The Anatomy of a Hospital System Merger: The Patient Did Not Respond Well to Treatment

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Motivation

- Ongoing consolidation in US healthcare markets over the last decade, especially hospitals
- Consensus that mergers raise prices but “synergies” elusive
- Extant literature: macro-approach measuring average merger effect
  - Less investigation of changes inside black box of firm
  - Less focus on mechanisms driving impacts (or lack thereof)
  - Hard to evaluate *all* mergers against stated aims of acquirer/target
- Today: study hospital mega-merger + impacts on orgs and production
  - How are organizations changing, if at all?
  - What are downstream impacts on clinical and financial performance?

This study

- Estimate merger effects within a single U.S. for-profit hospital chain
  - Focal merger involves over 100 hospitals, 43 acquired in 6 years pre-merger
  - Investigate corporate intentions with public documents
  - Directly survey managers to observe management practices

- Study rich set of outcomes to benchmark against aims of acquisition
  - Production inputs: labor and capital, health IT, physician flows
  - Organizational inputs: survey managers at hospitals + observe flows of managers
  - Downstream outcomes: clinical (patient health) and financial

Key findings:

1. Mixed evidence on achieving stated aims via intermediate inputs
2. No systematic improvement in downstream outcomes

Declared Objectives of Merger vs. How We Study Them

Efficiencies expected from:	And we test for them by studying:
• Operating cost savings	→ Costs & FTEs (not today)
• Cutting capital expenditures	→ Capital investment (not today)
• Revenue enhancement by focusing on hospitals in growing markets	
• Recruiting new physicians	→ Physician flows (not today)
• Emergency room improvements	
• Standardizing operations	→ Health IT vendors, management practices, and CEO flows
• Optimizing resource allocation	

Analytic Approach

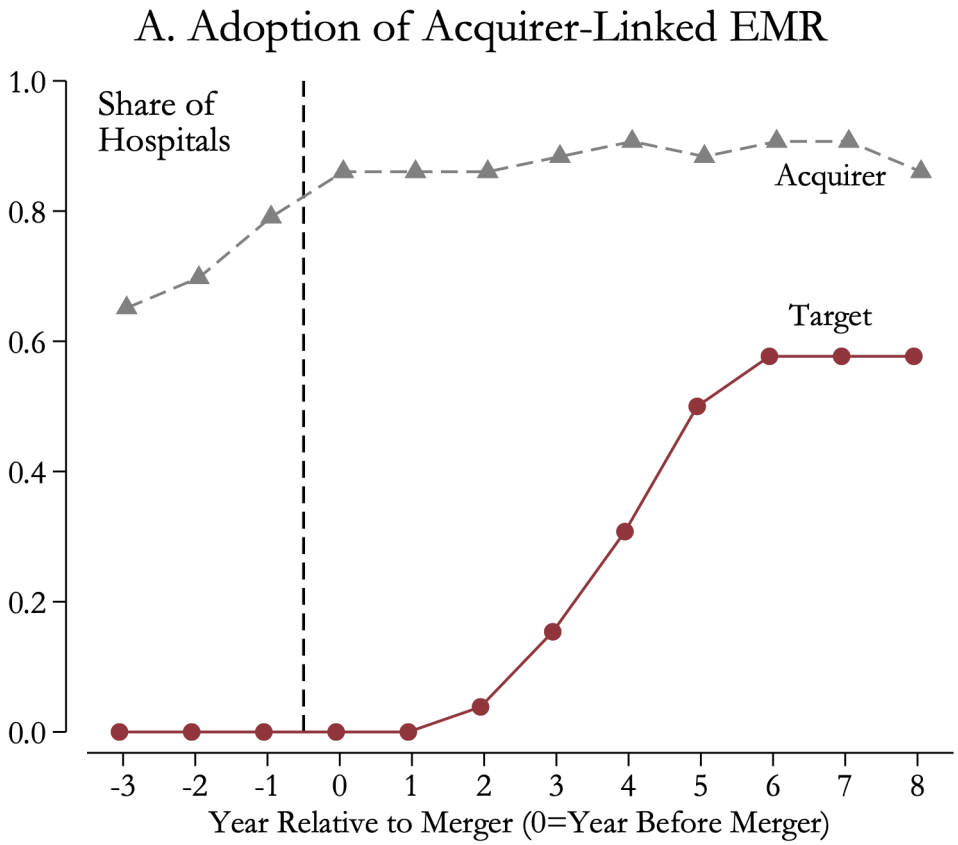
- **Key inputs & outcomes:** Study merger effects w/ diff-in-diff
  - Post period: year after acquisition and beyond
  - Comparison group: other for-profit hospitals
  - Event studies to validate pre-trends & show effects over time

- **CEO flows:** Study origins of new CEOs at target hospitals

- **Management practices:** Study level of & variations in practices
  - Compare acquirer vs. target vs. other hospitals (collected in Bloom et al. 2012)

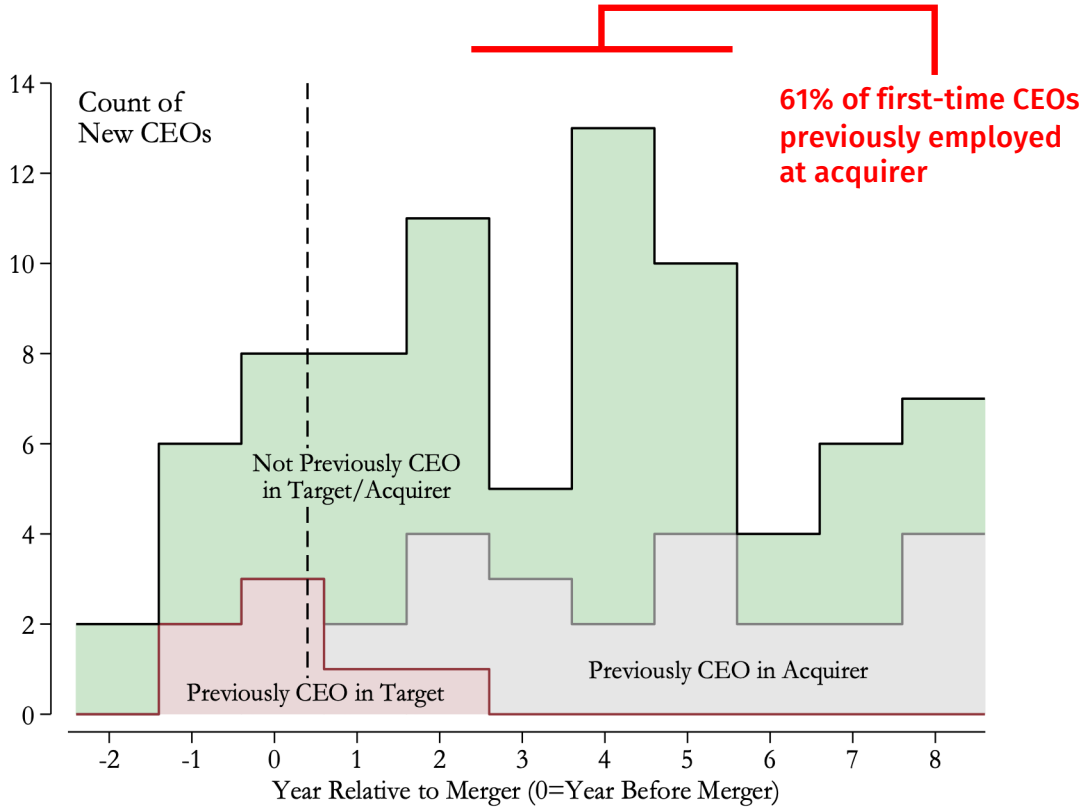
Inputs: Health Information Technology

- **Stated aim: harmonize EMR**
- **Pre-merger: acquirer uses closely linked EMR vendor**
- **Target adopts acquirer's EMR**
- **De-adopts old EMR (80%→0)**



Inputs: Managers (C-Suite Flows)

- Stated aim: Standardize operations & integrate new hospitals
- Did acquirer replace management at target hospitals?
- Study composition of *new* CEO cohorts in Target hospitals in each year
  - Track acquirer/target CEOs
  - Assemble work histories
- New CEOs who come from acquirer:
  - Previously acquirer CEOs
  - Previously held other roles



Inputs: Management Practices

- Stated aim:
  Standardize operations

- Phone survey of clinical managers in 2015 (More details)
- Score 1-5 (higher better)

1. Low scores at acquirer/target vs. other hospitals
2. Low variation vs. other hospitals
3. Acquirer & target appear similar in levels and variations

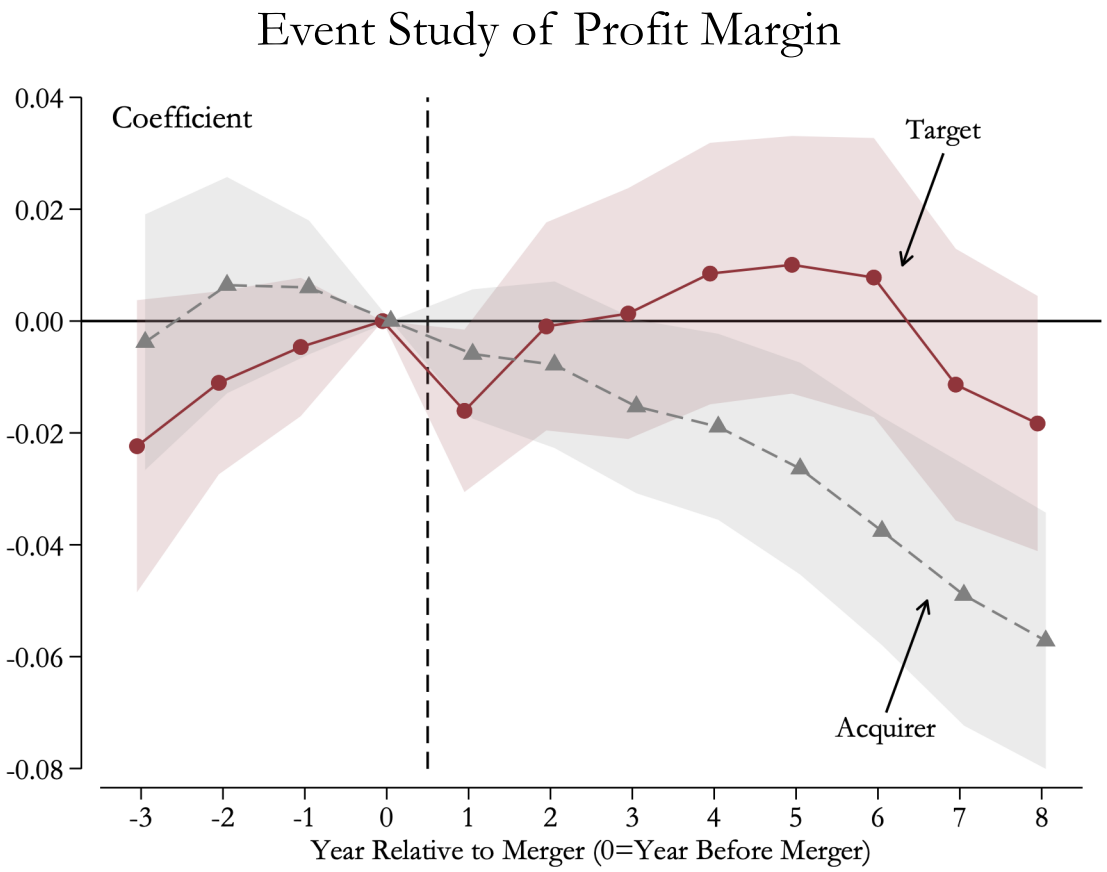
=> Chain enforced common set of (lower quality) practices

	Average Score	Standard Deviation	Hospitals	Chains
Merged Chain	2.81 (0.06)	0.27 (0.04)	23	1
Acquirer	2.74 (0.09)	0.30 (0.06)	11	
Target	2.87 (0.07)	0.24 (0.05)	12	
Other Hospitals (WMS survey)	3.08 (0.04)	0.43 (0.03)	157	91

Robust s.e.'s in parentheses. Standard deviation in WMS sample is within-chain using chain random effects.

Outcomes: Financial Performance

- Did changes in intermediate inputs lead to better financial performance?
- Use public CMS cost report data to assess financial outcomes
- Target: no detected benefit
- Acquirer: significant drop



Outcomes: Clinical Performance

- Did limited changes in intermediate inputs lead to better patient outcomes?
- Study risk-adjusted survival & readmission using Medicare claims
- Patient cohorts: Heart attack, heart failure, pneumonia, stroke
- Little benefit of merger on clinical outcomes

	Survival	Readmission
Post * Acquirer	-0.006	-0.007**
	(0.004)	(0.003)
Post * Target	-0.002	0.005
	(0.004)	(0.004)
Observations	5610	5610

Robust s.e.'s clustered at hospital level.
Effects significant at 10% (*), 5% (**), and 1% (***) level.

Lessons for Research

- Our findings on downstream outcomes align with merger literature
- Take organizational view to understand merger mechanisms
- Acquirers may use differing organizational channels for synergies.
- Research can benchmark planned changes vs. realized outcomes

Lessons for Policy

- Import organizational insights into merger policy
- Help to identify “good mergers” (Dafny & Lee 2015) where synergies compensate for price increases
- Policymakers can consider
  - The stated aims of the merger
  - How acquirer plans to implement aims internally
  - Whether changes likely to generate synergies
- This perspective might have raised skepticism about merger we study