



Improvement, systems  
and applied sciences  
for comprehensive  
pediatric disaster  
management activities  
and regulations

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# Improvement science and disaster research

- Pediatric readiness and pediatric disaster science is primarily driven by and driving improvement in systems
- Improvement science/quality improvement emphasizes systems



# Goal of assimilation of research/best practices

- High quality and safety
- Building organizational reliability for pediatric readiness to disaster management
- Tenets of high reliability organizations
  - *Deference to expertise*
  - *Reluctance to simplify*
  - *Sensitivity to operations*
  - *Commitment to resilience*
  - *Preoccupation with failure*
- Hospital Incident Command Systems model HRO performance



# Donabedian model



Franklin B, Healthcare Market Review,  
[www.healthcaremarketreview.com](http://www.healthcaremarketreview.com) accessed 7.27.22



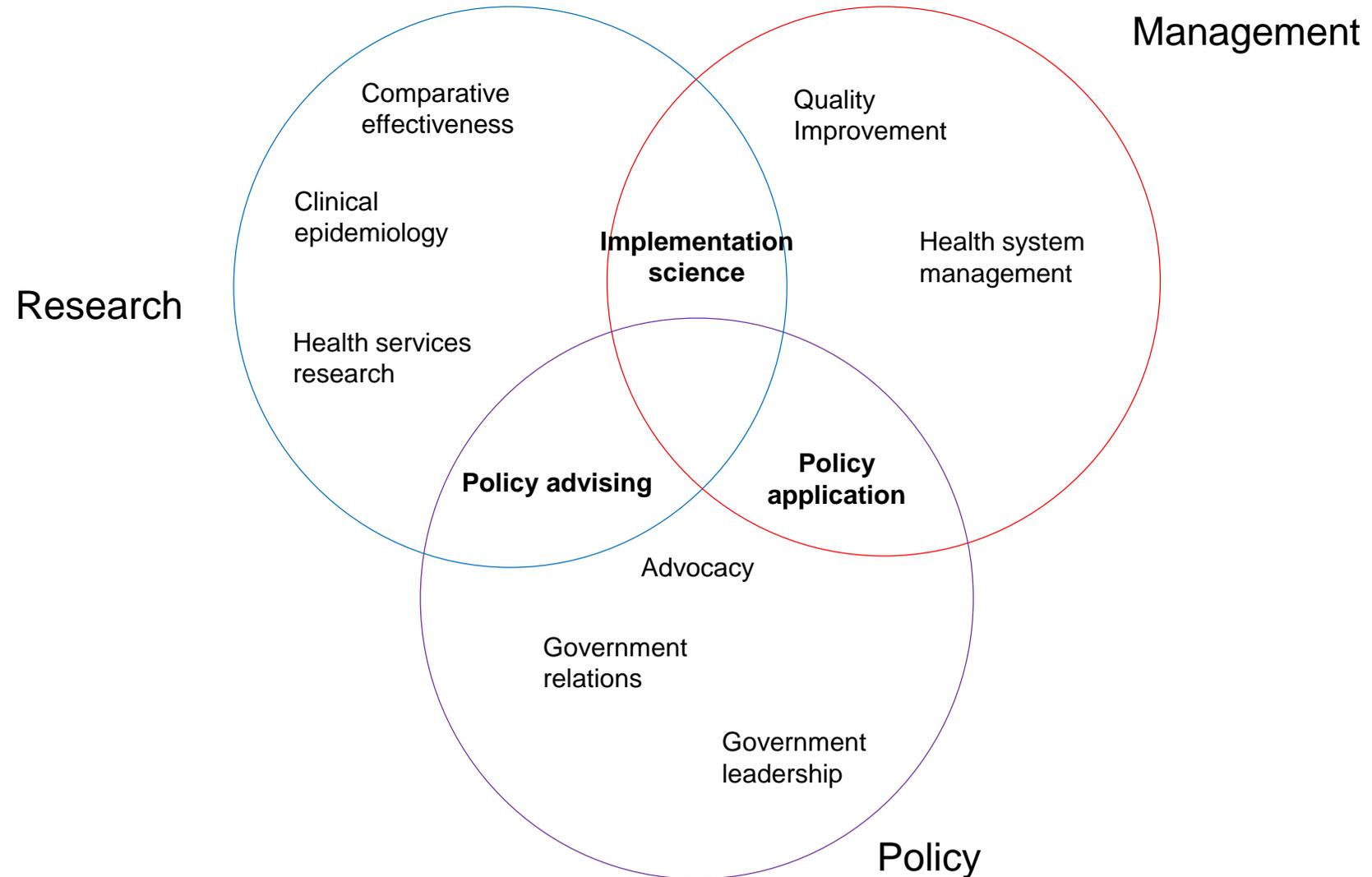
# Improvement science and disaster science

- Specific considerations in QI research
  - Quasi experimental design
  - Evidence based practice and shared baselines
  - Health services research is a multidisciplinary field of inquiry, both basic and applied, that examines access to, and the use, costs, quality, delivery, organization, financing, and outcomes of health care services to produce new knowledge about the structure, processes, and effects of health services for individuals and populations

-Thaul S, Lohr KN, Tranquada RE, eds, 1994



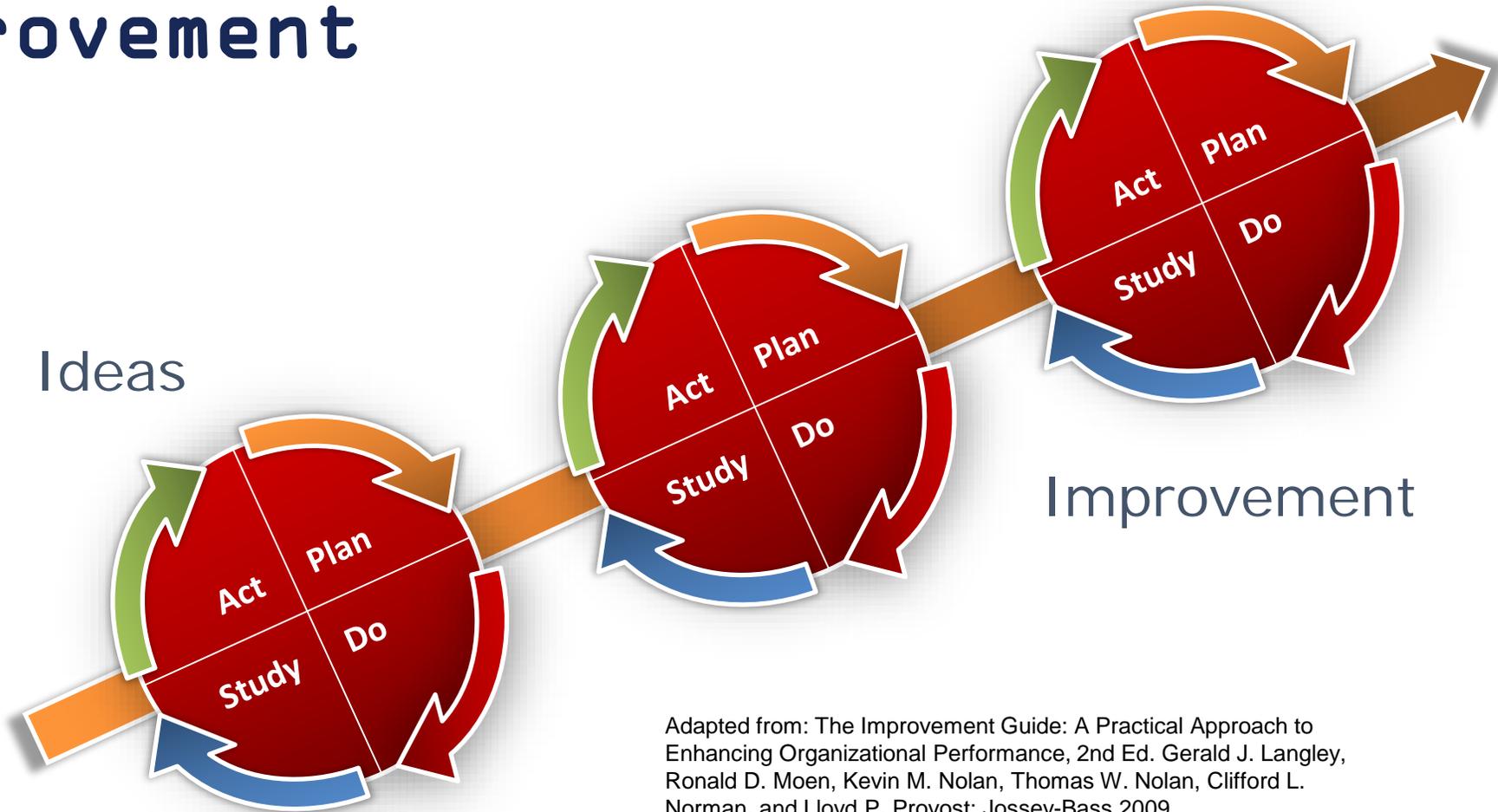
# System operations and HSR



Adapted from: Ackerly DC, Parekh A, Stein D;  
Massachusetts General Hospital



# Most common approaches to improvement: rapid cycle process improvement



Adapted from: The Improvement Guide: A Practical Approach to Enhancing Organizational Performance, 2nd Ed. Gerald J. Langley, Ronald D. Moen, Kevin M. Nolan, Thomas W. Nolan, Clifford L. Norman, and Lloyd P. Provost; Jossey-Bass 2009



# From institutional efforts to national collaboratives

- Quality improvement collaboratives:

- Networks for shared learning
- Translate research into practice
- Discover new knowledge
- Close quality gaps/improve care and outcomes

- One model for systems and capabilities requirements:

- Evidence informed content
- Quality improvement
- Project management
- IT infrastructure
- Data management
- Analytics
- Research capabilities/generation of new knowledge



# IPSO Participating Hospitals

Research: methods & bundles,  
prospective definitions of  
sepsis, surveillance definitions  
with CDC, interim results

**Bed Count Range**

- 43 - 99 beds
- 100 - 199 beds
- 200 - 299 beds
- 300 - 636 beds

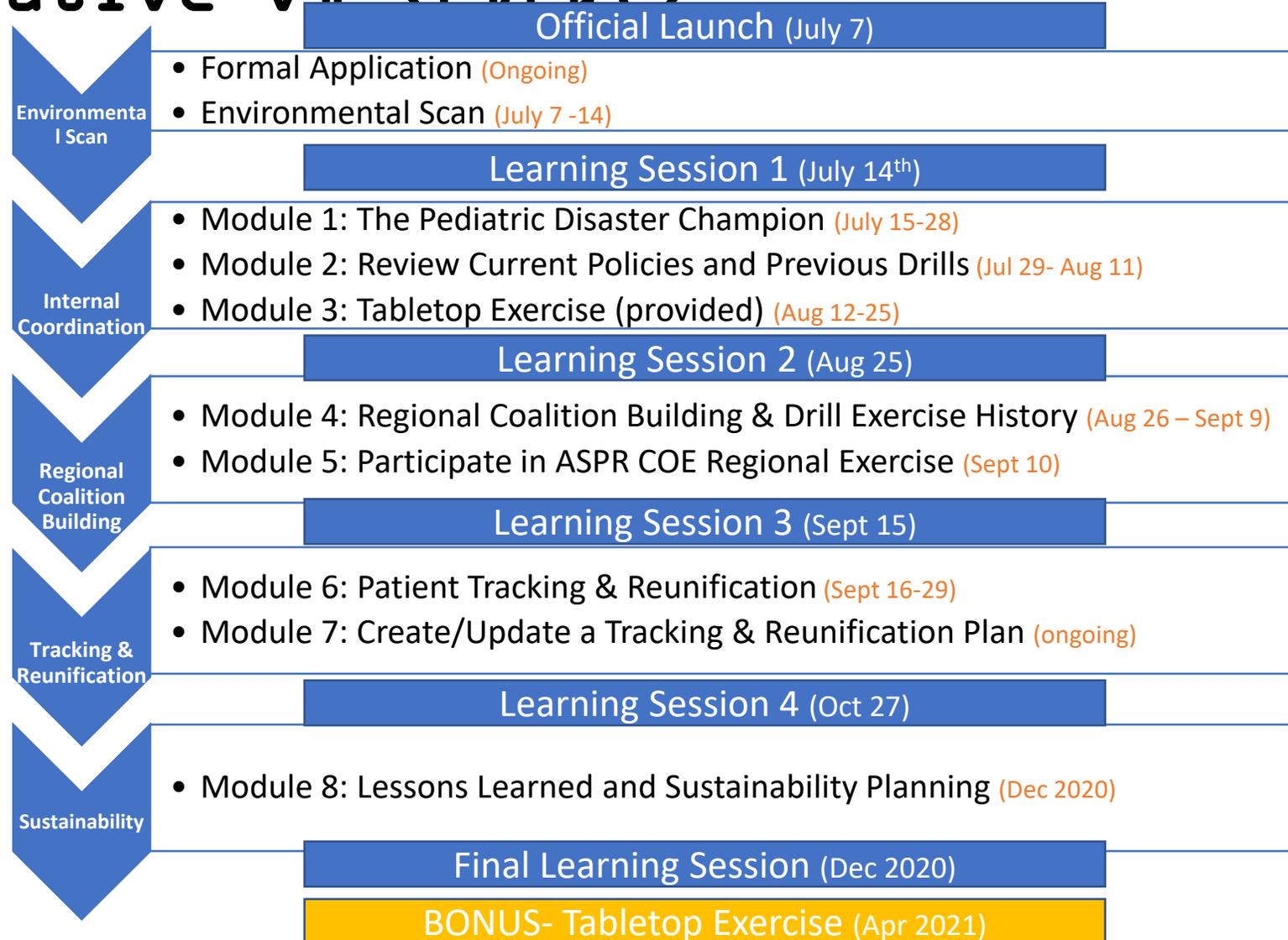
Participating  
hospitals  
**57**

**12 Most Improved  
Sites**

**41.0% net increase in bundle  
compliance**  
(243% relative increase)

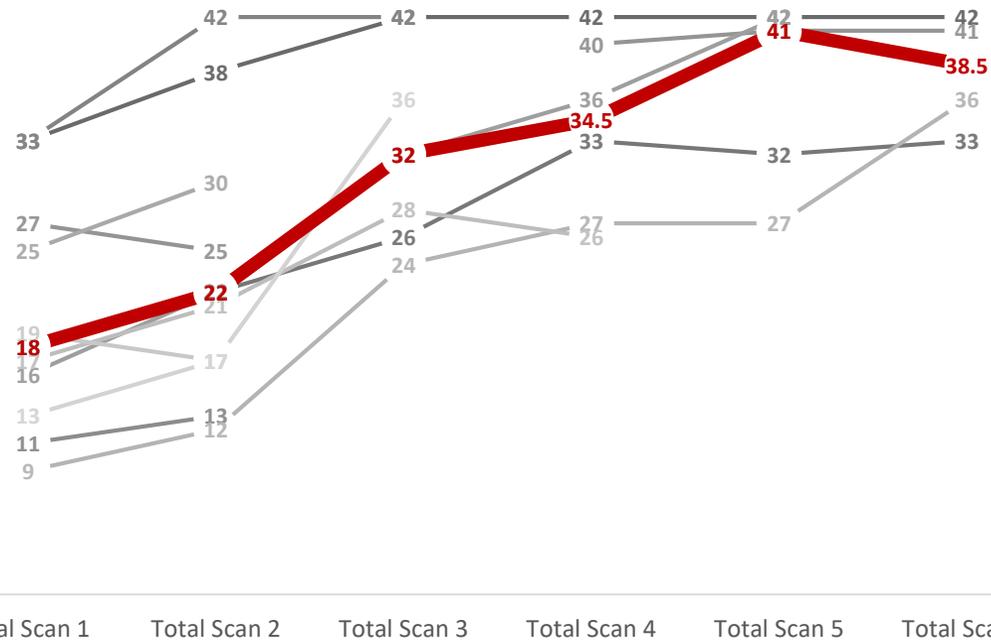
**3.8% net decrease in  
mortality**  
(67% relative decrease)

# Pediatric Disaster Preparedness Quality Collaborative v1 (PDPQC)

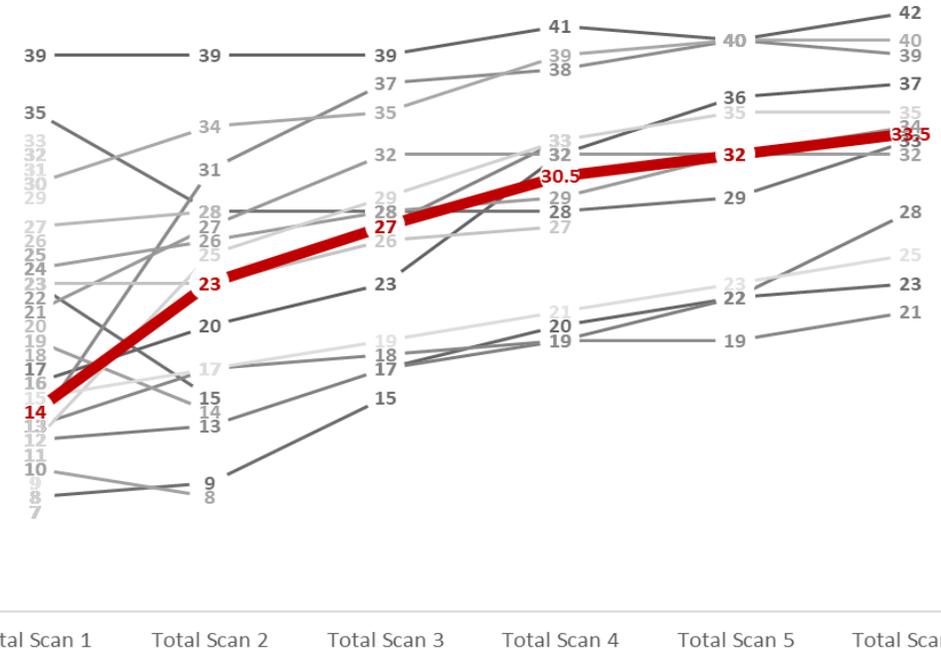


# Demonstrating success

### CLINIC-BASED OVERALL PREPAREDNESS SCORE

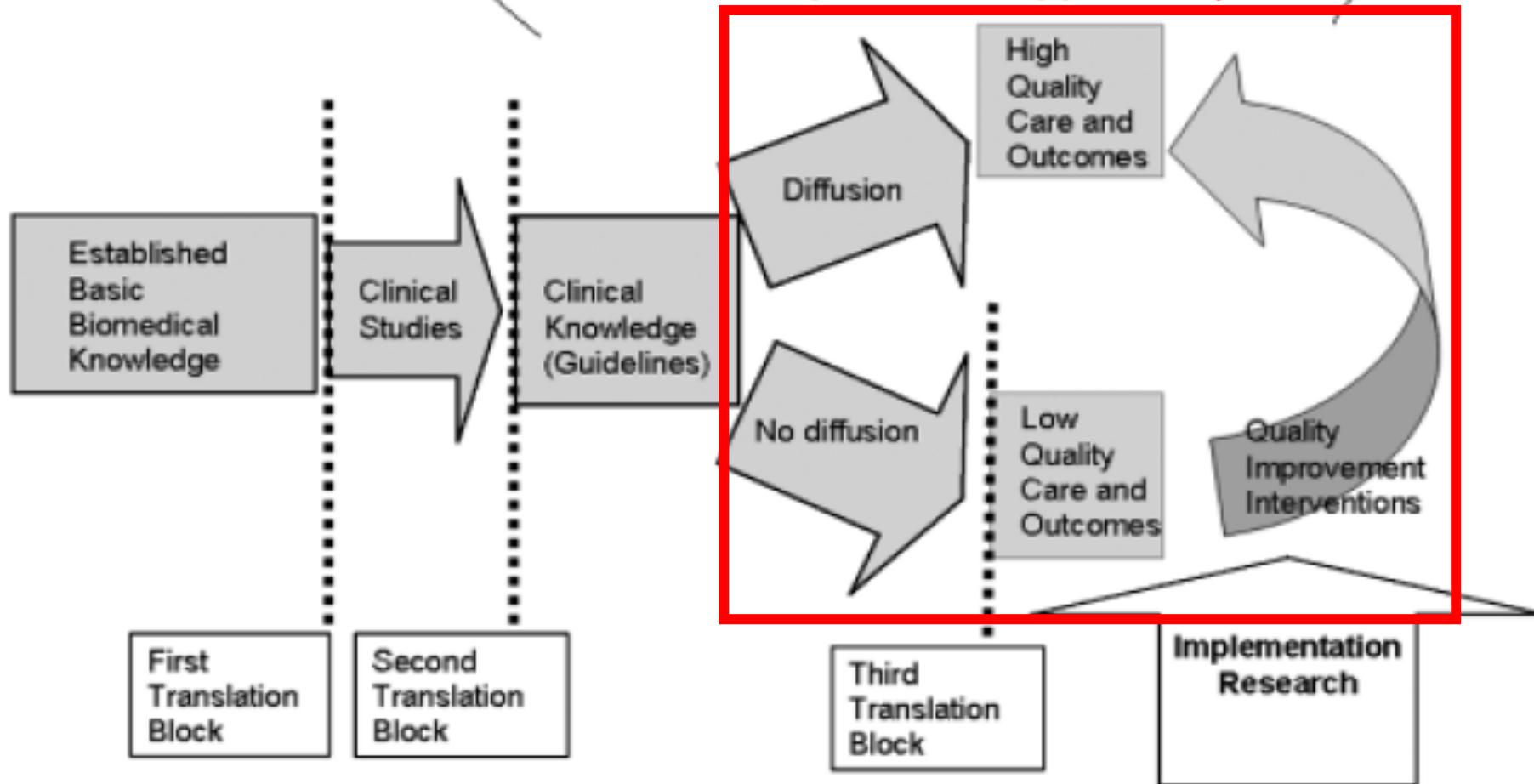


### HOSPITAL-BASED OVERALL PREPAREDNESS SCORE



Health Services Research,  
Including Policy Research

**Enhancing organizations and networks' research capabilities: opportunity to shift the investments**



Rubenstein, J Gen Intern Med 2006



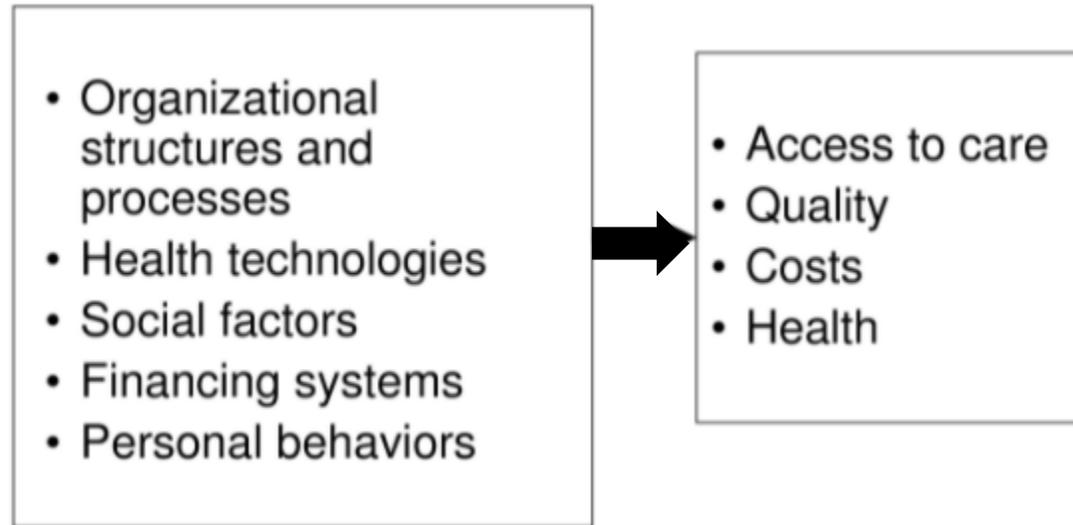
# Thank you

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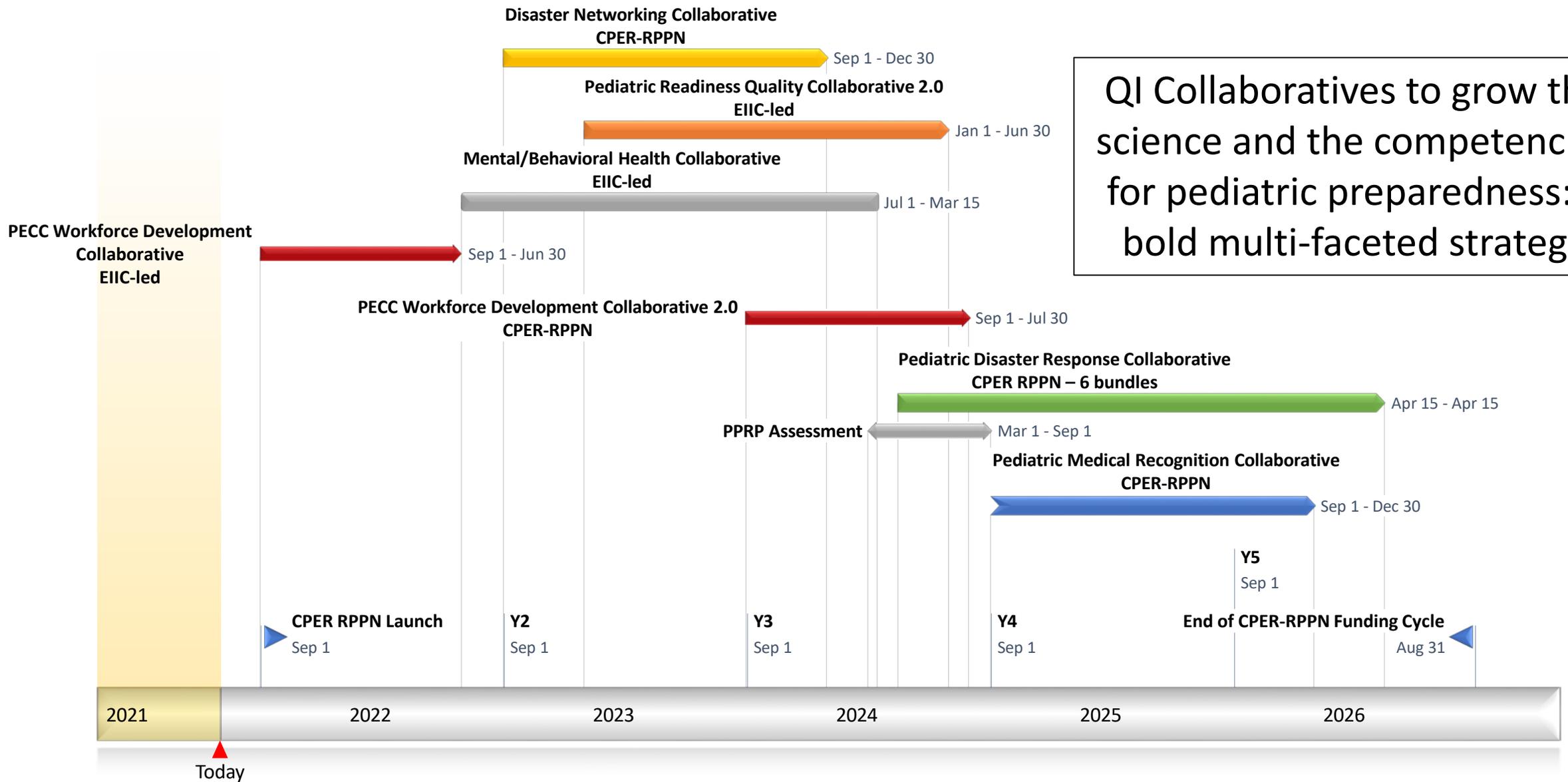


# Health services research to drive outcomes



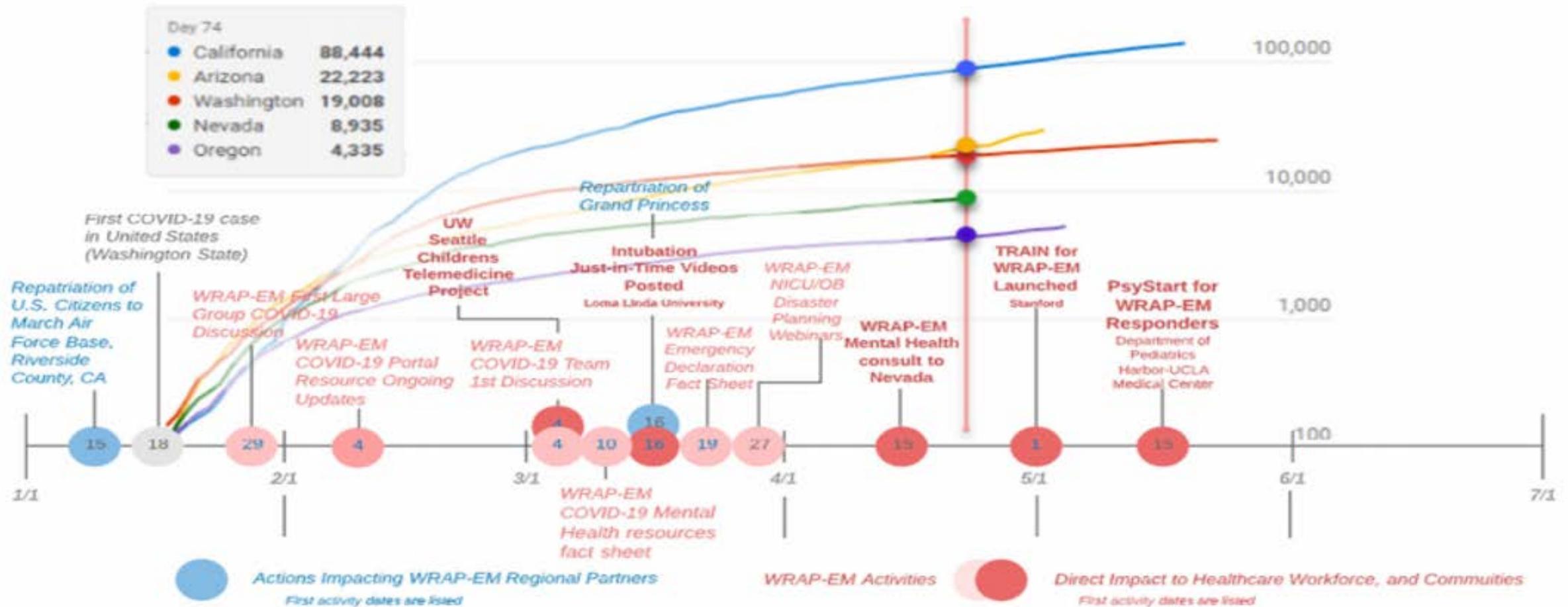
Evidence Based Guideline  
decreased mortality →  
Protocol MTP in MCIs





QI Collaboratives to grow the science and the competencies for pediatric preparedness: a bold multi-faceted strategy

# Disaster “systems” structures must be nimble



# System improvements to tackle challenging problems must be collaborative to grow science

- Challenging to be impactful at the level of the individual institution
- In light of the “great resignation” a recent scoping review noted the paucity of literature describing organizational efforts at mental resilience and psychological well being during disasters
  - Palmer J et al BMC Public Health 2022
- Integration of behavioral health in deliberate modeling



# Workgroup Collaboration - Behavioral Health Model

