

Background / Research Objectives

Patient experience has had a direct financial impact on hospitals since value-based purchasing was instituted by the Centers for Medicare and Medicaid Services (CMS) in 2013 as a method to reward or punish hospitals based on performance on various measures, including patient experience. While other industries have demonstrated an indirect impact of customer experience on overall profitability, that link has not been well established in the healthcare industry.

Our aims were to assess whether, independent of a direct financial impact, a more positive patient experience is associated with increased profitability, and whether a more negative patient experience is associated with decreased profitability.

Study Design

Sample: We used a sample of 19,792 observations from 3,767 hospitals over the six-year period 2007-2012.

Source: The data was sourced from CMS and Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS).

Analysis: Generalized estimating equations to account for repeated measures. We fit four separate models for three dependent variables: net patient revenue, net income and operating margin. Each model included one of the following independent variables of interest: percent of patients who definitely recommend the hospital, percent of patients who definitely would not recommend the hospital, percent of patients who rated the hospital a 9 or 10, and percent of patients who rated the hospital a 6 or lower. Control variables included the other variables listed in the table below.

Table 1. Summary Statistics

	Mean	s.d.
Net Patient Revenue (\$000s)	181,377	244,094
Net Income (\$000s)	10,822	43,196
Pct of Patients Who Definitely Recommend the Hospital	69.3	10
Pct of Patients Who Definitely Would Not Recommend	5.4	3.5
Pct of Patients Who Rated Hospital 9 or 10, on a 10 Point Scale	66.9	9.3
Pct of Patients Who Rated Hospital 6 or Lower	9.2	4.7
Number of Beds	176	182
Acute Hospital	0.87	0.34
Rural Hospital	0.35	0.48
Medical School Affiliation	0.28	0.45
Percent of Discharges Private	49.0	14.6
Charity Care Charges (\$000s)	20,901	57,220
Total Assets (\$000s)	210,586	393,963
Case Mix Index	1.43	0.339
Hospital Ownership		
For-Profit (Reference)	0.21	0.41
Non-Profit	0.62	0.49
Government	0.17	0.38
Region		
Midwest (Reference)	0.28	0.45
Northeast	0.16	0.37
Southeast	0.28	0.45
Southwest	0.12	0.33
West	0.16	0.36

N = 3,767 hospitals

Net Income

Table 2. GEE Multiple Regression of Patient Experience on Net Income (\$000s)

Variable	NI Model 1			NI Model 2			NI Model 3			NI Model 4		
	β	S.E.		β	S.E.		β	S.E.		β	S.E.	
1) Percent of Patients Who Definitely Recommend the Hospital	247	37	***									
2) Percent of Patients Who Rated the Hospital a 9 or 10, on a 10 Point Scale				288	43	***						
3) Percent of Patients Who Definitely Would Not Recommend the Hospital							-741	101	***			
4) Percent of Patients Who Rated the Hospital a 6 or Lower on a 10 Point Scale										-551	78	***

N = 3,767 hospitals; *p<.05; **p<.01; ***p<.001

NI = net income; GEE = generalized estimating equation

The net income variable was divided by \$1,000 so all coefficients must multiplied by \$1,000 to obtain true effect size

Net Patient Revenue

Table 3. GEE Multiple Regression of Patient Experience on Net Patient Revenue (\$000s)

Variable	NPR Model 1			NPR Model 2			NPR Model 3			NPR Model 4		
	β	S.E.		β	S.E.		β	S.E.		β	S.E.	
1) Percent of Patients Who Definitely Recommend the Hospital	1072	181	***									
2) Percent of Patients Who Rated the Hospital a 9 or 10, on a 10 Point Scale				1120	204	***						
3) Percent of Patients Who Definitely Would Not Recommend the Hospital							-2668	465	***			
4) Percent of Patients Who Rated the Hospital a 6 or Lower on a 10 Point Scale										-2001	78	***

N = 3,767 hospitals; *p<.05; **p<.01; ***p<.001

NPR = net patient revenue; GEE = generalized estimating equation

The net patient revenue variable was divided by \$1,000 so all coefficients must multiplied by \$1,000 to obtain true effect size

Operating Margin

Table 4. GEE Multiple Regression of Patient Experience on Operating Margin

Variable	OM Model 1			OM Model 2			OM Model 3		
	β	S.E.		β	S.E.		β	S.E.	
1) Percent of Patients Who Definitely Recommend the Hospital	0.04	0.02	*						
2) Percent of Patients Who Rated the Hospital a 9 or 10, on a 10 Point Scale				0.02	0.02				
3) Percent of Patients Who Definitely Would Not Recommend the Hospital							-0.17	0.05	
4) Percent of Patients Who Rated the Hospital a 6 or Lower on a 10 Point Scale									

N = 3,767 hospitals; *p<.05; **p<.01; ***p<.001

OM = operating margin; GEE = generalized estimating equation

Principal Findings

Our main findings suggest that there may be a link between patient experience and hospital profitability. We identified that a more positive patient experience is associated with increased profitability, but also that a more negative patient experience is associated with decreased profitability. These findings are consistent with other industries where a positive relationship between customer satisfaction and firm profitability was identified (Bernhardt, Donthu, & Kennett, 2000; Yee, Yeung, & Cheng, 2008; Sun & Kim, 2013). Our findings are also consistent with those in the healthcare industry that identified positive relationships between patient satisfaction and return-to-provider rate and loyalty (Garman et al., 2004; Kessler & Mylod, 2011). When also considering the control variables, the effect size of the coefficients for the patient experience variables, when considering a 10-15 percent increase in scores, was exceeded in all profitability models only by case mix index, rural hospital status, and government ownership type. The size of the coefficients for the variables that focused on patients that had negative experiences was amplified, compared to those related to positive experiences. Hospitals that can avoid patients with extremely negative experiences are expected to see even greater gains to profitability, compared to those that strictly try to improve positive experiences.

Conclusions

The size of our coefficients indicates that patient experience may have a sizable impact on profitability and should command the attention of hospital management. Patient experience comprises a significant proportion of the VBP reimbursement model, so patient experience has a direct link to profitability. However, our study indicates that there may be a much more pronounced impact of the patient experience on hospital profitability.

Our findings of stronger associations with respect to negative patient experiences and hospital profitability, suggests hospitals should focus on eliminating or mitigating those first. This fits with findings from Baumeister et al. (2001), which demonstrate a more powerful effect from bad experiences, compared to good ones. It also suggests that hospitals that perform well with the patient experience helps with profitability, but hospitals should focus even more on avoiding patients with negative experiences.

Ultimately, management should have greater justification for incurring costs associated with bolstering patient experience programs. Conducting patient experience surveys can be costly, in terms of lost productivity of those surveyed. However, the surveys can be used as a method to identify internal weaknesses. Those weaknesses can be improved with training, technology, process improvements, and staffing and be justified as a way to not only improve quality, but profitability as well.