TECHNICAL BRIEF

Best Health Care Results for Populations: The "Triple Aim"

Achieving the optimal balance of good health, positive patient experience of care, and low per capita cost for a population

Aim of This Initiative: IHI seeks to explore and develop a variety of models, in order to identify different ways of achieving transformational results that balance the best possible performance in health, patient experience, and per capita costs of care. More specifically, we seek to identify systems in the US that achieve the top deciles on measures of patient experience, health of a population, per capita cost, and controlled inflation in cost to <3% per year.

Background: "Once upon a time, it was taken as an article of faith among most Americans that the US health care system was simply the best in the world. Yet growing evidence indicates the system falls short given the high level of resources committed to health care. Although national health spending is significantly higher than the average rate of other industrialized countries, the US is the only industrialized country that fails to guarantee universal health insurance and coverage is deteriorating, leaving millions without affordable access to preventive and essential health care. Quality of care is highly variable and delivered by a system that is too often poorly coordinated, driving up costs, and putting patients at risk. With rising costs straining family, business, and public budgets, access deteriorating and variable quality, improving health care performance is a matter of national urgency."[1]

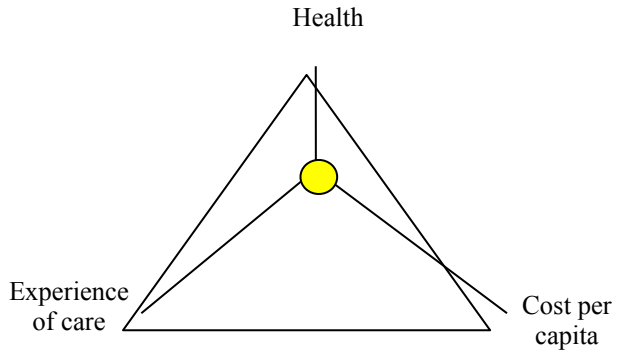
When the United States is compared to other countries on major markers of health, we rank 31 on life expectancy, 36 on infant mortality, 28 on male healthy life expectancy, 29 on female healthy life expectancy, and 1 on health care expenditure.[2]

"Health care systems have evolved around the concept of infectious disease, and they perform best when addressing patients' episodic and urgent concerns. However, the acute care paradigm is no longer adequate for the changing health problems in today's world. Both high- and low-income countries spend billions of dollars on unnecessary hospital admissions, expensive technologies, and the collection of useless clinical information. As long as the acute care model dominates health care systems, health care expenditures will continue to escalate, but improvements in populations' health status will not."[3]

Looking at one measure of how well a system works, such as infant mortality, a clear range of values is noted in the US, from a low rate of 4.4 per 1000 in Vermont to 11.3 per 1000 for the District of Columbia.[4]

Current Landscape: Transformation of health care delivery starts with a transformational aim. The Institute for Healthcare Improvement (IHI) believes that one such transformational aim includes a balance or optimization of performance on three dimensions of care—which IHI calls the "triple aim":

1. The health of a defined population;
2. The experience of care by the people in this population; and
3. The cost per capita of providing care for this population.



These three dimensions of care pull on the health care system from different directions. Changing any one of the three has consequences for the other two, either in the same or opposite directions. For example, improving health can raise costs; reducing costs can create poor outcomes, poor experience of care, or both; and patients' experience of care can improve without improving health. With the goal of optimizing performance on all three dimensions of care, we recognize the dynamics of each dimension while seeking the intersection of best performance on all three.

The Problem: We believe this aim is transformational because we must remove a fundamental conflict in the US health care system in order to achieve it. Achieving this aim is not congruent with current business models of US health care organizations. For most health care organizations, only one, or possibly two, of these three dimensions are truly strategic. For example:

- Hospitals seek to improve the quality and experience of the services they provide for their patients, but they are less concerned with the care of a

defined *population* of patients. Furthermore, it is frequently not in hospitals' best financial interest to reduce costs per capita, as such cost reductions would require significant reductions in high-cost services like hospitalizations and high-technology procedures, which are the financial lifeblood of hospitals.

- Physicians and medical groups are interested in the quality of the services they provide, but are rarely responsible for a population of patients. Moreover, the incentives to reduce per capita costs are absent in a fee-for-service system.

- Payers seek to reduce per capita costs for the people they cover, but their leverage to improve health care and patient experience is low.

Our present system of health care is fragmented, with little coordination of care among parts of the system. Although we have seen improvement in discrete components of health care, there has been minimal improvement in the system as a whole. The recent *Dartmouth Atlas* work reveals waste in resources for care at the end of life, but the financial incentives are misaligned to produce change. Per capita US health care costs continue to rise, spurred by increasing use of technology as well as increasing prevalence of various medical conditions.[5]

As we consider the redesign of the health care system, we face key challenges:

- Producers control demand.
- New technologies are expensive and have a limited impact on outcomes.
- The current system relies on a physician-centric model of health care.
- There is no foreign competition to spur change (cf. Toyota and the auto industry).
- There is little appreciation or use of system knowledge.

Measures of the Triple Aim:

1. Cost as Measured by Per Capita Cost
2. Population Health Measures
    a. Healthy Life Expectancy
    "Healthy life expectancy (HALE) is based on life expectancy (LEX), but includes an adjustment for time spent in poor health. This indicator measures the equivalent number of years that a newborn child can expect to live in full health based on the current mortality rates and prevalence distribution of health states in the population."[6]
    b. Infant Mortality
    Infant mortality represents the number of deaths of children one year or younger.
    c. Life Expectancy

Average life expectancy of a person born in that society.

d. Collective Population – e.g., immunization rates

e. Ambulatory Care Sensitive Measures

These "are a set of measures that can be used with hospital inpatient discharge data to identify 'ambulatory care sensitive conditions' (ACSCs). ACSCs are conditions for which good outpatient care can potentially prevent the need for hospitalization, or for which early intervention can prevent complications or more severe disease."[7]

f. Number of MI's

g. Adult mortality rate

Probability of Dying Between Ages 15-60

3. Individual Healthcare Experience Measures

We seek a set of measures that will represent the health care of an individual over time across the IOM dimensions: safe, effective, patient-centered, timely, efficient, and equitable.

a. "They give me exactly the help I want and need exactly when I want and need it." Likert Scale: strongly disagree to strongly agree

b. Hospital Standardized Mortality Ratio

c. Adverse Events for all care

d. Days to Third Next Available Appointment

e. Hospital Readmission Rate

f. Patient Satisfaction

g. Reliability of Evidence-based Care including Patient Preference

h. Health-Related Quality of Life Surveillance HRQOL-4 Measures CDC[8]

"Would you say that in general your health is excellent, very good, good, fair, or poor? (= self-rated health)

"Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good?" (= physically unhealthy days)

"Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?" (= mentally unhealthy days)

"During the past 30 days, for about how many days did poor physical or mental health keep you from doing your usual activities, such as self-care, work, school, or recreation?" (= activity limitation days)

Examples of work on the triple aim:

1. Industrial approach, as illustrated by QuadGraphics and CHD Meridian Healthcare
2. Various states and cities (Maine, Massachusetts, San Francisco, Oregon)
3. Insurance approach of case management, risk stratification, and p4p

4. VA approach with primary care approach (RAND study)
5. Public health preventive medicine approach
6. Legislation in Congress
7. Kaiser Permanente
8. Indian Health Service
9. Jönköping County Sweden

Segmentation to consider:

1. Patient/Consumer
2. Healthy; maternal and child health; acutely ill, mostly curable; chronic conditions, normal function; stable with significant disability; end of life
3. Race, ethnicity, income, education, gender, region, state, and age

Developing Solutions: To achieve the triple aim, an organization must act as *an integrator*. The best examples of this occur in fully integrated health care systems, where one entity is responsible for health, experience, and cost per capita for a population. These organizations have the best chance for transformational change. Such is the case with two of IHI's current Strategic Partners, Kaiser Permanente and Jönköping County, which have fully integrated financing and delivery structures and use these structures and methods to good advantage.

Although full integration is the most direct approach to achieving this transformational aim, such arrangements will affect only a fraction of the US population—i.e., those currently served by the fully integrated systems. IHI firmly believes that organizations must find other models to successfully execute the integrator role and drive coordinated improvement to achieve optimal performance in population health, experience, and cost. Moreover, integrating to achieve the triple aim does not necessarily require that all parts of the system that provide care to a population must reside within a single organization. For example, integrators could include the following:

- A powerful, visionary insurer, with a sense of the needs of the communities it serves;
- A large primary care group that establishes the appropriate partnerships with payers; or
- A hospital, offering services through its Physician Hospital Organization, that performs well on all three dimensions and therefore attracts payers.

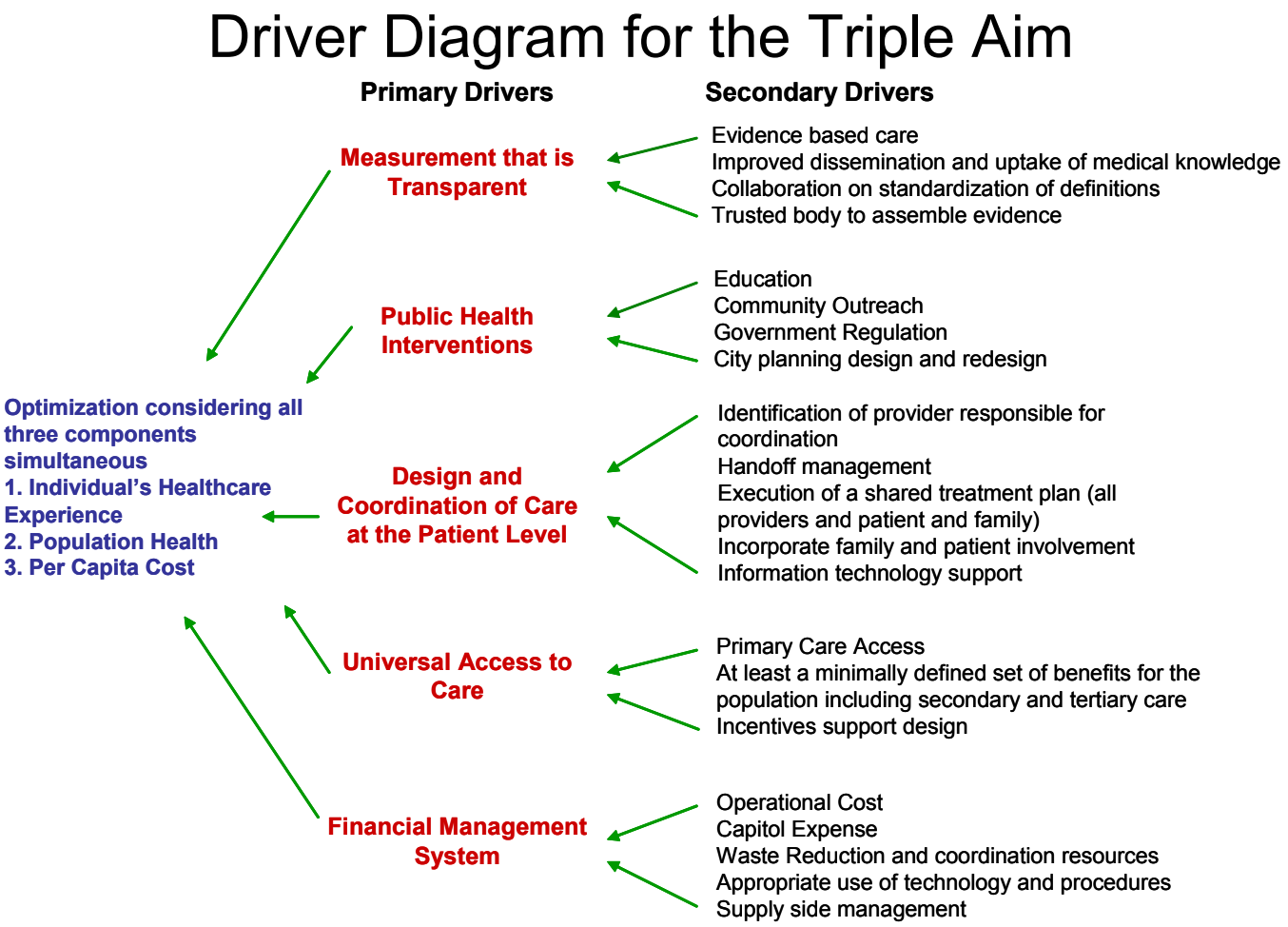
Regardless of which organizations partner to be the integrator, we hypothesize that the most successful models will link health care organizations across the spectrum of care.

The service models will be based on patient needs and preferences, as well as population needs, to optimize health and reduce waste in the system. Further, we believe that this important function of linking organizations requires a single organization that integrates other health care service "suppliers" into a system that works for a defined population.

Role of Integrator: What are the key integrator tasks? We believe they fit into these categories:

- Design care models, financial models, and approaches to engaging the population to reach the three aims.
- Establish essential business relationships.
- Measure performance in new ways.
- Test and analyze effects of this approach, continually learning what works to reach their goals.
- Develop and deploy information technology for use by patients and suppliers.

Driver Diagram for Triple Aim: The following diagram outlines the key drivers for a system that would work on optimizing the triple aim. An integrator would need to use the following drivers to transform the system. The primary drivers are the essential components that an organization would need to focus on to accomplish the triple aim. The secondary drivers are components needed to accomplish the primary drivers.



Open Questions:

1. What is needed to develop a strong partnership that supports a payer and a provider as integrators?

2. In a non-integrated care delivery system, what leverage does the integrator need to be successful and how is this leverage acquired (e.g., market share, ownership agreements, cooperative agreements, etc.)?

3. Can a group of highly activated patients who are aided by information technology act as integrators of their own care? Achieving this will be an important innovation for a segment of the population. However, the percentage of patients capable of this degree of activation is currently small and will contribute minimally to transformational change in the short term.

4. Suppliers to the care system—hospitals, specialty and primary care groups, home health agencies, and nursing homes—must understand how they stand to benefit if they are to change their services to reach the stated goals. How can systems establish win-win arrangements, financial and otherwise, to make the system work?

5. Agreements about specific aspects of care, including timeliness, safety, and use of evidence-based care, will be the infrastructure for relationships within the care system. What types of agreements work best to ensure the alignment of goals and care?

6. What is the best use of primary care in a health system?

[1] The Commonwealth Fund Commission on a High Performance Health System. Why not the best? Results from a national scorecard on U.S. health system performance. New York: The Commonwealth Fund; 2006:1-33.

[2] World Health Statistical Information System. Available at: http://www.who.int/whosis/whostat2006/en/. Accessed 1/2/2007.

[3] World Health Organization. Innovative care for chronic conditions: building blocks for action: global report. Geneva: WHO, 2002. Available at: http://www.who.int/diabetesactiononline/about/icccglobalreport.pdf. Accessed 1/2/2007.

[4] US Census Bureau 2002 data. Available at: http://www.census.gov/statab/ranks/rank17.html. Accessed 1/2/2007.

[5] Thorpe KE, Florence CS, Joski P. Which medical conditions account for the rise in health care spending? *Health Aff (Millwood)*. 2004;Suppl Web Exclusives:W4-437-45. Total health care spending increases based on an increase in the population, increase in cost per treated case, and increasing prevalence of a condition. This article looks at the top 15 conditions and finds that a subset of those conditions represents a significant percentage of the increase.

[6] World Health Organization Health statistics and health information systems. Available at: http://www.who.int/healthinfo/bod/en/index.html. Accessed 1/2/2007.

[7] AHRQ Guide to Prevention Quality Indicators: Hospital Admission for Ambulatory Care Sensitive Conditions. Available at: http://www.qualityindicators.ahrq.gov/downloads/pqi/pqi_guide_v30a.pdf. Accessed 1/2/2007.

[8] Zahran HS, Kobau R, Moriarty DG, et al. Health-Related Quality of Life Surveillance – United States, 1993-2002. Centers for Disease Control and Prevention Morbidity and Mortality Weekly Report. October 28, 2005/54(SS04);1-35. Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5404a1.htm. Accessed 1/2/2007.