

The “3T’s” Road Map to Transform US Health Care

The “How” of High-Quality Care

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THE ONGOING SIGNIFICANT INVESTMENT IN BASIC SCIENCE and clinical discovery in the United States continues to produce impressive results. However, the United States struggles to deliver high-quality care and improved health outcomes due to the systematic failure of discoveries to reach patients in a timely fashion.^{1,2} Despite expenditures that reached \$2 trillion or more than \$6000 per capita in 2005,³ the United States will continue to fail to fully leverage new clinical discoveries into improved health outcomes unless there is an accelerated transformation of the health care system.⁴ The research enterprise cannot achieve this alone. We propose a model to transform the US health care system (FIGURE), intended to accelerate the pace at which innovations are implemented in clinical settings by addressing the “how” of health care delivery.

Overview of the 3T’s Road Map

Basic science and its translation into clinical research (translation 1 or T1) are only the beginning of the journey toward high-quality, effective, and safe care delivery (Figure).⁵ Next, translation 2 (T2) activities focus on creating more patient-specific evidence of clinical effectiveness^{6,7}; comparative effectiveness to identify “the right treatment for the right patient in the right way at the right time”^{7,8}; and translation into practice guidelines and tools for patients, clinicians, and policy makers.⁹

Translation 3 (T3) activities comprise the essential third step along the 3T’s road map. T3 activities address the “how” of health care delivery so that evidence-based treatment, prevention, and other interventions are delivered reliably to all patients in all settings of care and improve the health of individuals and populations. For the United States to fully reap the health benefits of an increased investment in comparative effectiveness (T2), the connection between research and practice must be built through measurement, experimentation, and dissemination of the “how” of health care delivery (T3). T3 activities in this model include policy changes necessary to foster attempts to improve health outcomes.¹⁰

T1, T2, and T3 strategies build on each other to continually improve health care delivery, as well as to provide essential feedback to the biomedical enterprise (as repre-

sented by the bidirectional arrows in the Figure). The potential of care delivery to provide feedback to guide basic science and clinical discovery is only beginning to be realized.

3T’s Road Map Transformation Activities

The 4 main activities of the 3T’s model for transformation across the multiple levels of the health care system¹¹ are measurement and accountability, implementation and system redesign, scaling and spread, and research.

Measurement and accountability for quality and cost are the foundation for health care improvement. Measures enable key health care stakeholders to assess progress continuously, hold the health care system accountable, identify areas for improvement, and facilitate market-driven approaches to health care. Clinicians, health care plans, patients, and policy makers must accept shared responsibility for the quality and value of health care and actively engage in strategies for transparency and improvement.

Implementation and system redesign are essential for changing the health care system and improving health outcomes. Measurement and accountability can drive motivation for improvement, but in isolation will not result in improved delivery of high-value health care. Rapid, effective dissemination and uptake of new knowledge must be linked with incentives for improvement and a supportive practice environment. Innovation focused on how new knowledge is rapidly and reliably incorporated into routine practice and aligned across all levels of the health care system is an urgent priority.

Scaling and spread of effective interventions, via mechanisms such as learning networks, are necessary to successfully implement quality improvement and system redesign strategies. Spread of innovative approaches, coupled with evaluation, will allow all those engaged to assess promising quality improvement strategies and create quality-enhancing policies.

Research on how innovative interventions perform across different settings is critical for the health care system to im-

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prove. Implementation and system redesign science is in its infancy, but has the potential to help transform health care.^{11,12}

3T's Road Map Transformation Facilitators

For the 3T's activities to truly transform the US health system to achieve the goal of high-quality care and better health outcomes, the key facilitators of leadership, teamwork, tools, and resources must be established and integrated.

Shared Leadership. The 3T's framework requires shared leadership across health care sectors and levels, including new collaborations and partnerships among those individuals who support and conduct research and those who pay for, regulate, provide, and receive care. Leaders in research and health care must cultivate a shared focus and establish priorities, benchmarks, and rules for action. Leaders must also advance the right teams, tools, and resources, and monitor progress toward improved quality and value.

The federal government, the largest purchaser of health care, has an enormous stake in improved quality and value and has multiple leadership roles, including provision of technical assistance, linking payment updates to quality reporting, working with the private sector, and funding research. Private sector entities, such as the Leapfrog Group, National Business Group on Health, National Business Coalition on Health, and the Robert Wood Johnson Foundation, are supporting community-based collaboratives to promote improved quality and value.¹³ The premise of these initiatives is that alignment of market forces will encourage customized implementation of national improvement goals. Success will also require local leadership.

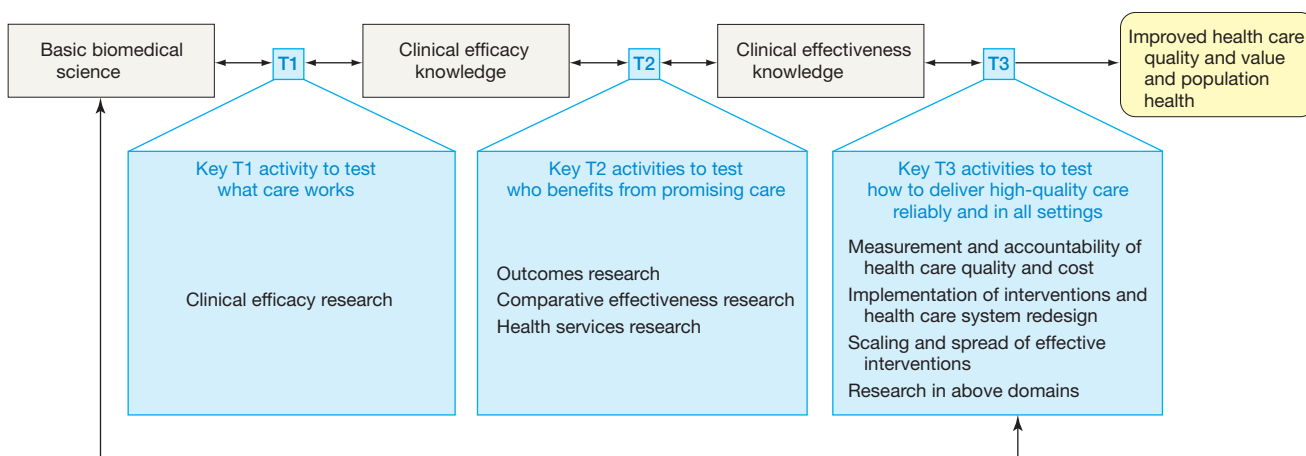
Teamwork. Teamwork is needed across multiple stakeholders and within stakeholder groups to reduce redun-

dancy and align efforts to develop and collect measures, introduce health information technology (HIT), and conduct evaluation research in quality improvement. Transdisciplinary research teams, which are funded to build and test quality improvement strategies, should often include engineers, social and behavioral scientists, economists, quality improvement experts, policy makers, frontline practitioners, and management scientists, as well as clinical researchers to answer quality improvement and value questions.

Tools. Leaders and teams need tools to help achieve goals of improved quality and value. These tools must include HIT for gathering and sharing data and facilitating decision support among health care's multiple stakeholders, including patients. Interoperable HIT is the essential foundation for tracking population outcomes, building patient registries, performing comparative effectiveness studies, and efficient measurement of health care processes, costs, and quality improvement initiatives. In addition, research and evaluation tools suitable for answering questions about the effectiveness and appropriateness for dissemination need to be further developed. The randomized controlled trial is the gold standard of clinical research, but may not be appropriate or feasible for quality improvement studies. The science of quality improvement needs to develop so that agreed upon study designs and methods are applied in a more uniform fashion.¹²

Resources. Investment in biomedical research by the National Institutes of Health and by industry has produced impressive discoveries. However, the sum of federal and foundation spending for health services research, including T2 and quality improvement research, is an estimated 1.5% of biomedical research funding and 0.1% of total US health care expenditures.¹⁴ Without additional investment, it will be ex-

Figure. The 3T's Road Map



T indicates translation. T1, T2, and T3 represent the 3 major translational steps in the proposed framework to transform the health care system. The activities in each translational step test the discoveries of prior research activities in progressively broader settings to advance discoveries originating in basic science research through clinical research and eventually to widespread implementation through transformation of health care delivery. Double-headed arrows represent the essential need for feedback loops between and across the parts of the transformation framework.

tremely difficult to accelerate translation of discoveries into better health outcomes. Quality improvement should be seen as an integral part of doing business that warrants investment, including investment in training frontline professionals to apply measures and tools and use HIT effectively. The academic reward system will require modifications as well, so that quality measurement and improvement research and teamwork are rewarded. Additional investments are needed to bring industry leaders together meaningfully with skilled methodologists and systems experts to develop strategies and care solutions, to narrow the current gap between the clinical research and quality improvement enterprises.

3T's Road Map Transformation Model in Practice

The 25-year lag time between evidence of the effectiveness of β -blockers for myocardial infarction and prescribing for patients with myocardial infarction underscores the failure of the traditional "If I publish it, it will be done" mantra.¹⁵ Investment in T2 and T3 has the potential to change this path for the next efficacious drug. T2 activities would include testing the drug's effectiveness in diverse subgroups of patients, potentially identified by pharmacogenomics; comparative effectiveness research to compare it with alternative treatments; and health services research to determine whether the drug is getting to the right patients at the right time. T3 activities would test what system interventions are most effective at increasing the delivery of a new drug to the right patients at the right time, and then disseminate effective strategies.

Challenges

Transformation of the rapidly growing health care industry, already equal to 16% of the US gross domestic product, will not be easy. Measurement of care results and alignment of incentives are difficult in such a complex system. Successful quality improvement interventions by clinicians or health care delivery systems are often not rewarded or may even lose money if they result in decreased use of services. This challenge is beginning to be addressed by building the infrastructure for transparency about quality and price and by developing incentive systems consistent with the principles of value-based competition. In the future, purchasers, employers, clinicians, patients, communities, and policy makers must be involved in developing an environment that is committed to a shared solution.

Conclusion

The challenges of improved health outcomes and transforming the US health care system are enormous, but an important first step is to elaborate the 3T's road map and begin a national discussion involving all stakeholders. This road map is essential to outline the activities, participants, investments, and fundamental shifts required to create and sustain an information-rich and patient-focused health care system that reliably delivers high-quality care.

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