

HOSPITALISTS AND HOSPITALS' READMISSION RATES: A LONGITUDINAL ANALYSIS OF U.S. ACUTE CARE HOSPITALS (2008-2010)

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GSA Annual Scientific Meeting
Washington, DC
November 6th, 2014



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Introduction

- Hospitalists a rapidly growing innovative staffing strategy with the potential to improve quality of care
- Introduced in the US health care system in the mid-1990s
 - ✓ Fewer than 100 in 1995 (Greeno, 2006)
 - ✓ 40,687 in 2012 (AHA, 2014)
- Definition Hospitalist:
 - ✓ Specialists in inpatient medicine (Wachter and Goldman, 1996)
 - ✓ A physician who specializes in the practice of hospital medicine (SHM, 2009)



Characteristics of Hospitalists

➤ **Specialties:**

- ✓ Cardiology
- ✓ Family Practice
- ✓ Gastroenterology
- ✓ General Internal Medicine
- ✓ Gynecology
- ✓ Neurology
- ✓ Pediatrics
- ✓ Pulmonology
- ✓ Surgery

➤ **Forms of hospitalists' integration**

- ✓ Employed by a hospital
- ✓ Contractual arrangements:
 - ❖ Physician group
 - ❖ University or school program
 - ❖ Other types of contractual arrangements



Prior Studies

- Prior studies on hospitalists have focused on efficiency (LOS and costs) and quality.
 - ✓ Single hospital cross-sectional studies conducted among teaching or pediatric hospitals
- Prior studies suggest that hospitalists may
 - ✓ Reduce LOS and costs
 - ✓ Provide similar quality of care
- The use of hospitalists a staffing strategy for improved quality
 - ✓ Affordable Care Act
 - ✓ Value-based purchasing programs



Purpose

➤ **Explored if:**

- ✓ Adoption of hospitalists
- ✓ Hospitalist' staffing intensity
- ✓ Adopting employed hospitalists

Is associated with better quality (reduced pneumonia readmission rates)



Conceptual Framework (Hypotheses)

- Agency Theory used to develop hypotheses
- Agency theory suggests:
 - ✓ Establishment of a contract between principal and agent
 - ✓ Incentives as a mechanism to align agent's goals to the principal's



Conceptual Framework (Hypotheses)

- H_1 : Adoption of hospitalists is associated with lower pneumonia readmission rates
- H_2 : An increase in hospitalist staffing intensity is associated with lower pneumonia readmission rates
- H_3 : Adoption of employed hospitalists is associated with lower pneumonia readmission rates



Methods: Data Collection

➤ Sample

- ✓ *Sample*: A national sample of general medical/surgical acute care US hospitals (2008-2010)
- ✓ *Sample Size*: 3,294 hospitals per year

➤ Source

- ✓ American Hospital Association (AHA) Annual Survey
- ✓ Area Resource File (ARF)
- ✓ CMS Hospital Compare

➤ Analysis

- ✓ Descriptives
- ✓ Panel regression with hospital and year fixed effects



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Methods: Variables

➤ **Dependent**

- ✓ 30-day risk-adjusted pneumonia readmission rates

➤ **Independent**

- ✓ Hospitalist Provided Care at the Hospital (Yes/No)
- ✓ Hospitalists Staffing Intensity: (1) High, (2) Medium, (3) Low and (4) No Hospitalists
- ✓ Integration Mechanism: (1) Employed by Hospital, (2) Contract with Hospital, and (3) No Hospitalists Provided Care at the Hospital



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Methods: Variables

➤ Control Variables

- ✓ Occupancy Rate
- ✓ Payer Mix
- ✓ Nurse Staffing Ratio
- ✓ Competition: Hirschman Herfindahl Index (HHI)
accounting for same system hospitals within given HSA
- ✓ Medicare Managed Care Penetration
- ✓ Per Capita Income
- ✓ Supply of Physician in the County



Descriptives

n = 3,294	Mean/Frequencies	SD
Dependent Variables		
Pneumonia Readmissions	18.33	1.61
Independent Variables		
<i>Hospitals Used Hospitalists</i>		
Yes	37.20%	
No	62.80%	
FTE Hospitalists per 1,000 Adjusted Patient Days	0.04	0.12
<i>Hospitals Contractual Arrangements with Hospitalists</i>		
Did not Use Hospitalists	62.80%	
Employed Hospitalists	22.23%	
Contracted with Hospitalists	14.97%	



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Descriptives

n = 3,294	Mean	SD
Control Variables		
Occupancy Rate	55.29%	19.51%
Proportion of Medicare Patients	50.83%	17.78%
Proportion of Medicaid Patients	19.35%	14.80%
RN FTE Staffing Ratio	0.74	1
Market Concentration (HHI)	0.73	0.34
Medicare Managed Care Penetration	19.48%	13.89%
Per Capita Income	\$35,955.88	\$11,384.14
Supply of Physicians per 1,000 Population	2.13	2.09



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Fixed Effects Regression Results

n = 3,294		Pneumonia 30-day Readmission Rates
Hospitals Adopted Hospitalists		-0.10* (0.06)
Hospitalists Staffing Intensity (Ref: Hospitals did not Used Hospitalists)		
Low Proportion of FTE per 1,000 APD		-0.08 (0.08)
Medium Proportion of FTE per 1,000 APD		-0.10 (0.07)
High Proportion of FTE per 1,000 APD		-0.13* (0.08)
Contractual Arrangement (Ref: Hospitals did not Use Hospitalists)		
Contracted Hospitalists		-0.11* (0.06)
Employed Hospitalists		-0.08 (0.07)
Significant at: * 0.1 **0.05 *** 0.001 **** <0.0001		
Adjusted for control variables		



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Summary

➤ **Explored if:**

- ✓ Adoption of hospitalists
- ✓ Hospitalist' staffing intensity
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Is associated with better quality (reduced pneumonia readmissions rates)

➤ **Findings:**

- ✓ Changing from not using hospitalists to using:
 - ❖ Hospitalists
 - ❖ A high hospitalist staffing intensity
 - ❖ Contracted hospitalists

Is associated with lower 30-day pneumonia readmission rates ($p < 0.1$)



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Policy Implication

- The use of hospitalist may be a strategy to improve quality
- Policy makers should enact and reinforce :
 - ✓ Policies encouraging the use of hospitalists
 - ✓ Value-based purchasing which may serve as incentive to adopt hospitalists
- Managers should:
 - ✓ Implement strategies to help overcome barriers to adoption
 - ✓ Ensure appropriate hospitalists staffing intensity critical to achieve desired outcomes (lower pneumonia readmission rates)
 - ✓ Contracting with hospitalists (vs. employing) to achieve desired outcomes (lower pneumonia readmission rates)



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