TECHNICAL BRIEF MAY 2007

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]

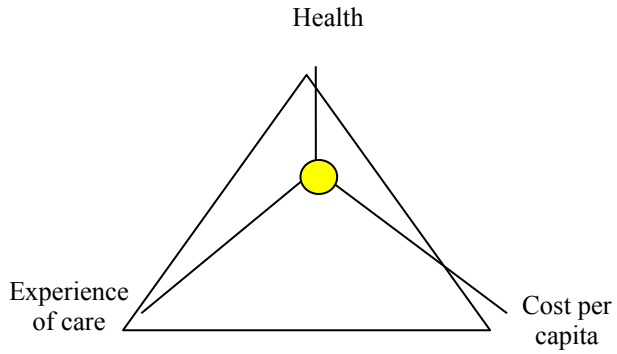
When the United States is compared to other countries on major markers of health, we rank 31 on life expectancy, 36 on infant mortality, 28 on male healthy life expectancy, 29 on female healthy life expectancy, and 1 on health care expenditure.[2]

"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. Body Mass Index above 30%

e. Mortality Amenable to Health Care per 100,000[7]

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

Developing Solutions: To achieve the Triple Aim, an organization must act as *an integrator*. An "integrator" is an entity whose purpose is to achieve high levels of performance in all three components of the Triple Aim. It can assemble a system to improve and maintain health (in addition to treating illness). The system is usually made up of many different components that provide health promotion and health protection services as well as medical care. The parts are linked together as a virtual system with common purpose, policy, and values. The integrator "has an organization structure and management process which ensures care and services can be delivered."[8]

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:
The key tasks of the integrator fall into the categories listed below.

Oversight of a defined population
- Identify needs of the population.
- Manage a population-based budget for the health care need of a defined population.
- Help align financial payment structure so that population health outcome is rewarded.
- Provide or contract with high-value suppliers of acute care and specialty services and other purchased services including social care services that overlap, for example, services for learning or physically disabled persons.

Creating the care system
- Design standards for primary and acute care services.
- Evaluate the effectiveness of new technologies and treatments.
- Provides a mechanism for "remembering" each patient (could be an integrated medical record).
- Develop and deploy information technology for use by patients and suppliers.
- Build multidisciplinary teams to support high-risk patients. Design care around "best feasible outcome" for each patient.
- Develop a segmented approach to various health care populations.
- Develop services to support active participation in health promotion, "expert patient," and self care.
- Measure performance in new ways, including developing assessments that measure health experience down to the patient level.
- Develop a care plan for all individuals that is based on population segments and mass customization.

Linking public health with health care
- Connect individual health with public health.
- Form partnerhips with local communities.

- Incorporate and provide public health interventions to promote health and wellness, including education, community outreach, and physical space planning.

Create a learning system
- Provide independent quality control and improvement expertise.
- Test and analyze effects of this approach to caring for the population, continually learning what works to optimize the Triple Aim.

Examples of Organizations Serving the Integrator Function

- United Kingdom Fund Holding: The *integrator* is the Primary Care Trust.
- CareOregon: The *integrator* is the Oregon Health Plan (a Medicaid managed care plan).
- QuadMed: The *integrator* is company-based (QuadGraphics).
- Jönköping County, Sweden: The *integrator* is the Jönköping County Council.
- Cincinnati Children's Hospital Medical Center: The *integrator* is the physician-hospital organization.
- HealthPartners: The *integrator* is the medical group and health plan.

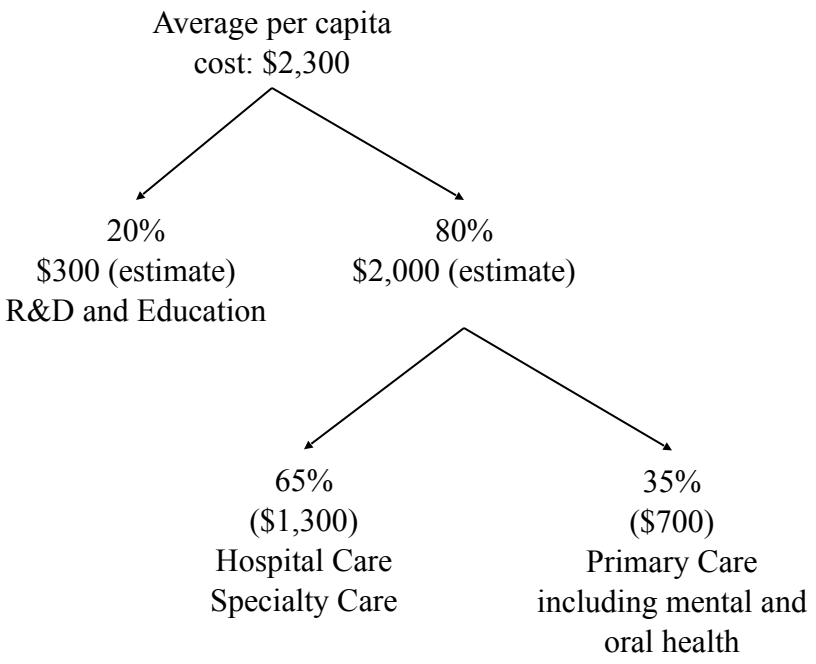
(Typically, even the best US examples do not fully integrate public health and social services with health care.)

Description of One Integrator: The Primary Care Trust

Primary Care Trusts are the center of the National Health Service (NHS) in England and control over 80 percent of the NHS budget. There are over 100 Primary Care Trusts in England, each of which is responsible for the health of the population they serve. Each Primary Care Trust serves approximately 600,000 individuals. Trusts receive funding through the NHS based on a weighted capitation scheme that corrects for deprivation, age, and market forces. The five main responsibilities of a Primary Care Trust are:

1. Identify needs of the population and secure and coordinate services to meet those needs;
2. Manage the total population budget;
3. Partner with local authorities for social care services that overlap, for example, services for learning or physically disabled persons;
4. Provide public health services, for example, surveillance; and
5. Manage contracts with primary care practices.

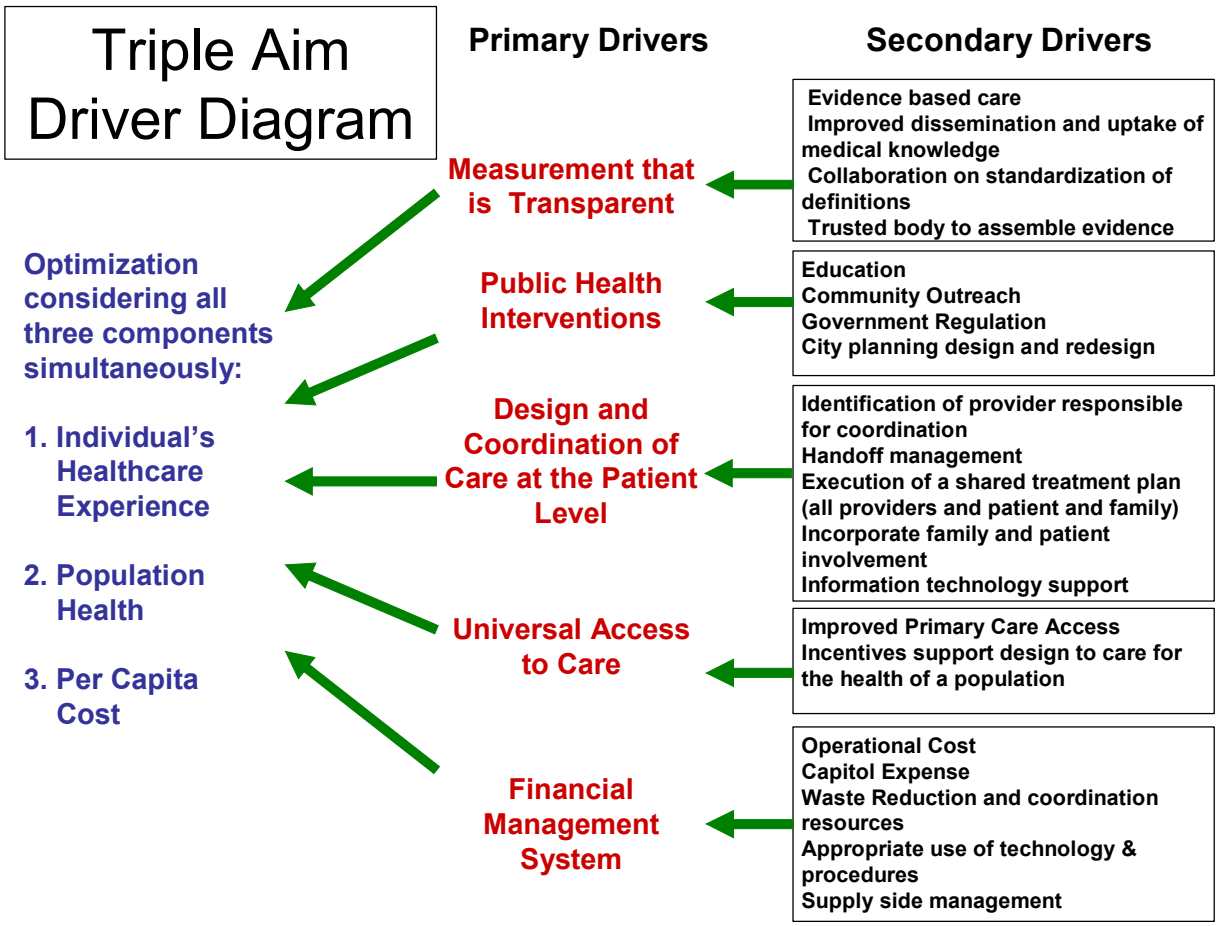
The approximate flow of funding to a Primary Care Trust is depicted below.


Average per capita cost: $2,300
20%
$300 (estimate)
R&D and Education
80%
$2,000 (estimate)
65%
($1,300)
Hospital Care
Specialty Care
35%
($700)
Primary Care
including mental and oral health

Segmentation of the population:
It is important for the integrator to understand the health needs of a population as it organizes services around that population. One approach is to divide the population into various segments. The following list is one example of such segmentation: [9]

1. Prevention
2. Pregnancy and childbirth
3. Acute life-threatening conditions
4. Acute non-life-threatening self-limiting conditions
5. Catastrophic conditions
6. Chronic life-threatening conditions
7. Chronic non-life-threatening conditions
8. End of life
9. Rehabilitation
10. Elective conditions

Driver Diagram for Triple Aim: The following diagram outlines potential 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.



Segmentation and the drivers combined

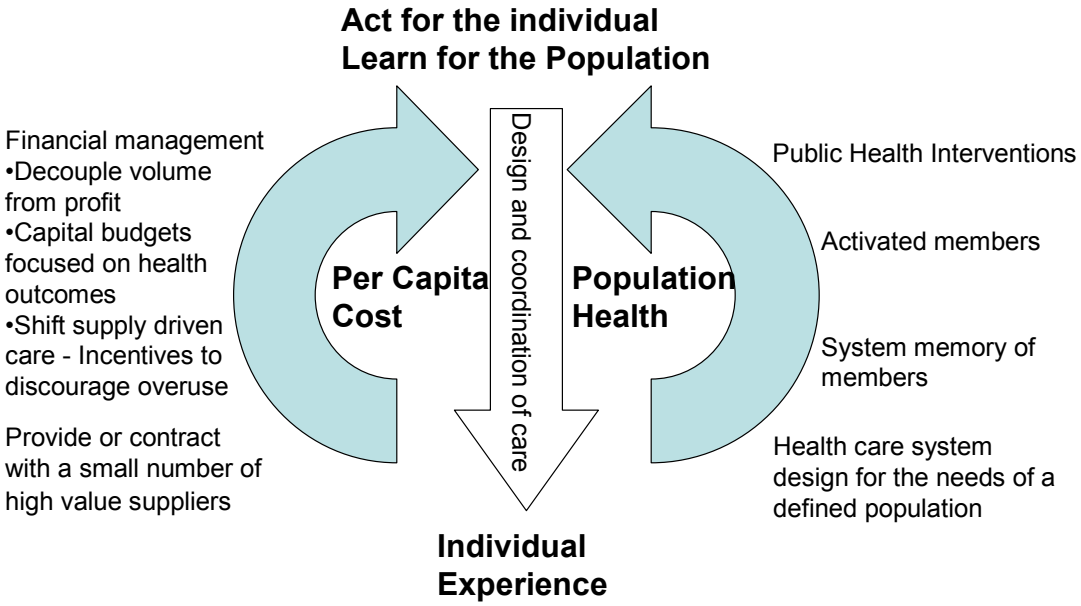
	Transparent Measureme	Public Healt	Care coordinatic and desigr	Universa Access	Financial Manageme
1. Healthy					
2. Pregnancy and childbirth					
3. Acute life-threatening condition					
4. Acute non-life-threatening self-l conditions					
5. Catastrophic conditions					
6. Chronic life-threatening conditi					
7. Chronic non-life-threatening co					
8. End of life					

The above intersection of drivers and segmentation can be used to focus resource on the needs of that segment. Although all of the drivers have importance for each segment, some are more important than others. For example, in the health population, public health interventions might be the most important. For patients with chronic non-life-threatening conditions, coordination of care would be very important. The integrator could use this matrix to help develop the care plan for their population.

Conclusion:

The time has come to focus on the health of the population; the present system is not achieving the results that it is capable of. Integrators who are willing to tackle the Triple Aim are needed. Our present payment system in the US continues to reward the production of health care, not the outcomes of health. We propose the following model—which is a summary of all that has been described in this technical brief—for the integrator.

Triple Aim Model



[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] Nolte E, McKee M. Measuring the health of nations: Analysis of mortality amenable to health care. *BMJ*. 327;7424 (2003):1129-

[8] Crisp N. *Global health Partnerships*. Published by Central Office of Information, February 2007, p. 103.

[9] Oregon Senate Bill SB27-2. Available at: http://www.wecandobetter.org/node/943. Accessed 5/4/2007.