency Preparedness System (NTEPS)

RMOCCs as “Unit of Action”

- Rapid movement of patients across facilities
- Response for daily time sensitive conditions
- Readiness to scale for mass population events
- Builds on existing strengths of regional trauma systems
- Coordination of trauma care across military and civilian systems



Everyday RMOCC use for Coordination



COVID-19 Pandemic

State and Regional Care Coordination

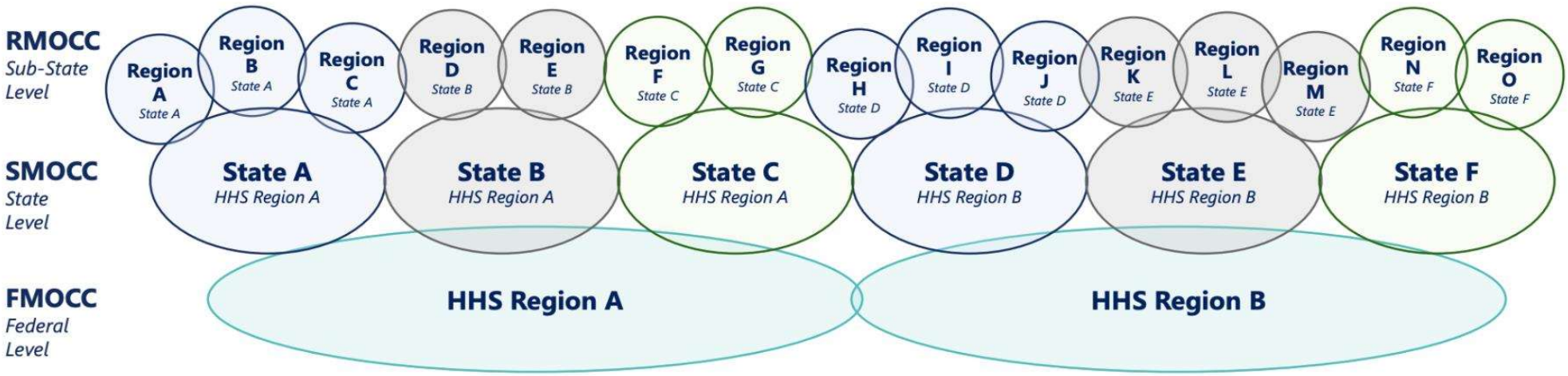
WASHINGTON
Medical Coordination Center
at Harborview Medical Center

- **Nationwide Hospital Surge**
  - Lack of coordinated effort to load balance critically ill patients
  - Estimated 1 in 4 early COVID deaths were potentially preventable
- **Lessons Learned**
  - Development of regional coordinating centers saved lives
  - Flow-sizing of critical care resources
  - Load balancing strategies to offload rural hospitals
  - A need for collaboration and communication across hospitals, emergency care providers, and healthcare systems

Scalability of the RMOCC Concept

Military Hospital Measure	Mid-1990s	Mid-2020s (Now)
Hospital Count	~120+	~51
Primary Focus	Full-service care for all	Active Duty readiness
Management	Separate (Army/Navy/Air Force)	Centralized (DHA)
Patient Care	Mostly "on-base"	Mostly via civilian TRICARE providers

Integration of RMOCCs into a National System



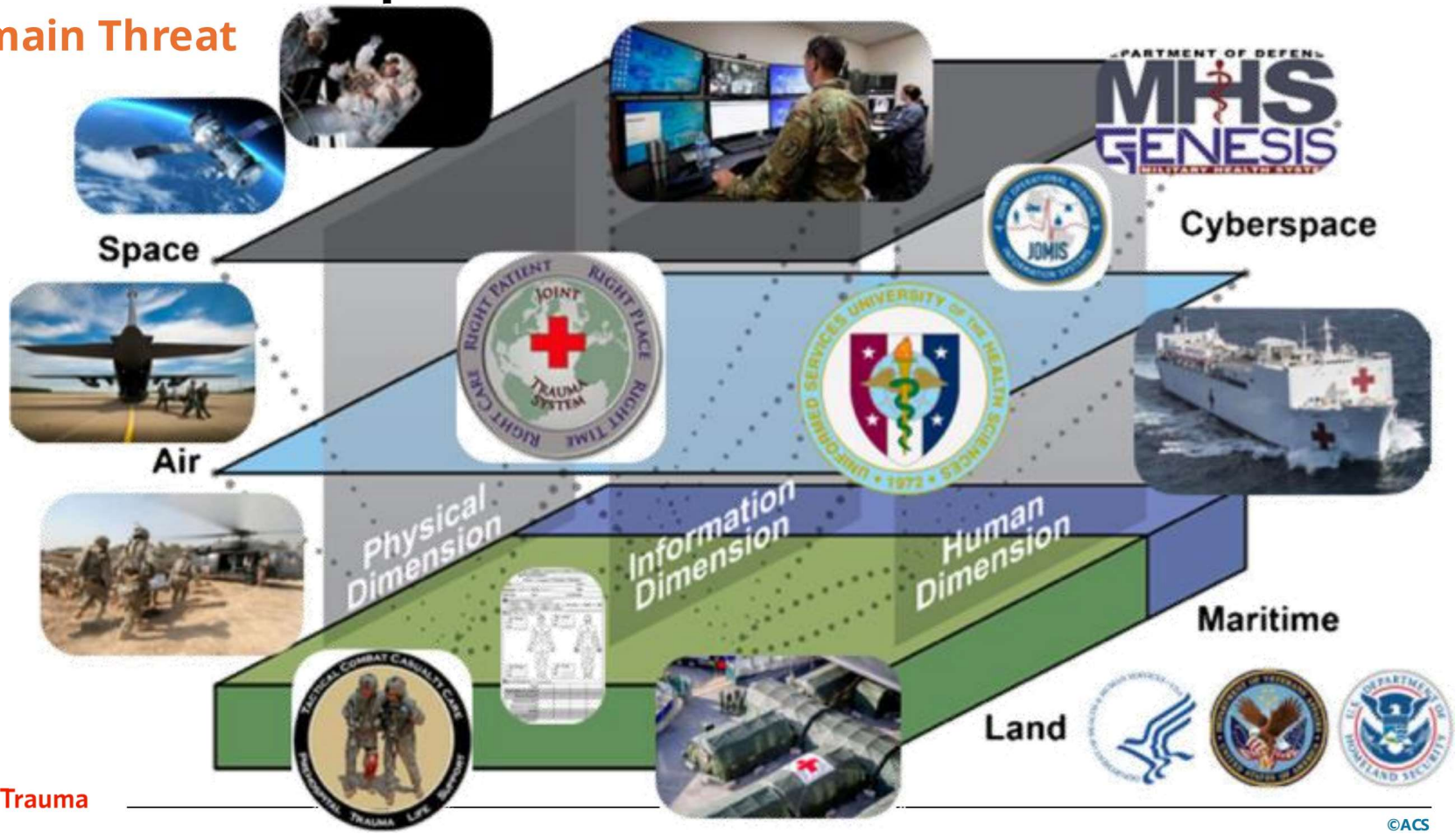
Why the push now?

How RMOCCs would support a National Trauma System

- **Improve access to higher level and specialty trauma care across rural regions**
- **Coordinate regional/national mass disaster surge response**
- **Patient load balance in the event of a Large-Scale Combat Operation (LSCO)**

Large Scale Combat Operation

Multi-Domain Threat

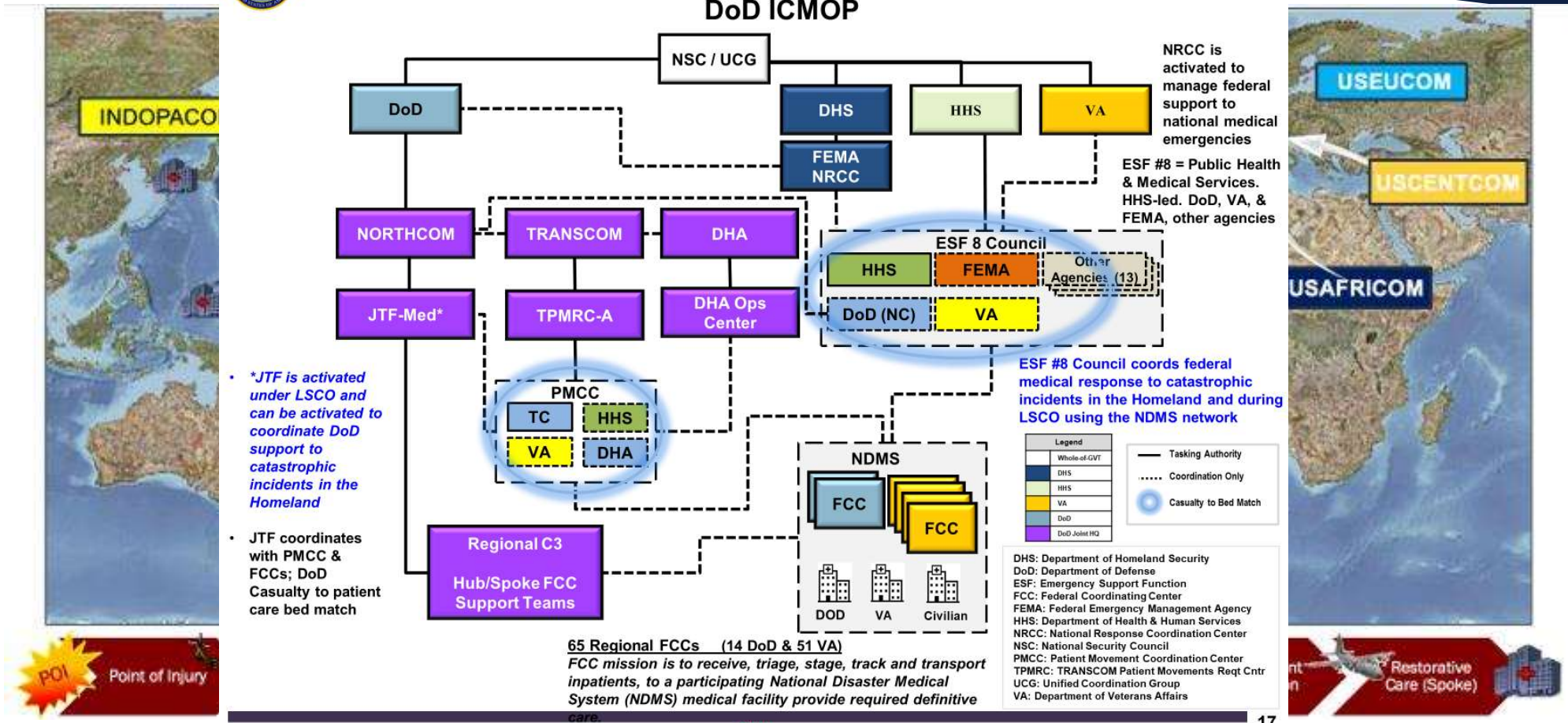


Large Scale Combat Operations

Peer-Near Peer Conflict

- **Massive casualties anticipated (**
- **Imminent threat to North America**
- **Sustained offensive action**
  - Military capability overwhelmed
  - Repatriation to North American civilian trauma centers
  - While maintaining ongoing civilian trauma needs

Macro Vi


CUI
General Federal ICMOP Response Command Structure
DoD ICMOP
NSC / UCG
DoD
DHS
HHS
VA
FEMA NRCC
NRCC is activated to manage federal support to national medical emergencies
ESF #8 = Public Health & Medical Services. HHS-led. DoD, VA, & FEMA, other agencies
NORTHCOM
TRANSCOM
DHA
ESF 8 Council
HHS
FEMA
Other Agencies (13)
DoD (NC)
VA
JTF-Med*
TPMRC-A
DHA Ops Center
PMCC
TC
HHS
VA
DHA
ESF #8 Council coords federal medical response to catastrophic incidents in the Homeland and during LSCO using the NDMS network
NDMS
FCC
FCC
DOD
VA
Civilian
Legend
Whole-of-GVT
DHS
HHS
VA
DoD
DoD Joint HQ
Tasking Authority
Coordination Only
Casualty to Bed Match
*JTF is activated under LSCO and can be activated to coordinate DoD support to catastrophic incidents in the Homeland
JTF coordinates with PMCC & FCCs; DoD Casualty to patient care bed match
Regional C3
Hub/Spoke FCC Support Teams
65 Regional FCCs (14 DoD & 51 VA)
FCC mission is to receive, triage, stage, track and transport inpatients, to a participating National Disaster Medical System (NDMS) medical facility provide required definitive care.
DHS: Department of Homeland Security
DoD: Department of Defense
ESF: Emergency Support Function
FCC: Federal Coordinating Center
FEMA: Federal Emergency Management Agency
HHS: Department of Health & Human Services
NRCC: National Response Coordination Center
NSC: National Security Council
PMCC: Patient Movement Coordination Center
TPMRC: TRANSCOM Patient Movements Reqt Cntr
UCG: Unified Coordination Group
VA: Department of Veterans Affairs
17
CUI
INDOPACO
USEUCOM
USCENTCOM
USAFRICOM
POI
Point of Injury
Restorative Care (Spoke)

Large Scale Combat Operations (LSCO) Stateside Response

Questions to Address

- How many beds?
- What about post-acute care?
- Who will be here to take care of the patients?
- What are the training needs?
- How will this be financed?
- How do we make sure quality care has primacy?
- How will military – civilian trauma needs be coordinated?

National Disaster Medical System (NDMS)

Pilot Program

Potential Scenario: Overseas military contingency resulting in 1,000 combat casualties returning daily to the United States for 100 days or longer.

- **Pilot sites (current):**
  - **Capital Region**
  - **San Antonio, TX**
  - **Denver, CO**
  - **Omaha, NE**
  - **Sacramento, CA**
  - **Puget Sound, WA**
  - **Shreveport, LA**
  - **Oahu, HI**

National Disaster Medical System (NDMS)

Established 1984

- **Federal Agency Partnership**
  - Health and Human Services (HHS)
  - Department of War (DoW)
  - Homeland Security (DHS)
  - Veterans Affairs (VA)
- **Areas of Focus**
  - NDMS Response Teams
  - Patient Movement
  - NDMS Definitive Care Hospitals
- **Federal Coordinating Centers**
  - Hub and Spoke Model

NDMS Pilot Project

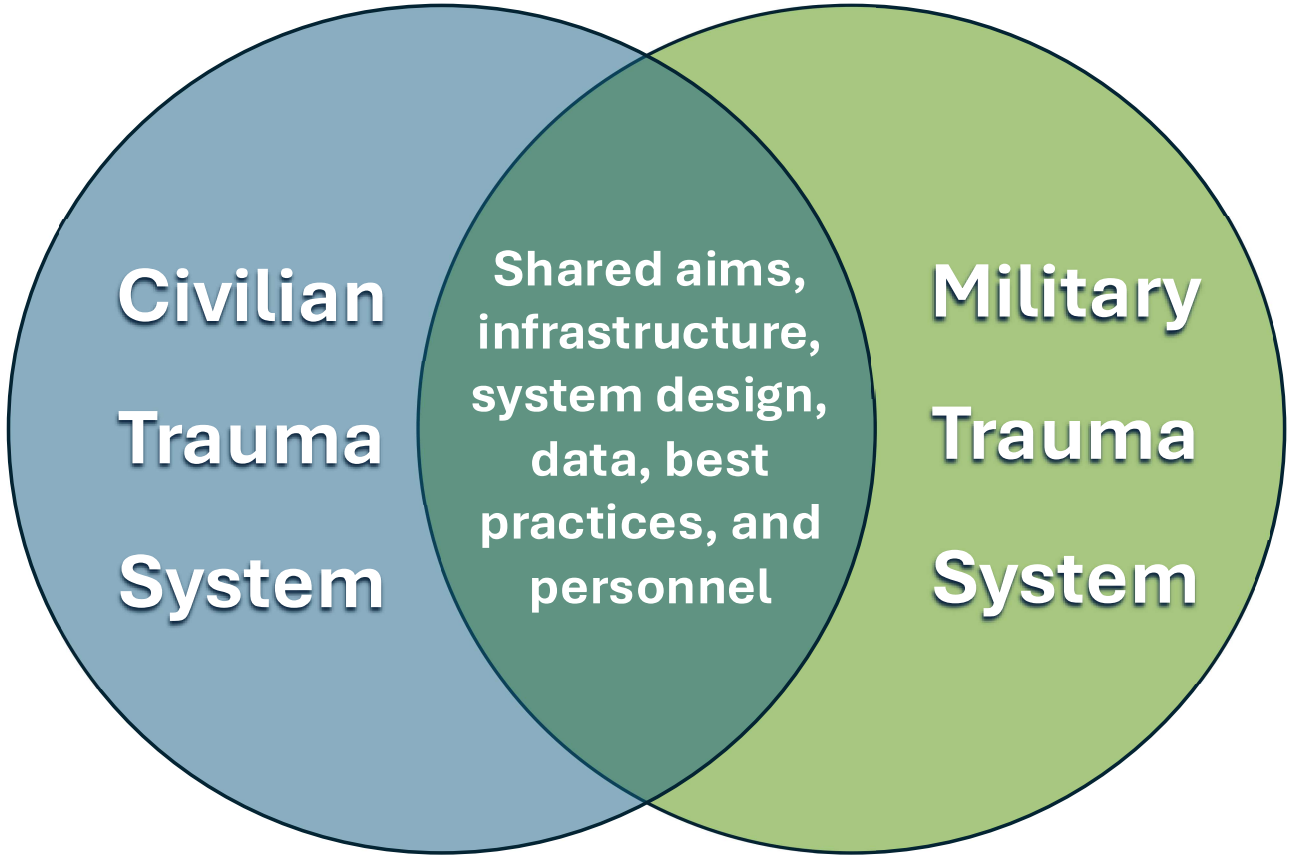
Aim: Increase surge capacity, capability, and interoperability across the NDMS in support of a large-scale combat operation requiring definitive care for large numbers of DoW casualties repatriated to the US over the course of a protracted conflict.

NDMS Pilot Project

- Authorized under the first Trump Administration to assess and strengthen the NDMS
- Address requirements of a LSCO or catastrophic event
- Establish partnerships with public and private healthcare organizations
- Implement NORTHCOM Integrated Continental US Medical Operations Plan

NCDMPH
Uniformed Services University

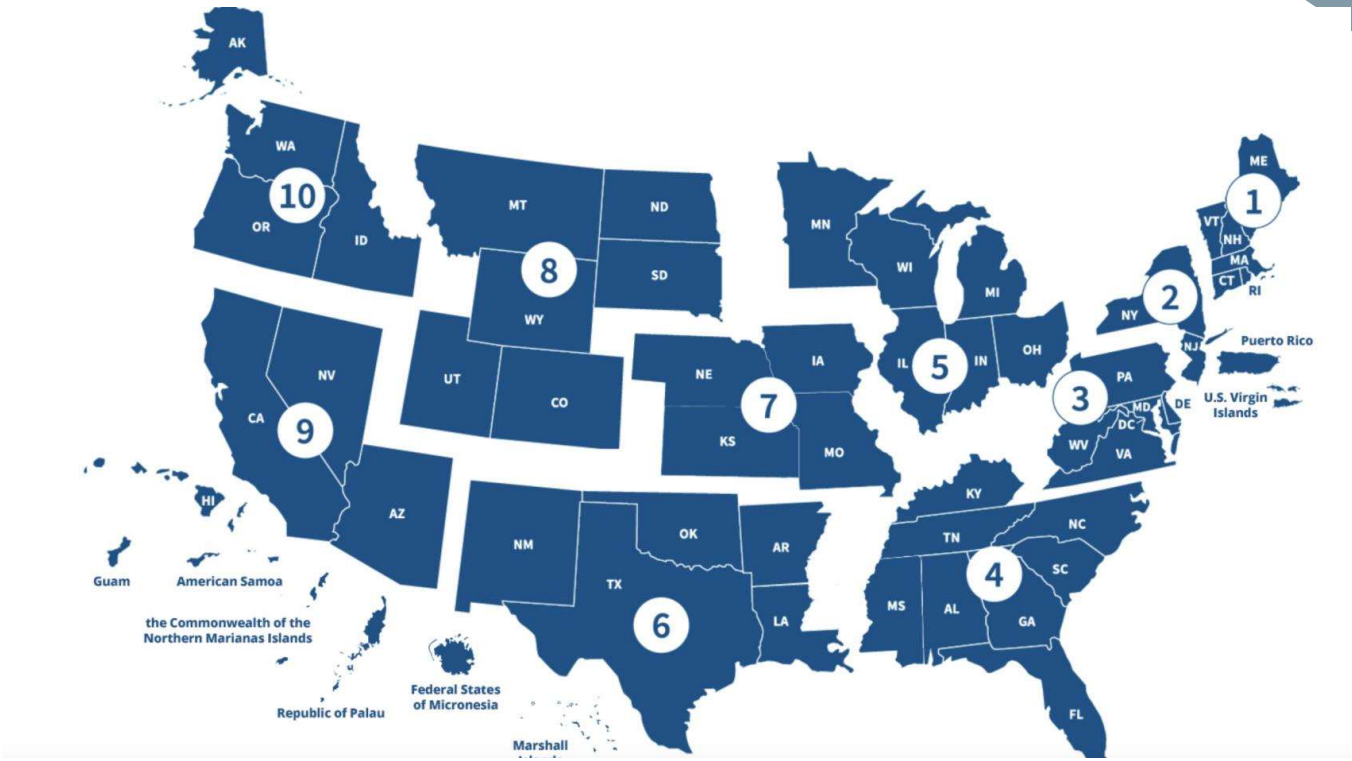
National Trauma System



Regional Disaster Health Response System (RDHRS)

Administration for Strategic Preparedness & Response (ASPR)

Administration for Strategic Preparedness & Response (ASPR) Regions



Hospital Preparedness Program (HPP)

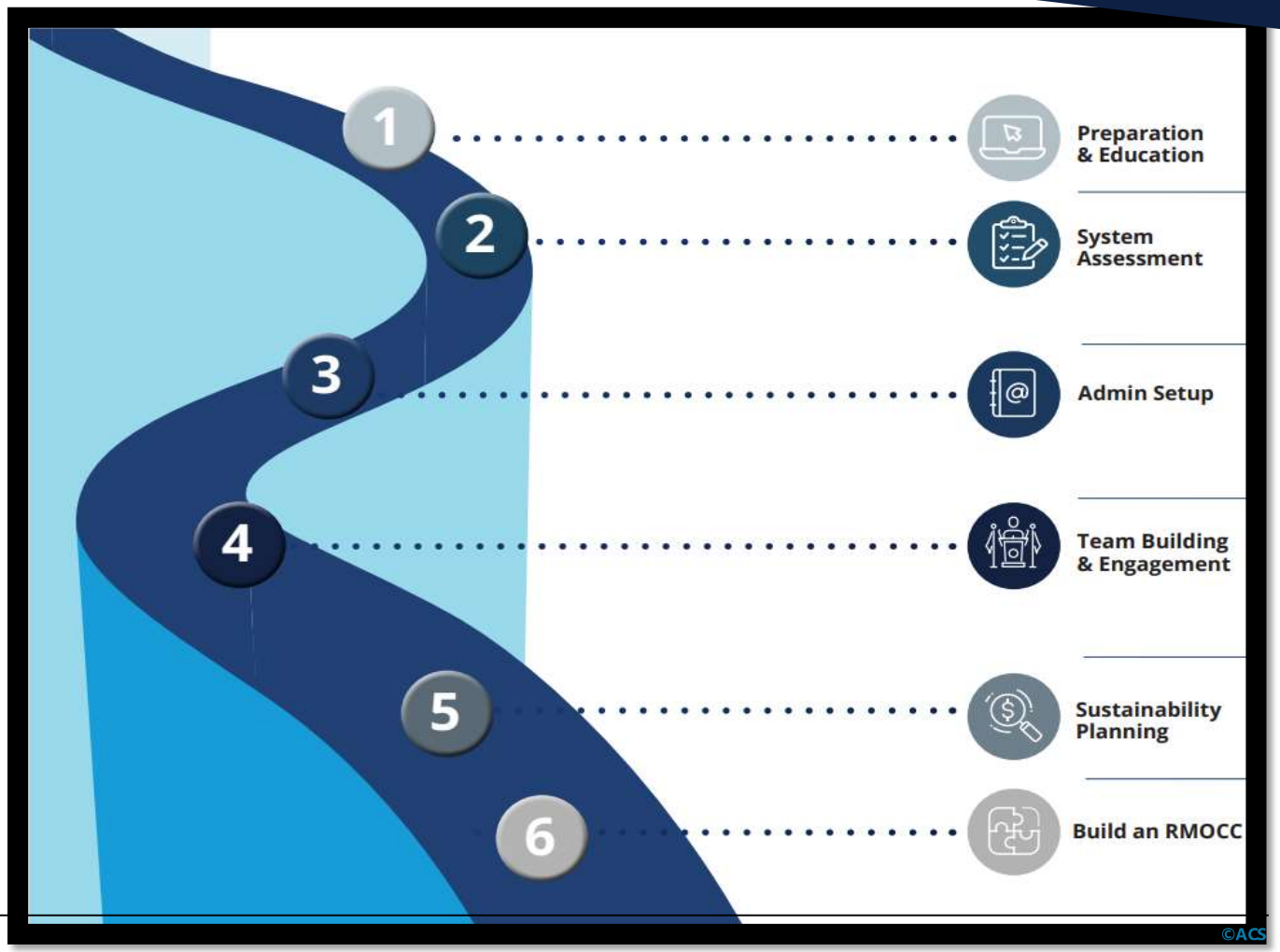
Healthcare Coalitions (HCC)

- Foundation for healthcare and medical readiness
- Healthcare and medical response coordination
- Continuity of healthcare service delivery
- Surge capacity and resource sharing
- Communication and coordination

So…

What do we do (first)?

Getting Started



Getting Started

- ~~Coordinate with State COT Chair~~
- Engage REGIONAL efforts in place
- RMOCC COT Checklist
  - MOC Toolkit 3rd Ed (ASPR TRACIE)
  - Regional COT RMOCC Website
- ENGAGE LOCAL POLITICS
  - INCLUDE KEY PEOPLE (EMS, EM Docs, STATE POLICYMAKERS, and REGIONAL STAKEHOLDERS

    www.facs.org/rmoccs

Goals in Establishing an RMOCC

RMOCC Standards

Standards provide a clear framework for deliver***care*** across diverse settings. ing ***high-quality, consistent***

They serve as a foundation for evaluation, improvement, and accountability, ensuring patients receive safe, effective, and coordinated treatment.

1. **Ensure Consistency Across Regions**
   Define a common framework so RMOCCs function reliably regardless of geography or organizational structure.
2. **Support Scalable Disaster Response**
   Enable rapid expansion from daily coordination to mass casualty incident management without building from scratch.
3. **Facilitate Interoperability and Cross-State Coordination**
   Align protocols and data systems to support coordination across jurisdictions, especially during large-scale events.

Goals in Establishing an RMOCC

RMOCC Standards

4. **Guide Implementation and Maturity**
   Provide a roadmap for developing and evolving RMOCC capabilities, from basic coordination to fully integrated operations.
5. **Build Trust Through Transparency and Governance**
   Set clear expectations around authority, data use, and decision-making to encourage hospital participation and collaboration.
6. **Enable Data-Driven Performance Improvement**
   Standardize what data is collected and how it's used to improve transfer efficiency, patient outcomes, and system learning.

Goals in Establishing an RMOCC

RMOCC Standards

7. **Justify and Align Funding**
   Allow state, federal, and local funders to allocate resources based on demonstrable capacity, performance, and need.
8. **Protect Legal and Ethical Integrity**
   Ensure triage and transfer decisions made during crisis conditions are supported by clear, defensible, and ethical guidelines.
9. **Institutionalize the RMOCC Function**
   Shift coordination from a temporary workaround to a permanent system function that strengthens routine and emergency care alike.

Current Model (in the meantime)

- BOSTON based Distribution of Knowledge/Information
- Notification through hospital systems (HH, YALE, Trinity, Northwell, + others including pediatric centers)
- Activations ‘with’ organizations like Connecticut Hospital Association
  - Remember the SarsCoV2 Pandemic? Hmm?
  - What went WRONG? What went RIGHT? What needed improvement?
  - Veterans Admin and Military hospital strength is lower than previously—the burden will fall to community hospital and *anyone* with open beds.

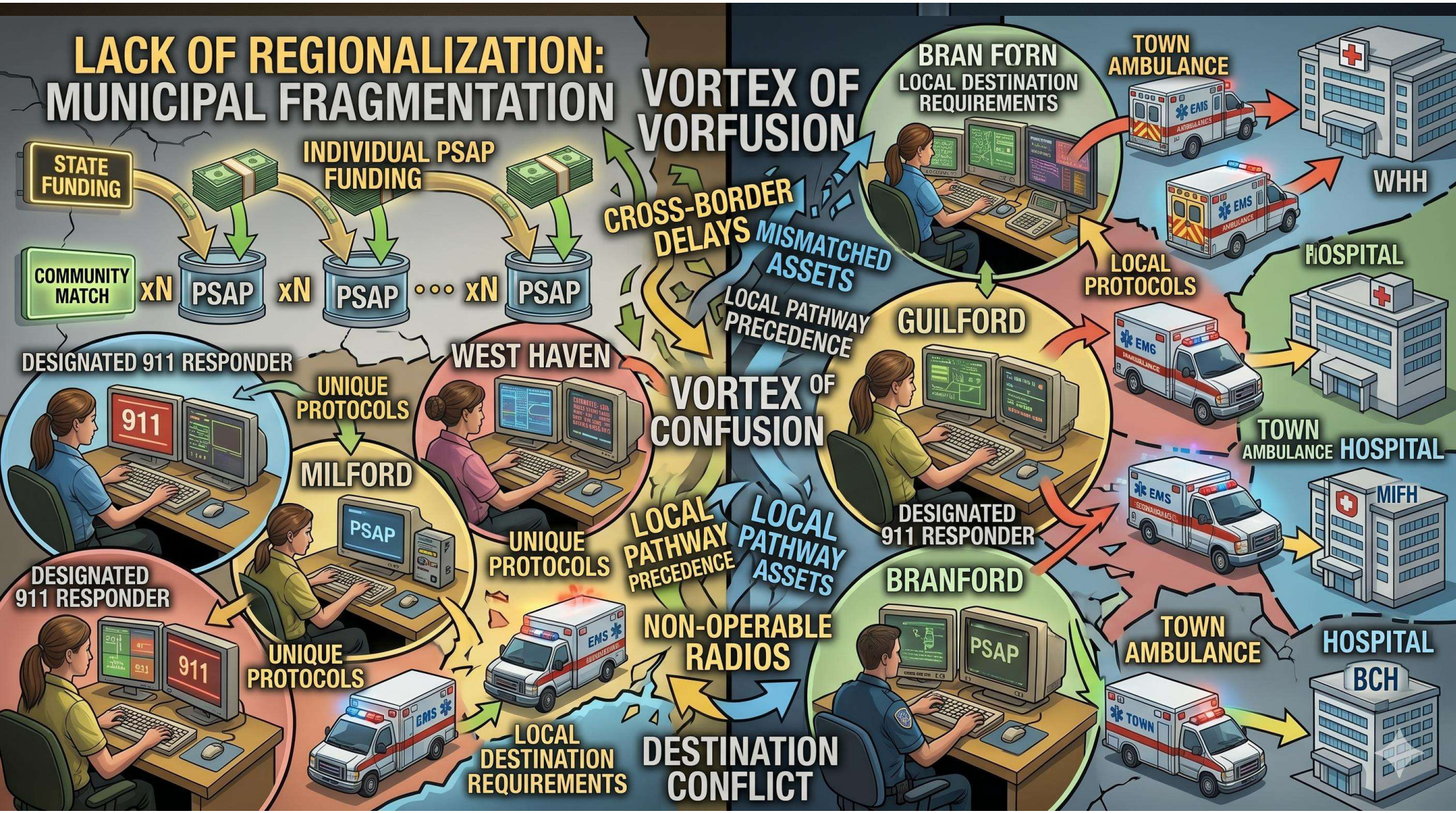
Desired Model

- BOSTON based Distribution of Knowledge/Information
  - INSERT web-based shared resource for daily updates on census
  - INSERT region-wide (yes, rural areas, too, for decompression)
  - INSERT resources for all acute and post acute
  - EMS services should be included
  - Statewide Disaster Management awareness
- Activations 'with' State (? Regional) Hospital Associations

- Drilling
  - Preparation is great, drilling and preparation is better, TOPOFF drills (2007—PDX)
  - National Level Exercises (09, 11, 12, 18, 22, 24)
    - 2024: Large hurricane impacting Hawaii, cyberattack in Guam (supply chain, cutoff comms, injuries,)
    - 2022: Cascadia subduction zone megathrust earthquake

NLEs

- **NLE 2009**
  - First official successor to TOPOFF
  - Focus: Terrorism and WMD response
  - Multi-state, multi-agency full-scale exercise
- **NLE 2011**
  - Focus: New Madrid Seismic Zone catastrophic earthquake
  - Tested federal–state coordination and mass-casualty response
- **NLE 2012**
  - Focus: Cybersecurity and infrastructure protection
  - Included federal, state, private-sector partners
- **NLE 2018**
  - Focus: **Major Mid-Atlantic hurricane**
  - Over **12,000 participants** across government and private sector
- **NLE 2020**
  - Focus: **Cybersecurity**, complex multidimensional cyberattack
- **NLE 2022**
  - Focus: **Cascadia Subduction Zone megathrust earthquake**
  - Examined response and recovery across Pacific states
- **NLE 2024 (scheduled)**
  - Focus: **Large hurricane impacting the Hawaiian Islands**
  - Includes **cyberattacks in Guam** complicating supply chains


LACK OF REGIONALIZATION:
MUNICIPAL FRAGMENTATION
STATE FUNDING
INDIVIDUAL PSAP FUNDING
COMMUNITY MATCH
xN
PSAP
xN
PSAP
xN
PSAP
VORTEX OF VORFUSION
CROSS-BORDER DELAYS
MISMATCHED ASSETS
LOCAL PATHWAY PRECEDENCE
BRAN FO'RN
LOCAL DESTINATION REQUIREMENTS
TOWN AMBULANCE
EMS
WHH
HOSPITAL
LOCAL PROTOCOLS
GUILFORD
EMS
DESIGNATED 911 RESPONDER
911
UNIQUE PROTOCOLS
WEST HAVEN
VORTEX OF CONFUSION
TOWN AMBULANCE
HOSPITAL
MILFORD
PSAP
EMS
MIFH
DESIGNATED 911 RESPONDER
LOCAL PATHWAY PRECEDENCE
LOCAL PATHWAY ASSETS
DESIGNATED 911 RESPONDER
911
UNIQUE PROTOCOLS
UNIQUE PROTOCOLS
EMS
NON-OPERABLE RADIOS
BRANFORD
PSAP
TOWN AMBULANCE
HOSPITAL
BCH
TOWN
EMS
LOCAL DESTINATION REQUIREMENTS
DESTINATION CONFLICT

NTEPS: National Trauma & Emergency Preparedness System – Future State & Disaster Response

LEVEL 1: POINT OF INJURY

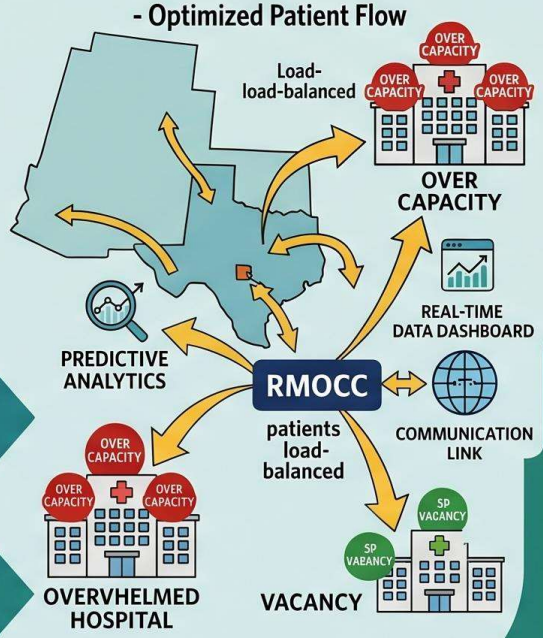
NTEPS FRAMEWORK FOUNDATION: RESILIENT COMMUNITY PARTNERS

IMMEDIATE COMMUNITY RESPONSE

LEVEL 2: TACTICAL COORDINATION & TRIAGE

LEVEL 2: TACTICAL COORDINATION & TRIAGE

LEVEL 3: REGIONAL LOAD BALANCING (RMOCCs)



CRITICAL TRANSPORT & SURGE PREDICTION

OPTIMIZED CARE (hours)

LEVEL 4: DEFINITIVE CARE & NTEPS FRAMEWORK

SPECIALIZED CARE

RECOVERY & REHAB

NTEPS
(National Trauma & Emergency Preparedness System)

THE END GOAL
SURVIVAL THROUGH CONTINUOUS, COORDINATED CARE

American College of Surgeons:
Promoting Excellence in Trauma & Emergency Care

NTEPS: A Unified System for Tomorrow's Challenges.
Together, we build a resilient future.

Thank You: DON’T BE NERVOUS.

The preceding is not necessarily the opinion of the ACS COT and despite images borrowed from the ACS, is not an official statement.

ACS Committee on Trauma
American College of Surgeons