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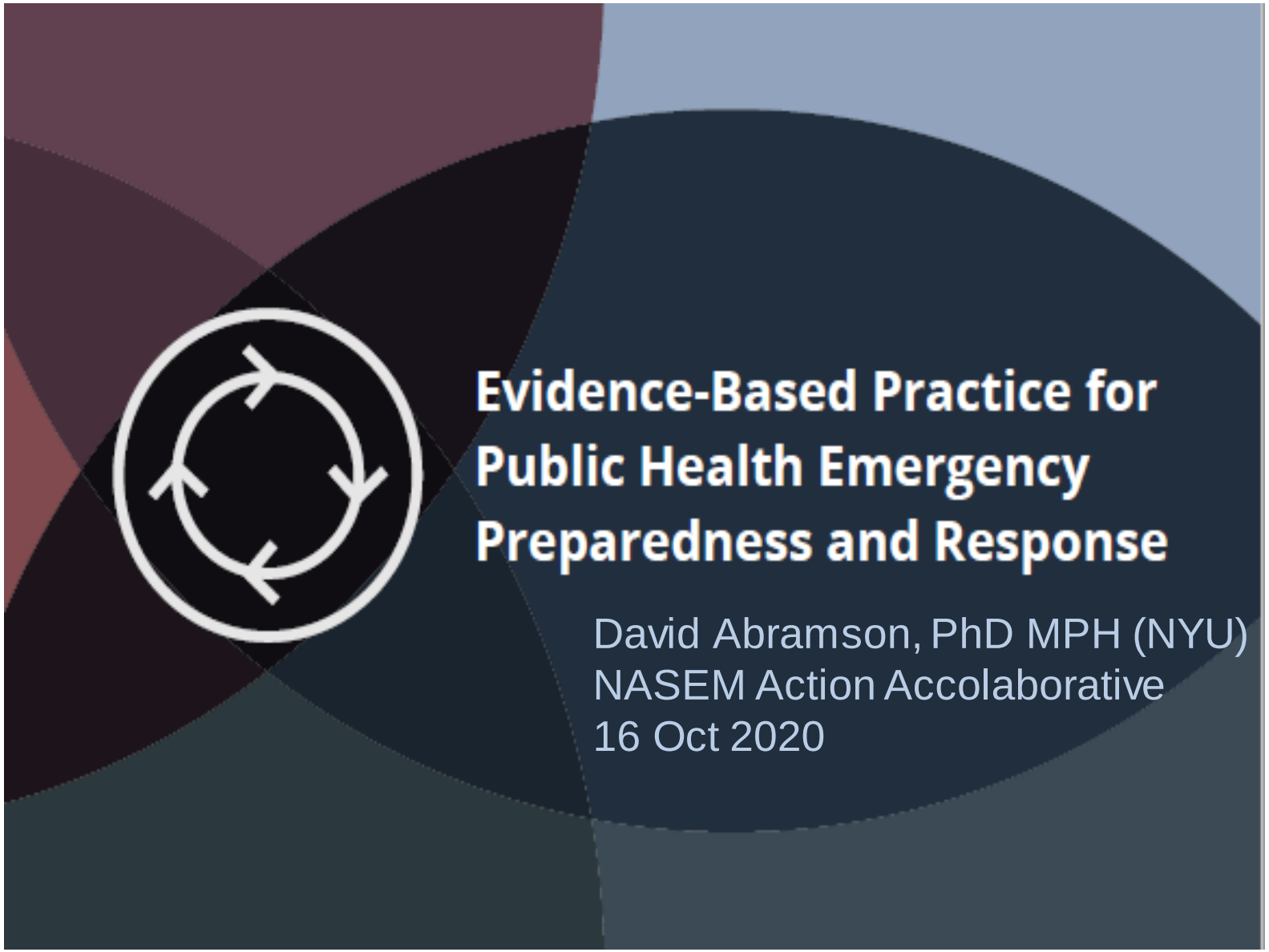

Committee Membership

- **BRUCE (NED) CALONGE (*Chair*),** The Colorado Trust
- **DAVID ABRAMSON,** New York University College of Global Public Health
- **JULIE CASANI,** North Carolina State University
- **DAVID EISENMAN,** University of California, Los Angeles
- **FRANCISCO GARCIA,** Pima County
- **PAUL HALVERSON,** Indiana University
- **SEAN HENNESSY,** University of Pennsylvania
- **EDBERT HSU,** Johns Hopkins University
- **NATHANIEL HUPERT,** Weill Cornell Medicine, Cornell University
- **REBECCA MAYNARD,** University of Pennsylvania
- **SUZET MCKINNEY,** Illinois Medical District
- **JANE NOYES,** Bangor University
- **DOUG OWENS,** Stanford University
- **SANDRA QUINN,** University of Maryland
- **PAUL SHEKELLE,** Southern California Evidence-Based Practice Center, RAND Corporation
- **ANDY STERGACHIS,** University of Washington
- **MITCH STRIPLING,** Planned Parenthood Federation of America
- **STEVEN TEUTSCH,** University of California, Los Angeles, and University of Southern California
- **TENER VEENEMA,** Johns Hopkins University
- **MATTHEW WYNIA,** University of Colorado

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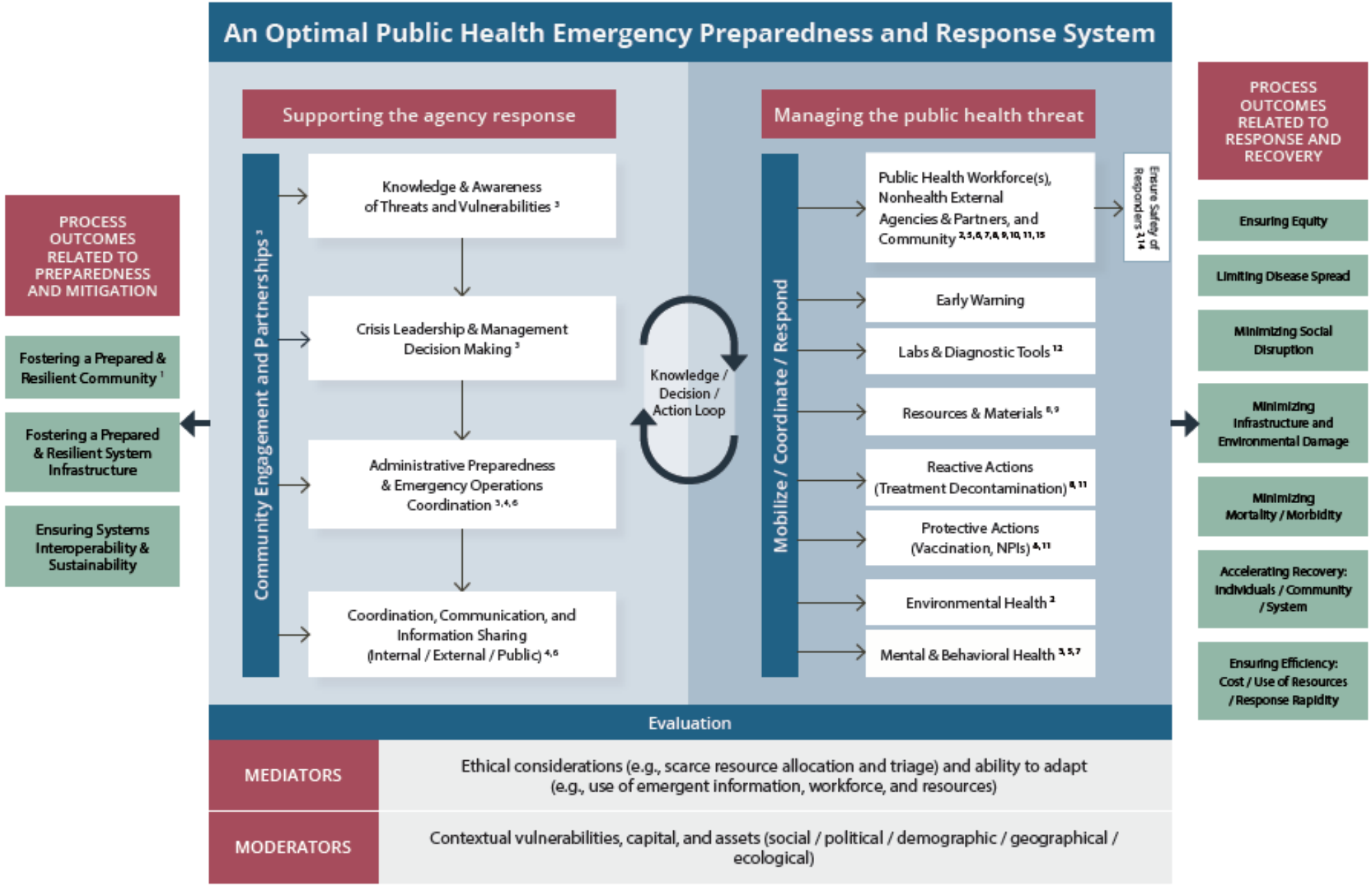
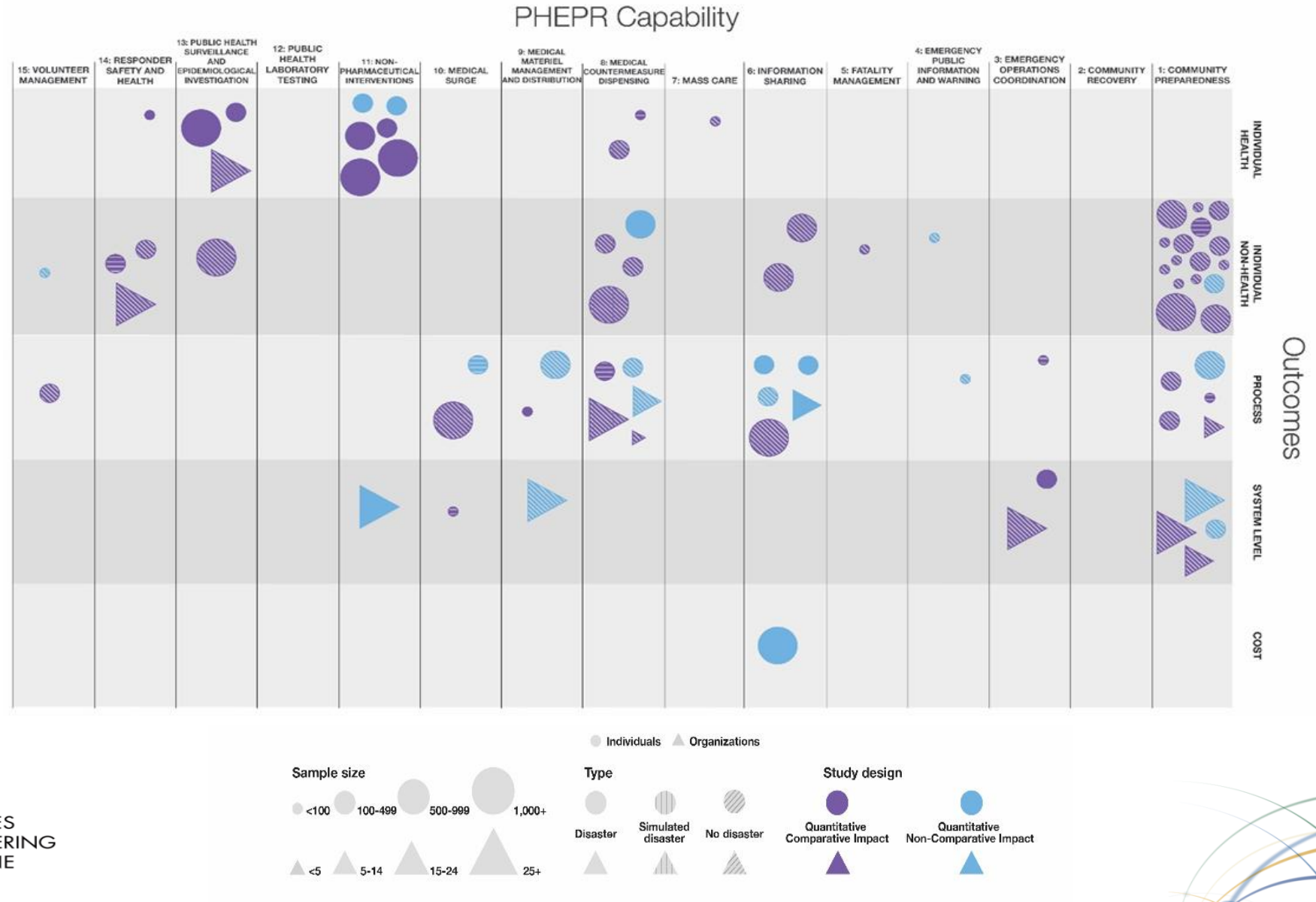
Charge to the Committee

- Develop the methodology for conducting a comprehensive review of evidence for public health emergency preparedness and response (PHEPR) practices, including the criteria by which to assess the strength of evidence and a tiered grading scheme;
- Develop and apply criteria to determine which PHEPR capabilities should be prioritized for inclusion in the comprehensive review;
- Apply the committee's evidence review methodology to assess the effectiveness of the selected practices;
- Develop recommendations for practices that communities, state, territorial, local, and/or tribal agencies should or should not adopt, based on evidence; and
- **Provide recommendations for future research to address critical gaps, as well as processes needed to improve the overall quality of evidence within the field.**


An Optimal Public Health Emergency Preparedness and Response System
PROCESS OUTCOMES RELATED TO PREPAREDNESS AND MITIGATION
Fostering a Prepared & Resilient Community [1]
Fostering a Prepared & Resilient System Infrastructure
Ensuring Systems Interoperability & Sustainability
Supporting the agency response
Community Engagement and Partnerships [3]
Knowledge & Awareness of Threats and Vulnerabilities [3]
Crisis Leadership & Management Decision Making [3]
Administrative Preparedness & Emergency Operations Coordination [3,4,6]
Coordination, Communication, and Information Sharing (Internal / External / Public) [4,6]
Knowledge / Decision / Action Loop
Managing the public health threat
Mobilize / Coordinate / Respond
Public Health Workforce(s), Nonhealth External Agencies & Partners, and Community [2,5,6,7,8,9,10,11,15]
Ensure Safety of Responders [2,14]
Early Warning
Labs & Diagnostic Tools [12]
Resources & Materials [8,9]
Reactive Actions (Treatment Decontamination) [8,11]
Protective Actions (Vaccination, NPIs) [4,11]
Environmental Health [2]
Mental & Behavioral Health [3,5,7]
PROCESS OUTCOMES RELATED TO RESPONSE AND RECOVERY
Ensuring Equity
Limiting Disease Spread
Minimizing Social Disruption
Minimizing Infrastructure and Environmental Damage
Minimizing Mortality / Morbidity
Accelerating Recovery: Individuals / Community / System
Ensuring Efficiency: Cost / Use of Resources / Response Rapidity
Evaluation
MEDIATORS
Ethical considerations (e.g., scarce resource allocation and triage) and ability to adapt (e.g., use of emergent information, workforce, and resources)
MODERATORS
Contextual vulnerabilities, capital, and assets (social / political / demographic / geographical / ecological)

A Broader View of the State of the Evidence for PHEPR

Results from Commission Scoping Review and Evidence Maps: U.S. Impact Studies



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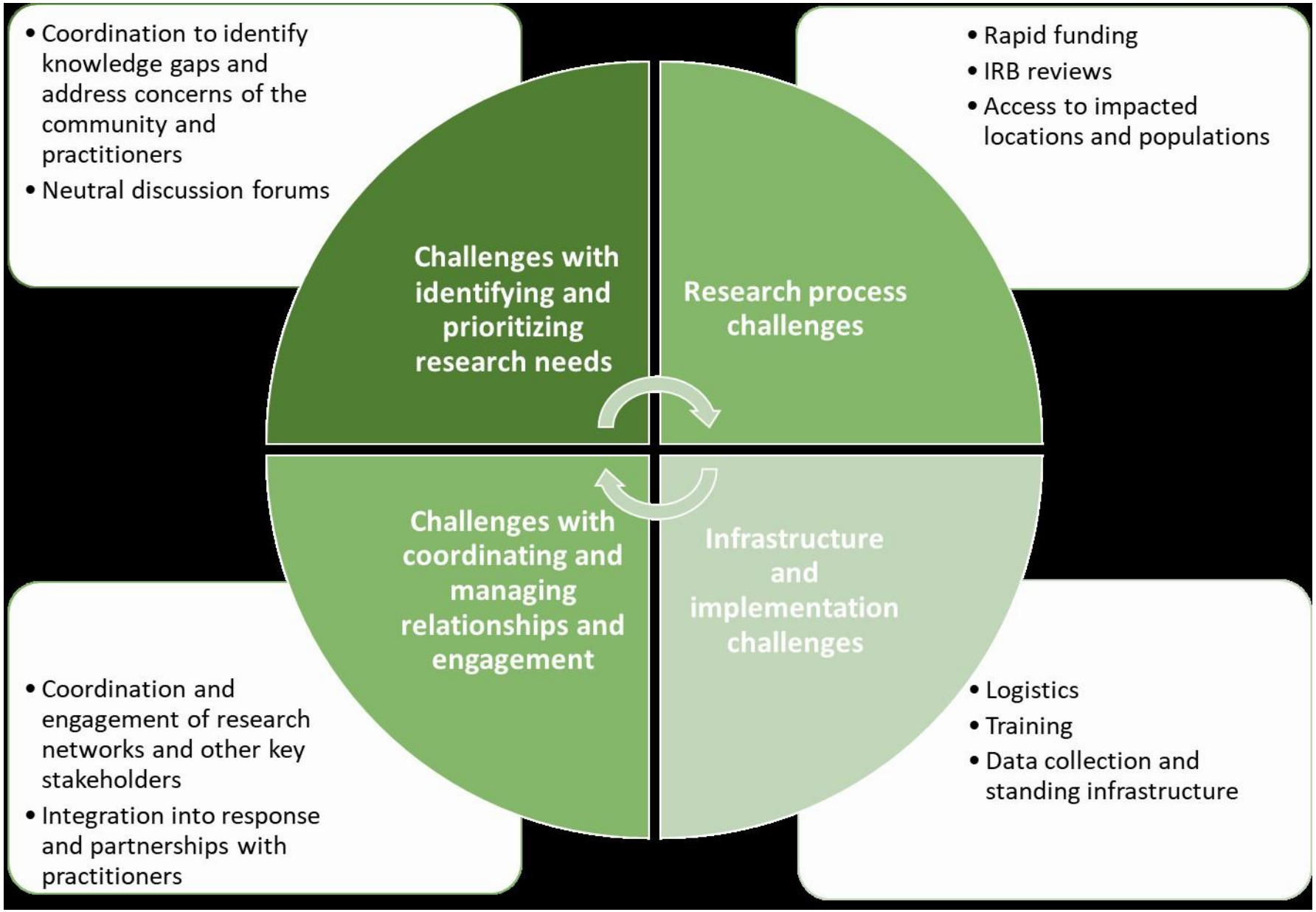
• Coordination to identify knowledge gaps and address concerns of the community and practitioners
• Neutral discussion forums
• Rapid funding
• IRB reviews
• Access to impacted locations and populations
Challenges with identifying and prioritizing research needs
Research process challenges
Challenges with coordinating and managing relationships and engagement
Infrastructure and implementation challenges
• Coordination and engagement of research networks and other key stakeholders
• Integration into response and partnerships with practitioners
• Logistics
• Training
• Data collection and standing infrastructure

Committee Conclusion on the State of PHEPR Evidence

Overall, the committee concluded that the science underlying the nation's response to public health emergencies is seriously deficient, hampering the nation's ability to respond to emergencies most effectively to save lives and preserve well-being.

Building Blocks for fostering an applied scientific discipline

- **Sustained and comprehensive interest in the research findings**
- **Development of a coordinated research agenda**
- **Formation of a foundation of resources, assets, and networks:**
  - **Academic institutions**
  - **Scholars and researchers, including training pipelines**
  - **Networks connecting research to policy and practice**

NSF currently supports seven Extreme Events Research (EER) networks. This EER ecosystem is designed to help coordinate disciplinary communities, while also encouraging cross-disciplinary information sharing and interdisciplinary integration.

PHEER? Public Health Extreme Events Reconnaissance

RECOMMENDATION 3:

Develop a National PHEPR Science Framework

To enhance and expand the evidence base for PHEPR practices and translation of the science to the practice community, CDC should work with other relevant funding agencies, SLTT public health agencies, academic researchers, professional associations, and other stakeholders to develop a National PHEPR Science Framework so as to ensure resourcing, coordination, monitoring, and execution of public- and private-sector PHEPR research.

RECOMMENDATION 3: Continued…

- Build on and improve coordination, integration, and alignment among existing PHEPR research efforts
- Recognize and support PHEPR science as a unique academic discipline.
- Create a common, robust, forward-looking PHEPR research agenda.
- Support meaningful partnerships between PHEPR practitioners and researchers.
- Prioritize strategies and mechanisms for the translation, dissemination, and implementation of PHEPR research.

ADDITIONAL RECOMMENDATIONS

- Ensure Infrastructure and Funding to Support PHEPR Research
- Improve the Conduct and Reporting of PHEPR Research
- Support Workforce Capacity Development and Technical Assistance Programs for PHEPR Researchers and Practitioners
- Ensure the Translation, Dissemination, and Implementation of PHEPR Research to Practice

Aligning Recommendations

NASEM PHEP Study (2020)	Lurie et al, NEJM (2013)	National Biodefense Science Board	AAAS "Science During Crisis" (2019)
Develop a National Disaster Science Framework		Convene Strategic Scientific Planning Councils	
Improve coordination among PHEPR research community	Identify and roster experts, plan for "ready reserve" of citizen scientists and clinicians		Address divergent scientific opinions, data, and results during crisis
Support partnerships of research, policy, and practice communities	Scientific research should be a part of core response plans and ICS	Include scientific response in National Response Framework	Emergency response and scientific communities should expand joint training
Ensure infrastructure and funding to support and sustain PHEPR research	Rapid funding, with appropriate administrative mechanisms	Funding to support rapid and robust scientific response	Fed, state, and local agencies should have available funds for science during crisis

Thank You!

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