Does Serving the Poor Reduce Hospital Quality? An Assessment of Cross-Sectional Data – 2006-2009

Jeffrey R. Helton
Metropolitan State University of Denver

Brenda L. Freshman
California State University, Long Beach

Current health reform legislation includes revenue reductions to hospitals not meeting quality standards set by the Centers for Medicare and Medicaid Services. Using publicly available data for hospitals from 2006-2009, the study sought to determine the extent to which services to the poor and uninsured resulted in lower quality of patient care in hospitals in the United States. Multivariate regression indicated a significant relationship between higher levels of volume for poor/uninsured patients and lower performance on quality measures that will impact future payments. Thus, hospitals serving the poor/uninsured may lose future payments, putting these hospitals at financial risk.

INTRODUCTION

The challenge of serving the poor continues to grow for providers and healthcare policy makers in the United States (Bazzoli, Clement, & Hsieh, 2010). Low reimbursements for services to Medicaid beneficiaries (Blue Cross, Blue Shield, 2008) or non-payment by the uninsured contribute to significant strains on hospital financial stability (Zwanziger, Khan, & Bamezai, 2010). This effect may be magnified for organizations serving as "safety net" facilities – care providers for high proportions of Medicaid and Uninsured patients (Bazzoli, et al., 2012). At the same time, hospitals are increasingly accountable for demonstrated quality in the services they render to patients. Pay for performance (P4P) reimbursement strategies such as the Value-Based Purchasing program included in the Patient Protection and Affordable Care Act of 2010, and being implemented by the Centers for Medicare and Medicaid Services (CMS), will place hospitals at risk of funding losses if quality does not meet established standards. Such losses could contribute to closure or conversion of facilities away from a safety net mission. A difficult paradox thus evolves for hospitals in this nation – maintaining or improving quality of care while continuing to serve large proportions of patients that cannot fully reimburse the costs of their care. This work seeks to quantify the extent to which a hospital's burden of care to the poor may adversely influence performance on quality measures - measures that will soon impact hospital reimbursements and thus their financial viability. Such an outcome could put access to care by the poor and uninsured at great risk (Bazzoli, et al., 2012).

The approach taken is a longitudinal evaluation of a national cross-section of hospitals centered on answering two research questions. The first question to be addressed is:

Does an increase in the proportion of patients with Medicaid or no insurance served by a hospital adversely impact quality as measured by CMS Hospital Compare data across U.S. hospitals over a period of more than one year?

Additionally, a reduction in staffing levels has been noted as an adaptive strategy by hospitals seeking to maintain financial viability in the face of constrained reimbursements associated with larger proportions of patients with Medicaid or no insurance (Schuhmann, 2008). The extent to which this tactic is used has been surmised to adversely impact quality measures of patient care (Lindrooth et al., 2006). Therefore, a second research question explored is:

Do changes in staffing levels associated with increased proportions of patients with Medicaid or no insurance have an adverse impact on quality as measured using the CMS Hospital Compare data?

BACKGROUND AND LITERATURE REVIEW

The decline in availability of employer-based health insurance along with a decline in general employment (Cunningham, 2008) and reductions in payment rates for Medicaid services (Fronstin, 2005) form a multi-faceted challenge to healthcare providers today. Medicaid payment rates have been estimated at approximately 87% of the costs of care (Blue Cross Blue Shield, 2008) and the uninsured may contribute even less payment toward the costs of their care (Cram, et al., 2010). Hospitals are not able to control environmental factors that drive their patient mix, and therefore might adapt in a way that has a negative impact on quality measures. As an example the requirements of the Emergency Medical Treatment and Active Labor Act (EMTALA) compels hospitals to provide medical stabilization services to any patient without consideration of ability to pay. In view of revenue reductions brought on by higher volumes of care to patients unable to pay the costs of their care, management may be forced to respond with decisions to limit resources devoted to other patient care services to keep their facilities open.

There is ample evidence of resource limitation by management as an adaptive behavior to revenue constraint noted in the literature. Dranove and colleagues (1998) observed that hospitals serving larger proportions of Medicaid patients tended to decrease the quality or number of services provided to all patients if unsuccessful in shifting unreimbursed costs of care to other payer sources. Zwanziger, Khan, and Bamezai (2010) posited that hospitals engaged in higher levels of safety net activities – inclusive of serving Medicaid and uninsured patients – maintained relatively stable financial performance at the expense of lower quality of care. Jha et al. (2009) noted poorer quality in hospitals that received high levels of Disproportionate Share Hospital (DSH) reimbursements (a measure of the proportion of poor patients served) as a part of an evaluation of EHR adoption in safety net hospitals. A similar response was suggested in Volpp et al. (2005) in their evaluation of the effects of limited cost shifting as an adaptive response by hospitals in markets with higher competition for access to higher paying, commercially insured patient volumes.

These observations seem of interest in the context of a relationship between increased delivery of care to Medicaid and uninsured patients in light of work by Blegen et al. (2011), where it was noted that patients in hospitals serving predominantly poor populations had poorer outcomes. These adaptive responses by hospital managers could be reasonably expected as suggested under resource dependency theory (Kazley and Ozcan, 2007; Kim, McCue & Thompson, 2009; Pfeffer & Salancik, 1978;).

A specific adaptive strategy in response to revenue constraints is limiting staffing, an expense classification that exceeds half of hospital operating expenses (Schuhmann, 2008). Previous studies reveal a relationship between hospitals adapting to increased volumes of Medicaid and uninsured patients by reducing staffing levels and in so doing, sacrificing the quality of care provided (Dranove & White, 1998; Lindrooth et al., 2006; Zwanziger, Khan, & Bamezai, 2010). Weiss, Yakusheva & Bobay (2011) noted reduced staffing levels as an adaptive response in hospitals with an adverse impact on the quality of patient readiness for discharge. Similarly, hospitals in the State of California adapted to mandated nurse

staffing ratio regulations by reducing resources available to provide care to the indigent and poor (Reiter et al., 2011).

While limiting patient care resources in response to an external constraint like reduced reimbursements is a reasonably expected adaptation, such behavior could be counterproductive if it ultimately results in quality decreases and further resource constraints. This presents a policy concern in view of the coming pay for performance incentives delineated in current health reforms. If hospitals' adaptations to environmental threats lower performance on quality measures that drive future reimbursements, a downward spiral of poorer quality and resource constraints could result. Carrying that prediction forward, safety net hospitals could of necessity cut resources and potentially reduces quality, which could reduce future revenues, eventually resulting in financial demise and thus reducing care access for their vulnerable populations.

The literature to date in this area has focused on limited groups of hospitals in specific regions of the United States (Blegen, et al., 2011; Reiter, et al., 2011; Volpp, et al., 2005). Also, the types of hospitals assessed tended toward academic medical centers (Volpp, 2005; Blegen, et al., 2011). Furthermore quality measures used in previous studies focused on specific medical conditions (Blegen, et al., 2011) or hospital mortality (Volpp, et al., 2005). Some work noted here evaluated the extent of a hospital's safety net role on the basis of survey results (Lindrooth, et al., 2006), proportion of patient discharges or patient days provided for Medicaid or uninsured patients (Volpp, et al., 2005), or the amount of Disproportionate Share Hospital (DSH) payments received by a hospital (Blegen, et al., 2011; Jha, et al., 2009; Kazley and Ozcan, 2007).

Therefore to tackle these issues from this distinct vantage point, the current investigators choose to approach the research questions using multi-year, cross-sectional data to assess potential quality impacts on safety net providers across the nation. Of additional interest in evaluating the question of impacts on quality by care to Medicaid and uninsured patients here is the extent to which relative resource utilization may influence observed results. Use of gross charges as an index of such differentials is an approach used in Mayer, et al. (1998) and presents a useful and unique approach in the context of this work. To this end, the aforementioned literature clarified two hypotheses to address the research questions under study. The primary hypothesis proposes:

> H_1 – *Increased proportions of services rendered to patients with Medicaid or no insurance reduce measured quality in hospitals.*

This hypothesis would be accepted with a statistically significant association between a higher percentage of services provided to Medicaid or uninsured patients in hospital and lower measures of quality in those hospitals.

A second hypothesis arising from the background work reviewed is:

> H_2 – *Staffing levels and observed quality decrease in hospitals as the proportion of services rendered to patients with Medicaid or no insurance*

This hypothesis would be accepted if statistically significant associations between lower levels of staffing, higher proportions of services provided to Medicaid or uninsured patients, and lower measured quality in those hospitals were noted.

METHODS

The investigators used a least squares regression approach to evaluate the extent to which the hypothesized relationships exist. The data needed to model these correlations are available through publicly available sources. The CMS Hospital Compare database provides multi-year metrics on the quality of care for several clinical conditions and is available for the majority of hospitals across the United States (Lutfiyya, et al., 2007). This database captures performance data on processes associated

with better patient outcomes including acute myocardial infarction, congestive heart failure, pneumonia, and surgical services. Treatment or intervention processes specific to each clinical condition are tracked and reported in the database. For example, the Heart Failure condition includes the following four process measures:

- Patients Given ACE Inhibitor or ARB for Left Ventricular Systolic Dysfunction (LVSD);
- Patients Given an Evaluation of Left Ventricular Systolic (LVS) Function;
- Patients Given Discharge Instructions; and
- Patients Given Smoking Cessation Advice/Counseling.

A total of thirty-two different processes of care associated with the four clinical conditions mentioned, reported for the years 2006-2009, were employed in the current study. However, the Hospital Compare data does not present one comprehensive measure of quality across conditions.

Therefore to evaluate overall quality, a weighted average of performance quality for all conditions was calculated. Such an approach is consistent with that used by Jiang and colleagues (2009) in evaluation of quality of care oversight in hospitals. The performance quality variable for each facility was derived by multiplying the score for each measure tracked by the number of cases observed. These adjusted scores were summed and then divided by the total number of cases to arrive at a weighted average of quality of care for a particular hospital. An example of the weighted average calculation for a hospital is illustrated using data from Table 1.

TABLE 1
EXAMPLE WEIGHTED AVERAGE CALCULATION FOR STUDY HOSPITALS

Clinical Condition	Measure	Score	Cases	Score * Cases
Heart Attack	Heart Attack Patients Given Beta Blocker at Discharge	.60	5	3.00
Heart Attack	Heart Attack Patients Given PCI Within 90 Minutes Of Arrival	.58	4	2.32
Heart Failure	Patients Given an Evaluation of Left Ventricular Systolic (LVS) Function	.24	25	6.00
Pneumonia	Pneumonia Patients Given Initial Antibiotic(s) within 6 Hours After Arrival	.93	28	26.04
Totals			82	39.36

Using this example the total of the "score * cases" value for all four measures is 39.36. Dividing that value by the number of cases (82) yields the weighted average for this hospital, 0.48. The composite measure of quality for each hospital used in the analysis as the dependent variable was calculated in this manner.

Staffing level measures in a hospital should take into account the myriad outputs of inpatient, outpatient, and emergency room services as well as the multiple labor inputs including nurses, technicians, therapists, and ancillary department staff. The full-time equivalent (FTE) employees per adjusted occupied bed (AOB) or FTE/AOB figure has been utilized effectively as a comprehensive measure encompassing the multiple inputs and outputs of a hospital (Zhao, et al., 2008; Lindrooth et al., 2006). Data to calculate values for this variable were obtained from Medicare cost reports filed by each hospital for periods of a full year in length for each year considered in this study. The investigators adopted this convention to avoid any potential biases from using partial year cost reporting periods that could be influenced by high or low utilization variances in a given season.

The extent of service to patients with Medicaid or with no insurance was evaluated by using the charges for such patients as a percentage of charges for all patients in the hospital during that fiscal year. While other studies have used measures of inpatient volume or DSH payments, those measures did not assess the overall proportion of services provided to Medicaid or uninsured patients. Since services could be provided to patients in a hospital through multiple avenues (inpatient, outpatient, or the emergency room), charges establish a relative value of each service provided to the patient. Therefore the amount of charges billed for services to patients with Medicaid or the uninsured as a percentage of charges billed to all patients was used as a measure of the services provided to these targeted subgroups.

Other categorical variables such as hospital ownership, teaching status, rural location, multi-hospital system affiliation, and patient capacity could have influence on the relationships posited. Therefore these additional variables were included in the model. Hospital ownership was evaluated using a dummy variable where the base case was non-profit ownership and other categories were set up for for-profit ownership and local government ownership. The teaching status, rural location, and multi-hospital affiliation variables were binary with a value of 1 assigned to each variable respectively if the hospital had a physician teaching program, designated as a rural facility by CMS, or was a member of a multi-hospital system. Patient capacity was measured using the hospital's licensed bed capacity. Data for these variables were obtained from Medicare cost reports filed by each hospital for the years 2006-2009. Case mix index – a relative measure of the average severity of patients served by a hospital – could also exert an influence on the issues under study. Thus case mix index values obtained from CMS for each hospital for the years 2006-2009 were included in the model.

RESULTS

There were 4,406 records created for this analysis, with a record being comprised of available data for all variables in the Medicare Cost Report filed for a full 365 day fiscal year period, quality measure values from Hospital Compare database, and published values from the CMS case mix index files for the years 2006-2009.

The regression model proposed here was analyzed using the Stata statistical package and generated an r-squared value of 0.1665. Rerunning the model with robust standard errors yielded an identical result, and a covariance analysis among all regression variables found no evidence of serial correlation in the model. Results of the model run are depicted in Table 2.

TABLE 2
REGRESSION MODEL RESULTS – QUALITY AND REVENUES FROM MEDICAID/UNINSURED

Variable	Coefficient	Standard Error	P-Value
% Revenue From Medicaid & Uninsured Patients	-0.04	0.009	*
FTE/AOB	-0.00	0.001	0.793
For-Profit Ownership	-0.15	0.003	*
Government Entity Ownership	-0.02	0.003	*
Teaching Hospital	0.02	0.003	*
Multi-Hospital System Affiliation	0.01	0.002	*
Rural Location	-0.01	0.003	0.003
Licensed Bed Capacity	< -0.01	<0.001	0.046
Case Mix Index	0.09	0.005	*
Constant	0.76	0.007	*

* - p-value < 0.001

Generally, significant relationships were observed between the proportion of hospital revenues from Medicaid or uninsured patients and observed measures of quality in hospitals, after controlling for ownership, location, teaching status, multi-hospital system affiliation, bed capacity, and case mix. The negative coefficient of the "% Revenue From Medicaid & Uninsured Patients" variable indicates an inverse relationship between this variable and the dependent variable – "Weighted Average Quality Score". In this case, it appears that as the percentage of revenues from Medicaid/uninsured patients in a hospital declines, the weighted average score for that hospital increases. This result appears consistent with the literature and lends support to accept the proposition set forth in H_1.

Other observations noted in this model were statistically significant relationships between ownership, teaching status, case mix (all $p<0.001$), rural location ($p = 0.003$), and bed size ($p = 0.046$). The amount of decline in quality for an increase in the proportion of hospital revenues from Medicaid or uninsured patients appeared slightly greater in government-operated hospitals than in for-profit hospitals (Government: β = -0.0192; For-profit: β = -0.0153, both p <0.001). Multi-hospital system affiliation, teaching status, and case mix index appear to contribute to maintaining higher weighted average scores on Hospital Compare process of care quality measures, despite the pressures imposed by higher proportions of utilization by Medicaid and uninsured patients.

To further delineate the relationship between the proportion of revenues from Medicaid or uninsured and the composite score on the process quality measures, study hospitals were stratified into halves above and below the mean for each variable. The stratified observations were then cross-tabulated as summarized in Table 3.

TABLE 3
CROSS-TABULATION OF MEDICAID/UNINSURED REVENUES
AND PROCESS QUALITY MEASURES

Medicaid/Uninsured % Revenues	Composite % Score on Quality Measures		
	Below mean	Above Mean	Totals
Below mean	1,015 (23%)	1,188 (27%)	2,203 (50%)
Above mean	1,188 (27%)	1,015 (23%)	2,203 (50%)
Totals	2,203 (50%)	2,203 (50%)	4,406 (100%)

The higher proportion of cases noted in the bottom-left and top-right cells in this cross-tabulation provides additional empirical support for the strength of relationship between these two key variables (Pearson chi square = 27.17, p <0.001). As the proportion of revenues attributable to Medicaid and Uninsured patients increases in a hospital, observed performance on the Hospital Compare process of care quality measures in a hospital appears to decline.

Also tested in this study was the relationship between levels of staffing measured by FTE employees per adjusted occupied bed and the percentage of hospital revenues from Medicaid or uninsured patients. The results of this analysis are presented in Table 4.

TABLE 4
REGRESSION MODEL RESULTS – FTE/AOB AND REVENUES FROM
MEDICAID/UNINSURED

Variable	Coefficient	Standard Error	P-Value
% Revenue From Medicaid & Uninsured Patients	0.01	0.002	*
Weighted Average Quality	-0.11	0.004	*
For-Profit Ownership	0.32	0.003	*
Government Entity Ownership	0.06	0.005	*
Teaching Hospital	<-0.01	0.006	*
Multi-Hospital System Affiliation	0.01	0.004	0.482
Rural Location	0.05	0.003	*
Licensed Bed Capacity	< -0.01	<0.001	*
Case Mix Index	-0.10	0.009	*
Constant	2.76	0.229	*

* - p-value < 0.001

Review of this model indicates a negligible relationship between the proportion of hospital revenues from Medicaid or uninsured patients and levels of FTE/AOB staffing. While seemingly counterintuitive, Norton and Lipson (1998) posited that external subsidies to safety net providers might create a disincentive to adopt more efficient operational norms, including lower levels of staffing. Thus, there appears little evidence to support the notion that increased utilization by these categories of patient have translated to staff resources adversely impacting observed quality, after controlling for ownership, location, teaching status, multi-hospital system affiliation, capacity, and case mix. Given this observation, H_2 as proposed here cannot be accepted.

DISCUSSION

The study results suggest that decreased reimbursements arising from greater proportions of Medicaid and uninsured patients are correlated with adverse impacts on quality of care process performance measures. However the lack of a significant association between increased Medicaid and uninsured utilization and FTE/AOB staff levels suggests adaptive strategies that entail reduced staffing do not appear to contribute to lower observed quality. In addition, observed model coefficients for ownership variables where declines in quality scores were lower in for-profit hospitals, suggest that such organizations may have found more effective means of compensating for the financial strain of increased Medicaid/uninsured patient loads.

Sharing of resources among multi-hospital system affiliates and the presence of teaching physicians may be explanations for the observations of improved quality, despite increases in Medicaid/uninsured utilization. Increased case mix index values translating to higher weighted average scores on Hospital Compare quality measures may be explained by hospitals having advanced resources to treat more severe illnesses leading to improved levels of patient care quality. Conversely, operation of a hospital in a rural setting appears contributory to poorer performance on Hospital Compare quality measures. Since rural hospitals included in this study tended to serve higher proportions of Medicaid and uninsured patients (mean percent for rural = 19.77% versus 13.28 % for urban), the challenge of maintaining higher quality performance appears magnified. This observation is consistent with Lee and colleagues (2010).

LIMITATIONS AND OPPORTUNITIES FOR FURTHER RESEARCH

Built upon secondary data using high-level performance metrics, the current model has its limitations. The Hospital Compare database focuses on process of care quality measures and may not be able to identify other challenges or contributors to quality of care. Also, while use of billed charges as a measure of relative resource allocation can be illustrative within a hospital, large variances in pricing practices among types of charge items could skew percentages calculated in this model. Finally, the use of the FTE/AOB metric as an overall measure of staffing levels may mask the effect of differences in employee skill mix that may be contributory to observed performance on quality measures.

Additionally, the analysis demonstrates some consistency with the tenets of resource dependency theory where increased constraint on collected hospital revenues arising from increased proportions of Medicaid and uninsured patients could manifest lower performance on process of care quality measures. However, the model does not delineate which resources are actually constrained by management. Since a relationship with labor efficiency was not established here, other inputs associated with higher performance on these measures could be inhibited by the burden of higher proportions of services provided to the poor and uninsured. This represents an opportunity for future study.

The observation of nominal impacts on quality by staffing levels merits further evaluation in view of hypothesized relationships between staffing levels and measures of quality in the literature. Also, the factors that link teaching status, multi-hospital system affiliation, and case mix index and higher quality performance merit further evaluation. Finally, further work is needed to identify factors that cause for-profit hospitals to have lesser declines in quality performance than government operated hospitals when faced with comparable levels of increase in Medicaid/uninsured patient utilization.

CONCLUSION

From the hospital management perspective, it seems that higher levels of Medicaid and uninsured patient utilization can serve as a warning to decreased performance in clinical process of care quality measures assessed using the CMS Hospital Compare database. If the relationships observed here continue once the CMS Value-Based Purchasing program is fully implemented, hospitals that serve higher levels of Medicaid and uninsured patients may be placed at even greater risk of lost revenues. Consequently, there may exist a significant need to help hospitals that serve proportionately more of the Medicaid and uninsured populations in the United States. Given the important role that hospitals serving the Medicaid and uninsured populations have in a community healthcare delivery system, additional risks to the ongoing financial viability of such facilities represents an important policy question to address. The prospect of further adverse financial impact on such facilities also raises a question in equity to the extent that access to hospital care by Medicaid and uninsured populations is reduced by closure or operational retrenchment in these facilities. In the absence of modification to currently proposed policies in this area, policy makers and hospital managers must become more attentive to strategies that improve quality performance while limiting the drain on already significantly constrained hospital resources.

REFERENCES

Anderson, B., & Azavedo, E. (2010). Balancing Resource Constraints Against Quality of Care. *World Journal of Surgery*, 34, 2537-2538.

Bazzoli, G., Clement, J, & Hsieh, H. (2010). Community Benefit Activities of Private, Nonprofit Hospitals. *Journal of Health Politics, Policy & Law*, 35, (6), 999-1026.

Bazzoli, G., Lee, W., Hsieh, H., & Mobley, L. (2012). The Effects of Safety Net Hospital Closures and Conversions on Patient Travel Distance to Hospital Services. *Health Services Research*, 47, (1), 129-150.

Blegen, M., Goode, C., Spetz, J., Vaughn, T., & Park, S. (2011). Nurse Staffing Effects on Patient Outcomes: Safety-Net and Non-Safety-Net Hospitals. *Medical Care*, 49, (4), 406-414.

Blue Cross Blue Shield Association. (2008). *Medical Cost Reference Guide*. Chicago, IL: Blue Cross Blue Shield Association.

Cram, P., Bayman, L., Popescu, I., Vaughan-Sarrazin, M., Cai, X., & Rosenthal, G. (2010). Uncompensated Care Provided by For-Profit, Not-For-Profit, and Government Owned Hospitals. *BMC Health Services Research*, 10, (90), 1-14.

Cunningham, P. (2008). The Healthcare Safety Net: What Is It, What Good Does It Do, and Will It Still Be There When We Need It? *Harvard Health Policy Review*, Fall 2008, 5-15.

Dranove, D., & White, W. (1998). Medicaid-Dependent Hospitals and Their Patients: How Have They Fared? *Health Services Research*, 33, (2), 163-185.

Fronstin, P. (2005). Sources of Health Insurance and Characteristics of the Uninsured: Analysis of the March 2005 Current Population Survey. *EBRI Issue Brief*, 287.

Jha, A., DesRoches, C., Shields, A., Miralles, P., Zheng, J., Rosenbaum, S. (2009). Evidence Of An Emerging Digital Divide Among Hospitals That Care For The Poor. *Health Affairs*, 28, (6), w1160-w1170.

Kazley, A., & Ozcan, Y. (2007). Organizational and Environmental Determinants of Hospital EMR Adoption: A National Study. *Journal of Medical Systems*, 31, 375-384.

Kim, T., McCue, M., & Thompson, J. (2009). The Relationship of Financial and Mission Factors to the Level of Uncompensated Care Provided in California Hospitals. *Journal of Healthcare Management*, 54, (6), 383-401.

Lee, D., Dixon, C., Kruszynski, P., & Coustasse, A. (2010). Uncompensated Care and Quality Assurance Among Rural Hospitals. *Journal of Hospital Marketing & Public Relations*, 20, (2), 116-130.

Lindrooth, R., Bazzoli, G., Needleman, J., & Hasnain-Wynia, R. (2006). The Effect of Changes in Hospital Reimbursement on Nurse Staffing Decisions at Safety Net and Nonsafety Net Hospitals. *Health Services Research*, 41, (3), 701-720.

Lutfiyya, M., Bhat, D., Gandhi, S., Nguyen, C., Weidenbacher-Hoper, V., & Lipsky, M. (2007). A Comparison of Quality of Care Indicators in Urban Acute Care Hospitals and Rural Critical Access Hospitals in the United States. *International Journal for Quality in Healthcare*, 19, (3), 141-149.

Mayer, M., Konrad, T., & Dvorak, C. (1998). Hospital Resource Utilization Among Patients with Sickle Cell Disease. *Journal of Health Care for the Poor and Underserved*, 14, (1), 122-135.

Norton, S. & Lipson, D. (1998). *Public Policy, Market Forces, and the Viability of Safety Net Providers*. White paper published by The Urban Institute, Washington, DC.

Pfeffer, J. & Salanick, G.R. (1978). *The External Control of Organizations: A Resource Dependence Perspective*. Harper and Row. New York.

Proenca, E., Rosko, M., & Zinn, J. (2000). Community Orientation in Hospitals: An Institutional and Resource Dependence Perspective. *Health Services Research*, 35, (5), 1011-1035.

Reiter, K., Harless, D., Pink, G., Spetz, J., & Mark, B. (2011). The Effect of Minimum Nurse Staffing Legislation on Uncompensated Care Provided by California Hospitals. *Medical Care Research and Review*, 68, (3), 332-51.

Schuhmann, T. (2008). Hospital Financial Performance: Trends To Watch. *Healthcare Financial Management*, 62, (7), 59-66.

Volpp, K., Ketcham, J., Epstein, A., & Williams, S. (2005). The Effects of Price Competition and Reduced Subsidies for Uncompensated Care on Hospital Mortality. *Health Services Research*, 40, (4), 1056-1077.

Weiss, M., Yakusheva, O., & Bobay, K. (2011). Quality and Cost Analysis of Nurse Staffing, Discharge Preparation, and Postdischarge Utilization. *Health Services Research*, 46, (5), 1473-1494.

Zhao, M., Bazzoli, G., Clement, J., Lindrooth, R., Nolin, J., and Chukmaitov, A. (2008). Hospital Staffing Decisions: Does Financial Performance Matter? *Inquiry*, 45, (3): 293-307.

Zinn, J., V. Mor, Z. Feng, and O. Intrator. (2007). Doing Better to Do Good: The Impact of Strategic Adaptation on Nursing Home Performance. *Health Services Research*, 42, (3), 1200-1218.

Zwanziger, J., Khan, N., & Bamezai, A. (2010). The Relationship Between Safety Net Activities and Hospital Financial Performance. *BMC Health Services Research*, 10, (15), 1-12.