Systems Approaches for Health Innovation Collaborative

Bringing together medicine and engineering for systems-based solutions

Issue. Application of basic systems engineering principles can improve the quality, safety, and value achieved by health care, as well as assist clinicians in managing the increasing complexity of modern care, while laying the foundation for a continuously learning health system. Central elements of daily life, such as assuring clean water, promoting aviation safety, automobile manufacturing, and developing new imaging technologies, have benefited from broader application of engineering principles. Similarly, engineering offers a powerful, yet underutilized, method of accelerating improvement in the health system. Various organizations have successfully implemented its tools and techniques to prevent health care acquired infections and promote safety, deliver best practices reliably, and optimize their general operations. Greater application of these principles can link people, processes, structures, and technology in an integrated and interdependent whole, creating reliable high-performing "systems" approaches that can be implemented at scale and achieve sustainably high levels of patient safety and outcomes, and improve value.

Collaborative. A joint Institute of Medicine (IOM) and National Academy of Engineering (NAE) *ad hoc* convening activity, under the auspices of the Roundtable, the Systems Approaches for Health Innovation Collaborative (SAHIC) seeks to build on the foundation of prior work engaged by the IOM and NAE by convening organizations and individuals actively working to design, develop, test, and evaluate innovative systems-based strategies for improving outcomes and lowering costs in health care.

Participants. Participants include experts from public and private organizations with prominent activities and leadership responsibilities related to development and application of system-based tools and processes for improving health and health care. The aim is for an inclusive Collaborative—without walls—and participation in individual projects is structured according to interest, need, and practicality.

CO-CHAIRS

Gary Kaplan, MD
Chairman and CEO
Virginia Mason Health System
"The work of the Collaborative is imperative to leveraging new opportunities for applying a systems approach, as well as understanding and strategically attacking the barriers preventing its use."

Richard C. Larson, PhD
Professor
Mass Institute of Technology
"A systems approach is necessary for true improvement, given the complexity of the health and health care systems. The Collaborative's focus on systems can lead to widespread improvements and ensure that people are kept healthy."

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Activities. Projects under way or under consideration by SAHIC include:

- *Making the case for systems approaches in health.* Draft a discussion paper that describes the benefits, and identifies the barriers, of applying a systems approach to improving health and health care.

- *Systems approaches in health professional education.* Increase the visibility and knowledge of systems approaches among health professionals by developing short modules for medical, nursing, other health professional, and public health education courses.

- *Learning labs.* Develop 4 to 5 learning labs that bring together engineering and health care professionals to address important problems that affect health care quality, population health, and health care costs.