The White House

Office of Science & Technology Policy

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Fact Sheet: PCAST Report on Systems Engineering in Health Care

In its new report to the President, *Better Health Care and Lower Costs: Accelerating Improvement through Systems Engineering*, the President's Council of Advisors on Science and Technology (PCAST) identifies a comprehensive set of actions for enhancing health care across the Nation through broader use of systems-engineering principles. Informed by the deliberations of a working group consisting of PCAST members and prominent health-care and systems-engineering experts, the report proposes a strategy that involves: (1) reforming payment systems, (2) building the Nation's health-data infrastructure, (3) providing technical assistance to providers, (4) increasing community collaboration, (5) sharing best practices, and (6) training health professionals in systems engineering approaches.

Systems engineering, widely used in manufacturing and aviation, is an interdisciplinary approach to analyze, design, manage, and measure a complex system in order to improve its efficiency, reliability, productivity, quality, and safety. It has often produced dramatically positive results in the small number of health-care organizations that have incorporated it into their processes. But in spite of such excellent examples, systems methods and tools are not yet used on a widespread basis in the American health-care system.

In its new study, PCAST discusses the barriers to implementation of systems methods in health care, emphasizing among other things that a prerequisite to progress will be an acceleration of the alignment of payment systems with desired outcomes for individuals and populations—or, paying for value rather than volume.

PCAST also underscores the importance of high-quality data, measurement, and analyses to help patients and providers to make more-informed decisions, noting the key role that electronic health records and other health-information technology play in capturing data and enabling analysis. In its report, PCAST also calls for targeted education and training to foster the development of a health-care workforce that can apply systems-engineering approaches and emphasizes the value of increasing involvement of communities in health-care delivery.

The report includes seven broad recommendations, all of which support and reinforce each other as components of a strategy to improve the quality of delivery of health care and the health of Americans through systems engineering. The recommendations, which are elaborated upon in the PCAST report, include:

- **Recommendation 1:** Accelerate the alignment of payment incentives and reported information with better outcomes for individuals and populations.

- **Recommendation 2:** Accelerate efforts to develop the Nation's health-data infrastructure.

- **Recommendation 3:** Provide national leadership in systems engineering by increasing the supply of data available to benchmark performance, understand a community's health, and examine broader regional or national trends.

- **Recommendation 4:** Increase technical assistance (for a defined period—3-5 years) to health-care professionals and communities in applying systems approaches.

- **Recommendation 5**: Support efforts to engage communities in systematic health-care improvement.

- **Recommendation 6:** Establish awards, challenges, and prizes to promote the use of systems methods and tools in health care.

- **Recommendation 7:** Build competencies and workforce for redesigning health care.

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