JOHNS HOPKINS BLOOMBERG SCHOOL of PUBLIC HEALTH

Improving Health Care: Incentives, Cost-Effectiveness, and Public Policy

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Learning Objectives

- Distinguish the difference between cost-benefit and cost-effectiveness terms based on the academic or policy and practice change process settings
- Outline a cost-effectiveness, cost-benefit, or return on investment model exemplar for motivating and making change

Outline

- What exactly is health economics?
- What are the many types of cost studies?
- How could we apply these types of studies to the study of a particular intervention?

What is health economics?

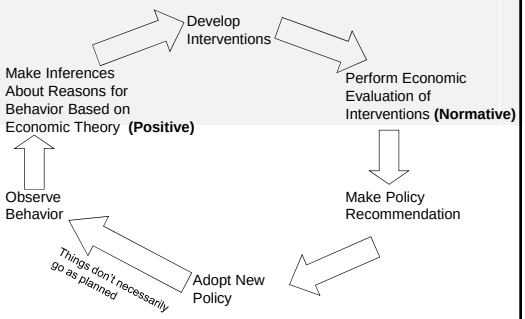
Positive Use of Economics

- Develop theories of expected responses to changes in incentives
  - Assume the objective for individuals and organizations when developing the theory
  - Do not assert that consumers should value different things (length and quality of life) in a particular way
    - Allow consumers to express their own preferences
- Study how people, organizations, and governments behave
  - Test whether the assumed objective explains behavior
- Revise theories if they are unable to explain behaviors

Normative Use of Economics

- Ask whether there is something wrong with the market such that the government needs to impose a regulation
- Use data about tradeoffs individuals are willing to make
- Aggregate and assume that this represents tradeoffs society is willing to make
- Project changes in health or other outcomes with an innovation in care or policy
- Compare the costs of innovation with the benefits from innovation
- Make a policy recommendation

Positive/Normative Feedback



What are the many types of cost studies?

Comparative effectiveness (CER)

- Term we hear a lot about in the news
- Multiple definitions, even within the United States
- **None** are cost-effectiveness but they are worth a quick review to understand how quality measures can be thought of as a way to influence policy before we add cost

KF6

KF7

United States Department of Health and Human Services (DHHS)

- *Comparative effectiveness research is the conduct and synthesis of research comparing the benefits and harms of different interventions and strategies to prevent, diagnose, treat and monitor health conditions in "real world" settings. The purpose of this research is to improve health outcomes by developing and disseminating evidence-based information to patients, clinicians, and other decision-makers, responding to their expressed needs, about which interventions are most effective for which patients under specific circumstances.*
  - *To provide this information, comparative effectiveness research must assess a comprehensive array of health-related outcomes for diverse patient populations and sub- groups.*
  - *Defined interventions compared may include medications, procedures, medical and assistive devices and technologies, diagnostic testing, behavioral change, and delivery system strategies.*
  - *This research necessitates the development, expansion, and use of a variety of data sources and methods to assess comparative effectiveness and actively disseminate the results.*

Types of Cost-Outcome Analyses

Type of Analysis	Outcome

Types of Cost-Outcome Analyses

Type of Analysis	Outcome
Cost-effectiveness	

Slide 10

KF6 After this slide, I'd like to give 30 seconds of pondering music so that students can consider what is and is not in the combination of the three defintiions
Kevin Frick, 12/30/2009

KF7 Source: http://www.hhs.gov/recovery/programs/cer/cerannualrpt.pdf
Kevin Frick, 12/30/2009

Types of Cost-Outcome Analyses

Type of Analysis	Outcome
Cost-effectiveness	**Have single most important outcome in natural units**

Natural units

- This is not a question of natural and "unnatrual" units
- Rather natural units are things we can measure as actual physical/clinical measures
  - Blood pressure changes
  - HbA1C changes
  - Changes in visual acuity
  - Changes in BMI
- Compare with "constructed measures"
  - Particularly QALYs, DALYs, and dollars that are measures of abstract concepts over time

Types of Cost-Outcome Analyses

Type of Analysis	Outcome
Cost-effectiveness	Have single most important outcome in natural units
Cost-utility	

Important Note

- Cost-utility is a subset of cost-effectiveness
  - Not because it is expressed as incremental dollars per incremental natural unit
  - But because it is expressed as incremental dollars per unit of something

Types of Cost-Outcome Analyses

Type of Analysis	Outcome
Cost-effectiveness	Have single most important outcome in natural units
Cost-utility	**Express outcome in quality or disability adjusted life years**

Types of Cost-Outcome Analyses

Type of Analysis	Outcome
Cost-minimization	
Cost-effectiveness	Have single most important outcome in natural units
Cost-utility	Express outcome in *quality adjusted life years* or *disability adjusted life years*

Types of Cost-Outcome Analyses

Type of Analysis	Outcome
Cost-minimization	**Any outcome—compare cost of alternatives with similar outcomes**
Cost-effectiveness	Have single most important outcome in natural units
Cost-utility	Express outcome in quality or disability adjusted life years

Cost minimization

- Not all studies that end up being cost minimization studies start as cost minimization studies
- Often expect different outcomes but upon empirical analysis find similar outcomes
- Realize that it is only necessary to ask which costs less

Similar outcomes

- Do not have to be identical
- Could be not statistically significantly difference
- Could be not clinically different

Types of Cost-Outcome Analyses

Type of Analysis	Outcome
Cost-minimization	Any outcome—compare cost of alternatives with similar outcomes
Cost-consequence	
Cost-effectiveness	Have single most important outcome in natural units
Cost-utility	Express outcome in quality or disability adjusted life years

Types of Cost-Outcome Analyses

Type of Analysis	Outcome
Cost-minimization	Any outcome—compare cost of alternatives with similar outcomes
Cost-consequence	**Multiple outcomes in natural units**
Cost-effectiveness	Have single most important outcome in natural units
Cost-utility	Express outcome in quality or disability adjusted life years

Multiple outcomes issues

- This could be thought of as researchers just "giving in" and not being able to think of a way to combine things
- However there are times when the results may be both outcomes and satisfaction with the process of results may affect individuals with such diverse interests that it is impossible to combine across measures and individuals

Types of Cost-Outcome Analyses

Type of Analysis	Outcome
Cost-minimization	Any outcome—compare cost of alternatives with similar outcomes
Cost-consequence	Multiple outcomes in natural units
Cost-effectiveness	Have single most important outcome in natural units
Cost-utility	Express outcome in quality or disability adjusted life years
Cost-benefit	

Types of Cost-Outcome Analyses

Type of Analysis	Outcome
Cost-minimization	Any outcome—compare cost of alternatives with similar outcomes
Cost-consequence	Multiple outcomes in natural units
Cost-effectiveness	Have single most important outcome in natural units
Cost-utility	Express outcome in quality or disability adjusted life years
Cost-benefit	**Express outcome in dollars—how much monetary burden is avoided**

Return on investment

- Closest to cost-benefit analysis since it involves only dollars and cents
- However, the perspective is also important
  - In other words, whose cost and whose benefits are considered matters
    - Society as a whole?
    - The whole health care system?
    - A specific health care payer?
    - A particular health care provider/facility?
    - The patient
- Return on investment tends to focus on a particular provider or facility

Exemplar

Guided Care

- Described in more detail
  - Leff et al. Guided care and the cost of complex healthcare: a preliminary report. *American Journal of Managed Care*. 2009; 15(8): 555-559.
- Practice-based team including a registered nurse, 2-5 physicians, and other office staff

Guided Care Nurse

- Performs a comprehensive assessment at home
- Creates an evidence-based care guide
- Monitors and coaches the patient monthly
- Coordinates the efforts of all of the patient's providers of healthcare
- Smooths the patient's transitions between sites of care
- Promotes patient self-management
- Educates and supports family caregivers
- Facilitates access to appropriate community resources

Basic Guided Care Results—Annualized Rates

	Guided Care (N=433)	Control (N=402)
Hospital admissions	0.75	0.96
Hospital days	4.14	5.77
SNF admissions	0.18	0.28
SNF days	2.67	4.90
ED visits	0.36	0.43
Primary care visits	9.85	10.13
Specialist visits	8.36	7.89
Home healthcare episodes	0.96	1.27
DME items	4.05	3.14
Tests	36.32	33.14

Details on the basic results

- None of the differences were statistically significant

Conversion to dollars

- Assume 55 patient case-load
- Apply average per unit cost
- Basic result suggests $171,000 saving on medical care for the 55 patients
- Basic analysis suggests a $96,000 cost for the guided care nurse
- Net savings of $75,000
- Difficulty is that the confidence interval includes the potential for greater expenditures

Take away messages

- Comparative effectiveness has attracted a lot of policy attention but is not necessarily going to be accompanied by cost data
- Cost-effectiveness is a term that is broadly used but has a particular academic meaning that is reflected in the literature
- To change policy we often need to describe something that is over a shorter period than academic cost-effectiveness articles focus on and with a more limited perspective than academic articles focus on