WHAT'S THIS THING CALLED IMPLEMENTATION SCIENCE?

Let's Talk Implementation Science Series
Durham Veterans Affairs Health Care System
Durham, NC

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UT Southwestern Medical Center – Division of General Internal Medicine

Today's Talk

- Why do we need implementation science?

- What is implementation science?
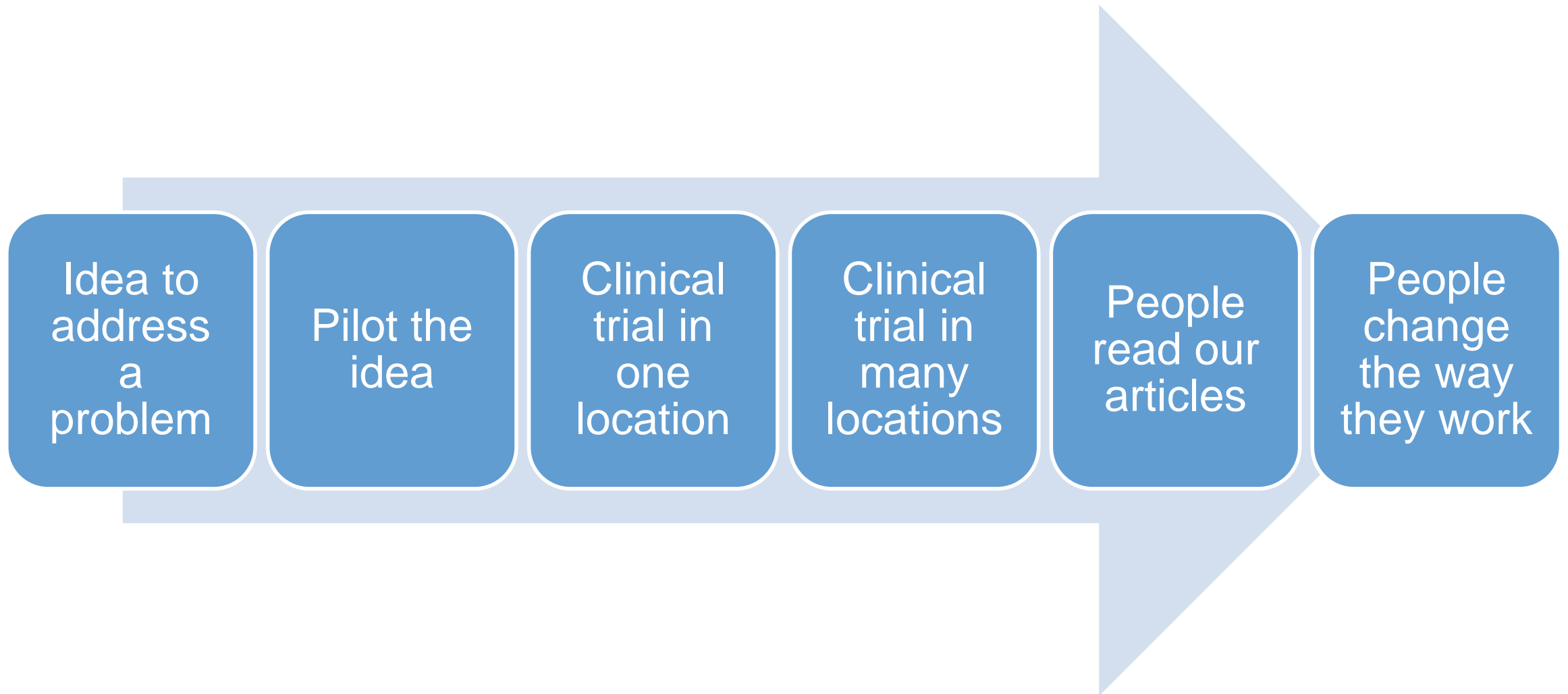
- Where do you get funding?

- How can the Durham HSR COIN help?

Picture from Tom Houston, MD

WHY DO WE NEED IMPLEMENTATION SCIENCE?

What We Hope Will Happen on Its Own

Idea to address a problem → Pilot the idea → Clinical trial in one location → Clinical trial in many locations → People read our articles → People change the way they work

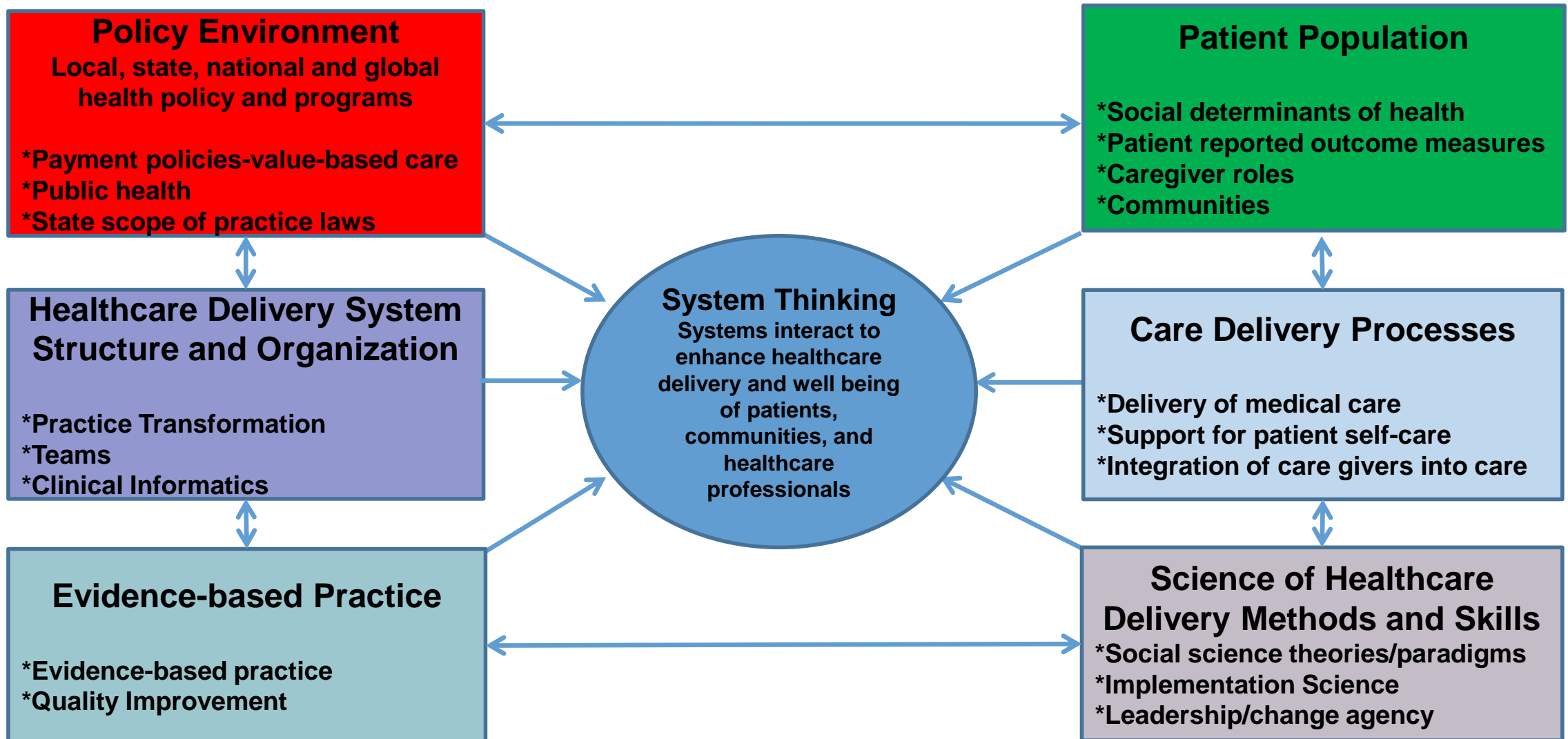# Reality of Traditional Healthcare Systems

Learning Health Systems

- Goal of utilizing existing expertise and data to develop, implement, and evaluate innovations aimed at improving quality of care and outcomes

- Aligning science with clinical and organization priorities

- Population-perspective

- Leveraging existing data and information technology

- Collaboration among experts in health services and clinical research, data science, clinical care, administration, and improvement

Atkins D, Kilbourne AM, Shulkin D. Moving From Discovery to System-Wide Change: The Role of Research in a Learning Health Care System: Experience from Three Decades of Health Systems Research in the Veterans Health Administration. *Annu Rev Public Health*. 2017;38:467-87.

Building Blocks for Innovative, High-Quality Practice

Policy Environment
Local, state, national and global health policy and programs

*Payment policies-value-based care
*Public health
*State scope of practice laws

Patient Population

*Social determinants of health
*Patient reported outcome measures
*Caregiver roles
*Communities

Healthcare Delivery System Structure and Organization

*Practice Transformation
*Teams
*Clinical Informatics

System Thinking
Systems interact to enhance healthcare delivery and well being of patients, communities, and healthcare professionals

Care Delivery Processes

*Delivery of medical care
*Support for patient self-care
*Integration of care givers into care

Evidence-based Practice

*Evidence-based practice
*Quality Improvement

Science of Healthcare Delivery Methods and Skills
*Social science theories/paradigms
*Implementation Science
*Leadership/change agency

Everett CM, Jackson GL, Morgan, P. Why the science of healthcare delivery matters to practicing PAs. *JAAPA*. 2020;33(3): 51-53.

Building Blocks for Innovative, High-Quality Practice

Policy Environment
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Patient Population

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*Patient reported outcome measures

Could also be titled: Why are partnerships among health & service providers, healthcare organizations and researchers is so important to learning health systems?

Evidence-based Practice

*Evidence-based practice
*Quality Improvement

Science of Healthcare Delivery Methods and Skills
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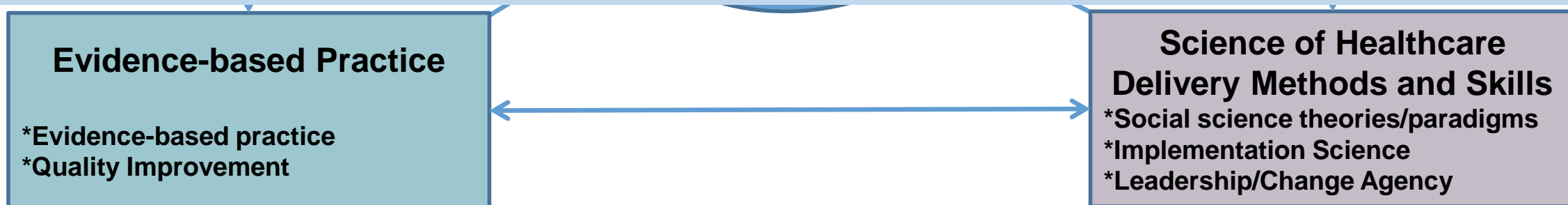
WHAT IS IMPLEMENTATION SCIENCE?

Knowledge is Not Enough

Hand Washing

- Hand washing in healthcare settings has been promoted for >100 years
- Hand washing adherence in healthcare settings is less than 50%
  - ➢ Physicians have lower adherence than others
- What strategies may help encourage hand washing?

1-Weinstein RA. Hand hygiene--of reason and ritual. Ann Intern Med. Jul 6 2004;141(1):65-66.
2-Erasmus V, Daha TJ, Brug H, et al. Systematic review of studies on compliance with hand hygiene guidelines in hospital care. Infect Control Hosp Epidemiol. Mar 2010;31(3):283-294.

Definition of Implementation Science

- "The <u>scientific study</u> of methods [also termed strategies] to promote the systematic uptake of <u>research findings</u> and other <u>evidence-based [or informed] practices</u> into <u>routine practice</u>, and, hence, to improve the quality and effectiveness of health services"[1]

- Involves:
  - ➢Innovation – What you are trying to implement
  - ➢Organization – Where you are trying to implement
  - ➢People – People who actually implement the innovation

1-Eccles MP, Mittman BS. Welcome to Implementation Science. Implementation Science. 2006;(1):1-3.
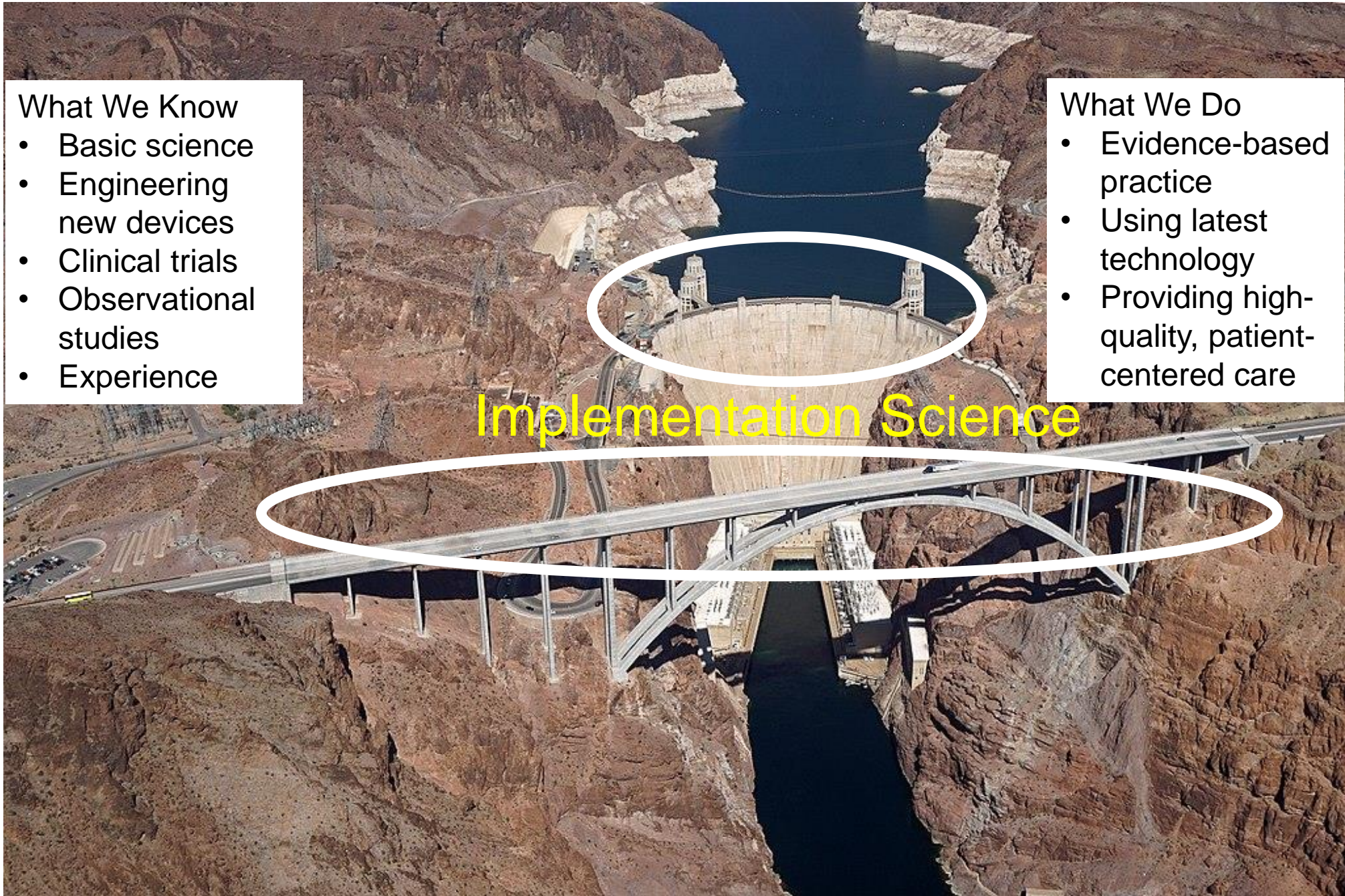
What We Know
- Basic science
- Engineering new devices
- Clinical trials
- Observational studies
- Experience

What We Do
- Evidence-based practice
- Using latest technology
- Providing high-quality, patient-centered care

Implementation Science

Components of an Implementation Question

Innovation/ Intervention	Implementation Strategy	Implementation Outcome	Intervention Effectiveness
Hand Washing	Attendings washing their hands[1]	Greater adherence to hand washing	Fewer infections

1-Based on observations of hand washing behavior: Lankford MG, Zembower TR, Trick WE, Hacek DM, Noskin GA, Peterson LR. Influence of role models and hospital design on hand hygiene of healthcare workers. Emerg Infect Dis. Feb 2003;9(2):217-223.

Implementation Strategy

- "Methods or techniques used to enhance the adoption, implementation, and sustainability of a clinical [administrative, community, or public health] program or practice"[1]

- How do we work with healthcare systems to implement an innovation, intervention, or research finding?

1-Proctor EK, Powell BJ, McMillen JC. Implementation strategies: recommendations for specifying and reporting. Implement Sci. 2013;8:139.

Examples of Implementation Strategies For Hand Washing

Necessary, Probably not Sufficient

- Teaching knowledge
- Awareness campaigns
- Ensuring hand washing facilities
- Cues (e.g. posters) to remind people

Additional Strategies

- Unit leadership indicating importance
- Social influence – Attendings and team leaders washing hands
- Setting norms and hand washing targets for the team
- Training aimed at increasing self-efficacy

Huis A, et al. A systematic review of hand hygiene improvement strategies: a behavioural approach. Implement Sci. Sep 14 2012;7:92.

Sample Implementation Strategies

Relative Intensity of Strategy

Evidence-based Quality Improvement
A systematic approach to developing local research-clinical partnerships to produce tailored evidence-based care models or redesigns (Rubenstein et al, 2010)

Facilitation
Interpersonal process of diagnosing barriers to uptake, providing encouragement and advice in mitigating barriers, co-develop action plans to resolve barriers to implementation. Blended Facilitation uses Internal and External Facilitators (Kirchner et al, 2015)

Replicating Effective Programs
Intervention or clinical practice user-friendly manual allowing adaptation, provider training, ongoing technical assistance (Kilbourne et al, 2014; Kilbourne et al, 2015)

Audit+Feedback
Remote electronic extraction of local quality performance and provide feedback (Jamtvedt, 2006; Ivers, 2012)

De-implementation
Un-learning by engaging clinicians in rational choice to stop practice, substitution approach where an alternative practice is introduced (Prasad et al, 2014)

Value-based incentives

Relative Site Complexity/Need

Slide from the VA Quality Enhancement Research Imitative

Implementation vs. Intervention Effectiveness

Implementation Effectiveness

Did you implement your intervention as intended?

The primary focus of Implementation science (as opposed to more traditional studies).

Implementation science addresses the impact of the strategies and process of implementation.

Intervention Effectiveness

Is your intervention still effective in new settings?

Focus is on the type of process and outcome measures seen in traditional studies (e.g., morbidity).

May also be addressed in implementation studies.

Proctor E, Silmere H, Raghavan R, et al. Outcomes for implementation research: conceptual distinctions, measurement challenges, and research agenda. Adm Policy Ment Health. Mar 2011;38(2):65-76.

Example Implementation Science Outcomes

<u>Implementation Effectiveness</u>

Did you implement what you intended?

- Adoption
- Reach
- Appropriateness
- Cost of the intervention
- Feasibility
- Fidelity
- Sustainability/maintenance
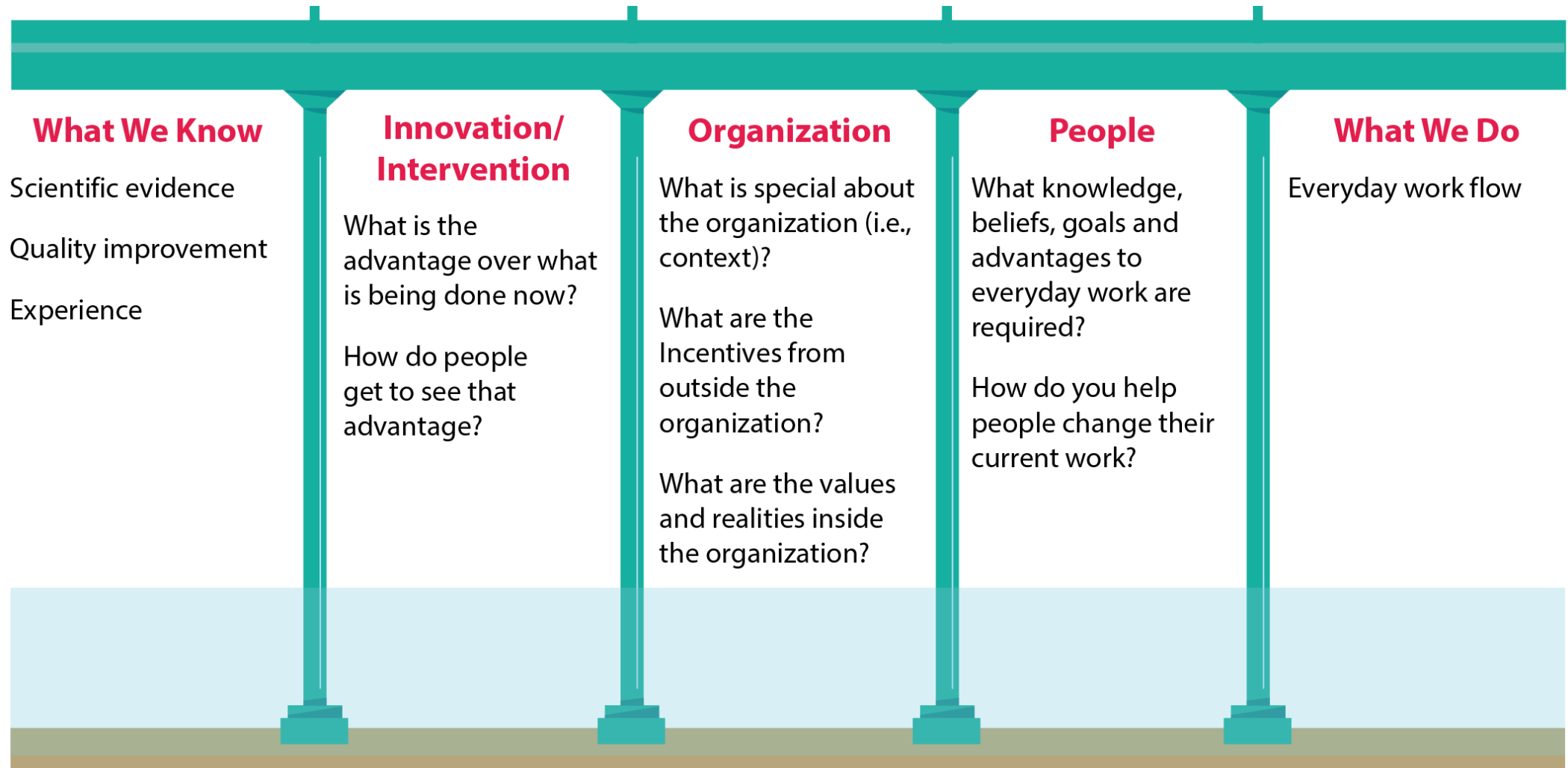
<u>Intervention Effectiveness</u>

Is your intervention still effective in new settings?

- Patient outcomes
  - Morbidity
  - Mortality
  - Quality of life

- Service/Organizational outcomes
  - Access
  - Timeliness
  - Safety

Implementation Science Informing Quality Improvement and Implementation/Improvement Practice

What We Know

Scientific evidence

Quality improvement

Experience

Innovation/Intervention

What is the advantage over what is being done now?

How do people get to see that advantage?

Organization

What is special about the organization (i.e., context)?

What are the Incentives from outside the organization?

What are the values and realities inside the organization?

People

What knowledge, beliefs, goals and advantages to everyday work are required?

How do you help people change their current work?

What We Do

Everyday work flow

Jackson GL, Cutrona SL, Kilbourne A, White BS, Everett C, Damschroder LJ. Implementation science: Helping healthcare systems improve. *JAAPA*. 2020;33:51-53.

Theories and Frameworks are Important – Beyond Scope of Today's Talk

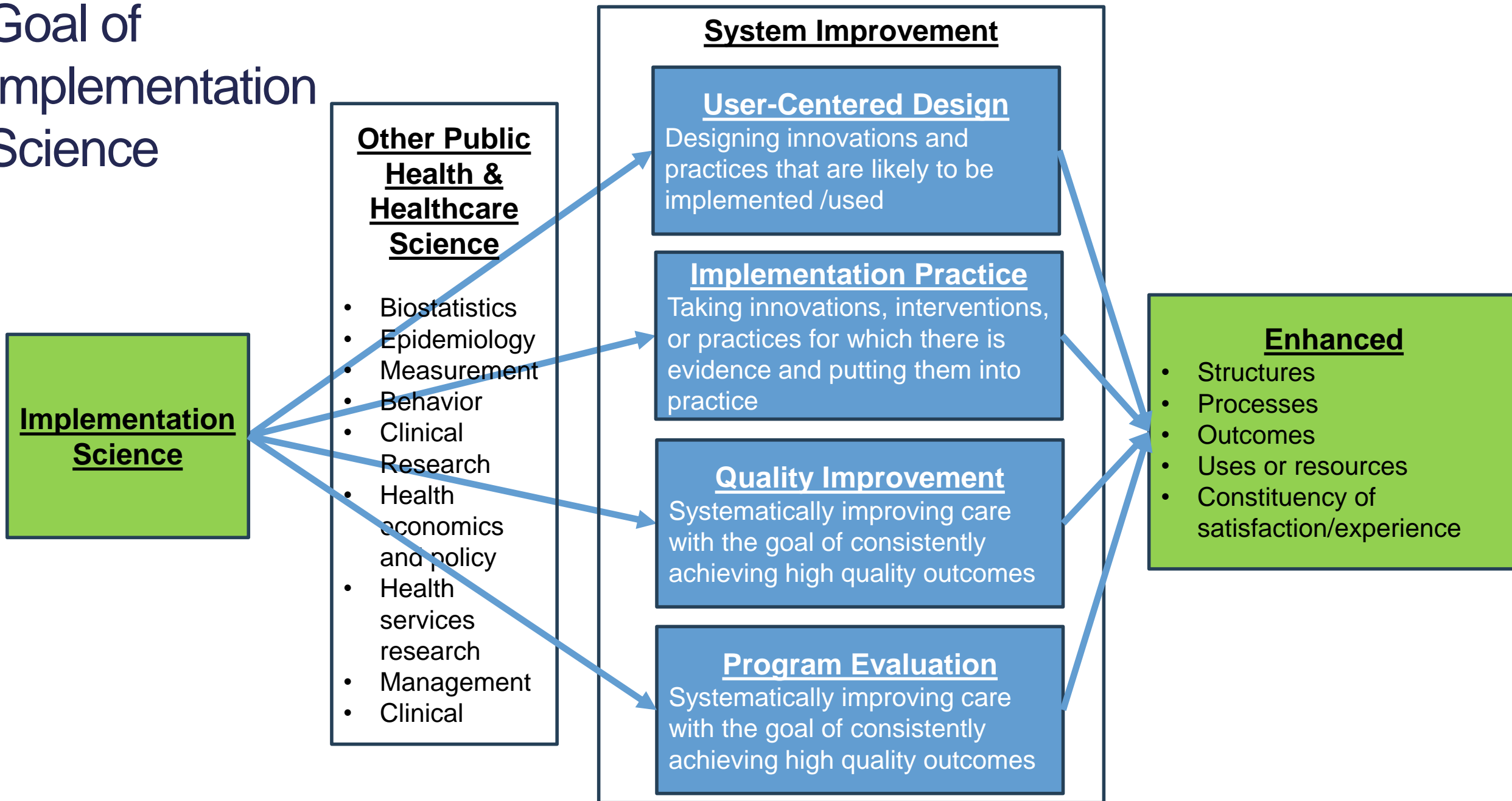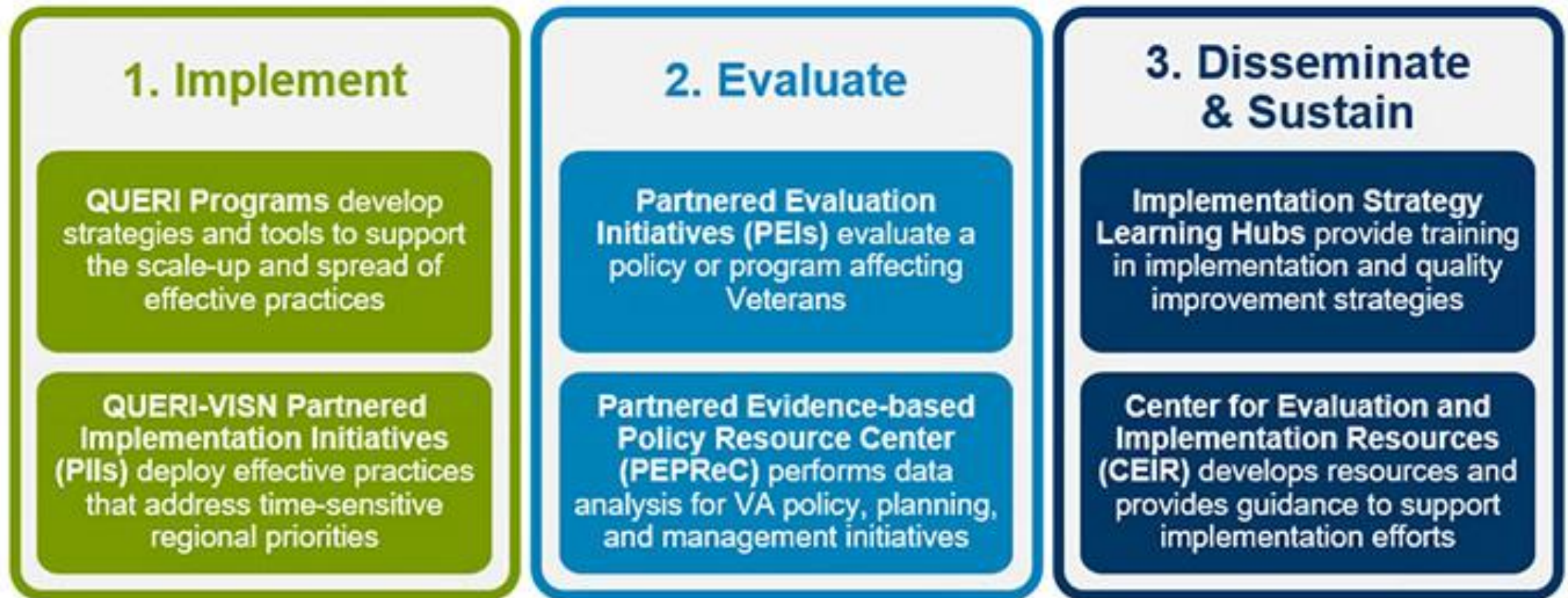| Innovation/ Intervention	• Example: Rogers Diffusion of Innovation
Organization	• Example: Consolidated Framework for Implementation Research (CFIR)
People	• Example: Theoretical Domains Framework

Goal of Implementation Science

Implementation Science
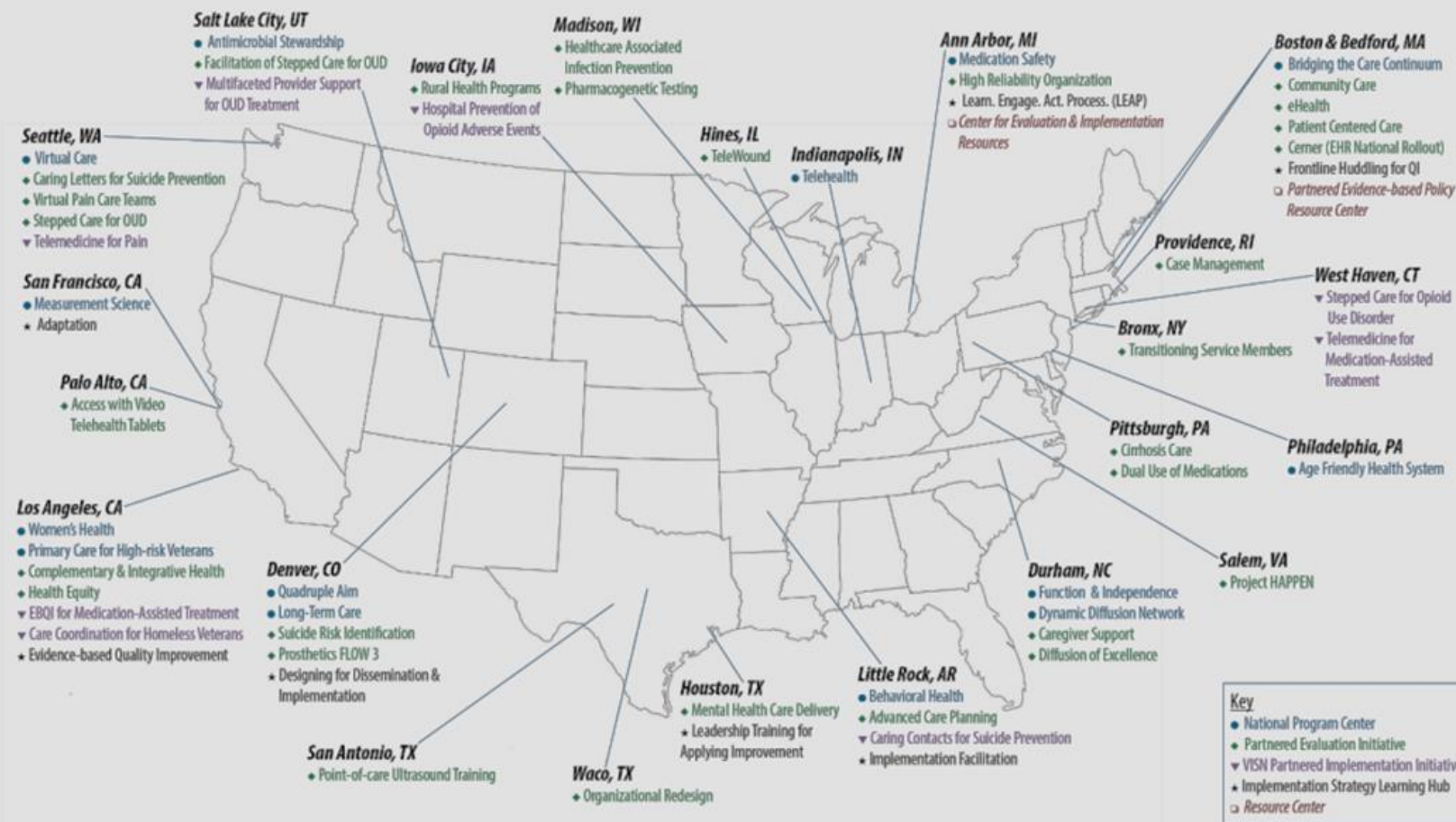
Other Public Health & Healthcare Science

- Biostatistics
- Epidemiology
- Measurement
- Behavior
- Clinical Research
- Health economics and policy
- Health services research
- Management
- Clinical

System Improvement

User-Centered Design
Designing innovations and practices that are likely to be implemented /used

Implementation Practice
Taking innovations, interventions, or practices for which there is evidence and putting them into practice

Quality Improvement
Systematically improving care with the goal of consistently achieving high quality outcomes

Program Evaluation
Systematically improving care with the goal of consistently achieving high quality outcomes

Enhanced

- Structures
- Processes
- Outcomes
- Uses or resources
- Constituency of satisfaction/experience

WHERE DO YOU GET FUNDING?

VA Quality Enhancement Research Initiative (QUERI)

Overall Structure of QUERI

1. Implement

QUERI Programs develop strategies and tools to support the scale-up and spread of effective practices

QUERI-VISN Partnered Implementation Initiatives (PIIs) deploy effective practices that address time-sensitive regional priorities

2. Evaluate

Partnered Evaluation Initiatives (PEIs) evaluate a policy or program affecting Veterans

Partnered Evidence-based Policy Resource Center (PEPReC) performs data analysis for VA policy, planning, and management initiatives

3. Disseminate & Sustain

Implementation Strategy Learning Hubs provide training in implementation and quality improvement strategies

Center for Evaluation and Implementation Resources (CEIR) develops resources and provides guidance to support implementation efforts

Image from – https://www.queri.research.va.gov/

Over 40 Centers with Diverse Expertise

Salt Lake City, UT
- Antimicrobial Stewardship
- Facilitation of Stepped Care for OUD
- Multifaceted Provider Support for OUD Treatment

Iowa City, IA
- Rural Health Programs
- Hospital Prevention of Opioid Adverse Events

Madison, WI
- Healthcare Associated Infection Prevention
- Pharmacogenetic Testing

Ann Arbor, MI
- Medication Safety
- High Reliability Organization
- Learn. Engage. Act. Process. (LEAP)
- Center for Evaluation & Implementation Resources

Boston & Bedford, MA
- Bridging the Care Continuum
- Community Care
- eHealth
- Patient Centered Care
- Cerner (EHR National Rollout)
- Frontline Huddling for QI
- Partnered Evidence-based Policy Resource Center

Seattle, WA
- Virtual Care
- Caring Letters for Suicide Prevention
- Virtual Pain Care Teams
- Stepped Care for OUD
- Telemedicine for Pain

Hines, IL
- TeleWound

Indianapolis, IN
- Telehealth

Providence, RI
- Case Management

West Haven, CT
- Stepped Care for Opioid Use Disorder
- Telemedicine for Medication-Assisted Treatment

San Francisco, CA
- Measurement Science
- Adaptation

Bronx, NY
- Transitioning Service Members

Palo Alto, CA
- Access with Video Telehealth Tablets

Pittsburgh, PA
- Cirrhosis Care
- Dual Use of Medications

Philadelphia, PA
- Age Friendly Health System

Los Angeles, CA
- Women's Health
- Primary Care for High-risk Veterans
- Complementary & Integrative Health
- Health Equity
- EBQI for Medication-Assisted Treatment
- Care Coordination for Homeless Veterans
- Evidence-based Quality Improvement

Denver, CO
- Quadruple Aim
- Long-Term Care
- Suicide Risk Identification
- Prosthetics FLOW 3
- Designing for Dissemination & Implementation

Durham, NC
- Function & Independence
- Dynamic Diffusion Network
- Caregiver Support
- Diffusion of Excellence

Salem, VA
- Project HAPPEN

Houston, TX
- Mental Health Care Delivery
- Advanced Care Planning
- Leadership Training for Applying Improvement

Little Rock, AR
- Behavioral Health
- Advanced Care Planning
- Caring Contacts for Suicide Prevention
- Implementation Facilitation

San Antonio, TX
- Point-of-care Ultrasound Training

Waco, TX
- Organizational Redesign

Key
- National Program Center
- Partnered Evaluation Initiative
- VISN Partnered Implementation Initiative
- Implementation Strategy Learning Hub
- Resource Center

Move to Implementation Science

- Implementation science was not a widely used term in 1998

- QUERI made a decision to hire "implementation science coordinators" to build the field and concepts of implementation science

- Need to balance traditional HSR, management research, program evaluation, implementation practice, and implementation research

- Gradual move toward implementation science focused on how and why practices get implemented

- QUERI investigators have had multiple concepts to IS such as the Consolidated Framework for Implementation Research (CFIR) and the concept of hybrid implementation

- Increased focus on the development and testing of implementation strategies

QUERI – Implementation Roadmap

Kilbourne AM, Goodrich DE, Miake-Lye I, Braganza MZ, Bowersox NW. Quality Enhancement Research Initiative Implementation Roadmap: Toward Sustainability of Evidence-based Practices in a Learning Health System. *Med Care* 2019;57 Suppl 10 Suppl 3:S286-S93.

Example of QUERI Projects at the Durham VA

Optimizing Function & Independence QUERI – Susan N. (Nicki) Hastings, Kelli Allen, Courtney Van Houtven
- Partners with 5 National VA Program Offices and VISN 6 to implement 3 evidence-based clinical programs
- STRIDE enrolled 11 new facilities and developed tools for "STRIDE in Your Room' in response to COVID restrictions
- Caregivers FIRST adopted as minimum standard program and trained 61 Caregiver Support program staff and 5 VISN leads
- Group Physical Therapy for Knee Osteoarthritis began recruiting for 16-site implementation trial

Dynamic Diffusion Network QUERI Program - George Jackson, Matt Crowley, Sarah Cutrona, Jason Nieuwsma
- QUERI program focused on spread of complex clinical practices to later adopting facilities
- Partners with 5 National Program Offices and VISN 19 to implement 2 evidence-based clinical programs
- Evaluation use of a dynamic diffusion network implementation strategy compared to technical assistances
- Implementing chaplain-mental health led moral injury groups and Advanced Comprehensive Diabetes Care (ACDC)

Spreading Healthcare Access, Activities, Research and Knowledge (SHAARK) – George Jackson, Gemmae Fix. Andrea Nevedal
- Partnered evaluation of VHA Diffusion of Excellence program

VA Caregiver Support Evaluation Center (VA-CARES Evaluation Center) – Courtney Van Houtven, Megan Shepherd-Banigan
- Partnered evaluation of VHA Caregiver Support Program

Improving Implementation of Pharmacogenetic Testing in the VA Healthcare System – Corrine Voils, Nina Sperber
- Partnered evaluation of VHA Pharmacogenomics testing for Veterans (PHASER)

VA Office of Research and Development

- VA ORD is reorganizing to enhance linkage to the VA healthcare system
  - Greater considerations related to partnered research and how results may be implemented in the VA

- VA Health Systems Research (HSR)
  - Previously Health Services Research & Development (HSR&D)
  - Implementation science is one of the focus areas for HSR
    - Studies focused specifically on implementation science
    - Studies with an aim related to implementation science

Partnered Research/Evaluation – Collaborating with VA Healthcare System

Research: Initiate Research Project

Operations: Advise

Research: Initiate Research Project

Operations: Co-Plan

Research and Operations: Conceive, plan, and conduct research or evaluation project

Operations: Conceives and leads project that includes evaluation conducted with research
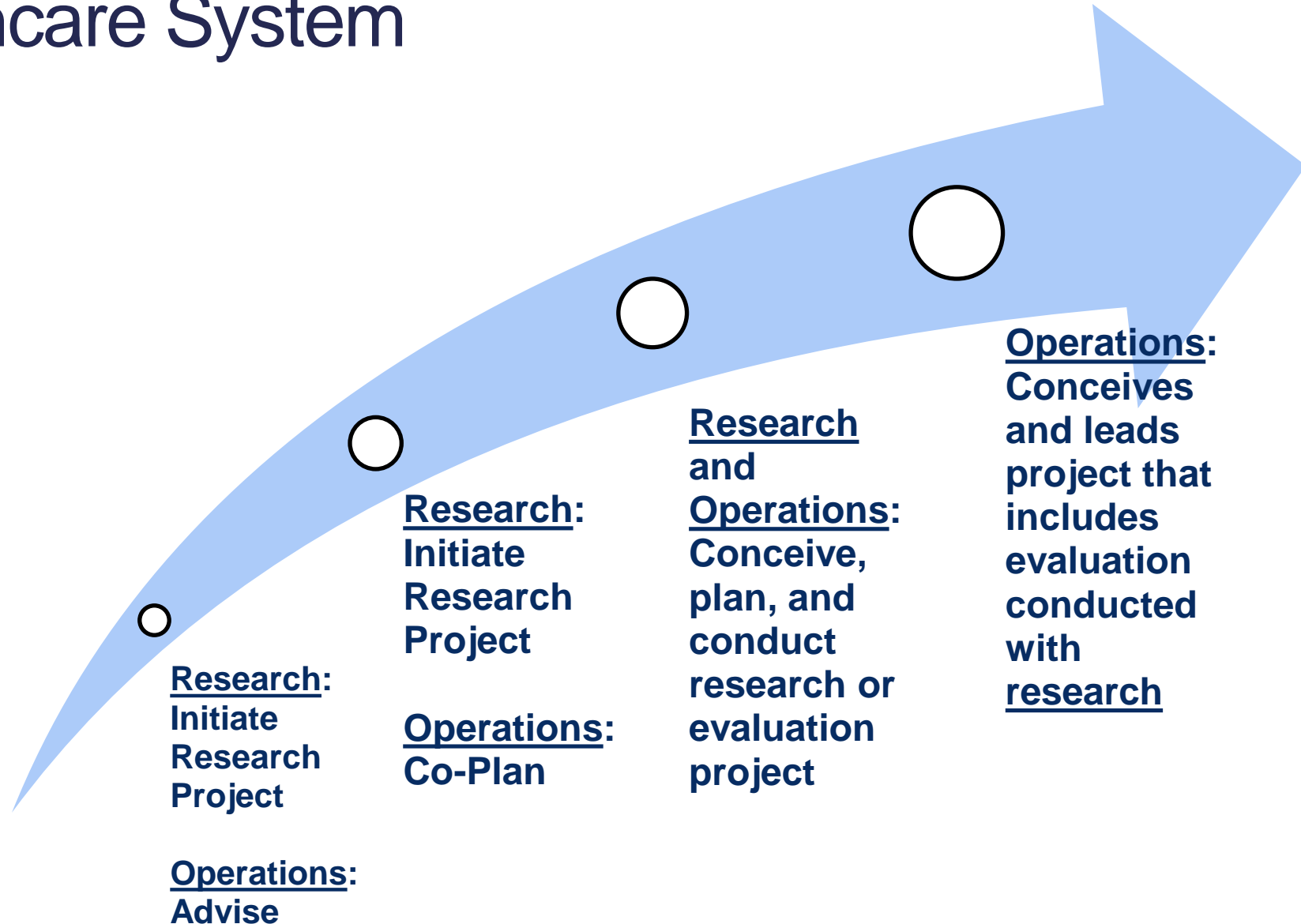
Example of Linking Innovation and Research – VHA Innovation Ecosystem

▶ **Mission:** Enable the discovery and spread of mission-driven health care innovation to advance care delivery and service that exceeds expectations, restores hope, and builds trust within the Veteran community

Strategic Priorities

Imbed Innovation as a Core Fabric of VHA

Build a Collaborative Innovation Network

Deliver a Repeatable Process for Scaling Innovation

VHA Innovators Network

VHA Diffusion of Excellence

VHA National Centers For Innovation to Impact

Innovation Contacts
Durham VHHCS: Lalita Sales, MBA – Lalita.Sales@va.gov
VISN 6: Ashley Choate, MPH – Ashley.Choate@va.gov

Identifying Grant Opportunities Outside the VA

- Numerous funding agencies, including the NIH, have funding opportunities totally or partially about implementation science or learning health systems.

- Numerous clinical, health services, and public health research and career development awards now include implementation science aims.

- Example implementation science funding opportunities from the NIH
  - Dissemination and Implementation Research in Health (R01 Clinical Trial Optional): PAR-22-105
  - Dissemination and Implementation Research in Health (R03 Clinical Trial Not Allowed): PAR-22-106
  - Dissemination and Implementation Research in Health (R21 Clinical Trial Optional): PAR-22-109

HOW CAN THE DURHAM HSR COIN HELP?

Durham HSR Center of Innovation – Implementation and Improvement Science Lab

- Goal: To expand implementation and partnered science capacity in the Durham COIN, covering the range of implementation science and QI methods through:

  - ➢ Aligning resources for the successful conduct of partnered implementation
    - Rapid review of partnered and implementation proposals

  - ➢ Fostering linkage to innovation development at the local level among frontline staff
    - Liaison between researchers and VHA innovation programs

  - ➢ Providing expertise in implementation and improvement science
    - Training (Let's Talk Implementation Science series
    - Methodologic consultation

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Contact Information and Disclaimer

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