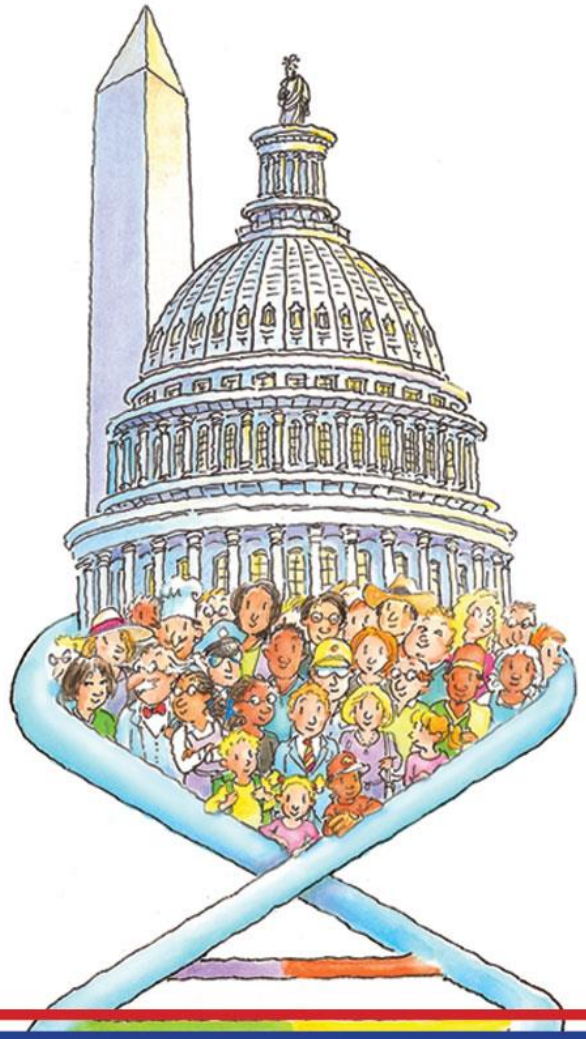
GSA 2014 ANNUAL SCIENTIFIC MEETING



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Hospital-based Skilled Nursing Facilities and Hospitals' Readmission Rates

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Post-acute Care

- Involves a range of services, such as recuperation, rehabilitation as well as nursing services, as per needs of the patient.

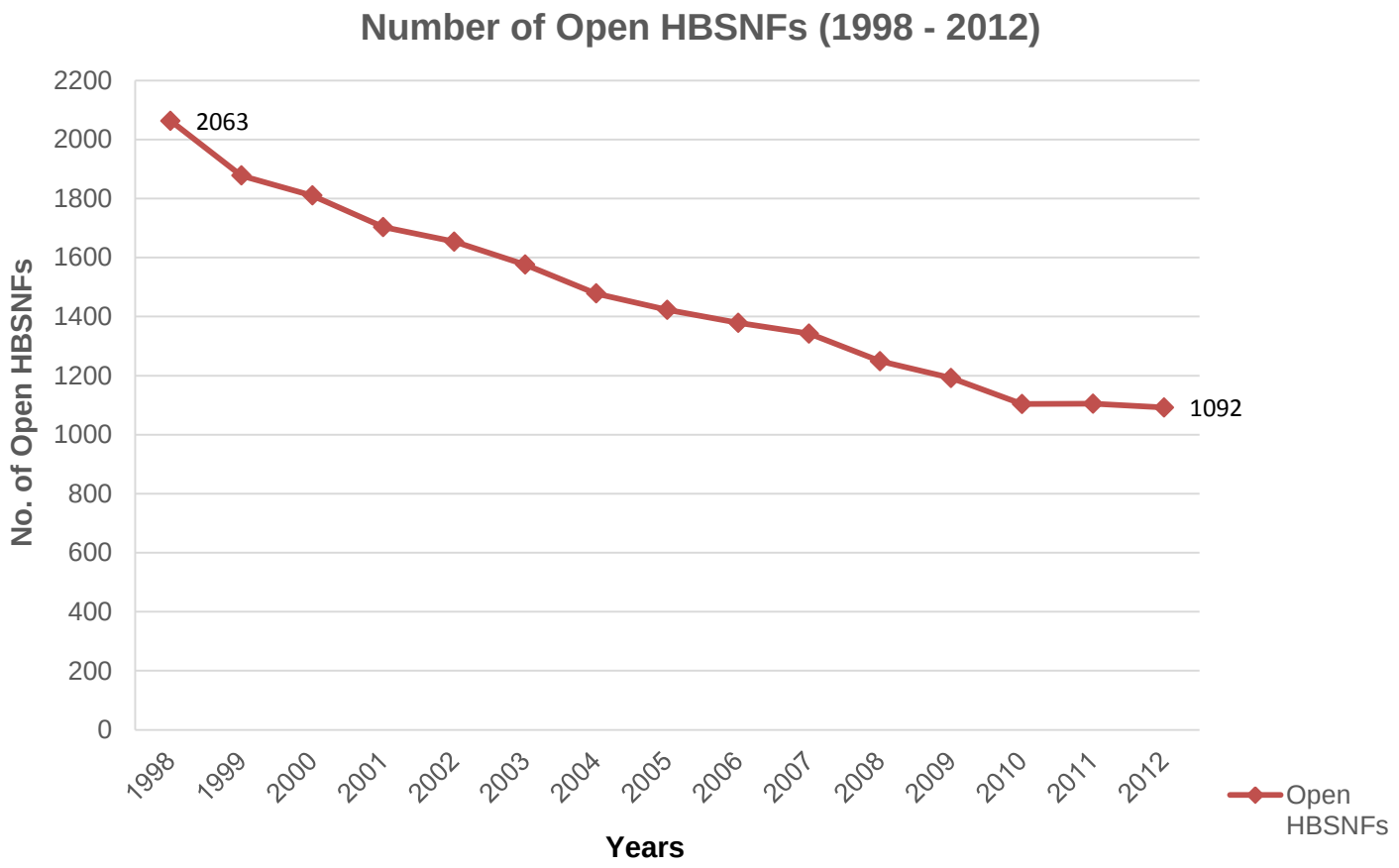
- **Four post-acute care settings reimbursed by Medicare**
  - ❖ Skilled nursing facility (free-standing or hospital-based)
  - ❖ Home health care (HHC)
  - ❖ Inpatient rehabilitation facility (IRF)
  - ❖ Long-term care hospitals (LTCHs)

- Skilled nursing facilities (SNFs) most commonly used post-acute care sites

Hospital-Based Skilled Nursing Facilities

- Hospital-based skilled nursing facility (HBSNFs) refers to a facility that
  - Is financially integrated with the hospital
  - Hospital and HBSNF file their Medicare cost reports together
- Reimbursed primarily by Medicare
- HBSNFs **provide care to patients who need short-term skilled nursing or rehabilitation services on inpatient basis after a hospital stay of at least three days**.

Decline in Numbers



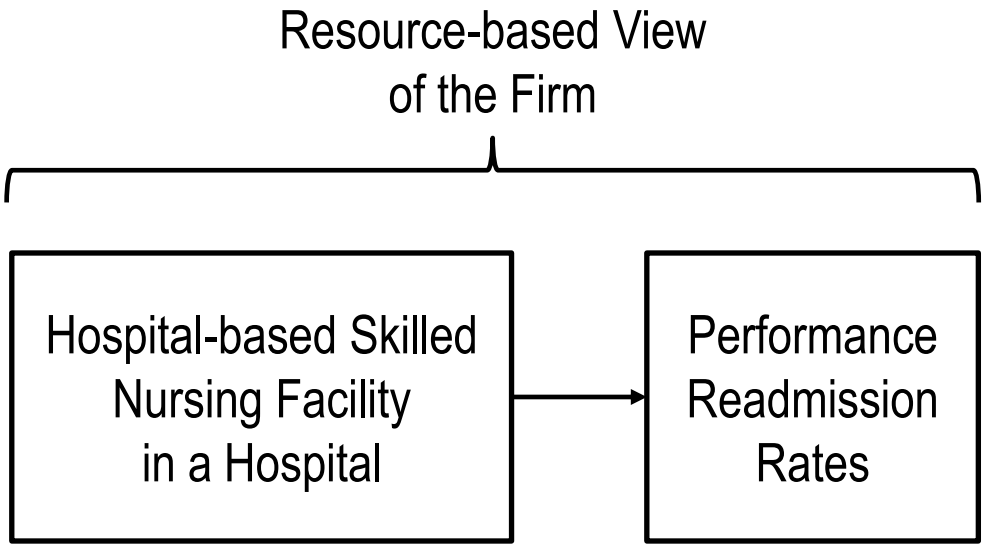
Purpose

HBSNFs could provide higher acuity patients with

- Better access to treating physician
- Timely availability of resources such as emergency services and equipment
- Better communication and coordination of care

Examine the association between presence of hospital-based skilled nursing facilities (HBSNF) in a hospital and their readmission rates of hospitals

Conceptual Framework



Resource-based View of the Firm

- Link between **differences in resources and capabilities and variation in organizational performance**

- Four characteristics of firm resources:
  - **Valuable, Rare, Difficult to imitate, Difficult to substitute**
  - Include all tangible and intangible **assets, capabilities, firm attributes, knowledge** etc. that are **controlled by the firm** and allow it to conceive and implement value-creating strategies (Barney, 1991; Daft, 1983)

- Vertical Integration between acute and post-acute care could help hospitals to improve coordination of care and their performance.

- ***Hypothesis:*** *Presence of HBSNFs is associated with lower readmissions rates in hospitals*

Methods

Data Sources:

- American Hospital Association (AHA) Annual Survey
- Area Health Resources File (AHRF)
- CMS Hospital Compare

Sample: National sample of medical/surgical, acute-care hospitals

Years: 2007 – 2011 (5 years)

Analysis: Panel regression with facility random effects and state and year fixed effects

Variables

Dependent Variable

- 30- day risk-adjusted readmission rates for Heart attack (AMI)
- 30- day risk-adjusted readmission rates for Congestive heart failure (CHF)
- 30- day risk-adjusted readmission rates for Pneumonia

Independent Variable

- Presence of Hospital-based skilled unit / facility in the hospital (1 = yes; 0 = No)

Control Variables

- Size
- Ownership
- Teaching status

Control Variables (continued)

- System-affiliation
- Payer mix
- Occupancy rate
- Registered Nurse FTEs per 1000 inpatient days
- Length of stay
- Market Competition (HHI)
- Managed care penetration
- Older population (65+)
- Poverty
- Unemployment rate
- Primary care physicians (patient care)
- Skilled nursing facilities in the county
- % Minorities in the county

Bi-variate Statistics

	Have HBSNFs†	Do not have HBSNFs†	p-value
30-day readmission rate for Heart Attack	19.79	19.83	0.023
30-day readmission rate for Heart Failure	24.57	24.78	0.001
30-day readmission rate for Pneumonia	18.21	18.46	0.001

† HBSNF: Hospital-based skilled nursing facility
Significance: $p < 0.05$

Results – Organizational Factors

Readmission rate	Heart Attack n = 8074	Heart Failure n = 13103	Pneumonia n = 13647
HBSNF (1= yes, 0 = no)	-0.021	-0.125**	-0.125***
Size	0.000	-0.001***	0.000
Not-for-profit†	-0.133*	-0.307***	-0.377***
Government†	-0.002	-0.133	-0.223***
Teaching status	0.124	0.570***	0.404***
System-affiliation	0.004	0.080	0.005
Proportion of Medicare patients	0.004**	0.001	0.003***
Proportion of Medicaid patients	0.005**	0.003*	0.003***
Occupancy rate	0.003*	0.002	0.004***
Registered Nurse Full-time equivalents per 1000 inpatient days	0.004	-0.017***	-0.008**
Length of stay	-0.005	-0.005***	-0.003***

† For-profit (Reference) * p < 0.10 ** p < 0.05 *** p < 0.01 n = number of observations

Results – Market Factors

Readmission rate	Heart Attack n = 8074	Heart Failure n = 13103	Pneumonia n = 13647
Market Competition (HHI)	0.090	0.474***	0.065
Managed care penetration	0.000	-0.004	-0.001
Older population (65+)	0.000***	0.000***	0.000**
Poverty	0.010*	0.027***	0.013***
Unemployment rate	0.022*	0.005	0.018**
Primary care physicians (patient care)	0.020	-0.008	-0.003
Skilled nursing facilities	0.000	0.000	0.000
Proportion of minorities in the county	0.009***	0.012***	0.010***
† Percent white (reference)	* p < 0.10 ** p < 0.05 *** p < 0.01		n = number of observations

Conclusions

Presence of hospital-based skilled nursing facilities in hospitals is significantly associated with lower 30-day readmission rates for congestive heart failure and pneumonia but not for heart attack.

Not-for-profit SNFs, those with higher RN staffing ratios, and those with higher LOS have lower readmission rates. On the other hand, teaching hospitals, with higher Medicaid patients, and located in communities with more minorities have higher readmission rates.

Implications

- HBSNFs can potentially serve a role in lowering readmission rates especially for hospitals with higher proportion of CHF and Pneumonia patients.

- Hospital managers could evaluate their strategies related to their HBSNFs especially in the context of Affordable Care Act (ACT) related to the changes in reimbursement, value-based purchasing, accountable care organizations

- Policy makers could formulate incentives encouraging the use of HBSNFs for coordination of care to improve the quality of care delivered to patients.

Limitations and Future Results

Limitations:

- Secondary data limited the scope of the study
- Dichotomous variable indicating if a hospital has HBSNF
- AHA is self-reported

Future Research:

- Additional and detailed data
- Contribution HBSNFs could make to ACOs and bundled payment in improving quality of care
- Association between HBSNF staffing and patient outcomes
- Association between frequency of HBSNFs use and hospitals' cost and financial performance


Thank you!