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Evaluating the Role of Health Literacy in Communities: A Review of Community Health Needs Assessments of Georgia Hospitals

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ABSTRACT

Evaluating the Role of Health Literacy in Communities: A Review of Community Health Needs Assessments of Georgia Hospitals

By

BRITTANY M. ROBINSON

December 14, 2016

INTRODUCTION: Per the Patient Protection and Affordable Care Act (ACA), local public health departments, tax-exempt 501(c)(3) hospitals, and federally qualified health centers are all required to conduct community health needs assessments (CHNAs) every three years. Recently, hospitals under pressure from accrediting bodies have been strongly advised to attend to health literacy due to its major implications for poorer health status. Health literacy has been linked with many facets of population-level health, including behavioral health, sociodemographic factors and health disparities.

OBJECTIVE: The broad purpose of the study was to evaluate the perceived importance of health literacy through review of prioritized health-related issues facing Georgia communities, as identified by community health needs assessments.

METHODS: A secondary analysis of findings from the first 3-year assessment and strategic planning cycles (2011-2013) of non-profit Georgia hospitals and medical centers (N=11) was conducted for the study. Community health needs assessments and implementation plans were obtained via Google search.

RESULTS: Of the assessments included in the review, 5 out of the 11 CHNAs mentioned health literacy, and only 1 acknowledged inadequate health literacy as a prioritized concern in the primary service area.

DISCUSSION: After comprehensive review of the community health needs assessments and implementation plans, it is clear that the impact of health literacy on community health was not strongly considered. Thus, in correspondence with much of existing research, the benefits of adequate health literacy in communities is severely undervalued.

Keywords: health literacy, CHNA, ACA, health determinants, and health knowledge

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Assessments of Georgia Hospitals

By

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APPROVAL PAGE

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Author's Statement Page

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Brittany M. Robinson
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INTRODUCTION

Overview/Background

Over the years, the need for implementation of evidence-based public health strategies that integrate community preferences to improve population health has become increasingly evident (Grant et al., 2015). Consequently, in 2010, the Internal Revenue Service put in place actions to help address priority health issues at the community level. Per the Patient Protection and Affordable Care Act (ACA), local public health departments, tax-exempt 501(c)(3) hospitals, and federally qualified health centers are all required to conduct community health needs assessments (CHNAs) every three years (Beaty et al., 2015). Essentially, the assessments help inform about relevant social determinants impacting the health of local communities, while offering an approach toward overall community health improvement across the nation. Although the CHNA process has been accepted as a core function of population health and research, its evaluation has sparked little interest (Solet et al., 2009). For this reason, the following study was conducted in order to contribute to an area of research that is currently being understudied.

This study could be of considerable value to policy-makers and practitioners of public health due to its explicit evaluation of the CHNA process with regard to a health determinant that is also seldom discussed: health literacy. Health literacy, as defined by the Institute of Medicine (IOM), is “the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions” (Baker, D., 2006). Limited health literacy has become a pervasive issue in the US with major implications for poorer health status (Son & Yu, 2016). It has been related to socio-demographic characteristics, specifically education, race and age, across various contexts (e.g. acute and chronic disease) (Osborn et al., 2011). Practitioners of health, public health researchers and

policy makers have acknowledged the need to focus on health literacy as a potential mediating factor by which health disparities (i.e. differences in health due to social, economic or environmental disadvantages) can possibly be reduced (Mantwill et al., 2015). Though health literacy has been linked with many antecedents of health disparities, the core of its relationship with disparities remains unclear (Mantwill et al., 2015). Through incorporation of impactful health determinants such as health literacy, assessments can be made more comprehensive and help explain methods for improving health behaviors among various subgroups of populations, thereby reducing health disparities.

Most hospitals in the state of Georgia are non-profit corporations (Georgia Watch, 2011). Recently, many hospitals have been under pressure from accrediting bodies (e.g. The Joint Commission) to attend to health literacy due to the complications that can arise among low health literacy patients (The Joint Commission, 2007). Mutual misunderstandings between both patients and providers are common and often result from cultural, language and communication barriers (together or alone)(The Joint Commission, 2007). Thus, the push for greater consideration of health literacy in hospitals is much needed.

Purpose and Goals

The broad purpose of the study was to evaluate the perceived importance of health literacy through review of prioritized health-related issues facing Georgia communities, as identified by community health needs assessments. Due to the documented lack of attention to health literacy from hospitals, it was hypothesized that health literacy would not be named a primary concern in the majority of assessments (i.e. five or more). The secondary goal was to illustrate pathways by which health literacy can potentially help mediate the prioritized health

issues in order to reduce health disparities. Lastly, a final intent of the study was to make recommendations for general improvement to the frameworks of future CHNAs. Prospectively, the information provided from the capstone could help better improve the comprehensiveness of future assessments as best practices for conducting and presenting CHNAs continue to advance.

LITERATURE REVIEW

The Focus on Health Literacy

The scope of inadequate health literacy (HL) in the US has been elucidated in recent years, along with its relationship with patients' knowledge, health behaviors, health outcomes, and medical costs, as revealed by reports from various renowned organizations (Baker, D., 2006). Broadly, low health literacy is associated with poor health outcomes (Shaw et al., 2009). Furthermore, the economic implications of inadequate health literacy are substantial, with some estimates accounting for nearly 5% of annual healthcare costs (Peterson et al., 2011). The most widely-used measures for testing health literacy include computer-based tests, such as the Test of Functional Health Literacy in Adults (TOFHLA) and Rapid Estimate of Adult Literacy in Medicine (REALM) (Baker et al., 2006). According to the National Assessment of Adult Literacy, nearly 36% of US adults have inadequate health literacy (NAAL, 2006). Thus, its importance to public health is becoming more and more recognized. Though the topic has emerged in public health research, more research focusing on health literacy's role as a mediator in the relationship between health behavior and adverse health outcomes can be of great use. Research shows that people with limited HL skills are more likely to make greater use of services that treat complications of disease rather than services designed to prevent them (Office of Disease Prevention and Health Promotion, n.d.). This helps support the conceptualization of

health literacy as a facilitating variable. For instance, a type II diabetic patient who is sedentary and has low levels of health literacy may not comprehend the health benefits of physical activity. Thus, the study will also evaluate shared trends and discrepancies in health determinants throughout service areas of interest, while also focusing on one that is less often discussed (i.e. health literacy).

Impact of CHNAs on Public Health and Health Care

Why are CHNAs important? CHNAs are crucial to helping better understand community-level health and filling data gaps in population health research and management (Alberti, P. et al., 2015). According to a panel of CDC experts, the ideal state for CHNAs is to include data, engage stakeholders and share ownership of the assessment (Cain et al., 2016). Major components of the CHNAs have also been defined as community engagement, data access, data analysis, and data interpretation (Irani et al., 2006). These assessments provide qualitative and quantitative context to hospital data, thereby enhancing opportunities for health services and outcome research (Alberti, P. et al., 2015). Essentially, CHNAs are of fundamental value to population health, because they help identify and address issues that are specific to the geographical areas they serve. Non-communication and lack of cooperation between public health and other sectors of health have been well documented, underscoring the need for better collaborative relationships (Beaty et al., 2015). Participating entities are expected to uphold the provision in order meet accreditation standards and maintain their tax-exempt status (Alberti, P. et al., 2015). Failure to maintain the requirements will result in penalizations, including an excise tax liability of up to \$50,000 (Beaty et al., 2015). Thus, while compliance to the ACA is one motivating factor for non-profit hospitals and medical centers to conduct thorough CHNAs,

they are also committed to understanding the needs of the communities they serve while developing strategies that address those needs (Alberti, P. et al., 2015).

According to the Centers for Disease Control and Prevention, CHNAs can best help inform community improvement plans by justifying how and where supportive resources should be allocated (CDC, 2015). Other benefits include:

- ✓ Improved organizational and community coordination and collaboration
- ✓ Increased knowledge about public health and the interconnectedness of activities
- ✓ Strengthened local and state partnerships within public health systems
- ✓ Identification of strengths and weaknesses to address quality improvement efforts
- ✓ Baselines on performance to use in preparing for accreditation
- ✓ Benchmarks for public health practice improvements (CDC, 2015).

The information provided in CHNAs are obtained through input from local stakeholders and analyses of relevant data (Piedmont CHNA, 2013). Stakeholders range from community representatives, partners and residents. The holistic process calls for cohesive partnerships between local public health agencies and hospitals with an observable mandate to increase and improve preventive services (Klaiman et al., 2015).

METHODS

The review process began by constructing the research question, “Do CHNAs acknowledge any existing links between health literacy and the primary health-related issues affecting the communities they evaluate?” Additionally, existing evidence of health disparity across demographic subgroups in these communities were queried. A secondary analysis of findings from the first 3-year assessment and strategic planning cycles (2011-2013) of non-profit

Georgia hospitals and medical centers (N=11) was conducted for the study. Inclusion and exclusion criteria describing the CHNA selection process was provided (Table 1). For comparative analysis, hospitals in three different geographical areas were studied. These areas included: four metropolitan hospitals (Piedmont Hospital, Grady Memorial Hospital, Northside Hospital, Emory Saint Joseph's Hospital and WellStar Hospital System); three rural, non-metropolitan hospitals (Evans Memorial Hospital, Crisp Regional Hospital and Gordon Hospital); and three hospitals that serve predominately minority populations (Southern Regional Medical Center, Phoebe Putney Memorial Hospital and University Hospital in Augusta, GA).

The study benefited from peer-reviewed literature, which were obtained by using A-Z databases made available to students of Georgia State University. The author conducted a thorough review of assessments in order to extract data. Based on the objective of the study, the following keywords were used to in order to facilitate the search for relevant journal articles: health literacy, CHNA, Affordable Care Act, community-based research, health determinants, and health disparities. The 11 CHNAs, themselves, were obtained via Google search. The study revealed assessment characteristics (Table 2), which included service area characteristics, prioritized health concerns of the selected communities, and mention of health literacy. A conceptual health literacy model (Figure 1) was also included in the study to help illustrate the relationship between health literacy, sociodemographic factors and health outcomes.

Table 1. Inclusion and Exclusion Criteria for Community Health Needs Assessments

Inclusion Criteria	Exclusion Criteria
<ul style="list-style-type: none"> • Full text assessments made publicly available via online search • Assessments of non-profit hospitals located in the state of Georgia 	<ul style="list-style-type: none"> • Assessments that did not include information relevant to study (i.e. population demographics, prioritized health needs)

RESULTS

Health Characteristics of Urban Communities in Georgia

Piedmont Hospital CHNA.

As identified in its community health needs assessment, the service area for Piedmont Hospital is comprised of Fulton and Dekalb County residents, with the majority residing in Fulton. Fulton County, of which the city of Atlanta is the county seat for, consists primarily of Caucasians and African Americans (88%) with Asians and Hispanics composing the majority of the remaining 12%. Women make up approximately 51% of the population, and the majority of residents are between ages 25 and 54 (only about 9% is elderly). High-level concerns in the community were cited as follows: (1) limited access to care for uninsured patients, (2) unhealthy behaviors, (3) the teen birth rate, and (4) mental health. The hospital identified three priorities: “increased access for uninsured and underinsured patients;” “reduced preventable admissions and emergency department re-encounters;” and “reduced incidences of preventable heart disease and hypertension.” A clear disparity was observed in Fulton County with regard to the mortality rate of cardiovascular disease. Men are nearly twice as likely as women to die from heart disease, though they represent less than half of the population. Moreover, African Americans are also more likely to die from the same disease in this community.

Teen Birth Rate. In Fulton, there are approximately 44 births for every 1,000 teenaged women, most of whom are Hispanic/Latino. This issue, which has ties to generational poverty, brings about a number of other socioeconomic issues. For example, children that are born to unmarried teenage mothers are: ten times more likely to live in poverty for the majority of their lives; 50% more likely to repeat a grade; less likely than children born to adult parents to

graduate high school; 30% more likely to become a teen mother themselves (females); 2.7 times more likely to be incarcerated (males) (Piedmont Hospital CHNA, 2016). These and other data can help explain the high prevalence of violence in Fulton Co., which was also listed a primary area of concern.

Unhealthy Behaviors. Similar the rest of the nation, unhealthy living is a major issue for patients of Piedmont Atlanta community. Of the top causes of death in this area, the majority are conditions associated with unhealthy lifestyles (e.g. lack of exercise, tobacco use, high fat diets). Limited access to nutritious foods and physical inactivity were identified as major concerns. Seven percent of the population lives in food deserts, places with minimal or no access to fresh and affordable foods. Many of the districts within the community are, instead, riddled with fast food restaurants and convenience stores. This, and other unhealthful behaviors are what may have contributed to the population's high overweight/obesity rate. More than a third (37%) of residents are either overweight or obese (body mass index between 25 and 30).

Mental Health. Another major health problem identified in the assessment is mental health. Using data from the University of Wisconsin's health ranking, the CHNA projected that Fulton Co. adults will report 2.8 poor mental health days each month in 2013. Mental health and behavioral disorders have been responsible for a large number emergency room visits in Fulton County in recent years. Violence/injury – both intentional and unintentional – is a huge concern for both Fulton and Dekalb Cos. Aggregated data from years 2008 to 2012 show that the top cause of premature death for Caucasians was suicide. Conversely, the top cause of premature death for African Americans was homicide, which mainly affected children 1 to 4 and those 15 to 34.

Piedmont provided a myriad of approaches to addressing the prioritized needs of the community. In regards to preventable readmissions, implementation of a patient self-care management program with special consideration for those with limited health literacy was included.

Grady Hospital CHNA.

Like Piedmont, Grady Hospital's primary service area is comprised of both Fulton and Dekalb counties. Due to the large amount of city residents, it is not unexpected that multiple hospitals in the metropolitan area provide service to the same communities. In fact, Dekalb and Fulton Counties make up approximately 17% of the state's population, a combined total of over 1.6 million people. As expected, many of the same health issues identified in Piedmont Hospital's assessment were also identified in that of Grady Hospital's (i.e. lack of insurance, unhealthy behaviors, injury/violence, and other adverse health outcomes). Grady Hospital prioritized chronic diseases, STDs and mental health issues. However, one of the dominating issues facing the community that was mentioned only briefly in Piedmont's CHNA was listed as a prioritized health concern in Grady's CHNA: infectious diseases. Among a list of factors, inadequate health literacy was cited as a root cause to these health challenges.

Infectious Diseases. The city of Atlanta has an outstandingly high prevalence of infectious diseases, the most prevalent being HIV/AIDS. From 2010 to 2014, HIV infections in Atlanta averaged approximately 1,500 new cases per year (AIDSVu, n.d.). The prevalence rate of HIV in Dekalb County alone is 1,009 for every 100,000 people, a figure that is more than twice the statewide rate of 442.6 for every 100,000 people. Similarly, the rate in Fulton County is 1,228 for every 100,000. Gonorrhea incidence in the state of Georgia is 163.3 per 100,000

population. In contrast, the incidence rate of Gonorrhea was reported as 269.1 per 100,000 population in DeKalb Co. and 336.0 per 100,000 population in Fulton. Also high in infectious disease prevalence is Chlamydia. The state's average rate of Chlamydia is 167.7 per 100,000 people. In DeKalb, the rate is 195.7 per 100,000 people and it is 204.7 per 100,000 in Fulton.

Grady Hospital identified five different avenues for combatting the prioritized health issues. These avenues included health promotion education, increased recreational opportunities for youth, healthy cooking classes, local action to improve health and affordable insurance programs to address access to care.

Northside Hospital Atlanta CHNA

Northside Hospital Atlanta (NHA) provides primary service to five central counties in Georgia: Cherokee, Cobb, DeKalb, Forsyth, Fulton and Gwinnett. The median population for NHA's service area is a total of 2.1 million people, far exceeding that of Piedmont and Grady Hospitals. The community is predominantly Caucasian with African Americans (17%), Hispanics/Latinos (15%) and Asians (8%) comprising the largest minority groups. According to Northside Hospital's CHNA, the community is well-educated and has a median income of \$69,000. The poverty rate for the community is also relatively low (7%) when compared with that of the state (12%). Top health-related issues were listed as: obesity/diabetes/poor nutrition, dental care, cardiovascular health, mental health and infant mortality. Community stakeholders plan on using a host of different approaches to address the primary issues of concern, ranging from financial assistance and in-kind contributions for community benefit to community health education outreach.

Emory St. Joseph's Hospital CHNA

Saint Joseph's Hospital services the counties of Cobb, Fulton, Dekalb and Gwinnett. In 2010, the total population consisted of 3,150,442 people. Approximately 41% of the population is non-Hispanic, white, 37% is non-Hispanic black, 12.5% is Hispanic and 7.4% is Asian/Pacific. Priorities to be addressed in the community include: access to care, community awareness of health behaviors, and focus on preventive care and disease management for chronic conditions. Community stakeholders proposed that an increase of health literacy could occur as a result of improved patient education and awareness. Major actions involved: providing education to EMS providers, heart outreach, and implementing volunteer programs, wellness initiative programs and opportunities for teens and students.

WellStar Hospital System CHNA

The primary service area for WellStar Hospital System consists of a five-county region (Cobb, Bartow, Paulding, Douglas and Cherokee counties). The system alone is made up of five hospitals in the Metro Atlanta area: WellStar Cobb, WellStar Douglas, WellStar Kennestone, Wellstar Paulding, and WellStar Windy Hill. Each hospital provides an individual assessment, along with a corresponding implementation plan. Also made available was an all-inclusive, joint CHNA, which provides an aggregate of data from each of the five assessments. For this analysis, data was pulled primary from the joint and WellStar Cobb Hospital assessments. The total population of the primary service area consisted of over 1,350,000 residents. The outlined priority health needs for the community were: cancer, cardiovascular disease, chronic obstructive pulmonary disease/asthma, Type II diabetes and obesity. Poor health literacy was mentioned among a list of attributes observed in several areas of the community. In the joint implementation plan, a health behaviors intervention program was listed to address healthy

lifestyles. Various objectives marked an increase in cancer screenings, community and hospital resources for patient and community education, outreach and evidence-based programs.

Health Characteristics of Rural Communities in Georgia

Crisp Regional Hospital

Crisp Regional Hospital is located in southwestern Georgia and is the only hospital in Crisp County. Crisp, home to 23,000 residents, provides service to the cities of Arabi and Cordele. The racial population distribution is comprised of mostly whites (53.3%), blacks (43%) and Hispanics (3.2%). According to Crisp County Hospital's CHNA, the leading causes of health-related deaths are: cancer, heart disease, stroke and chronic lower respiratory disease. Senior health, access to care, cancer and diabetes, obesity, heart disease, teen pregnancy, adolescent health, respiratory health and mental health were listed as prioritized concerns.

Cancer. Though the incidence rate of cancer is lower in Crisp County than in the state or the US, the mortality rate is higher than the rates in the state and in the US. It is the leading cause of death among county residents. In Crisp, African Americans appear to bear the brunt of cancer-related deaths as death rates ranked highest among black females and males. One notable observation is regarding the incidence rate of breast cancer among black female residents. Although the national mortality rate is highest among black women, the incidence rate is lower among this group when compared with their white counterparts. However, in Crisp, the incidence rate for breast cancer is higher among black females (88.6 per 100,000 population). Prostate cancer is another type of cancer that largely affects blacks, specifically men. The

incidence and death rates of prostate cancer are highest among black men, a disparity that is evident in Crisp County as it is at the state and national level.

Heart Disease and Stroke. Heart disease and stroke are the first and third leading causes of death in the US. Currently, over 81 million people are living with one or multiple types of cardiovascular disease. In Crisp County alone, 121.9 out of every 100,000 people die from heart disease. This is higher than the state's average mortality rate of 109.7 per 100,000 population. Similarly, the stroke death rate was higher in Crisp (63.3. per 100,000 population) when compared with the state's (47.4 per 100,000). According to the age-adjusted death rates from years 2006 to 2010, both black men and women were reported to have higher death rates than white men and women.

Respiratory Health. Another issue largely affecting the health of Crisp County residents is the incidence of chronic lower respiratory diseases (48.6 per 100,000 population), particularly asthma and chronic obstructive pulmonary disease (COPD). Cigarette smoking has been said to be largely attributable to be a precursor to acquiring COPD. Because Crisp is a small town, there are certain characteristics that differ from those of more populated or urbanized areas, perhaps. For instance, there are myths in Crisp County that asthma is a condition that can be outgrown. For this reason, and the high cost of prescription, people in Crisp are often non-compliant to purchasing asthma medication.

Teen Pregnancy. The teen birth rate in Crisp County is two times higher than the state of Georgia and three times higher than the U.S. rate. This rate is exceptionally higher among black females in the service area. The rate of live births per 1,000 black teens in Crisp is 136.9, which is more than two times higher than that of white teens in Crisp (50 live births per 1,000 white women). Infant mortality is also a major issue for the community. The death rate due to

fetal and infant conditions in the service area is much higher than the Georgia rate (459.8 per 100,000 population versus 381.7 per 100,000 population). In addition, the leading cause of hospitalizations was reported to be linked with obstetrics and newborn service lines.

The assessment benefited from a considerable amount of input from the community. Indeed, the inclusion of the many barriers that were specific to each prioritized health concern in Crisp County were identified primarily by the community. Another unique component of the assessment was its acknowledgement of special populations and why it is imperative that they are addressed. These special populations were identified as seniors, minority populations and those suffering from mental health illnesses.

Gordon Hospital

Gordon County is a small community located just forty-five minutes from Atlanta and Chattanooga, Tennessee, with a total population estimate of only about 55,621 residents. Gordon's economic community is largely agricultural and, in 2010, the per capita income was reported to be \$27,970. The community is predominantly white (77%), followed by Hispanic/Latinos (15%) then Blacks (3%). The prioritized concerns facing Gordon were identified as: cancer (all types), healthcare availability, heart disease and stroke, respiratory disease and smoking. Gordon Co.'s health rated poor to fair at 19%, higher than that of the state of Georgia (16%) and the nation (10%). In fact, Gordon County exceeds national benchmarks in several other areas of health as well. These areas include, but are not limited to: adult obesity (31% versus 28%), physical inactivity (29% vs. 24%), teen birth rate (score of 69 vs. 21) and smoking (26% vs. 19%). Health insurance is also an issue for the community, as 25% of the population is uninsured.

Gordon County Hospital's assessment identified numerous plans for the community that were organized via a chart of potential projects and tailored to each area of focus. Among a list of others, educational advertising and free community screenings were mentioned as potential projects that address the obesity issue. In order to help combat substance abuse, the hospital planned to continue endorsement of community health education programs through financial support.

Evans Memorial Hospital

Evans Memorial is located in Evans, Georgia, southeast of the city of Atlanta. The primary service areas consist of Evans and Tattall Counties. Whites make up the majority of the population (67%) and blacks make up the overwhelming minority population (30%). In Evans County, heart disease is the leading cause of morbidity, similar to state averages. The prioritized health concerns in the community were: chronic disease, issues associated with healthcare access, chronic diseases, respiratory diseases, behavioral health issues (illicit drug abuse, prescription drug abuse, etc.), social health issues (high school drop-out, lack of recreational activities, teen pregnancy, STD, Etc.) and improvement and coordination of community health education activities (tobacco, nutrition, exercise, etc.).

Chronic Disease. Cancer (all types) is highly prevalent in this community. Males (black and white) have a prevalence higher than that of females and of the state as a whole. Colon cancer rates are similar to that of the Georgia's among all groups; excluding white males, who have a much higher prevalence when compared with state averages. In comparison with state averages, hospital discharge rates for breast cancer are highest among white females. Stroke,

hypertension and heart diseases – with the exception of obstructive heart disease – are all highest among blacks in the service area.

Respiratory Diseases. Respiratory diseases are most prevalent among whites, and white females have the highest rates of asthma.

Behavioral & Social Health. Estimates of behavioral and social health issues in service area are significantly higher than state averages. For instance, chlamydia rates in black females are approximately 1,500 per 100,000 population. The rate in the state of Georgia overall is only about 800 per 100,000 black women. Moreover, the rate for all STDs among black women in the service area is over an alarming 2,000 per population. Statewide, the rate is only about 1,200 among this group.

The CHNA highlighted themes that were identified from focus groups, such as community education, lack of resources, high school drop-out rate, activities for youth and lack of employment opportunities.

Health Characteristics of Predominantly Minority Communities in Georgia

Southern Regional Hospital

Located in Riverdale Georgia, Southern Regional Hospital services a subset of areas just below Atlanta's perimeter. This includes Fulton, Dekalb, Clayton, Henry and Spalding Counties. The majority of residents in Southern Regional's service area are African American (65%), which is followed by whites (20%), Hispanics (10%) and Asians/Pacific Islanders (3.5%). The average of annual household income in the PSA was lower than that of the statewide average (20% vs 25%). Thus, respectively, the community is slightly more affluent

than the state of Georgia overall. The major health issues burdening the PSA include chronic disease (e.g. cancer and obesity), fetal mortality rate, and uninsured residents.

Chronic Disease. Nearly 27.1% of the primary service area is obese. This exceeds the rates in Atlanta, the state of Georgia and the U.S. Heart disease is more prevalent in this community than in Atlanta, but is less prevalent in the state of Georgia. Within the community, prevalence is highest among low income adults (median household incomes below \$25,000) than in the service population as a whole. This data corresponds with the prevalence of hypertension, high-cholesterol and use of preventive treatment among low-income adults in the service area. Routine cervical, breast and colon cancer screenings occur much less in this group than in the area as whole.

Fetal Mortality Rate. The fetal mortality rate in the community is approximately 9.3 fetal deaths per 1,000 live births, which is higher than that of the city of Atlanta (8.1 deaths per 1,000 live births) and the state of Georgia (7.9 deaths per 1,000 live births). Rates are highest among the African American women, reaching as high as 12.7 deaths per 1,000 live births.

Patient education was listed as a priority community health need. Themes that focus on health insurance, financial education, patient medication (self-medication), nutrition and fitness – access to healthy food, obesity, diabetes and cardiovascular disease were named as patient education needs. Preventive care, access to care, awareness and mental health were also among the top list of issues to be addressed. Regarding future plans, major actions identified to improve the accessibility to care were: improving the shortage of health professionals (i.e. active recruitment, collaboration with Emory healthcare and partnering with local institutions) and reducing costs of care to the patient. Major actions pertaining to community health improvement included increasing diabetes awareness outreach (e.g. diabetes self-management classes) and

expanding efforts to reduce smoking and tobacco use (e.g. smoking cessation support and education).

Phoebe Putney Memorial Hospital

Situated in the southwestern region of the state, Phoebe Putney Memorial Hospital (PPMH) provides health care to over 150,000 Georgia residents. The service area is spread across five different counties: Dougherty, Lee, Mitchell, Terrell and Worth. Just over half of the population is African American (51.5%), and the remaining residents are primarily white (43.5%). Phoebe Putney Memorial's assessment provides a detailed overview of the community's four most concerning health issues. In addition to the CHNA, stakeholders prepared a separate implementation plan including measurable goals for each health concern. The prioritized issues for this community include maternal, infant, child health, mental health, obesity and related acute and chronic diseases, and lastly, health literacy, education and awareness.

Maternal, Infant & Child Health. One of the major problems facing Southwestern Georgians is low birth weight (LBW). LBW is of the most commonly used indicators of population-level health. Stakeholders constructed a list of issues facing the community, all of which fall under the category of maternity, infant and child health. This also related to reproductive responsibility, prematurity, infant mortality, teen pregnancy and STDs. According to the quantitative data, in 2010, 1 in every 6.5 births was low birth weight. The CHNA provides a chart of teen pregnancy rate by county. Overall, the primary service area is nearly 60% higher than the state average – this primarily includes Dougherty, Terrell and Worth counties. The assessment identified gaps a multitude of areas of health which include, but are not limited to:

obesity and preconception care, birth control and safe sex education, health insurance and transportation.

Mental Health. Mental health is a major issue in the service population. 20% of the population suffers from at least one medical condition that is suitable for inpatient intervention. In addition, reports of suicidal ideation due to bullying among children and adolescents occur almost on a daily basis. Evaluations regarding hire of psychiatrists is matter of ongoing conversation, but recruitment to the area is a known barrier. Identified gaps for this area are related to child and adolescent health, psychiatric services, inpatient/outpatient care, adult services and many other areas of health.

Obesity & Acute and Chronic Diseases. The high prevalence of obesity and related conditions and diseases in the US are no secret to the world of public health. In rural Georgia, obesity averages approximately 33% among Black children. In addition, children who live in low socioeconomic status households have a greater chance of having obesity (26%). Thus, it is not uncommon for children under the age of eight have type II diabetes. The assessment includes a breakdown by county of low-income obesity rates among preschoolers and adults. The rates range from as high as 14% of low-income preschoolers in Dougherty County to as high as 37.5% of low-income adults in Terrell County. Identified gaps relating to obesity and acute and chronic diseases in this area include recreational built-neighborhoods (built environment), physical activity, access to health screenings, routine exercise in schools and others.

Health Literacy, Education & Lifestyle Choices. Health literacy was noted as a key recommendation from community stakeholders who provided input in sessions. The results of one study revealed, although explained by known confounders, health literacy is lower in rural populations (Zahnd, Scaife & Francis, 2009). In addition, stakeholders maintained that people

with inadequate levels of health literacy skills are more likely to report poor to fair health and a greater number of poor physical health days. Correspondingly, 24% of Worth county residents reported poor to fair health and individuals also reported 4.5 poor physical health days per month. Related gaps include health literacy education, peer education and a need for lifestyle coaches in schools.

University Hospital

University Hospital is located in Augusta, Georgia, slightly southeastward of the city of Atlanta. The primary service area is Richmond County, which is home to nearly 200,000 people. As indicated in the assessment, University Hospital is the state's second oldest hospital. The racial makeup of Richmond County is predominantly African American (?). Some of health issues facing this community relate to the following health areas: health insurance, preventive services, chronic diseases (i.e. diabetes and cancer), built environment, low SES and sexual/reproductive health.

Chronic Diseases. Thirty-two percent of Richmond adults aged 20 or older are obese. The number of sedentary persons is not far off from this number, at nearly 28%. This issue is also interrelated with Richmond County's built environment.

Built Environment. In 2010, 12.5% of Richmond County residents were low-income and/or had little access to a grocery store. Access was determined by living more than ten miles from a grocery store in a rural area (more than one mile if in an urban area).

Sexual/Reproductive Health. In 2011, the incidence rate of Chlamydia in Richmond was 1,011.3 cases per 100,000 population. The same year, HIV prevalence was reported at 367.8 cases per 100,000 population.

Regarding the planning process, implementation strategies addressing chronic disease, obesity and nutrition, access to care and prevention and screenings will be created in the future.

	Hospital	Counties Served/Total Population	Racial/Ethnic Demography	Median Household Income	Prioritized Health Issues	Health Literacy Mentioned
Urban, Metropolitan Areas	Grady Memorial Hospital	Fulton and Dekalb/ 1,600,000	Primarily white and black (88%); 7.8%-9.5% Hispanic/Latino; 9.7%-11% other race or two or more races	~17% of the PSA lives below the Federal Poverty Line (FPL), which is \$23,5501 for a family of four	Infectious Diseases; Limited access to care for uninsured patients, unhealthy behaviors, the teen birth rate and mental health	Yes
	Northside Atlanta Hospital	Cherokee, Cobb, DeKalb, Forsyth, Fulton and Gwinnett/ 2,000,000	Mostly white and asian; 15% Hispanic/Latino	\$69,000	Obesity/diabetes/po or nutrition, dental care, cardiovascular health, mental health and infant mortality	No
	Piedmont Hospital	Fulton and Dekalb; 1,600,000	Primarily white and black (88%); 7.8%-9.5% Hispanic/Latino; 9.7%-11% other race or two or more races	Fulton Co.: \$56,709 Dekalb Co.: not listed (<i>See Grady Memorial</i>)	Limited access to care for uninsured patients, unhealthy behaviors, teen birth rate and mental health	Yes
	St. Joseph's Hospital	Cobb, Dekalb, Fulton and Gwinnett	Primarily white (40.7%), black (36.8%), Hispanic (12.5%), Asian & Pacific Is (7.4%)	\$62,044	Access to care, community awareness of health behaviors, focus on preventive care and disease management for chronic conditions	Yes
	WellStar System Hospitals	Bartow, Cherokee, Cobb, Douglas, Paulding	Primarily white (79.4%), black (10.45), Hispanic (7.8%)	\$56,936 - \$63,924	Cancer, cardiovascular disease, chronic obstructive pulmonary disease/asthma,	Yes

					Type II diabetes and obesity	
Rural, Non-Metropolitan Areas	Crisp Regional Hospital	Crisp/23,439	53.3% white; 43% black; 3.2% Hispanic	Total: \$29,960 (White median income: \$45,999; Black median income: \$18,804)	Senior health, access to care, cancer and diabetes, obesity, heart disease, teen pregnancy, adolescent health, respiratory health and mental health	No
	Evans Memorial Hospital	Evans and Tattall/36,520	~67% white; ~30% black	\$38,522-\$40,796	Chronic disease, access to care, behavioral health, social health and health education activities (e.g. teen pregnancy, STDs, etc.)	No
	Gordon Hospital	Gordon/55,621	77.5% white; 6.8% Hispanic/Latino; <5% black	~\$28,000	Cancer, health insurance, heart disease and stroke, respiratory disease and smoking	No
Predominantly Minority Areas	Phoebe Putney Hospital	Dougherty, Lee, Mitchell, Terrell and Worth/400,000	51.5% Black; 43.5 % White, 2.6% Hispanic/Latino and 2.4% other	~\$31,000-\$58,000 (Highest Income in Lee Co (\$58,252); Lowest in Terrell Co. (\$30,953)	Maternal, infant, child health, mental health, reproductive responsibility, obesity and chronic diseases, mental health, health literacy , education and awareness	Yes
	Southern Regional Hospital	Fulton, Clayton, Henry and Spalding	64.6% black; 19.8% white; 9.8% Hispanic/Latino; 3.5% asian/pacific (CHNA Appendices, 2016)	\$48,954	Chronic disease, fetal mortality rate, and uninsured residents	No
	University Hospital	Augusta-Richmond/195,844 (U.S. Census Bureau, 2010)	54.7% black; 39.1% white (U.S. Census Bureau, 2010)	\$38,902	Lack of insurance, preventive services, chronic diseases (i.e. diabetes and cancer), built environment, low SES and	No

					sexual/reproductive health	
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RECOMMENDATIONS

Recommendation #1: Revisions to the Internal Revenue Service rules regarding the process of community health needs assessments should be made to include a more holistic focus on health literacy as a mediating determinant

Rationale: While CHNAs appear to be effective in identifying key community health issues, the majority of them fail to recognize limited health literacy as a major concern in their communities. This is noteworthy, because chronic diseases and/or unhealthful behaviors were prioritized issues in all assessments. Attainment and measurement of adequate health literacy was observably not considered, as it was hardly mentioned regarding approaches towards healthful behavior improvement. Conceptual framework was created in order to illustrate the mediating influence of health literacy on behavioral health and outcomes (Figure 1). The proposed model (Figure 1) suggests that health literacy, in combination with other factors such as age, education and race/ethnicity, affects a person's ability to obtain an optimal level of health. The primary models that guided this framework were composed by Sun, Shi, Zeng, et al. (2013) and Chin, Morrow, Stine-Morrow et al. (2011) and shows the relationship between sociodemographic factors and health status.

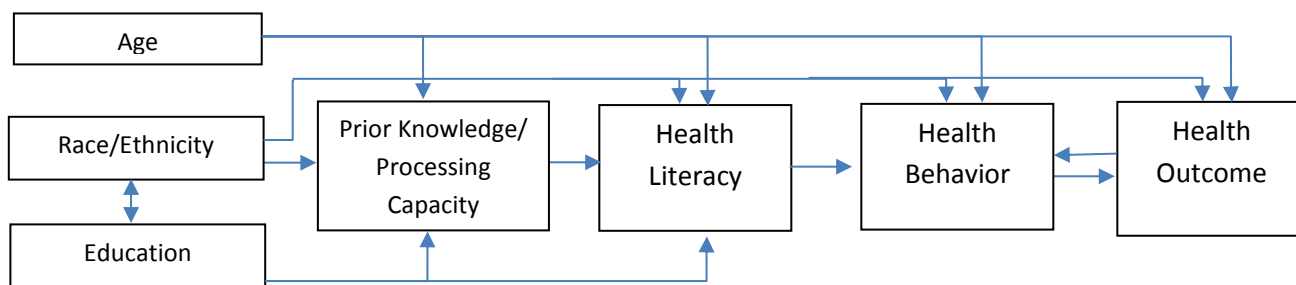


Figure 1. Hypothesis of a health literacy model at the individual level

Recommendation #2: Proposed strategies for improvement of CHNAs should integrate methods that target populations that are vulnerable to low health literacy, such as older adults, racial and ethnic minorities, immigrants and individuals with low levels of education and income

Rationale: In future CHNAs, hospitals should make more efforts to target vulnerable populations, including (but not limited to): racial and ethnic minorities, the elderly, and individuals with low levels of education and income. This is particularly due to the high prevalence of poor health literacy among these populations (Office of Disease Prevention and Health Promotion, n.d.). Similarities were observed in the majority of the service areas of focus. In light of the acknowledgment of health literacy as an important determinant of health for individuals, it is essential to examine immigrants' level of health literacy in order to help maximize their future health outcomes (Gele et al., 2016). According to the NAAL, roughly 66% of Hispanics have health literacy skills that are basic or below average (White et al., 2013). Cultural variation is often seen in beliefs about disease etiology, proper treatments, self-care and preventive efforts, human physiology, and appropriate doctor and patient conduct (Shaw et al., 2009). The concept of "health culture" addresses the complex interactions among cultural

beliefs, practices and illness that cooperatively shape health outcomes (Shaw et al., 2009). For instance, in one study, African American mothers relied on steam inhalation, herbal teas and homemade syrups for their children's asthma as opposed to prescribed medication (Shaw et al., 2009). Vietnamese families have been found to use traditional practices like coining, cupping, pinching, herbal ingestion, acupuncture and other remedies to treat asthma at home (Shaw et al., 2009). Low health literacy has also been shown to be an important predictor of negative health outcomes among older adults, in particular (Geboers, de Winter, Spoorenberg, et al., 2016). It has been shown that inadequate health literacy affects up to 60% of adults over age 65 (Federman, Wolf & Sofianou, et al., 2014). The association could be attributable to the notion that having low levels of health literacy limits self-management abilities in this population (Geboers, de Winter, Spoorenberg, et al., 2016). Undoubtedly, education level has strong associations with health literacy (Sun, Shi, Zeng, et al, 2013). In the Sun et al. study, it was shown that participant education level was directly correlated with prior knowledge and health literacy (2013). The level of health literacy often varies based on basic literacy skills, including proficiency in reading, writing, listening, interpreting images and other areas. (Wang, Chu, Lin, et al., 2014). Another study found that the relationship between race and patient activation was significantly mediated by health literacy and education level (Eneanya, Winter, Cabral, et al., 2016). In fact, after controlling for either of these factors, race was no longer significant (Eneanya, Winter, Cabral, et al., 2016). This is strong evidence that it is possible to mitigate effects of at least some health disparities by improving health literacy.

Recommendation #3: CHNAs to incorporate more specific, measurable goals and outcomes in order to create more informative evaluation

Rationale: In evaluation, the use of formal goal writing procedures and guidelines have been advocated in order to articulate clients' needs and priorities (Bowman et al., 2015). Thus, one of the most frequently-used frameworks in goal-setting is SMART-goal model (Bowman et al., 2015). The criteria for the acronym, which varies among authors, mainly implies that goals should be Specific, Measurable, Achievable, Realistic/Relevant and Time-Specific (Bowman et al., 2015). Out of the assessments, only one contained goals that utilized the SMART-goal framework (i.e. Phoebe Putney CHNA), leaving next steps that were somewhat vaguely defined in the majority of CHNAs. Accordingly, goals should appropriately address the high priority items that were previously listed in assessments. For example, a clear health issue in Gordon County's community is the high rate of teen pregnancy. However, among the detailed list of potential projects, this area of concern was not addressed at all. It is imperative that the reported data in assessments correspond with the projected plans in order to avoid inconsistency. Lastly, to ensure that content is organized and easy to find, the CHNA process should incorporate a consistent format to present information so that it may be easily understood by varying audiences.

Discussion

The overwhelming majority of community health needs assessments did not list health literacy as a major concern for their communities, as the term was only mentioned in five CHNAs. In addition, of the eleven assessments, only one listed limited health literacy as a prioritized health concern (i.e. Phoebe Putney Memorial Hospital). Of the four priorities reported in the Phoebe Putney Memorial CHNA, "health literacy, education and lifestyle choices" was named Priority Number Four. School- and community-based needs relating to

health literacy were provided in detail. Among the needs, the following were included: school-based health literacy education that translates to smarter choices; greater focus on education and health literacy prevention models; more parent-focused health education classes; and education on specific issues tied to health indicators. Also included in the assessment were strategies already in place for combatting the issue, such as faith-based outreach and health fairs. Health literacy was mentioned in four other assessments (i.e. Grady Memorial, Piedmont, St. Joseph's and WellStar), but only briefly.

Several trends in health-related problems were observed among the three area types, many of which relate to health behaviors. Among the rural areas, respiratory health was a prioritized concern in all assessments, whereas, it was only scarcely mentioned throughout the other assessments. This is likely due to the agricultural nature of many rural environments in Georgia. For example, in Crisp County, agricultural chemicals often permeate the air and farm workers seldom wear protective equipment. This may be attributable to the county's heightened COPD incidence rates, because residents seldom protect themselves from pesticides, dust and other chemicals. Consequently, Crisp Regional's EMS receives respiratory-related calls on a regular basis. By enhancing community-level health literacy in rural areas like Crisp County, hospitals could help influence individual decision-making by helping residents better understand the harmful consequences of not wearing protective equipment. This could, thereby, help mitigate the high prevalence of respiratory health issues in the community. Issues that stood out among urban areas were: mental health, infectious diseases and teen birth rate/infant health. Teen birth rate, infant health and reproductive health were also major concerns for predominantly minority populations. In Fulton County, an urban area, there are approximately 44 births for every 1,000 teenaged women (most of whom are Hispanic/Latino). This is

particularly important, because this group represents a fairly small portion of the county's total population (less than 12%). In Piedmont Hospital's CHNA, it was cited that the rate, which exceeds the national average, is more than twice as likely to occur among this group as it is among their racial/ethnic counterparts. However, there are many health risks associated with teen pregnancy (Yee & Simon, 2014). Some data also present a strong correlation between teen pregnancy and low income. Deficits in contraception knowledge and problems with communication are challenges among poor and minority women, both of whom are subgroups at substantial risk for low HL (Yee & Simon, 2014). In addition, large portions of women in this population experience unplanned pregnancies, a noted disparity (Yee & Simon, 2014). In all areas, chronic disease was listed as a prioritized concern. This was expected, as chronic disease is the leading cause of death and disability in the US, a consequence that is commonly a product of poor behavioral health (CDC, 2016). Additionally, the socio-demographic factors associated with this data relate to age, race and socioeconomic status, all variables that can potentially be mediated by acquiring an adequate level of health literacy.

Notably, a number of health disparities were observed upon review of the assessments. For instance, the majority of the CHNAs reported blacks having a higher mortality rate of cancer (i.e. Piedmont; Grady Memorial; Northside Atlanta, Evans Memorial; Crisp County). This is consistent with state averages and with prior research, which indicates that racial minorities often report worse health outcomes than their white counterparts, particularly in the U.S. (Mantwill et al., 2015). In the Northside Atlanta Hospital CHNA, it was noted that preventive screenings for this disease and others are among the lowest utilized by the African American community (2016). Hence, this alludes to the importance and usefulness of health literacy. Minorities represented large parts of the populations of many of the service areas of focus. Since this group

is disproportionately affected by certain diseases and/or conditions, it is essential to further address these populations in future assessments. Importantly, health culture should be taken more into consideration and should be treated as a resource, as opposed to something that is treated with sensitivity (Cain et al., 2016). As mentioned, disparities were also observed among those with low education, income and socioeconomic status. Approaches that specifically target this group should be developed in future assessments, also.

Though secondary analysis was conducted for the project, the research is not without its limitations. Since the provisional authorization of CHNAs is relatively recent, evaluation of more than one assessment per hospital was not possible. Thus, improvements during the first three-year cycle cannot be determined until a second cycle is published. Additionally, an ideal method of sampling would be through randomization. The study relied on a convenience sample of CHNAs that were accessible via simple online search. Thus, only assessments that were publicly available were used, and hospitals were not contacted directly. Furthermore, relatively few assessments were found in the online search for assessments. This warrants the question of compliance among hospitals in areas that could largely benefit from community needs health assessments and implementation planning. A final limitation to the study pertains to the non-experimental nature of the study design. Though a hypothesized model was provided to help explain possible links between relevant sociodemographic factors, health literacy and health outcomes, they were not tested for validity. As cited, the relationship between health literacy and health outcomes is complex and requires continuous, evidence-based research. Thus, a simplified model illustrating the relationship between health literacy and health outcomes was created, which also acknowledged several factors external to the individual. However, the project benefits from several strongpoints. This study is unique in that it explicitly investigates

the role of one health determinant (i.e. health literacy) and its relationship between the reported health-related issues burdening Georgia communities. Prospectively, the project and other continuous research can help inform participating health entities about what can be done in the future to further enhance CHNAs.

The study aimed to encourage special consideration for the inclusion of health literacy among subsets of populations who are vulnerable to poor health literacy. It is imperative that health literacy awareness becomes a priority among hospitals, particularly those in the state of Georgia. Health literacy has the potential to help mitigate a variety of health problems independent of the area type (i.e. urban versus rural), population demographic or community characteristics. However, there are no existing tools for measuring health literacy at the community level. Hospital workers can do their part by sharing knowledge and education to patients about what health literacy is, why it is important and how it can be improved. This can be accomplished through a multitude of approaches pertaining to numerous health concerns. For example, a hospital could implement prenatal health literacy programs for young mothers in areas where teen pregnancy is highly prevalent. Though programs like these can sometimes be viewed as costly, the benefit of overall community health would greatly outweigh the cost of expenditure.

After comprehensive review of the community health needs assessments and implementation plans, it is clear that the impact of health literacy on community health was not strongly considered. Thus, in correspondence with much of existing research, the benefits of adequate health literacy in communities is severely undervalued. Future assessments should be more inclusive by incorporating health literacy and other impactful health determinants that are proven facilitators of health, but are less commonly discussed.

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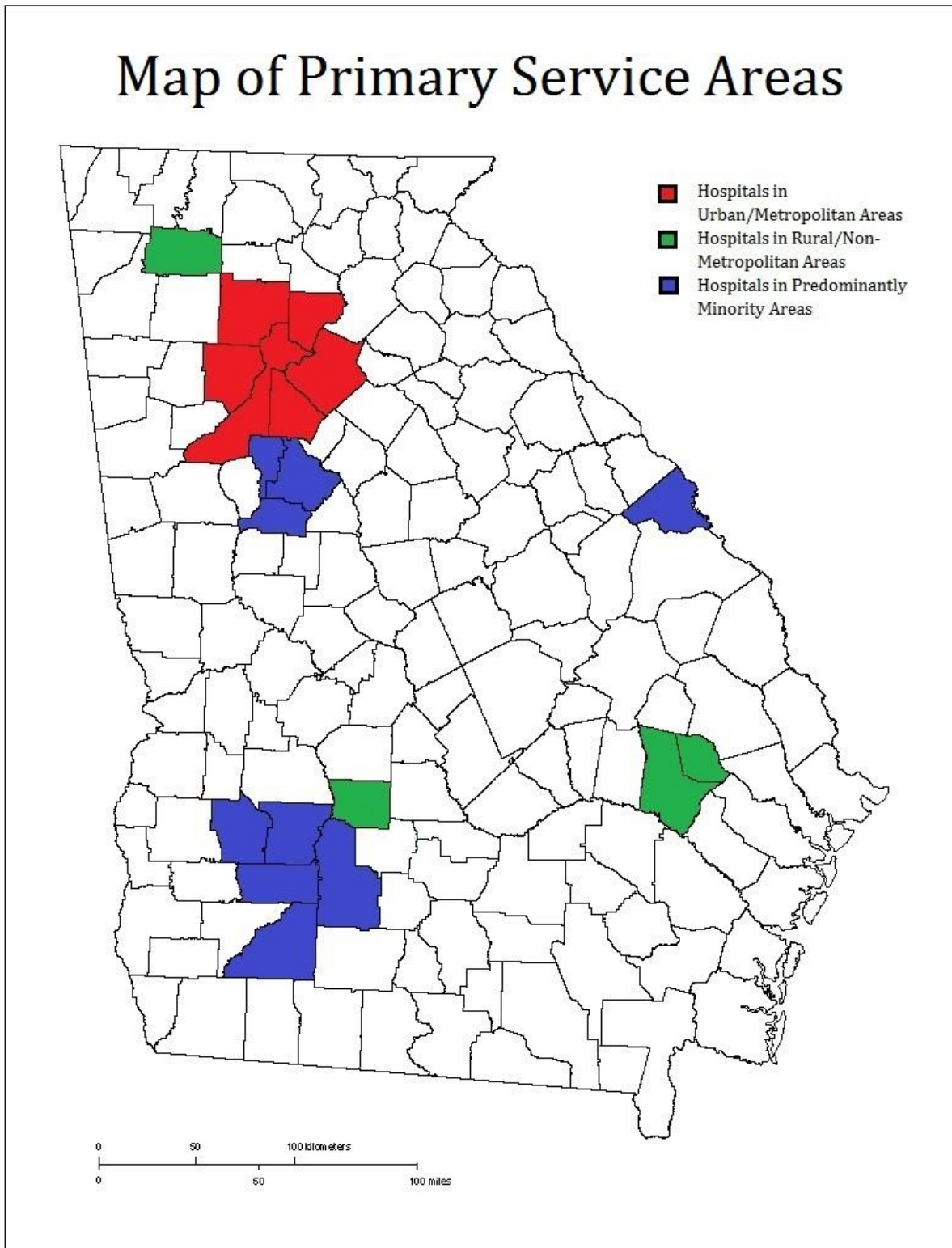
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APPENDIX A: PSA (Primary Service Area) Map



APPENDIX B: Phoebe Putney Implementation Plan

Phoebe Putney Memorial Hospital Community Health Needs Implementation Strategy 2013-15

Introduction:

Greater access to effective, efficient medical care is important for our nation's well-being, but medical care cannot deliver wellness, nor can health care system reforms alone bring costs under control. Instead, we need a new vision of health that rests on changing the lives of Americans in ways that lead to healthier, longer lives.

Robert Wood Johnson Foundation

In 1911, Phoebe Putney Memorial Hospital (PPMH) was established in answer to a community need to have a hospital in the remote southwestern corner of Georgia. The hospital was realized through the founding \$25,000 donation of Judge Francis Flagg Putney. Judge Putney had three requirements aligned to his philanthropy: that the hospital serves all regardless of race or ability to pay; that it be built of brick to withstand fire; and that it be named for his mother, Phoebe Putney. Phoebe Putney Memorial Hospital garnered the immediate support of the community, whose members brought linens and supplies to stock their new hospital. In return, Phoebe Putney Memorial Hospital became the safety net for care, ministering to the most vulnerable in the community, devoting itself to improving health in a region lacking in hospitals and healthcare providers. Phoebe has stayed true to its founding mission ever since, making sure people throughout Southwest Georgia have access to the medical care they need regardless of ability to pay. In 2013, PPMH is the dominant healthcare provider and the region's second largest employer. For the fiscal year ended July 31, 2012, PPMH provided \$130 million in community benefit and reinvestment in those categories identified by the Internal Revenue Service. PPMH is the flagship of a five-hospital system (either owned/leased or managed), with two campus locations in Albany, Ga., one of which was acquired in December 2011 and converts a previously for-profit organization to tax-exempt status. The ability of the hospital to provide community benefit has grown as the scale of the organization has grown, providing benefit more broadly in the Southwest Georgia region to meet mission. Facilitating access to primary care is in the best interest of the hospital and community, and therefore, in addition to its own family practices and rural clinics, PPMH has also had a long-term and beneficial relationship with Albany Area Primary Health Care, a federally qualified clinic with regional facilities.

PPMH delivers high quality, safe healthcare to its patients and families, and extends its commitment further by reinvesting in the greater community. The organization believes in creating capacity in the community and is an active partner with patients, families, neighborhoods, government and civic organizations to provide access to care, innovation in

treatments and research, and advocacy for change. The area served is a high-needs community, and the hospital leadership recognizes the priorities identified in the needs assessment, but also the broader responsibility to provide services and service lines that might not otherwise be available to the citizens of the region. As PPMH considers its implementation strategies, it is informed by its specialty areas and populations, especially all women and children's services, inpatient rehabilitation, trauma, emergency and urgent care, neuroscience, cardiovascular and hospice and palliative care. These carefully planned services provide the infrastructure for delivering total community benefit and meeting the mission. For example, PPMH is seeking Level II trauma designation to meet the regional needs. PPMH leadership has identified and initiated planning a need for post-acute care services, such as inpatient rehabilitation and long-term acute care. PPMH funds and supports medical education and graduate medical education, and through its family medicine residency program has greatly alleviated the shortage of physicians in rural areas and will continue to evaluate the recruitment of physicians in specialties impacted by shortage. PPMH's leadership is committed to growing programs and services, both in and outside the hospital, that place care in the most effective and appropriate settings.

The 2010 Patient Protection and Affordable Care Act requires that nonprofit hospitals begin to conduct a community health needs assessment every three years and adopt implementation strategies to meet the outstanding community health needs identified in the assessment as a condition of maintaining the institution's federal tax exempt status. PPMH conducted a Community Health Needs Assessment (CHNA) during 2012 and 2013. The assessment process compiled reliable and valid data about community health needs, drawing information from secondary sources and qualitative analysis. More than 30 key leader interviews were conducted and more than 50 stakeholders participated in input sessions to identify needs, gaps and strategies that would lead to improved health in the community. In considering implementation strategies, PPMH is informed by its service area and populations, including women's and children's services, cardiovascular, oncology and mental health.

The Community Health Needs Assessment will further serve as a planning tool help create strategic initiatives regarding medical series and community outreach, particularly to meet the needs of those at risk. In addition to community-based coalitions, the hospital will form internal task forces around the identified priorities to define strategies to meet benchmarks and to assure effort is applied where it can be most effective. The CHNA has identified the following priorities in its primary service area of Dougherty, Lee, Worth, Terrell and Mitchell counties:

- Maternal and Child Health
- Mental Health and Substance Abuse
- Obesity and Related Acute and Chronic Diseases
- Health Literacy, Promotion and Awareness

The needs assessment, which informed this plan, is publicly available on the PPMH web site and distributed to local governing bodies. It provides rationale for the identification of priorities and gives details on programs that are in place to currently meet these needs. The priorities may have sub categories with related health needs. The priorities may also be impacted by community demographics or other determinants, such as poverty, literacy, transportation or geographic barriers that are not specifically addressed in this implementation plan. The programs and strategies described in the following implementation plan are, however, aligned with the four health priorities, with many of the programs addressing more than one of the four priorities. The hospital also provides many more programs, including subsidies to its primary care clinics, to address health needs in the community and improve the quality of life. This plan's purpose is to aid the organization in making prudent choices for using ever more scarce resources and to budget proactively for programs and activities that will produce better outcomes and improved community health.

Phoebe Putney Memorial Hospital is committed in its strategic and operational plans to community benefit strategies that further and strengthen the hospital's mission. The identified needs were prioritized by the internal work team based on the following criteria:

- size of the population affected
- severity of the problem
- the health system's ability to impact the need
- availability of internal and external resources that exist

Many of the successful activities and program identified in the Community Health Needs Assessment will be continued and expanded in the implementation strategies, either by PPMH itself, in partnership with others, or by outside community organizations. For example, the PPMH School Nurse Program under the Network of Trust is one such comprehensive program that meets needs in more than one identified area. It is funded by the hospital for \$1.2 million annually and reaches students and staff in every public school in Dougherty County. It also operates training in collar counties and provides health literacy education in 16 counties served by PPMH.

Benchmarking and Evaluation

PPMH is required to show impact of health improvement initiatives through evaluation methodologies. In this implementation report, there are two types of benchmark outcomes that address evaluation: process and results. Process addresses how well things are done (methods) and results demonstrate to what extent behavior (the benchmark) has changed. Process outcomes will have no benchmarking, but results will be tracked through progress reports. When tracking results outcomes, PPMH will use Healthy People 2020 Tracker unless otherwise specified.

Priority 1: To Improve Maternal, Infant, and Child Health and Reproductive Responsibility

- **To reduce the rate of low birth weight from 12.3 to 7.8 in the primary service area.**
- **To reduce the rate of very low birth weight from 2.8 to 1.4 in the primary service area.**
- **To reduce the rate of pre-term births from 14.7 to 11.4 in the primary service area.**
- **To reduce the rate of infant mortality from 8.2 to 6.0/1,000 live births in the primary service area.**
- **To reduce the rate of teen pregnancy from 40.8 to 36.2 for females aged 15 to 17 in the primary service area.**
- **To reduce sexually transmitted disease from 1,272 to 703.9 cases/100,000 in the primary service area (Georgia Benchmark)**

The Community Health Needs Assessment identified Maternal, Infant and Child health as a top priority. In 2010, in the PPMH service area, one of every 6.5 births was LBW. Low and Very low birth weight babies are more likely to need specialized care and require neonatal intensive care. Because of the magnitude of VLBW and LBW babies in the region, additional NICU beds are often required, straining the 27-bed capacity at PPMH. Currently all surgical ICU infants are transported to Atlanta or Augusta for treatment.

Community key leaders and stakeholders pointed out contributing factors, including poverty, few activities, lack of school involvement or persistence and lack of family support among mothers who have low birth weight infants.

PPMH will continue, support and/or implement the following strategies:

1. Continue funding (\$1.2 million) of Network of Trust programs that provide evidence-based Sex Education Curricula and help to reduce the incidence of teen pregnancy, including the placement of school nurses in all 27 Dougherty County Public Schools.

2. Expand and conduct school nurse training in service area county schools, specifically Randolph, Lee and Terrell.
3. Continue and expand Make A Difference sexual abstinence program – assistance funding will be provided by a three-year \$35,000 grant from the Georgia Campaign for Adolescent Power and Prevention, the University of Georgia and 4-H. PPMH Network of Trust will conduct training, expanding outreach to more than 50 nurses in the region and to the Boys and Girls Clubs of Albany.
4. Continue Teen Father program, operated by Network of Trust
5. PPMH will hire a full time outreach coordinator to work in schools with career development for teenage mothers. This is an extension of the Teen Mothers program, which has operated for 20 years to provide prenatal care and parenting skills to pregnant teens.
6. Continue partnership with Family Connections for the Teen Maze, which reaches 1000 teens locally and more than 4000 in the region to help middle school students experience positive and negative impact of their decisions.
7. PPMH and Network of Trust will support Teen Breastfeeding Initiative
8. Support and Facilitate expansion of centering pregnancy program – The Southwest District Health plans to seek permission from PPMH's Institutional Review Board to conduct a research study with a control group to determine the impact of the centering program on low birth weight and other related outcomes to demonstrate program efficacy. PPMH will provide support for this program and nurses in labor and delivery will be informed of the program in the care of participants who come to the hospital to deliver.
9. Partner with Albany State University to conduct focus groups of women who gave birth to low birth weight children, targeting inner city Albany and, in particular, census tract 8 adjacent to the hospital.
10. Form or re-energize a task force with the goal to improve birth outcomes and to reduce teen pregnancy.
11. Coordinate a campaign with city, county and state entities addressing reproductive responsibility.

12. Expand NICU bed capacity through the Certificate of Need process and repurposing of facility space.
13. Support Community Based programs that provide home based coaching or navigators.
14. Continue to fund the school nurse program and Network of Trust.
15. Early Elective Deliveries – PPMH will continue a new initiative to work with physicians to reduce the number of induced births.
16. Baby Friendly Education and Awareness program –This PPMH program currently receives funding of \$7,000 and is one of nine in Georgia designated to work on increasing breast feeding initiation and sustained rates. Off-site lactation consulting services are currently offered and will be continued.
17. Neonatal Outreach coordinator at PPMH will continue to provide community-based services as a part of the perinatal outreach program. This individual spends more than 90% of time in the community and expansion plans call for increased coordination with other regional hospitals.
18. PPMH is expanding access to the current cadre of pediatric subspecialty physicians with Georgia Regents University to include a second neurologist, hematology/oncology for sickle cell patients and cardiology. This clinic practice operates on PPMH north campus and also includes pediatric surgery. AAPHC is an active partner, and a pediatric residency program through GRU is in discussion. The partner physicians see patients from throughout the region who would otherwise have to travel to Augusta, GA. A telemedicine component is also planned for this service.
19. Continue to support Albany Area Primary Health Care's School Based Health Center -- This center at Turner Elementary School opened March 2013 in partnership with Albany Area Primary Health Care (Federally Qualified Health Clinic), PPMH Network of Trust and Emory University Urban Health Program through a grant awarded by Health Care Georgia Foundation. It is one of only 10 such centers in Georgia and is an evidence-based model that provides the services of a medical home and a primary care physician at the school. The center is positioned to further impact health issues related to teen pregnancy and associated risk factors.

Priority 2: To Promote, advocate, and facilitate a sustainable community mental health continuum of care model with an emphasis on addressing identified gaps in service.

1. PPMH will convene a community collaborative of stakeholders and professionals in mental and behavioral health to examine resources, define gaps and craft solutions for improved stabilization of patients.
2. PPMH will help to promote and advocate for an adolescent inpatient crisis stabilization unit.
3. Continue to provide and support anti-bullying measures in the schools through the funding of HealthTeachers curriculum. This program is funded for the next two years for \$200,000 for 16 counties. The new programs being introduced include:
 - a. *Awesome Upstander!*: the prototype program and anti-bullying game for young kids to learn how to deal with bullies.
 - b. *HealthTeacher at Home*: a free website for parents to connect with the expert health content on topics such as bullying, obesity, physical activity and depression. HealthTeacher is making it easy for parents to connect every month with the issues their kids may face.
4. PPMH has funded a local non-profit initiative by the Albany 100 Black Men called Youth Mental Health Alliance that will be operated in local schools targeting elementary and middle school students from fatherless homes. These students have been identified or diagnosed by the Dougherty County Assistance Program as having mild to moderate family and social programs. One of the goals is teen suicide prevention.
5. PPMH will help to convene and participate in a Behavioral Health/Addictive Disease taskforce to study gaps in local resources and design proposed solutions.
6. PPMH will continue to provide various behavioral health support groups and camps such as Camp Good Grief.
7. PPMH will continue to fund through Community Visions grants program not-for-profit organizations that address mental health issues with evidenced-based, measurable programming aligned to this health needs priority.

Priority 3: To promote healthy living lifestyles that reduces obesity and related acute and chronic diseases.

- To reduce the rate of low-income preschool obesity to 13.9% in Dougherty, Mitchell and Terrell.
 - To reduce the rate of adult obesity to 30.9% in Dougherty, Mitchell and Terrell counties.
1. PPMH will support promotion of and highlight the City of Albany's downtown initiative to make it more pedestrian and cycling friendly.
 2. PPMH is planning the implementation of a congestive heart failure clinic to address the significant incidence in the community (PPMH: 1777 discharges FY 2008 through March 2012). This clinic would promote better management of CHF and improve access to care for those suffering with CHF.
 3. PPMH will collaborate with the Choice Neighborhood AHA project's recreational and environmental rebuild to promote exercise.
 4. Through its Network of Trust, PPMH will reach out to schools and pediatricians particularly in rural areas to provide nutritional counseling resources.
 5. Network of Trust will implement a new program called GoNoodle! (www.gonoodle.com). GoNoodle! is a program with four interactive games that teachers can play with students in the classroom. The different games have the students participating in activities that teach them about exercise, deep breathing techniques, and yoga style stretching. It's designed to boost energy in 5 minutes or less, provide seamless transitions between subjects, improve on-task behavior and concentration, and get kids up and moving throughout the day.
 6. Through its Network of Trust, PPMH will expand health fairs to all schools.
 7. PPMH will continue to support Albany Area Primary Health Care's chronic disease management program and continue primary care initiatives in its Phoebe Physician Group practices.
 8. PPMH will continue to operate the Southwest Georgia Family Medicine Residency program, which graduates five to six residents annually and has consistently met program goals to place physicians in rural practice since 1996.
 9. PPMH is partnering with the American Heart Association for a proposed \$25,000 initiative to teach new CPR training.

10. PPMH will continue to support and fund South Georgia Cancer Coalition (cancer screenings including colonoscopies) by providing services to those without access and means to pay.
11. PPMH is developing and implementing a lung cancer screening program to provide better access with a goal of earlier diagnosis and treatment.
12. PPMH is collaborating with the American Heart Association to gain accreditation for a stroke center and has convened an internal committee to structure the initiative.
13. PPMH will continue to conduct community health fairs in the service area and with increased focus on obesity and related acute and chronic diseases.

Priority 4: To promote health literacy, education, awareness and access to care

1. Increase awareness for cancer clinical trial participation.
2. Share and show Phoebe's Community Health Dashboard tool to the public.
3. PPMH will provide community information and assistance for selecting and enrolling in insurance exchanges to promote better access to care and eliminate barriers. PPMH will partner with other providers and community organizations to achieve this.
4. Network of Trust will employ a full-time outreach coordinator to implement a Healthy Futures Program in schools that is aimed increasing school persistence and teaching skill sets for career development.

Community Visions Grant Program

Phoebe Putney Memorial Hospital has provided assistance grants to 501 (c)3 organizations which have initiatives or projects that are health-related for more than 15 years. This funding will be closely aligned to the priorities of the health needs assessment and focused on proposals that promote evidence-based programs.

Indigent and Charity Care Policies and Determinations

Phoebe Putney Memorial Hospital is committed to delivering high quality safe care to all patients regardless of their ability to pay. The Community Health Needs Assessment, coupled with knowledge of the service area, shows poverty and lack of insurance as barriers to accessing care. In fiscal year 2012, Phoebe Putney Memorial Hospital provided \$26 million in charity and indigent care costs. Patients and families are assisted by a Phoebe Cares Representative in applying for aid, and may pre-apply for a Phoebe Cares Card in the primary service areas for non-elective services if eligible. Active patients using this vehicle for access has increased from 3725 in Fiscal Year 2011 to 6258 in Fiscal Year 2013. Patients are also assisted by a Cares Representative in identifying all sources of possible aid. Patients in the secondary area may be eligible if the services are unavailable in their home or nearby county. The hospital's policy and guidelines help patients who lack the financial resources to pay for all or part of their bill. All financial assistance policies are available to the public in plain-language summaries, and the availability of aid is posted in all patient registration areas. The criteria follow:

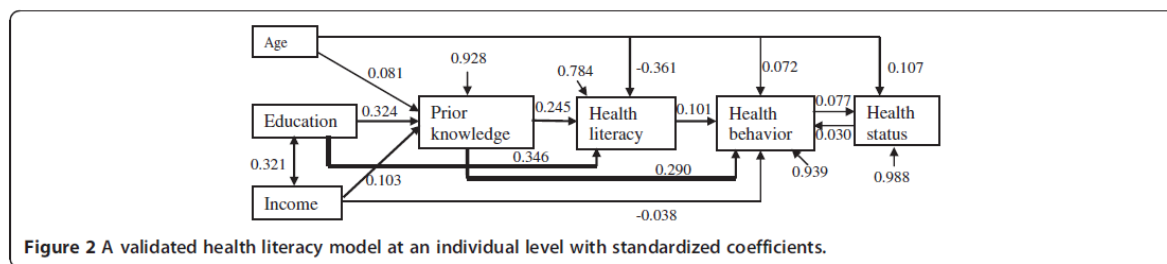
- Indigent
Patient whose income is at or below 125% of the Federal Poverty Levels (FPL) as established by the United States Department of Health and Human Services for 1990 and subsequent years. (Ref. FPL chart)
- Charity
Patients whose income level is between 126% - 200% of the FPL as established by the United States Department of Health and Human Services for 1990 and subsequent years. (Ref. FPL chart)
- Catastrophic
Patients whose income exceeds 200% of the Federal Poverty Levels and whose hospital charges exceed 25% of their annual income resulting in excessive hardship. (Ref. Catastrophic Guidelines)

Charity Care			
	FY 2011	FY 2012	FY 2013 to date
Phoebe Cares	\$28,973,015.97	\$33,980,469.96	\$24,890,368.30
Other	\$37,638,194.27	\$26,191,233.12	\$14,996,599.32
Other includes: catastrophic, secondary service area, outside primary and secondary services areas, and presumptive charity software			
Phoebe Cares Cards			
	2011	2012	2013 to date
Active Patients	3,725	4,821	6,258

APPENDIX C: Sun et al. Health Literacy Model Snapshot

Sun et al. *BMC Public Health* 2013, **13**:261
<http://www.biomedcentral.com/1471-2458/13/261>

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is negative. Health literacy is a direct influencing factor of health behavior, but its effect is weaker than that of prior knowledge. The strongest influence factor for health status is age. With increasing age, health status is better. Health behavior and health status have an interactional relationship, and the role of health behavior on health status is a little greater than that of health status

Undoubtedly, educational background is the most important factor. In a structural equation, the coefficient of education background on health literacy was 2.35, which indicates that with each level of education (classified as primary school, junior high school, senior high school, college and graduate students), participants score almost 2.35 points more in the health literacy test which is

APPENDIX D: Chin et al. Health Literacy Model Snapshot

Chin et al.

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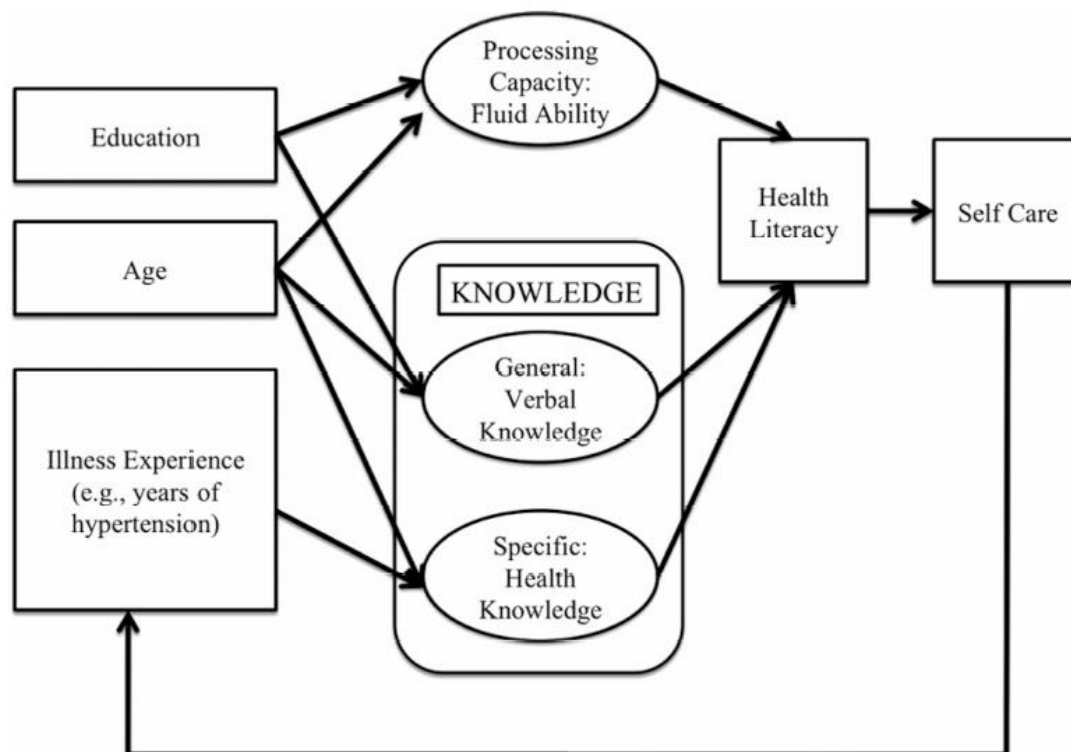


Figure 1.
The process-knowledge model of health literacy.