Diffusion of Abandonment Decisions: What happens after comparative effectiveness research?

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Presentation Outline

• Overview of Comparative Effectiveness Research and Diffusion
• Project Aims & Objectives
• Case Study: Abandonment of PA Catheters for CABG in Florida
• Future Steps
• Debrief
What is comparative effectiveness research?

- Research that analyzes the effectiveness, benefits, and harms of treatments and technologies as compared to their counterparts in order to inform health care decisions.

- Can be original research such as clinical trials or systematic reviews of existing research to draw more definitive conclusions.
Why is CER controversial?

- Seen as healthcare “rationing”.
- Potentially infringes on doctors’ autonomy.
Why is CER important?

• New treatments and technology are often rushed to market without formalized evaluation of the effectiveness compared to existing treatments.

• Many treatments and technologies are currently used with harmful side-effects and few benefits.

• Overutilization needs to be addressed in light of soaring healthcare costs.
Do doctors change practice patterns because of CER?

- Doctors are hesitant to change practice styles even when evidence shows that an alternative is superior.¹

- A group of doctors or hospitals will often react quickly while others hold out for years.
  - After the 2007 COURAGE trial, doctors in hospitals with large volumes of cardiac patients abandoned PCI for angina rapidly while other doctors held out.²

- Diffusion models are a good way to conceptualize this gradual decision to abandon.

Three Models of Diffusion

1) Contagion¹

• Innovations spread like epidemics—a doctor abandons a procedure upon coming in contact with a doctor who has already abandoned the procedure.

Three Models of Diffusion

2) Social Influence\(^1\)

- Peer pressure—a doctor abandons when a certain proportion of his colleagues have abandoned.

Three Models of Diffusion

3) Social Learning

- Cost-Benefit Analysis—a doctor abandons after forming an educated decision based on peers’ experiences with abandonment.

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Aims & Objectives

- To develop an economic theory on the diffusion of the abandonment decision following comparative effectiveness research.

- To incorporate multiple empirical studies on the abandonment of different procedures into a comprehensive understanding of the diffusion process.
Case Study: Abandonment of PA Catheter use during CABGs in Florida

- Example of a procedure that has been abandoned overtime after a negative CER finding.
- Hypothesis: “Entrant” physicians act as messengers, spreading practices learned at previous hospital to new hospital.
  - Contagion vs. Social Learning Theory?
What is a PA Catheter?

- Used during various types of heart surgery to measure hemodynamic data.
- Many physicians believe that this information will help reduce mortality among patients. ¹

Nationwide Use of PA Catheters: 1989-2003

1996: Connors et. al. demonstrate increased mortality with PA catheters through multicenter observational study (Presented in 1994)

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Hypothesis

• “Entrant” physicians act as messengers, spreading practices learned at previous hospital to new hospital.
Methods


• Isolate “entrants” among cardiothoracic surgeons for each year, link back to fellowship or previous hospital, and characterize PA catheter use trends for CABG in previous hospital.

• Analyze data for shifts in PA catheter use corresponding with entrant physician.
Hypothetical Example

- John Smith is a fellow in thoracic surgery at Hospital A from 1995-1997.
- Hospital A is a high-tech teaching hospital that abandoned PAC for CABG after hearing about Connors’ study in 1994.
Hypothetical Example

- Hospital B used PACs during 80% of CABGs in 1996.
- John Smith continues the practice of CABG without PAC learned in residency, and explains to colleagues the rationale for abandoning PACs.
Hypothetical Example

% PACs during CABG


Hospital A

Hospital B

Hypothetical Example

1997

Hospital A

Hospital B
Future Steps

• Look for hypothesized trends in newly obtained 1992-2008 Florida inpatient data.

• Learn to use econometric models to analyze time series data.

• Work towards a grant to carry out a broader study using national data and a series of empirical examples.
Lessons Learned

- Data, data, data ($$, rights, and ownership).
- The difference between theoretical and empirical studies.
- The benefits of collaborative work between disciplines.
Thank You!

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