

Framing Health Care Systems Challenges

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Overview of Major US Health Care Issues -1

- Universal Access
 - 45+ million Americans do not have health insurance
 - Estimated additional cost: \$100-\$125 billion/year
- Quality of outcomes
 - US has the highest expenditures on innovation in health care processes and products – this needs to continue
 - By several measures, US does not have the best overall health care outcomes
 - Improved quality can reduce cost, in part by reducing complications from medical procedures

Overview of Major US Health Care Issues - 2

- Overall cost
 - \$2.4 Trillion in 2007, 16% of US GDP
 - Latest estimate: 18% of GDP for health care
 - Growth of health care cost estimated at 6%+/yr, well above inflation rate
 - Major competing nations spend 11% of GDP or less
 - US expenditures are \$700 Billion/yr higher than most major competitors and the difference is growing. \$700Billion is based on 2007 US GDP of \$14 Trillion. Not clear US gets better overall outcomes, although we arguably have best high-end care. We need to reduce cost by 30% to be comparable to other major nations
 - Some in Obama administration appear to believe one can reduce cost as much as 30% or \$700Billion/yr by reducing regional variation, an example of waste. This is based on analyses by Dartmouth researchers – all savings estimates should be taken with a large grain of salt
- Overall health care goals: increase access, greatly improve quality and outcomes, and vastly reduce cost
- We need a systems approach to all these issues
- As Dennis Cortese of the Mayo Clinic says “The US Health Care System – What system?”

Universal Access to 45+ Million

- Universal health care insurance is the issue that has had the biggest attention in Washington for the past 60 years
 - Walter Reuther of the UAW and Charlie Wilson of GM argued about it in the late 40's, relative to Truman's proposal of a government-based health care system (i.e., single payer)
- Estimated cost of universal insurance is \$100-\$125 Billion/yr (equivalent to a one-time 4-5% growth in overall health care cost). This used to sound extremely high, before 2008
- It is arguably the easiest to tackle of the three major health care issues (access, quality, cost), although we have just seen that it is pretty hard to achieve nevertheless

Quality of Health Care

- Increased quality (e.g., having fewer complications) can reduce cost when tackled as a systems issue, using, for example, the Toyota “lean” methodology
 - “The Pittsburgh Way,” “Chasing the Rabbit,” are some of the books that discuss use of “lean” in healthcare
 - “Lean” is not just about inventory reduction or reducing waste. It is largely about continuous improvement (Steve Spear – teaches in SDM)
- Patient Safety – Nancy Leveson et al (ESD, MIT)
 - Considers, for example, how the organizational structure of a hospital can lead to systems’ errors, and how to avoid them, based on system safety research with NASA, BP, ...

Quality of Health Care: Some “Lean” Principles

- Smooth flow of patients and equipment
 - Can reduce pressure on staff, reduce errors
 - Can lead to smaller queues, less need for waiting room space
 - 4 hour limit on ERs can lead to pressure on rest of hospital or less than ideal release of ER patients
- Continuous improvement
 - If a staff member notices an unusual situation
 - Call for an immediate analysis
 - Ask 5 Why’s
 - Learn how to avoid such situations in the future

Innovation in Health Care Delivery

- Improved medical procedures
 - For example, in treating strokes
- Improved drugs
 - Can we tailor drugs to the individual?
 - Can we produce new drugs without significant increase in overall cost?
- Improved medical devices
 - In manufacturing, new technology usually reduces cost
 - Can we reduce cost while introducing new technology in health care?

IT in Health Care

- Creating and using electronic health record systems will
 - Reduce errors (e.g., medication interactions)
 - Provide instant information on a patient throughout the country
 - Still needs research into integration of medical data from different software systems
 - Privacy is a significant concern
 - France uses a card for each individual that has their encoded health care record
- Statistical data obtained from such IT systems
 - Can be used to determine which procedures or drugs are effective
 - Can be used to reduce cost of health care due to unnecessary procedures and tests (Dartmouth studies)

Dartmouth Studies

- Wennbergs (father and son) have led a research effort at Dartmouth for about 20 years that indicates via a geographic atlas the regional variations in number of procedures and cost in different parts of the country
- The differences are quite significant, sometimes a factor of 2
- Various theories as to why
 - More specialists of a given kind in a city or region will cause an increase in the number of procedures they perform without obvious improvement in outcomes, even possibly poorer outcomes due to increased use of procedures that keeps the doctors busy
 - Differences in training can lead to more or less conservative approaches to care
 - Some doctors in a given city are trying to substantially increase their income (e.g., Atul Gawande's article in the New Yorker)
 - This is in addition to the problems caused by the wrong incentives in medical care of paying for procedures rather than better outcomes
 - Cities with several teaching hospitals (e.g., Boston) will naturally be more expensive
- The big claim - if you undo the variation using such evidence you can save 30% of the overall health care cost or about \$700B/yr, and increase quality; thus a silver bullet for health care

Overall Organization of US Health Care

- US health care is largely organized in two layers – primary care and hospitals/specialists
- Much of Europe is organized in three layers - clinics (nurse practitioner - based), primary care, hospitals/specialists
- Significant advantages in access and cost of a three layer model
- Over 1000 nurse practitioner-based clinics already exist in the US, lately with the support of major hospitals. Can we have a 100-fold increase in this number?

PCPs make less money than many specialists, and the job can be boring. Few recent graduates of medical schools have become PCPs.

Nurse practitioners can visit patients in their homes and check up on their medications; can emphasize wellness; clinics can stay open most of the day (thus relieving pressures on ERs)

- Resistance of primary care organizations and physicians is based largely on safety, but potential loss of money is a key issue
- There is a perceived shortage of nurses and teachers of nurses
- Cultural change for the US public is a nontrivial issue too

Organization of Hospitals

- There are three levels of hospitals
 - Community hospitals
 - Regional hospitals
 - Tertiary (teaching) hospitals
- Ideally, one ought to go to a community hospital for many common situations (e.g., sprained wrist)
- The tendency, however, is to go to a tertiary hospital
 - This leads to great complexity in tertiary hospitals, thus increasing overhead cost

Organization of Tertiary Hospitals -

1

- Cities, such as Houston, have several specialty hospitals – heart, cancer, children
- Consider such specialty hospitals as subhospitals in major (tertiary, teaching) hospitals
- Use lean approaches in procedures to reduce the cost and increase quality in such subhospitals
- Pay a fixed price for such procedures. Infections or other complications should not be charged

Organization of Tertiary Hospitals - 2

- We do not pay enough for master diagnosticians – they can save a great deal of money and suffering by making good diagnoses relatively quickly in complex situations
- Clay Christensen suggests that such master diagnosticians should be paid by the hour in complex cases
- Restructuring tertiary hospitals can save money by reducing overhead costs

Wellness

- Avoid going to a hospital – people get sick there and die all too often

Emphasis of the health care system ought to be to help people stay healthy, rather than treat them when they are sick

- Change behavior and culture
 - Cultural changes are not easy to implement, but as smoking suggests it can be done

Aphorisms

- If you cannot figure out why the supposed savings of a particular health care policy change are not there
 - One man's savings is another man's income
- There is no silver bullet – just several lead ones
 - In countries where there was a major agreement to change the health care system, there was an agreement to do so by the major political parties. The US does not currently have such an agreement

I suggest a mixed strategy for reducing health care costs significantly

Complex socio-technical systems usually need complex responses

Questions?

Last Year of Life

- Much of the cost of the health care system is treating people in the last year of their life
- Dealing with this issue (e.g., rationing health care to such people, assuming we can figure out when the last year of life occurs) is a major ethical and cultural problem