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Community Benefits Spending by Private Tax-Exempt Hospitals in the U.S.

Wael ElRayes

University of Nebraska Medical Center

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COMMUNITY BENEFITS SPENDING BY PRIVATE TAX-EXEMPT HOSPITALS IN THE U.S.

by

Wael Mohamed Fathy ElRayes

A DISSERTATION

Presented to the Faculty of
the University of Nebraska Graduate College
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Supervisory Committee:
Jane Meza, Ph.D.                    Fernando Wilson, Ph.D.
Hongmei Wang, Ph.D.
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COMMUNITY BENEFITS SPENDING BY PRIVATE TAX-EXEMPT HOSPITALS IN THE U.S.

Wael M. F. ElRayes, M. B., B.Ch., Ph.D.

University of Nebraska, 2017

Supervisor: David Palm, Ph.D.

The Internal Revenue Service issued the long awaited regulatory guidelines for the Community Benefits (CB) spending for private tax-exempt hospitals in December 2008, which required these hospitals to report their policies, practices, and spending on CB activities. The Affordable Care Act amended these rules in 2010 by adding a section on Community Health Needs Assessment.

This study evaluates and tracks spending on the total and different CB activities by all private tax-exempt hospitals in seven states after the implementation of the latest IRS and ACA reporting regulations from 2010 - 2013. Moreover, this study investigates which community health indicators are predictive of spending on community improvement activities. The last part of this study examines the relationship between spending on health improvement activities and changes in a set of health indicators. We collected data from multiple sources and hospitals’ CB data were obtained from revised income tax Form 990.

A total of 328 private tax-exempt hospitals in the states of Kentucky, Minnesota, Mississippi, Nebraska, New Hampshire, New Mexico, and Virginia were included in the first study. The second and third studies included the 223 counties that had at least one private tax-exempt hospital in the seven states. Univariate analyses provided basic analyses. Multivariate regressions analyses, including linear and nonlinear models, examined the relationships between different predictor and response variables while adjusting for multiple covariates. SAS/STAT version 9.4 statistical software was used to execute the analyses. A p-value of ≤ 0.05 was considered statistically significant.

Total annual CB spending increased significantly between 2010 and 2013. There were considerable variations in the amounts and types of CB spending between different private tax-
exempt hospitals. Direct patient care spending dominated the amount of spending on CB. Community health improvement initiatives comprised only around 0.55% of total tax-exempt spending on CB activities and varied considerably between counties and states and over time. Community health indicators showed mixed patterns over the study period. There did not appear to be a consistent pattern between the spending on community health improvement initiatives and changes in community health indicators.
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CHAPTER 1: BACKGROUND AND SIGNIFICANCE

Hospitals have been providing medical services in different human societies for thousands of years. Charity hospitals and their predecessor in western countries, almshouses, provided their services for free (Hansmann, 1987; Wall, 1998). The first nonprofit hospital in the United States was established in 1663 in New York and was dedicated to treating injured soldiers. After about a century, Benjamin Franklin helped establish the first incorporated hospital in the U.S., Pennsylvania Hospital, in 1751 (Virginia Health Information, 2016; Wall, 1998). Until the mid of the past century, nonprofit hospitals relied on donations and philanthropic contributions as their primary source of income to operate and provide their free services. Among the major events that changed the health care landscape in the U.S. during this period was the signing of the amendments of the Social Security Act in 1965 that established the Medicare and Medicaid programs. These changes turned nonprofit hospitals from predominantly donation dependents to capable profit generators. By the end of the 20th century, 90% of nonprofit health care organizations’ income were revenues generated by their charged services (Folland, Goodman, & Stano, 2007; Hansmann, 1987; Sloan, 2000).

Tax revenues represent a primary source of public funding that governments use to finance development plans and fund different public duties. In certain situations, set under specific laws, governments can grant a tax-exempt status to a variety of nongovernmental organizations. In the U.S., as in other countries, the government (federal, state, and local) expects these organizations to provide services to the public in exchange for their financial tax-exempt privileges. Nonprofit hospitals’ tax exemptions rationale is based on the expectation of providing a "quid pro quo" and return these tax benefits in the form of poverty relief by providing free medical services to the poor and those in need of their services (Ferdinand, Epane, & Menachemi, 2014; Nation, 2010).
Historically, the U.S. followed the tax exemption traditions practiced in medieval Europe. The first federal tax exemption for nonprofit organizations enacted in the U.S. was through the Tariff Act of 1894 (Hall & Colombo, 1991). Federal tax exemption laws followed in 1909, the Corporate Income Tax Act, and in 1913, the Revenue Act. The Hill-Burton program that existed from 1946 to 1974 provided specific hospital economic incentives to provide charity care (Missouri Foundation for Health, 2005; Nation, 2010). In 1954, section 501(c)(3) of the favorable tax treatment provided another economic incentive for charity organizations, which include nonprofit hospitals. In 1956, the internal revenue code required all nonprofit hospitals to provide charity care appropriate to their financial ability to maintain their nonprofit status. Three years later in 1959, the IRS expanded its nonspecific term of charity services (Wang & Wambsganns, 1996). Ten years later in 1969, and as a result of the Medicare and Medicaid programs, the IRS developed the community benefit (CB) term which substituted charity requirements needed to maintain the tax-exempt status of nonprofit hospitals (Bakken & Kindig, 2012; Young, Chou, Alexander, Lee, & Raver, 2013). The following regulations in 1983, and 1986 included provisions about free care provided in the emergency department only (Arnsberger, Ludlum, Riley, & Stanton, 2008; Wang & Wambsganns, 1996). The latest regulations regarding the tax-exempt status of nonprofit hospitals were significant steps taken by the government to standardize the reporting on CB spending by private tax-exempt hospitals and were issued by the IRS in December 2008 (American Hospital Association [AHA] 2015; Catholic Health Association, 2008; Ferdinand et al., 2014; Hellinger 2009). Private tax-exempt hospitals are required to report their policies, practices, and spending on different CB categories on the newly added schedule H of the income tax Form 990. To increase their community involvement and enhance their responsiveness to their communities' health needs, The ACA (March 2010) amended the IRS regulations by adding Section 501(r)(3) to Schedule H. Private tax-exempt hospitals have to conduct a Community Health Needs Assessment (CHNA) and instigate an implementation strategy at least once every three years (Cramer, Singh, Flaherty, & Young, 2017; Internal
Revenue Service [IRS], 2016). The latest regulatory frameworks included financial penalties ($50,000) against hospitals that do not comply (Principe, Adams, Maynard, & Becker, 2012). Nevertheless, none of those latest regulations set minimum requirements for spending on the different CB categories (Cramer et al., 2017; Rubin, Singh, & Young, 2015).

In the U.S., the federal and state governments grant the tax-exempt status. Since the federal and state requirements for tax exemption might not align, after the federal government approves their tax-exempt appeal these organizations have to apply for state nonprofit status. Hospitals that are tax exempted are granted the federal IRS code 501(c)(3). Under this status, an organization may be exempt from federal, state, and local corporate income, franchise, sales, and property taxes; however, these tax privileges differ by state (Somerville, Nelson, & Mueller, 2013). The total amount of nonprofit hospital tax exemption was evaluated at about $12.6 billion in 2002 (Lunder & Liu, 2009) and was estimated at double this amount, $24.6 billion, in 2011 (Rosenbaum, Kindig, Bao, Byrnes, & O’Laughlin, 2015). This status also grants financial privileges including eligibility to receive tax-deductible charitable contributions, and access to tax-exempt debt financing (Byrd & Landry, 2012; Folland et al., 2007; Ginn, Shen, & Moseley, 2009; Hall & Colombo, 1991; Hansmann, 1987; Nicholson, Pauly, Burns, Baumritter, & Asch, 2000; Sloan, 2000). In 2011, all 501(c)(3) charitable organizations in the U.S. received charitable donations of more than $248 billion (Joint Commission on Taxation, 2013).

A fundamental principle that differentiates nonprofit (tax-exempt) from for-profit organizations is the non-distribution constraint. This principal ensures that tax-exempt organizations assign any financial surplus generated by their operations to invest in and finance future services that serve their communities (Adelino, Lewellen, & Sundaram, 2015; Hansmann, 1987; Sloan, 2000). In the healthcare industry, even after the latest IRS and ACA regulations, there are no federal or state regulations on the amounts that tax-exempt hospitals are expected to spend in their communities to maintain their tax exemptions (Cramer et al., 2017; Rubin et al.,
2015). However, states such as Nevada, Virginia, and Texas have mandates on the minimum standards required to maintain the tax-exempt status (Rubin et al., 2015). Texas has set this amount at a minimum of 4% of the net patient revenue of the hospital (Kennedy, Burney, Troyer, & Stroup, 2010). Evaluating the different amounts spent by tax-exempt hospitals to benefit their communities has been historically challenging in the absence of any federal or state guidelines or regulations that define what qualifies as CB or how to quantify it. It was left to hospitals, nonprofit and for-profit, to report whatever they deemed appropriate to account as CB (Alexander, Young, Weiner, & Hearld, 2009; Bai, 2013; Byrd & Landry, 2012; Hellinger, 2009; Gray & Schlesinger, 2009; Nicholson et al., 2000).

The financial privileges granted to private tax-exempt hospitals have been widely debated compared to their community service roles and the amounts they spend on different CB activities (Cramer et al., 2017; Ginn et al., 2009; Kim, McCue, & Thompson, 2009; Schlesinger & Gray, 2005; Young et al., 2013). Prior to the latest regulations, scholarly research and official reports provided mixed and sometimes opposing estimates on the amounts of CB spending by different private nonprofit hospitals and about their policies and practices towards patients lacking medical insurance specially when compared to for-profit and governmental hospitals. In 1990, the Government Accountability Office (GAO) reported that for-profit hospitals in five states, California, Florida, Iowa, Michigan, and New York, provided higher uncompensated care than nonprofit hospitals as a percentage of their revenues, 5.2 vs. 4.8% respectively (Government Accountability Office, 1990). In the same year, charitable care provided by 57% of nonprofit hospitals was found to be less than the value of their tax exemption (Hyatt & Hopkins, 2008). In 1994, a study found that for-profit hospitals provided considerably higher amounts of charity care than nonprofit hospitals. It also found that only 20% of nonprofit hospitals in California provided uncompensated care more than their tax exemptions (Gilbert, 1994). These findings were supported by a later study which projected that CB provided by all nonprofit hospitals accounted
for only 83% of what for-profit hospitals paid in taxes and uncompensated care. It also reported that nonprofit hospitals spent 4.6% of their operating expenses on uncompensated care while for-profit hospitals spent 4.1% (Nicholson & Pauly, 2001). Another study published a year later estimated that nonprofit hospitals spent about 4.5% of their revenue on uncompensated care (Sloan, 2000). Another research illustrated that some nonprofit health organizations maintained their tax-exempt status even though they provide minimal charity services that are considerably less than their tax-exemption values. It also found that these services are less than similar charity services rendered by equivalent for-profit health organizations (McGregor, 2006). A report published in 2007 revealed that nonprofit hospitals endured slightly higher uncompensated care costs than those for-profit, 4.8% vs. 4.2% of their total hospital expenditures (Healthcare Financial Management Association, 2007). A year later, a report by the Congressional Budget Office (CBO) found that nonprofit hospitals provide on average 4.7% of their total operating expenses as uncompensated care (Congressional Budget Office, 2006; IRS, 2008). Researchers have attributed these wide variations in research findings to the lack of national rules that left hospitals free to define what can be considered as CB and the amounts they spend on these activities (Bazzoli, Clement, & Hsieh, 2010). Other studies found extreme practices by nonprofit hospitals spanning from abstaining from providing any charitable or uncompensated care to charging uninsured patients more than insured patients to even using public arrest warrants against uninsured individuals who were not able to pay for services provided by these hospitals (Hyman, 1997; Nation, 2010). In 2008, the IRS published a report that detailed the types and amounts of money that nonprofit hospitals were spending on what could be classified as CB. The findings were derived from multiple studies as well as data aggregated by the IRS. In this report, the IRS found that, among the different types of CB programs, nonprofit hospitals spent the least on community programs (those programs that include activities like "studies on communities' unmet health care needs, immunization, and medical screening programs, and improving access to healthcare" (IRS, 2008)). The amounts of spending on these programs were estimated at $0.6
billion or about 6% of the aggregate $9.3 billion expenditure on all CB programs. Within these programs, spending on community health care needs was the least with only $6.4 million of total hospitals’ spending. Among other findings, this report showed that about 21% of nonprofit hospitals spent less than 2% and that about 50% spent less than 5% of their total revenues on CB activities (IRS, 2008). In a study that covered the period from 2000-2009, found that government and for-profit hospitals provided fewer community benefits than religious nonprofit hospitals (Ferdinand et al., 2014). However, a recent study found that nonprofit hospitals in California spent more of their total operating expenses on charity care than for-profit hospitals, 1.9% vs. 1.4% respectively (Valdovinos, Le, & Hsia, 2015). It is not clear however if these findings are a result of an actual change in CB spending by private tax-exempt hospitals or because the standard Schedule H form helped to accurately capture specific CB activities data.

These stark findings and other publications and studies raised questions about the amounts private tax-exempt hospitals spend to justify their tax-exempt status, the way they define CB, and how they manage their profits and financial resources to serve their communities. It also uncovered the notable imbalance in spending between for-profit and nonprofit hospitals and among nonprofit hospitals. We believe that these findings played an important role, among other factors, in issuing the latest IRS and ACA regulations. These rules added a new section to the existing income tax Form 990, Schedule H, where tax-exempt hospitals have to annually report their CB policies, practices, and spending.

**Schedule H**

The first page of the 2015 and the 2013 Schedule H income tax Form 990 are included in Appendix B. Schedule H is one of the many sections of the income tax Form 990. It is structured in 6 parts. Part I reports the spending on "Financial Assistance and Certain Other Community Benefits at Cost.” This section includes questions about certain policies and practices regarding financial assistance to patients (questions 1 through 6b) and fiscal spending on eight CB
categories (7a through 7k) divided into two sections. The first section (items 7a -7d), is the "Financial Assistance and Means-Tested Government Programs" and includes; “Financial Assistance at cost” (Financial Assistance at cost term was used in the years 2010, 2012, and 2013, while the term Charity Care at cost was used in the years 2009 and 2011), “Unreimbursed Medicaid” (the term Unreimbursed Medicaid was used in 2009 and 2010 while the term Medicaid was used in 2011, 2012, and 2013), and “Unreimbursed costs-other means-tested government programs” (the term Unreimbursed costs-other means-tested government programs was used in 2009 and 2010, while the term Costs of other means-tested government programs was used in 2011, 2012, and 2013) and their total. The second section (7e -7k) is "Other Benefits" and includes; “Community health improvement services, Health professions education, Subsidized health services, Research, and Cash and in-kind contributions to community groups” (IRS, 2013).

Part II is the "Community Building Activities," which are activities undertaken by the hospital directed to promote the health of the communities that the hospital serves. This part includes “physical improvements and housing, economic development, community support, environmental improvements, leadership development and training for community members, community health improvement advocacy, and workforce development” (IRS, 2013).

In part III, the hospital reports its bad debt (section A), Medicare-related financial data (section B), and collection practices (section C). Part IV includes the hospital's management companies and joint ventures. Part V has two sections; Section A identifies the organization's hospital facilities and section B (which the ACA amended) where organizations report their facility policies and practices regarding the community health needs assessment. Part VI includes any supplemental information (IRS, 2013).
Purpose of the study

Before the latest IRS rulings that established standardized CB categories, researchers used different approaches to define and quantify CB spending by tax-exempt hospitals and explore how different organizational and environmental factors affect their spending. Researchers relied on different financial parameters and even developed their CB categories to achieve their studies’ objectives. This led to mixed and contradictory results (Ferdinand et al., 2014). After the 2008 IRS and 2010 ACA rulings, few studies have been conducted. None of them adopted a longitudinal approach to precisely quantify and track the trends in CB spending and explore any relationship with organizational and environmental factors over time. Moreover, none of the previous studies examined the difference in CB spending between all types of private tax-exempt hospitals.

The core objective of this study is to examine the extended effect of the latest federal regulations (IRS and ACA rulings) on all types of private tax-exempt hospitals in seven states, Kentucky (KY), Minnesota (MN), Mississippi (MS), Nebraska (NE), New Hampshire (NH), New Mexico (NM), and Virginia (VA), and how they responded to it. The results of this work will clearly show how private tax-exempt hospitals allocate their financial resources to the total and categorical CB spending and their relationship with their organizational and environmental factors. It may assist policy makers in evaluating whether the existing regulations adequately link CB spending of private tax-exempt hospitals to their real communities’ needs. The shift in allocating their spending from treatment services to preventive services and health promotion is pivotal in the health reform. To achieve this objective, we quantified and tracked changes in total and categorical CB spending by all voluntary, nongovernmental, private, tax-exempt hospitals in seven states over a four-year period from 2010-2013. Moreover, we examined which community health needs have the weight and impact to predict spending on community health improvement activities. Lastly, we tested if spending on community health improvement initiatives achieved
their anticipated effect on their communities' health indicators. We examined these relationships in the context of different organizational and environmental factors.

Specifically, the aims of this study include:

**Aim 1:** Examine the amounts and trends in total and categories of CB spending and their relationship with organizational and environmental factors over a four-year period for different types of private tax-exempt hospitals.

The first aim of this dissertation work is to quantify and track the amounts and changes in CB spending for four main spending groups: total CB, direct patient care, community health improvement initiatives, and medical education and research after the enactment of the latest reporting regulations (IRS 2008 & ACA 2010) over a four-year period. We will also examine how different organizational and environmental factors interact with this spending. To our knowledge, all longitudinal research that studied CB spending by tax-exempt hospitals was done before the latest federal regulations, while all studies after the implementation of the most recent regulations were cross-sectional. We will include variables that were not examined in previous research including the independent members on the Board of Directors, the levels of federal poverty guidelines (FPG) used to determine eligibility for care, unemployment and poverty rates in the community. To examine these relationships we will use two regression models. A 2-part zero-inflated beta nonlinear mixed model for spending on community health improvement activities and medical education and research. This model has the capability to deal with financial spending information with mass at zero while allowing for predictor equation structuring for different variables. A generalized linear mixed model with random effects will be used for the two other predictor variables, total CB and direct patient care spending.

**Aim 2:** Identify community health indicators predictive of spending on community health improvement activities by private tax-exempt hospitals.
The latest federal regulations required all private tax-exempt hospitals to better identify the health needs of their communities. However, we still lack clear understanding whether private tax-exempt hospitals allocate their financial resources and develop community programs and interventions based on the actual community health needs. The second objective of this work is to identify which community health indicators are predictive of spending on community health improvement activities. In this part, we use a lagged response model, hence, using the community health indicators of 2010, 2011, and 2012 and the spending on community health improvement activities in 2011, 2012, and 2013.

**Aim 3: Examine the relationship between spending on community health improvement initiatives and changes in community health indicators.**

Hospitals of all types spend billions of dollars each year on community health improvement activities. It is logical to expect these activities would have positive impact on the communities’ health. The final objective of this work is to examine if spending on community health improvement initiatives is associated with improvements in six community health indicators that could primarily be affected by this spending. In this part, we use the spending in 2010, 2011, and 2012 and the community health indicators in 2011, 2012, and 2013. Based on an extensive literature search, no previous study has attempted to study this relationship.

We used generalized mixed model and a hybrid method of fixed and random effects to test for change over time for our response variables for aims 2 and 3 (Allison, 2005).
Research Hypotheses

In Chapter 3 of this work, we will test a set of hypotheses related to private tax-exempt hospitals spending on the four CB categories and the relationship with a number of related organizational and environmental factors.

The latest IRS and ACA CB reporting regulations are unprecedented and are major steps in the health sector reform. Private tax-exempt hospitals have to report detailed information about their policies, practices, and financial spending on specific CB activities on Schedule H of the income tax Form 990. Schedule H is a robust and standard tool that allow the IRS, state, and local governments to accurately track and evaluate the amounts spent by these hospitals on different CB categories in addition to details about their community engagement and practices.

Even though there are no minimal spending requirements for any of the CB categories on Schedule H, this tool will exert additional pressure to that already exerted by policy makers, local communities, interest groups, and the media. This will compel private tax-exempt hospitals to increase their community involvement especially large hospital systems eventually increasing their CB spending (Proenca et al., 2000). In addition, private tax-exempt hospitals anticipate that the IRS will utilize the information gathered through these income tax forms to evaluate tax-exempt hospitals’ compliance with the new regulations and amend the rulings as needed or even annulling tax exemption status of hospitals that fail to provide satisfactory CB spending to justify their tax-exempt status (Byrd & Landry, 2012). The amended regulations about the CHNA aim to increase tax-exempt hospitals engagement with their communities and promote their spending on community health improvement activities. Under these assumptions, we anticipate a progressive overall increase in total CB and community health improvement initiatives spending by private tax-exempt hospitals.
Hypothesis 1a: After adjusting for covariates, collectively, total CB spending by private tax-exempt hospitals will increase in response to the latest IRS and ACA regulations.

Hypothesis 1b: After adjusting for covariates, collectively, spending on community health improvement initiatives by private tax-exempt hospitals will increase in response to the latest ACA regulations.

Some researchers have questioned the commitment of large healthcare and hospital systems to local communities. Even though researchers argued that large firms are subject to more government and public attention making them more vulnerable to external pressures, large hospital systems may have eluded these types of pressure (Proenca et al., 2000). For example, Alexander and colleagues (2009) indicated that although system-affiliated hospitals showed slightly more community engagement, they provided significantly less uncompensated care than independent hospitals. They also found that hospitals affiliated with health care systems and those affiliated with multimarket systems provided 6.9% and 9.8% less uncompensated care relative to independent hospitals (Alexander et al., 2009). Although the financial penalties tied to non-compliance with the new regulations and the anticipation that the IRS may challenge the tax-exempt status of some private nonprofit hospitals that do not provide adequate CB could motivate system member hospitals to increase their CB spending, we still believe that independent private tax-exempt hospitals have more loyalty to their communities and will continue to provide more CB spending.

Hypothesis 2: After adjusting for covariates, independent private tax-exempt hospitals will spend more than system member private tax-exempt hospitals on CB activities.

Religiously affiliated private tax-exempt hospitals have historically shown more community orientation and involvement, generally reflected through more adaptable requirements and lower FPG to assess the eligibility for free and discounted medical care. Another indicator of
their community commitment was the engagement and development of their community health needs assessments years before the ACA requirements (Bazzoli et al., 2010; Holy Cross Hospital, 2013). Recent studies have shown that private tax-exempt hospitals with religious organization affiliation provided comparatively higher CB spending even during economic recessions (Ferdinand et al., 2014). Based on their long history and well-established community involvement, we anticipate that their CB spending will not be substantially affected by the latest IRS and ACA rulings.

Hypothesis 3a: After adjusting for covariates, religiously affiliated private tax-exempt hospitals will not significantly increase their CB spending after the latest IRS and ACA rulings.

Hypothesis 3b: After adjusting for covariates, religiously affiliated private tax-exempt hospitals will spend more on CB than non-religiously affiliated private tax-exempt hospitals.

Boards are the ultimate policymakers in any organization. In charity tax-exempt hospitals, boards are the custodians of the mission and assume a fiduciary relationship with their communities (Beaufort & Darr, 2014; Van Puyvelde, Caers, Du Bois, & Jegers, 2012). The characteristics of the board have been shown to influence the board’s decisions and the organizational behavior (Bai, 2013; Judge & Zaithmal, 1992; Zuckerman, 2012). In response to the recent ACA and IRS rulings, tax-exempt hospitals are anticipated to actuate the role of their boards to conform to the new requirements. This can be achieved through a more purposeful selection process to increase the community representation and the number of independent members (members who do not receive any financial compensation or do not have any financial interests in the organization). Regardless of the fact that the data used in this study do not provide a detailed assessment of the board characteristics, however, the proportion of independent members on the board is an indicator of their community orientation.
Hypothesis 4: After adjusting for covariates, private tax-exempt hospitals with more independent board members will spend more on CB activities than similar hospitals with less independent board members.

Gary and Schlesinger concluded that hospitals located in poor areas provide high levels of CB spending (Gary & Schlesinger, 2009). Uncompensated care was estimated at $57 billion in 2008 and represented the largest proportion of total CB spending (KFF, 2011). Although, an estimated 40% of total CB spending is directly related to providing medical care services to uninsured patients, however, no significant relationship was found between total amount of community spending and percentage of uninsured (Young et al., 2013). Moreover, a significant proportion of hospitals report bad debt related to services provided to indigent patients who fall in the gap between having adequate medical insurance and the free or discounted care limits and Medicare payments. We anticipate that in areas with high poverty, high unemployment, and high medically uninsured population, private tax-exempt hospitals will spend more on CB activities.

Hypothesis 5a: After adjusting for covariates, in areas with high unemployment population, private tax-exempt hospitals will spend more on direct patient care activities than other activities.

Hypothesis 5b: After adjusting for covariates, in areas with high uninsured population, private tax-exempt hospitals will spend more on direct patient care activities than other activities.

Hypothesis 5c: After adjusting for covariates, in areas with high poverty population, private tax-exempt hospitals will spend more on direct patient care activities than other activities.

Studies have shown wide variations in the total amounts of CB spending among different states. Bazzoli and colleagues (2010) found significant variation between California and Florida.
(Bazzoli et al., 2010). Similar significant differences were also reported between Wyoming, Colorado, Vermont, and North Dakota (Bakken & Kindig, 2015). None of these studies provided a rationale for these variations. Considering the economic and demographic diversity between states in our study sample, we anticipate wide variations in spending between states, especially those with higher and lower poverty rates.

Hypothesis 6a: Wide variations in total CB spending will exist between the seven states.

Hypothesis 6b: Wide variations in total CB spending will exist between states, with high vs. low poverty rates.

Hypothesis 6c: Wide variations in CB spending will exist between the different regions.

A central economic difference between nonprofit and for-profit hospitals is the non-distribution constraint principle. As a rule, the excess revenues over costs (profits) generated by private nonprofit tax-exempt hospitals belong to their communities and should be reinvested in the community (Adelino et al., 2014; Hansmann, 1987; Sloan, 2000). Although McCue (2007) stressed the effectiveness of measuring the cash flow in assessing a hospital’s financial condition as opposed to its profit margin (McCue, 2007), nonetheless, profit margin was used to reflect the financial viability in many studies. Proenca and colleagues (2000) found no significant relationship between total margin and degree of community orientation in nonprofit hospitals and Principe and team (2012) found only a weak correlation between operating income and total CB expenditure. Kim and his team found a significant negative relationship between free cash flow and provision of uncompensated care (Kim et al., 2009). Nevertheless, we think that after the latest regulations, private tax-exempt hospitals that generate more profits will provide more community services and increase their spending on different CB activities overtime.

Hypothesis 7: After adjusting for covariates, private tax-exempt hospitals with higher profit margins will spend more on total as well as different categories of CB.
As part of the new reporting requirements, nonprofit hospitals have to report the limits of the federal poverty guidelines that they implement to determine the eligibility for free and reduced medical care. The higher levels of FPG reflects a strategy by the organization to increase the number of people eligible for free care. We anticipate that private tax-exempt hospitals that use higher FPG levels have a greater community commitment and are willing to provide more CB spending.

Hypothesis 8: After adjusting for covariates, private tax-exempt hospitals that use higher federal poverty guidelines to assess eligibility for free care will provide more spending on CB activities than similar hospitals using lower levels of FPG.

Poverty, unemployment, and lack of medical insurance coverage are known to increase demand for free medical care. Poverty and unemployment are generally higher in rural areas while the percentage of uninsured adults slightly differs between rural and urban areas (US Department of Agriculture, 2016a, b). However, the percentage of people covered by Medicaid and other public insurance programs are higher in rural areas than urban areas, 25% vs. 19%, respectively (NewKirk & Damico, 2014). Despite the fact that urban hospitals represent about 40% of total community hospitals and cover about 16% of the total U.S. area yet they provide care to about 82% of the total population (AHA, 2016). Large hospitals are more in urban locations and provide more CB spending than other types (Bazzoli et al., 2010; Kim et al., 2009). With previous research showing increased CB spending in communities with higher community health needs (Singh at al., 2015), we hypothesize that large urban acute care hospitals will provide more CB spending.

Hypothesis 9a: After adjusting for covariates, private tax-exempt urban hospitals will provide more CB spending than rural hospitals.
Hypothesis 9b: After adjusting for covariates, private tax-exempt acute care hospitals will provide more CB spending than critical access and specialty hospitals.

Hypothesis 9c: After adjusting for covariates, large private tax-exempt hospitals will provide more CB spending than medium and small size hospitals.

In Chapter 4 of this dissertation work, we will test two hypotheses about how levels of community health indicators can predict spending on community health improvement initiatives.

The latest IRS and ACA regulations intend to increase involvement of private tax-exempt hospitals in their communities. Although the ACA required private tax-exempt hospitals to conduct CHNA starting in 2013, nevertheless, the common belief was that private tax-exempt hospitals exist to correct government failures in providing medical services needed by the communities. Private tax-exempt hospitals are assumed to be sensitive to their communities’ health needs and develop programs and interventions and provide services, even services that are less profitable or even unprofitable, to fulfill their communities’ health needs. Many hospitals have been conducting what was known as community health-status assessment for decades. According to the AHA, as early as 1995, 60% of hospitals used information from these assessments to adjust their community programs and services (Proenca et al., 2000).

Nevertheless, health needs reflect a wide range of health issues that represent different priorities both on the national and local levels. If we add the wide variations in socioeconomic indicators between areas where private tax-exempt hospitals are located, we can anticipate marked variability in spending on community health improvement initiatives between states, counties, and locations.

Hypothesis 1: Wide variations in spending on community health improvement initiatives will exist between different states, counties and locations pertinent with differences in the community health needs.
Hypothesis 2: After adjusting for covariates, spending on community health improvement initiatives by private tax-exempt hospitals will increase in communities with greater health needs (lower health indicators).

In chapter 5 we will test a hypothesis related to the association between spending on community health improvement initiatives and community health indicators.

Private tax-exempt hospitals spend billions of dollars each year on programs and services directed to building and improving their communities. These activities include cash and in-kind contributions and services and operations. The community building activities include a wide range of activities like physical improvement and housing, economic development, community support and workforce development. Although these activities have been only recently structured and organized and still lack coordination with other community stakeholders, nevertheless, we anticipate that community health indicators will be affected by spending on community health improvement activities.

Hypothesis 1: After adjusting for covariates, spending on community health improvement initiatives by private tax-exempt hospitals will be associated with improvement in a set of community health indicators that can be directly impacted by this spending.
CHAPTER 2: LITERATURE REVIEW

Nonprofit healthcare organizations are the cornerstones of the health care system in the U.S. Over the period 2010-2013, the number of private nonprofit hospitals was about 2900, which represented about 58% of the total number of hospitals in the U.S (Kaiser Family Foundation, 2016). In 2013, in the hospital field alone, about 70% of the available beds and medical services were provided by nonprofit hospitals (Centers for Disease Control and Prevention [CDC], 2015; Folland et al., 2007). Due to their significant economic and social role, nonprofit healthcare organizations have been the subject of continuous evaluation. Although the absence of federal and local standards about CB represented serious challenges for researchers, nonprofit hospitals specifically have been studied extensively, particularly in response to questions about their tax exemption privileges and their community responsibilities (GAO, 1990; Folland et al., 2007; Young et al., 2013).

Researchers and government agencies have been interested in estimating the amount of CB spending on the national level, but the lack of standard national reference to define and measure CB represented challenges for researchers (Young et al., 2013). Most of these studies compared nonprofit hospital spending with their counterparts, for-profit and government hospitals. However, the different approaches used to define and quantify CB standards led to mixed results. The GAO in its report about the standards needed for tax exemption of nonprofit hospitals found that in 1988 nonprofit hospitals provided more uncompensated care than for-profit and government hospitals in total dollar amounts and bore a larger proportion of total uncompensated care provided, 58% vs. 9% and 33% respectively. Nevertheless, for-profit hospitals expended a higher percentage of their revenues on this service (GAO, 1990). Mann and his team (1997) in their study about hospitals uncompensated care found that between 1983 and 1995 total nonfederal community hospital uncompensated care expenses grew from $6.1 to $17 billion and represented about 6% of the total hospital expenses. Sixty percent (60%) of those
amounts were provided by private hospitals. Nonprofit hospitals provided remarkably more uncompensated care on the national level than urban public hospitals and for-profit hospitals, 55% vs. 35% vs. 5% respectively. The average uncompensated care expenses by nonprofit hospitals increased from 4.1% to 5% of their total expenses over the study period (Mann, Melnick, Bamezai, & Zwanziger, 1997). Sloan (1998) in his work on commercialism in nonprofit hospitals used previous research results to construe that the provision of uncompensated and publicly sponsored patients care varies minimally between nonprofit and for-profit hospitals (Sloan, 1998). In light of the lack of specific guidelines, bounding definitions, agreements, or even common practices, Nicholson and his team in their work to estimate CB provided by nonprofit and for-profit hospitals used the economic theory to define CB. They developed eight indicators that were categorized into two groups; community services and patient related services. They used for-profit hospitals as a benchmark for CB spending. This parameter included what a for-profit hospital spends on CB plus its expected profit. Despite some limitations in the data that affected accurate calculations, they were able to estimate the amount of income, sales, and property taxes for the three largest for-profit hospital systems in the U.S. Using these benchmark estimates on the 3,646 nonprofit community hospitals, they concluded that nonprofit hospitals are spending only 25-36% of the expected CB (Nicholson et al., 2000).

Alternatively, Alexander and colleagues (2009) in their study on how system-affiliated hospitals fare in providing CB found that nonprofit hospitals provided significantly more uncompensated care than for-profit hospitals (Alexander et al., 2009). Hellinger (2009) in his work about the states’ CB reporting requirements estimated the amount of CB spending on the national level and found similar spending results, reporting that nonprofit hospitals spent slightly higher on CB than for-profit hospitals, 4.5% vs. 4.0% of revenues, respectively. Although he found that in absolute values the amount of spending on uncompensated care by about 80% of nonprofit hospitals exceeded the value of their tax exemption, it was not enough to justify their
tax-exempt status given the minimal margin over the for-profit hospitals (Hellinger, 2009). In 2013, in his work to understand how the size and occupational background of board members in nonprofit and for-profit hospitals influence their social performance (the alternative word used by the researcher for CB), Bai also examined spending on CB by different hospitals in California. The author estimated that over the period 2000-2005, the average nonprofit hospital spent about $7 million while for-profit hospital spent an average of $2 million. These amounts represented about 1.7% vs 1% of their total revenues for nonprofit and for-profit, respectively (Bai, 2013). On a considerably limited scale, Bazzoli and her team found that when using the IRS definition of CB, nonprofit hospitals in California and Florida did not provide adequate CB (Bazzoli et al., 2010).

Many studies and reports also evaluated how nonprofit hospitals differ in providing CB on the state level. Principe and colleagues in their study of the impact of the individual mandate and the new Schedule H on CB spending found that nonprofit hospitals in Maryland spent as low as 1.6% to as high as 13% of their operating expenses on CB (Principe et al., 2012). Similar results were reported by a study that estimated CB spending by nonprofit hospitals in Maryland in 2006 between 1.2 -14.1% of their operating expenses (Gray & Schlesinger, 2009). Many studies compared CB spending between states to test for the effect of differences in demographics, economic indicators, and laws. One study found that spending on CB by nonprofit hospitals in the states of California, Florida, Georgia, Indiana, and Texas was about 4.7% of their operating expenses while it was about 4.2% for for-profit hospitals (Hellinger, 2009). Bazzoli and her team (2010) examined the CB spending patterns of private nonprofit hospitals in California and Florida. Although they found that the average spending was not substantially different between the hospitals in the two states, uncompensated care was almost twice as high in Florida as it was in California. Their results also showed that church affiliated hospitals in California and nonprofit non-church affiliated hospitals in California and Florida provided less CB than for-profit hospitals
Variations in CB spending between nonprofit hospitals in different states were supported by another study by Bakken and Kindig. As a percentage of their total hospital expenditures, Wyoming had a state average of about 11.9% while Colorado and Vermont had about 11% and North Dakota had an average state spending as low as 3.7%. These findings were also associated with marked variability in per capita expenditures. Virginia, Kentucky, and Tennessee had higher, while Oregon and Arkansas had lower per capita spending than states with similar total CB spending (Bakken & Kindig, 2015).

Researchers also examined the differences in spending on various CB categories, which revealed remarkably mixed results. Vladeck (2006) estimated that spending on uncompensated care represented about 6-7% of all hospitals expenses, or roughly $30-35 billion. He also estimated that medical professional training programs represented the second main component of CB spending and were estimated at $20-$25 billion, while community health improvement spending was the minima (Vladeck, 2006). In their study above, Alexander and colleagues (2009) examined all community hospitals in California, Texas, and Florida from 1989 to 2003. Although not identical to the current categories, they used four CB indicators: uncompensated care, net price, community engagement, and Medicaid caseload to study different characteristics of the CB programs in these hospitals. They found that hospitals in California provided significantly less uncompensated care than similar hospitals in both Florida and Texas. At the same time, California hospitals showed significantly less community engagement than similar hospitals in Texas and significantly higher engagement than those in Florida (Alexander et al., 2009). Young and his team in their study about the provision of CB by tax-exempt hospitals had similar estimates. They found that expenditures directly related to patient care accounted for more than 85% of total CB spending. Of this amount, almost 50% subsidized the cost of caring for patients under government programs (e.g. Medicaid) (Young et al., 2013). Singh and his team had a similar estimate, and found that spending on direct patient care accounted for about 86% of total
CB spending (Singh, Young, Daniel Lee, Song, & Alexander, 2015). Although uncompensated Medicaid only benefits a limited fraction of the population, Bakken and Kindig found that it represented the largest CB spending category. Eventually, they found that costs for medical education represent a larger percent of CB spending in states with large teaching hospitals (Bakken & Kindig, 2015). Similar conclusions were previously reported on the IRS 2008 Hospital Compliance Project Final Report (IRS, 2008). However in 2011, the IRS used Schedule H data to report that private tax-exempt hospitals spent 32% of their total CB spending on means-tested government programs like Medicaid, 24% on financial assistance to poor patients, 36% to specific subsidized health services, health profession education, and research, 4% to community health improvement activities, and 3% as cash and in-kind contributions to community groups (Rosenbaum et al., 2015).

Significant variations have also been found between independent nonprofit hospitals and large systems hospitals. Alexander and colleagues (2009) revealed in their study above that although system-affiliated hospitals had higher community engagement, they provided less CB compared to independent hospitals. Moreover, being system affiliated was significantly negatively associated with uncompensated care. Large system hospitals provided 7-10% less uncompensated care than independent hospitals. Nevertheless, community health improvement activities and health professions education came on top of their community services expenses. Hospitals affiliated with health care systems and those affiliated with multimarket systems provided 6.9% and 9.8% less uncompensated care compared to independent hospitals, respectively (Alexander et al., 2009).

Religious nonprofit hospitals, whether affiliated with Christian, Jewish or other faiths, have been historically strongly linked to their communities (Bazzoli et al., 2010). This link has been established because almshouses, the historical predecessor of hospitals, were built and run by religious missionaries to provide free health services. Sets of strong community service values
drive these hospitals and indoctrinate their service philosophy (Berger, 2003). However, researchers found that church affiliated hospitals in California provided less CB than for-profit hospitals (Bazzoli et al., 2010). Most recently, Ferdinand and colleagues in their longitudinal study that compared the CB provided by religious, other nonprofit, and for-profit hospitals from 2000-2009 found that religious hospitals are more likely to engage in and spend significantly more on CB activities than other types of nonprofit and for-profit hospitals (Ferdinand et al., 2014).

One of the three supplemental categories on the Schedule H that was not eligible to be considered as a CB by the IRS is "community building activities." Nevertheless, this category is of special importance since it incorporates activities directed to support more population-based initiatives. In their recent study, Bakken and his team (2014) examined all nonprofit hospitals in New York State during 2010 and 2012 tax years and found that only about 46% of hospitals reported any community building spending in these years. Most of this spending was directed to workforce development and community support. Since 2012, specific community building expenses can be reported as CB by nonprofit hospitals if they fulfill two requirements. First, if these community building activities were part of the hospital's community health needs assessment (CHNA) and had demonstrated direct health effects. Second, if a community organization collaborates with or asks the hospital to execute this community building activity (Bakken, Kindig, & Boufford, 2014). Singh and colleagues recently supported these results as they concluded that nonprofit hospitals did not prioritize spending on community health programs and limited their cash contributions to activities that benefit the community in general (Singh et al., 2015).

The Board of Directors has a central role in modeling the policy and setting the direction of its organization. This role has been recognized to be greater in nonprofit than in for-profit organizations. The characteristics of the board reflect how the board acts and how it influences
the organization (Bai, 2013; Judge & Zaithaml, 1992; Zuckerman, 2012). Adelino and his team (2015) argued that nonprofit hospital boards have less clearly defined objectives that may affect their roles toward their community (Adelino et al., 2015). Bai (2013) in his aforementioned study about board influence of social performance, concluded that many board characteristics such as "board independence, diversity, directors are employee elected, and number of women on the board" are positively associated with social performance. When comparing boards in these two types of hospitals, significant differences exist. The average number of directors on nonprofit boards was 15 while it was 9 in for-profit boards. Thirty-four percent of nonprofit hospitals have government officials on their boards, this percent goes down to 14% in for-profit hospitals. Still, with almost every hospital having physicians on their boards (80% of both types of hospitals), nonprofit hospitals had a lower proportion of physicians on their boards (22%) compared to for-profit hospitals (34%). Nonprofit hospitals, on the other hand, had far more board members with diverse occupational backgrounds than for-profit hospitals. The larger the size and the more government officials on the board in nonprofit hospitals the greater the social performance and CB spending. However, the presence of physicians on the boards does not affect CB in nonprofit hospitals (Bai, 2013).

Different studies also aimed to quantify the amounts of CB spending in total dollar amounts and as a percentage of total hospital expenses or revenues. Mann and colleagues had calculated that the total nonfederal community hospital uncompensated care expenses grew from $6.1 to $17.5 billion between 1983 and 1995 (Mann et al., 1997). In 2008, the total uncompensated care spending in the U.S. was estimated at $57 billion and represented the largest component of CB spending (KFF, 2011). Young et al. (2013) in their study of the provision of CB by tax-exempt hospitals reported that spending on CB accounted for about 7.5% of the total operating expenses of nonprofit hospitals. Nevertheless, extreme variations existed between hospitals. Some hospitals spent as high as 20% while others spent as low as 1% of their total
operating expenses (Young et al., 2013). Bakken & Kindig (2015) estimated the total national spending by nonprofit hospitals on CB activities at 7.5% of their total hospital expenditure (Bakken & Kindig, 2015). By using the data reported on Schedule H, the IRS was able to estimate that in 2011 private tax-exempt hospitals expensed $62.4 billion on all CB activities (Rosenbaum et al., 2015).

Poverty, unemployment, and uninsurance can gauge health needs within a community and are linked to increasing demand for free hospital care. Few studies looked into the relationship between community characteristics and provision and spending on CB activities. A study about CB spending in 2009 did not find any significant difference in the provision of CB between private nonprofit hospitals based on the levels of per capita income and percentage of uninsured persons in the community (Young et al., 2013). Singh and his team on their research about the alignment of CB expenditures with health needs of communities found that hospitals spend higher percentages of their operating expenses on direct patient care activities in communities with increased health needs. However, these hospitals did not increase their spending on interventions directed to community improvement (Singh et al., 2015).

Only a limited number of studies focused on the relationship between organizational profit and CB spending. In their study mentioned above, Principe and team found a weak correlation between total CB expenditures and the operating income of those hospitals in Maryland (Principe et al., 2012). Young and his colleagues supported these findings on the national level (Young et al., 2013).

Gaps in the literature

The research about CB spending by nonprofit hospitals can be differentiated into two periods, before and after the issuing of the latest IRS and ACA regulations. Before the latest regulatory mandates and with the lack of any standardization of what qualifies as CB, researchers
had to develop their tools, definitions, and categories. They also relied on different financial
sources to categorize and estimate the different types of CB activities. Despite the enormous
effort done on these studies, their results were mixed, contradictory and misleading. Even when
the IRS published its hospital compliance project report, which examined many aspects of the
practices and spending by nonprofit hospitals, it relied on data collected from a selected sample of
hospitals. Research at this era focused on estimating the uncompensated and charity care
expenses and comparing spending on these two groups of activities between nonprofit, for-profit
and government hospitals mainly on state levels. Due to the associated challenges, no study was
conducted on the national level during this period.

A limited number of studies were published after the latest amendments that primarily
relied on the data reported on Schedule H of the income tax Form 990. All were cross-sectional
studies that used 2009 and 2012 financial data only. The lack of longitudinal studies about the
total and categorical spending on CB and their relationship with different organizational and
environmental factors eventually limits our ability to construe any causal relationships. The lack
of such studies limits our broad understanding on why each tax-exempt hospital has a certain
pattern of CB spending and how they shift this spending between different CB activities. None of
the previous studies examined the variations in CB spending between various types of nonprofit
hospitals (for example, acute care vs. critical access vs. specialty) and between different regions
based on the poverty rates and other demographic and economic differences. Moreover, none of
the published literature studied the effect of the size of the board of directors and only one study
examined the relationship with levels of FPG used to determine eligibility for free care. We think
these are important factors that reflect the degree of community engagement by private tax-
exempt hospitals.
Theoretical background

The overarching objective of this study is to examine the characteristics of CB spending by private tax-exempt hospitals in the context of their organizational and environmental factors. This study expands the previous research that used the organizational theory framework to investigate the effect of environmental factors on hospitals' community orientation and involvement by adding economic principles to the theoretical framework (Byrd & Landry, 2012; Ginn et al., 2009; Proenca, Rosko, & Zinn, 2000; Sloan, 1998).

Organizational theories incorporate a group of concepts and models known as open-systems theories that explicate organizations' behavior and their adaptive reactions and changes to environmental stimuli. Some of these theories adopt a strategic approach to organizational behavior while others adopt a rational perspective. The two organizational theories that were used to study the effect of environmental changes on hospitals’ community orientation and involvement were the institutional and resource dependence theories (Byrd & Landry, 2012; Ginn et al., 2009; Johnson, 2009; Oliver, 1991; Proenca et al., 2000).

Organizations, as defined by modern theories, are “complex open social systems” (Beer, 1998) that behave and adapt to their environmental stimuli and changes to survive and prosper (Johnson, 2009). Institutional theory is an organizational theory that offers a framework for organizational behavior in response to institutional forces and has been used by different researchers in the health care field (Beer 1998; Byrd & Landry, 2012; Jonson, 2009; Oliver, 1991; Scott 1995). Organizational compliance to the institutional expectations and established norms is the central argument of this theory. Compliance with the institutional regulations reflects organizational inclination to fulfill the institutional requirements, enhance community acceptance, and sustain legal and social legitimacy along with securing the needed support and resources essential for organizational survival (Johnson, 2009; Proenca et al., 2000). Institutions accordingly can be government bodies, regulatory agencies, similar larger organizations or the
society in general. Institutions exert pressure over organizations through the “Three Pillars of Institutions”: the “regulative," the "normative," and the "cognitive” powers (Scott, 1995).

Through these three pillars, institutions frame a rationalized figure about the legitimate form of organizations working in the same field. The outcome is "organizational isomorphism", a phenomenon where organizations in the same field become similar (Johnson, 2009; Scott, 1995).

The regulative pillar signifies the means used by institutions to modify and control organizational behaviors. Through institutional legal rulings (for example, the latest IRS and ACA laws and regulations), the regulative pillar challenges the legitimacy of organizations that fail to work within their legal framework (for example, the financial penalties and the probability of revoking the tax-exempt status). This type of power can develop within large system organizations where general policies and regulations are applied in the establishment. "Coercive isomorphism" develops by abiding to policies, laws, and regulations and fulfilling cultural expectations. The normative pillar reflects the social aspects of institutional pressures. Failing to fulfill social obligations and to act inside the social norms will challenge the social legitimacy of an organization. "Normative isomorphism" develops through formal education and "professional socialization." The cognitive pillar implies the effect of organizations' similitude on their legitimacy. Organizations try to appear and act like successful organizations of the same type. "Mimetic isomorphism" arises when organizations adopt similar behavior as externally favored organizations in the face of uncertainty that is dominant in the health care field. Successful adaptation requires an effective exchange with the environment (Beer, 1998). This theoretical model ignores the internal efficiency for the external legitimacy of the organization (Byrd & Landry, 2012; Ginn et al., 2009; Johnson, 2009; Proenca et al., 2000; Scott, 1995).

Fundamental assumptions of the resource dependence theory include the degree of need for resources (for example, Medicaid and Medicare patients, patients of other government supported programs, medical professionals training programs), the visibility of the organizational
outputs (for example, community engagement programs and activities, CB spending) to external entities (government and regulatory bodies), and the ability of organizations to meet the external entities' demands (provide community programs and services). Accordingly, to secure availability and predictability of resources, decrease the environmental control, and ensure their survival, organizations identify critical dependencies and decide on the best strategic actions. These strategies comprise developing relations with different entities in the environment in what is known as "interdependence" (Pfeffer & Salancik, 1978). In contrast to institutional theory, the resource dependence model aims to improve organizational efficiency. In extreme cases when organizations fail to comply with institutional pressures, the external entity can enforce penalties of the organization (Ginn et al., 2009; Johnson, 2009; Proenca et al., 2000; Yeager et al., 2014).

Despite the differences in the source of power over the organization and the type of response, these two theoretical models complement each other. Both emphasize organizational reaction to environmental and external stakeholders' pressures to survive (Oliver, 1991; Proenca et al., 2000). Organizations within a specific industry are subject to the same institutional pressures, but their responses to the same type of pressure may take different forms and magnitudes. Many factors shape an organization's response to organizational structure, interests, goals, economic motivations, and market characteristics. From an institutional theory perspective, organizations adopt a natural obedience passive response. While from a resource dependence perspective, organizations adopt active strategic actions in the form of evaluating their environment, management of interdependencies, political intervention (lobbying), or modifying their status (change of ownership). Organizations may utilize their compliance with external pressures as a potential negotiating tool when negotiating with local (as in the case of small hospital) or the federal government (in the case of large systems) (Byrd & Landry, 2012; Johnson, 2009; Proenca et al., 2000; Scott, 1995).
The growing economic, social, and political role of nonprofit organizations initiated extensive economic studies, which started in the early 1970s (Hansmann, 1987). Nevertheless, Horwitz and Nichols argue that there is "no accepted theory for the nonprofit firm" (Horwitz & Nichols, 2009). However, economic theories can provide a framework to understand the types of behaviors of nonprofit hospitals in response to policy changes and environmental pressures. The fundamental concept that models the theoretical framework of nonprofit hospitals’ behavior is the presence of “non-distribution constraint” (Hansmann, 1987). The economic theories of nonprofit organizations have been divided into theories of their role and theories of their behavior (Folland et al., 2007; Hansmann, 1987; Newhouse, 1970; Sloan, 1998). Theories of the first group focus on issues such as: why do nonprofits exist, why they exist in certain industries, why their prevalence varies among those industries, and what is their economic role? The second group of theories focuses on issues related to nonprofit goals, the motivators of their managers and the differences from for-profit, and their efficiency and how it compares to governmental and for-profit organizations. Although these groups of questions cannot be separated, nonprofit organizational behavioral theories were originally developed in isolation of their role (Hansmann, 1987).

Although nonprofit hospitals originally existed to provide a public good (health care) to the poor and the indigent, several factors have altered their presumed behavior. Nonprofit hospitals have been differentiated across a diverse spectrum based on their behaviors. This spectrum extends from the “purely altruistic” through the “impure altruistic” to the “for-profit in disguise” forms (Folland et al., 2007; Frank & Salkever, 1991; Horwitz & Nichols, 2009).

The “purely altruistic” or utility maximizing model emphasizes the philanthropic behavior of nonprofit hospitals’ decision makers which lead them away from profit maximizing behaviors (Duggan, 2000). According to Newhouse (1970), the nonprofit hospitals’ objective is to maximize the utility of its decision makers who are assumed to have “altruistically
internalized” the community benefit in providing health care (Newhouse, 1970). Under this assumption, nonprofit hospitals are presumed to focus solely on maximizing the quality and quantity of their services to maximize the welfare of their communities' subject to "zero profit constraints." Output Maximization reflects a desire by nonprofit hospitals to serve and meet the needs of a broad segment of the community left by government failures. Accordingly, nonprofit hospitals increase their utility by providing more services to those in need (Adelino et al., 2015; Feldstein 1999; Hansmann, 1987; Newhouse, 1970; Sloan 2000). Nevertheless, the pure altruism model is extremely unique, and estimates constructed on this model cannot generally be applied (Andreoni, 1990).

The “impure altruism” or profit maximization model assumes nonprofit hospitals as a combination of “altruism and profit motives” (Feldstein, 1999; Lakdawalla & Philipson, 2006). This model assumes that nonprofit hospitals seek to maximize their profits, like for-profit hospitals, but direct these profits to serve the community. This model signifies what is known as “public interest” perspective of nonprofit hospitals (Feldstein, 1999). This type of nonprofit hospitals acts as a community utility maximizer using their profits to provide a higher quality of care, increase their free care, and provide "cross-subsidies for unprofitable care, unsponsored research and medical education" thus reflecting a fiduciary relation with their communities (Sloan, 1998; Sloan 2000). At the same time, nonprofit hospitals maximize their profits through different means depending on their market environment (e.g. increasing prices, investing in new technologies, or improving their efficiency to cut their costs) (Feldstein, 1999).

In the physician control or “for-profit in disguise” form, researchers argue that the competitive pressures and market factors have pushed nonprofit hospitals to act as profit seekers (Ginn et al., 2009; Sloan, 1998). Nevertheless, Sloan (1998) predicted that in the absence of competitive pressures from profit-seeking hospitals, nonprofit hospitals would be more community oriented. In this model, nonprofits maximize profits and "pecuniary gains" to favored
staff. Researchers argued that physicians and medical staff play a significant role in decision making and are more capable of directing profits from community benefit to their favor (Feldstein, 1999; Horwitz & Nichols, 2009; Pauly & Redisch, 1973; Sloan, 1998; Sloan 2000).

**Conceptual Framework**

This work model is based on two directional conceptual frameworks. We assume that hospital behavior and its community orientation is shaped as a result of multiple interacting factors. Initially, the study assumes that the institutional forces through their regulative power (the federal IRS and ACA regulations) will influence organizations (private tax-exempt hospitals) to modify their actions towards CB activities. Two groups of factors that represent the demand and supply sides will affect the hospital community behavior and its CB provision. Various organizational factors that represent the supply side for CB spending include hospital type, size, location, profit margin, religious organization affiliation, and health system membership. The different community and market factors that determine the levels of need for CB programs and services include poverty, unemployment, and medically uninsured. However, the model then assumes that the economic preference of different private tax-exempt hospitals will ultimately influence the level of financial resources they allocate for the total and categorical spending to provide the CB public goods. Eventually, this is reflected on how tax-exempt hospitals manage and allocate portions of their profits, which should be directed back to and invested in their communities. Private tax-exempt hospitals with more community orientation and altruistic behaviors are committed to direct significant amounts of their CB spending to initiatives aimed to fulfill their mission, serve their communities, and improve their communities' health. This model also assumes that these targeted spending decisions should have measurable outcomes in the form of better community health indicators. Finally, this conceptual model assumes that community health indicators play a role in and can predict how tax-exempt hospitals direct and allocate their financial resources to specific community health improvement initiative activities.
Figure 1: Conceptual Framework

- **Institutional Forces**
  - IRS regulations, Affordable Care Act

- **Organizational Factors**
  - Hospital characteristics, Financial performance, Board characteristics

- **Environmental Factors**
  - Unemployment, Uninsured adults, Poverty

- **Hospital behavior and community orientation**

- **Community benefits spending**

- **Community Health Indicators**
CHAPTER 3: AMOUNTS AND TRENDS OF SPENDING ON TOTAL AND CATEGORIES OF COMMUNITY BENEFITS AND THEIR RELATIONSHIP WITH ORGANIZATIONAL AND ENVIRONMENTAL FACTORS IN PRIVATE TAX-EXEMPT HOSPITALS IN THE U.S. FROM 2010-2013

Introduction

Schedule H of the income tax Form 990 is a reliable standard tool that can be used to accurately evaluate the policies, practices, and spending on different CB activities by private tax-exempt hospitals. This tool initiated a new wave of studies that overcame the limitations of previous studies that relied on various sources and different methods to define and quantify CB activities. Although these studies were done for the first time on the national level, they focused on only one fiscal year (2009 and 2012). This timeframe severely limits our understanding of how the shifting organizational and environmental factors affect the way tax-exempt hospitals develop and spend on their CB activities.

A common finding in these studies is the extreme variation in spending on different CB activities by various private tax-exempt hospitals which ranged from as low as 1% to as high as 100% of their operating expenses (Ferdinand et al., 2014; Tahk, 2014; Young et al., 2013). Although researchers anticipated that the increase in the number of insured under the ACA would free some of the financial resources previously directed to charity care to community health improvement initiatives, no study was ever conducted to test this assumption (Nardin, Zallman, McCormick, Woolhandler, & Himmelstein, 2013; Singh, Bakken, Kindig, & Young, 2016; Somerville, Nelson, Mueller, & Boddie-Willis, 2013). Private tax-exempt hospitals did not provide the same levels of spending to different types of CB activities, with activities related to patient care consuming about 85% of total CB spending. Studies also found that tax-exempt hospitals did not direct enough financial resources to activities that widely affect the health and environment of their communities. For example, programs related to community health improvement activities only received about 5% of total CB spending by the hospital (Young et
Surprisingly, hospitals in communities with good health indicators spent more on community health improvement initiatives that may be explained by the availability of financial resources that would have been originally spent on direct patient care activities. Hospitals in areas with the greatest health care needs spent more on direct patient care as a percentage of their operating budgets. Researchers found a weak association between community needs and provision of CB and spending on community health improvement initiatives (Singh et al., 2015; Young et al., 2013). Geographically, hospitals in the West provide higher CB spending than hospitals in other regions of the U.S. (Young et al., 2013). Nonprofit hospitals with a religious affiliation were found to have more community engagement and provide more CB spending than other nonprofit hospitals without this religious affiliation (Ferdinand et al., 2014).

**Methods and materials**

**Study Design**

This study utilized a retrospective longitudinal design. The study covered the period from 2010 through 2013 following the enactment of the latest IRS and ACA reporting regulations. Consistent with previous studies, the community and market of a hospital were defined as the county where it is located (Bazzoli et al., 2010; Singh et al., 2015; Young et al., 2013). The 2010 data was used as the reference year for all analyses.

**Study Sample**

The study cohort included all individual nongovernmental private tax-exempt hospitals in seven states located in all four Census regions in the U.S. Those seven states are Kentucky, Minnesota, Mississippi, Nebraska, New Hampshire, New Mexico, and Virginia. These states were selected based on their poverty rates. We elected the use of poverty as the primary state selection criterion since it is a more stable economic indicator. Another reason was based on the assumption that hospitals are granted tax exemption status to support the poor and the indigent. Based on the American Community Survey (ACS) 2009-2013 five-year estimates, the three states with the highest poverty rates are Mississippi (22.7%), New Mexico (20.4%), and Kentucky.
(18.8%), while the three states with the lowest are New Hampshire (8.7%), Virginia (11.3%), and Minnesota (11.5%). Nebraska, with a poverty level of 12.8%, was added to increase the generalizability of the results and its proportionally large rural population. New Hampshire represents the Northeast Census Region, Kentucky, Mississippi, and Virginia represent the South region, Minnesota and Nebraska represent the Midwest region, and New Mexico represents the West region (U.S. Census Bureau, 2015). Certain states were omitted from the list of states with lower poverty rates due to various reasons. Alaska and Hawaii were excluded from the list of due to their particular economic standards. Maryland, Connecticut, New Jersey, and Massachusetts were excluded due to their special geographic characteristics and limited rural areas. From the list of states with the highest poverty rates, Arkansas and Louisiana were omitted due to their close similarity to Mississippi.

Our unit of analysis is the individual private tax-exempt hospital. A tax-exempt hospital was defined as any hospital that existed when both of the IRS and ACA rulings were implemented and maintained its 501(c)(3) status over the study period. We included all hospitals that have a 501(c)(3) tax-exempt status in those seven states with no restriction on their location, the scope of services, size, hospital system membership, or affiliation with the religious organization. We defined a system as hospitals that have two or more independent facilities following the AHA classification. Religious organization affiliation was defined as any tax-exempt hospital with any Judeo-Christian ownership, control, or management. Our study sample included acute care, critical access, acute long-term care, children, psychiatric, rehabilitation, long-term, primary care, and specialty hospitals. We included every hospital that submitted its tax form for at least three of the four years during the period of the study.

**Data Sources**

The primary source for the hospitals' CB policies, practices, and financial data was the hospitals' revised IRS income tax Form 990 for the years 2010 through 2013 which include data
on board characteristics, financial performance, Community Health Needs Assessment activities, financial assistance policies, and satellite and management facilities. We selected the study period starting in 2010 since this was the first year that the amended ACA reporting regulations were implemented. The year 2013 was the last year all income tax Form 990 was available for every hospital included in the study.

This study utilized several publicly available data sources. To select states based on their poverty levels, we used the American Community Survey (ACS) 2009-2013 five-year estimates through the United States Census Bureau Fact Finder website (http://factfinder.census.gov/). We selected three states with the highest poverty rates and four states with lowest poverty rates. We then used the American Hospital Association (AHA) Annual Survey to identify tax-exempt hospitals within each of the selected states. Data about the size (number of beds), type of control and services provided by every hospital were derived from the same survey. We used multiple databases and sources to update, complete, and verify the status of hospitals (i.e., the Henry J. Kaiser Family Foundation website (http://kff.org/), the Dartmouth Atlas of Health Care website (http://www.dartmouthatlas.org/), state websites like Virginia Health Information (http://www.vhi.org/default.asp), Kentucky Hospital Association (http://www.kyha.com/) and Minnesota Hospital Association (http://www.mnhospitals.org/).

Three different publicly available online sources were then used to collect, verify, and complete the income tax Form 990 for the identified hospitals. These websites are GuideStar (http://www.guidestar.org/), Economic Research Institute (http://www.eri-nonprofit-salaries.com/), and Foundation Center (http://foundationcenter.org/). There were inconsistencies in the data obtained from these sources as well those reported on the AHA Annual Survey including different hospitals’ names. To overcome these problems, we used the Employer Identification Number (EIN), the name of the organization, "Doing business as" name as well as the address to confirm the tax forms for different hospitals. The types of tax-exempt hospitals
were verified using the National Taxonomy of Exempt Entities (NTEE) code (http://nccs.urban.org/index.cfm). Another data source, the 2003 and 2013 US Department of Agriculture Rural-Urban Continuum Codes (RUCC) (http://www.ers.usda.gov/data-products/rural-urban-continuum-codes.aspx) was used to classify counties where hospitals were located. We also used data sources from the American Hospital Directory (https://www.ahd.com/) and the Hospital and Nursing Home Profiles (http://www.hospital-data.com/index.html) to update, verify, and complete the hospital data. In addition, we used the County Health Rankings & Roadmaps files (www.countyhealthrankings.org) to include additional demographic information about the counties where these hospitals were located. Local community attributes were completed, updated, and verified using the Area Health Resource Files (AHRF) (http://ahrf.hrsa.gov/download.htm).

We combined all data to create a complete profile for each hospital that aggregated the CB policies, practices, spending variables, institutional attributes, and community and environmental characteristics. The original data set included 356 hospitals. After data management and excluding hospitals that did not fulfill the inclusion criteria, the final sample included 328 private tax-exempt hospitals in the seven states.

**Variables**

**Dependent Variables**

We aggregated all nine CB spending categories on Form 990 into four response variables. Spending on these activities is reported on the tax form in total dollar amounts and as a percentage of the total hospital expenses. We used the percentages of spending on the four CB categories as our response variables in the analytical models, which was calculated by dividing the total net reported spending amount for each activity by the reported total expenditure by each hospital for the same year (following the model of Singh et al., 2015; Young et al., 2013). The four dependent variables are:
1- Total community benefits spending (as a percentage of total facility spending): is the sum of net hospital spending on all 9 CB categories reported on the income tax Form 990 for each fiscal year divided by the total expenses of the facility for the same fiscal year.

2- Direct patient care spending (as a percentage of the total facility spending): is the sum of net hospital spending on the four categories that pertain to providing medical services divided by the total expenses for the same fiscal year. These categories include financial assistance at cost/charity care (subsidized care for eligible patients), unreimbursed Medicaid, unreimbursed costs of means-tested government programs, and subsidized health services (clinical services provided at a financial loss).

3- Community health improvement initiatives spending (as a percentage of the total facility spending): is the sum of net spending on the three activities that pertain to improving the community health. These categories include community health improvement services (activities aimed at improving community health) and cash and in-kind contributions for community benefit (contributions to any community benefit activity), and community building activities divided by the total expenses for the same fiscal year.

4- Health profession education and research spending (as a percentage of total facility spending): is the sum of net spending on services directed to research and health profession education divided by the total expenses for the same fiscal year.

**Independent Variables**

Several organizational and environmental factors were included in the analysis. These characteristics help us understand the differences between the types of hospitals and are central determinants of how tax-exempt hospitals allocate and direct their financial resources to the different CB activities. Previous research examined the relationship between similar organizational and environmental factors and CB spending (Alexander et al., 2009; Ferdinand et al., 2014; Young et al., 2013). These variables include:
Organizational Variables

1- Hospital size: hospitals were categorized into three groups (large, medium, and small) based on the number of their inpatient beds and their county RUCC classification.

2- Religious organization Affiliation: we adopted the AHA classification of hospitals, and thus we classified hospitals in this study into two groups: whether they are owned, controlled, or managed by a religious organization (mainly Christian or Jewish) or not.

3- Hospital system membership: following the AHA classification, hospitals were classified into two groups: whether they are a member of a hospital system or independent. We defined a system as hospitals that have two or more separate facilities.

4- Type: hospitals were categorized into three major types based on the services they provide (acute care, critical access, and specialty hospitals). Specialty hospitals included all hospitals that focus on medical needs of a particular patient group or provide limited medical services including children, psychiatric, and long-term hospitals.

5- Profit margin: the financial data reported on the income tax Form 990 do not allow for accurate calculation of the profit margin. We used the method used by previous researchers which measure profit margin as total revenue - total expense as a percentage of total revenue. It was used as a predictor reflecting the institutions' ability to support their CB spending.

6- Number of independent members on the board of directors: tax-exempt hospitals report on their 990 tax forms the total number of their board members and the number of independent members of the board. Our original model included both numbers, but due to high collinearity, we decided to use the number of independent members of the board as an indicator of community representation on the board.

7- Levels of federal poverty guidelines used to determine eligibility for free care: hospitals report on their income tax Form 990 the levels of FPG that they use to determine eligibility for free and discounted care. Due to the high collinearity between those two
variables we decided to use the levels used to provide free care since more hospitals reported using it.

**Other Covariates**

8- Unemployment Percentage: these were derived from the County Health Rankings & Roadmaps files.

9- Medically uninsured adults’ percentage: these were added from the County Health Rankings & Roadmaps files.

10- Poverty rates: these were derived from the corresponding year US Census Small area estimates.

11- Location: we used the 2003 and 2013 RUCC to classify counties where facilities are located. Counties were urban if they have the codes 1, 2, and 3 or rural if they have the codes 4 through 9. Based on the 2013 RUCC classification, six counties changed from rural to urban.

12- State: examined differences in spending between the seven states.

13- Year of the 990 income tax form: We had four years of tax forms 2010, 2011, 2012, and 2013. Fiscal years differed for most hospitals, but can be grouped into years starting on 1/1 and ending on 12/31, starting on 7/1 and ending on 6/30, and starting on 10/1 and ending on 9/30.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Type</th>
<th>Definition</th>
<th>Data Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent variables (Response)</strong></td>
<td></td>
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</tr>
<tr>
<td>Total Community Benefits Spending</td>
<td>Numerical</td>
<td>As a percentage of total facility expenses</td>
<td>Tax Form 990</td>
</tr>
<tr>
<td>Direct Patient Care Spending</td>
<td>Numerical</td>
<td>As a percentage of total facility expenses</td>
<td>Tax Form 990</td>
</tr>
<tr>
<td>Community Health Improvement Initiatives Spending</td>
<td>Numerical</td>
<td>As a percentage of total facility expenses</td>
<td>Tax Form 990</td>
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<tr>
<td>Medical Education and Research Spending</td>
<td>Numerical</td>
<td>As a percentage of total facility expenses</td>
<td>Tax Form 990</td>
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<tr>
<td><strong>Independent variables (Predictors)</strong></td>
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<td><strong>Facility level characteristics</strong></td>
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<td>Hospital size</td>
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<tr>
<td>Number of independent members on the board</td>
<td>Numerical</td>
<td>Number of independent members on the board of directors</td>
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<td>Levels of federal poverty guidelines used to determine eligibility for free care</td>
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<td>Log number (e.g. 100, 150, 500)</td>
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<tr>
<td><strong>Other Covariates</strong></td>
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<tr>
<td>Medically uninsured adults percentage</td>
<td>Numerical</td>
<td>Percentage of population &lt; age 65 without health insurance</td>
<td>US Census Bureau, SAHIE</td>
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<td>Unemployment percentage</td>
<td>Numerical</td>
<td>Percentage of population age 16+ unemployed</td>
<td>Area Health Resources Files</td>
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<td>Poverty rates</td>
<td>Numerical</td>
<td>Percentage of population below the poverty level</td>
<td>US Census Bureau</td>
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<td>Tax Form 990 and AHA data</td>
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</tr>
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</table>
States have different requirements for CB reporting by private tax-exempt hospitals. While some states adopt voluntarily reporting policies, others require different forms of reporting (Somerville et al., 2013). In some states, reporting may require only charity care expenditures, while others require submitting the hospital’s policy for free and discounted care and patients income level, an annual report, or a plan. Accordingly, we also could not test the effect of state CB reporting requirements since hospitals were located in states that require either mandatory, (Mississippi, New Hampshire, and New Mexico), voluntary (Kentucky and Nebraska), or mandatory and voluntary (Minnesota and Virginia) community benefit reporting (Hellinger, 2009; Somerville et al., 2013). We also did not test the effect of teaching hospital status due to the small number of teaching hospitals in our sample.

Data Analysis and Analytical Approach

We reported descriptive statistics for hospital characteristics and each of the four major CB spending categories. For the categorical variables, we calculated the frequencies and percentages. For the continuous variables, we checked for normality, collinearity, and outliers and calculated maximums, minimums, means, medians, interquartile ranges, and standard deviations. Community benefits (CB) were defined as all the categories specified by the IRS and included in Part I-7 and Part II of Schedule H of the income tax Form 990. They include two major groups: 1- Financial Assistance and Certain Community Benefits at Cost, and 2- Community Building Activities. We used the Consumer Price Index inflation calculator (CPI) for the U.S. to adjust nominal spending for each of the four years to 2016 dollars (Bureau of Labor Statistics, 2016). We treated fields of CB spending that were not reported on Schedule H as zero values not as missing data.

Statistical models were developed to examine the association between various organizational and environmental characteristics and each of the four CB spending categories. Those four categories included: direct patient care (Financial Assistance at cost, Unreimbursed
Medicaid, Unreimbursed costs-other means-tested government programs, and Subsidized health services), community health improvement initiatives (Community health improvement services, Cash and in-kind contributions to community groups, and community building activities), and medical education and research (Research and Health professions education), as well as the total CB spending. We used the percentages of spending on the four CB response variables instead of the actual dollar amounts due to various reasons including the fact that the IRS is interested in the percentage of spending on CB of the total hospital spending and not the dollar amounts spent. Another reason being the common practice within financial studies to use the percentage when comparing spending between institutions. Lastly, to standardize the spending on all four CB categories since there were extreme variations in spending in inflation-adjusted terms, which ranged from few thousand to hundreds of millions of dollars. SAS/STAT software (V 9.4) was used to execute the analyses. A p-value of ≤ 0.05 was considered statistically significant.

Generalized linear mixed models (SAS procedure GLIMMIX) were used to examine the effects of predictor variables including institutional variables (hospital size, religious organization affiliation, health system membership, type of service, year of CB spending, location, state, levels of FPG used to determine eligibility for free care, profit margin, and number of independent members on the board) and environmental variables (unemployment, uninsured adults, poverty) on two of the response variables, spending total CB and direct patient care. P values from type III F tests were used to examine significance of each factor. Least square means for each of the classification factors were computed from the statistical model.

With the lack of minimal federal and state limits for spending, multiple organizational and environmental factors may compel hospitals to opt not to spend on certain CB activities. Cook and colleagues developed a statistical model, zero-inflated beta model that overcame some of the specification errors recognized in other models studying data with a mass point at zero (Cook, Kieschnick, & McCullough, 2008). This model recognizes that using a certain form of financing by different organizations is influenced by various sets of variables or influenced
differently by particular factors. Ultimately, the organization decides the approach and amounts of financing. We used this 2-part regression analytical model with random effects (SAS procedure NLMIXED) for two of the response variables, community health improvement activities and medical education and research spending. The analytical model is synthesized in the following formulae:

The linear predictor \( lp \) to estimate coefficients is shown in the following formula:

\[
lp = \logit(y) = \log\left(\frac{y}{1-y}\right) = b_0 + b_1 x_1 + b_2 x_2 + \cdots + b_p x_p + \epsilon_n
\]

The individual predicted mean values were estimated using the following formula:

\[
y = \frac{1}{1 + e^{(-lp)}}
\]

Where \( b_0, b_1, b_2 \ldots b_p \) are the regression coefficients and \( x_i \) are the explanatory variables. Separate models were used for each spending category.

**Results**

**Descriptive Findings**

The total number of nongovernmental private tax-exempt hospitals in our study sample was 328 located in seven states: 79 in Kentucky, 86 in Minnesota, 27 in Mississippi, 48 in Nebraska, 25 in New Hampshire, 16 in New Mexico, and 47 in Virginia. Table 2 shows the different characteristics of hospitals included in this study. These hospitals include two hundred and two (67%) independent hospitals and forty-six (14%) hospitals with religious organization affiliation. There are one hundred eighty-three (56%) rural hospitals, one hundred forty-two (43%) large hospitals, and ninety-six (21%) medium hospitals. Based on their type, there are two hundred and four (62%) acute care hospitals and ninety-seven (30%) critical access hospitals.
### Table 2: Characteristics of Private Tax-Exempt Hospitals

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Number (n=328)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hospital-system membership</strong>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Member</td>
<td>126</td>
<td>38%</td>
</tr>
<tr>
<td>Independent</td>
<td>202</td>
<td>62%</td>
</tr>
<tr>
<td><strong>Geographic location</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>183</td>
<td>56%</td>
</tr>
<tr>
<td>Urban</td>
<td>145</td>
<td>44%</td>
</tr>
<tr>
<td><strong>Hospital size</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small</td>
<td>117</td>
<td>36%</td>
</tr>
<tr>
<td>Medium*</td>
<td>69</td>
<td>21%</td>
</tr>
<tr>
<td>Large*</td>
<td>142</td>
<td>43%</td>
</tr>
<tr>
<td><strong>Religious organization affiliation</strong>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affiliated</td>
<td>46</td>
<td>14%</td>
</tr>
<tr>
<td>Not affiliated</td>
<td>282</td>
<td>86%</td>
</tr>
<tr>
<td><strong>Type (328)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACH**</td>
<td>204</td>
<td>62%</td>
</tr>
<tr>
<td>CAH**+++</td>
<td>97</td>
<td>30%</td>
</tr>
<tr>
<td>Specialty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Children</td>
<td>9</td>
<td>--</td>
</tr>
<tr>
<td>Psychiatric</td>
<td>4</td>
<td>--</td>
</tr>
<tr>
<td>Rehabilitation</td>
<td>7</td>
<td>--</td>
</tr>
<tr>
<td>Long term care</td>
<td>7</td>
<td>--</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>--</td>
</tr>
</tbody>
</table>

* Hospital-system membership refers to hospitals that are part of a multihospital system, two or more.

** Based on the RUCC classification. Six counties changed from rural to urban in the 2013 RUCC classification.

*** Religious organization affiliation refers to hospitals that are owned or operated by a religious organization, mainly Christian or Jewish.

* With six counties changing from rural to urban in the 2013 RUCC classification, the size of five of the hospitals in these counties changed accordingly; two changed from large to medium, two from medium to small, and one from large to small. The classification of the sixth hospital did not change.

** Acute care hospital.

*** Critical access hospital.

The size of the Board of Directors varied considerably. It ranged from as small as three members to as large as 75 members with an average of 13 board members. The number of independent members of the Board of Directors ranged from 0 to 49 with a mean number of 10.

Figure 1 demonstrates the frequencies and different levels of FPG used by hospitals in this study to determine eligibility for free health care services. The levels used by hospitals in this study to determine eligibility for free medical services ranged from 71% to 500% (average 172%) of the FPG. A majority of hospitals used the FPG below the 249%. FPG used to determine eligibility for reduced medical care ranged from 100% to 600% (average 292%). Over the four years, fifty-five
(16.8%) hospitals did not report using federal guidelines to determine eligibility for free care, while 121 (36.8%) hospitals did not report using federal guidelines to determine eligibility for reduced care. Within the group of hospitals using the 100%-149% range of FPG to determine eligibility for free care, 69.8% were independent, 79.2% were rural, 42.4% were large size and 15.1% were medium size, 56.6% were ACH and 41.5% were CAH, and 7.5% were hospitals with religious affiliation. Of those, 33% were in KY, 23.5% were in MN, 9.4% were in MS, 17.9% were in NE, 1.9% were in NH, 1.9% were in NM, and 12.3% were in VA. Within the group of hospitals using the 200%-249% of the FPG to use eligibility for free care 66.7% were independent, 57% were urban, 44.1% were large and 25.2% were medium size, 68.1% were ACH and 24.4% were CAH, and 9.6% were hospitals with religious affiliation. Of those, 19.3% were in KY, 17.8% were in MN, 6.7% were in MS, 7.4% were in NE, 14.1% were in NH, 3% were in NM, and 24.4% were in VA.

Figure 1: Frequencies of Hospitals Free Care Eligibility Levels

*These levels represent thresholds above which individuals will not be eligible for free care. Individuals with lower income levels would qualify for free care.

Figure 2 displays the number and percentages of hospitals that reported net profit or loss over the study period. In 2010, 262 (81.1%) hospitals had a positive profit margin, of those, 144 (44.5%) had a profit margin of 5% or more with a mean profit margin of 9.17%. In 2011, two
hundred sixty (79.3%) had positive profit margin, of those, 131 (50%) reported a profit margin of 5% or more with an average profit of 9.5%. In 2012, the number of hospitals that reported positive profit margin decreased slightly to two hundred fifty-two (76.8%), however, 141 (55.9%) of those reported a profit margin of 5% or more with an average profit margin of 10.32%. The year 2013 witnessed a further slight decrease in the number of hospitals with a positive profit margin to two hundred forty-two (74.2%) hospitals. Nevertheless, 150 (61.9%) reported their profit margin at or more than 5% with a mean profit margin of 10.83%. Tax-exempt hospitals that reported net operating losses increased from 61 in 2010 to 68, 76, and 84 for the years 2011, 2012, and 2013, consecutively. Over the four years, 138 (~42%) hospitals reported negative profit margins.

Figure 2: Hospitals Reporting Net Profit or Loss

![Figure 2: Hospitals Reporting Net Profit or Loss](image)

Over the four years 2010-2013, 19 hospitals reported receiving more direct offsetting government payments than what they spent. Figure 3 displays the frequency and percentages of the numbers of hospitals that did not report spending on each of the CB categories, a hospital may report not spending on more than one category at any given year. Only 5 hospitals (1.5%) did not report spending on financial assistance at cost (charity care) over the 4 years, while 36 (11%) did not report spending on unreimbursed Medicaid. Two hundred and ninety hospitals (88.4%) did
not report spending on unreimbursed costs for other means-tested government programs like SCHIP (State Children’s Health Insurance Program). Of those, 67% were independent, 58% were rural, 42% were large size, 21% were medium size, 62% were acute care, and 30% were critical access hospitals. Sixty-seven (20.4%) did not report spending on community health improvement services and community benefit operations and 126 (38.4%) did not report spending on health professions education. One hundred seventy seven (54%) did not report spending on subsidized health services. Of those, 65% were independent, 61% were rural, 40% were large, 21% were small, 57.6% were acute care, and 33% were critical access hospitals. Two hundred Sixty-six (81%) did not report spending on research. Of those 68% were independent, 64% were rural, 415 were large size, 19% were medium size, 59% were acute care, and 35% were critical access hospitals. One hundred twenty six (38.4%) did not provide cash and in-kind contributions to community groups, and 160 (48.8%) did not report spending on community building activities. When aggregated into the three main spending categories we found that only 1 (0.3%) hospital did not report on direct patient care, 50 (15.2%) hospitals did not report spending on community health improvement initiatives, and 127 (38.7%) did not report spending on medical education and research.

Slightly more than half of the hospitals in our sample conducted their community health initiative assessment (CHNA) in 2012 (n=177, 55%), one year in advance of the ACA time limit. Ninety-eight (30%) conducted theirs in 2013, 34 (11%) started theirs in 2011, 5 (1.5%) started theirs in 2010, Only 3 (0.9%) hospitals started conducting their CHNA in 2007, and another 3 (0.9%) 2008, two (0.6%) hospitals started theirs in 2009. Six (1.8%) hospitals did not report on their CHNA. Only 23 (7%) hospitals reported conducting multiple needs assessment before 2013.
Two of the socioeconomic indicators used in this work improved during this study period. Unemployment decreased in all seven states. Between 2010 and 2013 unemployment fell by more than 2% in three states; Minnesota showed the largest decline of 2.4% from 7.3% to 4.9%, Kentucky from 10.3% to 8.1% (2.2%), and Mississippi had a 2.1% decrease from 10.9% to 8.8%. Virginia had a 1.9% reduction in unemployment from 7.5% to 5.6% while New Mexico had a 1.3% decrease from 8.5% to 7.7%. Nebraska and New Hampshire had 0.7% decrease from 4.8% to 4.1% and from 5.9% to 5.2%, respectively. The percentage of unemployment in counties where private tax-exempt hospitals in this study were located ranged from as low as 2.4% (Nebraska) to as high as 19.4% (Mississippi) (US Department of Labor, 2017).

Percentages of adult individuals without health insurance also decreased across the seven states over the study period. Mississippi came first with a 1% reduction from 21% to 20%. Virginia and Minnesota showed reductions of 0.8% where the percentages dropped from 14.8% to 14% and from 10.3% to 9.5%, respectively. Kentucky and New Mexico had the same 0.7% decrease, where it dropped from 17.5% to 16.8% in Kentucky and from 22.6% to 21.9% in New Mexico. Nebraska had only 0.5% decrease, from 13.4 to 12.9%. New Hampshire had a slight
reduction of 0.2% from 13 to 12.8%. However, there were extreme county variations in the levels of uninsured that ranged from as low as 7.4% (Minnesota) to as high as 41% (Mississippi) (U.S. Census, 2016).

Percentages of individuals in Poverty showed a mixed pattern over the study period. Overall, parentage of individuals in poverty increased in the seven states in 2011 and 2012 compared to 2010. However, it improved in 2013 compared to 2011 and 2012, but not 2010 rates. Mississippi was the only state where poverty increased in 2013 compared to 2010, 23.9% and 22.4% respectively. In Kentucky and Minnesota, it increased initially but in 2013 was lower than in 2010, 18.8% vs. 18.9% and 11.2% vs 11.5% in Kentucky and Minnesota in 2013 vs 2010 respectively. In other states, it increased in 2011 and 2012 compared to 2010 but the improvement in 2013 did not achieve the 2010 percentages. The three states with the highest poverty rates in descending order are Mississippi (22.7%), New Mexico (20.4%), and Kentucky (18.8%) while the four states with the lowest in ascending order were New Hampshire (8.7%), Virginia (11.3%), Minnesota (11.5%), and Nebraska (12.8%). However, in counties where hospitals in this study are located poverty rates ranged from as low as 2.9% (Virginia) to as high as 42.8% (Kentucky)

**Spending on All CB Activities**

Figure 4 shows the number and percentage of hospitals and their levels of total CB spending as a percentage of total hospital expenses from 2010-2013. In 2010, 216 (67%) hospitals spent more than 5% of their total hospital expenditures on total CB spending and this number increased to 239 (73%) in 2011 and to 246 (75%) in 2012. There was a slight decrease in the number providing this range of spending in 2013, 240 (74%). Hospitals that spent in the range between 3% and 4.99% of their total hospital expenditure on total CB were 62 (19%) in 2010, 43 (13%) in 2011, 46 (14%) in 2012 and 51 (16%) in 2013. The hospitals that spent between 0.01%
and 2.99% totaled 36 (11.1%) in 2010, 36 (11%) in 2011, 25 (7.6%) in 2012, and 26 (8%) in 2013.

Figure 4: Numbers and Percentages of Hospitals and Their Levels of Total Community Benefit Spending as a Percentage of Total Hospital spending 2010-2013

Tables 1 and 2 of the Appendix show the nominal and inflation adjusted spending by all hospitals on all CB categories and spending on each category as a percentage of total hospital expenses and all CB spending. Figures 5 and 6 show the nominal, inflation-adjusted and percentage of spending of total hospital expenses on the four CB groups by all hospitals in the study over the four years. In inflation-adjusted terms, tax-exempt hospitals in these seven states collectively spent $3.89 billion on all CB categories in 2010. This amount increased to $4.46 billion in 2011, $4.67 billion in 2012 and 2013, about 20.1% increase from the base year. As a percentage of the hospitals' total expenses, these amounts accounted for 7.93% in 2010, 8.98% in 2011, 9.11% in 2012, and 8.94% in 2013, a 1.01% increase from 2010. The average spending followed the same trend increasing from $12 million in 2010 to $13.6 million in 2011, to $14.2 million in 2012, and to $14.3 million in 2013, an estimated 19% increase from 2010. Marked variation in total CB spending existed between different tax-exempt hospitals throughout the study period. In inflation-adjusted terms, total CB spending ranged from as high $170 million in
2013 and as low as $18,632 in 2010 (both by two different hospitals in Minnesota). As a percent of total expenses, hospitals spent as high as 33% and as low as 0.05% of their total expenses on all CB activities.

Numerically, direct patient care dominated spending among all three major spending groups accounting for about 80% of the total CB spending for each of the four years. In inflation-adjusted terms, direct patient care increased from $3.03 billion in 2010 to $3.77 billion in 2013, an estimated 24.4% increase over the study period. The average spending also increased, ranging from $9.3 million in 2010 to $11.5 million in 2013, a 23.3% increase from 2010. These amounts accounted for 6.17% of total spending in 2010 and increasing to 7.21% for 2013. Spending on this category ranged from as low as $2,200 dollars to as high as $139 million. As a percentage of total hospital spending, it ranged from 0.02% to 32.18%. Among the four categories included in direct patient care, unreimbursed Medicaid was the highest spending activity. It increased from $1.29 billion in 2010 to $1.62 billion in 2011 to $1.77 billion in 2012 and to $1.88 billion in 2013, about 45% increase from 2010. As a percent of all CB spending, it showed steady upward trend rising from 33.37% in 2010 to 40.27% in 2013. In inflation-adjusted terms, these amounts ranged from about $2,500 to $99 million. The average spending on this CB category also showed an upward trend increasing from $4 million in 2010 to $5.7 million in 2013. Charity care was the second highest spending activity related to direct patient care showing some fluctuation over the four years. In inflation-adjusted terms, aggregate spending on charity care increased from $1.15 billion in 2010 to $ 1.26 in 2011 and 2012; however, it decreased slightly to $1.2 billion in 2013. As a percentage of total CB spending it showed a steady minimal decline from about 29% in 2010 to about 25% in 2013.

Descriptively, spending on medical education and research was $489 million in 2010 and increased to $554 million in 2013, about 13.2% increase from the base year. Average spending increased from $1.5 million in 2010 to $1.7 million in 2013. The amount of spending only
accounted for slightly more than 1% of total hospital expenses for each of the study years.

Spending on this activity ranged from less than a hundred of dollars to as high as $61 million, or from as low as 0.0001% to as high as 18% of total hospital expenses.

Figure 5: Inflation-Adjusted Annual Spending on Community Benefit Categories 2010-2013

In inflation-adjusted terms, community health improvement initiatives had the smallest amount of spending, showing mild fluctuation over the study period. Private tax-exempt hospitals spent $372, $380, $387, and $350 million in 2010, 2011, 2012, and 2013, respectively, adjusted for inflation rates. The average spending was slightly more than one million for each year and was less than 1% of total hospital expenditures. Spending on this category ranged from as few as $200 to as high as $57 million or as low as 0.0001% to as high as 11% of total hospital spending. As percentage of total CB spending this category showed steady minimal decline changing from 9.56% in 2010 to 7.49% in 2013. Spending on this activity in 2013 was 5.9% less than spending in 2010.
Figure 6: Nominal, Inflation-Adjusted, and Percentage of Spending on Total and Different Categories of Community Benefits for the Seven States 2010-2013

<table>
<thead>
<tr>
<th>Category</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Total Community Benefit Spending</td>
<td>3.54 Billion</td>
<td>4.17 Billion</td>
<td>4.44 Billion</td>
<td>4.54 Billion</td>
</tr>
<tr>
<td>Inflation-Adjusted Total Community Benefit Spending</td>
<td>3.89 Billion</td>
<td>4.46 Billion</td>
<td>4.67 Billion</td>
<td>4.67 Billion</td>
</tr>
<tr>
<td>Total Community Benefit Spending as Percentage of Total Hospital Expenses</td>
<td>7.93%</td>
<td>8.98%</td>
<td>9.11%</td>
<td>8.94%</td>
</tr>
<tr>
<td>Nominal Direct Patient Care Spending</td>
<td>2.75 Billion</td>
<td>3.34 Billion</td>
<td>3.55 Billion</td>
<td>3.66 Billion</td>
</tr>
<tr>
<td>Inflation-Adjusted Direct Patient Care Spending</td>
<td>3.03 Billion</td>
<td>3.58 Billion</td>
<td>3.73 Billion</td>
<td>3.77 Billion</td>
</tr>
<tr>
<td>Direct Patient Care as Percentage of Total Community Benefit Spending</td>
<td>77.86%</td>
<td>80.20%</td>
<td>79.84%</td>
<td>80.65%</td>
</tr>
<tr>
<td>Nominal Community Health Improvement Initiatives Spending</td>
<td>338 Million</td>
<td>355 Million</td>
<td>369 Million</td>
<td>340 Million</td>
</tr>
<tr>
<td>Inflation-Adjusted Community Health Improvement Initiatives Spending</td>
<td>372 Million</td>
<td>380 Million</td>
<td>387 Million</td>
<td>350 Million</td>
</tr>
<tr>
<td>Community Health Improvement Initiatives as Percentage of Total Community Benefit Spending</td>
<td>9.56%</td>
<td>8.53%</td>
<td>8.30%</td>
<td>7.49%</td>
</tr>
</tbody>
</table>
Spending on CB Activities by Acute Care, Critical Access and Specialty Hospitals

Variations on total and percentage spending on all four types of CB activities existed between the three types of hospitals, acute care hospitals, critical access hospitals, and specialty hospitals. Tables 3 through 6 of the Appendix show the nominal and inflation-adjusted spending by the three types of hospitals on all CB categories and spending on each category as a percentage of total hospital expenses and all CB spending. In inflation-adjusted terms, critical access hospitals provided the least amounts of total and average spending. In 2010, the total CAH spending on all CB activities was $170 million, and this amount steadily increased to about $184 in 2010, $194 in 2011, and $205 million in 2013, a 20.5% increase over the four years. These values represented about 6.9% of their total expenses in 2010 and about 7.4% after that. The average spending by CAHs grew from about $1.7 million in 2010 to about $2.1 million in 2013. Specialty hospitals although represented only 8% of all hospitals, provided higher total and average spending than rural hospitals. The total amount of expenditures by these hospitals increased from about $416 million in 2010 to about $437 million in 2013, an increase of only 4.9% from the base year. These spending levels represented about 9.8% of their total expenses in 2010 and about 13% afterward. Specialty hospitals on average spent about $15 million for each of the study years. Acute care hospitals had the highest total and average spending levels increasing
from $3.3 billion in 2010 to $4 billion in 2013, a 22% increase from 2010. As a percent of their total expenses, these amounts represented about 7.8% for 2010 and about 8.8% after that. ACHs average spending increased from $16.45 million in 2010 to $19.77 million in 2013. Statistical comparisons showed that ACH provided higher mean spending on the total CB and direct patient care in 2011, 2012, and 2013, while specialty hospitals provided higher mean spending for 2010 for those two categories and community health improvement initiatives and medical education and research over the four years. Notable variations were noted regarding the three CB categories, direct patient care, community health improvement initiatives and medical education and research. Over the study period, spending on direct patient care by ACH increased by 25.1%, and by about 21% by CAH, and 20% by specialty hospitals. Over the same period, spending on community health improvement initiatives decreased by 1.61% by ACHs and by 32.1% by specialty hospitals. Spending on this activity in 2013 increased by 2.5% by CAH compared to 2010. For medical education and research spending in 2013, there was about 20% increase by ACHs and a substantial 107% increase by CAHs when compared to the base year. However, spending by specialty hospitals decreased by about 42% in 2013 compared to 2010.

**Spending on CB by Rural and Urban Hospitals**

Tables 7, 8, and 9 of the Appendix show the nominal and inflation-adjusted spending by urban and rural hospitals on all CB categories and spending on each category as a percentage of total hospital expenses. When comparing rural and urban hospitals, we found that although urban hospitals represented 44% of the total number of hospitals in this study, they spent almost double the amounts spent by rural hospitals on CB. In inflation-adjusted terms, urban hospitals spent a total of about $2.88 billion, $3.33 billion, $3.52 billion, and $3.66 billion in 2010, 2011, 2012, and 2013 respectively, about 27.2% increase from 2010. These amounts represented about 8% of their total hospital's expenses in 2010, and about 9% in the other years. Urban hospitals average spending increased from about $20 to $22 to $25 million from 2010 to 2012, but showed a slight
decrease in 2013 to $24 million. These averages were almost 3-4 times more than the average spent by rural hospitals. Hospitals in rural areas spent around $1 billion for 2010 and 2013 and about $1.1 billion in 2011 and 2012. Spending in 2013 was 0.1% less than that of 2010. These amounts represented about 7.9% in 2010, 9% in 2011 and 2012, and about 8.3% in 2013 of their total expenses. Hospitals in rural areas spent on average about $5.5-6 million for each of the four years of the study. For other CB categories, spending on direct patient care increased by about 33.8% by urban hospitals, while it showed trivial changes by rural hospitals, a 0.7% decrease. Spending on community health improvement initiatives decreased by 5.8% by urban hospitals. For rural hospitals, spending on this activity increased in 2011 and 2012 but spending in 2013 was 6.1% lower than that of 2010. Spending on medical education and research increased by about 16.4% by urban hospitals while it showed minimal change by rural hospitals, a 4.2% decrease.

**Spending on CB by Hospitals Based on Their Size**

In inflation-adjusted dollars, total CB spending varied remarkably between hospitals of different sizes, however, hospitals of all sizes increased their total CB spending compared to 2010. Tables 10 through 13 in the Appendix show the nominal and inflation-adjusted spending by different sizes of hospitals on all CB categories and spending on each category as a percentage of total hospital expenses. Large hospitals, which represent about 40% of hospitals, spent about four times more than medium sized hospitals and about six times more than small hospitals. Large hospitals spent $2.8 billion in 2010 and increased their spending to $3.3 billion in 2013, an estimated 21% increase from the base year. These amounts accounted for 7.82% of their total expenses in 2010, 8.79% in 2011, 8.88% in 2012, and 8.74% in 2013. Their average CB spending also increased from $20.15 million in 2010 to $24.53 million in 2013. Medium sized hospitals total expenditures was $721 million in 2010 and rising to $842 million in 2013, about 16.9% increase from 2010. The average spending increased by almost 18.5% over the four years of
study, increasing from $10.45 million in 2010 to $12.39 million in 2013. The percentage of total CB spending by medium size hospitals was slightly higher than the other two types (large and medium) as a percent of the total hospitals spending. These percentages were 8.83%, 9.96%, 10.12%, and 9.81% for the four consecutive years respectively. Small sized hospitals provided the minimal total CB spending compared to the other two groups. Their total CB spending was only $371 million in 2010 and increased to $448 million in 2013, an estimated 21% increase from the base year. Their average spending was about 1/6 of what large hospitals spent, and about ¼ of what medium sized hospitals spent. The total CB spending by these hospitals accounted for 7.27% of their total expenses in 2010, 8.87%, 9.15%, and 8.99% for the rest of the years consecutively. For the other CB categories and over the four year study period, spending on direct patient care increased by 23.2%, 26.6%, and 29.7% by large, medium, and small hospitals, respectively. Meanwhile, spending on community health improvement initiatives decreased by about 0.7% for large size hospitals, by about 8.7% for medium size hospitals, and by about 32.1% for small hospitals. Spending on medical education and research increased by about 22.6% by large hospitals and by 4% by small hospitals. However, it decreased by medium size hospitals by about 8.7% compared to 2010.

**Spending on CB by Hospitals with and without Religious Organization Affiliation**

Spending variations were also observed between hospitals with religious organization affiliation and those that are not. Tables 14, 15 and 16 of the Appendix show the nominal and inflation-adjusted spending by hospitals with religious organization affiliation and those which are not on all CB categories and spending on each category as a percentage of total hospital expenses and all CB spending. In inflation-adjusted terms, private tax-exempt hospitals with religious affiliation spent about $369 million in 2010 that increased to $390 million in 2011. However, these amounts decreased to $378 million in 2012 and to $376 million in 2013. These amounts accounted for about 7.08% for 2010 and 2012, and 7.48% for 2011 and 2013 of their...
total expenses. Religiously affiliated hospitals spent on average about $8 million for each of the four years. Non-religious affiliated hospitals total CB spending was notably more, ranging from $3.52 in 2010 to $4.23 billion in 2013. These spending amounts represented about 8% in 2010 but rose considerably after that to reach about 9.15% of their total hospitals spending over the remaining years. These hospitals spent on average between $12.7 million and $15.1 million over the study period. Over the four years of study and in inflation-adjusted terms, religiously affiliated hospitals increased their total CB spending by 1.83% while hospitals without religious affiliation increased their spending by 20.2%. Spending on direct patient care increased by both types of hospitals over the same period. Religious affiliated hospitals increased their spending by about 3% while non-religious affiliated hospitals increased theirs by about 24.6%. Spending on community health improvement initiatives by religious affiliated hospitals increased by about 5.8% in 2013 compared to the base year, whereas non-religious affiliated hospitals decreased its spending on this activity by about 6.7%. Spending on medical education and research decreased by religious affiliated hospitals by about 19% while spending on this activity increased by non-religious affiliated hospitals by about 14.5% over the same period.

**Spending on CB by System Member and Independent Hospitals**

Tables 17, 18 and 19 in the Appendix show the nominal and inflation-adjusted spending by system member and independent hospitals on all CB categories and spending on each category as a percentage of total hospital expenses and all CB spending. Marked spending variations existed between system member and independent hospitals. In inflation-adjusted terms, independent hospitals spent about $1.9 billion in 2010, $2.12 billion in 2011, and $2.2 billion in 2012. Slight decrease happened in 2013 to $2.15 billion, about 12.9% increase over the four years. These amounts accounted for 7.95%, 9.34%, 9.55%, and 9.43% of their total hospital's expenses for each year of the study period consecutively. Independent hospitals spent on average about $9.5 million in 2010 and about $10.5 million in the other three years. Hospitals that were
part of a healthcare system spent about $1.98 billion in 2010, $2.33 billion, $2.46 billion, and $2.5 billion in the other years, an estimated 26.2% increase from 2010. These amounts ranged between 7.91% and 8.74% of their total hospital's expenses over the study period. Hospitals in this group spent on average about $16 million for 2010, $18 million in 2011, $19 million in 2012, and about $20 million in 2013. Although system member hospitals dedicated a lesser percentage of their total expenditure to CB, nevertheless, they spent almost double the average as compared to independent hospitals. Spending on direct patient care increased by both types of hospitals in 2013 compared to 2010 by about 28.2% for system member hospitals and by 19.5% for independent hospitals. Independent hospitals decreased their spending on community health improvement activities and medical education and research by 17% and 5.8% respectively. System member hospitals on the other hand increased their spending on those two CB activities by 6.5% and 28.1%, respectively, in 2013 compared to the base year.

**Spending on CB by Hospitals in States with High and Low Poverty rates**

When we compared hospitals in states with high poverty rates (Mississippi 22.7%, New Mexico 20.4%, and Kentucky 18.8%) to states with low poverty rates (New Hampshire 8.7%, Virginia 11.3%, Minnesota 11.5%, and Nebraska 12.8%), using inflation-adjusted terms, we found mixed results. Hospitals in low poverty states spent about $2.89 billion in 2010, $3.24 billion in 2011, $3.47 billion in 2012 and $3.45 billion 2013, an estimated 4.9% increase from 2010. These expenditures accounted for 8.47%, 9.36%, 9.62%, and 9.32% of their total hospitals' spending for each of the four years of the study consecutively. Hospitals in high poverty states spent about $1 billion, $1.22 billion, $1.19 billion, and $1.21 billion in 2010, 2011, 2012, and 2013 respectively, a 21.7% increase from the base year. These spending amounts accounted for 6.69%, 8.13%, 7.88%, and 7.95% of all their hospital expenses during the study period. Hospitals in states with low poverty also provided higher average spending. Whereas the average spending of tax-exempt hospitals in states with low poverty was about $14.1 million, $15.7 million, and
$16.8 million in 2010, 2011, and 2012 and 2013 respectively, the average was almost half of that in states with high poverty rates. Hospitals in states with higher poverty spent on average about $8.41 million, $10 million, and $ 9.78 million for 2010, 2011 and 2013, and 2012 respectively. Remarkably, hospitals in states with low poverty rates provided higher percentages of their total hospitals’ spending to CB activities than those in states with higher poverty rates, 9.19% vs 7.66% over the four years, respectively. Not surprisingly, hospitals in states with low poverty provided higher percentages of their total CB spending to medical education and research and community health improvement activities 12.13% vs 11.28% and 8.7% vs 7.86%, respectively, while hospitals in states with high poverty rates provided higher percentage of their total CB spending to direct patient care activities, 80.87% vs 79.17% as an average over the four years. Spending on direct patient care increased by hospitals in both regions, it increased by about 22.4% in states with low poverty rates and by 28.8% in states with high poverty rates in 2013 compared to 2010. Spending on medical education and research also increase in both types of states, however it was remarkably higher in states with low poverty rates 17.1% vs 3.1% in high poverty rate states. Spending on community health improvement initiatives decreased in both types of states but with different proportions, 12.6% vs 3.2%, in states with high poverty rates vs states with low poverty rates, respectively.

**Spending on CB by State**

In all seven states, total CB spending increased over the four years of this study. Nevertheless, spending on total and different categories of CB varied substantially between the seven states. Tables 20 through 30 of the Appendix show the nominal and inflation-adjusted spending in each state over the four years of study and percentage spending on each category. The biggest increase in total CB spending was in New Mexico. In inflation-adjusted terms, spending on total CB grew by 95.7% from $121 million to $ 236 million in 2010 compared to 2013, respectively. However, spending on direct patient care increased by 106% and spending on
medical education and research increased by 177% while spending on community health improvement activities decreased by 15.7%. Notably, none of the hospitals in this state included in this study spent any dollars on research over the same four years. Average spending in New Mexico increased from $7.5 million in 2010 to $14.8 million in 2013. The state with second largest increase in spending on total CB was Minnesota. After adjusting for inflation, spending on total CB increased from $1.1 billion in 2010 to $1.4 billion in 2013, an estimated 27.5% increase. The average hospital spending in this state grew from about $13 million to about $16.4 million from 2010 to 2013. Direct patient care services spending experienced a 29.1% increase, medical education and research spending grew by 26%, and spending on community health improvement categories grew by 12.2%. Mississippi was the next state with total CB spending increase. After adjusting for inflation, total CB spending in Mississippi grew from $92 million to $113 million from 2010 to 2013, about 23% increase. However, most of this increase went to direct patient care spending which increased by 27.4%. Spending on medical education and research increased by only 1.1% while spending on community health improvement activities decreased by 1.2%. In Virginia, spending on total CB grew by 18.9% from $851 million to $1.01 billion after adjusting for the 2016 inflation rates in 2013 compared to 2010. Spending on direct patient care, medical education and research, and community health improvement initiatives grew by 21%, 15.6%, and 2.8%, respectively. The average hospital spending on total CB in this state increased from $19.8 million to $22 million. This was the highest average hospital spending in all states. Nebraska had about 13.8% increase in total CB spending over the study period, from $450 million to $512 million. The average hospital spending grew from $9 million to $10.6 million. Spending on direct patient care increased by 23.7% and medical education and research increased by 5.8%. On the other hand spending on community health improvement activities decreased by 12.8%. In inflation-adjusted terms, total CB spending in Kentucky increased by 10.2% over the study period from $788 million to 868 million. The average hospital spending increased from $ 10 million to $11.1 million. Spending on direct patient care over the same period grew by 15.7%, while
spending on medical education and research decreased by 3.7% and spending on community health improvement activities decreased by 13.6%. Total CB spending in New Hampshire showed the smallest increase, an estimated 5.9% from 2010 to 2013. In inflation-adjusted terms, spending on total CB increased from $477 million to $506 million. Spending on direct patient care increased by 9.7% while spending on medical education and research decreased by 6.8% and on community health improvement initiatives decreased by 16.6% in 2013 compared to 2010.

When we examined the patterns of spending on different categories in each state, we noted some interesting differences. Most states had an average spending on total CB as percentage of total hospitals’ expenses in the range of 8-9%, except for two states; Mississippi had an average of 3% while New Hampshire had an average of 12%. Spending on direct patient care accounted for about 80% of total CB spending in most states, except for Nebraska where it accounted for about 70% and New Mexico where it reached a high of 91%. Spending on community health improvement initiatives as a percentage of total CB spending varied substantially between states. It was as low as 5% in Minnesota and as high as 22% in Nebraska. Similar variations were noted regarding spending on medical education and research. State level spending was as low as 2% in New Mexico and as high as 18% of total CB spending in Minnesota. Annual variations within each state were noted on a smaller scale.

On average, an urban, large size, non-religious affiliated, system member, acute care hospital in low poverty state (Virginia) spent more on CB in dollar amounts, while an urban, medium size, non-religious affiliated, independent, specialty hospital in low poverty state (New Hampshire) spent more on of total CB spending as a percentage of total spending. Tables ?? through ?? of the Appendix show different model based spending on all CB activities by all types of private tax-exempt hospitals over the four years of study.
Regression Model Results

Since n=50 (15.2%) and n=127 (38.7%) of the n=328 tax-exempt hospitals in our study cohort did not report spending on community health improvement initiatives and medical education and research over the study period respectively, we first examined the different organizational and environmental factors that predict the probability of spending on those two CB activities. Our regression model showed that hospital size, hospital system membership, the number of independent members of the Board of Directors, and the levels of FPG used to determine eligibility for free care were significant predictors of spending on community health improvement initiatives. Hospital size was a significant positive predictor, p<.0001, with large sized hospitals having the highest probability of not spending, estimate = 0.061, std. error = 0.02, range = 0.011- 0.11. Independent hospitals showed a higher probability of not spending on this activity compared to health system member hospitals, estimate = 0.047, p = 0.0058. Number of independent members on the Board of Directors and the levels of FPG used to determine eligibility for free care were significant negative predictors of a probability of spending on this activity, p < 0.00001 and p = 0.004, respectively. This means that with the increase in number of independent members of the board there is an increased probability of spending on this activity that reflects a community oriented approach by hospitals. Private tax-exempt hospitals that use higher level of FPG to determine eligibility for free health care have higher probability of spending on this activity. Both of those factors suggest a more community orientation by these hospitals and a willing to provide more CB to their communities.

For medical education and research, all the predictor variables included in the model were significant predictors for the probability of spending on this activity except religious organization affiliation, type (ACH, CAH, specialty), and the levels of FPG used to determine eligibility for free care. Large, independent, rural hospitals in Virginia and Kentucky had higher probability of not spending on this activity. The probability of spending on this activity
significantly increased over the years. Profit margin, the number of independent members on the board and poverty percentages were all negative predictors of the probability of spending on this CB activity. The increase in profitability helps hospitals to allocate more fiscal resources to provide more CB activities. Table 2 in this chapter and Table 31 of the Appendix show the regression results for probability of spending on community health improvement activities and medical education and research.

There was a significant increase, \( p = 0.01 \), in total CB spending by private tax-exempt hospitals over the study period. The estimated mean spending grew from 0.058 to 0.067 to 0.068 over the four years of study consecutively. We found significant differences in spending between the seven states \( p < 0.0001 \). Mississippi that had the highest poverty and second highest levels of uninsured had the least mean spending of 0.033, while New Hampshire that had the lowest poverty and second lowest uninsured levels had the highest mean spending of 0.092. The results also showed a significant positive association between the level of federal poverty guidelines used to determine eligibility for free care, \( p = 0.017 \), and the amount of total CB spending by private tax-exempt hospitals. We found that profit margin and the percentage of poverty population were significant predictors of total CB spending, \( p = 0.02 \) and 0.01 respectively. However, contrary to our assumptions, increase in profit margin was significantly negatively associated with spending on total CB. We could not find any statistically significant difference in spending on total CB spending between different types of hospitals (ACH vs. CAH vs specialty), hospitals of different size, between hospitals of different religious affiliation, and between system member and independent hospitals. The model also could not establish any significant difference in spending between rural and urban hospitals. Percentages of unemployment and uninsured adults were not found to have any significant relationship with total CB spending.
Table 3: Regression of Spending on Community Health Improvement Initiatives and Medical Education and Research on Organizational Characteristics (probability of not spending)

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Community Health Improvement Initiatives</th>
<th>Medical Education and Research</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Probability</td>
<td>P value</td>
</tr>
<tr>
<td>Hospital Size</td>
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</tr>
<tr>
<td></td>
<td>Medium</td>
<td>0.025</td>
</tr>
<tr>
<td></td>
<td>Small</td>
<td>0.012</td>
</tr>
<tr>
<td>Religious Affiliation</td>
<td>Non-religious affi.</td>
<td>0.043</td>
</tr>
<tr>
<td></td>
<td>Religious affiliated</td>
<td>0.016</td>
</tr>
<tr>
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<td>System member</td>
<td>0.015</td>
</tr>
<tr>
<td></td>
<td>Independent</td>
<td>0.047</td>
</tr>
<tr>
<td>Type</td>
<td>ACH</td>
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</tr>
<tr>
<td></td>
<td>CAH</td>
<td>0.037</td>
</tr>
<tr>
<td></td>
<td>Specialty</td>
<td>0.029</td>
</tr>
<tr>
<td>Year</td>
<td>2010</td>
<td>0.029</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>0.030</td>
</tr>
<tr>
<td></td>
<td>2012</td>
<td>0.024</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>0.024</td>
</tr>
<tr>
<td>Location</td>
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<td>0.029</td>
</tr>
<tr>
<td></td>
<td>Rural</td>
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</tr>
<tr>
<td></td>
<td>New Hampshire</td>
<td>0.019</td>
</tr>
<tr>
<td></td>
<td>Kentucky</td>
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</tr>
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<td></td>
<td>Minnesota</td>
<td>0.015</td>
</tr>
<tr>
<td>State</td>
<td>Mississippi</td>
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</tr>
<tr>
<td></td>
<td>Nebraska</td>
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</tr>
<tr>
<td></td>
<td>New Mexico</td>
<td>0.06</td>
</tr>
<tr>
<td></td>
<td>Virginia</td>
<td>0.018</td>
</tr>
</tbody>
</table>

There were significant differences in spending on direct patient care over the study period, \( p = 0.012 \). Spending increased significantly compared to 2010 (reference year). Similar significant spending variations on this CB category existed between states, \( p < 0.0001 \). As with total CB expenditures, Mississippi had the lowest mean spending, mean = 0.029, while New Hampshire had the highest, mean = 0.081. The levels of FPG used to determine eligibility for free care, and the percentage of poverty in the county were significant positive predictors of spending on direct patient care, \( p = 0.069 \) and \( p = 0.004 \), respectively. As with total CB spending, profit
margin was significant negative predictor of spending on this activity, \( p = 0.021 \). The model could not find any significant differences in spending on this category between hospitals of different sizes, between hospitals of different religious affiliation, and between system member and independent hospitals or between different types of hospitals (ACH vs. CAH vs specialty).

The percentages of unemployment and uninsured adults as well as the number of independent members on the board were not found to have any significant relationship with spending on direct patient care activities.

Our model found lesser significant predictors for spending on community health improvement initiatives. Again, we found significant changes in spending over the four-year study period, \( p = 0.034 \). Spending increased in 2011 and 2012 compared to 2010 but decreased in 2013 compared to the previous two years. We found significant differences in spending between hospitals located in urban and rural areas \( p = 0.012 \). Rural hospitals spent significantly less, mean = 0.0041 vs 0.0055. The model also showed significant differences in spending between different states, \( p = 0.0005 \). Mississippi spent significantly less than New Hampshire and Nebraska, mean = 0.0027 vs 0.0077 and 0.0075, respectively. The number of individual members on the board of directors was found to be a marginal positive predictor for spending on this activity, \( p = 0.081 \).

There were significant differences in spending on education and research between the different types of hospitals (ACH, CAH, and specialty), \( p = 0.016 \). CAHs spent significantly less than ACHs and specialty hospitals, mean = 0.0025 vs. 0.0034, respectively. We also found that rural hospitals spent significantly less than urban hospitals on this activity, \( p = 0.002 \), mean = 0.003 vs. 0.0049. Two organizational predictors were found to be significantly and positively associated with spending on medical education and research, profit margin, \( p = 0.035 \), and levels of FPG used to determine eligibility for free care, \( p = 0.008 \). One environmental variable, the percentage of unemployment, was found to be a significant positive predictor of spending, \( p = 0.006 \). However, the percentage of uninsured adults was found to be significant negative predictor
of spending, $p = 0.017$. The percentage of poor individuals in the community was found to be a marginal significant negative predictor of spending on medical education and research, $p = 0.06$. The model also found a marginal difference in spending between system member and independent hospitals, $p = 0.08$, system member hospitals spent more than independent hospitals, mean = 0.0044 vs. 0.0033. We also found borderline differences between states, $p = 0.064$. Mississippi and Virginia spent less than New Mexico and Nebraska. The model could not find any significant differences in spending on this category between hospitals of different religious affiliation. The number of independent members on the board was not found to have any significant relationship with spending on this activity.

Profit margin was significantly associated with spending on total CB, $p = 0.02$, direct patient care, $p = 0.02$, and medical education and research, $p = 0.04$. When we divided spending into four levels, we found minimal spending variations between all four levels (negative, low, medium, and high). However, hospitals with negative profit margin provided higher spending on total CB and direct patient care. Number of independent members on the board was borderline significantly associated with spending on community health improvement activities only, $p = 0.08$. However, when we divided the number of members into three levels (small, medium, and large) we found minimal spending variations. Levels of federal poverty guidelines used to determine eligibility for free care was found to be significantly associated with spending on total CB, $p = 0.017$, medical education and research, $p = 0.008$, while marginally significant for direct patient care, $p = 0.07$. There were significant differences in the amounts spent between the three levels of FPG (low, medium, high), with hospitals with large number of independent members on the board spending the most on total CB and direct patient care activities. The percentage of unemployment was only significant predictor for spending on medical education and research, $p = 0.01$. Minimal differences in spending were noted between low and high unemployment levels. The percentages of uninsured adults were significant negative predictors of spending on medical
education and research, \( p = 0.02 \). Poverty percentage was found to be a significant positive predictor for total CB spending, \( p = 0.02 \), and direct patient care, \( p = 0.004 \), and a marginal negative predictor for spending on medical education and research, \( p = 0.06 \). Hospitals in areas with high poverty rates spent more total CB and direct patient care activities. Table 3 in this chapter and Table 32 of the Appendix show the regression results for mean spending on the different CB activities.
Table 4: Regression of Spending on Different Community Benefits Categories on Organizational Characteristics

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Total community Benefit Mean</th>
<th>P value</th>
<th>Direct Patient Care Mean</th>
<th>P value</th>
<th>Community Health Improvement Initiatives Mean</th>
<th>P value</th>
<th>Medical Education and Research Mean</th>
<th>P value</th>
</tr>
</thead>
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<td>0.0053</td>
<td>0.0044</td>
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</tr>
<tr>
<td>Non-religious affiliated</td>
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<tr>
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<td>0.058</td>
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<tr>
<td>2013</td>
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<td>0.059</td>
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<td>0.0041</td>
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</table>
Discussion

Private tax-exempt hospitals in the US are granted tax-exempt status, for various reasons, with the expectation that some of their profits will be used to provide activities and programs to enhance the health of their communities. Although previous studies have analyzed CB activities for tax-exempt hospitals, this is the first study to examine CB spending levels and trends after the enactment of the ACA and the implementation of the IRS regulations. This study addressed some of the limitations identified in previous works including examining the spending over multiple years and examining the differences between different states, areas, and types of hospitals.

This work involved three consecutive steps using the different data reported on Schedule H of the income tax Form 990. In the first step, we assessed the levels and trends of different CB spending by all types of private tax-exempt hospitals in seven states after the latest IRS and ACA reporting regulations over a four-year period from 2010-2013 to answer the question about if these hospitals justify their tax-exemption status. We then proceeded to study the geographic variations between the states and regions. Finally, we studied selected organizational and environmental factors that may influence the existing patterns and trends of different CB spending. Some of the results of this work are novel and thus could not be compared to other research studies.

Overall, there was a significant incremental annual increase in total CB spending by private tax-exempt hospitals. Total CB spending increased by 28% and 20% in nominal and inflation-adjusted terms respectively in 2013 compared to 2010. As a percentage of total hospital expenses, the same trend was noted in 2011 and 2012, although 2013 showed a minimal decrease compared to 2011 and 2012. These findings support hypothesis 1a. Our results are slightly different from those reported by Young and colleagues (2013) who estimated these spending levels at 7.5% of total hospital expenses that was based on 2009 financial data only and were close to the estimate reported by Bakken & Kindig (2015) for hospitals in Wisconsin, 7.52%. These estimates, however, are less than those estimated by the IRS in 2011 that reported private
tax-exempt hospitals net CB expenses at 9.7% of the total hospital expense. We could not assess if these increases were due to a rise in the number of patients receiving services or increase in cost or a combination of these factors. It may also be due to better reporting practices.

Patient care services spending dominated CB spending by all private tax-exempt hospitals and far exceeded the other two CB categories; community health improvement initiatives and medical education and research. Direct patient care spending averaged about 6.97% of the total hospitals spending and about 79.6 % of the total CB spending. Our results are slightly lower than reported by Singh et al. in 2015, who found that about 85% of total CB is directed to patient clinical services. This difference can be justified by his national cohort that would affect this percentage. This can be attributed to the fact that these services are primarily affected by the amount of demand and supply of these services including the hospital’s location, levels of poverty, insurance, and unemployment that in some areas did not have a significant impact on this spending. Despite its importance, the increased spending on this activity appeared to affect the ability of tax-exempt hospitals to redirect enough financial resources to preventive care and population health improvement initiatives. Some researchers argued that the expansion of medical insurance coverage under the ACA will decrease hospital-based charity care spending and free some of the resources directed to patient care services to community health improvement initiatives (Young et al., 2013; Singh et al., 2016). In the states included in this study, there were positive economic indicators. For example, unemployment rates decreased in a range of 0.7% to 2.4% across all seven states (US Department of Labor, 2017) and percentage of medically uninsured also declined over the four years of the study across different states by a range of 0.2% to 0.8% (US Census Bureau, 2016). Nevertheless, total direct patient care spending showed steady increase growing by about 33% in nominal terms and 24% in inflation-adjusted terms.

Medical education and research was the second largest CB spending category. Similar to direct patient care spending, it showed incremental growth over the four years of the study. Expenditures in this category increased by about 21% in nominal terms and by about 13% after
adjusting for inflation rates from 2010 to 2013. As a percentage of total CB spending, it showed a slight decrease in 2012 and 2013 compared to 2010. Our estimates show that spending on this activity accounted for about 12% of total CB spending over the study period. Young and his team estimated spending on this activity at about 6.6%, while the IRS report estimated spending on subsidized health services, health professions education, and research to account for 36% of total hospital spending.

These observed increases in direct patient care and medical education and research spending help partially explain why community health improvement initiatives had the lowest spending. Contrary to the assumption that the decrease in the numbers of uninsured would free some of the financial resources allocated to charity care for community health improvement initiatives (Singh et al., 2016), our study showed different results. Although community health improvement initiatives spending showed minimal growth from 2010 to 2012, in nominal terms it suffered an 8% decrease in 2013 compared to 2012 and 0.5% decrease compared to 2010, while in inflation-adjusted terms it decreased about 9.6% compared to 2012 and decreased about 6% compared to 2010. As a percentage of total CB spending, this category showed a steady decline over the four years. Singh and colleagues (2015) have estimated this percentage at 7.7% based on the 2009 fiscal data, while the IRS estimated it at less than 8% for the fiscal year 2011. Hypothesis 1b is refuted.

When we excluded hospitals that did not spend on medical education and research due to their organizational characteristics, remarkably, many hospitals opted not to spend on other CB activities that are consistent with their tax-exempt/charity mission and tax exemption financial privileges. For example, almost one fifth of hospitals did not spend on community health improvement services and community benefit operations although that more than three quarters of those had positive profit margins (mean of 6.35% and median of 3.78%), of those 63% had more than 3% profit margin. Thirty-eight percent (38%) did not provide any cash and in-kind contributions to community groups, 59.8% of those had a positive margin (mean of 6.53% and
median of 5%), of that 67% had more than 3% profit margin. Moreover, almost 50% of hospitals did not spend on community building activities, of those, 58% had positive margins (mean of 6.64% and median of 5.63%) and 71% had more than 3% profit margin. We initially hypothesized that spending on CB would increase with increased profit margin since hospitals will have more resources available to support CB spending. The results did not support hypothesis 7, and we found an inverse relationship between the profit margin and the levels of expenditures on the total and direct patient care activities. Since we did not identify exact locations where these hospitals were located, these results could reflect higher income and medically insured populations. An explanation may be that private tax-exempt hospitals prefer to invest in their own infrastructure and processes, to improve their services or expand their markets and operations, than to invest in community programs. These findings, however, are in contrast to what Simone and colleagues (2015) and Young and colleagues (2013) reported where they did not find a significant relationship between those variables.

We found extreme variations in total and categorical CB spending between the different types of private tax-exempt hospitals which were far more notable than the 20 folds reported by Young and colleagues (2013). For example, acute care and specialty private tax-exempt hospitals spent on average nine times more than critical access hospitals on total CB, as much as eight times on direct patient care, as much as 11 times on community health improvement initiatives and a staggering 61 times in medical education and research. Even within each of these types, hospital size, religious organization affiliation, hospital system membership extreme variations existed. Within each of those types, hospitals spent as low as few thousand dollars to as much as hundreds of millions or as low as 0.17% of their total hospital expense to as high as 32%.

However, we could not find a significant difference in spending between hospital system members and independent hospitals. Hypothesis 2 is refuted. It is noteworthy that we found that non-religiously affiliated hospitals spent less than their religious counter type, which is contradictory to those reported by Ferdinand et al. (2014) where they reported that religious
hospitals spend significantly more than other tax-exempt hospitals. Hypothesis 3b is refuted. We also found that religiously affiliated hospitals increased their total CB by 8.75% in nominal terms in 2013 compared to the base year. This amount diminishes to 1.83% increase after we adjust for 2016 inflation rates. On the other side, non-religiously affiliated hospitals increased their spending by 20% in inflation-adjusted terms over the four years. Hypothesis 3a is supported.

Considering the differences in demographics, economic indicators, local regulations and laws, we initially hypothesized that there would be differences in CB spending between different states, between those with high and low poverty rates, between different census regions, and between rural and urban locations. At the state level, we found significant differences in the levels of CB spending where hospitals in New Hampshire, which had the lowest percentage of poverty and second lowest unemployment and uninsured levels, provided significantly higher total and direct patient care spending. While those in Mississippi, that had the highest percentage of poverty, provided the least total and direct patient care spending, so hypothesis 6a is supported.

When we examined these differences by census region, we found substantial differences in total and direct patient care spending between different regions. Hospitals in the West spent substantially higher than other regions on total and direct patient care activities, so hypothesis 6c is partially supported. This may be explained by the fact that the West had the highest uninsured and second highest percentages of poverty. We then looked at the differences based on the poverty rates. The results show substantial differences in spending on direct patient care services, in this case, hospitals in states with high percentage of poverty provided considerable less spending on direct patient care, which partially supports hypothesis 6b. We found significant differences in spending between rural and urban hospitals on community health improvement initiatives and medical education and research, where hospitals in rural areas spent significantly fewer amounts, so hypothesis 9a is partially supported. Given these results, we explored what organizational and environmental factors may influence these differences.
We examined three environmental factors that could explain these differences; unemployment levels, the percentage of medically uninsured adults, and poverty rates. Our hypotheses assumed that the increase in the percentage of unemployed would consequently result in an increase in spending on patient care services and thus the total CB spending. However, unemployment did not predict spending on the total, direct patient care, and community health improvement initiatives. Hence hypothesis 5a is not supported. This predictor was never tested in previous studies. We further hypothesized that poverty rates would be a significant factor in increasing the direct patient and community health improvement initiatives spending. The results showed that with increased levels of poverty there is a significant increase in spending on direct patient care but decreased spending on community health initiatives and medical education and research. This spending likely occurs because most of the financial resources are directed away from those two CB activities to pay for the direct patient care services. Hypothesis 5c is partially supported. Young and colleagues used another predictor, per capita income in the local community, but did not find any significant relationship. Medically uninsured adults are a reflection of unemployment and poverty. We also hypothesized that the increase in medically uninsured adults would eventually lead to an increase in direct patient care spending. The results showed that there is a negative significant relationship between the percentage of medically uninsured and the amounts of spending on total, direct patient care and medical education and research. No relationship was established with spending on community health improvement initiatives; hypothesis 5b is refuted.

We included two organizational factors that are reflective of the community orientation of a private tax-exempt organization; the characteristics of the Board of Directors and the levels of federal poverty guidelines used to determine eligibility for free care. These organizational factors were ignored in previous studies. We hypothesized that the more the number of independent members on the board the more CB spending, especially community health improvement initiatives. The results showed that the number of independent members on the
board is a significant positive predictor of expenditures on the total and community health improvement initiatives which supports hypothesis 4. This supports our assumption that more number of independent members will reflect the hospital’s orientation to increase the involvement in the community and provide more services that enhance the health environment of their communities. We found that the levels of FPG used to determine eligibility for free care was a significant positive predictor of spending on total, direct patient care, and medical education and research, but not community health improvement initiatives. Originally, we hypothesized that hospitals that use a higher FPG to determine eligibility for free care would provide more spending on the total and community health improvement initiatives. The findings support hypothesis 8.

Over the four years of study, urban, large non-religiously affiliated ACHs that are members of a hospital system had more total and average spending on total CB, direct patient care, and medical education and research. The same spending patterns were identified for community health improvement initiatives except for hospital system members where both types of hospitals exchanged leading in spending on this activity over the four years of study. As the demographics of hospitals change and more hospitals become affiliated with hospital systems, a different image may emerge in the next few years.

**Conclusion**

Private tax-exempt hospitals allocated increasing amounts of financial resources to CB spending since the implementation of the latest IRS and ACA regulations. Most of the hospitals (~75%) in this study provided total CB spending of more than 5% of their total spending. In our opinion, these levels of CB spending justify their tax-exempt status. There were significant variations in total and categorical spending between private tax-exempt hospitals. Although some of the organizational and environmental factors used in this study did not completely explain these variations, many other factors that were not included in this study may contribute to these variations.
Although these regulations are a major step in the health care reform, further amendments are required to seal the significant gaps evidenced by the large number of private tax-exempt hospitals that opted not to spend on various CB categories and the low spending on community health improvement initiatives. These amendments should be delegated to the states’ authorities since to better evaluate the different environmental factors and can work closely with these hospitals.
CHAPTER 4: IDENTIFICATION OF COMMUNITY HEALTH INDICATORS PREDICTIVE OF SPENDING ON COMMUNITY HEALTH IMPROVEMENT INITIATIVES BY PRIVATE TAX-EXEMPT HOSPITALS

Background

In 2010, the Affordable Care Act (ACA) amended the 2008 Internal Revenue Service (IRS) community benefits reporting regulations for private tax-exempt hospitals. It added a section to Schedule H of the income tax Form 990 which requires private tax-exempt hospitals to conduct a community health needs assessment (CHNA) at least once every three years (Cramer, Singh, Flaherty, & Young, 2017; IRS, 2015). Although private tax-exempt hospitals were required to implement the new regulations beginning in 2012, they were provided with draft instructions in 2011 (Cramer et al., 2017). The ACA amendments aim to increase the engagement of private tax-exempt hospitals in community programs and activities that improve population health outcomes by influencing different health elements. Private tax-exempt hospitals have to conduct CHNA in collaboration with various community stakeholders including local health departments, businesses, schools, and organizations (IRS, 2016). Based on this assessment, these hospitals have to develop a community-wide plan that identifies and prioritizes the community health needs. Hospitals then have to take the necessary actions to direct their community activities to overcome gaps identified in these assessments. Nevertheless, even before these regulations, the expectation was that private tax-exempt hospitals develop programs and support services that address their communities’ health needs. The ACA mandates included financial penalties ($50,000) against hospitals that do not fulfill this requirement (Principe et al., 2012).

Due to challenges in estimating spending on community benefit activities directed to community improvements, studies conducted before the implementation of the latest IRS and ACA regulations focused on the relationship between individual socioeconomic indicators and spending on charity and uncompensated care. A study about community benefit activities of private nonprofit hospitals in California and Florida in 2005, did not find an association between
the community needs and the provision of community benefits by nonprofit hospitals (Bazzoli et al., 2010). Another study by Song and her team about hospital ownership and the provision of community benefit in 2006, did not find a significant relationship between the unemployment and per capita income and provision of uncompensated care. They, however, found that levels of unemployment are significantly associated with the provision of community health services (Song, Lee, Alexander, & Seiber, 2013). These results were supported by another study about the provision of uncompensated care by nonprofit hospitals in California in 2006 and 2007. In this study, researchers did not find any significant relationship between socioeconomic factors and levels of uncompensated care by these hospitals (Kim, McCue, & Thompson, 2009).

Schedule H established a standard reporting format that enabled researchers to assess the relationship between different socioeconomic, demographic, and health factors and spending on community benefits including those directed to improve the health status of the communities. Young and his team in their study about expenditure on community benefits by private tax-exempt hospitals in the U.S. found that spending on different community benefit activities is not dependent on population characteristics and needs (Young et al., 2013). However, Singh and his team questioned the approach used by Young et al. because it only focused on one aspect of community health indicators. To overcome this limitation, Singh and colleagues conducted a cross-sectional study that used 16 community health indicators under four health areas. Although they found that hospitals spent more on direct patient care activities in communities with higher health needs, they observed a lack of any relationship between community health needs and hospital spending on community health improvement activities. They attributed this finding to the absence of federal definitions and minimum requirements for spending on community health improvement initiatives. Private nonprofit hospitals therefore have the freedom to decide if and how they respond to community health needs and whether to invest in community health improvement activities (Singh et al., 2015). In both studies, the financial data used were limited
to one year, 2009, which may have been a factor that contributed to these results. In our opinion, examining these relationships should be done over an extended period of time sufficient to establish a temporal or a cause and effect relationship.

In this chapter, we build on previous research and identify community health indicators that could be predictive of spending on community health improvement initiatives. We use community spending data of private tax-exempt hospitals in seven states from 2010-2013 and explore their association with identified community health indicators at the county level. Our assumption is that the availability of financial data for multiple years after the implementation of the new reporting requirements provides a better opportunity to evaluate this relationship.

Methods and Materials

Study Design

This study implemented a retrospective longitudinal design with lagged community health indicators. We examined the relationship between multiple community health indicators in one year and the levels of spending on community health improvement initiatives in the following year. The study covered the period from 2010 through 2013 following the enactment of the latest IRS and ACA reporting regulations. We conducted the study at the county level using the 2011 data as the reference year to estimate and compare the changes in spending. For our descriptive statistics, we used the County Health rankings & Roadmaps to arbitrarily rank states based on their counties’ health indicators. The County Health Rankings and Roadmaps ranks counties within each state based on a group of Health Factors and Health Outcomes (County Health Rankings & Roadmaps, 2016a). There are four Health Factors that have thirteen (13) focus areas and thirty (30) specific measures that reflect health on the county level. Each of those factors and their component areas and measures have different weights that are used when ranking counties. These weights are based on their relative scholarly importance, availability and reliability of data, and experts’ opinions. The weights of the four Health Factors are: “Health behaviors 30%,
Clinical care 20%, Social and economic factors 40%, and Physical environment 10%” (County Health Rankings and Roadmaps, 2016c). Counties are ranked based on the weighted sums of their indicators where county with lowest scores (best health) is ranked on the top. Because this database undergoes continuous updates, with each new release, few indicators are eliminated or others added while few change and others are reported differently. Accordingly, the weights of few of these measures could change from year to year.

**Data Sources**

The primary source for the community health indicators was the County Health Rankings & Roadmaps files ([www.countyhealthrankings.org](http://www.countyhealthrankings.org)). This database is a collaboration between the University of Wisconsin Population Health Institute and the Robert Wood Johnson Foundation. Their annual County Health Rankings measures fundamental health factors and outcomes in almost every county in the U.S. Their annual files provide an illuminating portrait of how the physical, educational, occupational, and social environments influence health (County Health Rankings & Roadmaps, 2016b). For this work, we used their 2010, 2011, and 2012 data.

Financial information reported on hospitals’ revised IRS income tax Form 990 was the primary source for the spending on different community health improvement initiatives. Spending by individual hospitals was aggregated on the county level. We used 2011, 2012, and 2013 financial data. The year 2013 was the last year income tax Form 990 was available for hospitals included in the study. Three different online sources were used to collect, verify, and complete the income tax Form 990 for private tax-exempt hospitals. These websites are GuideStar ([http://www.guidestar.org/](http://www.guidestar.org/)), Economic Research Institute ([http://www.eri-nonprofit-salaries.com/](http://www.eri-nonprofit-salaries.com/)), and Foundation Center ([http://foundationcenter.org/](http://foundationcenter.org/)).

We used the American Hospital Association (AHA) Annual Survey to identify private tax-exempt hospitals in each of the seven states. We used multiple databases and sources to update, complete, and verify the status of hospitals like the Henry J. Kaiser Family Foundation
website (http://kff.org/), Virginia Health Information (http://www.vhi.org/default.asp) and Kentucky Hospital Association (http://www.kyha.com/).

We obtained population data including demographics and levels of poverty for different counties from the United States Census Bureau website (https://www.census.gov/en.html) and (http://factfinder.census.gov/). Finally, we used the 2003 US Department of Agriculture Rural-Urban Continuum Codes (RUCC) (http://www.ers.usda.gov/data-products/rural-urban-continuum-codes.aspx) to identify urban and rural counties. All data sources are publicly available on the internet.

The final dataset included a unique profile for each county that combined fourteen community health indicators, aggregate spending on community health improvement initiatives, and population profile.

**Study Sample**

The study sample included all counties that had at least one private tax-exempt hospital in the selected seven states. We included both urban and rural counties in the states of Kentucky, Minnesota, Mississippi, Nebraska, New Hampshire, New Mexico, and Virginia. These states were selected based on their poverty rates. We had two groups of states, the three states with the highest poverty rates included Mississippi, New Mexico, and Kentucky while the four states with the lowest levels included New Hampshire, Virginia, Minnesota, and Nebraska. These states are located in all four Census regions in the U.S.; New Hampshire represents the Northeast Region, Kentucky, Mississippi, and Virginia represent the South region, Minnesota and Nebraska represent the Midwest region, and New Mexico represents the West region (U.S. Census Bureau, 2015). The final dataset included 223 counties in the seven states.

**Variables**

**Dependent Variable**

There are three activities reported on Schedule H of the income tax Form 990 that the IRS defines as initiatives taken by hospitals to improve the overall health of their communities.
These activities include community health improvement services (activities aimed to improve community health), cash and in-kind contributions for community benefit (contributions to any community benefit activity), and community building activities. Hospitals report spending on these activities in total dollar amounts and as a percentage of total hospital expenses. We aggregated total expenditure on those three community benefit spending categories into one dependent variable identified as community health improvement initiatives. Finally, total spending on this activity was aggregated at the county level.

**Independent Variables**

Community health indicators were obtained from the County Health Rankings and Roadmaps database. Among many parameters, this database includes estimates of Health Factors and Health Outcomes. Health Factors are defined as “factors that influence the health of a county” (County Health Rankings & Roadmaps, 2016a). The four Health Factors are:

1. Health behaviors: include alcohol and drug use, diet & exercise, sexual activity, tobacco use, and insufficient sleep.
2. Clinical care: include access to and quality of care.
3. Social and economic environment: include community safety, education, employment, family and social support, and income.
4. Physical environment: include air & water quality and housing & transit.

Most of these health factors are comparable between counties across states; however, state-level effects incorporated in estimating a few of these factors prevent their comparison across states (County Health Rankings & Roadmaps, 2016a). Because this database undergoes continuous updates, with each new release few indicators are eliminated or others added while few change and others are reported differently. We used indicators that were consistently estimated and reported over the three years, 2010-2012. We included selected indicators from all four groups following the methodology used by Singh et al. (2015). These indicators are:
Health behaviors:

1. Adult smoking: Percentage of adults that smoke.
3. Motor vehicle crash death rate: Motor vehicle crash deaths per 100,000 population.
4. Teen birth rate: Teen birth rate (per 1,000 females ages 15-19).

Clinical care:

5. Uninsured adults’ percentage: Percentage of population < age 65 without health insurance.
6. Primary care physicians: Ratio of population to primary care physicians.
7. Preventable hospital stays (Ambulatory Care Sensitive Conditions): Preventable hospital stays (Rate per 1,000 Medicare enrollees). This indicator measures hospitalization due to a set of acute and chronic medical conditions that can be treated in outpatient settings. It suggests less than ideal outpatient services or an overuse of hospitals as a primary point of medical care (County Health Rankings & Roadmaps, 2016d).
8. Diabetic screening: Percentage of people with diabetes that receive HbA1c screening.

Social and economic environment:

9. Unemployment Percentage: Percentage of population age 16+ who are unemployed.
11. Inadequate social support: Percentage of adults without social/emotional support.

Physical environment:

12. Air pollution-particulate matter days: Annual number of unhealthy air quality days due to fine particulate matter.
13. Air pollution-ozone days: Annual number of unhealthy air quality days due to ozone.

Excessive drinking was not included since it was added to the indicators in 2011. Hospice use rate was also not included since it was removed from the indicators starting 2011.
Other Covariates

We included a number of covariates that were used in previous research or those that could have an influence on the analysis. We also included a year variable to assess change over time, a location variable to examine the difference between rural and urban counties and a state variable to examine differences between states.

1. Year of spending on community health improvement initiatives.
2. Location: rural or urban. We used the 2003 to classify counties where private tax-exempt hospitals are located.
3. State: we examined the differences in spending between the seven states, Kentucky, Minnesota, Mississippi, Nebraska, New Hampshire, New Mexico, Virginia.
4. Poverty rates: percentage of people in poverty
5. Percentage of females to the total population.
6. Percentage of individuals 65 years and older.
7. Percentage of population under 18.

We did not test differences between census and poverty regions due to their high collinearity with other covariates.

Table 1: Dependent Variables, Independent Variables, and Covariates

<table>
<thead>
<tr>
<th>Variable (Response)</th>
<th>Type</th>
<th>Description</th>
<th>Data Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Health Improvement Initiatives Spending</td>
<td>Numerical</td>
<td>Log total spending on Community Health Improvement Initiatives</td>
<td>Income Tax Form 990</td>
</tr>
<tr>
<td>Health Behaviors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult smoking</td>
<td>Numerical</td>
<td>Percent of adults that smoke</td>
<td>Behavioral Risk Factor Surveillance System / County Health Rankings and Roadmaps</td>
</tr>
<tr>
<td>Adult obesity</td>
<td>Numerical</td>
<td>Percent of adults that report a BMI &gt;= 30</td>
<td>National Center for Chronic Disease Prevention and Health Promotion, calculated from BRFSS / County Health Rankings and Roadmaps</td>
</tr>
<tr>
<td>Motor vehicle crash death rate</td>
<td>Numerical</td>
<td>Motor vehicle crash deaths per 100,000 population</td>
<td>National Center for Health Statistics / County Health Rankings and Roadmaps</td>
</tr>
<tr>
<td>Measure</td>
<td>Type</td>
<td>Description</td>
<td>Source</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>----------</td>
<td>-----------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Teen birth rate</td>
<td>Numerical</td>
<td>Teen birth rate (per 1,000 females ages 15-19)</td>
<td>National Center for Health Statistics / County Health Rankings and Roadmaps</td>
</tr>
<tr>
<td><strong>Clinical Care</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uninsured adults</td>
<td>Numerical</td>
<td>Percent of population &lt; age 65 without health insurance</td>
<td>Census/American Community Survey (ACS) — Small Area Health Insurance Estimates (SAHIE) / County Health Rankings and Roadmaps</td>
</tr>
<tr>
<td>Primary care physicians</td>
<td>Numerical</td>
<td>Ratio of population to primary care physicians</td>
<td>Health Resources and Services Administration, Area Resource File (ARF) / County Health Rankings and Roadmaps</td>
</tr>
<tr>
<td>Preventable hospital stays (Ambulatory Care Sensitive Conditions)</td>
<td>Numerical</td>
<td>Preventable hospital stays (Rate per 1,000 Medicare enrollees)</td>
<td>Medicare claims / Dartmouth Atlas of Health Care / County Health Rankings and Roadmaps</td>
</tr>
<tr>
<td>Diabetic screening</td>
<td>Numerical</td>
<td>Percent of people with diabetes that receive HbA1c screening</td>
<td>Medicare claims / Dartmouth Atlas of Health Care / County Health Rankings and Roadmaps</td>
</tr>
<tr>
<td><strong>Social and Economic Factors</strong></td>
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<td></td>
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<tr>
<td>Unemployment</td>
<td>Numerical</td>
<td>Percent of population age 16+ who are unemployed</td>
<td>Local Area Unemployment Statistics, Bureau of Labor Statistics / County Health Rankings and Roadmaps</td>
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<tr>
<td>Children in poverty</td>
<td>Numerical</td>
<td>Percent of children under 18 years old in poverty</td>
<td>Census/CPS-Small Area Income and Poverty Estimates (SAIPE) / County Health Rankings and Roadmaps</td>
</tr>
<tr>
<td>Inadequate social support</td>
<td>Numerical</td>
<td>Percent of adults without social/emotional support</td>
<td>Behavioral Risk Factor Surveillance System / County Health Rankings and Roadmaps</td>
</tr>
<tr>
<td><strong>Physical environment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air pollution-particulate matter days</td>
<td>Numerical</td>
<td>Annual number of unhealthy air quality days due to fine particulate matter</td>
<td>CDC-Environmental Protection Agency (EPA) Collaboration / County Health Rankings and Roadmaps</td>
</tr>
<tr>
<td>Air pollution-ozone days</td>
<td>Numerical</td>
<td>Annual number of unhealthy air quality days due to ozone</td>
<td>CDC-Environmental Protection Agency (EPA) Collaboration / County Health Rankings and Roadmaps</td>
</tr>
<tr>
<td>Access to healthy foods</td>
<td>Numerical</td>
<td>Percent of zip codes in county with healthy food outlets</td>
<td>Census Zip Code Business Patterns / County Health Rankings and Roadmaps</td>
</tr>
<tr>
<td><strong>Other Covariates</strong></td>
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</tr>
<tr>
<td>Location</td>
<td>Categorical</td>
<td>Urban, Rural</td>
<td>Income Tax Form 990, US Department of Agriculture Rural-Urban Continuum Codes</td>
</tr>
<tr>
<td>State</td>
<td>Categorical</td>
<td>Kentucky, Minnesota, Mississippi, Nebraska, New Hampshire, New Mexico, Virginia</td>
<td>Income Tax Form 990</td>
</tr>
<tr>
<td>Poverty rates</td>
<td>Numerical</td>
<td>Percentage of people in poverty</td>
<td>U.S. Census Bureau, Small Area Estimates</td>
</tr>
<tr>
<td>Percentage of females</td>
<td>Numerical</td>
<td>Female proportion of the total population</td>
<td>U.S. Census Bureau</td>
</tr>
<tr>
<td>People 65 and older</td>
<td>Numerical</td>
<td>Percentage of individuals 65 years and older</td>
<td>U.S. Census Bureau</td>
</tr>
<tr>
<td>Population Under 18</td>
<td>Numerical</td>
<td>Percentage of individuals 18 years of age and younger</td>
<td>U.S. Census Bureau</td>
</tr>
</tbody>
</table>
**Data Analysis and Analytical Approach**

We reported descriptive statistics for all county characteristics, community health indicators, and spending on community health improvement initiatives. For the categorical variables, we calculated frequencies and percentages. For continuous variables, we checked for normality, collinearity, and outliers and calculated maximums, minimums, and means.

To standardize the amounts of spending over the three years of the study, we used the Consumer Price Index inflation calculator (CPI) for the U.S. to adjust nominal spending for each of the four years to 2016 dollars (Bureau of Labor Statistics, 2016).

To identify community health indicators predictive of spending on community health improvement activity, we used a generalized linear mixed model with lagged community health indicators. Our unit of analysis was the county. We included multiple covariates including the year of spending, state, location in rural or urban areas, poverty rates and other population variables. We tested for skewness and kurtosis and log transformation was the best fit for the model. The aggregated total expenditure was a highly skewed distribution, therefore, we used log spending as our dependent variable. For any county that had zero spending, we added 1 then log transformed. SAS/STAT software (V 9.4) was used to execute the analyses. A p-value of ≤ 0.05 was considered statistically significant.

One medical center was removed from the dataset because in review of its income tax form 990 a substantial amount of spending was directed to establishing a cancer center.

**Results**

Our dataset included 223 counties in seven states, 154 (69%) were rural, and 69 (31%) were urban. Counties included from each state varied considerably in their numbers and population size. One of our prime findings is the number of counties that have private tax-exempt hospitals in each state. Mississippi and Virginia had the least percentage of counties that have such hospitals, 23% and 30% respectively. Rural counties represented a substantial number of
these counties in every state, ranging from 68%-85%, except for Virginia, only 40%. The number of individuals covered by such hospitals also varied considerably. New Hampshire has 100% of its population living in a county with at least one private, Mississippi has only 33%. Table 2 shows the descriptive statistics of counties and their population. In Kentucky, 56 counties out of the entire 120 counties in the state were included (47%), their total population was 3,009,739 of its total 4,339,367 (~70%) inhabitants. For Minnesota we included 50 of the 87 (57%) counties and 4,527,929 of the 5,303,925 (~85%) total inhabitants. Mississippi only had 19 of the 82 (23%) counties included in this study and 1,000,055 of its 2,967,297 (~33%) total state population. Nebraska also had a relatively low number, 34 out of the 93 counties (36%) but those counties included 1,488,148 of the 1,826,341 (~81%) total state population. New Hampshire was the only state that had all its counties and population included, 10 and 1,316,470 respectively. In New Mexico, 14 out of its 33 counties (42%) were included and 1,404,353 out of the 2,059,179 (~68%) total state inhabitants. In Virginia, we had 40 of the 134 (30%) counties and cities in the state and 3,859,463 of the 8,001,024 (~48%) inhabitants.

Population size in these counties ranged from as low as 2,032 (Boyd County, Nebraska, 2013) to as high as 1,198,778 (Hennepin County in Minnesota, 2013). Unemployment percentage ranged from as low as 2.4% (Phelps, Hamilton, and Custer Counties, Nebraska) to 19.4% (Clay County, Mississippi). Percentage of poverty varied considerably between different states and within each state. Poverty rates ranged from as low as 2.9% (Falls Church City, Virginia, 2011) to as high as 42.8% (Clay County, Kentucky, 2013). Percentage of medically uninsured adults varied from 7.4% (Washington County, Minnesota) to 37.1% (Lincoln and McKinley Counties in New Mexico).
Table 2: Number of Counties and Numbers and Percentage of Population Where Private Tax-exempt Hospitals are Located

<table>
<thead>
<tr>
<th></th>
<th>Number of counties</th>
<th>Percentage of total state counties</th>
<th>Rural counties</th>
<th>Population</th>
<th>Percentage of total Population</th>
<th>Rural population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kentucky</td>
<td>56</td>
<td>47%</td>
<td>75%</td>
<td>3,009,739</td>
<td>70%</td>
<td>35.9%</td>
</tr>
<tr>
<td>Minnesota</td>
<td>50</td>
<td>57%</td>
<td>68%</td>
<td>4,527,929</td>
<td>85%</td>
<td>19.3%</td>
</tr>
<tr>
<td>Mississippi</td>
<td>19</td>
<td>23%</td>
<td>84%</td>
<td>1,000,055</td>
<td>33%</td>
<td>56.6%</td>
</tr>
<tr>
<td>Nebraska</td>
<td>34</td>
<td>36%</td>
<td>85%</td>
<td>1,488,148</td>
<td>81%</td>
<td>32.9%</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>10</td>
<td>100%</td>
<td>70%</td>
<td>1,316,470</td>
<td>100%</td>
<td>37.8%</td>
</tr>
<tr>
<td>New Mexico</td>
<td>14</td>
<td>42%</td>
<td>71%</td>
<td>1,404,353</td>
<td>68%</td>
<td>23.9%</td>
</tr>
<tr>
<td>Virginia</td>
<td>40</td>
<td>30%</td>
<td>40%</td>
<td>3,859,463</td>
<td>48%</td>
<td>10%</td>
</tr>
</tbody>
</table>

Community health indicators varied considerably between and among states. Table 3 provides an overview of different community health indicators. For example, adult smoking ranged from 17.9% to 40.2% in Kentucky, and ranged from 18.5% to 31.16% in Mississippi, while it ranged between 12.3% and 24.75% in Nebraska, and between 2% and 36.5% in Virginia. Adult obesity showed similar variations were it was between 26.9% and 40.1% in Kentucky, was between 25.8% and 39.4% in Mississippi and ranged between 20.16% and 23.7% in New Hampshire. The teen birth rate ranged from 16.7 to 90 per 1,000 females ages 15-19 in Kentucky, from 24.1 to 92.8 in Mississippi, and from 7.9 to 52.3 in Minnesota. Diabetic screening also varied, ranging from 49.43% to 90.75% in Kentucky, to between 60.55% and 93.28% in Mississippi and from 52.5% to 95.29% in Nebraska. Inadequate social support ranged between 5.55% to 33.8% in Kentucky, between 12.58% and 37.4% in Mississippi, and between 11.8% and 28.7% in Virginia. Zip codes with healthy food outlets ranged from 8.33% to 100% in Kentucky, from 14.29% to 100% in Mississippi, from 7.14% to 81.8% in New Mexico, from 14.29% to 80.6% in Nebraska, and from 23.53% to 66.7% in New Hampshire.
Table 3: Descriptive Statistics of County Level Community Health Indicators (n=223 counties)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult smoking</td>
<td>2%</td>
<td>40.2%</td>
<td>22.29%</td>
</tr>
<tr>
<td>Adult obesity</td>
<td>12.7%</td>
<td>40.1%</td>
<td>29.25%</td>
</tr>
<tr>
<td>Motor vehicle crash death rate</td>
<td>4.66/100,000</td>
<td>58.16/100,000</td>
<td>24.03/100,000</td>
</tr>
<tr>
<td>Teen birth rate</td>
<td>7.3/1000</td>
<td>93.8/1000</td>
<td>43.22/1000</td>
</tr>
<tr>
<td>Primary care physicians</td>
<td>0</td>
<td>604</td>
<td>77.53</td>
</tr>
<tr>
<td>Preventable hospital stays</td>
<td>33.76/1000</td>
<td>265.76/1000</td>
<td>89.28/1000</td>
</tr>
<tr>
<td>Diabetic screening</td>
<td>26.7%</td>
<td>96.15%</td>
<td>81.74%</td>
</tr>
<tr>
<td>Children in poverty</td>
<td>2.7%</td>
<td>50%</td>
<td>20.45%</td>
</tr>
<tr>
<td>Inadequate social support</td>
<td>5.55%</td>
<td>37.4%</td>
<td>18.65%</td>
</tr>
<tr>
<td>Air pollution-particulate matter days</td>
<td>0</td>
<td>17</td>
<td>0.83</td>
</tr>
<tr>
<td>Air pollution-ozone days</td>
<td>0</td>
<td>27</td>
<td>1.26</td>
</tr>
<tr>
<td>Access to healthy foods</td>
<td>0%</td>
<td>100%</td>
<td>49.88%</td>
</tr>
<tr>
<td>Uninsured Adults</td>
<td>7.4%</td>
<td>37.1%</td>
<td>17.54%</td>
</tr>
<tr>
<td>Unemployment</td>
<td>2.4%</td>
<td>19.4%</td>
<td>7.39%</td>
</tr>
</tbody>
</table>

For our descriptive statistics, we used the indicators average weighted sums for 2010-2012 to rank states. Table 4 in this chapter and table 33 of the Appendix show the average and average weighted scores for all counties included in this analysis in each state. Among the seven states studied, Mississippi had the worst parameters on eight of the fourteen indicators; however, when indicators are weighted Kentucky had the worst health scores. Mississippi and New Mexico had the second and third with worst weighted indicators. Minnesota had the best-weighted health indicators.
Table 4: State Ranking based on the Aggregated Average Community Health Indicators by State 2010-2012*

<table>
<thead>
<tr>
<th>Rank</th>
<th>Adult smoking</th>
<th>Adult obesity</th>
<th>Motor vehicle crash death rate</th>
<th>Teen birth rate</th>
<th>Uninsured Adults</th>
<th>Primary care physicians</th>
<th>Preventable hospital stays</th>
<th>Diabetic screening</th>
<th>Unemployment</th>
<th>Children in poverty</th>
<th>Inadequate social support</th>
<th>Air pollution particulate matter days</th>
<th>Air pollution ozone days</th>
<th>Access to healthy foods</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>18.76</td>
<td>27.77</td>
<td>19.64</td>
<td>27.22</td>
<td>11.87</td>
<td>77.39</td>
<td>64.69</td>
<td>86.46</td>
<td>7.45</td>
<td>13.38</td>
<td>13.35</td>
<td>0.6</td>
<td>0.23</td>
<td>50.69</td>
</tr>
<tr>
<td>2</td>
<td>20.17</td>
<td>25.84</td>
<td>13.29</td>
<td>22.39</td>
<td>14.27</td>
<td>106.96</td>
<td>61.66</td>
<td>87.35</td>
<td>5.39</td>
<td>12.08</td>
<td>18.19</td>
<td>0.53</td>
<td>2</td>
<td>46.78</td>
</tr>
<tr>
<td>3</td>
<td>18.16</td>
<td>29.63</td>
<td>23.95</td>
<td>30.2</td>
<td>16.63</td>
<td>72.44</td>
<td>75.25</td>
<td>83.12</td>
<td>3.88</td>
<td>15.11</td>
<td>17.8</td>
<td>0.52</td>
<td>0</td>
<td>42.34</td>
</tr>
<tr>
<td>4</td>
<td>20.69</td>
<td>27.77</td>
<td>18.74</td>
<td>39.58</td>
<td>17.27</td>
<td>97.7</td>
<td>75.9</td>
<td>83.78</td>
<td>6.68</td>
<td>17.54</td>
<td>18.67</td>
<td>0.83</td>
<td>3.07</td>
<td>57.27</td>
</tr>
<tr>
<td>5</td>
<td>20.9</td>
<td>23.67</td>
<td>29.53</td>
<td>62.37</td>
<td>28.91</td>
<td>76.56</td>
<td>69.11</td>
<td>65.8</td>
<td>6.2</td>
<td>28.75</td>
<td>22.14</td>
<td>0.1</td>
<td>0.98</td>
<td>30.48</td>
</tr>
<tr>
<td>6</td>
<td>24.92</td>
<td>33.7</td>
<td>34.18</td>
<td>65.61</td>
<td>23.77</td>
<td>52.81</td>
<td>104</td>
<td>79.4</td>
<td>10.12</td>
<td>29.15</td>
<td>24.81</td>
<td>1.87</td>
<td>1.58</td>
<td>58.91</td>
</tr>
<tr>
<td>7</td>
<td>29.06</td>
<td>32.07</td>
<td>28.57</td>
<td>57.68</td>
<td>19.2</td>
<td>63.68</td>
<td>136.98</td>
<td>79.09</td>
<td>9.74</td>
<td>28.28</td>
<td>19.84</td>
<td>0.88</td>
<td>1.37</td>
<td>48.86</td>
</tr>
</tbody>
</table>

*for counties included from each state

*1 means state with lowest health needs (better health indicators), 6 means state with highest health needs (worst health indicators)
The number of private tax-exempt hospitals in counties included in this analysis ranged from one to 11, with 172 (77%) counties having one private tax-exempt hospital, 33 (14.8%) having two hospitals, 7 (3.1%) having three hospitals. Over the three years of the study, there was no spending reported on community health improvement initiatives in 25 counties; nine in Kentucky, six in Mississippi, five in Nebraska, two in Virginia, 1 in each of Minnesota, New Hampshire, and New Mexico. Only two of those counties were urban while the remaining 23 were rural.

Total spending on community health improvement activities varied considerably between counties in the seven states and within the same state. Table 5 and Figures 1 and 2 in this chapter and Figures 1 and 2 of the Appendix show the county-level inflation-adjusted spending over the three years of study 2011-2013. When we exclude counties that did not spend, total county expenditure on this activity ranged from as high as $37 million to as low as $242, both by counties in Kentucky. In Minnesota, total spending ranged from $25 million to $663, in Virginia it ranged from $22 million to $819, in Nebraska from $19 million to $1,374, and in New Hampshire from $10.7 million to $188 thousand, while in Mississippi it ranged from $5.9 million to $1,698, and in New Mexico from $3.8 million to $2,684.

When we observed the spending patterns over this period, total spending showed a downward trend in New Hampshire (~10% decrease) and New Mexico (7.5%). Spending was almost stable in Minnesota. Other states showed mixed patterns. Although Virginia, Kentucky, and Minnesota lead the total expenditure, when we average the numbers to the counties, New Hampshire far exceeds all other six states. Counties in Virginia, Nebraska, Minnesota, and Kentucky had average spending between about $1.2 and $2 million. New Mexico and Mississippi had averages below the $1 million mark.

On Schedule H, Private tax-exempt hospitals have the option to provide the number of programs/activities and persons served by each CB category. However, when we examined the
forms, we found extremely low reporting for these data. If hospitals provide this kind of detailed information, we would have a better understanding on where they direct their CB spending and who benefits from the CB spending. As an alternative, we calculated spending per capita and per individuals in poverty. When we estimated community health improvement activities spending per capita, Nebraska, Virginia, and New Hampshire were the highest spending states. Kentucky and Minnesota fall in the middle and New Mexico and Mississippi were the least spending. When we looked at spending on these activities per individuals in poverty, the same patterns were observed. No particular spending pattern was recognized through the different levels of spending. Figure 3 is a dual axes graph for the weighted sums of health indicators and the per capita spending. This graph demonstrates that in every state included in this study there is no macro logic relationship between community health needs and what is being spent on community health improvement activities.
<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th></th>
<th>County spending</th>
<th></th>
<th>Per capita spending</th>
<th></th>
<th>Per Individual in Poverty*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Maximum</td>
<td>Minimum</td>
<td>Mean</td>
<td></td>
<td>Maximum</td>
</tr>
<tr>
<td>Kentucky</td>
<td>2011</td>
<td>73,131,973</td>
<td>34,284,446</td>
<td>642</td>
<td>1,492,490</td>
<td>179.33</td>
<td>0.10</td>
</tr>
<tr>
<td></td>
<td>2012</td>
<td>75,685,709</td>
<td>37,308,167</td>
<td>1,260</td>
<td>1,513,715</td>
<td>141.44</td>
<td>0.16</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>58,679,307</td>
<td>22,538,814</td>
<td>242</td>
<td>1,197,544</td>
<td>150.90</td>
<td>0.03</td>
</tr>
<tr>
<td>Minnesota</td>
<td>2011</td>
<td>73,673,886</td>
<td>22,465,148</td>
<td>3,997</td>
<td>1,503,549</td>
<td>44.19</td>
<td>0.58</td>
</tr>
<tr>
<td></td>
<td>2012</td>
<td>73,283,069</td>
<td>21,280,988</td>
<td>2,752</td>
<td>1,465,661</td>
<td>73.29</td>
<td>0.61</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>73,777,329</td>
<td>26,091,691</td>
<td>663</td>
<td>1,475,546</td>
<td>57.68</td>
<td>0.14</td>
</tr>
<tr>
<td>Mississippi</td>
<td>2011</td>
<td>9,977,187</td>
<td>5,918,347</td>
<td>8,663</td>
<td>712,656</td>
<td>2</td>
<td>8.03</td>
</tr>
<tr>
<td></td>
<td>2012</td>
<td>8,419,964</td>
<td>4,117,926</td>
<td>1,698</td>
<td>600,636</td>
<td>27.93</td>
<td>0.16</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>9,447,815</td>
<td>5,626,402</td>
<td>9,875</td>
<td>1,292,340</td>
<td>22.97</td>
<td>3.19</td>
</tr>
<tr>
<td>Nebraska</td>
<td>2011</td>
<td>51,519,708</td>
<td>15,180,033</td>
<td>3,925</td>
<td>1,661,926</td>
<td>410.60</td>
<td>0.57</td>
</tr>
<tr>
<td></td>
<td>2012</td>
<td>54,637,935</td>
<td>19,197,474</td>
<td>1,374</td>
<td>1,762,514</td>
<td>519.33</td>
<td>0.15</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>37,477,859</td>
<td>9,882,982</td>
<td>2,408</td>
<td>1,292,340</td>
<td>157.59</td>
<td>0.35</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>2011</td>
<td>33,829,329</td>
<td>10,690,758</td>
<td>188,553</td>
<td>3,382,933</td>
<td>119.95</td>
<td>4.31</td>
</tr>
<tr>
<td></td>
<td>2012</td>
<td>31,231,933</td>
<td>10,788,018</td>
<td>305,150</td>
<td>3,470,214</td>
<td>121.07</td>
<td>6.92</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>30,395,516</td>
<td>9,288,184</td>
<td>241,941</td>
<td>3,039,552</td>
<td>104.24</td>
<td>5.56</td>
</tr>
<tr>
<td>New Mexico</td>
<td>2011</td>
<td>12,252,041</td>
<td>3,802,466</td>
<td>30,119</td>
<td>942,465</td>
<td>45.15</td>
<td>1.24</td>
</tr>
<tr>
<td></td>
<td>2012</td>
<td>11,698,912</td>
<td>3,954,300</td>
<td>43,419</td>
<td>899,916</td>
<td>31.61</td>
<td>1.53</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>11,321,205</td>
<td>3,883,504</td>
<td>2,684</td>
<td>808,657</td>
<td>45.22</td>
<td>0.59</td>
</tr>
<tr>
<td>Virginia</td>
<td>2011</td>
<td>73,844,355</td>
<td>20,168,838</td>
<td>2,122</td>
<td>1,893,445</td>
<td>625.64</td>
<td>0.21</td>
</tr>
<tr>
<td></td>
<td>2012</td>
<td>79,617,591</td>
<td>22,187,034</td>
<td>819</td>
<td>2,041,477</td>
<td>613.86</td>
<td>0.12</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>77,816,970</td>
<td>21,764,424</td>
<td>14,936</td>
<td>2,002,592</td>
<td>602.17</td>
<td>0.11</td>
</tr>
</tbody>
</table>

*Excluding all zero and negative values.

*Poverty is defined as all people under the federal poverty line.
Figure 1: Inflation-Adjusted Average Per Capita spending on Community Health Improvement Initiatives 2011-2013*

*Excluding all zero values.

Figure 2: Inflation-Adjusted Average per Individuals in Poverty* Spending on Community Health Improvement Initiatives 2011-2013*

*Excluding all zero values.

*Poverty is defined as all people under the federal poverty line.
Table 6 shows the regression results. Only two out of the fourteen community health indicators included in the analytical model were significantly associated with spending on community health improvement initiatives. Adult smoking was significantly negatively associated with spending on this activity, $p = 0.003$. A 1% increase in adult smoking rates was associated with a decrease of 0.06 log units spending on community health improvement activities. The ratio of population to primary care physicians was significantly positively associated with spending $p<0.0001$. Two other health indicators showed borderline significant association with this spending. The teen birth rate was marginally positively associated, $p = 0.08$. Preventable hospital stays were marginally negatively associated although its effect was minimal, $p = 0.08$. No significant statistical relationship was found between the remaining health indicators and spending on this activity. Among the community health indicators that have been studied previously is the level of uninsured adults. Our results support the previously published lack of association between this indicator and spending on community health improvement activities.
We found a significant difference in spending on this activity between rural and urban counties, \( p = 0.003 \), where rural counties provided lower spending. We also found significant differences, \( p = 0.01 \), in spending between the seven states. Mississippi, the state with second worst average indicators scores, spent the least on this activity compared to other states. This can be attributed to the fact in states with worse health indicators most of the community health benefit spending is directed to direct patient care activities, which leaves less financial resources to be available for spending on activities like community health improvement initiatives.

We also found that population of 65 years and older are significantly and negatively associated with spending on this activity, \( p = 0.0009 \). While poverty rates was a borderline negative predictor of spending on this activity \( p = 0.09 \). Our results partially contradict those reported by Young et al. (2013) and Singh and his team (2015) about the lack of association between poverty and spending on this activity. Young and his team have reported the lack of association between per capita income and the provision of services directed to benefit the community at large (Young et al., 2013).

We could not find any statistically significant change in spending on community health improvement initiatives over the three-year study period, \( p = 0.73 \). We also could not find any association between population under 18 and female population and spending on this activity.
Table 6: Regression of Spending on Community Health Improvement Activities on Community Health Indicators

<table>
<thead>
<tr>
<th>Predictor variables</th>
<th>Estimate</th>
<th>Confidence Interval</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health behaviors indicators:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult smoking</td>
<td>-0.06</td>
<td>-0.10 -0.02</td>
<td>0.003</td>
</tr>
<tr>
<td>Adult obesity</td>
<td>-0.02</td>
<td>-0.06 0.03</td>
<td>0.53</td>
</tr>
<tr>
<td>Motor vehicle crash death rate</td>
<td>-0.01</td>
<td>-0.04 0.01</td>
<td>0.32</td>
</tr>
<tr>
<td>Teen birth rate</td>
<td>0.02</td>
<td>-0.001 0.03</td>
<td>0.08</td>
</tr>
<tr>
<td><strong>Clinical care indicators:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uninsured Adults</td>
<td>-0.01</td>
<td>-0.03 0.01</td>
<td>0.23</td>
</tr>
<tr>
<td>Primary care physicians</td>
<td>0.01</td>
<td>0.01 0.02</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Preventable hospital stays</td>
<td>-0.005</td>
<td>-0.01 0.001</td>
<td>0.08</td>
</tr>
<tr>
<td>Diabetic screening</td>
<td>0.001</td>
<td>-0.01 0.01</td>
<td>0.87</td>
</tr>
<tr>
<td><strong>Social and economic factors:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployment</td>
<td>0.05</td>
<td>-0.02 0.11</td>
<td>0.14</td>
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<tr>
<td>Children in poverty</td>
<td>0.01</td>
<td>-0.02 0.04</td>
<td>0.48</td>
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<tr>
<td>Inadequate social support</td>
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<td>-0.01 0.08</td>
<td>0.15</td>
</tr>
<tr>
<td><strong>Physical environment indicators:</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Air pollution-particulate matter days</td>
<td>0.03</td>
<td>-0.02 0.07</td>
<td>0.30</td>
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<tr>
<td>Air pollution-ozone days</td>
<td>0.01</td>
<td>-0.02 0.04</td>
<td>0.44</td>
</tr>
<tr>
<td>Access to healthy foods</td>
<td>-0.0007</td>
<td>-0.01 0.01</td>
<td>0.81</td>
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<tr>
<td><strong>Covariates</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>Ref.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>0.03</td>
<td>-0.20 0.26</td>
<td>0.73</td>
</tr>
<tr>
<td>2013</td>
<td>-0.03</td>
<td>-0.29 0.23</td>
<td></td>
</tr>
<tr>
<td>Location</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Urban</td>
<td>Ref.</td>
<td></td>
<td></td>
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<tr>
<td>Rural</td>
<td>-0.94</td>
<td>-1.55 -0.32</td>
<td>0.003</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>Ref.</td>
<td></td>
<td></td>
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<tr>
<td>Kentucky</td>
<td>-1.28</td>
<td>-2.53 -0.02</td>
<td></td>
</tr>
<tr>
<td>Minnesota</td>
<td>-1.50</td>
<td>-2.61 -0.39</td>
<td></td>
</tr>
<tr>
<td>Mississippi</td>
<td>-2.33</td>
<td>-3.82 -0.83</td>
<td>0.01</td>
</tr>
<tr>
<td>Nebraska</td>
<td>-1.03</td>
<td>-2.16 0.10</td>
<td></td>
</tr>
<tr>
<td>New Mexico</td>
<td>-1.58</td>
<td>-3.12 -0.03</td>
<td></td>
</tr>
<tr>
<td>Virginia</td>
<td>-1.90</td>
<td>-3.03 -0.77</td>
<td></td>
</tr>
<tr>
<td>Poverty rates</td>
<td>-0.03</td>
<td>-0.06 0.004</td>
<td>0.09</td>
</tr>
<tr>
<td>Population under 18</td>
<td>-0.03</td>
<td>-0.12 0.05</td>
<td>0.43</td>
</tr>
<tr>
<td>People 65 and older</td>
<td>-0.12</td>
<td>-0.19 -0.05</td>
<td>0.0009</td>
</tr>
<tr>
<td>Female population</td>
<td>0.068</td>
<td>-0.07 0.21</td>
<td>0.33</td>
</tr>
</tbody>
</table>
Discussion

Private tax-exempt hospitals have social and legal obligations towards their communities. On the one hand, the legal framework governing the financial privileges associated with their tax-exempt status was structured to ensure that these hospitals continue to serve their communities by investing their profits in activities and programs that influence their communities’ health. On the other hand, the prevailing concepts coupled with long history and the charity nonprofit nature of these hospitals established the expectations that these hospitals should be responsive and reactive and address their communities’ health needs. The successive governmental regulations, either intentionally or erroneously, neither specified the “community” nor the “need”. The assumptions that these governmental regulations were meant to give private tax-exempt hospitals the choice to react to a wide range of community needs based on the substantial differences in the socioeconomic and demographic characteristics of different communities across the U.S. Nevertheless, the established expectation is that addressing health needs should take priority over any other community needs and that private tax-exempt hospitals should engage in programs, initiatives and services that have a positive impact on their communities’ health.

Before the latest IRS regulations, no study was able to estimate the amounts private tax-exempt hospitals spend on programs and activities directed to improve their communities’ health. Previous research tried, however, to examine the relationship between various socioeconomic and demographic factors and spending on provision of community benefit or uncompensated care. Schedule H offered a standard tool that is key to estimating the amounts of spending on three CB activities that specifically target the community however it is defined by the hospital, to enhance the communities’ environment and have positive impact on their health. These activities are community health improvement services, cash and in-kind contributions to community groups, and community building activities.
We for the first time, examined if any of the community health indicators, either independently or within specific health factor category, can predict the spending on community health improvement activities over multiple years. We expanded the only previous research with similar approach known to us by implementing a longitudinal lagged model. Our justification is based on the fact that hospitals cannot act on ad hoc bases when dealing with long standing and chronic health problems of their communities. The process for engaging in community health programs and services should have enough time for multiple processes that include the identification, planning, executing, and expensing the needed financial resources and then allowing the time for change in indicators.

Our results show substantial differences in community health indicators between different counties within the same state and across states. Based on the set of fourteen indicators used in this study, Mississippi far exceeds other states on many of the health need indicators. However, when we used the arbitrary health indicators’ weights used by Community Health Rankings & Roadmaps, Kentucky became the state with worst health indicators. Over the three years of study, few health indicators improved while others fluctuated and few deteriorated.

When we examined spending on community health improvement activities using inflation adjusted terms, we noted substantial differences among counties in the same state and across states. The statistical model supported these results, hypothesis 1 is supported. Interestingly, when we disaggregated spending from the state to the county to per capita to individuals in poverty rates we found shifting patterns. States that had the highest total spending on this CB activity ranked very low when estimating the spending per capita and per individuals in poverty. Although this is not the ideal method to estimate who benefitted from the spending on this activity, it provides an overview of how much the persons in poverty benefit from this spending. More interestingly, when we plotted the aggregated weighted sums of the community health indicators against spending on this activity we could not observe any logical pattern.
between those two groups. These results were mostly supported by our statistical analysis. We found only two community health indicators that are significant and two that are marginally associated with spending on this activity. Hypothesis 2 is partially supported.

The results of this study indicate that private tax-exempt hospitals lack responsiveness to their communities' health needs. Although this may not be applicable for each hospital, nevertheless, it seems that these hospitals engage in activities and dispense large amounts of financial resources that are not reactive to their communities’ health environment. This may be justified for hospitals in areas with better socioeconomic indicators, higher incomes, and high percentage of insured (private or government program), but we think that these represent only a small fraction of private tax-exempt hospitals. We hope that by conducting the CHNA in collaboration with different community stakeholders especially the local health departments, these hospitals will be able to identify the health needs better and develop appropriate programs and effective interventions to address these health issues.

Conclusion

Extreme variations in spending on community health improvement initiatives exist between different counties in the same state and across different states. States with the highest health needs spend the least on this activity, while those with lowest health needs spend the most. Although not statistically significant, there was remarkable fluctuation in spending over the three years of the study, which could not be explained by a matching variability in the community health needs. It seems that there is a dissociation between the health needs of a community and what hospitals provide in programs and spending in response to these needs. We think that other environmental and maybe organizational factors could be influencing way private tax-exempt hospitals react to their communities’ health needs, the activities they are involved in, and the amounts they spend on community health improvement activities.
CHAPTER 5: RELATIONSHIP BETWEEN SPENDING ON COMMUNITY HEALTH IMPROVEMENT INITIATIVES BY PRIVATE TAX-EXEMPT HOSPITALS AND CHANGES IN COMMUNITY HEALTH INDICATORS

Background

Before the 2008 Internal Revenue Service (IRS) standard reporting guidelines, researchers and government agencies faced considerable challenges quantifying and tracking the amounts of spending directed to community health improvement activities. Consequently, there was no accurate method to evaluate the impact of spending on these activities and improvements in communities’ health and other socioeconomic indicators.

Hospitals that are governmental and private, as well as for-profit and tax-exempt, provide tens of billions of dollars every year on a wide range of community benefit services and programs. Two recent different sources estimated spending on community health improvement activities to account for about 8% of total CB spending, both were based on the financial data of Schedule H, Young and his team based on 2009 data (Young et al., 2013) and an IRS report based on 2011 data. Although the IRS report estimated this spending to account for less than 1% of total hospitals expenses, nevertheless, this was equivalent to $4.7 billion in 2011 only (Rosenbaum et al., 2015). In Chapter 3 of this dissertation work, we estimated the annual spending on community health improvement activities by 328 private tax-exempt hospitals in only seven states (which represents about 11% of all private tax-exempt hospitals in the U.S.) at about $340 million in 2013. To our knowledge, no study has been conducted to assess the relationship between spending on community health improvement initiatives and change in community health indicators. It is reasonable to assume with the standard reporting framework on Schedule H that these spending would have a potential to influence the health status of their communities. In this work, we try to assess the effect of spending on community health improvement activities on a set of the community health indicators during the period 2010-2013.
Methods and Materials

Study Design

This is a retrospective longitudinal study with lagged spending. We examined if spending on community health improvement initiatives can affect a set of community health indicators in seven states. We investigated the effect of spending in one year and the change in community health indicators in the following year. Hence, we used the community spending in 2010, 2011, and 2012 and the community health indicators in 2011, 2012, and 2013. We included a number of covariates such as percentages of poverty, unemployment, uninsured adults, people of 65 years and older, and female population. We conducted the study on the county level.

Data Sources

Financial data about community health improvement activities were collected from hospitals’ amended IRS income tax Form 990 for the years 2010 through 2012. Spending was then aggregated on the county level. Three sources were used to obtain, verify, and complete the income tax Form 990 for the identified hospitals. These websites are GuideStar (http://www.guidestar.org/), Economic Research Institute (http://www.eri-nonprofit-salaries.com/), and Foundation Center (http://foundationcenter.org/). The American Hospital Association (AHA) Annual Survey was used to identify private tax-exempt hospitals in each of the seven state. Multiple sources were utilized to update, complete, and verify the status of hospitals including the Henry J. Kaiser Family Foundation website (http://kff.org/), the Dartmouth Atlas of Health Care website (http://www.dartmouthatlas.org/), and states websites like Kentucky Hospital Association (http://www.kyha.com/) and Minnesota Hospital Association (http://www.mnhospitals.org/). States were selected based on the poverty rates using the American Community Survey (ACS) 2009-2013 five-year (http://factfinder.census.gov/). Other population data were obtained from the U.S. Census Bureau (https://www.census.gov/en.html). We selected three states with the highest poverty rates and four states with lowest poverty rates.
The 2003 and 2013 U.S. Department of Agriculture Rural-Urban Continuum Codes (RUCC) (http://www.ers.usda.gov/data-products/rural-urban-continuum-codes.aspx) were used to differentiate rural and urban counties where hospitals were located. The primary source for the community health indicators was the County Health Rankings & Roadmaps files (www.countyhealthrankings.org). All data sources are publicly available.

All data sources were combined to create a profile for each county that included community health improvement spending, six community health indicators, and population profile.

**Study Sample**

The study sample included all counties that had at least one private tax-exempt hospital in seven states: Kentucky, Minnesota, Mississippi, Nebraska, New Hampshire, New Mexico, and Virginia. We included both urban and rural counties from each of the seven states. The final dataset included 223 counties.

**Variables**

**Dependent variables**

Table 1 shows the dependent variables, independent variables, and Covariates. The County Health Rankings include a set of Health Factors that have been used to reflect and identify community health needs. Since this database undergoes annual updates in its methodology and reporting, some indicators change while a few others may be removed or added each year. For example, primary care physicians’ ratio definition changed by the hosting organization in 2013. The two environmental quality variables: air pollution-particulate matter days, air pollution-ozone days, and the built environment variable (i.e., access to healthy foods) were eliminated from the database in 2013. As a result, we only used indicators that were consistently reported across the study period and are comparable across states. We also excluded
indicators that could not be impacted by spending on community health improvement activity including the percentage of unemployment, children in poverty, the percentage of uninsured, ratio of population to primary care physicians, and inadequate social support. In the final model, we included six dependent health indicator variables. We used the percentage prevalence of each indicator at the county level. These indicators are:

**Health behaviors:**

1. Adult smoking: Percent of adults that smoke.
2. Adult obesity: Percent of adults that report a BMI $\geq 30$.
3. Excessive drinking: Percent of adults who report heavy or binge drinking. Binge drinking is defined by the National institute on Alcohol Abuse and Alcoholism as “pattern of drinking that brings a person’s blood alcohol concentration (BAC) to 0.08 grams percent or above” (The National institute on Alcohol Abuse and Alcoholism, 2017).
4. Teen birth rate: Teen birth rate (per 1,000 females ages 15-19).

**Clinical care:**

5. Preventable hospital stays (Ambulatory Care Sensitive Conditions): Preventable hospital stays (Rate per 1,000 Medicare enrollees). This indicator measures hospitalization due to a set of acute and chronic medical conditions that can be treated in outpatient settings. It suggests suboptimal outpatient services or an overuse of hospitals as a primary point of medical care (County Health Rankings & Roadmaps, 2016d).

**Independent Variable**

There are three activities reported on Schedule H of the income tax Form 990 that the IRS defines as initiatives taken by the hospitals to improve the overall health of their community. These activities include community health improvement services (activities intended to improve
community health) and cash and in-kind contributions for community benefit (contributions to any community benefit activity), and community building activities. Spending on these activities is reported on the tax form in total dollar amounts and as a percentage of the total hospital expenses. We aggregated total dollar spending on the three community benefit categories first at the hospital level and then on county level into one dependent variable category labeled as community health improvement initiatives for each of the three years, 2010-2012. Because of the wide variation in the aggregated total spending we used the log spending as our predictor variable.

**Other Covariates**

We included a number of covariates that were used in previous research or those that could have an influence on the analysis. We also included a year variable to assess change over time, a location variable to examine the difference between rural and urban counties and a state variable to examine differences between states.

1. Poverty rates: Percentage of population under the poverty line.
2. Percentage of Uninsured adults: Percent of population < age 65 without health insurance.
3. Percentage of unemployment: Percent of population age 16+ who are unemployed.
4. Percentage of population under 18.
5. Percentage of population 65 and older.
6. Percentage of the population that is female.
7. Year community health indicators reported.
8. Location: whether the county is rural or urban.
9. State: Kentucky, Minnesota, Mississippi, Nebraska, New Hampshire, New Mexico, Virginia.
## Table 1: Dependent Variables, Independent Variables, and Covariates

<table>
<thead>
<tr>
<th>Variable (Response variables)</th>
<th>Type</th>
<th>Unit of measurement</th>
<th>Data Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult smoking</td>
<td>Numerical</td>
<td>Percent of adults that smoke</td>
<td>Behavioral Risk Factor Surveillance System / County Health Rankings and Roadmaps</td>
</tr>
<tr>
<td>Adult obesity</td>
<td>Numerical</td>
<td>Percent of adults that report a BMI &gt;= 30</td>
<td>National Center for Chronic Disease Prevention and Health Promotion, calculated from BRFSS / County Health Rankings and Roadmaps</td>
</tr>
<tr>
<td>Excessive drinking</td>
<td>Numerical</td>
<td>Percent of adults who report heavy or binge drinking</td>
<td>Behavioral Risk Factor Surveillance System / County Health Rankings and Roadmaps</td>
</tr>
<tr>
<td>Teen birth rate</td>
<td>Numerical</td>
<td>Teen birth rate (per 1,000 females ages 15-19)</td>
<td>National Center for Health Statistics / County Health Rankings and Roadmaps</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Clinical Care</th>
<th>Preventable hospital stays</th>
<th>Numerical</th>
<th>Preventable hospital stays (Rate per 1,000 Medicare enrollees)</th>
<th>Medicare claims / Dartmouth Atlas of Health Care / County Health Rankings and Roadmaps</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Diabetic screening</td>
<td>Numerical</td>
<td>Percent of people with diabetes that receive HbA1c screening</td>
<td>Medicare claims / Dartmouth Atlas of Health Care / County Health Rankings and Roadmaps</td>
</tr>
</tbody>
</table>

| Predictor variable (independent) | Total Community Health Improvement Initiatives Spending | Numerical | Log total amount of spending | Income Tax Form 990 |

<table>
<thead>
<tr>
<th>Covariates</th>
<th>Type</th>
<th>Year</th>
<th>Data Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>Ordinal</td>
<td>2011, 2012, 2013</td>
<td>County Health Rankings and Roadmaps</td>
</tr>
<tr>
<td>Poverty rates</td>
<td>Numerical</td>
<td>Percentage of people in poverty</td>
<td>U.S. Census Bureau, Small Area Estimates</td>
</tr>
<tr>
<td>Uninsured adults</td>
<td>Numerical</td>
<td>Percent of population &lt; age 65 without health insurance</td>
<td>Census/American Community Survey (ACS)—Small Area Health Insurance Estimates (SAHIE) / County Health Rankings and Roadmaps</td>
</tr>
<tr>
<td>Unemployment</td>
<td>Numerical</td>
<td>Percent of population age 16+ unemployed</td>
<td>Local Area Unemployment Statistics, Bureau of Labor Statistics / County Health Rankings and Roadmaps</td>
</tr>
<tr>
<td>State</td>
<td>Categorical</td>
<td>Kentucky, Minnesota, Mississippi, Nebraska, New Hampshire, New Mexico, Virginia</td>
<td>Income Tax Form 990</td>
</tr>
<tr>
<td>Location</td>
<td>Categorical</td>
<td>Urban, Rural</td>
<td>Income Tax Form 990, US Department of Agriculture Rural-Urban Continuum Codes</td>
</tr>
<tr>
<td>Population Under 18</td>
<td>Numerical</td>
<td>Percentage of individuals 18 years and younger</td>
<td>U.S. Census Bureau</td>
</tr>
<tr>
<td>People 65 and older</td>
<td>Numerical</td>
<td>Percentage of individuals 65 years and older</td>
<td>U.S. Census Bureau</td>
</tr>
<tr>
<td>Female population</td>
<td>Numerical</td>
<td>Female proportion of the total population</td>
<td>U.S. Census Bureau</td>
</tr>
</tbody>
</table>
Data Analysis and Analytical Approach

We reported descriptive statistics for community health improvement initiative spending and community health indicators. For the categorical variables, we calculated the frequencies and percentages. For continuous variables, we checked for normality, collinearity, and outliers and calculated maximum, minimum, and mean.

For our descriptive statistics, we ranked states based on the weighted sums of their counties’ community health indicators. We used the Consumer Price Index inflation calculator (CPI) for the U.S. to adjust nominal spending for each of the four years to 2016 dollars (Bureau of Labor Statistics, 2016).

We used a random effects model to determine within and between subject effects. We used county mean centering using hierarchical linear models and adjusted for multiple variables including year, state, location, poverty rates and other demographic characteristics. We used log spending as our predictor variable to handle the skewed data distribution. For spending values that had zero, we added 1 and then log transformed. We tested for skewness and kurtosis and log transformation was the best fit for the model. SAS software (V 9.4) was used to execute the analyses. A p-value of ≤ 0.05 was considered statistically significant.

We did not examine the differences between census and poverty regions due to their high collinearity with other variables. One medical center was removed from the dataset because in review of its income tax form 990 a substantial amount of spending was directed to establishing a cancer center.

Results

Descriptive data about different counties included in this study were reported in Chapter 4 of this dissertation.
Over the study period, some counties in the seven states did not have spending on community health improvement activities. Seven counties in Kentucky did not have any spending in 2010 and 2011, while six did not have spending in 2012. In one county the payments received to offset the spending on this activity was more than the amounts expensed in 2010. Six counties in Mississippi did not have spending in 2010, and 5 in each of 2011 and 2012. In other states a range between 1 and 3 counties that did not have spending over the study period.

In Kentucky, county spending ranged from as low as $640 to as high as $37 million. In Mississippi, it ranged from $1,056 to about $5 million. In New Hampshire, spending varied from about $170 thousand to about $12 million. In New Mexico, county spending ranged from about $28 thousand to about $4 million. Moreover, across states, county spending ranged from as high as $37 million by one Kentucky county to as low as $660 in a Virginia County. Total state spending also varied considerably, from about $79 million in Virginia to about $8 million in Mississippi.

Table 2, Figures 1 and 2 in this chapter and Figures 3 and 4 of the Appendix provide information about the spending patterns over the 2010-2012 study period. Collectively over the period 2010-2012 and in inflation-adjusted terms, total spending on this activity in the seven states increased by 6.34%. However, notable variations existed between counties and between states. There was an incremental increase in spending on this activity from 2010-2012 in two states, Nebraska (22.4% increase) and Kentucky (11.4% increase). Spending on these activities decreased over the same period in two states New Hampshire (17.5% decrease) and New Mexico (13% decrease). Mixed patterns were noted in the remaining three states. Based on the total expenditure on community health improvement activities, three levels of spending were recognized, high, medium, and low. Kentucky, Minnesota, and Virginia provided the highest total spending, Nebraska and New Hampshire fell into the mid-tier and Mississippi and New Mexico fell in the low spending tier. However, when average spending was examined, a very different
picture emerged. New Hampshire was ahead of all other states in the top spending tier. Virginia, Nebraska, Kentucky, and Minnesota fell in the mid spending tier, and New Mexico and Mississippi were in the lowest spending tier.

Private tax-exempt hospitals have the option to provide the number of programs and activities and the number of persons served by each CB category on their Schedule H. However, we found that the majority of hospitals did not report these data. If hospitals provide this kind of detailed information, we would have a better understanding on the breadth and variety of their activities and the type and number people they target. We alternatively calculated spending per capita and per individuals in poverty as a way to understand who benefits from these dollars. When per capita spending was considered, we get an entirely different perspective. In this case, Nebraska, Virginia, and New Hampshire were the top spenders, Minnesota and Kentucky fell in the middle, while New Mexico and Mississippi spent the least. If we examined spending per individuals in poverty, we found additional changes in the spending patterns. The comparisons revealed five levels of spending. Virginia had the highest level of spending and was almost double that of the next highest spending states, New Hampshire and Nebraska. Minnesota was the only state in the middle, and New Mexico and Mississippi were in the lowest spending tier. Only Nebraska showed a progressive increase in spending over the three years for each of those categories while New Mexico showed the opposite spending trend. The spending in other states showed mixed patterns. These data show a consistent decline of expenditure in Minnesota, Kentucky, New Mexico, and Mississippi when it is disaggregated from total to average to per capita to per poverty population.
Table 2: Inflation-Adjusted Spending on Community Improvement Initiatives 2010-2012*

<table>
<thead>
<tr>
<th>Year</th>
<th>County spending</th>
<th>Per capita spending</th>
<th>Per Individuals in Poverty spending</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Maximum</td>
<td>Minimum</td>
</tr>
<tr>
<td>2010</td>
<td>67,943,432</td>
<td>37,507,623</td>
<td>5,796</td>
</tr>
<tr>
<td></td>
<td>73,131,973</td>
<td>34,284,446</td>
<td>642</td>
</tr>
<tr>
<td>2012</td>
<td>75,685,709</td>
<td>37,308,167</td>
<td>1,260</td>
</tr>
<tr>
<td>2010</td>
<td>65,781,618</td>
<td>18,306,860</td>
<td>4,399</td>
</tr>
<tr>
<td>2011</td>
<td>73,673,886</td>
<td>22,465,147</td>
<td>4,997</td>
</tr>
<tr>
<td>2012</td>
<td>73,283,069</td>
<td>21,280,988</td>
<td>2,752</td>
</tr>
<tr>
<td>2010</td>
<td>9,565,575</td>
<td>2,476,246</td>
<td>1,162</td>
</tr>
<tr>
<td>2011</td>
<td>9,977,187</td>
<td>2,322,084</td>
<td>8,663</td>
</tr>
<tr>
<td>2012</td>
<td>8,419,964</td>
<td>4,117,926</td>
<td>1,698</td>
</tr>
<tr>
<td>2010</td>
<td>44,642,431</td>
<td>10,361,032</td>
<td>2,855</td>
</tr>
<tr>
<td>2011</td>
<td>51,519,708</td>
<td>15,180,033</td>
<td>3,925</td>
</tr>
<tr>
<td>2012</td>
<td>54,637,935</td>
<td>19,197,474</td>
<td>1,374</td>
</tr>
<tr>
<td>2010</td>
<td>37,841,793</td>
<td>14,295,874</td>
<td>550,949</td>
</tr>
<tr>
<td>2011</td>
<td>33,343,335</td>
<td>10,690,758</td>
<td>188,553</td>
</tr>
<tr>
<td>2012</td>
<td>31,231,933</td>
<td>10,788,018</td>
<td>305,150</td>
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<tr>
<td>2010</td>
<td>13,431,860</td>
<td>4,892,169</td>
<td>44,539</td>
</tr>
<tr>
<td>2011</td>
<td>12,252,041</td>
<td>3,802,466</td>
<td>30,119</td>
</tr>
<tr>
<td>2012</td>
<td>11,698,912</td>
<td>3,954,300</td>
<td>43,419</td>
</tr>
<tr>
<td>2010</td>
<td>75,419,733</td>
<td>15,722,651</td>
<td>660</td>
</tr>
<tr>
<td>2011</td>
<td>73,844,355</td>
<td>20,168,838</td>
<td>2,122</td>
</tr>
<tr>
<td>2012</td>
<td>79,617,591</td>
<td>22,187,034</td>
<td>819</td>
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</tbody>
</table>

*Excluding all zero and negative values
Figure 1: Inflation-Adjusted Average Spending Per Capita on Community Health Improvement Initiatives in the Seven States 2010-2012* 

Excluding all zero and negative values.

Figure 2: Inflation-Adjusted Average Spending per Individuals in Poverty* on Community Health Improvement Initiatives in the Seven States 2010-2012* 

*Excluding all zero and negative values.
*Poverty is defined as all people under the federal poverty line.
Table 3 shows descriptive statistics for the community health indicators and other continuous variables. Community health indicators varied notably on the county level within the same state and between different states. In Kentucky, adult smoking ranged from 17.1% to 36.7%, in Minnesota, it varied from as low as 2.9% to as high as 26.9%, and the range in Nebraska was from 12.3% to 23.8%. Adult obesity ranged from as low as 25.8% to as high as 39.4% in Mississippi. These ranges differed in New Hampshire where the lowest was 21.9% and the highest was 30.6%. Excessive drinking also varied considerably, Minnesota had a low of 9.0% and a high of 30.4%, while Nebraska had a low of 15% and a high of 19.6%. For patients who receive diabetic screening, New Hampshire had a high as 92.3% and a low of 84.7%. Kentucky had a range between 90.7% and 49.4%. Preventable hospital stays showed marked variations as well. Kentucky had a range of 54.2 to 255.5 days while the difference in Mississippi was from 55.6 and 188 days. New Mexico had a range between 32.1 and 126 days and the range in New Hampshire was from 46.9 and 87.8 days. The teen birth rate showed the same variability among and between states. Kentucky had as low as 16.7 and a high of 90 cases per 1000 females aged 15-19. Minnesota ranged from 8.1 to 52.3 cases and Mississippi had a low of 19.5 and a high of 92.8 cases. New Mexico had a range of 38.31 to 93.8 cases.

Table 3: Descriptive Statistics for Community Health Indicators and Other Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult smoking</td>
<td>2.9%</td>
<td>36.7%</td>
<td>21.54%</td>
</tr>
<tr>
<td>Adult obesity</td>
<td>12.9%</td>
<td>40.1%</td>
<td>29.85%</td>
</tr>
<tr>
<td>Excessive drinking</td>
<td>1.3%</td>
<td>30.43%</td>
<td>14.21%</td>
</tr>
<tr>
<td>Teen birth rate</td>
<td>7.51/1000</td>
<td>93.8/1000</td>
<td>42.92/1000</td>
</tr>
<tr>
<td>Preventable hospital stays</td>
<td>24.61/1000</td>
<td>255.54/1000</td>
<td>84.79/1000</td>
</tr>
<tr>
<td>Diabetic screening</td>
<td>26.7%</td>
<td>96.15%</td>
<td>82.89%</td>
</tr>
<tr>
<td>Uninsured Adults</td>
<td>7.9%</td>
<td>41%</td>
<td>18.93%</td>
</tr>
<tr>
<td>Unemployment</td>
<td>3.1%</td>
<td>19.4%</td>
<td>8.08%</td>
</tr>
<tr>
<td>Poverty rates</td>
<td>2.9%</td>
<td>42.8%</td>
<td>16.39%</td>
</tr>
<tr>
<td></td>
<td>Age 65 and older</td>
<td>Age 18 and younger</td>
<td>Female population</td>
</tr>
<tr>
<td>--------------------------</td>
<td>------------------</td>
<td>-------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td></td>
<td>6.4%</td>
<td>31.5%</td>
<td>15.36%</td>
</tr>
<tr>
<td></td>
<td>8.76%</td>
<td>32.3%</td>
<td>23.14%</td>
</tr>
<tr>
<td></td>
<td>42.4%</td>
<td>55%</td>
<td>50.56%</td>
</tr>
</tbody>
</table>

Table 4 in this chapter demonstrates the average and Table 34 of the Appendix shows the average weighted sums of the community health indicators for all the counties examined in each state for the years 2011-2013. Kentucky and Mississippi have the greatest health needs in two of the six community health indicators included in this analysis. Kentucky leads other states in adult smoking and preventable hospital stays while Mississippi has the highest adult obesity and teen birth rates. New Mexico had the lowest rates of diabetic screening and Minnesota highest percentage of excessive drinking. When we used the weighted sums of the health indicators, Kentucky had the highest scores (worst health), Mississippi and New Mexico followed. New Hampshire had the lowest score (best health) in this study cohort.

Over the study period, adult smoking decreased in all seven states, although with different proportions. Adult obesity increased in six states except Minnesota which showed an initial increase and then mild decrease. Excessive drinking increased in two states, Kentucky and Nebraska, while other states showed mixed patterns. The teen birth rate decreased in five states except Mississippi which showed an initial increase then a decrease and New Mexico which showed an initial decrease and then an increase. Preventable hospital stays decreased in all states except New Mexico which showed initial decrease then slight increase. Diabetic screening increased in all states except in Minnesota which showed initial decrease then a slight increase.

When we evaluated Tables 2 and 4 together, we found that, in states that there was an incremental total increase in spending, Kentucky and Nebraska, there was a concurrent improvement in four of the six indicators, adult smoking, teen birth rate, preventable hospital stays, and diabetic screening. A corresponding deterioration in two indicators, adult obesity and
excessive drinking was noted in the two states over the same period. In states with a progressive decrease in spending, New Hampshire and New Mexico, we also noted that there was an improvement in three of the six indicators, adult smoking and preventable hospital stays in both states, teen birth rate in New Hampshire, and diabetic screening in New Mexico. However, adult obesity increased in both states. Excessive drinking was rather stable in both states and teen birth rate fluctuated in New Mexico. We could not observe any differences in community health indicators changes between states with highest and lowest per capita and per individuals in poverty spending. Two states of the top three with highest per capita and per individuals in poverty spending, Virginia and Nebraska had improvements in four indicators, adult smoking, teen birth rate, preventable hospital stays, and diabetic screening, while the third state, New Hampshire, had improvements in three of the six indicators, adult obesity, teen birth rate, and preventable hospital stays. In states with least spending on community health improvement activities, Kentucky, New Mexico, and Mississippi, there were also improvements in the same indicators, adult obesity, preventable hospital stays, and diabetic screening. Kentucky showed improvement in teen birth rate as well.

On the state level, Kentucky showed improvement in four of the six indicators except adult obesity and excessive drinking. Minnesota had three of its health indicators improve, adult smoking, teen birth rate and preventable hospital stays, while 3 showed mixed patterns. In Mississippi, three of the health indicators improved, adult smoking, preventable hospital stays, and diabetic screening while the other three showed mixed patterns. Nebraska had improvements in four of the six indicators, however, adult obesity and excessive drinking deteriorated.
Table 4: Average Community Health Indicators 2011-2013

<table>
<thead>
<tr>
<th></th>
<th>Adult smoking</th>
<th>Adult Obesity</th>
<th>Excessive drinking</th>
<th>Teen birth rate</th>
<th>Preventable hospital stays</th>
<th>Diabetic screening</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kentucky</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>28.90</td>
<td>31.72</td>
<td>9.11</td>
<td>57.91</td>
<td>136.02</td>
<td>79.56</td>
</tr>
<tr>
<td>2012</td>
<td>27.98</td>
<td>33.41</td>
<td>9.40</td>
<td>57.84</td>
<td>129.41</td>
<td>81.04</td>
</tr>
<tr>
<td>2013</td>
<td>27.53</td>
<td>33.37</td>
<td>9.39</td>
<td>56.46</td>
<td>125.63</td>
<td>82.73</td>
</tr>
<tr>
<td>Minnesota</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>18.83</td>
<td>27.61</td>
<td>19.08</td>
<td>27.77</td>
<td>63.57</td>
<td>87.79</td>
</tr>
<tr>
<td>2012</td>
<td>17.22</td>
<td>28.02</td>
<td>18.74</td>
<td>27.21</td>
<td>59.3</td>
<td>85.57</td>
</tr>
<tr>
<td>2013</td>
<td>15.96</td>
<td>27.9</td>
<td>18.94</td>
<td>26.51</td>
<td>56.66</td>
<td>85.62</td>
</tr>
<tr>
<td>Mississippi</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>24.83</td>
<td>33.63</td>
<td>10.66</td>
<td>63.35</td>
<td>103.05</td>
<td>79.46</td>
</tr>
<tr>
<td>2012</td>
<td>24.76</td>
<td>35.01</td>
<td>10.25</td>
<td>65.28</td>
<td>99.08</td>
<td>81.64</td>
</tr>
<tr>
<td>2013</td>
<td>24.28</td>
<td>35.01</td>
<td>10.26</td>
<td>62.71</td>
<td>94.23</td>
<td>83.29</td>
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<td>Nebraska</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>18.24</td>
<td>29.46</td>
<td>18.00</td>
<td>31.38</td>
<td>73.66</td>
<td>83.17</td>
</tr>
<tr>
<td>2012</td>
<td>17.81</td>
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<td>18.36</td>
<td>31.27</td>
<td>71.56</td>
<td>84.47</td>
</tr>
<tr>
<td>2013</td>
<td>17.16</td>
<td>30.43</td>
<td>18.70</td>
<td>30.2</td>
<td>68.95</td>
<td>85.11</td>
</tr>
<tr>
<td>New Hampshire</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>20.03</td>
<td>25.79</td>
<td>17.17</td>
<td>22.5</td>
<td>62.12</td>
<td>88.11</td>
</tr>
<tr>
<td>2012</td>
<td>19.48</td>
<td>26.60</td>
<td>17.10</td>
<td>21.89</td>
<td>59.33</td>
<td>88.36</td>
</tr>
<tr>
<td>2013</td>
<td>18.62</td>
<td>26.59</td>
<td>17.19</td>
<td>20.71</td>
<td>56.27</td>
<td>88.8</td>
</tr>
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<td>New Mexico</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>21.02</td>
<td>23.79</td>
<td>13.32</td>
<td>62.66</td>
<td>70.29</td>
<td>65.56</td>
</tr>
<tr>
<td>2013</td>
<td>19.79</td>
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<td>13.03</td>
<td>63.92</td>
<td>63.69</td>
<td>67.72</td>
</tr>
<tr>
<td>Virginia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2011</td>
<td>21.19</td>
<td>27.23</td>
<td>14.39</td>
<td>40.32</td>
<td>76.07</td>
<td>83.72</td>
</tr>
<tr>
<td>2012</td>
<td>20.45</td>
<td>29.13</td>
<td>14.15</td>
<td>40.23</td>
<td>67.14</td>
<td>85.08</td>
</tr>
<tr>
<td>2013</td>
<td>19.83</td>
<td>29.20</td>
<td>14.16</td>
<td>38.14</td>
<td>66.35</td>
<td>86.10</td>
</tr>
</tbody>
</table>
Table 5 shows the multivariate regression results. There were significant changes in four of the six health indicators over the study period. Three of those changes indicate improvements while one health indicator worsened. Adult smoking and preventable hospital stays significantly decreased (improved) in 2012 and 2013 compared to 2011, \( p < .0001 \). Diabetic screening increased (improved) in 2012 and 2013 compared to 2011, \( p = 0.02 \). Adult obesity on the other hand significantly increased in 2012 and 2013 compared to the base year, \( p < .0001 \). Of those four indicators that showed a significant change, only diabetic screening was significantly associated, \( p = 0.03 \), with spending on community health improvement activities. A unit increase in log spending on community health improvement initiatives was associated with a 1.0714 percent increase in diabetic screening. The model could not establish any relationship with other health indicators. We found significant differences between the seven states in all six indicators, \( p < .0001 - 0.0007 \). Kentucky had the highest health needs on two of the indicators, adult smoking and preventable hospital stays. Mississippi had the worst indicators of adult obesity, Minnesota on excessive drinking, Virginia on teen birth rate, and New Mexico on diabetic screening. We found only a borderline significant difference between rural and urban counties in adult obesity, \( p = 0.07 \) and excessive drinking, \( p = 0.09 \). Rural counties had higher adult obesity, while urban areas had higher excessive drinking.

Of the Covariates, the percentage of uninsured adults was significantly associated with three of the six health indicators, adults smoking, \( p = 0.05 \), adult obesity, \( p < .0001 \), and diabetic screening, \( p = 0.01 \). The percentage of unemployment was found to be significantly associated with four of the community health indicators, adult smoking and teen birth rate, \( p < .0001 \), preventable hospital stays, \( p = 0.007 \), and diabetic screening, \( p = 0.04 \). Percentage of population under 18 was found to be significantly associated with teen birth rate, \( p = 0.0008 \) and population aged 65 and older was significantly associated with excessive drinking, \( p = 0.02 \). Female population was not associated with any of the health indicators included in this model.
Discussion

Using the 2011 fiscal data from Schedule H of the income tax Form 990, the IRS reported that private tax-exempt hospitals allocated roughly 8% of their total CB spending to community health improvement activities. Spending on community health improvement accounted for about 4% and cash and in-kind contributions to community groups accounted for about 3% of total CB spending. Although spending of those two activities represent less than 1% of total hospitals expenses, nevertheless, this amount was estimated at about $4.7 billion. In Chapter 3 of this dissertation work, we estimated spending on this activity slightly higher, ranging between 9.56% in 2010 and 7.5% in 2013 of total CB spending, in the seven states. Although no study to the extent of our knowledge, has attempted to estimate the effect of such spending on the communities’ health, it is logical to expect that these types of targeted spending initiatives will have a positive impact on the communities’ health.

The governmental regulations gave private tax-exempt hospitals the freedom to decide the appropriate approach to interact with their communities’ identified health needs. These activities may include health education and disease prevention activities, wellness events and health fairs, financial support and subsidies to nursing education programs or federally qualified practices, free classes for diabetes management, childbirth, and breast-feeding, and free or discounted health screening for common types of cancers, blood pressure, cholesterol, glucose, and obesity. Although a structured community health needs assessment was only included in the 2010 ACA, and implemented in 2013, however, the expectation was that private tax-exempt hospitals would engage in programs and services that fulfill and respond to their communities’ health needs. Community health needs assessment is a formal revivification of community health-status assessment that have been conducted by private tax exempt hospitals in the past decades. According to the AHA, in 1995, about 60% of hospitals in the U.S. conducted community health-
status assessments and used the results to structure, and modify their services (Proenca et al., 2000).

In this study, we estimated the relationship between spending on community health improvement initiatives and changes in a subset of the community health indicators. We selected those health indicators that we thought could be common areas of community health activities or can be primarily influenced by spending on community improvement initiatives. Those include adult smoking, adult obesity, excessive drinking, teen birth rate, preventable hospital stays, and diabetic screening. However, there are many health determinants that fall beyond the scope of hospital’s activities and would not be affected by their spending, yet have substantial effect on the overall health status of the community. Among those are unemployment, medically uninsured, access to health food, air pollution, and others. Although private tax-exempt hospitals have to provide descriptions of their community building activities, there is still no standardization of the programs and activities that could be engaged in by different hospitals.

Collectively, in inflation-adjusted terms, spending on community health improvement activities increased in all seven states by 6.34% over 2010-2012 period. However, on the state level, there were different patterns. Total spending on this activity increased in three states, Kentucky, Minnesota, and Nebraska while it decreased in Mississippi, New Hampshire and New Mexico. Virginia showed a decrease in 2011 but spending increased in 2012. When we examined the six community health indicators in these states over the 2011-2013 period we found different patterns. Adult smoking decreased (improve in indicator) in all seven states, although with different proportions. Preventable hospital stays decreased (improvement in indicator) in all states except New Mexico, which showed initial decrease then slight increase. Diabetic screening increased (improvement in indicator) in all states except Minnesota, which showed initial decrease (deterioration in indicator) then a slight increase. Teen Birth rate decreased (improvement in indicator) in five states except Mississippi, which showed an initial increase
then a decrease and New Mexico, which showed an initial decrease and then an increase.

Excessive drinking increased (deterioration in indicator) in two states, Kentucky and Nebraska, while other states showed mixed patterns. Adult obesity increased (deterioration in indicator) in six states except Minnesota, which showed an initial increase and then mild decrease. When we linked the spending on this CB activity with the patterns of change of the six community health indicators in the seven states we could not establish a logical informative relationship. The regression model only found a significant association between spending on this activity and diabetic screening. Hypothesis 1 is partially supported. We think that diabetic screening was associated with spending since it is a program that most hospitals implement either for free or at a reduced cost. Moreover, it is a cheap test that can be easily performed in an outpatient setting, during an education campaign, or a wellness fair. Although there are numerous elements that contribute to the health of the community, it does not appear that private tax-exempt hospitals implemented programs and services that targeted prevailing and serious health needs of their communities.

**Conclusion**

Notable variations in spending on community health improvement activities and community health indicators existed between counties in the same state and across states. Despite spending billions of dollars on community health improvement activities, we only found a significant association with one health indicator, diabetic screening. Although there was a significant change in some of these health indicators over the study period, our findings suggested that these changes were not been related to hospital spending. While there are numerous factors that may affect the community health indicators, we think that these results reflect the lack of targeted spending by those hospitals. We hope that as private tax-exempt hospitals continue to develop and implement their CHNA, these programs and spending will ultimately have a more positive impact their communities’ health.
Table 5: Regression of Community Health Indicators over Spending on Community Health Improvement Activities

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Response Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Adult Smoking</td>
</tr>
<tr>
<td></td>
<td>Estimate</td>
</tr>
<tr>
<td>Log Spending on Community Health Improvement Initiatives</td>
<td>-0.02</td>
</tr>
<tr>
<td>Year</td>
<td>2011</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Kentucky</td>
<td></td>
</tr>
<tr>
<td>Minnesota</td>
<td></td>
</tr>
<tr>
<td>Mississippi</td>
<td></td>
</tr>
<tr>
<td>State</td>
<td>Nebraska</td>
</tr>
<tr>
<td></td>
<td>New Hampshire</td>
</tr>
<tr>
<td></td>
<td>New Mexico</td>
</tr>
<tr>
<td></td>
<td>Virginia</td>
</tr>
<tr>
<td>Location</td>
<td>Urban</td>
</tr>
<tr>
<td></td>
<td>Rural</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Poverty rates</td>
<td>Medically uninsured Adults</td>
</tr>
<tr>
<td>Unemployment</td>
<td>0.64</td>
</tr>
<tr>
<td>Population Under 18</td>
<td>-0.09</td>
</tr>
<tr>
<td>People 65 and older</td>
<td>0.0008</td>
</tr>
<tr>
<td>Female population</td>
<td>0.26</td>
</tr>
</tbody>
</table>
CHAPTER 6: SUMMARY

The three parts of this dissertation work explored three aspects of community benefit spending in the U.S. The three independent yet highly linked studies expanded previous research and clarified some of the long-standing questions about community benefit spending by private tax-exempt hospitals. We also investigated new areas that were not possible before the standard Schedule H of the income tax Form 990. The results from this dissertation work will benefit community advocacy groups, policy groups, state and local governments, federal agencies, hospital administrators, and researchers.

The first study examined, for the first time, the amounts and trends in spending on total and different categories of CB activities in seven states in the U.S. that fall between the two ends of the poverty spectrum over a four-year period 2010-2013. It examined the differences in spending on four major groups of CB between different types of private tax-exempt hospitals as well as between states, areas, and locations. Furthermore, this study examined the effect of various organizational and environmental factors on levels of spending on each of the CB categories. The results of this study will inform us on the spending patterns by various types of hospitals and how different factors interact to influence their spending. The second study analyzed the relationship between community health indicators and spending on community health improvement activities. Specifically we examined which community health indicators are predictive of spending on community health improvement activities. The findings from this study will serve as baseline information that can help clarify the long term effectiveness of CHNA and how private tax-exempt hospitals account for their community health indicators when developing their community programs and interventions. The third study evaluated the impact of spending on community health improvement activities on a set community health indicators. The outcomes of this study will help hospitals understand the effectiveness of their spending on community programs.
The three studies relied primarily on the financial data reported on the revised income tax Form 990 of private tax-exempt hospitals. Other sources included American Hospital Association (AHA) Annual Survey, County Health Rankings & Roadmaps, Small Area estimates and American Community Surveys of the U.S. census Bureau, Rural-urban Continuum Code. Multiple other secondary sources were used to verify and supplement different organizational and environmental data.

Summary of study results

The first study examined the amounts and trends in spending on CB activities by all private tax-exempt hospitals in the seven states of Kentucky, Minnesota, Mississippi, Nebraska, New Hampshire, New Mexico, and Virginia after the enactment of the latest IRS and ACA reporting regulations from 2010-2013. We included all 328 private tax-exempt hospitals in these states. After adjusting for inflation rates, we found that there was an incremental increase in spending on total CB, direct patient care activities. Spending on medical education and research increased initially but flattened in 2012 and 2013 while spending on community health improvement activities increased in 2011 and 2012 but fell sharply in 2013. Extreme variations in spending on CB were noted between different types of hospitals and between different locations and states. The multivariate regression analysis showed few common predictors for spending on different CB activities including profit margin and levels of FPG used to determine eligibility for free care. Among the environmental factors, percentage of poverty was associated with spending on total CB, direct patient care, and medical education and research. Percentages of unemployment and medically uninsured adults were associated with spending on medical education and research activities only.

The second study examined community health indicators that can predict spending on community health improvement activities. We included 223 counties in seven states and spending was aggregated on the county level. Mississippi was the state with the highest prevalence of most
of the health need indicators, New Hampshire was the state with lowest health needs. Although Kentucky and Minnesota were the top total spenders on community health improvement activities, when we disaggregated the spending to the per capita and individuals in poverty rates they fell into the low spending levels. Descriptively, there were notable dissociations between the community health indicators and spending on community health improvement activities. The multivariate regression analysis showed that only two health indicators, adult smoking and primary care physicians rate, were significantly associated while two other health indicators, teen birth rate and preventable hospital stays, were marginally associated with spending on this activity. Among the environmental factors, people 65 and older was the only significant factor associated with spending on this activity, while percentage of individuals in poverty was marginally associated.

The objective of the third paper was to examine if spending on community health improvement activities affects community health indicators. Although in inflation-adjusted terms, spending on community health improvement activities increased in the seven states by 6.34% over the 2010-2012 period. However, total spending on this activity increased in three states, Kentucky, Minnesota, and Nebraska while it decreased in Mississippi, New Hampshire and New Mexico. Virginia showed a decrease in 2011 but spending increased in 2012. Among the six community health indicators examined in this study Smoking decreased (improve in indicator) in all seven states, although with different proportions. Preventable hospital stays decreased (improvement in indicator) in all states except New Mexico which showed initial decrease then slight increase. Diabetic screening increased (improvement in indicator) in all states except in Minnesota which showed initial decrease (deterioration in indicator) then a slight increase. Teen Birth rate decreased (improvement in indicator) in five states except Mississippi which showed an initial increase then a decrease and New Mexico which showed an initial decrease and then an increase. Excessive drinking increased (deterioration in indicator) in two states, Kentucky and
Nebraska, while other states showed mixed patterns. Adult obesity increased (deterioration in indicator) in 6 states except Minnesota which showed an initial increase and then mild decrease. A logical relationship could not be established between patterns of spending on community health improvement activities and the community health indicators. Although, the regression model found significant changes in the community health indicators over time, it only found a significant association between spending on this community benefit activity and diabetic screening. Percentages of poverty, population under 18 and female population in the community did not seem to significantly affect any of those health indicators.

**Contribution to Existing Literature**

This work expanded previous research and explored new areas in the area of community benefit spending by private tax-exempt hospitals in the U.S. For the first time, we now have a longitudinal assessment of spending on different categories of CB over an expanded period of time. We also have a better understanding of how much each specific type of private tax-exempt hospitals is spending on each of the different CB activities, how much they are allocating from their total spending to these activities, and what are their CB policies and practices. This information could be beneficial in amending the current laws to maximize the mutual benefit of the community and private tax-exempt hospitals.

The second paper, also for the first time, showed the disassociation between the major health needs and spending on community health improvement activities. Although it may be relatively early to establish a solid conclusion, nevertheless, it seems that private tax-exempt hospitals engage in random or ad hoc activities that are not linked to their major communities’ health needs.

The third paper also for the first time, showed that although private tax-exempt hospitals spend billions of dollars in community health improvement initiatives, the impact is minimal or negligible. We hope that the ACA amendments, especially those related to community health
needs assessment (CHNA) will continue to be part of the health care laws in the U.S. so that a stronger hospital-community health needs relationship grows overtime and a better impact is recognized from the multi-billion dollars investment in community improvement initiatives.

**Strengths and Limitations**

**Strengths**

After an extensive literature search, this is the first longitudinal study that examines the CB spending after the implementation of the latest IRS and ACA rulings both on the individual hospital and state levels and their impact on community health indicators. The only similar study was done in 2009, before the enactment of the ACA. This study will allow an unprecedented opportunity to understand the different factors and predictors that influence community benefits spending on the individual hospital level from a governance (board characteristics), facility and system (different organizational characteristics and performance), and community (demographics and proportion of uninsured) perspectives. The detailed reliable breakdown of CB spending provided through the 990 forms will allow better understanding on how tax-exempt hospitals prioritize their spending in relation to the community health indicators and how these indicators are affected by the tax-exempt CB spending. Building on empirically proven theoretical frameworks that used the institutional and resource dependence theories increases the conceptual validity of the study. Adding the economic theories allows for better understanding of tax-exempt hospitals’ behaviors and responsiveness to legal pressures in view of their community and organizational characteristics and enhances the generalizability of the results (Byrd and Landry, 2012; Cherulnik, 2001; Ginn et al., 2009; Proenca et al., 2000). This study uses a large representative sample including all private tax-exempt hospitals in seven states from all census regions in the U.S. This increases the external validity and generalizability of the results. The CB spending by tax-exempt hospitals is the current focus of federal, state, and local authorities, interest groups, professional organizations and the community. The results can be of significant
importance for federal and state officials, policy makers, hospital administrators, professionals, and researchers. The results can be used for future planning and establishing regulations and policies. Using four years of data can help us establish causal relationships between different predictor and response variables.

Limitations

As in any scholarly work, we have a number of study limitations. The lack of a single reliable data source to identify tax-exempt hospitals in the selected states like the AHA Annual Survey led to the use of multiple sources with minor conflicting data. Due to different fiscal years used by different hospitals, the financial data did not always match the calendar year. This work did not include for-profit and public/government hospitals, which limited our ability to compare amounts and trends between those three types of hospitals after the latest regulations. Many hospitals report total CB spending for their main facility and satellite facilities in one aggregate report. These satellites may be located in different counties. This may lead to problems with estimating the individual facility spending and its impact on local communities. It might also influence the motives and circumstances affecting how individual facilities spend their CB within one system. Because there are no available sources or similar studies in the pre-IRS and ACA period, we could not estimate the change in CB spending by tax-exempt hospitals in response to the latest regulations. However, this longitudinal study may cast some light and increase our understanding on different factors leading to this kind of spending and act as base line for future comparisons. Estimating the impact of tax-exempt hospitals’ CB spending by linking them to county level health indicators, may not be perfectly accurate to measure the impact of this spending. Community health (indicators) is/are the result of many interacting and sometimes conflicting factors. Although this approach has been a widely accepted, the utilization of county level data and using it to define the community, cannot capture the actual hospital community or service regions because some of the urban areas are located in more than one state. As a requirement of the ACA, each tax-exempt hospital is required to publish its community health
improvement strategy on its website. Within these strategies, different methods are used by hospitals to identify the service areas in their communities. Although this would be the best tool to estimate the impact of community benefits spending on hospitals’ communities, it would be methodologically challenging to do that since these communities maybe identified across different counties, zip codes, and even states. Although we tried to include representative states from all census regions, we included tax-exempt hospitals from only seven states. The results might not be applicable to other states, bearing minimal threat to the external validity and generalizability of the results. Results might not be applicable to specific states like Hawaii and Alaska, which were intentionally excluded, due to their special economic and demographic characteristics. We did not compare the changes with other health indicators in counties with no tax-exempt hospitals. We did not compare the levels and types of CB spending with for-profit and government hospitals. We were not able to include teaching status in our analysis due to their small number. We did not include some market variables like the sole service provider and Herfindahl-Hirschman index that were used in previous research to adjust for market factors.

**Future Research**

This study is just an initial step in a series of studies that will utilize the same type of data gathering and analysis techniques. We plan to establish a database for CB spending for all private tax-exempt hospitals in the U.S. that will provide a complete profile for each hospital since the enactment of the latest IRS and ACA regulations. We can also advance the research and focus on the census tract or the actual community as identified by each specific hospital instead of using the county when defining the community. We can also link spending on CB with different types of compensation in each hospitals and explore how this affect spending on CB activities. One of the future research activities would certainly focus on comparing the CB spending with for-profit and government hospitals.
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nonprofit hospital tax exemption was $24.6 billion in 2011. Health Affairs, 10-1377.


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TABLE 1: Nominal and Inflation-Adjusted Spending on Total and different categories of Community Benefits by All Hospitals 2010-2013

<table>
<thead>
<tr>
<th>Community Benefit</th>
<th>2010 n=323</th>
<th>2011 n=328</th>
<th>2012 n=328</th>
<th>2013 n=326</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nominal Total</td>
<td>Inflation-Adjusted Total</td>
<td>Nominal Average</td>
<td>Inflation-Adjusted Average</td>
</tr>
<tr>
<td>Total CB spending</td>
<td>3,540,013,840</td>
<td>3,894,015,224</td>
<td>10,959,795</td>
<td>12,055,775</td>
</tr>
<tr>
<td>Charity Care (Financial Assistance) at cost</td>
<td>1,047,272,193</td>
<td>1,151,999,412</td>
<td>3,242,329</td>
<td>3,566,562</td>
</tr>
<tr>
<td>Medicaid</td>
<td>1,181,158,197</td>
<td>1,299,274,017</td>
<td>3,656,837</td>
<td>4,022,520</td>
</tr>
<tr>
<td>Unreimbursed costs of other means-tested government programs</td>
<td>85,563,860</td>
<td>94,120,246</td>
<td>264,904</td>
<td>291,394</td>
</tr>
<tr>
<td>Community health improvement services</td>
<td>196,253,908</td>
<td>215,879,299</td>
<td>607,597</td>
<td>668,357</td>
</tr>
<tr>
<td>Health professions education</td>
<td>400,642,752</td>
<td>440,707,027</td>
<td>1,240,380</td>
<td>1,364,418</td>
</tr>
<tr>
<td>Subsidized health services</td>
<td>442,192,527</td>
<td>486,411,779</td>
<td>1,369,017</td>
<td>1,505,919</td>
</tr>
<tr>
<td>Research</td>
<td>44,661,021</td>
<td>49,127,123</td>
<td>138,269</td>
<td>152,096</td>
</tr>
<tr>
<td>Cash and in-kind contributions</td>
<td>117,903,671</td>
<td>129,694,038</td>
<td>365,027</td>
<td>401,530</td>
</tr>
<tr>
<td>Community building activities</td>
<td>24,365,711</td>
<td>26,802,282</td>
<td>75,436</td>
<td>82,977</td>
</tr>
<tr>
<td>Community Health Initiatives</td>
<td>338,523,290</td>
<td>372,375,619</td>
<td>1,048,060</td>
<td>1,152,866</td>
</tr>
<tr>
<td>Direct Patient Care</td>
<td>2,756,186,777</td>
<td>3,031,805,455</td>
<td>8,533,086</td>
<td>9,386,395</td>
</tr>
<tr>
<td>Medical Education &amp; Research</td>
<td>445,303,773</td>
<td>489,834,150</td>
<td>1,378,649</td>
<td>1,516,514</td>
</tr>
</tbody>
</table>

APPENDIX

APPENDIX A: Nominal, Inflation-Adjusted, Model Based Spending Statistics, and Regression Tables
Table 2: Spending on Total and Different Categories of Community Benefit as a Percentage of Total Hospital and Total Community Benefit Expenses by All Hospitals 2010-2013

<table>
<thead>
<tr>
<th>Community Benefit</th>
<th>2010 n= 323</th>
<th>2011 n=328</th>
<th>2012 n=328</th>
<th>2013 n=326</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total CB spending</td>
<td>7.93%</td>
<td>8.99%</td>
<td>9.11%</td>
<td>8.94%</td>
</tr>
<tr>
<td>Charity Care (Financial Assistance) at cost</td>
<td>2.55%</td>
<td>28.37%</td>
<td>2.46%</td>
<td>27.00%</td>
</tr>
<tr>
<td>(Unreimbursed) Medicaid</td>
<td>2.65%</td>
<td>33.37%</td>
<td>3.27%</td>
<td>36.37%</td>
</tr>
<tr>
<td>Unreimbursed costs of other means-tested</td>
<td>0.19%</td>
<td>2.22%</td>
<td>2.47%</td>
<td>2.36%</td>
</tr>
<tr>
<td>government programs</td>
<td>0.44%</td>
<td>4.79%</td>
<td>0.43%</td>
<td>4.74%</td>
</tr>
<tr>
<td>Community health improvement services</td>
<td>0.90%</td>
<td>10.25%</td>
<td>0.97%</td>
<td>10.61%</td>
</tr>
<tr>
<td>Health professions education</td>
<td>0.99%</td>
<td>12.99%</td>
<td>1.13%</td>
<td>12.43%</td>
</tr>
<tr>
<td>Subsidized health services</td>
<td>0.10%</td>
<td>0.92%</td>
<td>1.02%</td>
<td>1.24%</td>
</tr>
<tr>
<td>Research</td>
<td>0.26%</td>
<td>3.08%</td>
<td>0.27%</td>
<td>2.95%</td>
</tr>
<tr>
<td>Cash and in-kind contributions</td>
<td>0.05%</td>
<td>0.66%</td>
<td>0.06%</td>
<td>0.62%</td>
</tr>
<tr>
<td>Community building activities</td>
<td>0.76%</td>
<td>9.56%</td>
<td>0.77%</td>
<td>8.53%</td>
</tr>
<tr>
<td>Community Health Initiatives</td>
<td>6.17%</td>
<td>77.86%</td>
<td>7.21%</td>
<td>80.20%</td>
</tr>
<tr>
<td>Direct Patient Care</td>
<td>1.00%</td>
<td>12.58%</td>
<td>1.01%</td>
<td>11.27%</td>
</tr>
<tr>
<td>Medical Education &amp; Research</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community Benefit</td>
<td>2010 n= 201</td>
<td>2011 n= 204</td>
<td>2012 n= 204</td>
<td>2013 n= 204</td>
</tr>
<tr>
<td>--------------------------------------------------------</td>
<td>------------</td>
<td>------------</td>
<td>------------</td>
<td>------------</td>
</tr>
<tr>
<td>Total CB spending</td>
<td>3,005,948,414</td>
<td>3,306,543,256</td>
<td>14,954,967</td>
<td>16,450,464</td>
</tr>
<tr>
<td>Charity Care (Financial Assistance) at cost</td>
<td>945,231,212</td>
<td>1,037,554,334</td>
<td>4,692,693</td>
<td>5,161,962</td>
</tr>
<tr>
<td>(Unreimbursed) Medicaid</td>
<td>999,637,384</td>
<td>1,099,601,122</td>
<td>4,973,320</td>
<td>5,470,652</td>
</tr>
<tr>
<td>Unreimbursed costs of other means-tested government</td>
<td>74,221,902</td>
<td>81,644,092</td>
<td>369,263</td>
<td>406,190</td>
</tr>
<tr>
<td>programs Community health improvement services</td>
<td>143,273,291</td>
<td>157,600,620</td>
<td>712,802</td>
<td>784,083</td>
</tr>
<tr>
<td>Health professions education</td>
<td>364,337,734</td>
<td>400,771,507</td>
<td>1,812,626</td>
<td>1,993,888</td>
</tr>
<tr>
<td>Subsidized health services</td>
<td>325,774,468</td>
<td>358,351,915</td>
<td>1,620,768</td>
<td>1,782,845</td>
</tr>
<tr>
<td>Research</td>
<td>26,025,623</td>
<td>28,628,185</td>
<td>129,481</td>
<td>142,429</td>
</tr>
<tr>
<td>Cash and in-kind contributions</td>
<td>110,446,662</td>
<td>121,491,328</td>
<td>549,486</td>
<td>604,434</td>
</tr>
<tr>
<td>Community building activities</td>
<td>19,000,139</td>
<td>20,900,153</td>
<td>94,528</td>
<td>103,981</td>
</tr>
<tr>
<td>Community Health Initiatives</td>
<td>272,720,091</td>
<td>299,992,100</td>
<td>1,356,816</td>
<td>1,492,498</td>
</tr>
<tr>
<td>Direct Patient Care</td>
<td>2,342,864,966</td>
<td>2,577,151,463</td>
<td>11,656,045</td>
<td>12,821,649</td>
</tr>
<tr>
<td>Medical Education &amp; Research</td>
<td>390,363,357</td>
<td>429,399,693</td>
<td>1,942,106</td>
<td>2,136,317</td>
</tr>
</tbody>
</table>

Table 3: Nominal and Inflation-Adjusted Spending on Total and different categories of Community Benefits by Acute Care Hospitals 2010-2013
<table>
<thead>
<tr>
<th>Community Benefit</th>
<th>2010 n=95</th>
<th>2011 n=97</th>
<th>2012 n=97</th>
<th>2013 n=95</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nominal Total</td>
<td>Inflation-Adjusted Total</td>
<td>Nominal Average</td>
<td>Inflation-Adjusted Average</td>
</tr>
<tr>
<td><strong>Total CB spending</strong></td>
<td>155,200,181</td>
<td>170,720,199</td>
<td>1,633,686</td>
<td>1,797,055</td>
</tr>
<tr>
<td><strong>Charity Care (Financial Assistance) at cost</strong></td>
<td>53,547,172</td>
<td>58,901,889</td>
<td>563,654</td>
<td>620,020</td>
</tr>
<tr>
<td><strong>(Unreimbursed) Medicaid</strong></td>
<td>40,773,772</td>
<td>44,851,149</td>
<td>429,198</td>
<td>472,117</td>
</tr>
<tr>
<td><strong>Unreimbursed costs of other means-tested government programs</strong></td>
<td>5,284,310</td>
<td>5,812,741</td>
<td>55,624</td>
<td>61,187</td>
</tr>
<tr>
<td><strong>Community health improvement services</strong></td>
<td>11,827,693</td>
<td>13,010,462</td>
<td>124,502</td>
<td>136,952</td>
</tr>
<tr>
<td><strong>Health professions education</strong></td>
<td>2,878,072</td>
<td>3,165,880</td>
<td>30,295</td>
<td>33,531</td>
</tr>
<tr>
<td><strong>Subsidized health services</strong></td>
<td>36,490,544</td>
<td>40,139,598</td>
<td>384,111</td>
<td>422,522</td>
</tr>
<tr>
<td><strong>Research</strong></td>
<td>125,748</td>
<td>138,322</td>
<td>312,456</td>
<td>157,266</td>
</tr>
<tr>
<td><strong>Cash and in-kind contributions</strong></td>
<td>127,962</td>
<td>139,510</td>
<td>32,066</td>
<td>22,182</td>
</tr>
<tr>
<td><strong>Community building activities</strong></td>
<td>1,503,543</td>
<td>1,653,897</td>
<td>15,827</td>
<td>17,409</td>
</tr>
</tbody>
</table>

**Table 4: Nominal and Inflation-Adjusted Spending on Total and different categories of Community Benefits by Critical Access Hospitals 2010-2013**
<table>
<thead>
<tr>
<th>Community Benefit</th>
<th>2010 n=27</th>
<th>2011 n=27</th>
<th>2012 n=27</th>
<th>2013 n=27</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nominal Total</td>
<td>Inflation-Adjusted Total</td>
<td>Nominal Average</td>
<td>Inflation-Adjusted Average</td>
</tr>
<tr>
<td>Charity Care (Financial Assistance) at cost</td>
<td>50,493,809</td>
<td>55,543,190</td>
<td>1,870,141</td>
<td>2,057,155</td>
</tr>
<tr>
<td>(Unreimbursed Medicaid)</td>
<td>140,747,041</td>
<td>154,821,746</td>
<td>5,212,853</td>
<td>5,734,139</td>
</tr>
<tr>
<td>Unreimbursed costs of other means-tested government programs</td>
<td>6,057,649</td>
<td>6,663,414</td>
<td>224,357</td>
<td>246,793</td>
</tr>
<tr>
<td>Community health improvement services</td>
<td>41,152,925</td>
<td>45,269,218</td>
<td>1,524,182</td>
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<tr>
<td>Health professions education</td>
<td>33,426,946</td>
<td>36,769,640</td>
<td>1,238,035</td>
<td>1,361,839</td>
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<tr>
<td>Research</td>
<td>18,509,650</td>
<td>20,360,615</td>
<td>685,543</td>
<td>754,097</td>
</tr>
<tr>
<td>Cash and in-kind contributions</td>
<td>4,687,681</td>
<td>5,156,449</td>
<td>173,618</td>
<td>190,980</td>
</tr>
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<td>Community building activities</td>
<td>3,862,029</td>
<td>4,248,232</td>
<td>143,038</td>
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</tr>
<tr>
<td>Community Health Initiatives</td>
<td>49,702,635</td>
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<td>1,840,838</td>
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<td>Direct Patient Care</td>
<td>277,226,014</td>
<td>304,948,615</td>
<td>10,267,630</td>
<td>11,294,393</td>
</tr>
<tr>
<td>Medical Education &amp; Research</td>
<td>51,936,596</td>
<td>57,130,256</td>
<td>1,923,578</td>
<td>2,115,935</td>
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</table>
Table 6: Spending on Total and Different Categories of Community Benefit as a Percentage of Total Hospital and Total Community Benefit Expenses by Acute Care, Critical Access, and Specialty Hospitals 2010-2013

<table>
<thead>
<tr>
<th>Community Benefit</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ACH n=204</td>
<td>CAH n=97</td>
</tr>
<tr>
<td></td>
<td>As Percentage</td>
<td>As Percentage</td>
</tr>
<tr>
<td></td>
<td>of Total</td>
<td>of Total</td>
</tr>
<tr>
<td></td>
<td>Hospital</td>
<td>Hospital</td>
</tr>
<tr>
<td></td>
<td>Expenses</td>
<td>Expenses</td>
</tr>
<tr>
<td>Community Benefit</td>
<td>As Percentage</td>
<td>As Percentage</td>
</tr>
<tr>
<td>As Percentage of Total Community Benefit</td>
<td>Expenses</td>
<td>Expenses</td>
</tr>
<tr>
<td>As Percentage of Total Hospital Expenses</td>
<td>As Percentage</td>
<td>As Percentage</td>
</tr>
<tr>
<td>As Percentage of Total Community Benefit</td>
<td>Expenses</td>
<td>Expenses</td>
</tr>
<tr>
<td>As Percentage of Total Hospital Expenses</td>
<td>As Percentage</td>
<td>As Percentage</td>
</tr>
<tr>
<td>As Percentage of Total Community Benefit Costs</td>
<td>As Percentage</td>
<td>As Percentage</td>
</tr>
<tr>
<td>Expenses</td>
<td>Expenses</td>
<td>Expenses</td>
</tr>
<tr>
<td>Total CB spending</td>
<td>7.79%</td>
<td>-</td>
</tr>
<tr>
<td>Charity Care (Financial Assistance) at cost</td>
<td>2.45%</td>
<td>31.38%</td>
</tr>
<tr>
<td>(Unreimbursed) Medicaid</td>
<td>2.59%</td>
<td>33.26%</td>
</tr>
<tr>
<td>Unreimbursed costs of other means-tested</td>
<td>0.19%</td>
<td>2.47%</td>
</tr>
<tr>
<td>government programs</td>
<td>0.37%</td>
<td>4.77%</td>
</tr>
<tr>
<td>Community health improvement services</td>
<td>0.94%</td>
<td>12.12%</td>
</tr>
<tr>
<td>Health professions education</td>
<td>0.84%</td>
<td>10.84%</td>
</tr>
<tr>
<td>Subsidized health services</td>
<td>0.07%</td>
<td>0.87%</td>
</tr>
<tr>
<td>Research</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cash and in-kind contributions</td>
<td>0.29%</td>
<td>3.67%</td>
</tr>
<tr>
<td>Community building activities</td>
<td>0.05%</td>
<td>0.63%</td>
</tr>
<tr>
<td>Community Health Improvement Initiatives</td>
<td>0.71%</td>
<td>9.07%</td>
</tr>
<tr>
<td>Direct Patient Care</td>
<td>6.07%</td>
<td>77.94%</td>
</tr>
<tr>
<td>Medical Education &amp; Research</td>
<td>1.01%</td>
<td>12.99%</td>
</tr>
</tbody>
</table>

ACH=Acute Care Hospital
CAH=Critical Access Hospital
Table 6 (Continued): Spending on Total and Different Categories of Community Benefit as a Percentage of Total Hospital and Total Community Benefit Expenses by Acute Care, Critical Access, and Specialty Hospitals 2010-2013

<table>
<thead>
<tr>
<th>Community Benefit</th>
<th>2012</th>
<th></th>
<th>2013</th>
<th></th>
<th>2012</th>
<th></th>
<th>2013</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ACH** n=201</td>
<td>CAH++ n=95</td>
<td>Specialty n=27</td>
<td></td>
<td>ACH n=204</td>
<td>CAH n=97</td>
<td>Specialty n=27</td>
<td></td>
</tr>
<tr>
<td></td>
<td>As Percentage</td>
<td>As Percentage</td>
<td>As Percentage</td>
<td></td>
<td>As Percentage</td>
<td>As Percentage</td>
<td>As Percentage</td>
<td></td>
</tr>
<tr>
<td></td>
<td>of Total Hospital</td>
<td>of Total</td>
<td>of Total Hospital</td>
<td></td>
<td>of Total Hospital</td>
<td>of Total</td>
<td>of Total Hospital</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Expenses</td>
<td>Community</td>
<td>Expenses</td>
<td></td>
<td>Expenses</td>
<td>Community</td>
<td>Expenses</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Benefit</td>
<td></td>
<td></td>
<td></td>
<td>Benefit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total CB spending</td>
<td>8.92%</td>
<td>-</td>
<td>7.51%</td>
<td>-</td>
<td>12.93%</td>
<td>-</td>
<td>8.72%</td>
<td>-</td>
</tr>
<tr>
<td>Charity Care (Financial Assistance) at cost</td>
<td>2.58%</td>
<td>28.94%</td>
<td>2.04%</td>
<td>27.21%</td>
<td>1.10%</td>
<td>8.51%</td>
<td>2.44%</td>
<td>27.99%</td>
</tr>
<tr>
<td>(Unreimbursed) Medicaid</td>
<td>3.35%</td>
<td>37.59%</td>
<td>2.47%</td>
<td>32.85%</td>
<td>5.80%</td>
<td>44.82%</td>
<td>3.43%</td>
<td>39.32%</td>
</tr>
<tr>
<td>Unreimbursed costs of other means-tested government programs</td>
<td>0.22%</td>
<td>2.47%</td>
<td>0.26%</td>
<td>3.42%</td>
<td>0.11%</td>
<td>0.86%</td>
<td>0.14%</td>
<td>1.61%</td>
</tr>
<tr>
<td>Community health improvement services</td>
<td>0.39%</td>
<td>4.32%</td>
<td>0.49%</td>
<td>6.53%</td>
<td>1.02%</td>
<td>7.87%</td>
<td>0.37%</td>
<td>4.20%</td>
</tr>
<tr>
<td>Health professions education</td>
<td>1.02%</td>
<td>11.46%</td>
<td>0.17%</td>
<td>2.23%</td>
<td>0.84%</td>
<td>6.47%</td>
<td>1.03%</td>
<td>11.77%</td>
</tr>
<tr>
<td>Subsidized health services</td>
<td>0.93%</td>
<td>10.38%</td>
<td>1.86%</td>
<td>24.75%</td>
<td>3.39%</td>
<td>26.22%</td>
<td>0.96%</td>
<td>11.00%</td>
</tr>
<tr>
<td>Research</td>
<td>0.09%</td>
<td>1.03%</td>
<td>0.01%</td>
<td>0.12%</td>
<td>0.49%</td>
<td>3.76%</td>
<td>0.09%</td>
<td>0.99%</td>
</tr>
<tr>
<td>Cash and in-kind contributions</td>
<td>0.29%</td>
<td>3.23%</td>
<td>0.13%</td>
<td>1.73%</td>
<td>0.10%</td>
<td>0.81%</td>
<td>0.23%</td>
<td>2.61%</td>
</tr>
<tr>
<td>Community building activities</td>
<td>0.05%</td>
<td>0.58%</td>
<td>0.09%</td>
<td>1.16%</td>
<td>0.09%</td>
<td>0.67%</td>
<td>0.04%</td>
<td>0.51%</td>
</tr>
<tr>
<td>Community Health Improvement Initiatives</td>
<td>0.73%</td>
<td>8.13%</td>
<td>0.71%</td>
<td>9.42%</td>
<td>1.21%</td>
<td>9.36%</td>
<td>0.64%</td>
<td>7.32%</td>
</tr>
<tr>
<td>Direct Patient Care</td>
<td>7.08%</td>
<td>79.38%</td>
<td>6.63%</td>
<td>88.23%</td>
<td>10.40%</td>
<td>80.41%</td>
<td>6.97%</td>
<td>79.93%</td>
</tr>
<tr>
<td>Medical Education &amp; Research</td>
<td>1.11%</td>
<td>12.49%</td>
<td>0.18%</td>
<td>2.35%</td>
<td>1.32%</td>
<td>10.23%</td>
<td>1.11%</td>
<td>12.75%</td>
</tr>
</tbody>
</table>

**ACH=Acute Care Hospital**

**CAH=Critical Access Hospital**
<table>
<thead>
<tr>
<th>Community Benefit</th>
<th>2010 n= 142</th>
<th>2011 n= 145</th>
<th>2012 n= 145</th>
<th>2013 n= 150</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total CB spending</td>
<td>2,622,839,086</td>
<td>2,885,122,995</td>
<td>18,470,698</td>
<td>2,885,122,995</td>
</tr>
<tr>
<td>Charity Care (Financial Assistance) at cost</td>
<td>756,972,424</td>
<td>832,669,666</td>
<td>5,330,792</td>
<td>894,934,173</td>
</tr>
<tr>
<td>Medicaid</td>
<td>826,764,379</td>
<td>909,440,817</td>
<td>5,822,284</td>
<td>1,108,435,117</td>
</tr>
<tr>
<td>Subsidized costs of other means-tested government programs</td>
<td>65,760,628</td>
<td>72,336,691</td>
<td>4,604,513</td>
<td>391,421</td>
</tr>
<tr>
<td>Community health improvement services</td>
<td>158,111,073</td>
<td>173,922,180</td>
<td>1,224,804</td>
<td>1,158,380</td>
</tr>
<tr>
<td>Health professions education</td>
<td>337,656,744</td>
<td>371,422,418</td>
<td>2,615,651</td>
<td>2,615,651</td>
</tr>
<tr>
<td>Subsidized health services</td>
<td>323,576,155</td>
<td>355,933,770</td>
<td>2,506,576</td>
<td>2,506,576</td>
</tr>
<tr>
<td>Research</td>
<td>39,631,645</td>
<td>43,594,809</td>
<td>279,096</td>
<td>279,096</td>
</tr>
<tr>
<td>Cash and in-kind contributions</td>
<td>100,624,088</td>
<td>110,686,497</td>
<td>708,620</td>
<td>708,620</td>
</tr>
<tr>
<td>Community building activities</td>
<td>13,741,951</td>
<td>15,116,146</td>
<td>96,774</td>
<td>96,774</td>
</tr>
<tr>
<td>Community Health Initiatives</td>
<td>272,477,112</td>
<td>299,724,823</td>
<td>1,918,853</td>
<td>1,918,853</td>
</tr>
<tr>
<td>Direct Patient Care</td>
<td>1,973,073,585</td>
<td>2,170,380,944</td>
<td>15,894,884</td>
<td>15,894,884</td>
</tr>
<tr>
<td>Medical Education &amp; Research</td>
<td>377,288,389</td>
<td>415,017,228</td>
<td>2,656,960</td>
<td>2,656,960</td>
</tr>
</tbody>
</table>

Table 7: Nominal and Inflation-Adjusted Spending on Total and different categories of Community Benefits by Urban Hospitals 2010-2013
Table 8: Nominal and Inflation-Adjusted Spending on Total and different categories of Community Benefits by Rural Hospitals 2010-2013

<table>
<thead>
<tr>
<th>Community Benefit</th>
<th>2010 n= 181</th>
<th></th>
<th>2011 n= 183</th>
<th></th>
<th>2012 n= 183</th>
<th></th>
<th>2013 n= 176</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nominal Total</td>
<td>Inflation-Adjusted Total</td>
<td>Nominal Average</td>
<td>Inflation-Adjusted Average</td>
<td>Nominal Total</td>
<td>Inflation-Adjusted Total</td>
<td>Nominal Average</td>
<td>Inflation-Adjusted Average</td>
</tr>
<tr>
<td>Total CB spending</td>
<td>917,174,754</td>
<td>1,008,892,229</td>
<td>5,067,264</td>
<td>5,573,990</td>
<td>1,056,330,387</td>
<td>6,176,358</td>
<td>1,092,780,518</td>
<td>5,971,478</td>
</tr>
<tr>
<td>Charity Care (Financial Assistance) at cost</td>
<td>290,299,769</td>
<td>319,329,746</td>
<td>1,603,866</td>
<td>1,764,253</td>
<td>288,615,070</td>
<td>305,148,027</td>
<td>272,656,903</td>
<td>312,637,032</td>
</tr>
<tr>
<td>(Unreimbursed) Medicaid</td>
<td>354,393,818</td>
<td>389,833,200</td>
<td>1,957,977</td>
<td>2,153,775</td>
<td>408,962,618</td>
<td>437,590,001</td>
<td>463,658,948</td>
<td>512,248,288</td>
</tr>
<tr>
<td>Unreimbursed costs of other means-tested government programs</td>
<td>19,803,232</td>
<td>21,783,556</td>
<td>109,410</td>
<td>120,351</td>
<td>46,478,557</td>
<td>52,935,862</td>
<td>55,768,020</td>
<td>61,290,764</td>
</tr>
<tr>
<td>Community health improvement services</td>
<td>38,142,836</td>
<td>41,957,119</td>
<td>210,734</td>
<td>231,807</td>
<td>42,878,696</td>
<td>45,880,204</td>
<td>47,948,078</td>
<td>53,641,884</td>
</tr>
<tr>
<td>Health professions education</td>
<td>62,986,008</td>
<td>69,284,609</td>
<td>347,989</td>
<td>382,788</td>
<td>55,728,295</td>
<td>67,482,184</td>
<td>70,856,293</td>
<td>76,253,864</td>
</tr>
<tr>
<td>Subsidized health services</td>
<td>118,616,372</td>
<td>130,478,009</td>
<td>655,339</td>
<td>720,873</td>
<td>167,816,449</td>
<td>179,563,600</td>
<td>184,970,416</td>
<td>200,589,278</td>
</tr>
<tr>
<td>Research</td>
<td>5,029,376</td>
<td>5,532,314</td>
<td>27,787</td>
<td>30,565</td>
<td>5,232,092</td>
<td>5,598,338</td>
<td>5,964,171</td>
<td>6,354,175</td>
</tr>
<tr>
<td>Cash and in-kind contributions</td>
<td>17,279,582</td>
<td>19,007,541</td>
<td>95,467</td>
<td>104,014</td>
<td>27,487,087</td>
<td>29,911,184</td>
<td>33,486,352</td>
<td>36,670,670</td>
</tr>
<tr>
<td>Community building activities</td>
<td>10,623,760</td>
<td>11,686,136</td>
<td>58,695</td>
<td>64,564</td>
<td>13,131,522</td>
<td>14,050,728</td>
<td>15,153,864</td>
<td>16,147,424</td>
</tr>
<tr>
<td>Community Health Initiatives</td>
<td>66,046,178</td>
<td>72,650,796</td>
<td>364,896</td>
<td>401,386</td>
<td>83,497,305</td>
<td>89,342,117</td>
<td>95,204,143</td>
<td>99,451,486</td>
</tr>
<tr>
<td>Direct Patient Care</td>
<td>783,113,192</td>
<td>861,424,511</td>
<td>4,326,592</td>
<td>4,759,251</td>
<td>911,872,695</td>
<td>975,703,783</td>
<td>970,664,937</td>
<td>102,942,797</td>
</tr>
<tr>
<td>Medical Education &amp; Research</td>
<td>68,015,384</td>
<td>74,816,923</td>
<td>375,776</td>
<td>413,353</td>
<td>60,960,387</td>
<td>65,227,614</td>
<td>65,500,463</td>
<td>64,241,410</td>
</tr>
</tbody>
</table>
Table 9: Spending on Total and Different Categories of Community Benefit as a Percentage of Total Hospital and Total Community Benefit Expenses by Urban and Rural Hospitals 2010-2013

<table>
<thead>
<tr>
<th>Community Benefit</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hospital</td>
<td>Hospital</td>
<td>Hospital</td>
<td>Hospital</td>
</tr>
<tr>
<td></td>
<td>Benefit</td>
<td>Benefit</td>
<td>Benefit</td>
<td>Benefit</td>
</tr>
<tr>
<td></td>
<td>Expenses</td>
<td>Expenses</td>
<td>Expenses</td>
<td>Expenses</td>
</tr>
<tr>
<td>Total CB spending</td>
<td>7.94%</td>
<td>7.90%</td>
<td>9.00%</td>
<td>9.16%</td>
</tr>
<tr>
<td>Charity Care (Financial Assistance) at cost (Unreimbursed Medicaid Unreimbursed costs of other means-tested government programs)</td>
<td>2.29% 28.86% 2.50% 31.65% 2.58% 28.72% 2.46% 27.32% 2.53% 27.66% 2.23% 24.95% 2.39% 26.23% 2.05% 24.50%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community health improvement services</td>
<td>0.48% 6.03% 0.33% 4.16% 0.45% 5.04% 0.37% 4.06% 0.45% 4.92% 0.37% 4.18% 0.43% 4.76% 0.35% 4.14%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health professions education</td>
<td>1.02% 12.87% 0.54% 6.87% 1.07% 11.93% 0.47% 5.28% 1.10% 12.06% 0.55% 6.18% 1.09% 11.99% 0.55% 6.58%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subsidized health services</td>
<td>0.98% 12.34% 1.02% 12.93% 1.08% 12.00% 1.43% 15.89% 1.08% 11.80% 1.29% 14.37% 1.05% 11.52% 1.46% 17.44%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research</td>
<td>0.12% 1.51% 0.04% 0.55% 0.11% 1.20% 0.04% 0.50% 0.12% 1.35% 0.08% 0.93% 0.11% 1.17% 0.05% 0.54%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash and in-kind contributions</td>
<td>0.30% 3.84% 0.15% 1.88% 0.29% 3.24% 0.23% 2.60% 0.27% 2.91% 0.27% 3.06% 0.23% 2.56% 0.14% 1.64%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community building activities</td>
<td>0.04% 0.52% 0.09% 1.16% 0.04% 0.47% 0.11% 1.24% 0.04% 0.47% 0.09% 1.05% 0.03% 0.37% 0.08% 0.99%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community Health Initiatives</td>
<td>0.83% 10.39% 0.57% 7.20% 0.79% 8.74% 0.71% 7.90% 0.76% 8.30% 0.74% 8.30% 0.70% 7.69% 0.57% 6.77%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct Patient Care</td>
<td>5.97% 75.23% 6.74% 85.38% 7.02% 78.12% 7.77% 86.32% 7.17% 78.29% 7.57% 84.60% 7.21% 79.15% 7.21% 86.11%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical Education &amp; Research</td>
<td>1.14% 14.38% 0.59% 7.42% 1.18% 13.13% 0.52% 5.77% 1.23% 13.41% 0.64% 7.11% 1.20% 13.16% 0.60% 7.12%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 10: Nominal and Inflation-Adjusted Spending on Total and different categories of Community Benefits by Large Size Hospitals 2010-2013

<table>
<thead>
<tr>
<th>Community Benefit</th>
<th>2010 n= 139</th>
<th>2011 n= 143</th>
<th>2012 n= 142</th>
<th>2013 n= 138</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nominal Total</td>
<td>Nominal Total</td>
<td>Nominal Total</td>
<td>Nominal Total</td>
</tr>
<tr>
<td>Total CB spending</td>
<td>2,546,660,846</td>
<td>2,801,326,931</td>
<td>20,153,431</td>
<td>3,082,217,731</td>
</tr>
<tr>
<td></td>
<td>18,321,301</td>
<td>21,553,970</td>
<td>23,062,748</td>
<td>23,751,114</td>
</tr>
<tr>
<td>Charity Care (Financial Assistance) at cost</td>
<td>766,620,959</td>
<td>843,283,054</td>
<td>5,515,259</td>
<td>6,066,785</td>
</tr>
<tr>
<td></td>
<td>889,520,064</td>
<td>951,786,468</td>
<td>6,655,849</td>
<td>906,366,993</td>
</tr>
<tr>
<td>(Unreimbursed) Medicaid</td>
<td>887,060,615</td>
<td>975,766,677</td>
<td>6,381,731</td>
<td>7,019,904</td>
</tr>
<tr>
<td>(Unreimbursed) Medicaid</td>
<td>1,142,993,129</td>
<td>1,223,002,648</td>
<td>7,992,959</td>
<td>8,552,466</td>
</tr>
<tr>
<td>(Unreimbursed) Medicaid</td>
<td>7,293,286</td>
<td>84,977,873</td>
<td>594,251</td>
<td>635,848</td>
</tr>
<tr>
<td>(Unreimbursed) Medicaid</td>
<td>90,926,324</td>
<td>97,549,171</td>
<td>83,526,629</td>
<td>88,216</td>
</tr>
<tr>
<td>(Unreimbursed) Medicaid</td>
<td>51,361,504</td>
<td>52,902,349</td>
<td>58,216</td>
<td>51,361,504</td>
</tr>
<tr>
<td>Community health improvement services</td>
<td>123,658,255</td>
<td>136,024,081</td>
<td>889,628</td>
<td>987,729</td>
</tr>
<tr>
<td>Health professions education</td>
<td>274,324,031</td>
<td>301,756,434</td>
<td>1,973,554</td>
<td>2,170,910</td>
</tr>
<tr>
<td>Subsidized health services</td>
<td>285,664,030</td>
<td>314,230,433</td>
<td>2,055,137</td>
<td>2,260,651</td>
</tr>
<tr>
<td>Research</td>
<td>29,139,523</td>
<td>32,053,476</td>
<td>209,637</td>
<td>230,601</td>
</tr>
<tr>
<td>Cash and in-kind contributions</td>
<td>95,091,104</td>
<td>104,600,215</td>
<td>684,109</td>
<td>752,520</td>
</tr>
<tr>
<td>Community building activities</td>
<td>18,800,250</td>
<td>20,680,275</td>
<td>135,254</td>
<td>148,779</td>
</tr>
<tr>
<td>Community Health Initiatives</td>
<td>237,549,610</td>
<td>261,304,571</td>
<td>1,708,990</td>
<td>1,879,889</td>
</tr>
<tr>
<td>Direct Patient Care</td>
<td>2,005,647,682</td>
<td>2,206,212,450</td>
<td>14,429,120</td>
<td>18,752,032</td>
</tr>
<tr>
<td>Medical Education &amp; Research</td>
<td>303,463,554</td>
<td>333,809,910</td>
<td>2,183,191</td>
<td>2,401,510</td>
</tr>
<tr>
<td>Research</td>
<td>2,470,847,196</td>
<td>2,643,806,500</td>
<td>17,278,652</td>
<td>18,488,157</td>
</tr>
<tr>
<td>Community building activities</td>
<td>339,799,110</td>
<td>363,585,047</td>
<td>2,376,218</td>
<td>2,542,553</td>
</tr>
<tr>
<td>Direct Patient Care</td>
<td>2,602,231,674</td>
<td>2,732,343,257</td>
<td>18,325,575</td>
<td>19,241,854</td>
</tr>
<tr>
<td>Medical Education &amp; Research</td>
<td>384,402,184</td>
<td>403,622,293</td>
<td>2,707,058</td>
<td>2,842,411</td>
</tr>
<tr>
<td>Community building activities</td>
<td>397,175,626</td>
<td>409,090,895</td>
<td>2,878,084</td>
<td>2,964,427</td>
</tr>
</tbody>
</table>

Note: Nominal and inflation-adjusted spending for different categories of Community Benefits by Large Size Hospitals from 2010 to 2013.
<table>
<thead>
<tr>
<th>Community Benefit</th>
<th>2010 n= 69</th>
<th>2011 n= 69</th>
<th>2012 n= 69</th>
<th>2013 n= 68</th>
<th>2010 n= 69</th>
<th>2011 n= 69</th>
<th>2012 n= 69</th>
<th>2013 n= 68</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total CB spending</td>
<td>655,526,439</td>
<td>721,079,083</td>
<td>9,500,383</td>
<td>10,450,421</td>
<td>750,908,767</td>
<td>803,472,381</td>
<td>10,882,736</td>
<td>11,644,527</td>
</tr>
<tr>
<td>Charity Care (Financial Assistance) at cost</td>
<td>186,343,107</td>
<td>204,977,418</td>
<td>2,700,625</td>
<td>2,970,687</td>
<td>207,330,559</td>
<td>221,843,698</td>
<td>3,004,791</td>
<td>3,215,126</td>
</tr>
<tr>
<td>Unreimbursed costs of other means-tested government programs</td>
<td>10,050,824</td>
<td>11,055,907</td>
<td>145,664</td>
<td>160,231</td>
<td>10,050,824</td>
<td>11,055,907</td>
<td>145,664</td>
<td>160,231</td>
</tr>
<tr>
<td>Community health improvement services</td>
<td>47,800,590</td>
<td>52,580,649</td>
<td>692,762</td>
<td>762,038</td>
<td>44,016,664</td>
<td>47,097,830</td>
<td>637,923</td>
<td>682,577</td>
</tr>
<tr>
<td>Health professions education</td>
<td>107,016,104</td>
<td>117,717,715</td>
<td>1,550,958</td>
<td>1,706,054</td>
<td>106,407,431</td>
<td>113,855,952</td>
<td>1,542,137</td>
<td>1,650,086</td>
</tr>
<tr>
<td>Subsidized health services</td>
<td>92,596,239</td>
<td>101,855,862</td>
<td>1,341,974</td>
<td>1,476,172</td>
<td>122,271,174</td>
<td>130,830,156</td>
<td>1,772,046</td>
<td>1,896,089</td>
</tr>
<tr>
<td>Research</td>
<td>12,562,330</td>
<td>13,818,563</td>
<td>182,063</td>
<td>200,269</td>
<td>8,221,787</td>
<td>8,797,312</td>
<td>119,156</td>
<td>127,497</td>
</tr>
<tr>
<td>Cash and in-kind contributions</td>
<td>10,625,081</td>
<td>11,687,589</td>
<td>153,987</td>
<td>169,385</td>
<td>10,912,856</td>
<td>11,676,756</td>
<td>158,157</td>
<td>169,228</td>
</tr>
<tr>
<td>Community building activities</td>
<td>2,350,822</td>
<td>2,585,904</td>
<td>34,070</td>
<td>37,477</td>
<td>2,135,968</td>
<td>2,285,486</td>
<td>30,956</td>
<td>33,123</td>
</tr>
<tr>
<td>Community Health Initiatives</td>
<td>60,776,493</td>
<td>66,854,142</td>
<td>880,819</td>
<td>968,901</td>
<td>57,065,488</td>
<td>61,000,072</td>
<td>827,036</td>
<td>884,929</td>
</tr>
<tr>
<td>Direct Patient Care</td>
<td>475,171,512</td>
<td>522,688,663</td>
<td>6,866,544</td>
<td>7,757,198</td>
<td>579,214,061</td>
<td>619,759,045</td>
<td>8,394,407</td>
<td>8,982,015</td>
</tr>
<tr>
<td>Medical Education &amp; Research</td>
<td>119,578,435</td>
<td>131,536,278</td>
<td>1,733,021</td>
<td>1,906,323</td>
<td>114,629,218</td>
<td>122,653,264</td>
<td>1,661,293</td>
<td>1,777,584</td>
</tr>
</tbody>
</table>

Table 11: Nominal and Inflation-Adjusted Spending on Total and different categories of Community Benefits by Medium Size Hospitals 2010-2013
### Table 12: Nominal and Inflation-Adjusted Spending on Total and different categories of Community Benefits by Small Size Hospitals 2010-2013

<table>
<thead>
<tr>
<th>Community Benefit</th>
<th>2010 n= 115</th>
<th>2011 n= 117</th>
<th>2012 n= 117</th>
<th>2012 n= 120</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nominal Total</td>
<td>Inflation-Adjusted Total</td>
<td>Nominal Average</td>
<td>Inflation-Adjusted Average</td>
</tr>
<tr>
<td>Charity Care (Financial Assistance) at cost</td>
<td>94,308,127</td>
<td>103,738,940</td>
<td>820,071</td>
<td>902,078</td>
</tr>
<tr>
<td>(Unreimbursed) Medicaid</td>
<td>107,916,239</td>
<td>118,707,863</td>
<td>938,402</td>
<td>1,032,242</td>
</tr>
<tr>
<td>Unreimbursed costs of other mean-tested</td>
<td>9,210,958</td>
<td>10,132,054</td>
<td>80,095</td>
<td>88,105</td>
</tr>
<tr>
<td>governmental programs</td>
<td>24,795,063</td>
<td>27,274,569</td>
<td>215,609</td>
<td>237,170</td>
</tr>
<tr>
<td>Community health improvement services</td>
<td>19,302,617</td>
<td>21,232,878</td>
<td>167,849</td>
<td>184,634</td>
</tr>
<tr>
<td>Health professions education</td>
<td>63,932,258</td>
<td>70,325,484</td>
<td>555,933</td>
<td>611,526</td>
</tr>
<tr>
<td>Research</td>
<td>12,187,486</td>
<td>13,406,234</td>
<td>105,978</td>
<td>116,576</td>
</tr>
<tr>
<td>Cash and in-kind contributions</td>
<td>3,214,639</td>
<td>3,536,103</td>
<td>27,953</td>
<td>30,749</td>
</tr>
</tbody>
</table>

| Medical Education & Research                 | 22,261,784  | 24,487,963  | 193,581 | 212,939 | 15,682,540 | 16,780,318 | 134,039 | 143,422 | 17,235,631 | 18,097,413 | 147,313 | 154,679 | 24,737,171 | 25,479,286 | 206,143 | 212,327 |
Table 13: Spending on Total and Different Categories of Community Benefit as a Percentage of Total Hospital and Total Community Benefit Expenses by Large, Medium, and Small Hospitals 2010-2013

<table>
<thead>
<tr>
<th>Community Benefit</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Large n=139</td>
<td>Medium n=69</td>
</tr>
<tr>
<td><strong>Total CB spending</strong></td>
<td>7.82%</td>
<td>8.83%</td>
</tr>
<tr>
<td>Charity Care (Financial Assistance) at cost</td>
<td>2.35%</td>
<td>30.10%</td>
</tr>
<tr>
<td>(Unreimbursed) Medicaid</td>
<td>2.72%</td>
<td>34.83%</td>
</tr>
<tr>
<td>Unreimbursed costs of other means-tested programs</td>
<td>0.20%</td>
<td>2.60%</td>
</tr>
<tr>
<td>Community health improvement services</td>
<td>0.38%</td>
<td>4.86%</td>
</tr>
<tr>
<td>Health professions education</td>
<td>0.84%</td>
<td>10.77%</td>
</tr>
<tr>
<td>Subsidized health services</td>
<td>0.88%</td>
<td>11.22%</td>
</tr>
<tr>
<td>Research</td>
<td>0.09%</td>
<td>1.14%</td>
</tr>
<tr>
<td>Cash and in-kind contributions</td>
<td>0.29%</td>
<td>3.73%</td>
</tr>
<tr>
<td>Community building activities</td>
<td>0.06%</td>
<td>0.74%</td>
</tr>
<tr>
<td>Community Health Improvement Initiatives</td>
<td>0.73%</td>
<td>9.33%</td>
</tr>
<tr>
<td>Direct Patient Care</td>
<td>6.15%</td>
<td>78.75%</td>
</tr>
<tr>
<td>Medical Education &amp; Research</td>
<td>0.93%</td>
<td>11.91%</td>
</tr>
</tbody>
</table>
Table 13 (Continued): Spending on Total and Different Categories of Community Benefit as a Percentage of Total Hospital and Total Community Benefit Expenses by Large, Medium, and Small Hospitals 2010-2013

<table>
<thead>
<tr>
<th>Community Benefit</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total CB spending</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large n=142</td>
<td></td>
<td></td>
</tr>
<tr>
<td>As Percentage of Total Hospital Expenses</td>
<td>8.88%</td>
<td>8.74%</td>
</tr>
<tr>
<td>As Percentage of Community Benefit Expenses</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Medium n=69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>As Percentage of Total Hospital Expenses</td>
<td>10.12%</td>
<td>9.81%</td>
</tr>
<tr>
<td>As Percentage of Community Benefit Expenses</td>
<td>9.15%</td>
<td>9.81%</td>
</tr>
<tr>
<td>Small n=117</td>
<td></td>
<td></td>
</tr>
<tr>
<td>As Percentage of Total Hospital Expenses</td>
<td>9.15%</td>
<td>8.74%</td>
</tr>
<tr>
<td>As Percentage of Community Benefit Expenses</td>
<td>8.74%</td>
<td>8.74%</td>
</tr>
<tr>
<td>Large n=138</td>
<td></td>
<td></td>
</tr>
<tr>
<td>As Percentage of Total Hospital Expenses</td>
<td>8.74%</td>
<td>8.74%</td>
</tr>
<tr>
<td>As Percentage of Community Benefit Expenses</td>
<td>8.74%</td>
<td>8.74%</td>
</tr>
<tr>
<td>Medium n=68</td>
<td></td>
<td></td>
</tr>
<tr>
<td>As Percentage of Total Hospital Expenses</td>
<td>9.81%</td>
<td>9.81%</td>
</tr>
<tr>
<td>As Percentage of Community Benefit Expenses</td>
<td>9.81%</td>
<td>9.81%</td>
</tr>
<tr>
<td>Small n=120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>As Percentage of Total Hospital Expenses</td>
<td>8.99%</td>
<td>8.99%</td>
</tr>
<tr>
<td>As Percentage of Community Benefit Expenses</td>
<td>8.99%</td>
<td>8.99%</td>
</tr>
</tbody>
</table>

Charity Care (Financial Assistance) at cost

| (Unreimbursed) Medicaid                                |      |      |
| Large n=142                                            |      |      |
| As Percentage of Total Hospital Expenses               | 2.47%| 2.35%|
| As Percentage of Community Benefit Expenses            | 2.51%| 2.35%|
| Medium n=69                                            |      |      |
| As Percentage of Total Hospital Expenses               | 27.82%| 26.85%|
| As Percentage of Community Benefit Expenses            | 24.84%| 26.85%|
| Small n=117                                            |      |      |
| As Percentage of Total Hospital Expenses               | 2.24%| 2.35%|
| As Percentage of Community Benefit Expenses            | 24.51%| 26.85%|

Unreimbursed costs of other means-tested government programs

| Unreimbursed costs of other means-tested government programs |      |      |
| Large n=142                                                |      |      |
| As Percentage of Total Hospital Expenses                   | 0.22%| 0.14%|
| As Percentage of Community Benefit Expenses                | 0.19%| 0.14%|
| Medium n=69                                                |      |      |
| As Percentage of Total Hospital Expenses                   | 2.44%| 1.85%|
| As Percentage of Community Benefit Expenses                | 1.85%| 1.85%|
| Small n=117                                                |      |      |
| As Percentage of Total Hospital Expenses                   | 0.25%| 1.42%|
| As Percentage of Community Benefit Expenses                | 2.78%| 2.78%|

Health professions education

| Community health improvement services                     |      |      |
| Large n=142                                              |      |      |
| As Percentage of Total Hospital Expenses                  | 0.38%| 0.39%|
| As Percentage of Community Benefit Expenses               | 4.31%| 4.34%|
| Medium n=69                                               |      |      |
| As Percentage of Total Hospital Expenses                  | 0.67%| 0.40%|
| As Percentage of Community Benefit Expenses               | 6.61%| 4.34%|
| Small n=117                                               |      |      |
| As Percentage of Total Hospital Expenses                  | 0.40%| 0.39%|
| As Percentage of Community Benefit Expenses               | 4.34%| 4.41%|

Subsidized health services

| Health professions education                              |      |      |
| Large n=142                                              |      |      |
| As Percentage of Total Hospital Expenses                  | 0.93%| 0.96%|
| As Percentage of Community Benefit Expenses               | 10.52%| 11.03%|
| Medium n=69                                               |      |      |
| As Percentage of Total Hospital Expenses                  | 1.42%| 1.30%|
| As Percentage of Community Benefit Expenses               | 14.04%| 13.24%|
| Small n=117                                               |      |      |
| As Percentage of Total Hospital Expenses                  | 0.35%| 1.30%|
| As Percentage of Community Benefit Expenses               | 3.85%| 13.24%|

Research

| Research                                                 |      |      |
| Large n=142                                              |      |      |
| As Percentage of Total Hospital Expenses                  | 0.95%| 0.99%|
| As Percentage of Community Benefit Expenses               | 10.65%| 11.36%|
| Medium n=69                                               |      |      |
| As Percentage of Total Hospital Expenses                  | 1.78%| 1.65%|
| As Percentage of Community Benefit Expenses               | 17.63%| 16.84%|
| Small n=117                                               |      |      |
| As Percentage of Total Hospital Expenses                  | 1.52%| 1.65%|
| As Percentage of Community Benefit Expenses               | 16.58%| 16.84%|

Cash and in-kind contributions

| Cash and in-kind contributions                            |      |      |
| Large n=142                                              |      |      |
| As Percentage of Total Hospital Expenses                  | 0.11%| 0.09%|
| As Percentage of Community Benefit Expenses               | 1.28%| 0.09%|
| Medium n=69                                               |      |      |
| As Percentage of Total Hospital Expenses                  | 0.13%| 0.10%|
| As Percentage of Community Benefit Expenses               | 1.29%| 1.00%|
| Small n=117                                               |      |      |
| As Percentage of Total Hospital Expenses                  | 0.07%| 0.10%|
| As Percentage of Community Benefit Expenses               | 0.81%| 1.00%|

Community building activities

| Community building activities                             |      |      |
| Large n=142                                              |      |      |
| As Percentage of Total Hospital Expenses                  | 0.30%| 0.24%|
| As Percentage of Community Benefit Expenses               | 3.34%| 2.98%|
| Medium n=69                                               |      |      |
| As Percentage of Total Hospital Expenses                  | 0.14%| 0.24%|
| As Percentage of Community Benefit Expenses               | 1.39%| 2.98%|
| Small n=117                                               |      |      |
| As Percentage of Total Hospital Expenses                  | 0.27%| 0.24%|
| As Percentage of Community Benefit Expenses               | 1.39%| 2.98%|

Community Health Improvement Initiatives

| Community Health Improvement Initiatives                  |      |      |
| Large n=142                                              |      |      |
| As Percentage of Total Hospital Expenses                  | 0.06%| 0.05%|
| As Percentage of Community Benefit Expenses               | 0.68%| 0.55%|
| Medium n=69                                               |      |      |
| As Percentage of Total Hospital Expenses                  | 0.04%| 0.03%|
| As Percentage of Community Benefit Expenses               | 0.37%| 0.30%|
| Small n=117                                               |      |      |
| As Percentage of Total Hospital Expenses                  | 0.06%| 0.03%|
| As Percentage of Community Benefit Expenses               | 0.37%| 0.30%|

Direct Patient Care

| Direct Patient Care                                      |      |      |
| Large n=142                                              |      |      |
| As Percentage of Total Hospital Expenses                  | 0.74%| 0.68%|
| As Percentage of Community Benefit Expenses               | 8.33%| 7.66%|
| Medium n=69                                               |      |      |
| As Percentage of Total Hospital Expenses                  | 0.85%| 7.66%|
| As Percentage of Community Benefit Expenses               | 8.37%| 7.66%|
| Small n=117                                               |      |      |
| As Percentage of Total Hospital Expenses                  | 0.73%| 7.66%|
| As Percentage of Community Benefit Expenses               | 7.96%| 7.66%|

Medical Education & Research

| Medical Education & Research                             |      |      |
| Large n=142                                              |      |      |
| As Percentage of Total Hospital Expenses                  | 7.10%| 7.02%|
| As Percentage of Community Benefit Expenses               | 79.87%| 80.25%|
| Medium n=69                                               |      |      |
| As Percentage of Total Hospital Expenses                  | 7.72%| 7.02%|
| As Percentage of Community Benefit Expenses               | 76.31%| 80.25%|
| Small n=117                                               |      |      |
| As Percentage of Total Hospital Expenses                  | 7.99%| 7.02%|
| As Percentage of Community Benefit Expenses               | 87.38%| 80.25%|

Medical Education & Research

| Medical Education & Research                             |      |      |
| Large n=142                                              |      |      |
| As Percentage of Total Hospital Expenses                  | 1.04%| 1.05%|
| As Percentage of Community Benefit Expenses               | 11.80%| 12.08%|
| Medium n=69                                               |      |      |
| As Percentage of Total Hospital Expenses                  | 1.55%| 1.40%|
| As Percentage of Community Benefit Expenses               | 15.33%| 14.24%|
| Small n=117                                               |      |      |
| As Percentage of Total Hospital Expenses                  | 0.42%| 0.51%|
| As Percentage of Community Benefit Expenses               | 4.66%| 5.68%|
Table 14: Nominal and Inflation-Adjusted Spending on Total and different categories of Community Benefits by Religious Affiliated Hospitals 2010-2013

<table>
<thead>
<tr>
<th>Community Benefit</th>
<th>2010 n= 46</th>
<th>2011 n= 46</th>
<th>2012 n= 45</th>
<th>2013 n= 46</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nominal Total</td>
<td>Inflation-Adjusted Total</td>
<td>Nominal Average</td>
<td>Inflation-Adjusted Average</td>
</tr>
<tr>
<td>Total CB spending</td>
<td>335,986,375</td>
<td>369,585,013</td>
<td>7,304,052</td>
<td>8,034,457</td>
</tr>
<tr>
<td>Charity Care (Financial Assistance) at cost</td>
<td>146,257,856</td>
<td>160,883,642</td>
<td>3,179,519</td>
<td>3,497,470</td>
</tr>
<tr>
<td>Medicaid (Unreimbursed)</td>
<td>111,435,808</td>
<td>122,579,389</td>
<td>2,422,518</td>
<td>2,664,769</td>
</tr>
<tr>
<td>Health professions education</td>
<td>23,785,896</td>
<td>26,164,486</td>
<td>517,085</td>
<td>568,793</td>
</tr>
<tr>
<td>Subsidized health services</td>
<td>14,497,957</td>
<td>15,947,753</td>
<td>315,173</td>
<td>346,690</td>
</tr>
<tr>
<td>Research</td>
<td>2,951,895</td>
<td>3,247,085</td>
<td>64,172</td>
<td>70,589</td>
</tr>
<tr>
<td>Cash and in-kind contributions</td>
<td>3,597,719</td>
<td>3,957,491</td>
<td>78,211</td>
<td>83,523</td>
</tr>
<tr>
<td>Community building activities</td>
<td>3,492,766</td>
<td>3,842,043</td>
<td>75,930</td>
<td>83,523</td>
</tr>
<tr>
<td>Community Health Initiatives</td>
<td>30,876,381</td>
<td>33,964,019</td>
<td>671,226</td>
<td>738,348</td>
</tr>
<tr>
<td>Direct Patient Care</td>
<td>284,485,024</td>
<td>312,933,526</td>
<td>6,184,457</td>
<td>6,802,903</td>
</tr>
<tr>
<td>Medical Education &amp; Research</td>
<td>20,624,969</td>
<td>22,687,466</td>
<td>448,369</td>
<td>493,206</td>
</tr>
</tbody>
</table>
## Table 15: Nominal and Inflation-Adjusted Spending on Total and different categories of Community Benefits by Non-Religious Affiliated Hospitals 2010-2013

<table>
<thead>
<tr>
<th>Community Benefit</th>
<th>Nominal Total</th>
<th>2010 n= 277</th>
<th>Inflation-Adjusted Total</th>
<th>Nominal Average</th>
<th>2011 n= 282</th>
<th>Inflation-Adjusted Average</th>
<th>Nominal Total</th>
<th>2012 n= 282</th>
<th>Inflation-Adjusted Total</th>
<th>Nominal Average</th>
<th>2013 n= 280</th>
<th>Inflation-Adjusted Total</th>
<th>Nominal Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charity Care (Financial Assistance) at cost (Unreimbursed)</td>
<td>901,014,337</td>
<td>991,115,771</td>
<td>3,252,759</td>
<td>3,578,035</td>
<td>1,036,047,763</td>
<td>1,108,571,106</td>
<td>3,673,928</td>
<td>3,931,103</td>
<td>1,046,316,762</td>
<td>1,098,632,600</td>
<td>3,710,343</td>
<td>3,895,860</td>
<td>1,027,210,490</td>
</tr>
<tr>
<td>Medicaid</td>
<td>1,069,722,389</td>
<td>1,176,694,628</td>
<td>3,961,814</td>
<td>4,247,995</td>
<td>91,789,066</td>
<td>98,214,301</td>
<td>325,493</td>
<td>348,278</td>
<td>1,562,327,487</td>
<td>1,640,443,861</td>
<td>5,540,168</td>
<td>5,817,177</td>
<td>1,623,866,823</td>
</tr>
<tr>
<td>Unreimbursed costs of other means-tested government programs</td>
<td>73,270,458</td>
<td>80,597,504</td>
<td>264,514</td>
<td>290,966</td>
<td>173,501,626</td>
<td>185,646,740</td>
<td>615,254</td>
<td>658,322</td>
<td>92,235,561</td>
<td>96,847,339</td>
<td>327,076</td>
<td>343,430</td>
<td>78,217,248</td>
</tr>
<tr>
<td>Community health improvement services</td>
<td>172,468,012</td>
<td>189,714,813</td>
<td>622,628</td>
<td>684,891</td>
<td>412,377,785</td>
<td>441,244,230</td>
<td>1,462,333</td>
<td>1,564,696</td>
<td>187,769,627</td>
<td>197,158,108</td>
<td>665,850</td>
<td>699,142</td>
<td>185,714,432</td>
</tr>
<tr>
<td>Health professions education</td>
<td>382,969,678</td>
<td>421,266,646</td>
<td>1,382,562</td>
<td>1,520,818</td>
<td>524,437,408</td>
<td>561,148,027</td>
<td>1,859,707</td>
<td>1,989,887</td>
<td>456,212,073</td>
<td>479,022,677</td>
<td>1,617,773</td>
<td>1,698,662</td>
<td>474,248,794</td>
</tr>
<tr>
<td>Subsidized health services</td>
<td>427,694,569</td>
<td>470,464,026</td>
<td>1,544,024</td>
<td>1,698,426</td>
<td>39,861,034</td>
<td>42,651,306</td>
<td>141,351</td>
<td>151,246</td>
<td>541,648,502</td>
<td>568,730,927</td>
<td>1,920,739</td>
<td>2,016,776</td>
<td>559,166,711</td>
</tr>
<tr>
<td>Research</td>
<td>41,709,126</td>
<td>45,880,039</td>
<td>150,574</td>
<td>165,632</td>
<td>123,261,238</td>
<td>131,889,525</td>
<td>437,097</td>
<td>467,693</td>
<td>52,669,683</td>
<td>55,303,167</td>
<td>186,772</td>
<td>196,111</td>
<td>45,191,878</td>
</tr>
<tr>
<td>Cash and in-kind contributions</td>
<td>114,305,952</td>
<td>125,736,547</td>
<td>412,657</td>
<td>453,923</td>
<td>5,149,070</td>
<td>5,509,505</td>
<td>18,259</td>
<td>19,837</td>
<td>125,651,777</td>
<td>131,934,366</td>
<td>445,574</td>
<td>467,852</td>
<td>100,760,424</td>
</tr>
<tr>
<td>Community building activities</td>
<td>20,872,945</td>
<td>22,960,240</td>
<td>75,354</td>
<td>82,889</td>
<td>24,304,008</td>
<td>26,005,289</td>
<td>86,184</td>
<td>92,217</td>
<td>24,013,722</td>
<td>25,214,408</td>
<td>85,155</td>
<td>89,413</td>
<td>200,001,430</td>
</tr>
</tbody>
</table>

| Direct Patient Care | 2,471,701,753 | 2,718,871,928 | 8,923,111 | 9,815,422 | 3,033,301,031 | 3,245,632,103 | 10,756,387 | 11,509,334 | 3,242,528,311 | 3,404,654,727 | 11,498,327 | 12,073,244 | 3,288,461,272 | 3,387,115,110 |
| Medical Education & Research | 424,678,803 | 467,146,683 | 1,533,136 | 1,686,450 | 452,238,819 | 483,895,536 | 1,603,684 | 1,715,942 | 508,881,756 | 534,325,844 | 1,804,545 | 1,894,772 | 519,440,672 | 535,023,892 | 1,855,145 | 1,910,800 |
Table 16: Spending on Total and Different Categories of Community Benefit as a Percentage of Total Hospital and Total Community Benefit Expenses by Religious affiliated and Non-Religious Affiliated Hospitals 2010-2013

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total CB spending</td>
<td>As % of Total Hospital Expenses</td>
<td>As % of Total Community Benefit Expenses</td>
<td>As % of Total Hospital Expenses</td>
<td>As % of Total Community Benefit Expenses</td>
<td>As % of Total Hospital Expenses</td>
<td>As % of Total Community Benefit Expenses</td>
<td>As % of Total Hospital Expenses</td>
<td>As % of Total Community Benefit Expenses</td>
</tr>
<tr>
<td>Total CB spending</td>
<td>7.08%</td>
<td>8.03%</td>
<td>7.48%</td>
<td>9.16%</td>
<td>7.08%</td>
<td>9.10%</td>
<td>7.48%</td>
<td>9.15%</td>
</tr>
<tr>
<td>Charity Care (Financial Assistance) at cost (Unreimbursed) Medicaid</td>
<td>3.08%</td>
<td>43.53%</td>
<td>2.26%</td>
<td>28.12%</td>
<td>3.02%</td>
<td>40.37%</td>
<td>2.49%</td>
<td>27.22%</td>
</tr>
<tr>
<td>Unreimbursed costs of other means-tested government programs</td>
<td>2.35%</td>
<td>33.17%</td>
<td>2.68%</td>
<td>33.39%</td>
<td>2.79%</td>
<td>37.32%</td>
<td>3.32%</td>
<td>36.28%</td>
</tr>
<tr>
<td>Community health improvement services</td>
<td>0.26%</td>
<td>3.66%</td>
<td>0.18%</td>
<td>2.29%</td>
<td>0.23%</td>
<td>3.13%</td>
<td>0.22%</td>
<td>2.41%</td>
</tr>
<tr>
<td>Health professions education</td>
<td>0.50%</td>
<td>7.08%</td>
<td>0.43%</td>
<td>5.38%</td>
<td>0.54%</td>
<td>7.21%</td>
<td>0.42%</td>
<td>4.56%</td>
</tr>
<tr>
<td>Subsidized health services</td>
<td>0.37%</td>
<td>5.26%</td>
<td>0.96%</td>
<td>11.95%</td>
<td>0.31%</td>
<td>4.13%</td>
<td>0.99%</td>
<td>10.83%</td>
</tr>
<tr>
<td>Research</td>
<td>0.31%</td>
<td>4.32%</td>
<td>1.07%</td>
<td>13.35%</td>
<td>0.35%</td>
<td>4.74%</td>
<td>1.26%</td>
<td>13.78%</td>
</tr>
<tr>
<td>Cash and in-kind contributions</td>
<td>0.06%</td>
<td>0.88%</td>
<td>0.10%</td>
<td>1.30%</td>
<td>0.06%</td>
<td>0.77%</td>
<td>0.10%</td>
<td>1.05%</td>
</tr>
<tr>
<td>Community building activities</td>
<td>0.07%</td>
<td>1.04%</td>
<td>0.05%</td>
<td>0.65%</td>
<td>0.07%</td>
<td>0.93%</td>
<td>0.06%</td>
<td>0.64%</td>
</tr>
</tbody>
</table>

| 2010 Community Health Initiatives | 0.65% | 9.19% | 0.77% | 9.60% | 0.71% | 9.55% | 0.77% | 8.43% |
| Direct Patient Care | 5.99% | 84.67% | 6.20% | 77.14% | 6.40% | 85.56% | 7.30% | 79.69% |
| Medical Education & Research | 0.43% | 6.14% | 1.06% | 13.25% | 0.37% | 4.89% | 1.09% | 11.88% |
Table 17: Nominal and Inflation-Adjusted Spending on Total and different categories of Community Benefits by System Member Hospitals 2010-2013

<table>
<thead>
<tr>
<th>Community Benefit</th>
<th>2010 n= 124</th>
<th>2011 n= 126</th>
<th>2012 n= 126</th>
<th>2013 n= 125</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nominal Total</td>
<td>Inflation-Adjusted Total</td>
<td>Nominal Average</td>
<td>Inflation-Adjusted Average</td>
</tr>
<tr>
<td>Total CB spending</td>
<td>1,804,366,585</td>
<td>1,984,803,244</td>
<td>14,551,343</td>
<td>16,006,478</td>
</tr>
<tr>
<td>Charity Care</td>
<td>552,183,884</td>
<td>607,402,272</td>
<td>4,453,096</td>
<td>4,898,405</td>
</tr>
<tr>
<td>Medicaid</td>
<td>637,386,942</td>
<td>701,125,636</td>
<td>5,140,217</td>
<td>5,654,239</td>
</tr>
<tr>
<td>(Unreimbursed)</td>
<td>35,181,115</td>
<td>38,699,227</td>
<td>283,719</td>
<td>312,091</td>
</tr>
<tr>
<td>(Financial Assistance) at cost</td>
<td>574,565,239</td>
<td>630,824,855</td>
<td>5,323,380</td>
<td>5,696,017</td>
</tr>
<tr>
<td>Unreimbursed costs of other means-tested government programs</td>
<td>76,736,279</td>
<td>83,004,219</td>
<td>6,161,558</td>
<td>6,592,867</td>
</tr>
<tr>
<td>Community health improvement services</td>
<td>74,337,823</td>
<td>81,771,605</td>
<td>5,975,119</td>
<td>6,645,158</td>
</tr>
<tr>
<td>Health professions education</td>
<td>74,373,823</td>
<td>81,771,605</td>
<td>5,975,119</td>
<td>6,645,158</td>
</tr>
<tr>
<td>subsidized health services</td>
<td>74,373,823</td>
<td>81,771,605</td>
<td>5,975,119</td>
<td>6,645,158</td>
</tr>
<tr>
<td>Research</td>
<td>27,378,563</td>
<td>30,512,419</td>
<td>223,698</td>
<td>246,068</td>
</tr>
<tr>
<td>Cash and in-kind contributions</td>
<td>77,524,935</td>
<td>85,277,429</td>
<td>625,201</td>
<td>687,721</td>
</tr>
<tr>
<td>Community building activities</td>
<td>7,417,520</td>
<td>8,159,272</td>
<td>59,819</td>
<td>65,801</td>
</tr>
</tbody>
</table>

| Community Health Initiatives | 159,280,278 | 175,208,306 | 1,284,518 | 1,412,970 |
| Direct Patient Care          | 1,396,237,279 | 1,535,861,007 | 11,259,978 | 12,385,976 |
| Medical Education & Research | 248,759,028 | 273,634,931 | 2,006,121 | 2,206,733 |
Table 18: Nominal and Inflation-Adjusted Spending on Total and different categories of Community Benefits by Independent Hospitals 2010-2013

<table>
<thead>
<tr>
<th>Community Benefit</th>
<th>Nominal Total</th>
<th>Inflation-Adjusted Total</th>
<th>Nominal Average</th>
<th>Inflation-Adjusted Average</th>
<th>Nominal Total</th>
<th>Inflation-Adjusted Total</th>
<th>Nominal Average</th>
<th>Inflation-Adjusted Average</th>
<th>Nominal Total</th>
<th>Inflation-Adjusted Total</th>
<th>Nominal Average</th>
<th>Inflation-Adjusted Average</th>
<th>Nominal Total</th>
<th>Inflation-Adjusted Total</th>
<th>Nominal Average</th>
<th>Inflation-Adjusted Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total CB spending</td>
<td>1,735,647,255</td>
<td>1,909,211,981</td>
<td>8,721,846</td>
<td>9,594,030</td>
<td>1,889,237,403</td>
<td>2,128,484,021</td>
<td>9,847,710</td>
<td>10,537,090</td>
<td>2,102,206,269</td>
<td>2,207,316,582</td>
<td>10,406,962</td>
<td>10,927,310</td>
<td>2,092,324,315</td>
<td>2,155,094,044</td>
<td>10,609,574</td>
<td>10,721,861</td>
</tr>
<tr>
<td>Charity Care (Financial Assistance) at cost</td>
<td>495,088,309</td>
<td>544,597,140</td>
<td>2,487,881</td>
<td>2,736,669</td>
<td>512,803,327</td>
<td>548,699,560</td>
<td>2,538,630</td>
<td>2,716,334</td>
<td>518,917,509</td>
<td>544,863,384</td>
<td>2,568,899</td>
<td>2,697,343</td>
<td>489,722,520</td>
<td>504,414,196</td>
<td>2,436,430</td>
<td>2,509,523</td>
</tr>
<tr>
<td>Unreimbursed costs of other means-tested government programs</td>
<td>50,382,745</td>
<td>55,421,020</td>
<td>253,180</td>
<td>278,498</td>
<td>80,515,111</td>
<td>86,151,169</td>
<td>398,590</td>
<td>426,491</td>
<td>38,857,867</td>
<td>40,800,760</td>
<td>192,366</td>
<td>201,984</td>
<td>23,946,446</td>
<td>24,664,839</td>
<td>119,137</td>
<td>122,711</td>
</tr>
<tr>
<td>Health professions education</td>
<td>179,622,287</td>
<td>197,584,516</td>
<td>902,625</td>
<td>992,887</td>
<td>153,011,441</td>
<td>163,722,242</td>
<td>757,482</td>
<td>810,506</td>
<td>182,142,003</td>
<td>191,249,103</td>
<td>901,693</td>
<td>946,778</td>
<td>182,922,670</td>
<td>188,410,350</td>
<td>910,063</td>
<td>937,365</td>
</tr>
<tr>
<td>Subsidized health services</td>
<td>270,617,189</td>
<td>297,678,908</td>
<td>1,359,885</td>
<td>1,495,874</td>
<td>312,039,119</td>
<td>333,881,857</td>
<td>1,544,748</td>
<td>1,652,880</td>
<td>340,670,302</td>
<td>357,703,817</td>
<td>1,686,487</td>
<td>1,770,811</td>
<td>374,241,476</td>
<td>385,468,720</td>
<td>1,861,898</td>
<td>1,917,755</td>
</tr>
<tr>
<td>Research</td>
<td>16,922,458</td>
<td>18,614,704</td>
<td>85,037</td>
<td>93,541</td>
<td>12,616,937</td>
<td>13,500,123</td>
<td>62,460</td>
<td>66,832</td>
<td>19,478,204</td>
<td>20,452,114</td>
<td>96,427</td>
<td>101,248</td>
<td>14,838,667</td>
<td>15,283,827</td>
<td>73,824</td>
<td>76,039</td>
</tr>
<tr>
<td>Cash and in-kind contributions</td>
<td>40,378,736</td>
<td>44,416,610</td>
<td>202,908</td>
<td>223,199</td>
<td>49,339,134</td>
<td>52,792,873</td>
<td>244,253</td>
<td>261,351</td>
<td>55,736,234</td>
<td>58,523,046</td>
<td>275,922</td>
<td>289,718</td>
<td>32,655,930</td>
<td>33,635,608</td>
<td>162,467</td>
<td>167,341</td>
</tr>
<tr>
<td>Community building activities</td>
<td>16,948,191</td>
<td>18,643,010</td>
<td>85,167</td>
<td>93,683</td>
<td>17,590,536</td>
<td>18,821,874</td>
<td>87,082</td>
<td>93,178</td>
<td>16,528,543</td>
<td>17,354,970</td>
<td>81,824</td>
<td>85,916</td>
<td>14,505,425</td>
<td>14,940,588</td>
<td>72,166</td>
<td>74,331</td>
</tr>
<tr>
<td>Community Health Initiatives</td>
<td>179,243,012</td>
<td>197,167,313</td>
<td>900,719</td>
<td>990,791</td>
<td>177,210,011</td>
<td>189,614,712</td>
<td>877,277</td>
<td>938,687</td>
<td>189,131,790</td>
<td>198,588,380</td>
<td>936,296</td>
<td>983,111</td>
<td>158,832,039</td>
<td>163,597,000</td>
<td>790,209</td>
<td>813,915</td>
</tr>
<tr>
<td>Direct Patient Care</td>
<td>1,359,859,498</td>
<td>1,495,845,448</td>
<td>6,833,465</td>
<td>7,516,811</td>
<td>1,646,399,014</td>
<td>1,761,646,945</td>
<td>8,150,490</td>
<td>8,721,024</td>
<td>1,711,454,272</td>
<td>1,797,026,986</td>
<td>8,472,546</td>
<td>8,896,173</td>
<td>1,735,730,938</td>
<td>1,787,802,866</td>
<td>8,635,477</td>
<td>8,894,542</td>
</tr>
<tr>
<td>Medical Education &amp; Research</td>
<td>196,544,745</td>
<td>216,199,220</td>
<td>987,662</td>
<td>1,086,428</td>
<td>165,628,378</td>
<td>177,222,364</td>
<td>819,942</td>
<td>877,338</td>
<td>201,620,207</td>
<td>211,701,217</td>
<td>998,120</td>
<td>1,048,026</td>
<td>197,761,337</td>
<td>203,694,177</td>
<td>983,887</td>
<td>1,013,404</td>
</tr>
</tbody>
</table>
## Table 19: Spending on Total and Different Categories of Community Benefit as a Percentage of Total Hospital and Total Community Benefit Expenses by System member and Independent Hospitals 2010-2013

<table>
<thead>
<tr>
<th>Community Benefit</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>System Member n=124</td>
<td>Independent n= 199</td>
<td>System Member n=126</td>
<td>Independent n= 202</td>
</tr>
<tr>
<td>Charity Care (Financial Assistance) at cost</td>
<td>7.91%</td>
<td>8.68%</td>
<td>9.34%</td>
<td>8.74%</td>
</tr>
<tr>
<td>Medicaid</td>
<td>2.42%</td>
<td>2.67%</td>
<td>2.41%</td>
<td>2.54%</td>
</tr>
<tr>
<td>Medicaid (Unreimbursed)</td>
<td>2.79%</td>
<td>3.09%</td>
<td>3.48%</td>
<td>3.28%</td>
</tr>
<tr>
<td>Community programs</td>
<td>0.15%</td>
<td>0.09%</td>
<td>0.38%</td>
<td>0.25%</td>
</tr>
<tr>
<td>Community health improvement services</td>
<td>0.33%</td>
<td>0.36%</td>
<td>0.52%</td>
<td>0.35%</td>
</tr>
<tr>
<td>Health professions education</td>
<td>0.97%</td>
<td>1.09%</td>
<td>0.72%</td>
<td>1.08%</td>
</tr>
<tr>
<td>Subsidized health services</td>
<td>0.78%</td>
<td>0.91%</td>
<td>1.47%</td>
<td>0.79%</td>
</tr>
<tr>
<td>Research</td>
<td>0.12%</td>
<td>0.12%</td>
<td>0.63%</td>
<td>0.13%</td>
</tr>
<tr>
<td>Cash and in-kind contributions</td>
<td>0.34%</td>
<td>0.31%</td>
<td>0.63%</td>
<td>0.28%</td>
</tr>
<tr>
<td>Community building activities</td>
<td>0.03%</td>
<td>0.08%</td>
<td>0.08%</td>
<td>0.04%</td>
</tr>
<tr>
<td>Community Health Initiatives</td>
<td>0.70%</td>
<td>0.71%</td>
<td>0.83%</td>
<td>0.83%</td>
</tr>
<tr>
<td>Direct Patient Care</td>
<td>6.12%</td>
<td>6.76%</td>
<td>7.73%</td>
<td>8.27%</td>
</tr>
<tr>
<td>Medical Education &amp; Research</td>
<td>1.09%</td>
<td>1.21%</td>
<td>0.78%</td>
<td>1.21%</td>
</tr>
</tbody>
</table>
## Table 20: Nominal and Inflation-Adjusted Spending on Total and different categories of Community Benefits in Kentucky 2010-2013

<table>
<thead>
<tr>
<th>Community Benefit</th>
<th>Nominal Total</th>
<th>2010 n= 78</th>
<th>Inflation-Adjusted Total</th>
<th>2011 n= 79</th>
<th>Nominal Average</th>
<th>Inflation-Adjusted Average</th>
<th>2012 n= 79</th>
<th>Nominal Total</th>
<th>Inflation-Adjusted Total</th>
<th>2013 n= 78</th>
<th>Nominal Average</th>
<th>Inflation-Adjusted Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total CB spending</td>
<td>716,882,574</td>
<td>788,570,831</td>
<td>9,190,802</td>
<td>833,845,147</td>
<td>10,109,882</td>
<td>873,834,494</td>
<td>10,534,473</td>
<td>1,106,196</td>
<td>843,495,628</td>
<td>10,814,047</td>
<td>11,138,468</td>
<td></td>
</tr>
<tr>
<td>(Unreimbursed) Medicaid</td>
<td>238,068,504</td>
<td>261,875,355</td>
<td>3,052,160</td>
<td>319,870,266</td>
<td>3,784,103</td>
<td>329,394,325</td>
<td>4,048,991</td>
<td>3,781,446</td>
<td>384,143,446</td>
<td>4,781,472</td>
<td>4,924,916</td>
<td></td>
</tr>
<tr>
<td>Unreimbursed costs of other means-tested government programs</td>
<td>19,486,239</td>
<td>21,434,863</td>
<td>249,824</td>
<td>274,820</td>
<td>257,099</td>
<td>313,708,881</td>
<td>4,200,738</td>
<td>4,048,991</td>
<td>372,954,802</td>
<td>4,781,472</td>
<td>4,924,916</td>
<td></td>
</tr>
<tr>
<td>Community Health improvement services</td>
<td>45,460,503</td>
<td>50,006,553</td>
<td>582,827</td>
<td>50,543,706</td>
<td>641,110</td>
<td>50,024,511</td>
<td>648,579</td>
<td>709,171</td>
<td>42,650,464</td>
<td>96,447</td>
<td>99,340</td>
<td></td>
</tr>
<tr>
<td>Health professions education</td>
<td>101,935,887</td>
<td>112,129,475</td>
<td>1,306,870</td>
<td>92,367,907</td>
<td>1,169,214</td>
<td>103,484,658</td>
<td>1,251,059</td>
<td>1,375,429</td>
<td>111,688,700</td>
<td>1,431,906</td>
<td>1,484,664</td>
<td></td>
</tr>
<tr>
<td>Subsidized health services</td>
<td>19,450,108</td>
<td>21,395,119</td>
<td>249,360</td>
<td>246,850</td>
<td>257,099</td>
<td>313,708,881</td>
<td>4,200,738</td>
<td>4,048,991</td>
<td>372,954,802</td>
<td>4,781,472</td>
<td>4,924,916</td>
<td></td>
</tr>
<tr>
<td>Research</td>
<td>7,425,608</td>
<td>8,168,168</td>
<td>95,200</td>
<td>84,900,240</td>
<td>90,084,557</td>
<td>87,221,678</td>
<td>466,807</td>
<td>490,148</td>
<td>32,122,610</td>
<td>412,982</td>
<td>425,372</td>
<td></td>
</tr>
<tr>
<td>Cash and in-kind contributions</td>
<td>11,848,602</td>
<td>13,033,462</td>
<td>151,905</td>
<td>128,597,171</td>
<td>162,774</td>
<td>112,262,992</td>
<td>142,570</td>
<td>142,570</td>
<td>9,176,490</td>
<td>51,221</td>
<td>52,757</td>
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</tr>
<tr>
<td>Community building activities</td>
<td>4,456,491</td>
<td>4,902,140</td>
<td>57,134</td>
<td>62,848</td>
<td>62,592</td>
<td>66,973</td>
<td>5,330,458</td>
<td>6,474</td>
<td>5,297,544</td>
<td>65,939</td>
<td>67,917</td>
<td></td>
</tr>
<tr>
<td>Community Health Initiatives</td>
<td>61,765,595</td>
<td>67,942,154</td>
<td>791,867</td>
<td>73,131,973</td>
<td>865,160</td>
<td>75,685,709</td>
<td>912,426</td>
<td>958,047</td>
<td>58,679,307</td>
<td>730,387</td>
<td>752,299</td>
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</tr>
<tr>
<td>Direct Patient Care</td>
<td>545,755,484</td>
<td>600,331,033</td>
<td>6,996,865</td>
<td>7,696,552</td>
<td>646,349,362</td>
<td>647,063,199</td>
<td>7,816,673</td>
<td>8,190,673</td>
<td>674,944,591</td>
<td>8,642,238</td>
<td>8,901,505</td>
<td></td>
</tr>
<tr>
<td>Medical Education &amp; Research</td>
<td>109,361,494</td>
<td>120,297,644</td>
<td>1,402,070</td>
<td>100,858,147</td>
<td>1,542,277</td>
<td>113,078,501</td>
<td>1,366,053</td>
<td>1,502,942</td>
<td>112,430,836</td>
<td>1,442,411</td>
<td>1,484,664</td>
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<tr>
<td>Community Benefit</td>
<td>2010 n= 86</td>
<td>2011 n= 86</td>
<td>2012 n= 86</td>
<td>2013 n= 86</td>
<td></td>
<td></td>
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<tr>
<td>----------------------------------------------------------------------------------------------------------------------------</td>
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<td></td>
</tr>
<tr>
<td><strong>Total CB spending</strong></td>
<td>1,112,413,914</td>
<td>1,175,372,830</td>
<td>1,257,648,929</td>
<td>1,390,313,002</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Charity Care (Financial Assistance) at cost</strong></td>
<td>158,780,604</td>
<td>145,252,411</td>
<td>148,162,739</td>
<td>150,933,353</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>(Unreimbursed) Medicaid</strong></td>
<td>509,017,097</td>
<td>561,597,804</td>
<td>600,909,650</td>
<td>648,405,092</td>
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</tr>
<tr>
<td><strong>Unreimbursed costs of other means-tested government programs</strong></td>
<td>19,024,737</td>
<td>21,755,211</td>
<td>14,718,076</td>
<td>59,064,731</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Community health improvement services</strong></td>
<td>17,004,549</td>
<td>193,386,966</td>
<td>213,290,553</td>
<td>51,839,520</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Health professions education</strong></td>
<td>17,004,549</td>
<td>193,386,966</td>
<td>213,290,553</td>
<td>51,839,520</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Subsidized health services</strong></td>
<td>158,780,604</td>
<td>145,252,411</td>
<td>148,162,739</td>
<td>150,933,353</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Research</strong></td>
<td>17,004,549</td>
<td>193,386,966</td>
<td>213,290,553</td>
<td>51,839,520</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cash and in-kind contributions</strong></td>
<td>17,004,549</td>
<td>193,386,966</td>
<td>213,290,553</td>
<td>51,839,520</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Community building activities</strong></td>
<td>5,003,268</td>
<td>5,068,361</td>
<td>7,052,446</td>
<td>6,023,830</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Community Health Initiatives</strong></td>
<td>65,781,618</td>
<td>68,854,099</td>
<td>73,673,886</td>
<td>73,283,069</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Direct Patient Care</strong></td>
<td>850,780,201</td>
<td>989,139,873</td>
<td>952,449,664</td>
<td>1,025,746,946</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Medical Education &amp; Research</strong></td>
<td>195,852,095</td>
<td>216,378,858</td>
<td>231,525,379</td>
<td>235,787,217</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 22: Nominal and Inflation-Adjusted Spending on Total and different categories of Community Benefits in Mississippi 2010-2013

<table>
<thead>
<tr>
<th>Community Benefit</th>
<th>2010 n= 25</th>
<th>2011 n= 27</th>
<th>2012 n= 27</th>
<th>2013 n= 27</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nominal Total</td>
<td>Inflation-Adjusted Total</td>
<td>Nominal Average</td>
<td>Inflation-Adjusted Average</td>
</tr>
<tr>
<td>Total CB spending</td>
<td>83,670,000</td>
<td>92,037,000</td>
<td>3,346,800</td>
<td>3,681,480</td>
</tr>
<tr>
<td>Charity Care</td>
<td>63,836,246</td>
<td>70,219,871</td>
<td>2,553,450</td>
<td>2,808,795</td>
</tr>
<tr>
<td>Unreimbursed costs of other means-tested government programs</td>
<td>-1,569,309</td>
<td>-1,726,240</td>
<td>-62,772</td>
<td>-69,050</td>
</tr>
<tr>
<td>Community health improvement services</td>
<td>6,337,834</td>
<td>6,971,617</td>
<td>253,513</td>
<td>278,865</td>
</tr>
<tr>
<td>Health professions education</td>
<td>4,199,052</td>
<td>4,618,957</td>
<td>167,962</td>
<td>184,758</td>
</tr>
<tr>
<td>Subsidized health services</td>
<td>19,050,344</td>
<td>20,955,378</td>
<td>762,014</td>
<td>838,215</td>
</tr>
<tr>
<td>Cash and in-kind contributions</td>
<td>2,171,589</td>
<td>2,388,748</td>
<td>86,864</td>
<td>95,550</td>
</tr>
<tr>
<td>Community building activities</td>
<td>186,554</td>
<td>205,209</td>
<td>7,462</td>
<td>8,208</td>
</tr>
<tr>
<td>Community Health Initiatives</td>
<td>8,695,977</td>
<td>9,565,575</td>
<td>347,839</td>
<td>382,623</td>
</tr>
<tr>
<td>Direct Patient Care</td>
<td>70,493,121</td>
<td>77,542,433</td>
<td>2,819,725</td>
<td>3,101,697</td>
</tr>
<tr>
<td>Medical Education &amp; Research</td>
<td>4,480,902</td>
<td>4,928,992</td>
<td>179,236</td>
<td>197,160</td>
</tr>
</tbody>
</table>

166
Table 23: Nominal and Inflation-Adjusted Spending on Total and different categories of Community Benefits in Nebraska 2010-2013

<table>
<thead>
<tr>
<th>Community Benefit</th>
<th>Nominal Total</th>
<th>Inflation-Adjusted Total</th>
<th>Nominal Average</th>
<th>Inflation-Adjusted Average</th>
<th>Nominal Total</th>
<th>Inflation-Adjusted Total</th>
<th>Nominal Average</th>
<th>Inflation-Adjusted Average</th>
<th>Nominal Total</th>
<th>Inflation-Adjusted Total</th>
<th>Nominal Average</th>
<th>Inflation-Adjusted Average</th>
<th>Nominal Total</th>
<th>Inflation-Adjusted Total</th>
<th>Nominal Average</th>
<th>Inflation-Adjusted Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total CB spending</td>
<td>409,207,685</td>
<td>450,128,454</td>
<td>8,525,160</td>
<td>9,377,676</td>
<td>454,993,480</td>
<td>486,843,024</td>
<td>9,479,031</td>
<td>10,142,563</td>
<td>476,087,053</td>
<td>499,891,406</td>
<td>9,918,480</td>
<td>10,414,404</td>
<td>497,473,972</td>
<td>512,398,191</td>
<td>10,364,041</td>
<td>10,674,962</td>
</tr>
<tr>
<td>Unreimbursed costs of other means-tested government programs</td>
<td>17,323,769</td>
<td>19,056,146</td>
<td>360,912</td>
<td>397,003</td>
<td>18,683,015</td>
<td>19,990,826</td>
<td>389,229</td>
<td>416,476</td>
<td>21,565,780</td>
<td>22,644,069</td>
<td>449,287</td>
<td>471,751</td>
<td>2,135,164</td>
<td>2,199,219</td>
<td>44,483</td>
<td>45,817</td>
</tr>
<tr>
<td>Community health improvement services</td>
<td>19,234,374</td>
<td>21,157,812</td>
<td>400,716</td>
<td>440,788</td>
<td>20,687,674</td>
<td>22,135,811</td>
<td>430,993</td>
<td>461,163</td>
<td>20,775,600</td>
<td>21,814,380</td>
<td>432,825</td>
<td>454,466</td>
<td>22,258,798</td>
<td>22,926,562</td>
<td>463,725</td>
<td>477,637</td>
</tr>
<tr>
<td>Subsidized health services</td>
<td>42,802,286</td>
<td>47,082,515</td>
<td>891,714</td>
<td>980,886</td>
<td>55,296,786</td>
<td>59,167,561</td>
<td>1,152,016</td>
<td>1,232,658</td>
<td>54,855,329</td>
<td>57,598,095</td>
<td>1,142,819</td>
<td>1,199,960</td>
<td>66,049,532</td>
<td>68,031,018</td>
<td>1,376,032</td>
<td>1,417,313</td>
</tr>
<tr>
<td>Research</td>
<td>12,617,044</td>
<td>13,878,748</td>
<td>262,855</td>
<td>289,141</td>
<td>7,868,113</td>
<td>8,418,881</td>
<td>163,919</td>
<td>175,393</td>
<td>10,541,364</td>
<td>11,068,432</td>
<td>219,612</td>
<td>230,592</td>
<td>8,977,749</td>
<td>9,247,082</td>
<td>187,036</td>
<td>192,648</td>
</tr>
<tr>
<td>Cash and in-kind contributions</td>
<td>68,568,649</td>
<td>75,425,513</td>
<td>1,428,514</td>
<td>1,571,365</td>
<td>71,517,544</td>
<td>76,523,772</td>
<td>1,489,949</td>
<td>1,594,245</td>
<td>77,627,945</td>
<td>81,509,342</td>
<td>1,617,249</td>
<td>1,698,111</td>
<td>59,781,577</td>
<td>61,575,024</td>
<td>1,245,450</td>
<td>1,282,813</td>
</tr>
<tr>
<td>Community building activities</td>
<td>5,281,417</td>
<td>5,809,559</td>
<td>110,030</td>
<td>121,032</td>
<td>5,147,266</td>
<td>5,507,574</td>
<td>107,235</td>
<td>114,741</td>
<td>4,254,358</td>
<td>4,667,076</td>
<td>88,632</td>
<td>93,064</td>
<td>4,614,877</td>
<td>4,753,323</td>
<td>96,143</td>
<td>99,028</td>
</tr>
</tbody>
</table>

Community Health Initiatives | 93,084,440    | 102,392,884              | 1,939,259      | 2,133,185                | 97,352,484    | 104,167,157              | 2,028,177      | 2,170,149                | 102,657,903   | 107,790,798              | 2,138,706      | 2,245,642                | 86,655,252     | 89,254,909               | 1,805,318      | 1,859,477                   |
| Direct Patient Care | 279,964,439    | 307,960,883              | 5,832,592      | 6,415,852                | 324,790,148   | 347,525,459              | 6,766,461      | 7,240,114                | 330,950,245   | 347,497,757              | 6,894,797      | 7,239,537                | 369,948,228    | 381,046,675               | 7,707,255      | 7,938,472                   |
| Medical Education & Research | 36,158,806     | 39,774,687               | 753,308        | 828,639                  | 32,850,848    | 35,150,408               | 684,393        | 732,300                  | 42,478,905    | 44,602,851               | 884,977        | 929,226                  | 40,870,492     | 42,096,607               | 851,469        | 877,013                   |
Table 24: Nominal and Inflation-Adjusted Spending on Total and different categories of Community Benefits in New Hampshire 2010-2013

<table>
<thead>
<tr>
<th>Community Benefit</th>
<th>2010 n=25</th>
<th>2011 n=25</th>
<th>2012 n=25</th>
<th>2013 n=27</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nominal Total</td>
<td>Inflation-Adjusted Total</td>
<td>Nominal Average</td>
<td>Inflation-Adjusted Average</td>
</tr>
<tr>
<td>Charity Care (Financial Assistance) at cost</td>
<td>95,928,746</td>
<td>105,521,621</td>
<td>3,837,150</td>
<td>4,220,865</td>
</tr>
<tr>
<td>(Unreimbursed) Medicaid</td>
<td>168,269,757</td>
<td>185,096,733</td>
<td>6,730,790</td>
<td>7,403,869</td>
</tr>
<tr>
<td>Unreimbursed costs of other means-tested government programs</td>
<td>26,066,568</td>
<td>28,673,225</td>
<td>1,042,663</td>
<td>1,146,929</td>
</tr>
<tr>
<td>Community health improvement services</td>
<td>23,913,274</td>
<td>26,304,601</td>
<td>956,531</td>
<td>1,052,184</td>
</tr>
<tr>
<td>Health professions education</td>
<td>40,249,176</td>
<td>44,274,094</td>
<td>1,609,987</td>
<td>1,770,964</td>
</tr>
<tr>
<td>Research</td>
<td>3,846,721</td>
<td>4,231,393</td>
<td>153,869</td>
<td>169,256</td>
</tr>
<tr>
<td>Cash and in-kind contributions</td>
<td>8,320,191</td>
<td>9,152,210</td>
<td>332,808</td>
<td>366,088</td>
</tr>
<tr>
<td>Community building activities</td>
<td>2,168,165</td>
<td>2,384,982</td>
<td>86,727</td>
<td>95,399</td>
</tr>
</tbody>
</table>

<p>| Community Health Initiatives | 34,401,630 | 37,841,793 | 1,376,065 | 1,513,672 | 31,616,195 | 33,829,329 | 1,264,648 | 1,353,173 | 29,744,698 | 31,231,933 | 1,189,788 | 1,249,277 | 30,655,877 | 31,575,553 | 1,226,235 | 1,263,022 |
| Medical Education &amp; Research | 44,095,897 | 48,505,487 | 1,763,836 | 1,940,219 | 35,685,464 | 38,183,446 | 1,427,419 | 1,527,338 | 46,534,354 | 48,861,072 | 1,861,374 | 1,954,443 | 43,868,176 | 45,184,222 | 1,754,727 | 1,807,369 |</p>
<table>
<thead>
<tr>
<th>Community Benefit</th>
<th>2010 n= 16</th>
<th>2011 n= 16</th>
<th>2012 n=16</th>
<th>2013 n= 16</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nominal Total</td>
<td>Inflation-Adjusted Total</td>
<td>Nominal Average</td>
<td>Inflation-Adjusted Average</td>
</tr>
<tr>
<td>(Unreimbursed) Medicaid</td>
<td>-9,864,672</td>
<td>-10,851,139</td>
<td>-616,542</td>
<td>-678,196</td>
</tr>
<tr>
<td>Unreimbursed costs of other means-tested government programs</td>
<td>5,851,133</td>
<td>6,436,246</td>
<td>365,696</td>
<td>402,265</td>
</tr>
<tr>
<td>Community health improvement services</td>
<td>3,327,091</td>
<td>3,659,800</td>
<td>207,943</td>
<td>228,738</td>
</tr>
<tr>
<td>Health professions education</td>
<td>4,343,844</td>
<td>4,778,228</td>
<td>271,490</td>
<td>298,639</td>
</tr>
<tr>
<td>Subsidized health services</td>
<td>49,273,608</td>
<td>54,200,969</td>
<td>3,079,601</td>
<td>3,387,516</td>
</tr>
<tr>
<td>Research</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cash and in-kind contributions</td>
<td>5,186,533</td>
<td>5,705,186</td>
<td>324,158</td>
<td>356,574</td>
</tr>
<tr>
<td>Community Health Initiatives</td>
<td>12,210,782</td>
<td>13,431,860</td>
<td>763,174</td>
<td>839,491</td>
</tr>
<tr>
<td>Direct Patient Care</td>
<td>93,462,330</td>
<td>102,808,563</td>
<td>5,841,396</td>
<td>6,425,535</td>
</tr>
<tr>
<td>Medical Education &amp; Research</td>
<td>4,343,844</td>
<td>4,778,228</td>
<td>271,490</td>
<td>298,639</td>
</tr>
</tbody>
</table>

169
<table>
<thead>
<tr>
<th>Community Benefit</th>
<th>Nominal Total</th>
<th>Nominal Average</th>
<th>Inflation-Adjusted Total</th>
<th>Inflation-Adjusted Average</th>
<th>Nominal Total</th>
<th>Nominal Average</th>
<th>Inflation-Adjusted Total</th>
<th>Inflation-Adjusted Average</th>
<th>Nominal Total</th>
<th>Nominal Average</th>
<th>Inflation-Adjusted Total</th>
<th>Inflation-Adjusted Average</th>
<th>Nominal Total</th>
<th>Nominal Average</th>
<th>Inflation-Adjusted Total</th>
<th>Inflation-Adjusted Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Health</td>
<td>58,064,076</td>
<td>63,870,483</td>
<td>1,350,327</td>
<td>1,485,360</td>
<td>53,503,919</td>
<td>57,249,194</td>
<td>1,138,381</td>
<td>1,218,068</td>
<td>58,283,341</td>
<td>61,197,508</td>
<td>1,240,071</td>
<td>1,302,075</td>
<td>60,599,269</td>
<td>62,417,247</td>
<td>1,317,375</td>
<td>1,356,897</td>
</tr>
<tr>
<td>improvement services</td>
<td>63,641,622</td>
<td>70,005,785</td>
<td>1,480,038</td>
<td>1,628,042</td>
<td>67,843,793</td>
<td>72,592,859</td>
<td>1,443,485</td>
<td>1,544,529</td>
<td>78,406,692</td>
<td>82,327,026</td>
<td>1,668,227</td>
<td>1,751,639</td>
<td>78,246,371</td>
<td>80,593,762</td>
<td>1,701,008</td>
<td>1,752,038</td>
</tr>
<tr>
<td>Health professions education</td>
<td>105,972,190</td>
<td>116,569,409</td>
<td>2,464,470</td>
<td>2,710,916</td>
<td>118,734,986</td>
<td>127,046,435</td>
<td>2,526,276</td>
<td>2,703,116</td>
<td>121,196,983</td>
<td>127,256,832</td>
<td>2,578,659</td>
<td>2,707,592</td>
<td>122,494,067</td>
<td>126,168,889</td>
<td>2,662,914</td>
<td>2,742,802</td>
</tr>
<tr>
<td>Subsidized health services</td>
<td>5,173,848</td>
<td>5,691,233</td>
<td>120,322</td>
<td>132,354</td>
<td>5,598,561</td>
<td>5,990,460</td>
<td>119,118</td>
<td>127,457</td>
<td>6,924,324</td>
<td>7,270,541</td>
<td>147,326</td>
<td>154,692</td>
<td>6,739,142</td>
<td>6,941,316</td>
<td>146,503</td>
<td>150,898</td>
</tr>
<tr>
<td>Research</td>
<td>6,471,818</td>
<td>7,119,000</td>
<td>150,507</td>
<td>165,558</td>
<td>12,213,894</td>
<td>13,068,867</td>
<td>259,870</td>
<td>278,061</td>
<td>11,872,956</td>
<td>12,466,603</td>
<td>252,616</td>
<td>265,247</td>
<td>10,315,371</td>
<td>10,624,832</td>
<td>224,247</td>
<td>230,975</td>
</tr>
<tr>
<td>Cash and in-kind contributions</td>
<td>4,027,501</td>
<td>4,430,251</td>
<td>93,663</td>
<td>103,029</td>
<td>3,295,602</td>
<td>3,526,294</td>
<td>70,119</td>
<td>75,028</td>
<td>5,669,980</td>
<td>5,953,479</td>
<td>120,638</td>
<td>126,670</td>
<td>4,389,292</td>
<td>4,520,971</td>
<td>95,419</td>
<td>98,282</td>
</tr>
<tr>
<td>Community building activities</td>
<td>68,563,394</td>
<td>75,419,734</td>
<td>1,594,498</td>
<td>1,753,947</td>
<td>69,013,416</td>
<td>73,844,355</td>
<td>1,468,371</td>
<td>1,571,156</td>
<td>75,826,277</td>
<td>79,617,591</td>
<td>1,613,325</td>
<td>1,693,991</td>
<td>75,303,932</td>
<td>77,563,050</td>
<td>1,637,042</td>
<td>1,686,153</td>
</tr>
<tr>
<td>Community Health Initiatives</td>
<td>63,177,397</td>
<td>70,004,137</td>
<td>14,816,916</td>
<td>16,298,608</td>
<td>769,593,207</td>
<td>823,464,731</td>
<td>16,374,324</td>
<td>17,520,526</td>
<td>859,147,440</td>
<td>902,104,812</td>
<td>18,279,733</td>
<td>19,193,719</td>
<td>822,986,073</td>
<td>847,675,655</td>
<td>17,891,002</td>
<td>18,427,732</td>
</tr>
<tr>
<td>Direct Patient Care</td>
<td>68,815,470</td>
<td>75,697,017</td>
<td>1,600,360</td>
<td>1,760,396</td>
<td>73,442,354</td>
<td>78,583,319</td>
<td>1,562,603</td>
<td>1,671,986</td>
<td>85,331,016</td>
<td>89,597,567</td>
<td>1,815,554</td>
<td>1,906,331</td>
<td>84,985,513</td>
<td>87,535,078</td>
<td>1,847,511</td>
<td>1,902,936</td>
</tr>
<tr>
<td>Medical Education &amp; Research</td>
<td>63,177,397</td>
<td>70,004,137</td>
<td>14,816,916</td>
<td>16,298,608</td>
<td>769,593,207</td>
<td>823,464,731</td>
<td>16,374,324</td>
<td>17,520,526</td>
<td>859,147,440</td>
<td>902,104,812</td>
<td>18,279,733</td>
<td>19,193,719</td>
<td>822,986,073</td>
<td>847,675,655</td>
<td>17,891,002</td>
<td>18,427,732</td>
</tr>
</tbody>
</table>
Table 27: Spending on Total and Different Categories of Community Benefit as a Percentage of Total Hospital and Total Community Benefit Expenses in Kentucky and Minnesota 2010-2013

<table>
<thead>
<tr>
<th>Community Benefit</th>
<th>Provision of Community Benefits in Total Dollar Amounts and its 2016 Adjusted Equivalent in Kentucky</th>
<th>Provision of Community Benefits in Total Dollar Amounts and its 2016 Adjusted Equivalent in Minnesota</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2010 n=78</td>
<td>2011 n=79</td>
</tr>
<tr>
<td></td>
<td>As Percentage of Total Hospital Expenses</td>
<td>As Percentage of Total Community Benefit Expenses</td>
</tr>
<tr>
<td>Total CB spending</td>
<td>7.97%</td>
<td>-</td>
</tr>
<tr>
<td>Charity Care (Financial Assistance) at cost</td>
<td>2.99%</td>
<td>37.49%</td>
</tr>
<tr>
<td>(Unreimbursed) Medicaid</td>
<td>2.65%</td>
<td>33.21%</td>
</tr>
<tr>
<td>Unreimbursed costs of other means-tested government programs</td>
<td>0.22%</td>
<td>2.72%</td>
</tr>
<tr>
<td>Community health improvement services</td>
<td>0.51%</td>
<td>6.34%</td>
</tr>
<tr>
<td>Health professions education</td>
<td>1.13%</td>
<td>14.22%</td>
</tr>
<tr>
<td>Subsidized health services</td>
<td>0.22%</td>
<td>2.71%</td>
</tr>
<tr>
<td>Research</td>
<td>0.08%</td>
<td>1.04%</td>
</tr>
<tr>
<td>Cash and in-kind contributions</td>
<td>0.13%</td>
<td>1.65%</td>
</tr>
<tr>
<td>Community building activities</td>
<td>0.05%</td>
<td>0.62%</td>
</tr>
<tr>
<td>Category</td>
<td>0.69%</td>
<td>8.62%</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>Community Health Initiatives</td>
<td>6.07%</td>
<td>76.13%</td>
</tr>
<tr>
<td>Direct Patient Care</td>
<td>1.22%</td>
<td>15.26%</td>
</tr>
<tr>
<td>Medical Education &amp; Research</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 28: Spending on Total and Different Categories of Community Benefit as a Percentage of Total Hospital and Total Community Benefit Expenses in Mississippi and Nebraska 2010-2013

<table>
<thead>
<tr>
<th>Community Benefit</th>
<th>Mississippi</th>
<th>Nebraska</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total CB spending</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.29%</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Charity Care (Financial Assistance) at cost (Unreimbursed) Medicaid Unreimbursed costs of other means-tested government programs</td>
<td>2.51%</td>
</tr>
<tr>
<td></td>
<td>0.06%</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Community health improvement services</td>
<td>0.25%</td>
</tr>
<tr>
<td></td>
<td>Health professions education</td>
<td>0.16%</td>
</tr>
<tr>
<td></td>
<td>Subsidized health services</td>
<td>0.75%</td>
</tr>
<tr>
<td></td>
<td>Research</td>
<td>0.01%</td>
</tr>
<tr>
<td></td>
<td>Cash and in-kind contributions</td>
<td>0.09%</td>
</tr>
<tr>
<td></td>
<td>Community building activities</td>
<td>0.01%</td>
</tr>
<tr>
<td></td>
<td>Community Health Initiatives</td>
<td>0.34%</td>
</tr>
<tr>
<td></td>
<td>Direct Patient Care</td>
<td>2.77%</td>
</tr>
<tr>
<td></td>
<td>Medical Education &amp; Research</td>
<td>0.18%</td>
</tr>
</tbody>
</table>
Table 29: Spending on Total and Different Categories of Community Benefit as a Percentage of Total Hospital and Total Community Benefit Expenses in New Hampshire and New Mexico 2010-2013

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total CB spending</td>
<td>11.25%</td>
<td>13.36%</td>
<td>12.48%</td>
<td>12.36%</td>
<td>5.31%</td>
<td>10.13%</td>
<td>10.30%</td>
<td>5.66%</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Charity Care (Financial Assistance) at cost (Unreimbursed) Medicaid</td>
<td>2.48%</td>
<td>22.08%</td>
<td>2.47%</td>
<td>2.47%</td>
<td>17.47%</td>
<td>20.79%</td>
<td>20.79%</td>
<td>20.79%</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Medicaid Unreimbursed costs of other means-tested government programs</td>
<td>4.36%</td>
<td>38.73%</td>
<td>6.12%</td>
<td>48.98%</td>
<td>5.77%</td>
<td>46.65%</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Community health improvement services</td>
<td>0.67%</td>
<td>6.00%</td>
<td>0.81%</td>
<td>0.00%</td>
<td>0.03%</td>
<td>0.04%</td>
<td>0.28%</td>
<td>5.32%</td>
<td>1.12%</td>
<td>11.01%</td>
<td>0.21%</td>
<td>2.05%</td>
</tr>
<tr>
<td>Health professions education</td>
<td>0.62%</td>
<td>5.50%</td>
<td>0.48%</td>
<td>3.57%</td>
<td>0.40%</td>
<td>3.23%</td>
<td>0.44%</td>
<td>3.57%</td>
<td>0.16%</td>
<td>3.02%</td>
<td>0.16%</td>
<td>1.54%</td>
</tr>
<tr>
<td>Subsidized health services</td>
<td>1.04%</td>
<td>9.26%</td>
<td>0.89%</td>
<td>6.63%</td>
<td>1.06%</td>
<td>8.51%</td>
<td>1.00%</td>
<td>8.05%</td>
<td>0.21%</td>
<td>3.95%</td>
<td>0.28%</td>
<td>2.80%</td>
</tr>
<tr>
<td>Research</td>
<td>1.70%</td>
<td>15.12%</td>
<td>2.11%</td>
<td>15.82%</td>
<td>2.25%</td>
<td>18.03%</td>
<td>2.15%</td>
<td>17.37%</td>
<td>2.38%</td>
<td>44.79%</td>
<td>3.42%</td>
<td>33.80%</td>
</tr>
<tr>
<td>Cash and in-kind contributions</td>
<td>0.10%</td>
<td>0.89%</td>
<td>0.09%</td>
<td>0.67%</td>
<td>0.12%</td>
<td>0.94%</td>
<td>0.11%</td>
<td>0.87%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Community building activities</td>
<td>0.22%</td>
<td>1.92%</td>
<td>0.32%</td>
<td>2.39%</td>
<td>0.28%</td>
<td>2.23%</td>
<td>0.27%</td>
<td>2.16%</td>
<td>0.25%</td>
<td>4.71%</td>
<td>0.17%</td>
<td>1.63%</td>
</tr>
<tr>
<td>Community Health Initiatives</td>
<td>0.89%</td>
<td>7.92%</td>
<td>0.07%</td>
<td>0.51%</td>
<td>0.07%</td>
<td>0.57%</td>
<td>0.06%</td>
<td>0.50%</td>
<td>0.18%</td>
<td>3.36%</td>
<td>0.22%</td>
<td>2.14%</td>
</tr>
<tr>
<td>Direct Patient Care</td>
<td>9.22%</td>
<td>81.93%</td>
<td>11.52%</td>
<td>86.23%</td>
<td>10.55%</td>
<td>84.52%</td>
<td>10.49%</td>
<td>84.84%</td>
<td>4.51%</td>
<td>84.95%</td>
<td>9.31%</td>
<td>91.88%</td>
</tr>
<tr>
<td>Medical Education &amp; Research</td>
<td>1.14%</td>
<td>10.15%</td>
<td>0.98%</td>
<td>7.30%</td>
<td>1.18%</td>
<td>9.44%</td>
<td>1.10%</td>
<td>8.92%</td>
<td>0.21%</td>
<td>3.95%</td>
<td>0.28%</td>
<td>2.80%</td>
</tr>
</tbody>
</table>
Table 30: Spending on Total and Different Categories of Community Benefit as a Percentage of Total Hospital and Total Community Benefit Expenses in Virginia 2010-2013

<table>
<thead>
<tr>
<th>Category</th>
<th>2010 n= 43</th>
<th>2011 n=47</th>
<th>2012 n=47</th>
<th>2013 n=46</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>As Percentage of Total Hospital Expenses</td>
<td>As Percentage of Total Community Benefit Expenses</td>
<td>As Percentage of Total Hospital Expenses</td>
<td>As Percentage of Total Community Benefit Expenses</td>
</tr>
<tr>
<td>Total CB spending</td>
<td>8.23%</td>
<td>8.91%</td>
<td>9.55%</td>
<td>8.97%</td>
</tr>
<tr>
<td>Charity Care (Financial Assistance) at cost</td>
<td>3.47%</td>
<td>42.14%</td>
<td>3.99%</td>
<td>44.83%</td>
</tr>
<tr>
<td>(Unreimbursed) Medicaid</td>
<td>2.16%</td>
<td>26.30%</td>
<td>2.35%</td>
<td>26.42%</td>
</tr>
<tr>
<td>Unreimbursed costs of other means-tested government programs</td>
<td>0.01%</td>
<td>0.14%</td>
<td>0.01%</td>
<td>0.11%</td>
</tr>
<tr>
<td>Community health improvement services</td>
<td>0.62%</td>
<td>7.50%</td>
<td>0.52%</td>
<td>5.87%</td>
</tr>
<tr>
<td>Health professions education</td>
<td>0.68%</td>
<td>8.22%</td>
<td>0.66%</td>
<td>7.44%</td>
</tr>
<tr>
<td>Subsidized health services</td>
<td>1.13%</td>
<td>13.68%</td>
<td>1.16%</td>
<td>13.02%</td>
</tr>
<tr>
<td>Research</td>
<td>0.05%</td>
<td>0.67%</td>
<td>0.05%</td>
<td>0.61%</td>
</tr>
<tr>
<td>Cash and in-kind contributions</td>
<td>0.07%</td>
<td>0.84%</td>
<td>0.12%</td>
<td>1.34%</td>
</tr>
<tr>
<td>Community building activities</td>
<td>0.04%</td>
<td>0.52%</td>
<td>0.03%</td>
<td>0.36%</td>
</tr>
<tr>
<td>Community Health Improvement Initiatives</td>
<td>0.73%</td>
<td>8.85%</td>
<td>0.67%</td>
<td>7.57%</td>
</tr>
<tr>
<td>Direct Patient Care</td>
<td>6.77%</td>
<td>82.26%</td>
<td>7.52%</td>
<td>84.38%</td>
</tr>
<tr>
<td>Education &amp; Research</td>
<td>0.73%</td>
<td>8.89%</td>
<td>0.72%</td>
<td>8.05%</td>
</tr>
</tbody>
</table>
Table 31: Nominal and Inflation-Adjusted Spending on Total and different categories of Community Benefits in States with Low Poverty Rates (New Hampshire, Virginia, Minnesota, and Nebraska) 2010-2013

<table>
<thead>
<tr>
<th>Community Benefit</th>
<th>2010 n= 204 Nominal Total</th>
<th>2010 n= 204 Inflation-Adjusted Total</th>
<th>2011 n= 206 Nominal Total</th>
<th>2011 n= 206 Inflation-Adjusted Total</th>
<th>2012 n=206 Nominal Total</th>
<th>2012 n=206 Inflation-Adjusted Total</th>
<th>2013 n= 205 Nominal Total</th>
<th>2013 n= 205 Inflation-Adjusted Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total CB spending</td>
<td>2,629,444,310</td>
<td>2,892,388,741</td>
<td>12,889,433</td>
<td>14,178,376</td>
<td>3,031,023,169</td>
<td>3,243,194,791</td>
<td>14,713,705</td>
<td>15,743,664</td>
</tr>
<tr>
<td>Charity Care (Financial Assistance) at cost of</td>
<td>666,483,053</td>
<td>733,131,358</td>
<td>3,267,074</td>
<td>3,593,781</td>
<td>744,888,262</td>
<td>797,030,440</td>
<td>3,615,962</td>
<td>3,869,080</td>
</tr>
<tr>
<td>(Unreimbursed) Medicaid</td>
<td>963,778,525</td>
<td>1,060,156,377</td>
<td>4,724,405</td>
<td>5,196,845</td>
<td>1,176,883,909</td>
<td>1,259,265,783</td>
<td>5,713,029</td>
<td>6,112,941</td>
</tr>
<tr>
<td>Unreimbursed costs of other means-tested government</td>
<td>61,795,798</td>
<td>67,975,377</td>
<td>302,921</td>
<td>333,213</td>
<td>63,199,516</td>
<td>67,623,482</td>
<td>328,269</td>
<td>383,921</td>
</tr>
<tr>
<td>Community health improvement services</td>
<td>141,128,481</td>
<td>155,241,329</td>
<td>691,806</td>
<td>760,987</td>
<td>139,051,443</td>
<td>148,785,044</td>
<td>722,257</td>
<td>752,991</td>
</tr>
<tr>
<td>Health professions education</td>
<td>290,163,969</td>
<td>319,180,366</td>
<td>1,422,372</td>
<td>1,564,610</td>
<td>324,556,818</td>
<td>347,275,795</td>
<td>1,575,519</td>
<td>1,685,805</td>
</tr>
<tr>
<td>Subsidized health services</td>
<td>354,418,467</td>
<td>389,860,314</td>
<td>1,737,345</td>
<td>1,911,080</td>
<td>420,857,764</td>
<td>450,131,807</td>
<td>2,042,999</td>
<td>2,186,009</td>
</tr>
<tr>
<td>Research</td>
<td>36,953,563</td>
<td>40,648,920</td>
<td>181,145</td>
<td>199,259</td>
<td>33,800,707</td>
<td>36,166,756</td>
<td>164,081</td>
<td>175,567</td>
</tr>
<tr>
<td>Cash and in-kind contributions</td>
<td>98,696,947</td>
<td>108,566,642</td>
<td>483,809</td>
<td>532,189</td>
<td>109,807,736</td>
<td>117,494,277</td>
<td>533,047</td>
<td>570,361</td>
</tr>
<tr>
<td>Community building activities</td>
<td>16,025,508</td>
<td>17,628,059</td>
<td>78,556</td>
<td>86,412</td>
<td>17,977,015</td>
<td>19,235,406</td>
<td>87,267</td>
<td>93,376</td>
</tr>
<tr>
<td>Community Health Improvement Initiatives</td>
<td>255,850,936</td>
<td>281,436,029</td>
<td>1,254,171</td>
<td>1,379,588</td>
<td>266,836,194</td>
<td>285,514,727</td>
<td>1,295,321</td>
<td>1,385,994</td>
</tr>
<tr>
<td>Direct Patient Care</td>
<td>2,046,475,842</td>
<td>2,251,123,426</td>
<td>10,031,744</td>
<td>11,034,919</td>
<td>2,405,829,451</td>
<td>2,574,237,512</td>
<td>11,678,784</td>
<td>12,496,299</td>
</tr>
<tr>
<td>Medical Education &amp; Research</td>
<td>327,117,533</td>
<td>359,829,286</td>
<td>1,603,517</td>
<td>1,763,869</td>
<td>358,357,524</td>
<td>383,442,551</td>
<td>1,739,600</td>
<td>1,861,372</td>
</tr>
</tbody>
</table>

176
<table>
<thead>
<tr>
<th>Community Benefit</th>
<th>2010 n= 119</th>
<th>2011 n= 122</th>
<th>2012 n=122</th>
<th>2013 n= 121</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nominal Total</td>
<td>Inflation-Adjusted Total</td>
<td>Nominal Average</td>
<td>Inflation-Adjusted Average</td>
</tr>
<tr>
<td>Total CB spending</td>
<td>910,569,530</td>
<td>1,001,626,483</td>
<td>7,651,845</td>
<td>8,417,029</td>
</tr>
<tr>
<td>Unreimbursed costs of other means-tested government programs</td>
<td>23,768,063</td>
<td>26,144,869</td>
<td>199,732</td>
<td>219,705</td>
</tr>
<tr>
<td>Community health improvement services</td>
<td>55,125,428</td>
<td>60,637,971</td>
<td>463,239</td>
<td>509,563</td>
</tr>
<tr>
<td>Health professions education</td>
<td>110,478,783</td>
<td>121,526,661</td>
<td>928,393</td>
<td>1,021,232</td>
</tr>
<tr>
<td>Subsidized health services</td>
<td>87,774,060</td>
<td>96,551,466</td>
<td>737,597</td>
<td>811,357</td>
</tr>
<tr>
<td>Research</td>
<td>7,707,458</td>
<td>8,478,204</td>
<td>64,769</td>
<td>71,245</td>
</tr>
<tr>
<td>Cash and in-kind contributions</td>
<td>19,206,724</td>
<td>21,127,396</td>
<td>161,401</td>
<td>177,541</td>
</tr>
<tr>
<td>Community building activities</td>
<td>8,340,203</td>
<td>9,174,223</td>
<td>70,086</td>
<td>77,094</td>
</tr>
<tr>
<td>Community Health Improvement Initiatives</td>
<td>82,672,355</td>
<td>90,939,591</td>
<td>694,726</td>
<td>764,198</td>
</tr>
<tr>
<td>Direct Patient Care</td>
<td>709,710,935</td>
<td>780,682,029</td>
<td>5,963,957</td>
<td>6,560,353</td>
</tr>
<tr>
<td>Medical Education &amp; Research</td>
<td>118,186,241</td>
<td>130,004,865</td>
<td>993,162</td>
<td>1,092,478</td>
</tr>
</tbody>
</table>
Table 33: Spending on Total and Different Categories of Community Benefit as a Percentage of Total Hospital and Total Community Benefit Expenses in States with High Poverty Rates (Kentucky, New Mexico, and Mississippi) and Low Poverty Rates (New Hampshire, Virginia, Minnesota, and Nebraska) 2010-2013

<table>
<thead>
<tr>
<th>Community Benefit</th>
<th>Total CB spending</th>
<th>Charity Care (Financial Assistance) at cost</th>
<th>Medicaid Unreimbursed costs of other means-tested government programs</th>
<th>Community health improvement services</th>
<th>Health professions education</th>
<th>Subsidized health services</th>
<th>Research</th>
<th>Cash and in-kind contributions</th>
<th>Community building activities</th>
<th>Community Health Initiatives</th>
<th>Direct Patient Care</th>
<th>Medical Education &amp; Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>As Percentage of Total Hospital Expenses</td>
<td>As Percentage of Community Benefit Expenses</td>
<td>As Percentage of Total Hospital Expenses</td>
<td>As Percentage of Community Benefit Expenses</td>
<td>As Percentage of Total Hospital Expenses</td>
<td>As Percentage of Community Benefit Expenses</td>
<td>As Percentage of Total Hospital Expenses</td>
<td>As Percentage of Community Benefit Expenses</td>
<td>As Percentage of Total Hospital Expenses</td>
<td>As Percentage of Community Benefit Expenses</td>
<td>As Percentage of Total Hospital Expenses</td>
<td>As Percentage of Community Benefit Expenses</td>
<td>As Percentage of Total Hospital Expenses</td>
</tr>
<tr>
<td>11.33%</td>
<td>8.47%</td>
<td>2.15%</td>
<td>3.11%</td>
<td>0.17%</td>
<td>0.11%</td>
<td>0.10%</td>
<td>0.06%</td>
<td>0.14%</td>
<td>0.61%</td>
<td>5.21%</td>
<td>0.87%</td>
<td>12.98%</td>
</tr>
<tr>
<td>12.44%</td>
<td>10.31%</td>
<td>10.17%</td>
<td>10.93%</td>
<td>0.64%</td>
<td>0.64%</td>
<td>0.63%</td>
<td>0.52%</td>
<td>0.14%</td>
<td>0.92%</td>
<td>7.74%</td>
<td>0.80%</td>
<td>12.98%</td>
</tr>
<tr>
<td>12.98%</td>
<td>10.93%</td>
<td>10.17%</td>
<td>10.93%</td>
<td>0.64%</td>
<td>0.64%</td>
<td>0.63%</td>
<td>0.52%</td>
<td>0.14%</td>
<td>0.92%</td>
<td>7.74%</td>
<td>0.80%</td>
<td>12.98%</td>
</tr>
<tr>
<td>12.98%</td>
<td>10.93%</td>
<td>10.17%</td>
<td>10.93%</td>
<td>0.64%</td>
<td>0.64%</td>
<td>0.63%</td>
<td>0.52%</td>
<td>0.14%</td>
<td>0.92%</td>
<td>7.74%</td>
<td>0.80%</td>
<td>12.98%</td>
</tr>
<tr>
<td>12.98%</td>
<td>10.93%</td>
<td>10.17%</td>
<td>10.93%</td>
<td>0.64%</td>
<td>0.64%</td>
<td>0.63%</td>
<td>0.52%</td>
<td>0.14%</td>
<td>0.92%</td>
<td>7.74%</td>
<td>0.80%</td>
<td>12.98%</td>
</tr>
<tr>
<td>12.98%</td>
<td>10.93%</td>
<td>10.17%</td>
<td>10.93%</td>
<td>0.64%</td>
<td>0.64%</td>
<td>0.63%</td>
<td>0.52%</td>
<td>0.14%</td>
<td>0.92%</td>
<td>7.74%</td>
<td>0.80%</td>
<td>12.98%</td>
</tr>
<tr>
<td>12.98%</td>
<td>10.93%</td>
<td>10.17%</td>
<td>10.93%</td>
<td>0.64%</td>
<td>0.64%</td>
<td>0.63%</td>
<td>0.52%</td>
<td>0.14%</td>
<td>0.92%</td>
<td>7.74%</td>
<td>0.80%</td>
<td>12.98%</td>
</tr>
</tbody>
</table>
Table 34: Model based* spending on Total Community Benefits as Percentage of Total Hospitals Expenses*

<table>
<thead>
<tr>
<th>Year</th>
<th>Mean</th>
<th>Median</th>
<th>Standard Deviation</th>
<th>Interquartile Range</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>7.49</td>
<td>6.73</td>
<td>5.74</td>
<td>4.3 – 9.92</td>
<td>0.06</td>
<td>32.38</td>
</tr>
<tr>
<td>2011</td>
<td>8.17</td>
<td>7.28</td>
<td>5.74</td>
<td>4.75 – 10.34</td>
<td>0.05</td>
<td>31.14</td>
</tr>
<tr>
<td>2012</td>
<td>8.19</td>
<td>7.49</td>
<td>5.17</td>
<td>4.93 – 10.17</td>
<td>0.05</td>
<td>31.91</td>
</tr>
<tr>
<td>2013</td>
<td>8.20</td>
<td>7.45</td>
<td>5.40</td>
<td>4.95 – 10.29</td>
<td>0.08</td>
<td>32.78</td>
</tr>
<tr>
<td>Location</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>7.29</td>
<td>6.39</td>
<td>6.39</td>
<td>3.94 – 10.11</td>
<td>0.06</td>
<td>18.95</td>
</tr>
<tr>
<td>Urban</td>
<td>7.74</td>
<td>7.03</td>
<td>4.79</td>
<td>4.73 – 9.27</td>
<td>0.10</td>
<td>32.38</td>
</tr>
<tr>
<td>2011</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>8.02</td>
<td>6.85</td>
<td>6.09</td>
<td>4.27 – 10.39</td>
<td>0.05</td>
<td>30.39</td>
</tr>
<tr>
<td>Urban</td>
<td>8.36</td>
<td>7.57</td>
<td>5.28</td>
<td>5.11 – 9.95</td>
<td>0.06</td>
<td>31.14</td>
</tr>
<tr>
<td>2012</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>7.80</td>
<td>7.12</td>
<td>5.07</td>
<td>4.53 – 10.23</td>
<td>0.06</td>
<td>28.90</td>
</tr>
<tr>
<td>Urban</td>
<td>8.69</td>
<td>7.85</td>
<td>5.28</td>
<td>5.60 – 10.12</td>
<td>0.05</td>
<td>31.91</td>
</tr>
<tr>
<td>2013</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>7.82</td>
<td>6.92</td>
<td>5.15</td>
<td>4.66 – 9.90</td>
<td>0.08</td>
<td>26.94</td>
</tr>
<tr>
<td>Urban</td>
<td>8.64</td>
<td>7.63</td>
<td>5.65</td>
<td>5.82 – 10.64</td>
<td>0.10</td>
<td>32.78</td>
</tr>
<tr>
<td>Hospital Size</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2010</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large</td>
<td>8.11</td>
<td>7.35</td>
<td>6.76</td>
<td>4.97 – 10.30</td>
<td>0.06</td>
<td>22.13</td>
</tr>
<tr>
<td>Medium</td>
<td>6.96</td>
<td>6.16</td>
<td>4.78</td>
<td>4.45 – 8.73</td>
<td>0.06</td>
<td>27.45</td>
</tr>
<tr>
<td>Small</td>
<td>7.05</td>
<td>6.16</td>
<td>4.84</td>
<td>3.51 – 9.50</td>
<td>0.06</td>
<td>32.38</td>
</tr>
<tr>
<td>2011</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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All estimates were calculated for non-negative, non-zero, non-missing observations only.

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+ Model based estimates are the expected values based on the assumptions of regression model.
* All estimates were calculated for non-negative, non-zero, non-missing observations only.
Table 35: Model based* spending on Direct Patient Care Activities as Percentage of Total Hospitals Expenses*

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Model based estimates are the expected values based on the assumptions of regression model.

* All estimates were calculated for non-negative, non-zero, non-missing observations only.

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Table 36: Model based* spending on Community Health Improvement Initiatives as Percentage of Total Hospitals Expenses*

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**Hospital System Member**

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**Region**

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* Model based estimates are the expected values based on the assumptions of regression model.
* All estimates were calculated for non-negative, non-zero, non-missing observations only.

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**Poverty rates**

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Table 37: Model based* spending on Medical Education and Research as Percentage of Total Hospitals Expenses*

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Model based estimates are the expected values based on the assumptions of regression model.

* All estimates were calculated for non-negative, non-zero, non-missing observations only.

** ACH= Acute care hospitals

*CAH= Critical access hospital

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Poverty rates

2010 Low poverty States: 0.62 0.25 0.87 0.09 – 0.89 0 6.01
High Poverty States: 0.65 0.20 1.59 0.09 – 0.71 0 12.93

2011 Low poverty States: 0.65 0.30 0.90 0.09 – 0.92 0.01 4.30
High Poverty States: 0.60 0.28 1.31 0.08 – 0.61 0.01 10.52

2012 Low poverty States: 0.66 0.32 0.87 0.09 – 1.02 0 4.30
High Poverty States: 0.62 0.15 1.54 0.06 – 0.56 0 12.61

2013 Low poverty States: 0.64 0.32 0.85 0.09 – 0.81 0 4.92
High Poverty States: 0.70 0.17 2.03 0.04 – 0.69 0 18.10
Table 38: Regression of Spending on Community Health Improvement Initiatives and Medical Education and Research (probability of not pending)

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Table 38 (Continued): Regression of Spending on Medical Education and Research (Probability of Spending)

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*ACH= Acute care hospitals
*CAH= Critical access hospital

Levels of FPG:
- Low: 0.018 - 0.118
- Medium: 0.119 - 0.218
- High: 0.219 and above

Unemployment percentage:
- Low: 0.0 - 0.1
- Medium: 0.11 - 0.21
- High: 0.22 and above

Medically uninsured Adults percentage:
- Low: 0.0 - 0.1
- Medium: 0.11 - 0.21
- High: 0.22 and above

Poverty Rate:
- Low: 0.0 - 0.1
- Medium: 0.11 - 0.21
- High: 0.22 and above
Table 39: Regression of Spending on Different Community Benefits Categories

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Table 3 (Continued): Regression of Spending on Community Health Improvement Initiatives

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<th>Unemployment percentage</th>
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|               | Negative | Low | Medium | High | Low | Medium | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | High | Low | Moderate | Higher.
Table 3 (Continued): Regression of Spending on Medical Education and Research

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<th>Unemployment percentage Low</th>
<th>Unemployment percentage High</th>
<th>Uninsured percentage Low</th>
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<td>High</td>
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| Type    | Year | Location | Urban | Rural | Negative | Low    | Medium | High   | Low    | Medium | High   | Low    | Medium | High   | Low    | Medium | High   | Low    | Medium | High   |
|---------|------|----------|-------|-------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| ACH     | 2010 |          | 0.00103| 0.00063| 0.00087  | 0.00087| 0.00087| 0.00087| 0.00087| 0.00087| 0.00087| 0.00087| 0.00087| 0.00087| 0.00087| 0.00087| 0.00087| 0.00087|
|        | 2011 |          | 0.00081| 0.00076| 0.00076  | 0.00076| 0.00076| 0.00076| 0.00076| 0.00076| 0.00076| 0.00076| 0.00076| 0.00076| 0.00076| 0.00076| 0.00076| 0.00076|
|        | 2012 |          | 0.00080| 0.00080| 0.00080  | 0.00080| 0.00080| 0.00080| 0.00080| 0.00080| 0.00080| 0.00080| 0.00080| 0.00080| 0.00080| 0.00080| 0.00080| 0.00080|
|        | 2013 |          | 0.00086| 0.00086| 0.00086  | 0.00086| 0.00086| 0.00086| 0.00086| 0.00086| 0.00086| 0.00086| 0.00086| 0.00086| 0.00086| 0.00086| 0.00086| 0.00086|

*Calculations done at mean values for: profit=0.0369, number of independent members on the Board of Directors=10, levels of federal poverty guidelines used to determine eligibility for free care= 160, Unemployment percentage=7.28, Uninsured Adults percentage=17.23, and poverty percentage=16.01.

**ACHE= Acute care hospitals

**CAH= Critical access hospital
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<th>Adult Obesity</th>
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<th>Teen Birth Rate</th>
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<th>Primary Care Practitioner</th>
<th>Preventable Hospital Stays</th>
<th>Diabetic Screening</th>
<th>Unemployment</th>
<th>Child in Poverty</th>
<th>Inadequate Social Support</th>
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Table 41: Ranking of States Based on the Average Weighted Sums of their Community Health Indicators (n=14) 2010-2012

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<th>State</th>
<th>Rank</th>
<th>Adult smoking</th>
<th>Adult obesity</th>
<th>Motor vehicle crash death rate</th>
<th>Teen birth rate</th>
<th>Uninsured Adults</th>
<th>Primary care physicians</th>
<th>Preventable hospital stays</th>
<th>Diabetic screening</th>
<th>Unemployment</th>
<th>Children in poverty</th>
<th>Inadequate social support</th>
<th>Air pollution particulate matter days</th>
<th>Air pollution ozone days</th>
<th>Access to healthy foods</th>
<th>Average Weighted Sums</th>
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Table 42: Ranking of the Seven States Based on the Average Weighted Sums of Community Health Indicators 2011-2013

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<th>Rank</th>
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<th>Adult Obesity</th>
<th>Excessive drinking</th>
<th>Teen birth rate</th>
<th>Preventable hospital stays</th>
<th>Diabetic screening</th>
<th>Total for each year</th>
<th>Total</th>
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Figure 1: Inflation-Adjusted Aggregate Counties Spending on Community Health Improvement Initiatives in the Seven States 2011-2013* (n=223)

*Excluding all zero and negative values

Figure 2: Inflation-Adjusted Average County Spending on Community Health Improvement Initiatives in the Seven States 2011-2013* (n=223)

*Excluding all zero and negative values
Figure 3: Inflation-Adjusted Total Spending on Community Health Improvement Initiatives in the Seven States 2010-2012\(^*\) (n=223)

Excluding all zero and negative values

Figure 4: Inflation-Adjusted Average County Spending on Community Health Improvement Initiatives in the Seven States 2010-2012\(^*\) (n=223)

Excluding all zero and negative values
APPENDIX B: IRS INCOME TAX FORM 990

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May the IRS discuss this return with the preparer shown above? [ ] Yes [ ] No
For Paperwork Reduction Act Notice, see the separate instructions.
### Part I: Financial Assistance and Certain Other Community Benefits at Cost

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#### Financial Assistance and Means-Tested Government Programs

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<th>Persons Served</th>
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#### Other Benefits

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<th>Description</th>
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<th>Persons Served</th>
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<th>Direct Offsetting Revenue</th>
<th>Indirect Community Benefit Expenditure</th>
<th>Percent of Total Revenue</th>
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### Part II  Community Building Activities

Complete this table if the organization conducted any community building activities during the tax year, and describe in Part VI how its community building activities promoted the health of the communities it serves.

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<th>Persons served (optional)</th>
<th>Total community building expense</th>
<th>Direct offsetting revenue</th>
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<td>Total</td>
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### Part III  Bad Debt, Medicare, & Collection Practices

#### Section A. Bad Debt Expense

1. Did the organization report bad debt expense in accordance with Healthcare Financial Management Association Statement No. 15?  
   - Yes  
   - No

2. Enter the amount of the organization’s bad debt expense. Explain in Part VI the methodology used by the organization to estimate this amount.

3. Enter the estimated amount of the organization’s bad debt expense attributable to patients eligible under the organization’s financial assistance policy. Explain in Part VI the methodology used by the organization to estimate this amount and the rationale, if any, for including this portion of bad debt as community benefit.

4. Provide in Part VI the text of the footnote to the organization’s financial statements that describes bad debt expense or the page number on which this footnote is contained in the attached financial statements.

#### Section B. Medicare

5. Enter total revenue received from Medicare (including CHS and IME).

6. Enter Medicare allowable costs of care relating to payments on line 5.

7. Subtract line 6 from line 5. This is the surplus (or shortfall).

8. Describe in Part VI the extent to which any shortfall reported in line 7 should be treated as community benefit. Also describe in Part VI the costing methodology or source used to determine the amount reported on line 6. Check this box that describes the method used:
   - Cost accounting system
   - Cost to charge ratio
   - Other

#### Section C. Collection Practices

9a. Did the organization have a written debt collection policy during the tax year?  
   - Yes
   - No

9b. If “Yes,” did the organization’s collection policy that applied to the largest number of its patients during the tax year contain provisions on the collection practices to be followed for patients who are known to qualify for financial assistance? Describe in Part VI.

### Part IV  Management Companies and Joint Ventures

<table>
<thead>
<tr>
<th></th>
<th>Name of entity</th>
<th>Description of primary activity of entity</th>
<th>Organization’s profit % or stock ownership %</th>
<th>Officers, directors, trustees, or key employees’ profit % or stock ownership %</th>
<th>Physicians’ profit % or stock ownership %</th>
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</table>
### Part V Facility Information
#### Section A: Hospital Facilities

(list in order of size, from largest to smallest—see instructions)

How many hospital facilities did the organization operate during the tax year?

Name, address, primary website address, and state license number

1. 

2. 

3. 

4. 

5. 

6. 

7. 

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<table>
<thead>
<tr>
<th>Facility operating group</th>
<th>Other (describe)</th>
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Schedule H (Form 990) 2013
### Part IV  Facility Information (continued)

#### Section B. Facility Policies and Practices

(Complete a separate Section B for each of the hospital facilities or facility reporting groups listed in Part V, Section A)

**Name of hospital facility or facility reporting group**

If reporting on Part V, Section B for a single hospital facility only: line number of hospital facility (from Schedule H, Part V, Section A)

---

#### Community Health Needs Assessment (Lines 1 through 8 are optional for tax years beginning on or before March 23, 2012)

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
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**Community Health Needs Assessment**

- **Line 1:** During the tax year or either of the two immediately preceding tax years, did the hospital facility conduct a community health needs assessment (CHNA)?
  - Yes
  - No
  - Check all that apply:
  - A definition of the community served by the hospital facility
  - Demographics of the community
  - Existing health care facilities and resources within the community that are available to respond to the health needs of the community
  - How data was obtained
  - The health needs of the community
  - Primary and chronic disease needs and other health issues of uninsured persons, low-income persons, and minority groups
  - The process for identifying and prioritizing community health needs and services to meet the community health needs
  - The process for consulting with persons representing the community’s interests
  - Information gaps that limit the hospital facility’s ability to assess the community’s health needs
  - Other (describe in Section C)

- **Line 2:** Indicate the tax year the hospital facility last conducted a CHNA: 20__

- **Line 3:** Did the hospital facility take into account input from persons who represent the broad interests of the community served by the hospital facility, including those with special knowledge or expertise in public health? If “Yes,” describe in Section C how the hospital facility took into account input from persons who represent the community, and identify the persons the hospital facility consulted.

- **Line 4:** Was the hospital facility’s CHNA conducted with one or more other hospital facilities? If “Yes,” list the other hospital facilities in Section C.

- **Line 5:** Did the hospital facility make its CHNA report widely available to the public?
  - Yes
  - No
  - Check all that apply:
  - Hospital facility’s website (list url)
  - Other website(s) list url
  - Available upon request from the hospital facility
  - Other (describe in Section C)

- **Line 6:** If the hospital facility addressed needs identified in its most recently conducted CHNA, indicate how (check all that apply):
  - Adoption of an implementation strategy that addresses each of the community health needs identified through the CHNA
  - Execution of the implementation strategy
  - Participation in the development of a community-wide plan
  - Participation in the execution of a community-wide plan
  - Inclusion of a community benefit section in operational plans
  - Adoption of a budget for provision of services that address the needs identified in the CHNA
  - Prioritization of health needs in its community
  - Prioritization of services that the hospital facility will undertake to meet health needs in its community
  - Other (describe in Section C)

- **Line 7:** Did the hospital facility address all of the needs identified in its most recently conducted CHNA? If “No,” explain in Section C which needs it has not addressed and the reasons why it has not addressed such needs.

- **Line 8:** Did the organization incur an excise tax under section 4959 for the hospital facility’s failure to conduct a CHNA as required by section 501(c)(3)?
  - Yes
  - No
  - Check any that apply:
  - From line 8a, did the organization file Form 4720 to report the section 4959 excise tax?
  - From line 8b, what is the total amount of section 4959 excise tax the organization reported on Form 4720 for all of its hospital facilities? $
### Part Y  Facility Information (continued)

#### Financial Assistance Policy

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
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<tbody>
<tr>
<td>Did the hospital facility have in place during the tax year a written financial assistance policy that:</td>
<td></td>
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<tr>
<td>Explained eligibility criteria for financial assistance, and whether such assistance includes free or discounted care?</td>
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<tr>
<td>Used federal poverty guidelines (FPG) to determine eligibility for providing free care?</td>
<td>10</td>
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<tr>
<td>Yes, indicate the FPG family income limit for eligibility for free care:</td>
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<tr>
<td>No, explain in Section C the criteria the hospital facility used.</td>
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<tr>
<td>Used FPG to determine eligibility for discounted care?</td>
<td></td>
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</tr>
<tr>
<td>Yes, indicate the FPG family income limit for eligibility for discounted care:</td>
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<tr>
<td>No, explain in Section C the criteria the hospital facility used.</td>
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<tr>
<td>Explained the basis for calculating amounts charged to patients?</td>
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<td>Yes, indicate the factors used in determining such amounts (check all that apply):</td>
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<tr>
<td>Income level</td>
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<td>Asset level</td>
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<td>Medical indigency</td>
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<tr>
<td>Insurance status</td>
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<tr>
<td>Uninsured discount</td>
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<tr>
<td>Medicaid/Medicare</td>
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<tr>
<td>State regulation</td>
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<tr>
<td>Residency</td>
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<tr>
<td>Other (describe in Section C)</td>
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</table>

#### Billing and Collections

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
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<tbody>
<tr>
<td>Did the hospital facility have in place during the tax year a separate billing and collections policy, or a written financial assistance policy (FAP) that explained actions the hospital facility may take upon non-payment?</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Check all of the following actions against an individual that were permitted under the hospital facility's policies during the tax year before making reasonable efforts to determine the individual's eligibility under the facility's FAP:</td>
<td></td>
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<tr>
<td>Reporting to credit agency</td>
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<tr>
<td>Lawsuits</td>
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<tr>
<td>Liens on residences</td>
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<tr>
<td>Body attachments</td>
<td></td>
<td></td>
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<tr>
<td>Other similar actions (describe in Section C)</td>
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<tr>
<td>Did the hospital facility or an authorized third party perform any of the following actions during the tax year before making reasonable efforts to determine the individual's eligibility under the facility's FAP?</td>
<td>17</td>
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<tr>
<td>Yes, check all actions in which the hospital facility or a third party engaged:</td>
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<tr>
<td>Reporting to credit agency</td>
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<td>Lawsuits</td>
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<td>Body attachments</td>
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<tr>
<td>Other similar actions (describe in Section C)</td>
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### Part V Facility Information (continued)

18 Indicate which efforts the hospital facility made before initiating any of the actions listed in line 17 [check all that apply]:
   a. □ Notified individuals of the financial assistance policy on admission  
   b. □ Notified individuals of the financial assistance policy prior to discharge  
   c. □ Notified individuals of the financial assistance policy in communications with the individuals regarding the individuals’ bills  
   d. □ Documented its determination of whether individuals were eligible for financial assistance under the hospital facility’s financial assistance policy  
   e. □ Other [describe in Section C]

### Policy Relating to Emergency Medical Care

19 Did the hospital facility have in place during the tax year a written policy relating to emergency medical care that requires the hospital facility to provide, without discrimination, care for emergency medical conditions to individuals regardless of their eligibility under the hospital facility’s financial assistance policy?  
   a. □ “No,” indicate why:  
       a. □ The hospital facility did not provide care for any emergency medical conditions  
       b. □ The hospital facility’s policy was not in writing  
       c. □ The hospital facility limited who was eligible to receive care for emergency medical conditions (describe in Section C)  
   d. □ Other [describe in Section C]

### Charges to Individuals Eligible for Assistance under the FAP (FAP-Eligible Individuals)

20 Indicate how the hospital facility determined, during the tax year, the maximum amounts that can be charged to FAP-eligible individuals for emergency or other medically necessary care.
   a. □ The hospital facility used its lowest negotiated commercial insurance rate when calculating the maximum amounts that can be charged  
   b. □ The hospital facility used the average of its three lowest negotiated commercial insurance rates when calculating the maximum amounts that can be charged  
   c. □ The hospital facility used the Medicare rates when calculating the maximum amounts that can be charged  
   d. □ Other [describe in Section C]

21 During the tax year, did the hospital facility charge any FAP-eligible individual to whom the hospital facility provided emergency or other medically necessary services more than the amounts generally billed to individuals who had insurance covering such care?  
   f. “Yes,” explain in Section C.

22 During the tax year, did the hospital facility charge any FAP-eligible individual an amount equal to the gross charge for any service provided to that individual?  
   f. “Yes,” explain in Section C.
### Part V Facility Information (continued)

**Section C. Supplemental Information** for Part V, Section B. Provide descriptions required for Part V, Section B lines 1, 3, 4, 5d, 6i, 7, 10, 11, 12, 14g, 16a, 17e, 18a, 10c, 10d, 20d, 21, and 22. If applicable, provide separate descriptions for each facility in a facility reporting group, designated by “Facility A,” “Facility B,” etc.

<table>
<thead>
<tr>
<th>Facility Name</th>
<th>Description</th>
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### Part V Facility Information (continued)

**Section D. Other Health Care Facilities That Are Not Licensed, Registered, or Similarly Recognized as a Hospital Facility**

(list in order of size, from largest to smallest)

How many non-hospital health care facilities did the organization operate during the tax year? ________________

<table>
<thead>
<tr>
<th>Name and address</th>
<th>Type of Facility (describe)</th>
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Part VI  Supplemental Information

Provide the following information.

1  **Required descriptions.** Provide the descriptions required for Part I, lines 3c, 6a, and 7; Part II and Part III, lines 2, 3, 4, 6 and 9b.

2  **Needs assessment.** Describe how the organization assesses the health care needs of the communities it serves, in addition to any CHIAAs reported in Part V, Section E.

3  **Patient education of eligibility for assistance.** Describe how the organization informs and educates patients and persons who may be billed for patient care about their eligibility for assistance under federal, state, or local government programs or under the organization's financial assistance policy.

4  **Community information.** Describe the community the organization serves, taking into account the geographic area and demographic constituents it serves.

5  **Promotion of community health.** Provide any other information important to describing how the organization's hospital facilities or other health care facilities further its exempt purpose by promoting the health of the community (e.g., open medical staff, community board, use of surplus funds, etc.).

6  **Affiliated health care system.** If the organization is part of an affiliated health care system, describe the respective roles of the organization and its affiliates in promoting the health of the communities served.

7  **State filing of community benefit report.** If applicable, identify all states with which the organization, or a related organization, files a community benefit report.
APPENDIX C: DATA SOURCES

**County Health Rankings & Roadmaps**

“The County Health Rankings & Roadmaps program is a collaboration between the Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute”. They produce an annual County Health Rankings based on a combination of population Health Outcomes and Health Factors. Each of those groups include a number of focus areas that in turn include a number of health measures. Health Factors are evaluated based on the weight of each of its four components, focus areas, and measures. All data are publicly available [http://www.countyhealthrankings.org/](http://www.countyhealthrankings.org/).

**American Hospital Association Annual Survey**

The American Hospital Association conducts an Annual Survey that is released in October of every year. This survey covers about 6,500 hospitals and about 400 health care systems in the U.S. The 1000 fields included in this survey cover different aspects of hospitals organizational characteristics including managerial and administrative structure, workforce, facilities, services, and financial performance. The data of this survey is not publicly available and needs to be purchased from the AHA, [http://www.aha.org/](http://www.aha.org/).

**United States Census Bureau American FactFinder**

The U.S. Census Bureau is a division of the U.S. Department of Commerce. Annually, it conducts about one hundred surveys and censuses about the U.S. people and economy. This reliable rich source of data include information about population and housing, economy, and government and is utilized for many purposes. Among the information included in the American FactFinder, [https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml](https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml), are data about population, age, sex, race, density, income, education, poverty, household size, relationships, origins and languages. All data are publicly available.
**Rural Urban Continuum Code**

The Rural Urban Continuum Codes are developed by the U.S. Department of Agriculture. These codes were developed in 1974 and the first update was done in 1983, it was updated every 10 years and the last one was conducted in 2013. These codes distinguish metropolitan and nonmetropolitan counties based on a set of criteria. Metropolitan counties are divided into 3 subdivisions and nonmetropolitan into 9 subdivisions. All data are publicly available through [https://www.ers.usda.gov/data-products/rural-urban-continuum-codes/](https://www.ers.usda.gov/data-products/rural-urban-continuum-codes/).

**GuideStar**

GuideStar is a charity organization that aims to promote philanthropy by harboring a wide range of information about “every single IRS-registered nonprofit organization”. The information span from an organization’s mission to its finances, governance, reputation and more. Among the services provided by their website are millions of nonprofit organizations’ income tax Form 990. Some of the information and forms are publicly available through their website [http://www.guidestar.org/Home.aspx](http://www.guidestar.org/Home.aspx).