Congressional Budget Office

Estimating the Effects of Health IT on Health Care Costs

Stuart Hagen

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Summary

- The role of the Congressional Budget Office
- National estimates of the effects of widespread health IT.
- Barriers to the widespread adoption and effective use of health IT.
- Potential effects of health IT

CBO's Involvement in HIT

- Congress is interested in ways to save money in health care and in identifying sources of funds to pay for government programs.
- Nothing is so attractive as an idea that promises improved health care AND cost savings.
- CBO analyzes the impact of legislative proposals for Congress.

CBO Cost Estimates

- When a legislative proposal becomes law, the CBO estimate of costs or savings becomes part of the budget.
- The Congress relies on such estimates in making further legislative decisions. They act as if it is real money.
- As a result, CBO feels a fiduciary duty to give Congress our best estimate of what effects a legislative proposal would actually have.

CBO Cost Estimates

- How does a CBO cost estimate differ from other estimates?
  - We estimate the effects of specific legislative proposals
    - Legislation is often at “30,000 feet” rather than ground level
  - Baseline
  - Likely effect, rather than potential
  - We have to be bluntly realistic in interpreting empirical research

Issues for Cost Estimates

- The same incentives that slow adoption could also affect appropriate use of health IT.

- What would providers do with savings?
  - Depends on local market conditions.
  - In general, CBO assumes that cost savings are passed on to patients and plans in lower prices, but physicians could just take it home if market is not competitive.
  - Most physicians are price takers, so if 15% adoption in a particular market, adopting physicians may simply pocket it all.
  - So may see no savings at all until market reaches certain threshold point of adoption.

- We are still thinking about these issues…

National Estimates of Savings

- RAND Corporation and Center for Information Technology Leadership (CITL) estimated annual savings of about $80 billion (in 2005 dollars).
- RAND estimated savings from reducing provider operating costs and eliminating inappropriate services. Some savings would go to others --- patients, health plans --- rather than providers.
- CITL limited its scope to savings from achieving uniform standards, explicitly excluding potential improvements in efficiency within practices and hospitals.
- In spite of weaknesses, RAND and CITL studies were very helpful.
  - Identified sources of potential savings, modes of analysis
  - Highlighted empirical research

National Estimates of Savings

Not appropriate for CBO cost estimates

- Both studies significantly overstate savings.
- Potential vs. Likely
- Savings to federal budget would be far smaller.
- Some types of savings would require new legislation to generate Medicare savings.
- Neither study uses a CBO baseline.

The RAND Analysis

- Assumes EMR systems would be used effectively, given *appropriate changes* in health care."
- Does not consider payment incentives that do not reward providers for reducing some types of costs—and may even penalize them for doing so.
- Ignores evidence of zero or negative net savings.
- Baseline is adoption in 2004 rather than adoption trend.
- Savings are probably overstated in some categories, such as inpatient length of stay.
  - Since the early 1980s, ALOS has fallen steadily but recently that trend has slowed (NCHS, 2007).
- Cost reductions would eventually be reflected in lower prices and copayments—patients would demand more care and offset some savings.

The CITL Analysis

- CITL did not fully consider the impact of financial incentives.
- The $80 billion in potential savings is against a baseline of little or no information technology use.
- Some assumptions appear to be overly optimistic:
  - Over-estimated administrative costs, leading to overstated savings estimates.
  - Assumed interoperable health IT would eliminate 95 percent of avoidable tests, physicians choosing to override warnings only 5 percent of the time.
- Assumed that only 0.001 percent of prescriptions would require a phone call between a pharmacist and a prescribing physician.

Ambulatory EHR Adoption Rates

- Several surveys report that adoption among physicians is relatively low (although actual estimates vary widely) and that large practices are more likely to adopt HIT than small practices.
  - 4 percent of physicians have an extensive, fully functional EHR and an additional 13 percent have a basic system (DesRoches et al., 2008).
  - 24 percent of office-based physicians used an EHR (basic or otherwise). Solo practices were at 16 percent and large practices were at 39 percent (Jha et al., 2006).
  - 12.4 percent of providers use a comprehensive health IT system, and an additional 16.8 percent use a basic system (2006 NCHS survey).
  - A study of health IT adoption for two periods --- 2000 to 2001 and 2004 to 2005 --- found that adoption by large practices exceeded that of smaller practices by 38 percentage points (Grossman and Reed, 2006).

Hospital HIT Adoption Rates

- Rates of adoption of EHRs by hospitals appear to be similar to those of physicians:
  - In 2007, 11 percent of hospitals had fully implemented EHRs. Such hospitals were more likely to be large urban or teaching hospitals than to be small community facilities (AHA, 2007).
  - 5 percent of hospitals use computerized physician order entry (CPOE) systems (George Washington University, Massachusetts General Hospital, and Robert Wood Johnson Foundation, 2006).
  - 4 percent of hospitals were in full compliance with standards for CPOE, although an additional 17 percent of hospitals had made progress toward obtaining the technology (Cutler, Feldman, and Horwitz, 2005).

Reasons for Low Adoption

- Challenges in Purchasing and Implementing Health IT Systems
  - Requires substantial redesign of health care delivery.
  - Many vendors to choose from – some research suggests that people have difficulty making choices if they have too many options (Kao citation).
  - Waiting for prices to fall
- Inability to Capture Financial Returns from Health IT
  - Many returns accrue to non-purchasers, such as health plans and patients.
- Competition Among Health Insurance Plans
  - Don’t want to benefit competitors
  - Plans may have other ways for achieving the same ends, such as using claims data.
- Expectations of Government Help

The Federal Role

- Government often intervenes in the case of public goods
  - Private returns of investors are less than the returns to society.
  - Street lights
  - Highways? Maybe not.

- What can the government do better than the private market?
  - Uniform standards?
  - Manage large databases of clinical data for research?
  - Facilitate the sharing of information?
  - Adjust financial incentives to make tools such as health IT more attractive?

Benefits of Health IT

- Costs are concentrated but benefits are diffuse

- Categories of benefits
  - Internal benefits
  - External benefits I
  - External benefits II

Evidence of Benefits

- Lots of research, almost all of which is only somewhat useful

- Problems:
  - Mostly narrowly focused studies that examine effects of HIT of varying levels of sophistication on very specific tasks.
  - Rarely consider issue of financial incentives
  - Lack of generalizability (selection of adopters, academic medical centers, large medical groups, etc.)
  - Many studies are old or are using old data.

Internal Benefits

- Can be captured by purchaser
- Most commonly efficiency improvements that reduce operational costs in an office or hospital.

- Elimination of paper charts
- Elimination of medical transcription
  - IHC reports savings from reducing transcription costs (as high as $12,500 per year for some physicians) contributed substantially to paying for its EHR, which cost about $2,500 per physician.
- Provider productivity
  - Nurses in hospitals saw drops in the time required to document the delivery of care but physicians saw increases in documentation time (Poissant et al. 2005).

External Benefits I

- Positive externality
- Cannot be captured by purchaser but may be captured by payer or provider that has financial responsibility for some health care services.
- Integrated organizations may be able to internalize some of these benefits.
- Solo physicians are least likely to capture this type of benefit.
- Examples
  - Cost effective formulary compliance
  - Reduce unnecessary or inappropriate services
  - Reduce adverse drug events

External Benefits II

- Positive externality
- Not easily captured by purchaser or plan
- Benefits society at large
- Very difficult to estimate their ultimate effect, especially because we lack incentives to ensure optimal benefits of sharing information.

- Examples
  - Large data base of clinical data for use in comparative effectiveness and cost effectiveness studies.
  - Other network benefits from sharing information

Reducing Costs Without Compromising Quality

The complexity of modern medicine exceeds the inherent limitations of the unaided human mind.

— David M. Eddy (1990)

- Clinical decision support (CDS) could help physicians adhere to evidence-based guidelines, avoid preventable errors, reduce the use of procedures that have no demonstrated clinical value, ultimately improve the quality of the care that they provide, and possibly cut costs.

- Empirical research shows that CDS can improve quality but it has not demonstrated that improving care can actually improve health or reduce costs (Garg et al., 2005; Lindenauer et al., 2007).

Clinical Decision Support

- But… CDS does not always improve quality, and if it could, improvement might not reduce costs.
  - CDS functions have failed to increase physicians' adherence to evidence-based standards of treatment for a wide variety of conditions, including chronic obstructive pulmonary disease, heart disease, diabetes, coronary artery disease, chronic heart failure, chronic renal insufficiency, and hypertension (Crosson et al., 2007; Linder et al., 2007; Sequist et al., 2005; Tierney et al., 2005, 2003; Murray et al., 2004; Subramanian et al., 2004; Harris et al., 1998).
  - Lack of positive effects due to
    - Misaligned financial incentives
    - Poor quality of some CDS functions. CDS has been criticized as "cookbook" medicine, as not fitting well with the particular patterns of work in a given practice, or as unable to positively affect providers' behavior (Frisse, 2006; Sittig et al., 2006; Bates et al., 2003).

Improving Our Understanding of HIT

- Effect of greater adoption by providers on development of infrastructure...and vice versa.
  - Public policy might do only one or the other.

- More evidence of broader effects of health IT
  - Compare effects in different communities with different levels of HIT adoption.
    - Need measures of adoption by community.
    - Need to develop outcome measures that will help us estimate effects of a policy proposal on federal budget.