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DEPARTMENT OF HEALTH POLICY AND ADMINISTRATION

IMPROVING COMMUNITY HEALTH THROUGH COLLABORATION AND ASSESSMENT: A TWO-PART STUDY OF COMMUNITY HEALTH NEEDS ASSESSMENTS

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ABSTRACT

The Affordable Care Act of 2010 set into motion major changes in the health services industry. The United States infrastructure of public health—local health departments, polices, and regulations—has been hit by this change in the wake of the ACA with an opportunity for collaboration on community health assessments. This is a two part study that first looks at these health assessments from a non-profit hospital perspective and discusses the use of asset-mapping methodology in a community health needs assessment. Second, this study examines local health departments using a health systems thinking perspective to understand what factors are associated with collaboration with non-profit hospitals on community health assessments. Results of this study help to shape the direction of the public health infrastructure post-ACA world, indicating an important use of asset-mapping in modern day assessments and also demonstrating important local health department characteristics that exist within hospital and health department collaboration.

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ACKNOWLEDGEMENTS

The community health needs assessment described was completed by Mount Nittany Medical Center. Use of data from the assessment in this study was approved by Mount Nittany Medical Center CHNA project leaders.

Preface

It is widely accepted that improving the health of populations requires shared responsibility and collaborations to address the many upstream and individual factors that influence health outcomes (Stoto, 2013). The public health infrastructure of the United States offers a network of local and state health departments that can facilitate such collaborations to analyze and improve heath at a community level. This shared responsibility of public health organizations has been emphasized by the Institute of Medicine (IOM) in several reports (1997, 2010, 2012) and may be the key to tailoring programs and improvement plans to improve community health.

The Affordable Care Act of 2010 (ACA) is most widely known for its efforts to increase access to care through insurance coverage, but the act also recognizes the importance of collaborations in community health improvement and included several important provisions for the future of public health. The first such provision was the establishment of the National Prevention, Health Promotion, and Public Health Council to create and implement a National Prevention Strategy (NPS) (Shaw, Asomugha, Conway, & Rein, 2014). The first of four strategic directions outlined by the NPS is the establishment of healthy and safe community environments, highlighting the importance of communities in supporting healthy choices and well-being (Shaw et al., 2014). The ACA also includes financial support specifically for community health improvement with the Prevention and Public Health Fund to expand and sustain national public health programs (“Prevention and Public Health Fund,” 2014) and Community Transformation Grants for community-based programs that target chronic disease prevention (Shaw et al., 2014).

Furthermore, the ACA includes provisions that call for the collaboration of the public health infrastructure and health care delivery organizations. This specific collaboration requires all non-profit hospitals to implement a community health needs assessment (CHNA) a minimum of once every three years in order to maintain tax-exempt benefits. The CHNA must describe the community that is served by the hospital, identify existing health care resources, identify and prioritize community health needs, and describe a strategic plan for improving community health (Patton, 2009; Shaw et al., 2014; Stoto, 2013). The CHNA process motivates the involvement of local health departments, community health partnerships, and key stakeholders in collaboration with the reporting non-profit hospitals.

The concept of analyzing and planning community health improvement is not new. The CHNA process is similar to plans suggested by the IOM, the National Association of County and City Health Officials (NACCHO), and the Public Health Accreditation Board (PHAB). The importance of CHNA inclusion in the ACA lies in the mandatory reporting of CHNA results to the IRS every three years, and the resulting "stick" of a $50,000 fine for hospitals that do not participate (Patton, 2009). This requirement will lead to a large increase in quantity and frequency of community health assessments. The repetition of these assessments at a minimum of once every three years will yield essential notation of improvements, progress, barriers, and problems in the continued efforts to improving health at a community level. The CHNAs also force partnerships within communities whose influence may extend beyond the ACA required reporting, and motivate further strides toward community health improvement.

The influx of CHNAs that result from ACA implementation calls for a greater understanding of how these assessments are being done across the country. There is agreement that every hospital, county, and community is unique and therefore may need to execute CHNAs

in varying ways (Myers & Stoto, 2006). Many resources exist for completion of these assessments, including but not limited to strategies outlined by NACCHO, PHAB, and the Association of Community Health Improvement (ACHI). In order to take full advantage of the CHNA as a tool to improve community health, the public health system should seek to understand what strategies work best for which communities. Ensuring effective use of CHNAs will result in better analysis, evaluation, and implementation strategies for community health. Furthermore, effective reporting will yield vital information about community health improvement over time and corresponding trends in health.

In order to address the complexity of implementing CHNAs at a local level, I present the following two studies for the completion of my Master of Science degree: 1) a case-study of a 2013 CHNA completed by Mount Nittany Medical Center and the use of asset-mapping to identify community resources, and 2) a descriptive analysis of NACCHO Local Health Department Profile Survey 2013 data in order to evaluate the characteristics of local health departments that are associated with collaboration with non-profit hospitals. The results of these studies should help lay the groundwork for improving understanding of how community health is assessed through collaborative efforts in the wake of ACA implementation.

PART 1: ASSET-MAPPING WITHIN A COMMUNITY HEALTH NEEDS ASSESSMENT

Chapter 1

Introduction to CHNAs

Under the Affordable Care Act of 2010 (ACA) non-profit hospitals are required to complete a community health needs assessment (CHNA) once every three years in order to describe and motivate community benefit. These assessments require an evaluation of the health services and outcomes in a community and the development of a plan to address those needs. Despite the fact that similar assessments have been completed by non-profit hospitals in the past, this new ACA provision requires hospitals go farther than ever before to understand the needs of the community around them. In 2013, the Mount Nittany Medical Center in State College, Pennsylvania completed its first CHNA in response to the ACA requirement. Without a nationally mandated framework for the CHNA process, Mount Nittany Medical Center had some flexibility in executing their assessment. In order to gain a clear picture of health needs and establish a plan for addressing those needs, the Mount Nittany Medical Center CHNA project leaders used an asset-mapping framework to inventory all health services available to their community. The asset-mapping framework was used to motivate partnerships between community resources and may be an effective method to include in CHNA's performed by other hospitals.

Background

The ACA included many provisions to improve America's health at various levels. Notable changes to health insurance requirements and Medicaid expansion have been implemented and analyzed at the national and state levels. Other provisions under the ACA have required detailed analysis and implementation on a much smaller scale, such as the community health needs assessments (CHNAs) required of non-profit hospitals.

The required CHNA includes description of the community served, a statement of existing resources or health assets, a prioritized list of community health needs, and an implementation strategy to meet those needs (Singh, 2013). The CHNA is to be completed once every three years, and include the feedback and oversight of public health officials and stakeholders within the community (Patton, 2009). Hospitals who fail to complete the CHNA every three years are subject to a $50,000 excise tax (Patton, 2009; Principe, Adams, Maynard, & Becker, 2012).

The CHNA requirement may result in improved understanding of non-profit hospital community benefit. The implementation strategy outlined by each CHNA could be used to identify individual performance measures that could allow assessment of not only charitable expenditures but improvement of community health outcomes (Singh, 2013).

Non-profit hospitals often provide services to low-income and uninsured populations, support community groups, execute research, and train health professionals. These non-profit hospitals are granted tax-exempt incentives for providing such

community benefit. In 2009, the Internal Revenue Service (IRS) revised Form 990, a required reporting form for tax-exempt organizations, to include detailed financial reports of charitable activity and "community benefit" (Singh, 2013). Schedule H of Form 990 outlined the following activities as components of community benefit: financial assistance (sometimes known as 'charity care'), the unreimbursed costs of providing care to patients using Medicaid and other means-tested programs, subsidized health services, community health improvement services, health professions education, research, and cash contributions to community groups (Singh, 2013). These measures were included to demonstrate each non-profit hospital's improvements in health and well-being of the community. However, these measures merely provide a "window" for both the IRS and the public to view their activity—there is no required threshold of activity that a non-profit organization must meet in order to receive tax-exempt benefits (Principe et al., 2012).

Updates to Form 990 include an expanded summary of the hospital's activities, designed to give readers a context for financial activity and community benefit provided (Patton, 2009). Hospitals are also required to include a "snapshot" of financial information from the year being reported compared to the previous year's activity (Patton, 2009). Each of the requirements are designed to more wholly capture and convey a hospital's contribution to community health.

Non-profit hospital use of Form 990 contributes to public knowledge of community benefit, but does not provide more than a cross-sectional report of hospital's current expenditures. The ACA attempts to help capture a non-profit hospital's contribution to the community by including a required community health needs

assessment (CHNA) in addition to the reporting of community benefit measures (Singh, 2013). The CHNA will help hospitals, stakeholders, and the public to not only understand the current health of the community but also prepare and plan to improve that health.

Chapter 2

Mount Nittany Medical Center CHNA

Methods

Setting

Health needs assessments can be used as systematic approaches to ensuring health services are provided to the given population in the most efficient way (Wright, Williams, & Wilkinson, 1998). Strategies for completing assessments will vary by community, but should include a multi-disciplinary approach and the feedback of key stakeholders in order to identify inequalities in health and determine priorities to address them (Wright et al., 1998). The following describes the CHNA that was designed for and completed by the community in Centre County, Pennsylvania.

In accordance with the ACA's requirement for non-profit tax-exempt hospitals to complete a CHNA, Mount Nittany Medical Center in State College, Pennsylvania implemented and published a CHNA in 2013. Mount Nittany Medical Center is a 260-bed acute care facility that offers over 60 specialties in medical, surgical, and diagnostic

services ("Mount Nittany Medical Center," 2014). The hospital is part of Mount Nittany Health System and serves the residents of Centre county and surrounding counties.

CHNA Framework

The assessment followed the six-phase model outlined by the Association for Community Health Improvement (ACHI): 1) identifying the team and resources, 2) define the purpose and scope, 3) collect and analyze data, 4) select priorities, 5) document and communicate results, 6) plan for action and monitor progress.

Models for CHNAs should be customized based off of community characteristics such as urban/rural areas, geography, access/mobility, etc. (Myers & Stoto, 2006).The project leaders at Mount Nittany Medical Center chose the ACHI six-phase model as an outline for the areas CHNA, with an understanding that individual steps would be tailored to meet the needs of the Centre County community. The following is a summary of the steps taken by Mount Nittany Medical Center project leaders to develop a comprehensive and unique CHNA.

1. Identify the Team and Resources

The ACHI outline describes this step as an opportunity to obtain leadership support, build the staff team, identify and obtain resources, determine level of community involvement, and consider forming an assessment advisory committee. The project leaders at Mount Nittany Medical Center consulted with a public health consultant to guide the CHNA, and collaborated with a local public health interest group, Centre County Partnership for Community Health (CCPCH,) to provide insight as key stakeholders. Outside of the participation of local public health leaders involved CCPCH,

community involvement was primarily utilized during a community-wide health forum and key informant interviews.

2. Defining the Purpose and Scope

The ACHI six-phase model describes step two as an opportunity to identify the users and audience, define the purpose, and specify the target population. The Mount Nittany Medical Center project leaders determined that the CHNA would seek to identify five key gaps in the health or health services of Centre County residents, and develop public discussion and a strategic plan to realistically address those gaps. The primary users and audience of the CHNA would be health providers and health consumers in Centre County, as the information learned would benefit each side of healthcare exchanges.

3. Collecting and Analyzing Data

The ACHI describes step three as an opportunity to determine who will collect and analyze both primary and secondary data sources, develop a data management process, and consider examining community assets. The CHNA data collection and management was conducted by the public health consultant and health services research interns that were graduate students from the Pennsylvania State University. Secondary data was analyzed from County Health Profile data and Census Bureau data, both of which are publicly available online. These sources were used to compare Centre County to the state of Pennsylvania and the entire country on several major health indicators. Primary data was collected through key informant interviews conducted and coded by the consultant. This qualitative information was used to understand the health needs of the county in the eyes of community members.

The CHNA project leaders also determined that they would take an extensive evaluation of community assets. This evaluation used an asset-mapping method to form an asset inventory, or asset map. The asset-mapping process is described in greater detail in the following section.

4. Selecting Priorities

The ACHI model describes this step as an opportunity to review assessment data, establish criteria for evaluating data, set priorities with a consensus process, and validate prioritized needs. The project leaders used this step to engage public involvement. A health forum was held at Mount Nittany Medical Center and was open to all members of the public and marketed through local media outlets. Participants in the summit were asked their opinions on needs and priorities through a series of large-group, small-group, and one-on-one activities. The primary and secondary data were presented to the participants and were open to discussion between key stakeholders, care providers, and public health care consumers. The information from the public summit, key stakeholder interviews, and secondary data analysis informed the formation of six key priority areas for Centre County health improvement.

5. Documenting and Communicating Results

The ACHIs fifth step is designed to organize information for presentation, prepare written report, publicize assessment findings, and consider promoting community dialogue. The written report was finalized and published as a publicly available pdf on the hospital website in the spring of 2013. The document is promoted by the CCPCH and other key stakeholders. In an effort to continue the community discussions resulting from the summit, as well as to start to promote strategic planning and addressing gaps in

healthcare, a series of public “brown-bag lunches” were developed to occur once per month and vary by specific health topic. The main goal of these lunches were to keep the discussion open between health care consumers, providers, and stakeholders, while also being active in documenting progress made toward CHNA goals.

6. Planning for Action and Monitoring Progress

The ACHI final step suggests conducting final research to inform goals and actions, define goals, objectives and strategies, create and implement an action plan, and develop evaluation plan and monitor progress. The final strategic plan was published as a publically available document separate from the initial assessment with specific suggestions on how the community can begin to address certain healthcare gaps. These detailed goals were motivated by public discussion and key informant interviews, but finalized by the public health consultant and project leaders. Project leaders also developed a schedule to re-evaluate specific indicators and measure progress towards goals after time.

Asset Inventory

In order to “examine community assets” as detailed by step three of the ACHI model, the CHNA included an asset inventory. The asset inventory was motivated by the asset mapping method. Asset mapping is the process of examining and describing the current assets, resources, and services available to a community, instead of looking for gaps, holes, or missing assets (Goldman & Schmalz, 2005). Whereas some needs assessments seek to identify what a community lacks, the asset mapping method is used

to most fully describe the resources available in hopes to spur the formation of collaborations and new programs to improve community health (Goldman & Schmalz, 2005). Furthermore, detailed information about current available assets can improve community access to service by simply raising awareness.

Using the asset mapping method, the Mount Nittany Medical Center CHNA asset inventory was created with two overarching goals: 1) to be a resource for patients/community members to see the various types of health services organizations available, 2) to provide organizations and stakeholders with other health services that may be available for partnership on specific strategies or interventions. With these two purposes in mind, the CHNA key stakeholders convened and produced a list of their organizations, any known organizational ties, and other organizations already in partnerships. Once these initial lists were created, a snow-ball technique was used to brainstorm and identify any similar organizations—in mission, purpose, or services offered—to be included on the asset inventory.

Assets were included on the inventory if they were generally available services to any of Mount Nittany Medical Center's patient mix. For the purposes of the inventory, organizations available to this population included resources within Centre County or in any of the seven counties surrounding Centre County: Clinton, Union, Mifflin, Huntingdon, Blair, Cambria, and Clearfield. For each asset identified, the following information was recorded: name, services provided, location, contact information, type of entity, if services were available to low-income populations or not, and priority area.

Once a comprehensive list of resource types was identified by the project coordinators, extensive internet searches were performed to locate all assets available to

Mount Nittany Health System patients and Centre County residents that existed within the identified criteria. Organizations were selected for inclusion on the inventory if they fit into any of the 11 categories of asset types: nursing homes, home health, medical care, mental/behavioral, social services, fitness, health education, academia, diet/nutrition, transportation, and government. The selection criteria for each of these categories was defined by the key stakeholders and are displayed in table 2-1, and relate to the types of services offered. Once an asset was identified by type, a more specific description of services provided was noted. These descriptions were, in most cases, summarized from the organization's website. Where a website was not available, organizations were contacted via phone to identify their specific services provided. The website or phone number used to identify services was also indicated on the inventory as asset contact information. Location was denoted by only the town, not the full address, of each organization within Centre County.

Table 2-1 : Asset inventory criteria rubric

Classification		Criteria
Type of Entity	**Nursing Homes**	Offers inpatient long-term care or specialized nursing services for the elderly (65+)
	Home Health	Offers specialized nursing services, hospice care, or aid to elderly or disabled patients within their own residence
	Medical Care	Offers inpatient or outpatient services for primary, tertiary, acute, or surgical care
	Mental/ Behavioral	Offers inpatient or outpatient services for psychological, behavioral, substance abuse cessation or rehabilitation services
	Social Services	Offers any array of services that provide support for patients with low income or the disabled; including services related to resources/education, transportation, housing, meal provision, social skill development
	Fitness	Offers recreational services or exercise facilities
	Health Education	Offers educational programs or materials to improve patient health literacy, awareness of services, chronic disease management, disease prevention, or nutrition
	Academia	Offers public or formal education to increase social capital, or performs research promoting health services and practices
	Diet & Nutrition	Offers nutritional services that may include diet planning, weight management programs, and nutritional education
	Transportation	Offers any type of shuttle or transportation service, whether free or at a cost
	Government	Provides legal provisions and regulations that may contribute to improved health, or provision of healthcare related services
	Other	Offers support of health services, education, or access via programs or services that do not fall In any of the preceding categories
Serves Low Income Patients		Offers any of the following: • Free services • Services to the uninsured • Services to low-income patients • Payment on a sliding-scale
Potential Priority Areas for Partnerships	**Mental Health**	Offers services that provide mental health education, mental health resources, psychological/behavioral programs, or social skill development
	Access to Care	Offers services that foster greater access to care via educational materials, coordination of care, or transportation services
	Obesity/ Diabetes	Offers any services for diabetes education, resources, or disease maintenance, OR offers any services for nutrition education, weight maintenance, or fitness programs
	Oral Health	Offers any services relating to dental or orthodontic care
	Healthy Aging	Offers any type of health education, recreational, or social support for the elderly (age 65+)
	Substance Abuse	Offers any service relating to substance abuse cessation: rehabilitation services or support via resource referral

The asset inventory was designed to be useful for both patients and stakeholders of varying health literacy. The brief descriptions of services provided, limited contact information (only one website link or one phone number provided,) and general category system were designed to be easily read and understood by all in order to quickly and easily identify health resources. Additionally, special notation was made indicating whether or not an organization provided services to low-income patients. An organization was identified as such if analysis of services provided indicated that they specifically provided for the uninsured or low-income patients, or if they provided services for free or on a sliding-scale basis.

The asset inventory also highlights any potential priority areas for which each organization could help achieve health improvement goals. These priority area categories are described in table 2-1, and are a further break-down of the types of services offered. Each item on the asset inventory is identified by type of entity, but not every item has a subsequent potential area for partnership. These indications can help to motivate and connect resources to each other to move forward improving health in the specific priority areas. For example, two resources that were both noted as being part of the "obesity" priority may be able to form a collaboration on planning, packaging, and providing healthy meals to low-income families. Such a project may be hard for one individual organization to implement but combining resources, staff, and financial support from two or more organizations might make such a program possible. Asset mapping was appropriately selected as a method to invite such partnerships.

Results

The final asset inventory for the Mount Nittany Health System CHNA included 266 resources available to patients within Centre County and the surrounding seven counties. Out of the 266 identified resources, 123 (46%) resources were identified as offering services to low-income populations.

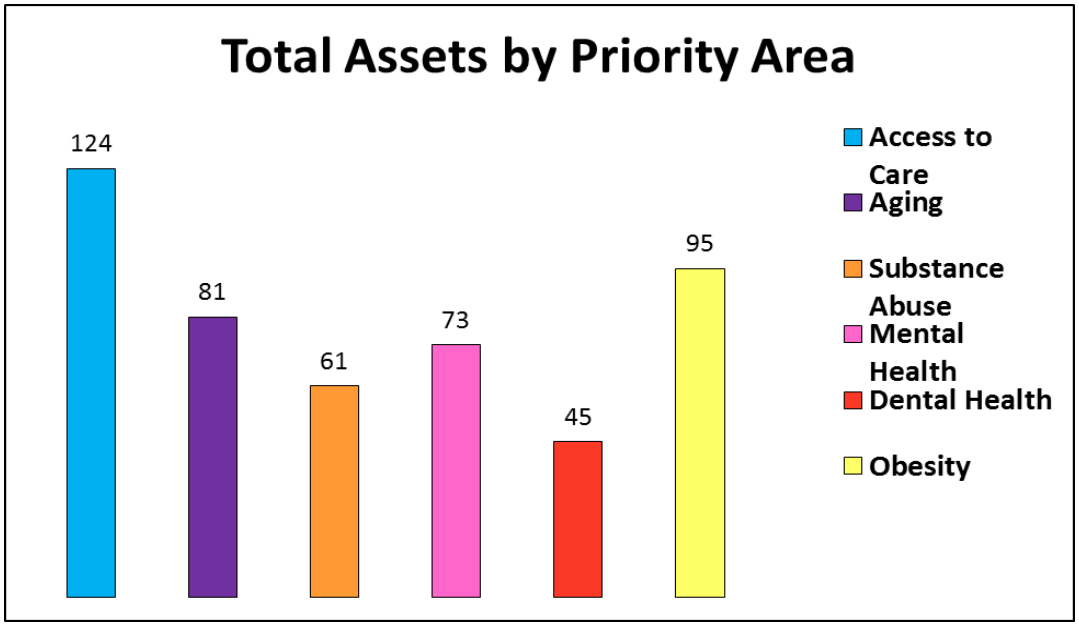
Type of facility was indicated by nine separate categories, although these were neither mutually exclusive nor mandatory criteria for inclusion in the inventory. Regardless, the most common type of facility included in the inventory were social services (76 resources,) followed by medical care facilities (66 resources). The least common facility types were home health care resources, and diet/nutrition services, which each had 11 indicated resources. The inventory also included 23 resources classified as academic facilities, 30 resources classified as health education facilities, and 17 resources classified as nursing home facilities.

Every resource on the asset inventory was assigned a minimum of one potential priority area for possible partnerships, seen in figure 2-1. The resulting resources available for each priority are as follows: 124 resources for access to care, 81 resources for healthy aging, 61 resources for substance abuse, 73 resources for mental health, 45 resources for dental health, and 95 resources for obesity/diabetes.

The results of the asset inventory aided key stakeholders and the CHNA coordinators to understand the current opportunities for partnerships and any identifiable gaps in resources surrounding the seven priority areas. The inventory, and other processes within the CHNA, were utilized to inform an implementation plan with specific outlined

goals for each of the seven priority areas. The goals were determined by the CHNA project leaders after considering the results of the inventory, secondary data analysis, and health summit public discussion. The goals were designed to be realistically applicable steps towards achieving optimal health in each of the five priority areas. The asset inventory and final implementation plan was published online for public use by Mount Nittany Health System, and included multiple goals for Mount Nittany Medical Center for each priority area.

Figure 2-1



Chapter 3

Conclusions

Discussion

Evaluating the resources that a community has, rather than emphasizing the resources a community lacks, may be an effective approach to focusing programs and health services to best suit that community (Goldman & Schmalz, 2005). The asset inventory created during the Mount Nittany Medical Center's CHNA might thus be the key to directing appropriate programs and services towards the goals established with the results of the CHNA.

The partnerships for priorities identified for each resource can be a major first building block for improving health status and services in Centre County. For example, the county experienced high rates of unemployment and percent of the population living under the FPL in 2010. The inventory identified 123 assets that currently serve low-income populations, and additionally 124 resources that might be able to contribute to a partnership for improving access to care. These inventory results cannot only be used by community health leaders and officials to develop programs and partnerships, but also by patients within the community to identify care services available to them. By improving access to care through increased awareness and partnership programs, Centre County residents could experience improved health outcomes and quality of life. Improved health for lower income populations could also lead to increased employment rates by improving functional health.

The asset inventory, and identification of potential partnerships, could facilitate further community health improvement by bringing together like-minded individuals, associations, and organizations under the common goal of health improvement, which can often yield a sense of community and encourage further involvement of other organizations (Baker et al., 2007). Such a collaboration of specially identified resources might be the perfect approach to resolving disparate health outcomes in Centre County.

Limitations

There are several limitations to the asset-mapping method, as well as limitations within the overall assessment. While the asset-mapping method does support the Mount Nittany Medical Center CHNA goals of informing and motivating consumers, key stakeholders, and resources, it is not completely comprehensive as it includes only those organizations and priority areas selected by the project leaders. Some assets, specific priorities—and therefore partnerships—may have been overlooked.

The CHNA completed by Mount Nittany Medical Center was limited by a lack of funding and resources. Project leaders utilized volunteer support to coordinate the distribution of surveys, the public forum health summit, and some data analysis. Greater financial support would have given project leaders greater access to specific data sets, devoted personnel for more intricate analyses, and the ability to reach more of the population in order to form more comprehensive priority areas and strategies for improvement.

Policy Implications

CHNAs are an important tool for hospitals and public health officials to examine the health status, resources, and goals of their communities. The ACA took one step in the right direction by requiring completion of these assessments once every three years. However, rural areas with small non-profit hospitals, like Centre County, are limited in the power of their CHNAs. Hospitals and local health departments completing CHNAs would benefit greatly from a standardized and free-to-use CHNA method or toolkit, with designated funds and support to complete a comprehensive CHNA. A nationally provided framework, that includes an asset-mapping methodology to assess assets, could be one more step to improve public health programs and planning in the United States.

What's Next: After the Asset-Map

The asset-mapping method and the asset inventory, or asset map, described above provide Centre County with a broad overview of the health services available to them and briefly identifies potential partnerships. Due to restrictions of time, resources, and staffing, the inventory described was the farthest extent of partnership identifications completed within this project. While the inventory created is informational and beneficial, the asset map was not used to its fullest potential. In order to most efficiently and effectively utilize the asset map, the authors of this study have developed two post-asset map suggestions: 1) create a "partnership map" that is more detailed than the asset map, and 2) public distribution of both maps to key stakeholders, community members, and other community organizations.

1. Create a detailed “partnership map.”

The asset map described above identifies organizations that aid in community health, and indicates the specific priority area for which they might be able to partner and improve outcomes. In order to follow-up and create these partnerships, the criteria needs to be broken down further. For example, the asset inventory identified 124 specific organizations that might be able to form partnerships that could address issues related to access to care. However, a 124 organization partnership is not realistic. Furthermore, if the 124 organizations were all contacted and notified that they have 123 other organizations they should partner with, each group would have to do further research in order to find a smaller number of compatible organizations to partner with. If the developers of the asset-inventory are able to break down the idea of partnership into smaller groups and concepts, organizations might be more willing to form and initiate these partnerships. Like the asset inventory/asset map, individual communities will likely have much flexibility in how they create a partnership map. Some suggestions are as follows:

- Identify which resources are closest by geographic locations. Health resource organizations will be able to tailor partnership programs to specific populations within the community. Each resource has a working knowledge of the population they serve, and if organizations that are physically close to each other form partnerships those populations are likely to overlap. Being able to target clusters of the community may be more effective than a broad prevention program targeted at an entire town or county. Furthermore, if resources that are geographically close form

partnerships they will be more easily able to host events, information sessions, and activities that suit the goal of their partnerships. Community members might be more willing to participate in a partnership program if it is closer to their work or neighborhood.

- Reach out to the leadership of the resources. During the asset-mapping process, research about each organization is used to identify contact information and services provided. Although it is time consuming, research for the asset inventory could include an attempt to communicate with leadership at each organization. Further information to seek from leadership may include the specific type of sub-population the resources serves, any operational needs the organization might have, and any partnerships the organization might already be a part of. This will help to further match organizations by needs and resources so that partnerships are more meaningful. If all organizations in a partnership can benefit from collaboration, participation in partnering may be more likely.
- Identify potential partnerships of 10 specific organizations or less. Specific delineation of partnerships would be a concrete and well-researched product to provide to organizations. Leadership of these organizations may be more likely to collaborate if they have a very specific list of other resources, and even if a partnership does not form it may be valuable information to know which other organizations are similar in scope and mission.

Table 3-1: An example of a proposed partnership

Priority to address: Obesity among youth and young adults	
Organizations - State College Family YMCA - State College Borough Health Dept. - Schlow Centre Region Library - St Paul's United Methodist Church - Pennsylvania State University - Movement Arts Studio	**Rationale** Each organization identified may benefit from joining a partnership. The church already provides a free and healthy lunch once per week. This could be expanded upon by providing free exercise workshops and resources along with the weekly lunch. Resources like the university and the library already have affiliations with groups/programs for youth and young adults, and could aid in advertising and connecting with these groups. All groups are located within 2 miles of each other in the center of downtown State College.

2. Publicly disseminate information from both the asset map and detailed partnership map

Forming partnerships to improve upon community health goals is not just an institutional activity. Community members and non-health related professionals may have valuable information, skills, and resources that could be used to improve upon the many factors that affect overall well-being. Sharing the information publicly would provide an opportunity for anyone that is not a part of the identified organizations to contribute. A community member might be much more willing to join a partnership or task-force that is small and a part of their neighborhood or workplace than to voice their opinion during a community-wide forum

Utilizing an asset-mapping and a CHNA followed by a partnership map may be an effective way for many communities to focus on the resources available to them and how to collaborate in a way that strengthens the reach and scope of current programs and services. Initiating collaborations and partnerships as the result of CHNAs may also lead

to more effective ways to measure the effectiveness of the CHNA implementation plan, and could also lead to greater stakeholder investment and involvement in future CHNAs.

PART 2: CHARACTERISTICS OF LOCAL HEALTH DEPARTMENT AND NON-PROFIT HOSPITAL COLLABORATION

Chapter 4

Public Health & Community Assessment

Introduction

The public health infrastructure is a well-recognized source of community health improvement in the United States. In 2003, the Institute of Medicine (IOM) issued a report calling for research on the impact and variability of local health departments. Organizations such as the Centers for Disease Control and Prevention (CDC), the Association of State and Territorial Health Officials, the American Public Health Association, the Public Health Foundation, and the Robert Wood Johnson Foundation have publicly supported accreditation programs for local public health departments and advocated for the positive impact such programs and departments can make on community health (Erwin, 2008).

Evaluation studies suggest a positive association between certain local health department (LHD) characteristics and positive community health outcomes. LHDs in areas with greater economic means, more partnerships with community organizations, and more support from local officials perform better in respect to major public health functions (Erwin, 2008). Furthermore, high performance in these public health functions

has been associated with lower premature death rates and some improvement in health status (Erwin, 2008). These studies were all cross-sectional, meaning they were just a snapshot of a single point in time. This presents the fundamental concern that low-performing LHDs might have a healthy community with a lack of need, or a high-performing LHD might have an unhealthy community but is responding to a greater need (Schenck, Miller, & Richards, 1995). Regardless of these complexities, increased LHD expenditures have been significantly associated with decreases in state-level infectious disease morbidity, and correlated with lower rates of cardiovascular disease (CVD) and obesity (Erwin, Mays, & Riley, 2012).

A greater understanding of how LHD characteristics, and the characteristics of the communities they serve, influence activities and operations could help to inform future public health infrastructure. This infrastructure—policies, procedures, and accreditations required for public health departments at the state and national level—should constantly attempt to optimize community health.. This study attempts to understand characteristics of LHDs that are associated with activities related to requirements of the Affordable Care Act (ACA) of 2010. An understanding of these characteristics will help public health leaders to understand how aspects of the ACA are being realized in LHDs.

Background

The most recent and far-reaching policy impacting public health system activity is the Affordable Care Act (ACA) of 2010. In addition to changes in health insurance requirements and promoting improved access, the ACA includes a provision for non-

profit hospitals to complete a community health needs assessment (CHNA) once every three years in order to maintain tax-exempt status (Shaw et al., 2014).

The CHNA required by the ACA requires a description of the community served, identification of existing health services resources, prioritization of community health needs, and a strategy to meet the identified needs (Shaw et al., 2014). CHNAs encourage collaboration with key stakeholders and community members in order to gain the most comprehensive picture of health needs for that hospital's population (Myers & Stoto, 2006). When a LHD jurisdiction overlaps a hospital's patient-base, that hospital generally seeks the aid of the LHD to collaborate on the CHNA. LHDs are ideal partners for completion of CHNAs.

The Public Health Accreditation Board (PHAB) requires that LHDs seeking accreditation conduct a collaborative health needs assessment known as Community Health Assessments (CHAs) (Stoto, 2013). The CHA should be supplemented with a strategic plan to improve health needs, known as a Community Health Improvement Plan (CHIP) (Stoto, 2013). Despite the slight difference in terminology and specific requirements for each type of organization, the PHAB standards and ACA tax-exempt requirement both call for measurement of community health outcomes for which a variety of stakeholders—health services providers and public health agencies included—are responsible (Stoto, 2013). The requirements for hospitals and LHDs within these standards and policies create opportunities for various levels of collaboration (Wilson, Mohr, Beatty, & Ciecior, 2014).

In a study of Missouri LHDs, results suggest collaboration on a CHNA is associated with LHDs also completing and using a CHA, and satisfaction with their relationship with the hospital (Wilson et al., 2014). A nationwide study of LHDs suggests that LHDs with larger jurisdictions have more opportunities to partner with other stakeholders to implement new policies and activities (Harris & Mueller, 2013). In addition to jurisdiction size, existence of various health services in the area increases the likelihood of partnerships centered on common goals for impacting overall community health (Barnes & Curtis, 2009). Furthermore, data from the 2013 National Profile of Local Health Departments indicate that CHAs and CHIPs were completed by 43% and 38% of LHDs, respectively (Chudgar et al., 2014). In the wake of the ACA requirements and a public health emphasis on collaboration, it is important to further understand which LHDs, and what types of factors are associated with them, are participating in CHAs and CHNAs and collaborating with non-profit hospitals to complete them. This study seeks to understand what characteristics of LHDs were associated with collaboration and discussion with non-profit hospitals for CHAs in 2013.

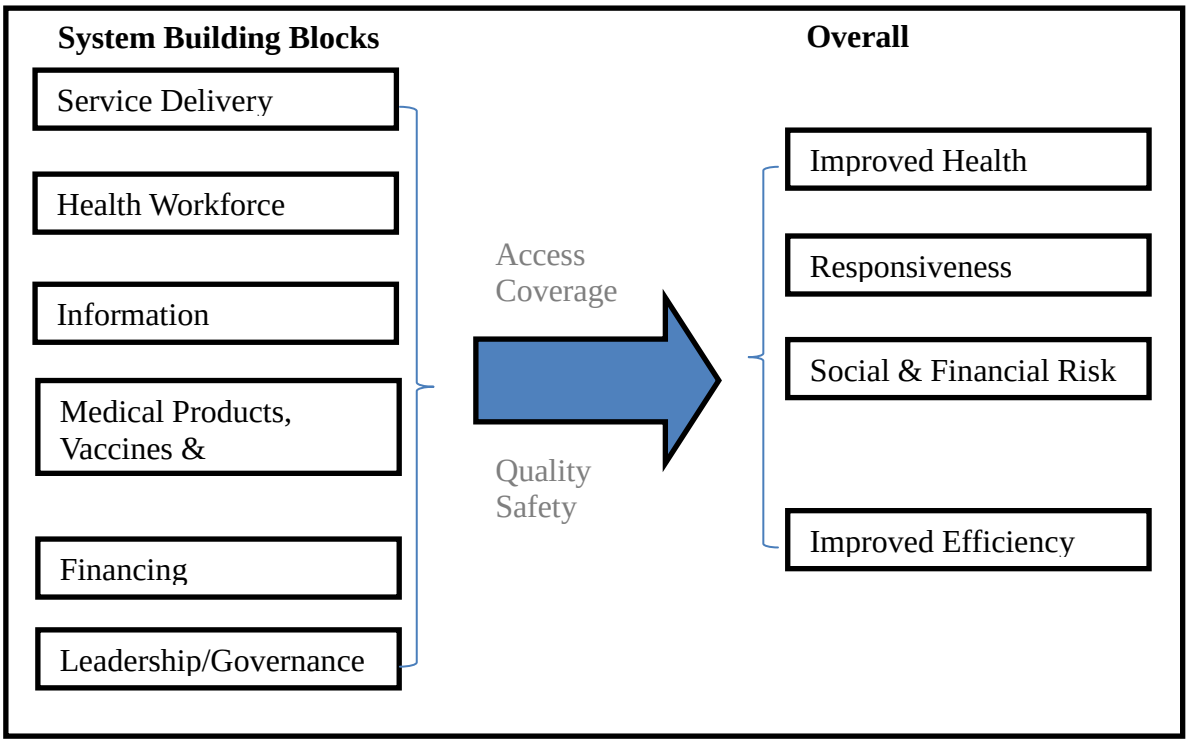
Conceptual Framework

This study applies a systems thinking perspective to more fully understand the characteristics of LHDs and their interactions with the health system that may correspond to completion of CHAs. The systems thinking model was adapted for the health system by the World Health Organization (WHO) in 2007 with the creation of the "Framework for Action" and health system building blocks. The building block framework

demonstrates how the behaviors of health systems are shaped by the many complex interactions among the system building blocks—service delivery; health workforce; information; medical products, vaccines & technologies; financing; leadership and governance (Alliance for Health Policy and Systems Research & World Health Organization, 2009). These building blocks serve as a means of exploring the health system and understanding the effects of changes and interventions within the system. This study will analyze how characteristics of LHDs, as they correspond to the system building blocks, effect CHA collaboration with non-profit hospitals. The building blocks are shown in figure 4-1.

This study will operationalize each LHD as one heath system, that includes each o the system building blocks. After logistic regression, one will examine how the selected building blocks—service delivery, health workforce, financing, and leadership/governance—influence and are associated with non-profit hospital collaboration on CHAs. The health system framework predicts that different relationships between system building blocks will output different sets of outcomes. This study analyzes only the outcome of extent of collaboration with non-profit hospitals, as collaboration has the ability to improve health, responsiveness, and efficiency.

Figure 4-1: WHO Health System Framework



Chapter 5

Analysis

Methods

Data source

Data about LHD characteristics and activity is captured by the National Association of County and City Health Officials (NACCHO) National Profile of Local Health Departments Study. NACCHO has collaborated with the Robert Wood Johnson Foundation (RWJF) and the Centers for Disease Control and Prevention (CDC) to conduct the most recent National Profile surveys in 2005, 2008, 2010, and 2013. Beginning in 2005, the distribution of the cross-sectional self-administered Profile study questionnaire was made available as a web-based survey. The survey includes a core questionnaire obtaining information about LHD jurisdiction, governance, funding, workforce, and public health activities. Additionally, three separate and additional modules were designed to obtain information regarding accreditation, partnerships, policy and advocacy, health inequities, and health information technology. Information obtained from the National Profile studies is available through the NACCHO website—basic reports and summaries of the data are publicly available and micro-data is available by request and at a cost to individuals and institutions.

Sample

The 2013 National Profile studies were distributed to all LHDs in the United States. Of the 2,532 LHDs included in the study population, responses were obtained from 2,000 LHDs, yielding a response rate of 78.9%. All LHDs received the core questions and LHDs were randomly assigned to none or one of the supplemental modules. Estimation weights were used to account for dissimilar non-responses and to provide national estimates for all LHDs in the U.S.

Measures

To understand LHD collaboration with non-profit hospitals, this study analyzed responses to the following question that was newly added to the 2013 version of the NACCHO Local Profile Study survey: "Which of the following describes the extent of your LHD's engagement with non-profit hospitals on community health assessment (CHA)?" Respondents were able to select any of the following responses: a) my LHD is currently *collaborating* with one or more non-profit hospitals on CHA, b) my LHD is currently *discussing* with one or more non-profit hospitals potential collaboration on CHA, c) my LHD is *not* currently engaged in discussion or collaboration with a non-profit hospital on CHA, d) I do not know my LHD's extent of engagement with non-profit hospitals on CHA. For the purposes of this study, responses were recoded into a binary variable where 1=LHD is currently *collaborating* OR *discussing* collaboration with one or more non-profit hospitals on CHA, and 0=LHD is not currently engaged in collaboration with a non-profit hospital on CHA OR extent of engagement is unknown.

Measures of LHD characteristics were selected as the best possible representations of the health system building blocks shown in figure 4-1. For the purposes of this study, not all six system building blocks are analyzed due to restrictions of information available in the public-use NACCHO Profile Surveys. Within the data available, sufficient measurements of 'information' and 'medical products, vaccines, & technologies' were not found. Measures of the remaining system building blocks—service delivery, health workforce, finance, leadership & governance—were selected for analysis.

Service Delivery

Completion of community health assessments (CHAs) and completion of community health improvement plans (CHIPs) will be used to measure the service delivery component, as CHA/CHIP completion is the main service of interest surrounding engagement with non-profit hospitals.

Health Workforce

LHD health workforce will be measured by three different variables for the purposes of this study: highest degree of LHD executive and employment (yes/no) of an epidemiologist.

Financing

Measurement of LHD financing is total revenues for the previous fiscal year, as reported by the respondent. Total revenues were reported as a total amount, and

recoded into a binary variable for the purposes of this study, either less than two million dollars or greater than/equal to two million dollars. Missing responses (N=653) were not included, yielding a response rate for total revenues of 67.4%.

Leadership & governance

LHDs leadership/governance will be defined by two components. First, if the LHD is part of a larger governmental Health and Human Services (HHS) agency or not. Secondly, LHDs will be sorted by their governance classification as a unit of state government, local government, or governed by both entities.

Analysis

In order to gain a comprehensive view of how system building blocks impact LHD decisions to collaborate with non-profit hospitals, data analysis included descriptive statistics and simple logistic regression. Logistic regression was used to regress the dependent variable, LHD collaboration/discussion, onto the independent variables representing the health system building blocks. Analyses were performed using SAS 9.4 statistical software.

Results

Study Population

Descriptive statistics of the NACCHO 2013 National Profile Study LHD population are shown in Table 5-1. The sample included 2,000 LHDs, of which 66.6%

are in collaboration or discussion with non-profit hospitals, and 33.4% reported no collaboration or discussion with non-profit hospitals during the previous year. Logistic regression results are displayed in Table 5-2. Both descriptive summary statistics and logistic regression results are described below by system building blocks.

Service Delivery

For CHA completion, 58.5% (N=1148) of LHDs reported completion within the last three years; 12.2% (N=240) within the last three to five years; 8.4% (N=165) completed a CHA five or more years ago; 10.5% (N=206) plan to within the next year; and 10.4% (N=205) reported no completion. Overall 44.9% (N=872) of all LHDs reported CHA completion within the last three years *and* collaboration or discussion with non-profit hospitals. Only 1.9% of LHDs (N=36) reported collaboration or discussion with non-profit hospitals without completion of a CHA, and 8.6% (N=168) reported no completion of a CHA *and* no collaboration/discussion with non-profit hospitals. Compared to those who have not completed the CHA, LHDs that completed a CHA within the last three years had significantly better odds of collaborating or discussing with non-profit hospitals (OR=15.38; 95% CI [10.46, 22.62]). The odds of collaboration or discussion with non-profit hospitals were also significantly higher for those LHDs that completed a CHA within three to five years (OR=9.22; 95%CI [5.88,14.45]), and for those LHDs that planned to complete a CHA within one year (OR=11.24; 95%CI [7.01,18.0]). Those who reported completion of a CHA five or more years ago were slightly more likely to report any collaboration/discussion with non-profit hospitals, but this result was not significant.

For CHIP completion, 47.5% (N=931) of LHDs reported completion within the last three years; 8.5% (N=166) within the last three to five years; 6.0% (N=117) completed a CHA five or more years ago; 20.5% (N=402) plan to within the next year; and 17.6% (N=346) reported no completion. Overall, 37.4% (N=725) of all LHDs reported CHIP completion within the last three years *and* collaboration or discussion with non-profit hospitals. Only 5.3% of LHDs (N=103) reported collaboration or discussion with non-profit hospitals without completion of a CHIP, and 12.3% (N=239) reported no completion of a CHIP *and* no collaboration/discussion with non-profit hospitals. LHDs reporting of any type of CHIP completion within the last five years, regardless of how recently completed (or planned to be completed,) were significantly more likely to be in collaboration or discussion with non-profit hospitals when compared to LHDs that reported no CHIP completion. Compared to those who have not completed the CHIP, LHDs that completed a CHIP within the last three years had significantly better odds of collaborating or discussing with non-profit hospitals (OR=8.54; 95% CI [6.46,11.3]). The odds of collaboration or discussion with non-profit hospitals were also significantly higher for those LHDs that completed a CHIP within three to five years (OR=4.00; 95%CI [3.34,7.47]), and for those LHDs that planned to complete a CHIP within one year (OR=7.08; 95%CI [5.12,9.80]). Those who reported completion of a CHIP five or more years ago were slightly more likely to report collaboration/discussion with non-profit hospitals (OR= 2.24; 95%CI[1.46,3.45]).

Health Workforce

Of all responding LHDs, a majority (45.4%; N=857) reported that their executive's highest degree was a Masters degree. Furthermore, 30.8% (N=581) reported an executive's highest degree was a Bachelors degree, 16.3% (N=307) reported any type of Doctoral degree, and 7.6% (N=144) reported Associates degree or less. Regarding collaboration or discussion with non-profit hospitals, 4.4% (N=87) of LHDs reported collaboration/discussion *and* an Associates as executive's highest degree; 18.7% (N=349) reported collaboration discussion *and* a Bachelors degree as executive's highest degree; 32.1% (N=598) reported collaboration/discussion *and* a Masters degree as executive's highest degree; and 11.9% (N=221) reported collaboration/discussion *and* a Doctoral degree as executive's highest degree. When compared to a doctoral degree, LHDs reporting a masters degree were significantly less likely to participate in collaboration/discussion with non-profit hospitals (OR=0.88, 95%CI [0.66, 1.18]). Both reporting an Associates degree or less and a bachelors degree were less likely to report collaboration or discussion with non-profit hospitals, but only for the bachelors degree was this relationship statistically significant (OR= 0.58,95%CI[0.43,0.79]).

Less than half of the study population (38.8%; N=562) reported having one or more epidemiologist on staff, and 29.9% of all LHDs (N=433) reported both having an epidemiologist on staff *and* participating in collaboration or discussion with non-profit hospitals. Furthermore, 39.9% (N=578) of LHDs reported no epidemiologist but participated in collaboration with non-profit hospitals, and 21.7% (N=315) reported no epidemiologists and no collaboration/discussion. Compared to LHDs that had no epidemiologist on staff, LHDs having one or more epidemiologist were significantly less

likely to report collaboration/discussion with non-profit hospitals (OR= 0.53,95%CI[0.41,0.67]).

Financing

Just over half of LHDs in this study reported total revenues for the previous fiscal year to be less than two million dollars (53.3%, N=718). Overall, 31.0% of LHDs (N=412) reported revenues less than two million dollars *and* collaboration/discussion with non-profit hospitals, 37.5% (N=498) reported revenues greater than two million dollars *and* collaboration/discussion with non-profit hospitals, 22.4% (N=297) reported revenues less than two million dollars *and* no collaboration/discussion with non-profit hospitals, and only 9.2% of LHDs (N=122) reported revenues greater than two million dollars *and* no collaboration/discussion with non-profit hospitals. Compared to LHDs that earned over two million dollars in revenue, LHDs that reported earning less than 2 million dollars in total revenues for the previous fiscal year were significantly less likely to be in collaboration or discussion with non-profit hospitals (OR= 0.34, 95%CI[0.27,0.44])

Leadership & Governance

When reporting organizational structure, only 19.9% of all LHDs (N=391) reported being a part of an HHS agency. Regarding governance classification, 19.7% (N=393) reported being a unit of stat government, 71.5% (N=1429) reported being a unit of local government, and 8.9% (N=178) reported being governed by both state and local government. All measures of leadership and governance had significant associations with

LHD/hospital collaboration. LHDs that were part of an HHS agency were more likely to report non-profit hospital collaboration/discussion than LHDs that were not a part of a HHS also significantly more likely to report non-profit hospital collaboration/discussion than those LHDs that were a unit of both state and local government (OR=1.01, 95%CI[0.72,1.42]). LHDs that reported being a unit of state government were significantly less likely to participate in collaboration/discussion with non-profit hospitals than those reporting both state and local governance (OR= 0.42, 95%CI([0.29,0.62]).

Table 5-1: Summary LHD Statistics 2013 by CHA collaboration

	All		Collaboration or discussion with non-profit hospitals		No collaboration or discussion with non-profit hospitals	
	N	(%)	N	(%)	N	(%)
Service Delivery						
CHA completion						
Within the last 3 years	1148	(58.5)	872	(44.9)	263	(13.6)
Within 3-5 years	240	(12.2)	159	(8.2)	80	(4.1)
5 or more years ago	165	(8.4)	86	(4.4)	76	(3.9)
No, plan to within 1 year	206	(10.5)	143	(7.4)	59	(3.0)
Not completed	205	(10.4)	36	(1.9)	167	(8.6)
CHIP completion						
Within the last 3 years 1	931	(47.5)	725	(37.4)	197	(10.2)
Within 3-5 years 2	166	(8.5)	112	(5.8)	52	(2.7)
5 or more years ago 3	117	(6.0)	57	(2.9)	59	(3.0)
No, plan to within 1 year	402	(20.5)	299	(15.4)	98	(5.0)
Not completed 4&5	346	(17.6)	103	(5.3)	239	(12.3)
Health Workforce						
Executives Highest Education						
Associate Degree	144	(7.6)	87	(4.4)	56	(3.0)
Bachelors Degree	581	(30.8)	349	(18.7)	221	(11.9)
Masters Degree	857	(45.4)	598	(32.1)	249	(13.4)
Doctoral Degree	307	(16.3)	221	(11.9)	81	(4.4)
Employed Epidemiologist						
At least one on current staff	562	(38.3)	433	(29.9)	124	(8.6)
None	907	(61.7)	578	(39.9)	315	(21.7)
Financing						
Total Revenues						
<$2,000,000	718	(53.3)	412	(31.0)	297	(22.4)
≥$2,000,000	629	(46.7)	498	(37.5)	122	(9.2)
Leadership & Governance						
Organizational Structure						
Part of HHS agency	391	(19.9)	239	(12.4)	148	(7.7)
Not part of HHS agency	1575	(80.1)	1051	(54.4)	495	(25.6)
Governance Classification						
Unit of state government	393	(19.7)	192	(9.8)	191	(9.8)
Unit of local government	1429	(71.5)	988	(50.5)	411	(21.0)
Governed by both	178	(8.9)	124	(6.3)	52	(2.7)

Table 5-2:
Logistic regression results: LHD factors associated with non-profit hospital collaboration

Variables by system building block	**Collaboration or discussion with non-profit hospitals**				
	β	S.E.	p-value	OR	(95%CI)
Service Delivery					
CHA completion					
reference: not completed					
Within the last 3 years	0.927	0.085	<0.0001	15.38	(10.46, 22.62)
Within 3-5 years	0.415	0.125	0.0009	9.22	(5.88, 14.45)
5 or more years ago	-0.148	0.138	0.2833	5.25	(3.27, 8.44)
No, plan to within 1 year	0.613	0.136	<0.0001	11.24	(7.02, 18.00)
CHIP completion					
reference: not completed					
Within the last 3 years	0.841	0.088	<0.0001	8.54	(6.46, 11.30)
Within 3-5 years 2	0.305	0.144	0.0341	4.00	(3.34, 7.47)
5 or more years ago 3	-0.496	0.157	0.0015	2.24	(1.46, 3.45)
No, plan to within 1 year	0.654	0.110	<0.0001	7.08	(5.12, 9.80)
Health Workforce					
Executives Highest Education					
reference: Doctoral Degree					
Associate Degree	-0.254	0.136	0.0612	0.57	(0.37, 0.87)
Bachelors Degree	-0.237	0.086	0.0058	0.58	(0.43, 0.79)
Masters Degree	0.182	0.081	0.0247	0.88	(0.66, 1.18)
Employed Epidemiologist					
reference: none					
At least one on current staff	-0.322	0.062	<0.0001	0.53	(0.41, 0.67)
Financing					
Total Revenues					
reference: ≥$2,000,000					
<$2,000,000	-0.540	0.063	<0.0001	0.34	(0.27, 0.44)
Leadership & Governance					
Organizational Structure					
reference: not HHS					
Part of HHS agency	0.137	0.059	0.0203	1.32	(1.04, 1.66)
Governance Classification					
reference: governed by both					
Unit of state government	-0.579	0.090	<0.0001	0.42	(0.29, 0.62)
Unit of local government	0.293	0.078	0.0001	1.01	(0.72, 1.42)

Chapter 6

Conclusions

Discussion

There is limited literature available surrounding LHD/hospital collaborations. Some literature provides detailed information on LHD activity and the types of activities provided, but little has been done to analyze the complex interaction between LHDs and non-profit hospitals regarding CHAs. The results of this study suggest several important relationships exist within the health systems framework that may influence LHD engagement with non-profit hospitals for CHAs. Significant relationships were identified for each system building block, indicating important components of agency (OR=1.32, 95%CI[1.04,1.66]). LHDs that reported being a unit of local government were service delivery, health workforce, financing, and leadership/governance that can be further analyzed and studied in order to improve LHD and non-profit hospital collaboration.

CHA and CHIP completion were analyzed as components of service delivery. Logistic regression results suggest that of the categories analyzed, completion of a CHA within the past three years had the greatest impact (OR=15.38) on increased likelihood of collaborating or discussing collaboration with a non-profit hospital. Furthermore, LHDs that reporting having a plan to complete a CHA within the next year had a large increase in likelihood for engagement with non-profit hospitals (OR=11.24) These results indicate a bright future for collaboration on CHAs, as the ACA set a new requirement for non-profit hospitals to complete assessments every three years. Any type of CHIP completion,

or plans to complete CHIP in the next year, yielded significantly increased odds of collaboration/discussion with non-profit hospitals than non-CHIP completion. These results are not surprising, as CHIP completion is most likely occurring in LHDs that are already actively pursuing CHA completion. As more non-profit hospitals and LHDs being to pursue and adopt CHA practices, it will be increasingly important to discuss what leads to engagement between the two entities and what a successful partnership requires.

Health workforce is also a significant factor in LHD collaboration/discussion with non-profit hospitals on CHAs. Study results suggest that in comparison to a doctoral degree, an LHD executive with anything less than a doctoral degree have a lower odds of collaboration or discussion with non-profit hospitals. This finding is consistent with much literature on LHD top executives and programs offered. Erwin et al (2013) reported higher levels of education for LHD executives to be associated with use of evidence-based practices. Significant associations have also been found between LHD top executive education, clinical training, and/or years of experience to be associated with LHD offering services to address health disparities (Yang & Bekemeier, 2013). The present study also found that LHDs with one or more epidemiologist on staff had lower odds of collaboration/discussion with non-profit hospitals than LHDs with no epidemiologist on staff. These findings are inconsistent with a 2013 study by Shah et al, which suggested that having an epidemiologist on staff made an LHD 1.61 times more likely to have completed a CHA within the last five years. Although these results seem at odds, it is possible that having an epidemiologist on staff increases the odds of

completing a CHA due to their training or specialized skills surrounding such assessments, and therefore these LHDs see less of a need to collaborate with a non-profit hospital. This is an important finding and warrants future research.

Elements of LHD financing are also important to CHA collaboration and discussion with non-profit hospitals. Study results suggest that LHDs reporting total revenues less than two million dollars have significantly lower odds of collaboration/discussion with non-profit hospitals. This finding is consistent with other literature surrounding LHD revenues and services offered. If LHDs have limited financial resources, they may be unable to conduct CHA/CHIP to full capacity. Furthermore, an LHD with less revenues may have limited ability to communicate with non-profit hospitals due to staffing and resource restrictions, let alone complete CHA/CHIP assessments. This points to an important dichotomy—an LHD with limited financial resources may be less likely to collaborate with a non-profit hospital, but may benefit the most from partnering with a non-profit hospital in order to meet gaps in financial or staffing resources. Further research and discussion should be given to how these partnerships form and which institutions are sharing resources where they are most needed.

Organizational structure also has important implications for the engagement of LHD and non-profit hospital partnerships for CHA completion. LHDs that were part of a HHS agency were 1.32 times more likely to participate in collaboration or discussion with non-profit hospitals. LHDs that are a part of the national HHS may have greater access to resources, tools, or contacts that facilitate hospital partnerships. Furthermore,

LHDs that were a unit of local government were 1.01 times more likely to collaborate/discuss with non-profit hospitals than LHDs governed by both state and local entities. LHDs that were a unit of state government were less likely to engage with non-profit hospitals than LHDs governed by both state and local entities. This suggests that local governance is an important factor for LHD and non-profit hospital collaboration. LHDs with any type of local governance may be more likely to reach out to a local hospital than a state-only governed LHD due to a sense of community and a knowledge of local stakeholders and contacts.

LHDs are all an important part of the U.S. public health infrastructure, but the LHDs throughout the country vary greatly by governance/organizational structures, internal workforce compositions, and financial resources. This variation points to important dynamics within the health systems structure regarding hospital partnerships for CHAs. Some LHDs may be seeking discussion and collaboration with non-profit hospitals to meet needs of missing resources, either financially or programmatically. Other LHDs may be seeking collaboration because they have the resources and financial ability to make connections with non-profit hospitals. In order to meet the needs of ACA requirements, PHAB accreditation requirements, and to use CHAs as an important community-oriented health improvement tool, collaborations between LHDs and non-profit hospitals will support both institutions and lead to more efficient and effective assessments. Understanding these collaborations, and who should be initiating them, is an important issue for public health today.

Limitations

The present study has several limitations, and only begins to scratch the surface of how and why collaborations between LHDs and non-profit hospitals for CHAs are formed. Firstly, this study only looked at several variables and only four of the six system building blocks. The variables that were analyzed were used as categorical and dichotomous variables in order to understand a broader picture of LHD activity. Future research should collect more comprehensive information from LHDs to understand a greater range of variables within each system building block in order to greater understand the interactions between the blocks. Furthermore, the data available did not provide extensive information on the partnerships formed, the population served, or the non-profit hospitals participating. Information on such matters would greatly improve future research on these relationships and how to effectively utilize them.

Appendix A

Mount Nittany CHNA Implementation Plan 2013

The following goals were established as part of the implementation plan for Mount Nittany Medical Center:

Mental Health –

1. Provide expert knowledge and education on mental health topics in the local media that will be available to the community.
2. Provide an internal focus on staff education and awareness on mental health issues to reduce the stigma.
3. Support suicide prevention through sponsorship and service.

Obesity/Diabetes –

1. Encourage healthy lifestyles in pediatrics and school aged children.
2. Expand prevention and education programs to encourage healthy lifestyles for adults.

Oral Health –

1. Ensure Mount Nittany Medical Center's diabetes educator provides free screenings for diabetes patients at Centre Volunteers in Medicine, including foot and dental checks, in addition to providing education and supplies during Diabetes Month.

2. Participate in the ongoing Brown Bag Lunch Series to gain insights and decide on appropriate plans for execution.
3. Provide free dental supplies to the public at nutrition education programs.

Access to Care (Transportation) –

1. Work with Community Help Centre to support the efforts to implement a "Provide-A-Ride" program to make transporation available to individuals lacking a consistent mode of transporation for medical visits.
2. Fund and support the American Cancer Society vehicle. Make parking available for the vehicle at Mount Nittany Medical Center.
3. Provide taxi vouchers offered to patients when one is unable to obtain transportation home upon a hospital visit to continue a healthy recovery.
4. Provide access for cancer patients to doctor appointments and treatments with the Mount Nittany Health's radiation oncology van.
5. Expand local outlets for care including surgical, critical care and cancer serices to reduce the burden of traveling out of town for care.
6. Explore the development of multidisciplinary care clinics to reduce the need for multiple visits and travel.

Access to Care (Provider Ability) –

1. Expand the number of primary care facilities in the region to meet the increasing demand for family medicine in an area lacking primary care providers.
2. Provide free screenings to the community.

3. Implement Mount Nittany Health patient portal to enhance patient engagement and access.
4. Expand primary care hours of operation in Mount Nittany Physician Group.
5. Implement Family Medicine Residency at Mount Nittany Medical Center.
6. Collaborate with Penn State University regional campus leadership to expand the number of medical student rotations at Mount Nittany Medical Center.

Substance Abuse –

1. Educate students in local area school districts on the consequences of substance abuse.
2. Educate Penn State University students through articles in *The Daily Collegian* and social media outlets.

Healthy Aging –

1. Offer free testing, vaccinations, and rewards for staying active.
2. Provide current health information in the media to inform seniors and their families on how to maintain a healthy and safe environment at home.
3. Expand the Transitions of Care nurse program to ensure optimal care for the patient when moving from inpatient to post-acute and ambulatory setting.

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ACADEMIC VITA

SARA I. YOUNG

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EDUCATION

The Pennsylvania State University, University Park, PA Graduation Dec. 2014
The Schreyer Honors College, Integrated Degree Program
Master of Science, Health Policy and Administration
Bachelor of Science, Health Policy and Administration

PROFESSIONAL EXPERIENCE

Massachusetts General Hospital, *Clinical/Policy Research Intern* Jun. 2013-Aug. 2013

- Collaborate with research team to ensure protocols for multiple studies are completed efficiently
- Serve as liaison between clinicians, patients, and family members to ensure protocol understanding
- Navigate electronic medical records for patient screening, study data entry, and data management

Gorenflo Consulting, Inc., *Research Intern* Dec. 2012-May 2013

- Research, acquire data, and compile county asset inventory for community health needs assessment
- Identify, evaluate, and analyze relevant demographics and health outcomes for Centre County
- Assist in preparing and facilitating forum for key stakeholders to discuss and address community needs

Penn State Costa Rica Learning Program, *Student writer* Nov. 2012

- Research Costa Rican health care outcomes and health care system while touring various facilities
- Shadow local social workers on door-to-door home healthcare visits
- Write explanatory article titled "A Breath of Fresh Air" for the Centre Daily Times

LEADERSHIP EXPERIENCE

Wesley Student Foundation, *President* Aug. 2011-present

- Planned and supervised service retreat for students ages 18-22
- Participates in making decisions regarding group events, structure, and purpose
- Represent and act on behalf of group in church council meetings

Kappa Phi Service Club, *President* May 2013-May 2014

- Create and adjust club calendar outlining service projects, executive meetings, and events for 1 year
- Facilitate all group meetings to ensure member participation, task completion, and satisfaction
- Coordinate all group events and actions to ensure compliance with Student Activities rules and policies

First-Year Testing, Consulting, and Advising Program, *Student Leader* May 2012-Aug. 2012

- Delivered 3-hour orientation presentations to 80-100 new students per session
- Assisted in developing orientation material and evaluation of effectiveness
- Participated in organization, planning, and sorting of necessary materials

COLLEGE ACTIVITIES

Health Policy and Administration Club, *Service Chair* May 2013-May 2014

- Identify, plan, and execute community service projects for club of approximately 40 members

Women's Leadership Initiative Advisory Committee, *Student Representative* July 2013-May 2014

- Collaborate with committee to discuss needs and changes to events, curriculum, and recruitment

Penn State Dance Marathon (THON), *Dancer* Feb. 2013

- Fundraise year round and stand for 46 hours at the marathon to benefit the Four Diamonds Fund

HONORS AND AWARDS

- Fasola Family Honors Scholarship in the College of Health and Human Development, 2013-2014
- Dean's List, Fall 2010-Fall 2013
- Women's Leadership Initiative, Class of 2012-2013

PUBLICATIONS

- Bleser W.K., Young, S.I., Miranda, P.Y., (2014). Disparities in family-centered care by insurance type during children's healthcare encounters. *Under review*.

SKILLS

Basic proficiency in: SAS, SPSS, Microsoft Excel, Microsoft Access, REDCap

EMPLOYMENT EXPERIENCE

Server, Zola New World Bistro, State College, PA, Apr. 2014-present
Office Assistant, HUB-Robeson Center, University Park, PA, Aug. 2013-present
Media Tech, The Pennsylvania State University, University Park, PA, Aug. 2010-May 2013
Orientation Assistant, The Pennsylvania State University, University Park, PA, Aug. 2012-Jan. 2013
Manager, Rita's Italian Ice, State College, PA, May 2007- Nov. 2011