Do JCAHO accredited hospitals perform better on quality measures? An analysis of process-of-care measures and surgical indicators.

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JCAHO accreditation

- Expensive
- Time consuming
- Little evidence of relationship with better performance on process of care measures
  - Among JCAHO accredited hospitals, 0/8 studies demonstrated consistent relationship between accreditation scores
  - When compared to non-accredited hospitals, 2 found that JCAHO accreditation is associated with better performance
- No studies have examined relationship between accreditation and surgical outcomes

Objective

- To examine the relationship between JCAHO accreditation status, scores and both process of care and surgical outcomes

Methods

- For 2000 – 2003
  - JCAHO dataset – accreditation status and scores for 4,270 surveyed hospitals
  - AHA dataset – information on number of beds, type of hospital, and ownership for 6,229 hospitals
  - Hospital compare – 17 process of care measures for discharges
  - Medicare – measures of surgical outcomes for 14 procedures

Surgical outcomes

- For 14 procedures that demonstrate variation in outcomes, that can be predicted by
  - historical procedures volume
  - historical risk-adjusted mortality rates
  - the combination of the two

Methods

- Eliminate critical access hospitals
- Categorize performance for process of care and surgical outcomes into quintiles of performance
- Compare accredited vs. non-accredited (1,0)
- Among accredited, categorize accreditation scores into quintiles
- Chi-square test
  - Is accreditation associated with higher levels of performance?
  - Are higher scores associated with higher levels of performance?

Sample

	Non-JCAHO accredited hospitals	JCAHO accredited hospitals					
		All JCAHO accredited hospitals	1 Highest Scores	2	3	4	5 Lowest Scores
Overall Evaluation Score, (range)		74 – 100	96 – 100	94 – 95	92 – 93	89 – 91	74 – 88
No. of hospitals, N	752	2,694 (100)	560 (20.8)	490 (18.2)	558 (20.7)	591 (21.9)	495 (18.4)
Mean overall evaluation score, (S.D.)	-	92.0 (4.0)	97.0 (1.0)	94.3 (0.5)	92.5 (0.5)	90.2 (0.8)	85.7 (2.5)
Accreditation Level, N (%)							
Full standards compliance	-	301 (100)	212 (70.4)	50 (16.6)	22 (7.3)	13 (4.3)	4 (1.3)
Requirements for improvement	-	2,372 (100)	348 (14.7)	439 (18.5)	536 (22.6)	576 (24.3)	473 (19.9)
Conditional accreditation	-	21 (100)	-	1 (4.8)	-	2 (9.5)	18 (85.7)
	N (%)	**N (%)**	**N (%)**	**N (%)**	**N (%)**	**N (%)**	**N (%)**
Type of Hospital Ownership							
AHA* survey year							
2000							
Total	736 (100)	2,677 (100)	554 (100)	488 (100)	556 (100)	584 (100)	495 (100)
Not-for-profit	435 (59.1)	1,780 (66.5)	379 (68.4)	328 (67.2)	358 (64.5)	403 (69.0)	312 (63.0)
Government, Nonfederal	219 (29.8)	415 (15.5)	80 (14.4)	75 (15.4)	91 (16.4)	89 (15.2)	80 (16.2)
Investor-owned (for-profit)	82 (11.1)	482 (18.0)	95 (17.2)	85 (17.4)	107 (19.2)	92 (15.8)	103 (20.8)
2001							
Total	707 (100)	2,683 (100)	558 (100)	489 (100)	557 (100)	585 (100)	494 (100)
Not-for-profit	415 (58.7)	1,783 (66.5)	382 (68.5)	326 (66.7)	358 (64.3)	407 (69.6)	310 (62.8)
Government, Nonfederal	221 (31.3)	415 (15.5)	81 (14.5)	75 (15.3)	92 (16.5)	86 (14.7)	81 (16.4)
Investor-owned (for-profit)	71 (10.0)	485 (18.1)	95 (17.0)	88 (18.0)	107 (19.2)	92 (15.7)	103 (20.9)
2002							
Total	680 (100)	2,682 (100)	559 (100)	486 (100)	558 (100)	585 (100)	494 (100)
Not-for-profit	398 (58.5)	1,780 (66.4)	379 (67.8)	323 (66.5)	361 (64.7)	407 (69.6)	310 (62.8)
Government, Nonfederal	214 (31.5)	413 (15.4)	81 (14.5)	73 (15.0)	91 (16.3)	86 (14.7)	82 (16.6)
Investor-owned (for-profit)	68 (10.0)	489 (18.2)	99 (17.7)	90 (18.5)	106 (19.0)	92 (15.7)	102 (20.7)
2003							
Total	655 (100)	2,675 (100)	558 (100)	483 (100)	557 (100)	585 (100)	492 (100)
Not-for-profit	378 (57.7)	1,765 (66.0)	376 (67.4)	320 (66.3)	358 (64.3)	406 (69.4)	305 (62.0)
Government, Nonfederal	210 (32.1)	407 (15.2)	82 (14.7)	71 (14.7)	88 (15.8)	85 (14.5)	81 (16.5)
Investor-owned (for-profit)	67 (10.2)	503 (18.8)	100 (17.9)	92 (19.1)	111 (19.9)	94 (16.1)	106 (21.5)
	N **Mean (S.D.)**	**N** **Mean (S.D.)**	**N** **Mean (S.D.)**	**N** **Mean (S.D.)**	**N** **Mean (S.D.)**	**N** **Mean (S.D.)**	**N** **Mean (S.D.)**
Number of Hospital Beds							
2000	736 144 (164)	2,677 219 (186)†	554 212 (179)	488 205 (178)	556 224 (178)	584 233 (197)	495 221 (195)
2001	706 140 (159)	2,683 222 (189)†	558 213 (185)	489 207 (183)	557 225 (178)	585 238 (200)	494 222 (198)
2002	676 135 (155)	2,669 220 (187)†	556 213 (185)	485 207 (181)	556 224 (174)	584 237 (199)	488 218 (195)
2003	640 135 (165)	2,591 222 (190)†	546 212 (184)	472 207 (181)	542 226 (179)	568 237 (203)	463 222 (199)

Process of Care Measure	Non-JCAHO accredited hospitals			JCAHO accredited hospitals			*p* value
	N Hosp	N Patients	Weighted Mean (S.D.)	N Hosp	N Patients	Weighted Mean (S.D.)	
Acute Myocardial Infarction							
ACE-I* for left ventricular systolic dysfunction	367	5,511	78.7 (15.9)	2,247	43,930	78.4 (14.8)	0.7
Aspirin at arrival	585	23,782	93.5 (7.4)	2,613	167,064	94.3 (5.6)	0.02
Aspirin at discharge	551	23,413	92.9 (9.8)	2,565	183,801	94.1 (7.9)	0.01
ß-blocker at arrival	584	20,819	87.9 (12.6)	2,609	147,181	88.8 (10.1)	0.1
ß-blocker at discharge	554	23,411	90.7 (10.7)	2,568	184,527	91.4 (8.8)	0.1
PTCA within 90 minutes of arrival	40	427	41.2 (24.4)	280	3,015	38.1 (22.6)	0.5
Smoking cessation advice/counseling	203	3,144	84.0 (18.4)	1,539	24,330	83.3 (18.7)	0.6
Thrombolytic agent within 30 minutes of arrival	65	210	44.8 (33.2)	309	1,032	38.7 (28.8)	0.2
Heart Failure							
ACE-I* for left ventricular systolic dysfunction	576	17,618	74.6 (14.5)	2,609	130,020	75.5 (13.5)	0.2
Assessment of left ventricular function	651	57,601	82.3 (17.1)	2,640	385,801	86.3 (11.4)	<0.001
Discharge instructions	419	16,699	46.4 (27.4)	2,123	120,953	48.4 (28.5)	0.2
Smoking cessation advice/counseling	361	3,414	66.6 (26.4)	2,050	24,087	68.2 (27.2)	0.3
Pneumonia							
Blood culture before 1st antibiotic	411	14,450	82.9 (10.0)	2,113	109,209	82.5 (9.9)	0.5
Initial antibiotic timing	653	63,884	71.8 (12.4)	2,626	410,328	69.0 (11.8)	<0.001
Oxygenation assessment	653	65,288	97.7 (5.5)	2,626	422,229	98.4 (4.0)	0.003
Pneumococcal vaccination	648	35,532	42.7 (26.0)	2,624	226,663	43.4 (25.7)	0.5
Smoking cessation advice/counseling	392	3,788	63.1 (27.0)	2,091	27,743	63.9 (27.6)	0.6

Quintile	1 Highest Scores			2			3			4			5 Lowest Scores			*p* value
Process-of-care measure	**N Hosp**	**N Patients**	**Weighted Mean (S.D.)**	**N Hosp**	**N Patients**	**Weighted Mean (S.D.)**	**N Hosp**	**N Patients**	**Weighted Mean (S.D.)**	**N Hosp**	**N Patients**	**Weighted Mean (S.D.)**	**N Hosp**	**N Patients**	**Weighted Mean (S.D.)**	
Acute Myocardial Infarction																
ACE-I* for left ventricular systolic dysfunction	462	9,165	77.7 (15.1)	390	7,611	76.9 (15.6)	474	9,173	79.8 (14.2)	503	10,469	78.2 (14.3)	418	7,512	79.1 (14.8)	0.03
Aspirin at arrival	544	34,130	94.2 (5.4)	475	29,725	94.1 (5.8)	545	35,354	94.7 (5.5)	576	38,073	94.0 (5.6)	473	29,782	94.6 (5.7)	0.2
Aspirin at discharge	530	38,201	94.2 (7.3)	465	31,511	92.8 (10.3)	535	38,255	94.6 (6.8)	569	43,033	94.4 (7.1)	466	32,801	94.4 (7.9)	0.004
ß-blocker at arrival	543	29,899	88.6 (9.5)	472	26,078	88.0 (10.8)	545	30,851	90.1 (9.2)	574	33,611	88.1 (10.2)	475	26,742	89.1 (11.0)	0.005
ß-blocker at discharge	534	38,336	91.3 (7.9)	464	31,832	90.2 (10.5)	533	38,316	92.2 (7.5)	569	43,290	91.7 (8.8)	468	32,753	91.6 (9.1)	0.008
PTCA within 90 minutes of arrival	58	627	39.0 (22.5)	45	541	37.1 (21.1)	69	687	35.6 (23.8)	57	605	38.6 (20.1)	51	555	40.8 (25.6)	0.8
Smoking cessation advice/counseling	310	5,037	82.9 (19.5)	266	4,109	84.1 (17.6)	334	5,379	85.1 (17.3)	339	5,448	83.2 (19.0)	290	4,357	81.0 (20.0)	0.1
Thrombolytic agent within 30 minutes of arrival	70	204	39.8 (27.2)	59	163	39.9 (31.7)	61	214	33.7 (30.0)	65	243	42.0 (30.0)	54	208	37.9 (25.9)	0.5
Heart Failure																
ACE-I* for left ventricular systolic dysfunction	541	27,350	74.7 (13.5)	476	22,645	75.1 (13.1)	544	28,467	76.2 (12.9)	573	30,398	75.8 (13.4)	475	21,160	75.6 (14.7)	0.4
Assessment of left ventricular function	549	80,558	86.1 (11.1)	479	66,823	86.3 (12.0)	550	84,288	87.1 (10.7)	581	89,187	86.6 (11.6)	481	64,945	85.2 (11.9)	0.1
Discharge instructions	446	25,121	50.4 (28.0)	388	21,126	50.4 (29.7)	441	26,456	49.2 (27.1)	463	27,084	47.3 (29.1)	385	21,166	44.7 (28.6)	0.02
Smoking cessation advice/counseling	430	4,979	70.9 (27.5)	372	4,231	69.4 (26.8)	430	5,325	68.4 (25.9)	456	5,427	67.9 (27.7)	362	4,125	64.0 (27.9)	0.01
Pneumonia																
Blood culture before 1st antibiotic	450	22,104	82.7 (9.8)	389	19,646	83.3 (10.9)	437	23,462	83.1 (9.6)	462	25,043	81.8 (9.8)	375	18,954	81.8 (9.2)	0.09
Initial antibiotic timing	548	83,165	68.6 (11.9)	480	70,909	70.5 (11.6)	545	87,625	69.3 (11.3)	578	94,560	68.1 (12.2)	475	74,069	69.1 (11.9)	0.02
Oxygenation assessment	548	85,255	98.4 (3.7)	480	72,572	98.4 (3.9)	545	90,093	98.5 (3.5)	578	97,851	98.2 (5.1)	475	76,458	98.5 (3.7)	0.8
Pneumococcal vaccination	548	45,546	44.3 (25.3)	480	39,371	45.2 (26.3)	544	49,370	44.5 (25.4)	577	51,553	42.3 (25.9)	475	40,823	41.1 (25.7)	0.07
Smoking cessation advice/counseling	441	5,762	66.6 (28.4)	386	4,830	66.3 (27.8)	428	5,899	63.3 (26.1)	458	6,187	63.6 (28.1)	378	5,065	59.8 (26.8)	0.003

Surgical Procedure		Expected Volume	Expected Mortality	Combined
Abdominal aortic aneurysm repair				
	1999	0.57 (0.50 – 0.66)*	0.83 (0.72 – 0.95)†	0.78 (0.64 – 0.94)†
	2000	0.78 (0.67 – 0.90)*	0.81 (0.70 – 0.94)†	0.84 (0.69 – 1.03)
	2001	0.51 (0.43 – 0.60)*	0.70 (0.60 – 0.83)*	0.59 (0.47 – 0.75)*
Aortic valve replacement				
	1999	0.66 (0.57 – 0.75)*	1.05 (0.93 – 1.18)	2.08 (1.80 – 2.42)*
	2000	0.45 (0.38 – 0.52)*	0.49 (0.43 – 0.55)*	0.80 (0.66 – 0.97)‡
	2001	0.23 (0.19 – 0.27)*	0.71 (0.62 – 0.81)*	0.62 (0.51 – 0.75)*
Coronary artery bypass graft				
	1999	1.18 (1.12 – 1.24)*	0.99 (0.94 – 1.04)	1.69 (1.58 – 1.82)*
	2000	1.30 (1.24 – 1.37)*	0.83 (0.78 – 0.88)*	1.03 (0.95 – 1.11)
	2001	1.25 (1.19 – 1.32)*	0.86 (0.81 – 0.91)*	1.40 (1.30 – 1.50)*
Carotid endarterectomy				
	1999	0.65 (0.60 – 0.69)*	1.14 (1.07 – 1.23)*	0.54 (0.47 – 0.63)*
	2000	0.66 (0.62 – 0.71)*	0.86 (0.80 – 0.93)*	0.48 (0.42 – 0.55)*
	2001	0.59 (0.55 – 0.63)*	0.87 (0.81 – 0.94)*	0.45 (0.39 – 0.51)*
Colectomy				
	1999	0.59 (0.55 – 0.64)*	0.87 (0.80 – 0.95)*	0.95 (0.85 – 1.07)
	2000	0.54 (0.49 – 0.58)*	0.81 (0.75 – 0.88)*	0.84 (0.75 – 0.94)†
	2001	0.63 (0.58 – 0.68)*	0.87 (0.81 – 0.95)*	0.69 (0.61 – 0.78)*
Cystectomy				
	1999	0.56 (0.38 – 0.82)†	0.54 (0.37 – 0.78)*	0.40 (0.21 – 0.75)†
	2000	0.59 (0.40 – 0.86)†	0.99 (0.70 – 1.38)	0.43 (0.21 – 0.81)†
	2001	0.20 (0.11 – 0.34)*	0.49 (0.33 – 0.72)*	0.00 (0.00 – 0.08)*§
Esophagectomy				
	1999	0.00 (0.00 – 0.31)*§	0.35 (0.15 – 0.79)†	0.00 (0.00 – 0.29)*§
	2000	0.00 (0.00 – 0.43)*§	0.00 (0.00 – 0.36)*§	0.00 (0.00 – 0.60)*§
	2001	0.00 (0.00 – 0.31)*§	0.00 (0.00 – 0.23)*§	0.00 (0.00 – 0.41)*§
Gastrectomy				
	1999	0.35 (0.24 – 0.51)*	0.70 (0.50 – 0.98)‡	0.33 (0.16 – 0.62)*
	2000	0.54 (0.39 – 0.75)*	0.97 (0.71 – 1.34)	0.66 (0.36 – 1.18)
	2001	0.34 (0.23 – 0.49)*	0.73 (0.52 – 1.01)‡	0.36 (0.19 – 0.67)*
Lower extremity bypass				
	1999	0.64 (0.58 – 0.71)*	1.14 (1.03 – 1.26)†	0.76 (0.65 – 0.88)*
	2000	0.58 (0.53 – 0.65)*	1.05 (0.95 – 1.15)	0.74 (0.63 – 0.86)*
	2001	0.53 (0.47 – 0.59)*	0.76 (0.69 – 0.84)*	0.60 (0.52 – 0.70)*
Lung lobectomy				
	1999	0.31 (0.25 – 0.39)*	0.73 (0.60 – 0.89)†	0.38 (0.25 – 0.54)*
	2000	0.17 (0.12 – 0.22)*	0.60 (0.50 – 0.71)*	0.25 (0.17 – 0.36)*
	2001	0.21 (0.16 – 0.27)*	0.49 (0.40 – 0.59)*	0.29 (0.20 – 0.41)*
Mitral valve replacement				
	1999	0.78 (0.63 – 0.96)‡	0.62 (0.50 – 0.77)*	0.46 (0.34 – 0.63)*
	2000	0.86 (0.70 – 1.06)	0.53 (0.42 – 0.67)*	0.00 (0.00 – 0.03)*§
	2001	0.54 (0.42 – 0.68)*	0.46 (0.36 – 0.59)*	0.00 (0.00 – 0.03)*§
Nephrectomy				
	1999	0.53 (0.43 – 0.66)*	0.85 (0.70 – 1.04)	0.40 (0.28 – 0.57)*
	2000	0.79 (0.65 – 0.95)‡	1.14 (0.93 – 1.39)	1.21 (0.90 – 1.63)
	2001	0.69 (0.57 – 0.84)*	0.97 (0.80 – 1.19)	0.70 (0.50 – 0.97)†
Pancreatectomy				
	1999	0.00 (0.00 – 0.11)*§	0.45 (0.22 – 0.90)‡	0.00 (0.00 – 0.17)*§
	2000	0.00 (0.00 – 0.10)*§	0.00 (0.00 – 0.13)*§	0.00 (0.00 – 0.12)*§
	2001	0.00 (0.00 – 0.11)*§	0.33 (0.16 – 0.66)*	0.00 (0.00 – 0.13)*§
Pneumonectomy				
	1999	0.18 (0.06 – 0.45)*	1.05 (0.58 – 1.92)	0.00 (0.00 – 0.99)‡§
	2000	0.34 (0.15 – 0.69)†	0.97 (0.52 – 1.77)	0.00 (0.00 – 0.49)†§
	2001	0.80 (0.41 – 1.55)	0.66 (0.34 – 1.26)	0.00 (0.00 – 0.38)*§

Almost invariably, accreditation status is associated with better surgical outcomes

** p –value equal to or less than 0.001. † p-value less or equal to 0.01 ‡ p-value less than 0.05 § p-value for a two-tailed Fisher's exact test (used where a cell contained a value of 5 or less).*

About ½ the time, higher accreditation scores are associated with better surgical outcomes

Consistently so for colectomy

Strong trend for non-cancer resections

Surgical Procedure		Expected Volume	Expected Mortality	Combined
Abdominal aortic aneurysm repair				
	1999	1.05 (0.91 – 1.22)	1.43 (1.22 – 1.68)*	2.73 (2.19 – 3.40)*
	2000	1.05 (0.90 – 1.23)	0.92 (0.78 – 1.08)	1.27 (1.03 – 1.57)†
	2001	0.93 (0.79 – 1.09)	0.87 (0.74 – 1.04)	0.88 (0.70 – 1.09)
Aortic valve replacement				
	1999	1.10 (0.95 – 1.27)	1.58 (1.37 – 1.82)*	0.00 (0.00 – 0.01)*‡
	2000	1.33 (1.16 – 1.53)*	1.63 (1.42 – 1.87)*	1.00 (0.78 – 1.28)
	2001	1.75 (1.53 – 2.01)*	0.69 (0.60 – 0.80)*	0.32 (0.26 – 0.39)*
Coronary artery bypass graft				
	1999	1.32 (1.24 – 1.40)*	1.57 (1.47 – 1.68)*	0.53 (0.47 – 0.59)*
	2000	1.31 (1.24 – 1.39)*	1.00 (0.94 – 1.06)	0.00 (0.00 – 0.001)*‡
	2001	1.33 (1.26 – 1.41)*	1.43 (1.34 – 1.52)*	0.00 (0.00 – 0.002)*‡
Carotid endarterectomy				
	1999	1.17 (1.08 – 1.27)*	1.25 (1.15 – 1.36)*	2.87 (2.50 – 3.31)*
	2000	1.07 (0.99 – 1.16)	1.17 (1.08 – 1.27)*	2.42 (2.15 – 2.73)*
	2001	0.97 (0.90 – 1.05)	1.09 (1.00 – 1.18)†	1.24 (1.10 – 1.40)*
Colectomy				
	1999	1.03 (0.92 – 1.15)	1.36 (1.22 – 1.51)*	0.91 (0.76 – 1.09)
	2000	1.31 (1.17 – 1.46)*	1.37 (1.23 – 1.53)*	1.21 (1.02 – 1.45)†
	2001	1.43 (1.28 – 1.60)*	1.24 (1.12 – 1.38)*	1.70 (1.44 – 2.00)*
Cystectomy				
	1999	0.87 (0.60 – 1.28)	0.91 (0.60 – 1.38)	0.55 (0.32 – 0.96)†
	2000	1.16 (0.80 – 1.68)	0.93 (0.62 – 1.40)	1.50 (0.82 – 2.77)
	2001	1.29 (0.90 – 1.85)	0.70 (0.47 – 1.05)	0.83 (0.48 – 1.43)
Esophagectomy				
	1999	1.27 (0.56 – 2.87)	0.77 (0.32 – 1.90)	0.00 (0.00 – 0.59)‡§
	2000	0.00 (0.00 – 0.57)‡§	0.87 (0.36 – 2.08)	0.00 (0.00 – 0.29)*‡
	2001	1.47 (0.48 – 4.43)	2.44 (1.02 – 5.92)†	1.17 (0.38 – 3.54)
Gastrectomy				
	1999	3.05 (2.13 – 4.37)*	1.14 (0.78 – 1.65)	Cell C contains zero
	2000	3.22 (2.21 – 4.70)*	0.87 (0.60 – 1.26)	1.29 (0.73 – 2.29)
	2001	2.26 (1.61 – 3.19)*	1.00 (0.69 – 1.44)	0.97 (0.58 – 1.62)
Lower extremity bypass				
	1999	1.13 (1.01 – 1.27)†	0.61 (0.54 – 0.69)*	0.83 (0.69 – 1.00)†
	2000	1.28 (1.15 – 1.43)*	0.67 (0.60 – 0.76)*	1.38 (1.18 – 1.62)*
	2001	1.24 (1.11 – 1.37)*	0.72 (0.65 – 0.81)*	1.28 (1.09 – 1.50)§
Lung lobectomy				
	1999	1.77 (1.45 – 2.15)*	0.87 (0.70 – 1.07)	1.12 (0.83 – 1.50)
	2000	1.67 (1.37 – 2.03)*	0.89 (0.72 – 1.09)	1.39 (1.07 – 1.80)†
	2001	1.50 (1.23 – 1.82)*	0.68 (0.56 – 0.84)*	0.85 (0.64 – 1.12)
Mitral valve replacement				
	1999	1.69 (1.35 – 2.11)*	1.87 (1.48 – 2.36)*	0.47 (0.33 – 0.69)*
	2000	1.44 (1.16 – 1.78)*	1.30 (1.04 – 1.63)†	0.00 (0.00 – 0.02)*‡
	2001	1.27 (1.03 – 1.57)†	1.68 (1.35 – 2.09)*	0.20 (0.14 – 0.28)*
Nephrectomy				
	1999	1.82 (1.44 – 2.30)*	1.18 (0.92 – 1.51)	1.99 (1.41 – 2.83)*
	2000	1.50 (1.19 – 1.89)*	1.14 (0.90 – 1.44)	0.85 (0.59 – 1.22)
	2001	1.38 (1.11 – 1.73)§	1.07 (0.85 – 1.34)	1.52 (1.06 – 2.18)†
Pancreatectomy				
	1999	0.52 (0.28 – 0.96)†	0.59 (0.34 – 1.02)†	0.74 (0.41 – 1.35)
	2000	0.63 (0.32 – 1.23)	0.32 (0.18 – 0.57)*	0.46 (0.25 – 0.83)§
	2001	0.40 (0.20 – 0.80)§	0.50 (0.29 – 0.88)§	0.32 (0.16 – 0.61)*
Pneumonectomy				
	1999	1.05 (0.58 – 1.90)	1.04 (0.53 – 2.07)	3.19 (0.96 – 10.89)†
	2000	1.04 (0.56 – 1.94)	1.24 (0.64 – 2.37)	0.00 (0.00 – 0.40)*‡
	2001	1.15 (0.58 – 2.27)	0.57 (0.27 – 1.18)	0.82 (0.27 – 2.48)

** p –value equal to or less than 0.001. † p-value less or equal to 0.01 ‡ p-value less than 0.05 § p-value for a two-tailed Fisher's exact test (used where a cell contained a value of 5 or less).*

Conclusions

- JCAHO scores do not reliably differentiate hospitals on process of care measures
- JCAHO accreditation status no longer differentiates hospitals on process of care measures; differences are trivial
- JCAHO accreditation is a consistent marker for better surgical outcomes
- Scores are associated with surgical outcomes for non-cancer resections

Limitations

- Data from 2000 – 2003
- Associations
- Cross sectional

However

- JCAHO's recent decision to no longer report scores makes sense: scores don't matter for process of care measures; inconsistent for surgical outcomes (depends on the procedure)
- JCAHO accreditation status might matter; however, the difference is likely to erode over time
  - Stronger relationship between accreditation status and process of care in earlier studies
  - Before measures widely available, a clear relationship with surgical outcomes
- Therefore, the accreditation process might raise performance of all boats, including those not being accredited