



MPrOVE Research Innovation  
**CHALLENGE** Kick-Off

September 27, 2017 | 12:30pm – 4:30pm

# WELCOME!



SPECIAL THANKS TO:

FASTFORWARD  
medical innovation



# EVE KERR

M.D., M.P.H., Director of MPrOVE



# MPrOVE: Michigan Program on Value Enhancement

Multi-pronged strategic initiative of IHPI and the Quality Department brings together leaders from IHPI and across our health system to:

- Identify, implement and evaluate specific projects focused on improving the value of care at Michigan Medicine
- Support collaborative research efforts
- Influence state and national policy decisions



# MPrOVE: Michigan Program on Value Enhancement

## **Mission**

MPrOVE seeks to prove and improve the value of care at Michigan Medicine by bringing together leaders in research, design, management and clinical care to support transformative approaches in evaluation and implementation through the lens of appropriateness.



# About the Research Innovation Challenge

Overall goal: Drive team science by supporting large-scale interdisciplinary, collaborative research efforts focused on appropriateness and optimizing value in healthcare.



# How we will help you

After the Challenge, we can help interested faculty organize in teams

Two project teams will be selected to receive planning funds of up to \$75,000 each, and in-kind resources from IHPI to help develop a proposal for external funding:

- Project management support
- Funding source identification and grant development support
- Access to data sets and data analysis

All teams are encouraged to pursue external funding and take advantage of the resources provided by IHPI and other UM research organizations.



# Goals for today

People will meet each other and share ideas!

**By the end of today, we will have:**

- A list of project ideas, resources, and expertise that fall broadly under the four themes of enhancing value in healthcare.
- A list of faculty members interested in pursuing these projects.
- A mechanism to match faculty members with one another around each project idea.





# DAVID SPAHLINGER

M.D., President for University of Michigan Health System,  
Executive Vice Dean for Clinical Affairs



# Improve the value of care



**Value = Appropriateness X (Outcomes/Costs)**

*Modified from Michael Porter*

# JOHN AYANIAN

M.D., M.P.P., Director of IHPI



# Examples of Large-Scale Interdisciplinary Research Collaborations



# M | M-SAFETY LAB

The University of Michigan Patient Safety Learning Laboratory (“M-Safety Lab”) aims to improve the delivery of inpatient care by cross-linking investigators from diverse disciplines – including engineering, medicine, nursing, public health, psychology, and architecture and design – who share a common interest in patient safety.

**Overarching goal:** To implement novel methods to enhance cognition and communication among care providers in order to reduce hospital-acquired complications.

Funded by an AHRQ Center Grant.



# M | M-SAFETY LAB

- **Project 1** aims to prevent hospital-acquired catheter-associated infections and pressure ulcers by designing, developing, implementing, and evaluating a hospital bed-based monitoring system.
- **Project 2** aims to use innovations in cognition and communication to improve diagnostic and therapeutic decision making. As part of this project, we are examining the role of mindfulness, motivational interviewing, and architectural design in enhancing patient safety.



# M | M-SAFETY LAB

- Medical School
- School of Nursing
- Michigan Center for Integrative Research in Critical Care
- College of Engineering
- College of Literature, Science, and the Arts
- School of Public Health
- Taubman College of Architecture and Urban Planning
- Transportation Research Institute
- VA Center for Clinical Management Research





This evaluation examines whether the Healthy Michigan Plan:

- Reduces the costs of uncompensated care borne by hospitals
- Reduces the number of uninsured Michiganders
- Increases healthy behaviors and improves health outcomes
- Has a positive impact from the perspective of HMP beneficiaries and providers
- Affects beneficiaries' propensity to use services
- Encourages cost-consciousness related to the use of healthcare services
- Is considered cost effective as compared to the Marketplace Option







- 17 U-M faculty from 6 schools/colleges:
  - Medical School
  - School of Public Health
  - Institute for Social Research
  - Ford School of Public Policy
  - Ross School of Business
  - School of Social Work





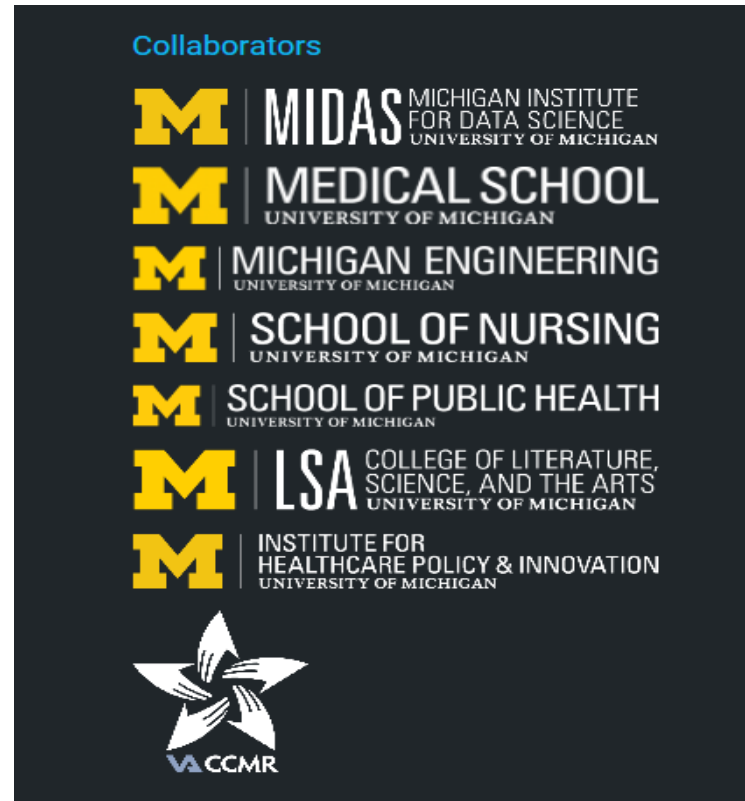
- **Goal:** To exploit temporal patterns in longitudinal data for novel discovery & prediction.
- **Reflects three areas of expertise:**
  - Clinical researchers
  - Data science methodologists
  - Informaticians
- **Overall objectives:**
  - Use prediction models to effectively & systematically harness big data
  - Leverage temporal vs. cross sectional (“snapshot”) data to predict patient clinical trajectories





## By the Numbers:

- UM Schools & Colleges (5)
- Research Faculty (32)
- Pre & Post Docs, Fellows,  
Medical Students (9)
- CSCAR Data Science  
Consultant (1)
- Advisory Board members (10)  
- Chair: Dr. Ayanian



# K-TOP Proposal



MICHIGAN INTEGRATED CENTER FOR  
HEALTH ANALYTICS & MEDICAL PREDICTION  
UNIVERSITY OF MICHIGAN

**Overall goal:** Develop an adaptable, scalable platform for the MDHHS to deliver high-value care to Medicaid patients requiring treatment with novel subspecialty medications.

## **Prediction Models & Risk Stratification:**

***Year 1** – Develop prediction models to assess disease severity in **HCV patients** in order to identify those requiring treatment by specialists versus non-specialists, including NPs and PAs.*

***Year 2** – Develop prediction models to identify patients at high-risk of treatment non-adherence who would benefit from monitoring and support via a centralized, nurse-led disease management program.*



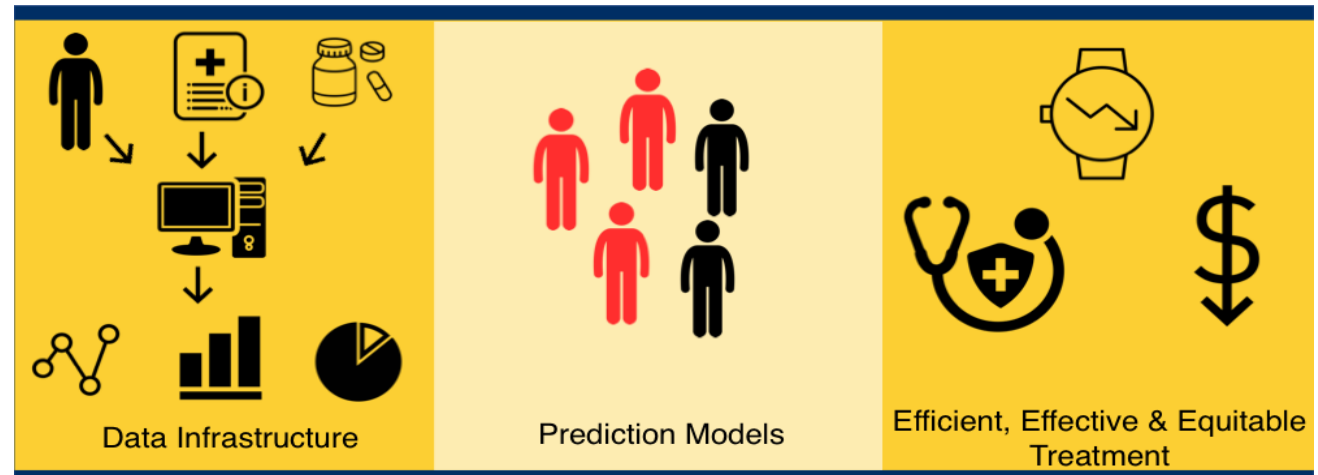
# K-TOP Funding



MICHIGAN INTEGRATED CENTER FOR  
HEALTH ANALYTICS & MEDICAL PREDICTION  
UNIVERSITY OF MICHIGAN

- Akbar Waljee (Brahmajee Nallamothe, Sameer Saini)
- MDHHS CMS (*Knowledge-to-Treatment Optimization Program*)
- Sept 2017 - \$6M over 2 years

*Submitted in collaboration  
with U-M Department of  
Learning Health Sciences*



# ANNE SALES

Ph.D., R.N., M.S.N., Professor and Associate Chair  
for Educational Programs and Health System Innovation,  
Department of Learning Health Sciences



# Learning Health Systems:

## Methods and approaches for innovation and improvement

# Learning Health Systems as a research topic

© Health Research and Educational Trust  
DOI: 10.1111/1475-6773.12751  
RESEARCH ARTICLE

## Development of the Learning Health System Researcher Core Competencies

Christopher B. Forrest , Francis D. Chesley Jr.,  
Michelle L. Tregear, and Kamila B. Mistry

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**Objective.** To develop core competencies for learning health system (LHS) researchers to guide the development of training programs.

**Data Sources/Study Setting.** Data were obtained from literature review, expert interviews, a modified Delphi process, and consensus development meetings.

**Study Design.** The competencies were developed from August to December 2016 using qualitative methods.

**Data Collection/Extraction Methods.** The literature review formed the basis for the initial draft of a competency domain framework. Key informant semi-structured interviews, a modified Delphi survey, and three expert panel ( $n = 19$  members) consensus development meetings produced the final set of competencies.

**Principal Findings.** The iterative development process yielded seven competency domains: (1) systems science; (2) research questions and standards of scientific evidence; (3) research methods; (4) informatics; (5) ethics of research and implementation in health systems; (6) improvement and implementation science; and (7) engagement, leadership, and research management. A total of 33 core competencies were prioritized across these seven domains. The real-world milieu of LHS research, the embeddedness of the researcher within the health system, and engagement of stakeholders are distinguishing characteristics of this emerging field.

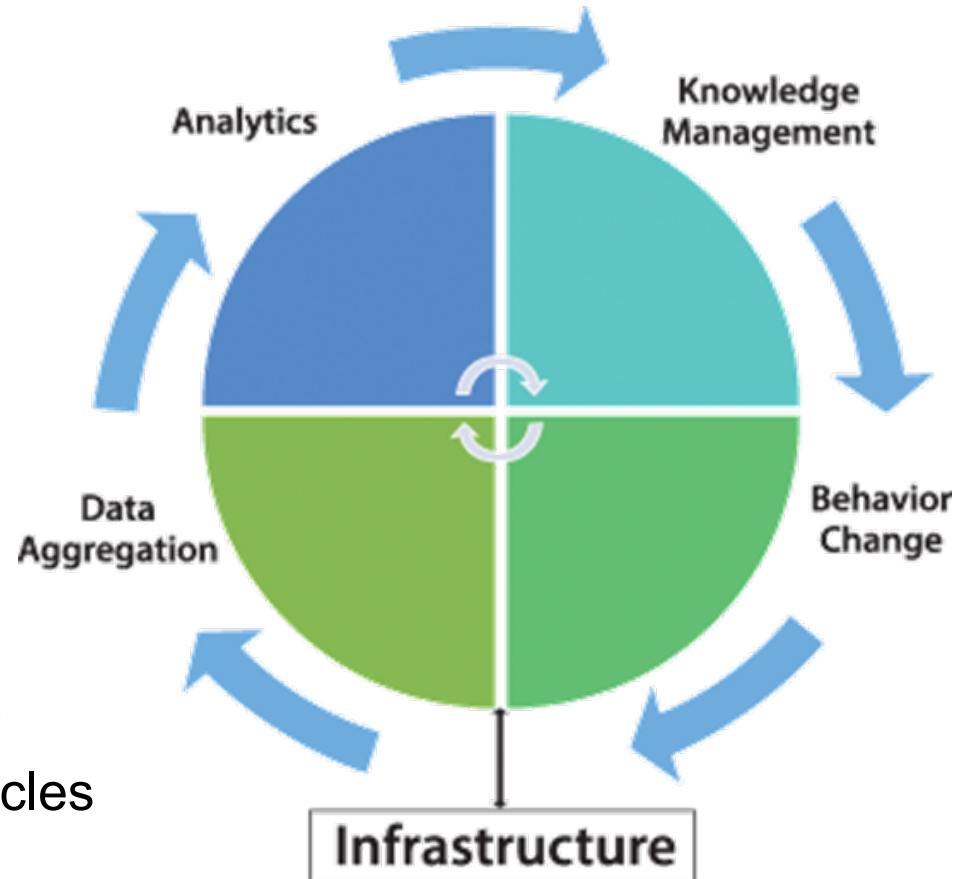
**Conclusions.** The LHS researcher core competencies can be used to guide the development of learning objectives, evaluation methods, and curricula for training programs.

**Key Words.** Learning health system, health services research, stakeholder engagement, graduate education, professional competence

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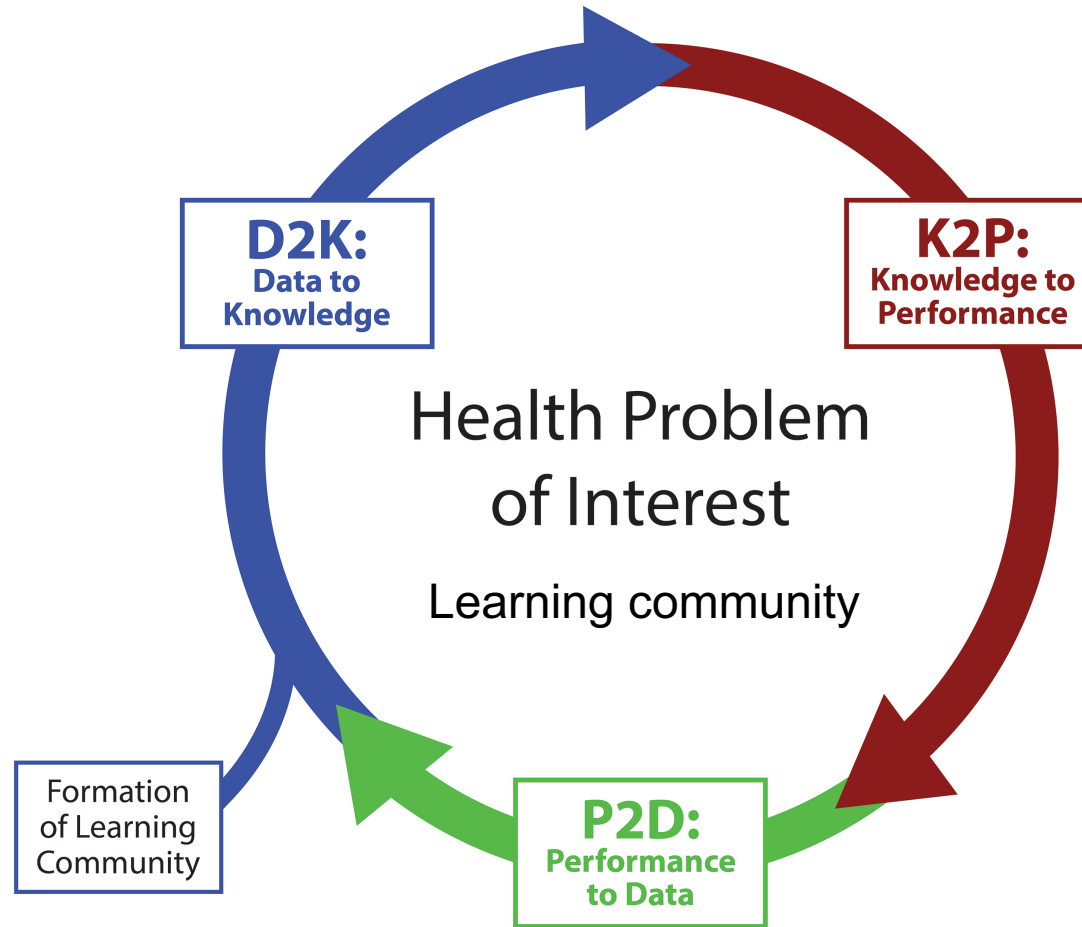


# Interdisciplinary + Innovative

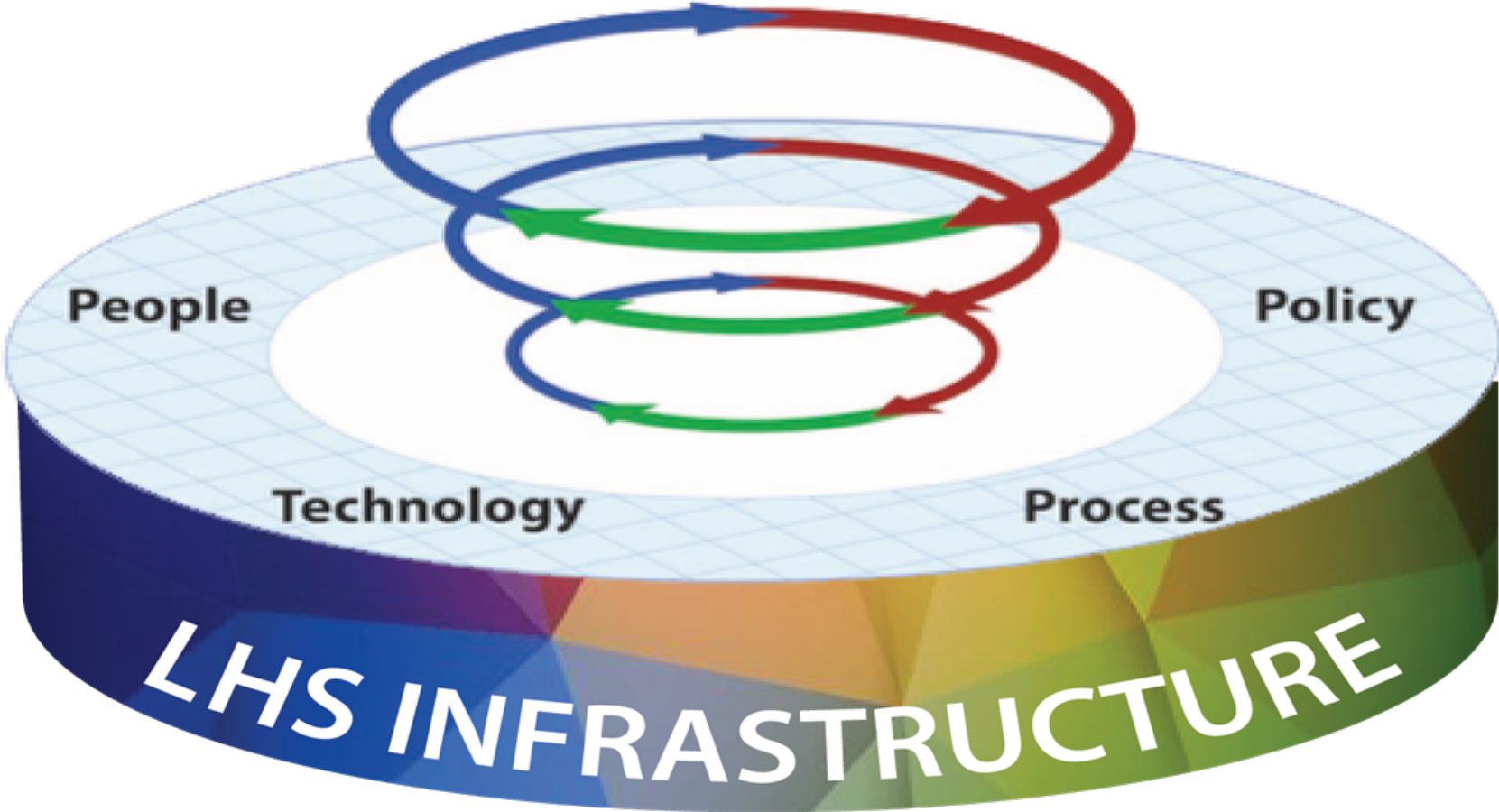


A general model for creating learning cycles

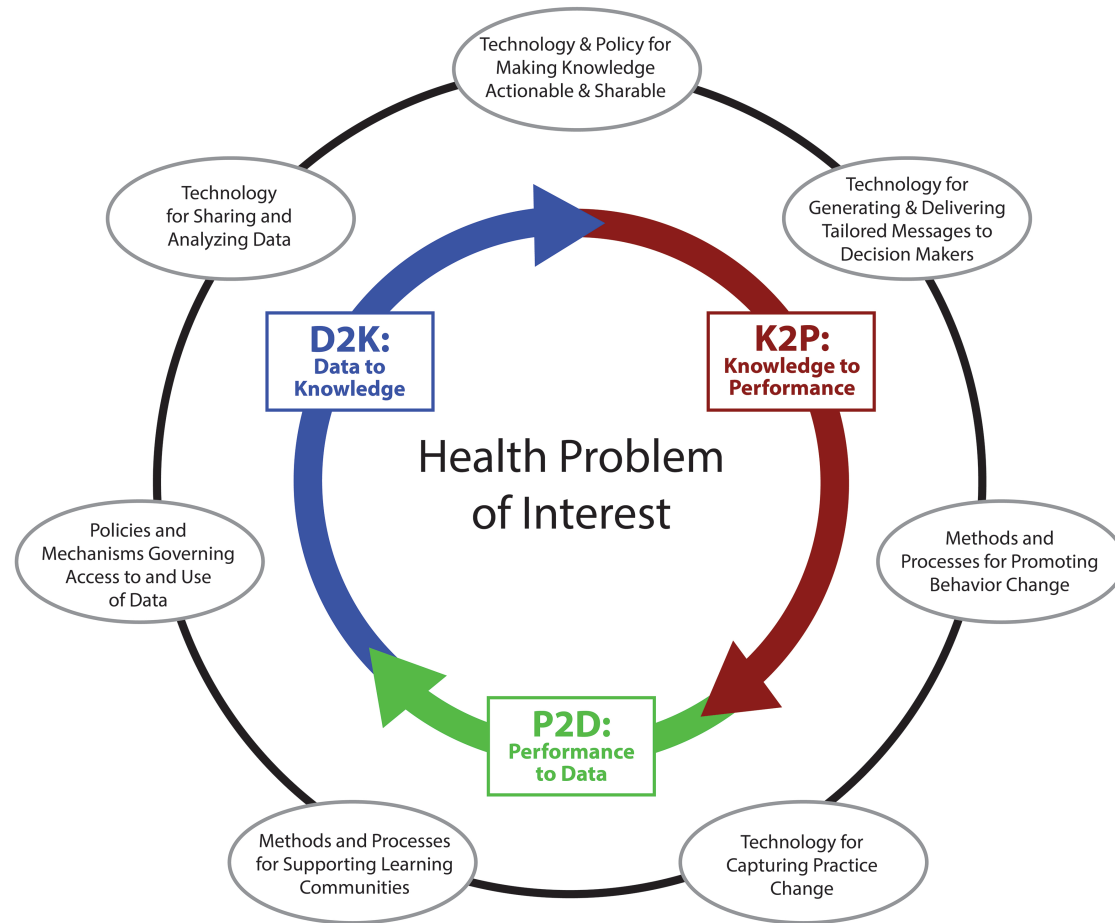
# The Learning Cycle



# Learning Cycle Feedback Loops



# Prototypic LHS Infrastructure Services



# Instructions for the day

1. You will be asked to describe research ideas that you are interested in, or expertise you may be able to provide, within the four themes listed below (each represented by a poster board):
  - A. Reducing unnecessary use of testing and procedures.
  - B. Using technology and data.
  - C. Shifting care away from high-cost settings.
  - D. Decreasing unnecessary use of treatments and medications.



# Instructions for the day

2. Find a board with a topic that interests you, and use post-it notes to do one or more of the following (please write your last name on the back of your post-it note, and one idea per note):
  - A. Describe a current or future research focus around improving value in healthcare.
  - B. List any collaboration needs for an existing or future project.
  - C. Detail any expertise or resources that you can provide as part of a research team.

**You can post multiple ideas on multiple boards.**



# Instructions for the day

3. After 15 minutes, you will be asked to choose one theme for the remainder of the brainstorming session.





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# Next Steps

1. Later this week, you will receive an email survey with a list of the ideas/sub-themes that were generated today.
2. On the survey, please indicate if you are interested in:
  - Participating in a team
  - Leading of a team
3. Emma Steppe will follow up with interested faculty to schedule an initial team meeting, if desired.
4. Your team will develop a Research Challenge application, which is due on November 3<sup>rd</sup>.



# What are we looking for in an application?

To be eligible for funding, all research teams must include **at least one IHPI faculty member who attends the September 27 Kick-Off event.**

We expect successful teams to have members from **at least two schools/colleges** at the University of Michigan.



# Selection Criteria

Research Challenge applications will be evaluated based on the following criteria:

- Innovation of proposed research ideas focused on value;
- Synergy of interdisciplinary team members from across IHPI and University of Michigan;
- Feasibility of grant proposal submission at the end of the planning period (18 months);
- Potential for external funding success.



# Research Challenge Timeline

November

**3**

Research Challenge Application deadline.

November

**20**

Internal leadership team will identify top 3–5 proposals, and notify these teams.

December

**7**

External review committee will hear presentations from top 3–5 project teams.

December

**21**

Two Research Challenge teams will be selected to receive planning funds for development of large-scale grant proposals.





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