

# The Effects of Specialty Hospitals on General Hospital Financial Performance, 1997-2004



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# Study Team

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# Objectives

- Comment on economics of specialization
- Assess the impact of market entry by specialty hospitals

# Economics of Specialization

- Procedural margins
- Clinical efficiencies
- Economies of scale
- Economies of scope
- Learning & competencies



# Number of Specialty Hospitals

**TABLE 1**

Trends in Numbers of Specialty Hospitals, 1995 and 2002

Facility Type	Percent Change		
	1995	2002	1995-2002
Short-Term General Hospitals (a)	5,194	4,927	-5.4%
Psychiatric (a,b,c)	1,402	1,436	2.4%
Rehabilitation (a,b,c)	675	936	38.7%
Cancer (b)	9	11	22.2%
Obstetrics and Gynecology (d,e)	12	18	41.7%
Orthopedic and General Surgery (d,e)	60	80	33.3%
Cardiac Surgery (e,f)	10	17	70.0%

# Impact of Entry

- Data:
  - Medicare HCRIS (“Cost Report”) data for all acute care hospitals for 1997-2004
  - County and MSA characteristics from ARF
  - Distribution and year of entry for ‘specialty’ hospitals:
    - ASHA member hospitals, MedCath hospitals
    - List of specialty hospitals from Cram et al. (2005)
    - Web directory search

# Impact of Entry (cont)

Three “ad hoc” financial performance models:

$$\text{REV}_{it} = f(\mathbf{P}_{jt}, \mathbf{Q}_{it}, \mathbf{Z}_{ijt}, \text{SPEC}_{jt}, \varepsilon_{ijt})$$

$$\text{COST}_{it} = f(\mathbf{Q}_{it}, \mathbf{W}_t, \mathbf{Z}_{ijt}, \text{SPEC}_{jt}, \varepsilon_{ijt})$$

$$\text{MARGIN}_{it} = f(\mathbf{P}_{jt}, \mathbf{Q}_{it}, \mathbf{W}_t, \mathbf{Z}_{ijt}, \text{SPEC}_{jt}, \varepsilon_{ijt})$$

**P** = vector of output prices for market area  $j$  in time period  $t$

**Q** = vector of output volume for hospital  $i$  in time period  $t$

**W** = vector of input prices for market area  $j$  in time period  $t$

**Z** = vector of hospital and market characteristics

**SPEC** = specialty hospital present (‘new’ or ‘established’) for market area  $j$  in time period  $t$

# Endogeneity of Entry

- In general, entry by a new firm occurs when incumbent firms earn 'above normal' profit; thus, specialty hospital entry more likely in 'high margin' markets
- Estimation strategy
  1. Panel data with fixed effects; eight-year time period
  2. Instrumental variables
    - IV = lagged MSA-level profit and state CON status, random effects
    - IV = lagged MSA-level profit, fixed effects

Sensitivity Analyses for Models of General Hospital Patient-Care Revenue, Cost and Operating Margin, 1997-2004 (a)

Alternative Models (b)	HHI (c)	NEWSPEC (c)	ESTSPEC (c)
Revenue			
Baseline (e)	0.088941 *	0.002282	-0.004583
Specialty hospital measures (f)	0.091626 *	-0.001160	-0.000941
Total v. patient care (g)	0.087152 *	-0.006428	-0.004297
Reduced forms (h)	0.151420 *	-0.005695	-0.006532
Costs			
Baseline (e)	0.062870 *	-0.021154 *	-0.044204 *
Specialty hospital measures (f)	0.071270 *	-0.000159	-0.004322 *
Total v. patient care (g)	0.071625 *	-0.015387	-0.034193 *
Reduced forms (h)	0.150050 *	-0.021890	-0.024752 *
Margins			
Baseline (e)	0.000149 *	0.167902	1.839555 *
Specialty hospital measures (f)	0.000127	0.017955	0.273821 *
Total v. patient care (g)	0.000048	0.138000	1.236177 *
Reduced forms (h)	0.000183 *	0.221403	2.156477 *

Notes: \*Significant at  $p \leq 0.05$  (t-test); (a) Based on authors' analysis of a survey of ASHA membership, Medicare HCRIS Cost Reports (1997-2004), Bureau of Labor Statistics wage data, and various data from the Area Resource File; (b) See text for description of sensitivity analysis model specification; Model I is measures the presence of specialty hospitals as the ratio of specialty hospital beds to acute hospital beds; (c) Coefficients in the revenue and cost models are adjusted to allow correct interpretation of dummy variables in log-log models (Refer to Kennedy 1981); (e) coefficients repeated from Table 2; (f) models measure the presence of specialty hospitals as "specialty hospital beds as percent of acute hospital beds in market area;" (g) models use total revenue/cost/margin instead of patient care revenue/cost/margins; (h) models are reduced form.

# Uncompensated Care

**TABLE 4**

Uncompensated Care Costs as a Percent of Revenue, 2003-2004 (a)

	2003	2004	Percentage Point Change 2003-2004 (b)
Counties without specialty hospitals	4.83%	5.26%	+0.43
Counties with specialty hospitals	4.64%	5.11%	+0.47

Notes: (a) Authors' analysis of Medicare HCRIS Cost Reports (1997-2004); (b) Column percentages are not significant at  $p \leq 0.05$

# Results Summary

1. Entry of *new* specialty hospitals is associated with lower GH costs but has no revenue effect
2. Presence of *established* specialty hospitals also lowers costs but has no revenue effect
3. Presence of established specialty hospitals has a positive effect on GH profit margins; entry of new specialty hospitals has no effect on margins (possibly due to its smaller effect on costs)
  - IV approach produces similar findings: both new and established specialty hospitals are associated with higher GH profit margins