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THE FINANCIAL HEALTH OF HOSPITALS:

CRITICAL ACCESS AND RURAL HOSPITALS IN WEST VIRGINIA

By

George G. Couch

A doctoral project submitted to the faculty of the Medical University of South Carolina

In partial fulfillment of the requirements for the degree

Doctor of Health Administration

in the College of Health Professions

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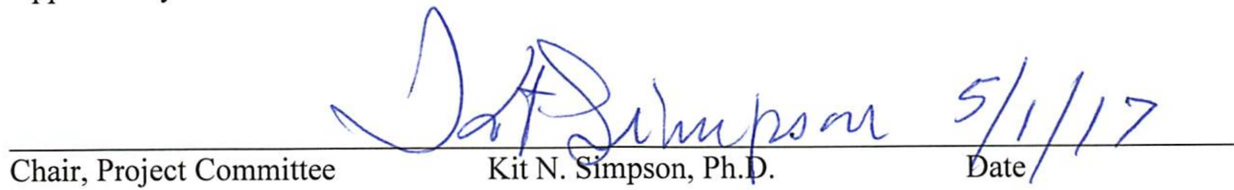

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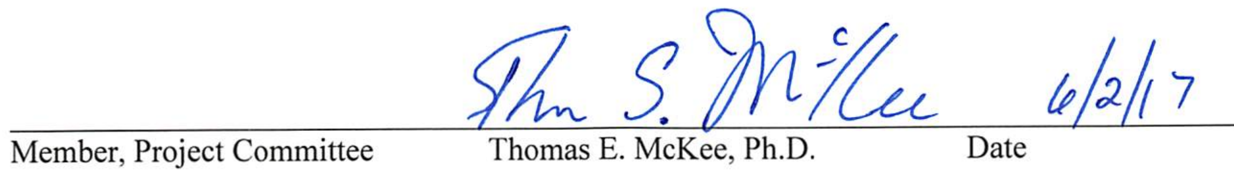

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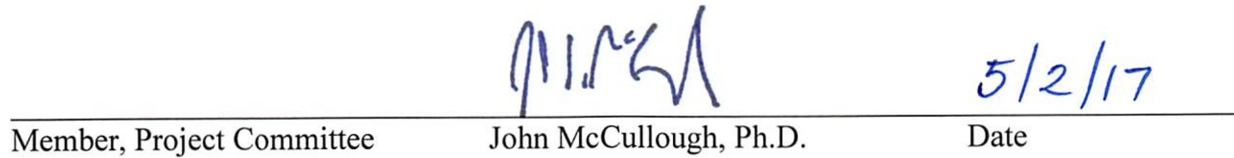

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Abstract of Doctor Project Presented to the
Executive Doctoral Program in Health Administration and Leadership
Medical University of South Carolina
In Partial Fulfillment of the Requirements for the
Degree of Doctor of Health Administration

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Critical Access Hospitals and rural hospitals are the safety net community health providers across the United States and especially is rural, sparsely populated states like West Virginia. While many larger hospitals across the country are merging of forming other combinations, there has been a significant increase in the number of small hospital closures or transformation of their services.

This study looks specifically at hospitals of 100 beds or less in West Virginia to determine if there are looming threats for these hospitals that may not only affect their ability to operate but which might also have significant impact on the availability and accessibility of many of West Virginia's rural residents to timely, quality emergency, acute, primary and preventative health care.

The author identified 24 hospitals operating less than 100 beds and evaluated their financial performance and other factors that might impact their ability to survive during the current error of healthcare reform and care delivery transformation.

Based primarily on hospital financial data and evaluation utilizing the Financial Strength Index (Cleverly, Song, & Cleverly, 2011) the author determined that eleven of the 24 hospitals identified for the study were considered in “extremely poor” or “poor” financial condition and that overall financial performance of West Virginia hospitals of 100 beds or less was significantly below that of national peers.

The study evaluates the potential reasons for these financial challenges and offers a number of possible actions that might improve the financial condition of these hospitals or options for transformation of services to assure that West Virginia’s largely rural, aged and poor population has access to timely, quality medical care and services. More importantly, the study is designed to raise the level of awareness of these problems for policy makers, citizens, community leaders and the patients themselves.

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The decision to seek a doctoral degree has implications for the student, their friends, associates and particularly their family. It is not a pursuit to be taken lightly and one that requires the assistance and support of an innumerable cast far beyond the candidate.

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I am grateful for the support and encouragement of my children, Aaron and his wife Marina, my daughter Lauren, her husband Scott and my wonderful grandchildren Madelyn, Hudson, and McKenzie. With the completion of my studies, I can recommit myself to being a better husband, father, and grandfather.

Moreover, I give thanks to God for the opportunities, blessings, and love that has been shown to me along the way. Without Christ, our Savior, our works on earth are without meaning.

THE FINANCIAL HEALTH OF HOSPITALS: CRITICAL ACCESS AND RURAL HOSPITALS IN WEST VIRGINIA

Chapter I

INTRODUCTION

Critical Access Hospitals and rural hospitals (including Sole Community Hospitals, Medicare Dependent Hospitals and Low Volume Hospitals) are the safety net community health providers for rural West Virginia. They serve as the central hub for health care services for small communities spread throughout the remote hills and valleys of one of the most sparsely populated States in the Union. Without the essential services they provide, and the primary care physicians, physician extenders, and clinics that these medical organizations operate many rural West Virginian’s would not have access to medical care.

Despite their importance, rural and Critical Access Hospitals across America are facing a crisis due to the rapidly changing government, economic and population factors. On the one hand, government and society are exerting pressure on these hospitals to not to maintain and improve the quality of care and population health for citizens and communities. At the same time, Medicare, Medicaid, and commercial insurance companies continue to reduce payments and government continue to add new rules, and regulations to these community health care organizations increasing the cost of care while potentially taking the focus off the patient and placing it directly on “pay for performance.”

It is estimated that seventy-two million American’s live in rural areas and depend on their local hospital as an important, and often their only, source of care. The nation’s nearly 2,000 rural community hospitals frequently serve as the center for their region’s health-related services, providing the structural and financial core support for physician practice groups, health clinics,

post-acute and long-term care services. Also, these hospitals often provide essential, related services such as social work, patient navigation, counseling, and other types of community health related outreach (American Hospital Association, 2011).

West Virginia hospital per unit service costs ranks among the lowest in the United States while overall health spending per capita ranks among the highest in the country in relation to the gross state product. The demographics and health status of the state's high proportion of elderly and medically indigent contributes significantly to the high utilization and spending. As of 2015, it is estimated that 15% of West Virginia residents are 65 years of age or older, the fourth-highest rate in the country. 19% are Medicare recipients, the largest proportion in the nation. The West Virginia Medicaid programs provide health coverage for 29% of the state's population, and 6% of the State's citizens were uninsured. West Virginia ranks 49th in the nation in the number of workers covered by employer-provided health insurance. (Henry J. Kaiser Foundation, 2017)

Because of their propensity to deliver low-cost, high-quality primary care, rural hospitals have much to offer, both in service to their communities and in filling an essential niche within the nation's healthcare system. However, rural and Critical Access Hospitals across America are facing a crisis due to the rapidly changing government, economic, policy and population health factors that are impacting the availability and delivery of acute care services in these rural areas.

Since 2010, 80 rural hospitals have closed (see Table 8), and another 283 hospitals nationwide have been identified as "financially vulnerable." (Kaufman, Rutledge, Pink, & Holmes, 2016) About one-half of the hospitals that closed last year operated an average of approximately 60 beds. "It is not enough to be breaking even or getting a very small return to be a sustainable force in a marketplace," said Margaret Guerin-Calver, president of the Center for

Healthcare Economics and Policy at FTI Consulting. (Evans, 2015) For many critical access and rural hospitals just breaking even would be a major accomplishment.

In July 2016, the Kaiser Family Foundation noted that “the number of rural hospital closures has increased significantly in recent years. The trend is expected to continue, raising questions about the impact the closures will have on rural communities’ access to health care services” (Wishner, Solleveld, Rudowitz, Paradise, & Antonisse, 2016).

West Virginia’s population estimate in 2015 was 1,844,128 (United States Census Bureau, 2015). There are 19 Critical Access Hospitals (CAHs), 50 Rural Health Clinics (RHCs), six Small Community Hospitals (SCHs), four Medicare Dependent Hospitals (MDHs) and seven Low-Volume Hospitals (LVHs). Combined these organizations serve as safety net providers for an estimated state-wide rural population of 819,192 (National Rural Health Association, 2015) representing 44.42% of West Virginia’s total population. This reliance on rural health by such a large number of West Virginia citizens emphasizes the importance of rural health, with hospitals of 100 beds or less being the driver of availability of acute and primary health care services.

While no hospitals have technically closed in West Virginia since 2010, trends are forming in hospital mergers and acquisitions pointing toward changes that could lead to hospital closures. As an example, St. Joseph’s Hospital in Parkersburg was sold to the West Virginia University Medicine (WVUM) system in 2012, and in 2014 the St. Joseph’s Hospital operations were merged with the WVUM-owned Camden Clark Memorial Hospital that is just 1.2 miles away. (The News Center, 2014). All major surgical, emergency and most other major services were moved to Camden Clark Memorial Hospital from the former St. Joseph’s Hospital, which no longer operates as an acute care hospital.

On August 21, 2014, United Hospital Center (UHC) and the WVUM announced they had reached a preliminary agreement with Pallottine Missionary Sisters, for the transfer of sponsorship of St. Joseph's Hospital of Buckhannon to UHC. The sale was closed, and UHC took over operation of St. Joseph's Hospital of Buckhannon on October 1, 2015.It was announced by the parties to the transaction that "the leadership and staff of St. Joseph's Hospital will remain in place and current services at the hospital will continue without interruption" (Connect-Bridgeport Staff, 2014).

Wetzel County Hospital, in New Martinsville, jointly announced with West Virginia University Medicine on October 19, 2016 that it would affiliate with the Morgantown-based health care system. No date for the final transition to the WVUM systems has been set. A press release announcing the partnership quoted Wetzel County Hospital Chief Executive Officer, Brian Felici, "it is our mutual intention to establish cooperative and clinical operations programs and to engage in other efforts toward promoting accessible, high-quality, affordable health care to those residing in Wetzel, Tyler and Monroe counties" ((West Virginia University Medicine, 2016).

A critical access hospital, Sistersville General Hospital, announced in June of 2016 that it would also become part of WVUM System and that these plans include the closure of the hospital and its replacement with a limited service, ambulatory health care facility (Layton, WVU, Sistersville General Hospital Teaming Up, 2016). However, the Sistersville City Council voted on December 21 to put the hospital out for bid noting that if the Council wants to sell the city-owned organization that it must do so for "fair and adequate consideration" under West Virginia State Code. "After deliberation, we felt that this option provided for the hospital, the

employees and our community as a whole," said Mayor Bill Rice. (Layton, City Agrees to Put Sistersville Hospital Out for Bid, 2016)

On February 28, the Sistersville City Council announced that they had approved plans to sell Sistersville General Hospital to Wheeling Hospital for $5.5 million. Gene Rice, president of the city's Building Commission, which has oversight of the facility, said if everything goes as planned, the sale would be finalized in April. The deal is to include a bridge loan of $750,000 to immediately covering ongoing expenses until the sale closes. The proposal stipulates that Wheeling Hospital will continue to operate the hospital and other hospital assets for a minimum of one year after the closing of the transaction (Layton, Sistersville City Council Approves Hospital Sale for $5.5M, 2017).

It was announced on January 18, 2017, that another critical access hospital, Stonewall Jackson Memorial Hospital, was in the process of becoming part of the Mon Health System, headquartered in Morgantown, West Virginia. The Mon Health System includes Mon General Hospital in Morgantown, Preston Memorial Hospital in Kingwood and reports "over 100 providers in 23 locations around the region." (Murray, 2017)

The State of West Virginia recently challenged the United States Federal Trade Commission (FTC) in its efforts to block the merger of Cabell Huntington Hospital (303 staffed beds) and nearby rival, St. Mary's Medical Center (380 staffed beds). The FTC filed a complaint alleging that the deal would create a near monopoly. In March 2015 when former West Virginia Governor Earl Ray Tomblin signed a bill shielding hospital mergers from state and federal antitrust scrutiny, presuming they obtained other required state approvals. The FTC subsequently dropped its challenge of the merger and issued a statement saying, "This case presents another example of health care providers attempting to use state legislation to shield potentially

anticompetitive combinations from antitrust enforcement, and the FTC believes that such laws are likely to harm communities through higher healthcare prices and lower quality." (Schencker, 2016)

In the most recent action, newly elected Governor Jim Justice signed West Virginia House Bill 2459 which was passed for the sole purpose of eliminating the need for the formerly lengthy process of public notice, hearings and review when an organization proposed to purchase a financially troubled hospital in West Virginia, in this case specifically for the purchase of Ohio Valley Medical Center, Wheeling, West Virginia by Alectco Health Care Services. The bill states: "Any person purchasing a financially distressed hospital, or all or substantially all of its assets, that has applied for a certificate of need after Jan. 1, 2017, shall qualify for an exemption from certificate of need." (Comins, 2017) The passage of this legislation may provide a new opportunity for struggling and financially troubled hospitals in West Virginia to expedite their acquisition or merger with larger systems both in West Virginia or even by parties from outside of the state.

Policymakers, researchers, and rural residents have reason to be concerned and interested in why these hospitals are joining with other systems, being sold, or closing. This issue should be of particular interest when the rate of medical need for West Virginia's aging communities is likely to continue to grow and raises questions about what the implications are for local health care providers and the communities they serve. This study raises important issues about why, how, and how many rural hospitals may be in peril. There is an urgent need to examine their status so that interventions can be identified and implemented to keep these vital emergency potentially, acute and community health organizations viable before it becomes too late to intervene.

Objective

The purpose of the study is to measure the "health" of West Virginia's rural and critical access hospitals that are operating less than 100 beds and rank them on variables that associated with risk of being absorbed into a larger system or closing.

Rationale

Small hospitals are vital parts of the medical care infrastructure in West Virginia. They are currently under enormous regulatory and financial pressure and may be in jeopardy. To intervene promptly, we must understand the impact that changes in economic, policy, reimbursement and population factors have on their financial health and because the closing of rural hospitals may be expected to have both health and fiscal implications the communities, and citizens they serve.

We will use publicly available data submitted by hospitals to public databases for critical access and rural hospitals in West Virginia. We will select hospitals of 100 beds or less to identify those that are potentially at risk of closure. Risk will be measured by observed trends in financial and operational information over five years. By examining these trends in financial performance and correlating those findings with generally accepted indicators of hospital financial health, we will be able to rank hospitals on closure risk. The resulting list can then be used to identify specific hospitals which may require assistance or intervention by government agencies or private sector organizations that may intercede to prevent hospitals closures, which may have a devastating impact on the citizens they serve and even the economic viability of communities in which these hospitals operate.

Study Significance

This study contributes valuable new knowledge to hospital and health policy assessment with regards to rural hospital health. The ability of past and current models to evaluate the financial health of critical access and small rural hospitals has been limited because many of the existing risk prediction models and comparative statistics for hospitals, in general, are skewed toward larger, more stable health care organizations rather than this study group in which a high proportion of critical access and small rural hospital would fall into a high-risk category. This study of the highest risk of high-risk hospitals focuses on a more limited population.

Beyond just financial and operational information, the study examines aspects of other significant social, economic, geographic and labor supply factors that play a large role in the ability of these rural hospitals to meet the needs of their patients and communities. In particular, it describes how these factors, that are beyond the control of the hospitals themselves as well as those typically within the control of policymakers, regulators and politicians may be creating significant impediments to traditional or strategic planning methods that these organizations may employ to deal with these challenges. It may be that the forces of supply, demand, cost and analytical business methods are combining to force a new wave of hospital closures across the nation. If this is the case, then the rankings provided by this study may assist us in identifying the communities at greatest risk of losing their hospital. This study may provide advanced warning that of the need for policy changes or the necessity to put non-hospital mechanisms or other alternative health care delivery systems in place to serve population health needs.

Furthermore, there are practical steps that can be implemented to improve performance at the hospital level. As a former chief executive officer of a small rural hospital, the researcher became intimately aware of the struggles of critical access and small rural hospitals to maintain

operation of vitally needed community assets. One common and modifiable problems include the lack of Boards of Trustees that had sufficient knowledge of hospital-specific business practices, finances, and operations. This lack of knowledge limits volunteer board members ability to provide guidance and direction to their chief executive officers or administrators and may lead to a significant lack of oversight or ability of these board members to identify financial trends indicating a deterioration in a hospital's financial condition. By the time these issues are raised to a critical level hospital leadership may have changed leaving the new administration and the current Board of Trustees with extraordinary financial and operational challenges.

An important part of the data used in this study is that the data collection is for a period of which the Affordable Care Act (ACA) implementation had started and was significantly under way. While this study does not specifically look at the direct impact of the PPACA on these hospitals, the timing of the data analysis may illuminate associated relationships between the implementation of the Affordable Care Act and the risks of closure or absorption into larger systems for a group of small and rural hospitals in one state. The observed relationships may be useful for examining issues in other settings.

Chapter II

Literature Review

A literature review was conducted to establish an understanding of issues and conditions considered to have a material impact on the operation of critical access and rural hospitals that may be relevant to this study. We reviewed: 1) the historical background and need for rural hospitals; 2) examined reports on hospital, population and community characteristics in rural West Virginia and discuss the rationale for West Virginia hospital selection; 3) health systems factors, regulations, and other potential causes and trends that may be indicative of or leading to, the need to close or materially alter the operations of small rural hospitals; 4) examined hospital public financial reports and measures of hospital financial health; and 4) examined sources of hospital data for West Virginia. The results of this review are described below.

Background and Need

In 1946, Congress authorized the Hill-Burton program, which provided federal funding for construction of profit and non-profit hospitals in rural communities. The program led to a significant increase in the number of rural hospitals in the country, particularly in the South. Hospitals were typically reimbursed for their full cost of providing government and other third party acute inpatient and outpatient care. In 1983, responding to significant increases in Medicare hospital spending, Congress mandated the use of fixed predetermined reimbursement rates for hospitals through the Prospective Payment System (PPS). Following the adoption of PPS, many rural hospitals closed in the 1980's and 1990's. (Kaufman, et al., 2016)

In response to growing concerns over rural health care access, the Centers for Medicare and Medicaid Services (CMS) implemented the Medicare Rural Hospital Flexibility Program of 1997 (Flex Program), which authorized payment of inpatient and outpatient services on a

“reasonable cost basis” for hospitals designated as Critical Access Hospitals (CAHs). To be classified as a CAH, a hospital must have no more than 25 inpatient beds and must be at least 15 miles by primary road from the nearest hospital; until 2006, states could waive the distance requirement by designating a hospital as a “necessary provider.” (National /Rural Health Resource Center - Technical Assistant and Service Center, 2017) The closure trend slowed for several years following adoption of the Flex Program but picked up again during the Great Recession of 2008-09.

In 2012-13, rural hospitals had an average of 50 beds and a median of 25 beds. They had an average daily census of seven patients and 321 employees, and they were ten years old on average. Compared to urban hospitals, rural hospitals are more likely to be in countries with an elderly and poor population. (Kaufman, et al., 2016)

There are currently nearly 5,000 short-term, acute care hospitals in the United States. Half of these hospitals are in urban areas, and half are in rural areas. About 4 in 10 rural hospitals are located in the South. More than half of the hospitals are CAHs (53.5%); small shares of rural hospitals are designated as Sole Community Hospitals (SCHs) (13%), Medicare Dependent Hospitals (MDHs) (8%), and Rural Referral Centers (RRCs) (11%). All of these designations provide enhanced or supplemental reimbursement under Medicare, using different formulas. Rural hospitals that do not qualify for these Medicare programs are reimbursed as standard Medicare PPS Hospitals. (Wishmer, Solleveld, Rudowitz, Paradise, & Antonisse, 2016)

Despite this myriad of federal funding programs, a significant number of rural hospitals struggle to operate in a fiscally stable manner that assures the ongoing provision of primary, acute and emergency health care services as well as economic stability to their communities. Since the 1980’s, there are regularly published reports forecasting new waves of rural hospital

closures, typically predicted due to the continuous changes in rules, regulations, expectations and reductions in funding. It is not rural hospitals alone that face these challenges, but it is the rural hospitals that have been the most directly affected and which have had the greatest inability to cope with the continuous onslaught of increased regulation and reduced reimbursement. They generally have neither the resources nor the expertise, to withstand the ongoing challenges presented in the current acute health care environment. Because rural hospitals are relatively small players in the politics of health care - as compared to the pharmaceutical industry, medical equipment manufacturers, physician organizations, large multi-state and regional integrated healthcare operators - they are unable to generally unable to rally support among state and federal political decisions makers to effect change that has any meaningful impact on their ability to overcome these ongoing challenges.

Many factors, outside of a rural hospital's control have had and will continue to have, far-reaching implications on the viability, credibility, and sustainability of small community hospitals to provide vitally needed acute care services in economically and geographically challenging areas of West Virginia.

The potential economic impact of hospital closures on respective communities and to the State of West Virginia could be significant. The implications for access to emergency, community, primary care and population health in a State that already ranks last in most measures of preventable medical conditions such as obesity, diabetes, lung cancer, cardiovascular health, and child mortality rates could further set back and recent progress in the State's population health.

West Virginia Hospital Population

The population to be included in this study is comprised of hospitals located within the State of West Virginia operating 100 beds or less as of July 31, 2016. Identification of hospitals for analysis was achieved by utilizing the resources of the West Virginia Health Care Authority, West Virginia Office of Health Facility Licensure and Certification, West Virginia Hospital Association and some hospital websites.

The total number of beds operated by each hospital may include acute care, intensive care unit (ICU), long-term care, nursery and "swing-beds" that are utilized for patients who transfer from acute care to skilled care. This study focuses primarily on the number of licensed and operating acute care beds of each hospital.

Much has been studied about hospital closures, particularly because of the adoption of prospective payment under Diagnosis Related Groups (DRG's) in the 1980's. Before this time, hospitals were paid on a fee-for-service arrangement in which all costs for the care of a patient, regardless of their diagnosis or length-of-stay were paid in full by the government or other third parties. DRG's required hospitals to learn to operate in more economically efficient and productive manner. Marginal services became the focus of chief executive and chief financial offers to determine if they were financially feasible or if they were otherwise essential to the operation of the health care organization.

Critical access hospitals were created by Congress in the 1990's to protect rural populations' access to care following a wave of rural hospital closures promulgated by the implementation of DRG's. Critical access hospitals are to maintain 25 or fewer acute care beds and a maximum average-length-of-stay of four days or less, though some critical access hospitals numbers may be higher because they have other types of beds or their bed limit was

grandfathered in. Critical access hospitals are reimbursed for 99 percent of their Medicare allowable cost for inpatient and outpatient care.

Reimbursement for other rural hospitals, not classified as critical access hospitals in this report, typically have special Medicare payment provisions based either on an adjusted Prospective Payment System (in which Medicare payment is made based on a predetermined and fixed amount) or a hospital-specific rate calculated from historical costs. (Reiter, Noles, & Pink, 2015, p. 1723)

Hospitals specifically excluded from the list include Veterans Administration Hospitals other non-acute care facilities including psychiatric hospitals, rehabilitation hospitals, and long-term acute care hospitals, which do not provide emergency rooms, primary care physician services and which have services typically not available to the general public Results of this sampling are shown in Table 1.

While many studies focus on Medicare or other general publicly available information, the health care facility financial disclosure laws, rules and regulations promulgated by the State of West Virginia provides for open access to hospital annual audited financial reports and other detailed operational information. Public filings of annual financial reports by West Virginia's licensed acute-care hospital with the West Virginia Health Care Authority are due within 120-days of the close of the organization's fiscal year end (West Virginia Health Care Authority, 2017). The ability to access, compile and analyze this information is an opportunity for a more in-depth and more timely study into current hospital financial and operation trends than may be available from other traditional public sources.

The selection of a finite period for each hospital's fiscal year ending from 2010-11 to 2015-16 for the collection of financial and operations data was selected to allow for a more in-

depth study into trends and patterns from the target group of West Virginia critical access and rural hospitals of 100 beds and less.

The public availability of hospital audited financial reports from the YODA (Your Online Document Archive) depository of the West Virginia Health Care Review Authority (West Virginia Health Care Authority, 2016) was both an opportunity and limiting factor for information. YODA provides not only complete audited financial reports it provides access to most public financial and operational disclosure documents required by the State of West Virginia.

In the process of researching and preparing the study, it became apparent that the decades-long general decreases and other changing factors in the population of West Virginia, particularly in rural communities and regions resulted in the need for more extensive examination of census information, most particularly from the United States Census Bureau. (United States Census Bureau, 2016) This site provided data which might show a correlation in the loss, aging, employment and economic demographics that could play a significant role in the ability of a critical access or rural hospital to sustain or grow revenue and services.

Size Criteria

Hospitals were selected for consideration from an accepted breakpoint of 100 operating beds or less. Hospitals identified as specialty hospitals (psychiatric, rehabilitation or sub-acute care) without emergency departments were separated from the study. Veterans Administration hospitals were also excluded.

The selection criteria resulted in the identification of 24 hospitals for purposes of the study (see Table 1). The majority of these hospitals are in small and mostly rural communities

and are often the only source of primary, acute care in a large geographic region with a relatively small population density.

Prior Studies of West Virginia Hospitals

A search was initially conducted in PubMed database looking for articles published since 1980 using the several search terms. The first key terms were "West Virginia" and then "hospitals', which returned 1,956 articles. To narrow the search, the term "finance" was entered resulting in 0 articles; "closure" was then substituted resulting in 14 articles, none of which were relative to this research. "Financial" was then added to the key term of "West Virginia" resulting in 284 articles, which were scanned and only one article was found to either be relevant to the study or with a time frame that would make it useful for this review. That article focused on a 1984 law passed by the West Virginia Legislature which required hospital boards of trustees to be composed of "no less than 40% representation" that includes "representation of small business, organized labor, low-income groups, and advocates for the elderly." (Holthaus, Board Composition Law: Nuisance or Benefit", 1989) That article is referenced elsewhere in this study.

A second search was conducted utilizing ProQuest database with similar search criteria. A self-imposed restriction of ProQuest was that publications were only available for the period 1999 to current. Using the term "West Virginia" in combination with "hospital" resulted in 2,351 Articles. Inserting the term "rural" reduced the count to 658 full-text articles and then adding the term "financial" further reduced the results to 352 articles. Limiting the geographic region for these articles to the United States reduced the search outcome to 63 articles.

Relevant articles were retrieved and reviewed. Bibliographies were also examined to identify additional articles that might be pertinent, with each additional article similarly retrieved and review iteratively until further references of relevance were identified our sources exhausted.

After an individual scan of the titles, abstract or summary of each publication the number of potentially useful articles was reduced to 20 for the initial research. These articles derived from ProQuest and the additional sources generated from the bibliographies of the ProQuest search serve as a basis from which the majority of the work of this paper was accomplished. Additional web based article searches were conducted for relevant issues identified in the compilation of reference utilized throughout this research paper.

Based upon the lack of scholarly articles available about West Virginia hospitals it would appear this study may be the first extensive review specifically evaluating the financial health of critical access and rural hospitals in West Virginia.

Why is the Study of the Health of Small and Rural Hospitals in West Virginia of Interest?

Critical Access Hospitals, Rural Health Clinics, Sole Community Hospitals, Medicare Dependent Hospitals and Low Volume Hospitals are the safety net providers for rural West Virginia. They are the cornerstone of health care services in rural and remote communities and, without them, many rural Americans would not have access to medical care. Additionally, these hospitals are critical to the economy of rural West Virginia (National Rural Health Association, 2016).

According to the West Virginia Hospital Association, more than 70 percent of patients that West Virginia hospitals treat are covered either by Medicare, Medicaid, or some other form of a government-funded program. (Nuzum, 25 West Virginia Hospitals see $265 Million Drop in Uncompensated Care, 2016) It is commonly acknowledged that government payers reimburse hospitals at a level below the cost of treating patients. Benefits from the passage of the Affordable Care Act (ACA) and Medicaid expansion have been offset by additional reductions in Medicare payment to hospitals. One could general conclude that while there are fewer

uninsured patients and more seeking care, the payment to the hospital for this growing number of patients results in providing more services at a significant loss per service. Unless hospitals can reduce their per-unit cost of providing health care services, under the Medicare reimbursement reimbursement, it is likely that they will just generate more services at a lower loss per service, which is simply delaying the inevitable financial distress they are likely to face, if it is not already dealing with in their operational challenges.

Defining a Hospital Under Financial Stress

Many critical access and rural hospitals may be under financial distress without the community, patients, boards or even hospital leaders admitting, disclosing or even realizing the critical nature of their finances. Many small hospitals have survived for years on marginal finances and have managed to delay payments to creditors, arrange short-term loans with local banks, or restructured their debt in a way to delay the inevitable that such distress is likely a closely guarded secret. However, each reduction in payment by Medicare, Medicaid, third-party insurers that is coupled with higher patient deductibles, co-pays, and new government regulations - which have become the modus operandi[1] over the last decade – and could be pushing these hospitals steps closer to insolvency.

This concern for the well-being of small hospitals across the United States has been the subject of more research in recent years. It was concluded in a 2016 research study by the North Carolina Rural Health Research program that piloted the Financial Distress Index (FDI) that "financial indicators are the strongest drivers of financial distress, particularly total margin, benchmark performance and retained earnings, while hospital size and market poverty rates are

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[1] a particular way or method of doing something, especially one that is characteristic or well-established.

the most influential non-financial factors." (Kaufman, Pink, & Holmes, Prediction of Financial Distress amoug Rural Hospitals, 2016)

A 2016 study published annually by iVantage Health Analytics looked at the 70 indicators compiled for 2,078 rural hospitals of 200 beds and less, aggregated across areas of market strength; population risk; value, including quality, patient safety, outcomes and patient satisfaction; and financial stability. Their study concluded that there are 673 vulnerable hospitals clustered in 42 states with 461 critical access hospitals making up 68 percent of the total. In West Virginia, they identified 24 hospitals and estimated that twelve hospitals are "vulnerable." They further estimated that closure of these hospitals would result in a loss of 2,300 direct healthcare jobs and an associated spin-off of 3,100 associated employment and a 10-year loss of $6.4 billion in gross domestic product. (iVantage Health Analytics, 2016) The iVantage study, though using significantly different methodology, comes to conclusions coincidentally similar regarding the potential number of at-risk hospitals in West Virginia as this study.

Hospital size, which is typically small in West Virginia due to the lack of larger metropolitan or urban areas, as well a state-wide poverty rates of 18.0%, that is significantly greater than that national rate of 14.7% and even greater in most rural areas, (United States Census Bureau, 2016) are further reasons why citizens, government, community, and hospital leaders should focus on being more acutely aware of the financial status of their community hospital.

Impact of a hospital closure on the economy

Hospital closure impact on the local economy

The American Hospital Association has estimated that the goods and services purchased by hospitals from other businesses create additional economic value in a community. "With the

ripple effects included, each hospital job supports about two more jobs, and every dollar spent by a hospital supports roughly $2.30 of additional business activity.” (American Hospital Association, 2015)

While many researchers have concluded that the closure of a local hospital will have detrimental effects on a local economy, others have concluded that the impact may be minimal. In a study titled “Comparison of Close Rural Hospitals and Perceived Impact: it was the observation of the author that, “While not all rural closures have an adverse effect, communities face additional travel time to access health services and perceived economic consequences because of a closure.” (Thomas, et al., 2015) However, a search of the literature to support this conclusion did not lead to any other study concurring with the finding of this report.

Hospital closure impact on the broader economy

The health care sector is recognized as a major contributor, providing economic stability and often even growth during normal economic times and even during recessions.

It is estimated that United States hospitals employ 5.6 million people, are the second largest source of private jobs and spend over $782 billion per year on goods and services from other businesses. In West Virginia alone, the American Hospital Association estimated in 2013 there were 46,162 individuals employed in full-time and part-time hospital jobs and the economic multiplier of 1.8046 resulted in a total of 83,304 jobs in the State economy. The total effect on hospital expenditures, including direct and indirect spending, created $9.37 billion of economic activity in West Virginia. (American Hospital Association, 2015) West Virginia’s hospitals are rated by the report as having the 7th greatest impact on a state’s economy in the entire country.

Unique Challenges for West Virginia Hospitals

Some factors contributed to rural hospital closures, including aging, poor, and shrinking populations, high uninsured rates and a payer mix dominated by Medicare and Medicaid, economic challenges in the community, aging facilities, outdated payment and delivery system models, and business decisions by corporate owners/operators. (Wishner, Solleveld, Rudowitz, Paradise, & Antonisse, 2016). As this study demonstrates, most critical access and rural hospitals in West Virginia suffer from some these factors, if not all of them.

In addition to these challenges West Virginia's economic collapse, due in large part to the falling out of favor or the State's top economic drivers – coal, gas, and oil – has contributed to huge increases in heroin and opioid addiction among its large and growing unemployed, welfare and Social Security dependent population. The decline in coal production alone has been credited with causing the loss of 50,000 coal-related jobs that traditionally provided high incomes and comprehensive health care insurance, between 2008 and 2012 alone. (Worland, 2016)

As a result of these and other factors, rural hospitals in West Virginia see a larger number of patients who are uninsured or covered by government programs, leaving them with few patients that have more profitable private insurance that could help balance the hospital's budgets. As an example, 67 percent of Boone Memorial Hospital patients are reportedly covered by Medicare or Medicaid. Another 31 percent of these patients have coverage through other public programs such as the West Virginia Public Employees Insurance Agency with only the remaining 2 percent covered through private insurance. (Nuzum, Rural Hospitals Fear Medicaid Payment Could Spell Collapse, 2016)

"In towns and communities across the state, families with a working vehicle and few hundred dollars have packed up and moved on. The elderly, drug-addicted and the true believers

hold on to a desperate hope that a better future will emerge." (McGinn, 2016) The exodus of the healthy and potentially working class citizens leaving an aging and medically expensive population behind in West Virginia will only magnify the cost and potentially negative implications for the hospitals discussed in this study.

Community health issues

If a critical access or rural hospital is unable to sustain operations and closed, the closing poses significant issues for the health care of citizens within a community or region. In 20915 the North Carolina Rural Health Research Program conducted an interview of stakeholders about the impact of hospital closures. The most dominant factors included the inability of these citizens to receive needed care due to a lack of transportation to access services. Diagnostic tests and scans were the most commonly identified services that required travel. (Thomas, et al., 2015)

Additional findings of the report included:

- Average travel distance to alternative locations was 25 miles or greater from the closed location and often was to a neighboring state.
- Complex and major treatments including dialysis, cancer therapy and care of catastrophic injuries was a concern.
- The community lost its local physician and access to primary medical care.

Population loss challenges

West Virginia is no stranger to population loss, and 2015 was no exception to that trend. According to the United States Census Bureau, West Virginia lost more of its population than all but one state, Illinois. (United States Census Bureau, 2016) While the United States population grew by 0.7 percent in 2015, West Virginia lost almost 10,000 citizens, dropping from 1,841,053 to an estimated 1,831,102 in 2015, a drop of .54%. Since 2010 West Virginia has fallen from an

estimated census of 1,852,994 representing a loss of -1.18%. West Virginia is the only state in the country with a smaller population today than in 1950. That loss of population translates into fewer patients, procedures, and revenue for small community hospitals.

The population loss in a state that relies heavily on the production of fossils fuels, including coal, gas, and oil, is even seen by some as a barometer of the success or failure of the newly elected President Donald Trump. McDowell and Logan Counties - which are in the heart of West Virginia's coal belt - had a combined population of more than 175,000 when John F. Kennedy took office. Today their combined population is under 53,000. "In the next four years, the Trump administration and Congress will face many tests, but none will be more powerful and telling than what they do to help rescue West Virginia" (McGinn, 2016)

Table 6 shows that this population loss is even more pronounced in the counties in which the critical access and rural hospitals studies in this report are located.

Rural hospital board composition, training, and knowledge

West Virginia created a unique law and is the only known state, which requires hospital governing boards to include members representing certain public classifications. According to the 1984 law, 40 percent of the board members of not-for-profit and local government-owned hospitals must be composed of representatives of small business, organized labor, low-income groups, and advocated for the elderly. Another requirement is that special consideration be given to minorities, women and the disabled. Violators can lose their hospital license, be fined, or imprisoned. (Holthaus, Board Composition Law: Nuisance or Benefit, 1989)

It has been noted by small hospitals in rural communities that it can be difficult to find board members who can fulfill these specific requirements. "We have had to bypass good community citizens because they do not meet the requirements of the law," says Tommy

Mullens, CEO of Boone Memorial Hospital in Madison, West Virginia. (Holthaus, Board Composition Law: Nuisance or Benefit", 1989). It may be because of this law that small, independent hospitals may have met legislative intent, but not appointed the most qualified, capable individuals to the board who are essential, especially in this day of extraordinary financial, regulatory and operational issues that these organizations face. "The continued controversy over the board composition law diverts attention away from more important issues facing West Virginia's health care community," said attorney George Guthrie, of Spilman, Thomas, Battle, and Klostermeyer, which represents hospitals. (Holthaus, Board Composition Law: Nuisance or Benefit, 1989)

State and regional economic stress

Critical access and rural hospitals are often one of the two to three top employers in a West Virginia county, often only following school systems or other government agencies in the total number of employees. The jobs in these hospitals are typically considered stable, well-paying and with a comprehensive employee benefits package. If a hospital in a rural area is closed, studies have shown it can mean as much as a twenty percent loss of revenue in the rural economy, four percent per capita drop in income, and a two percent increase in the local unemployment rate. (National Rural Health Association, 2016)

When a community loses a major employer, including its hospital, the economic impact will be wide-ranging and significant. Additionally, this loss can put the community at a further disadvantage in its ability to attract other major employers. Elements traditionally necessary for economic development include; a strong infrastructure (roads and utilities), highly rated primary and secondary schools, supportive government (low taxes and reasonable regulations), quality of

living and a strong healthcare system (primary and acute care). Without these assets, a community is unlikely to be able to attract new businesses of any significance.

Challenges of Unemployment

While the Patient Protection and Affordable Care Act (PPACA) has expanded health insurance coverage to many more Americans through a system of both access and affordability, the nature of unemployment is to limit the amount of discretionary spending that individuals have for expenses beyond the basics of shelter, clothing, and food. While unemployed citizens have greater access to care the challenge of paying large deductibles and co-payments remains a financial dilemma for both patients and providers.

Over the years American have been conditioned to believe that hospitals will either write off uncollectable or hard to collect deductibles and co-pays as bad debt. In some cases, hospitals have chosen simply to accept third party payment as “payment in full” due to the difficulty in collecting these out of pockets funds. As Medicare, Medicaid, Marketplace, and third-party insurance payments are driven down, patients with out-of-pocket deductibles and co-pays increase thus reducing net payment for each medical service. The lack of individual payment is particularly problematic for critical access and rural hospital in service areas where populations have been driven lower as business close, unemployment rises, average patient age increases and these hospitals dependence on Medicare and Medicaid payment grows.

Impact of the Affordable Care Act on West Virginia’s Small Hospitals

The Patient Protection and Affordable Care Act (PPACA), commonly called the Affordable Care Act (ACA) or Obamacare, is a United States federal statute enacted by President Barack Obama on March 23, 2010. Together with the Health Care and Education Reconciliation Act amendment, it represents the most significant regulatory overhaul of the U.S.

healthcare system since the passage of Medicare and Medicaid in 1965. Under the act, hospitals and primary physicians would transform their practices financially, technologically, and clinically to drive better health outcomes, lower costs, and improve their methods of distribution and accessibility. (Congressional Budget Office, 2011)

The Affordable Care Act was intended to increase health insurance quality and affordability, lower the uninsured rate by expanding insurance coverage and reduce the costs of healthcare. It introduced mechanisms including mandates, subsidies, and insurance exchanges. The law requires insurers to accept all applicants, cover a specific list of conditions and charge the same rates regardless of pre-existing conditions or sex. In 2011, the Congressional Budget Office projected that the PPACA would lower future deficits and Medicare spending. (Congressional Budget Office, 2011)

The law and its implementation faced challenges in Congress and federal courts, and from some state governments, conservative advocacy groups, labor unions, and small business organizations. The United States Supreme Court upheld the constitutionality of the PPACA's individual mandate as an exercise of Congress's taxing power, found that states cannot be forced to participate in the PPACA's Medicaid expansion, and found that the law's subsidies to help individuals pay for health insurance are available in all states, not just in those that have set up state exchanges. (Barnes, 2015)

The Affordable Care Act was promoted by the White House as ensuring “that hospitals and other providers in rural and remote communities receive the reimbursement they need to offer quality care to patients and keep their doors open. Ensures that rural health care providers receive appropriate Medicare reimbursements to address longstanding inequities that exist among providers from different geographic regions. Helps the many small and rural communities

where patients must travel long distances between health care providers to receive medical care." (White House Staff, 2017)

In the six years since the passage of the PPACA, there have been significant discussions both for and against, the legislation. It was a major factor and focus of both parties in the recent United States Presidential election. However, there is little doubt that passage of the PPACA has had a significant impact on how health care is regulated, delivered and how payments are made. While it may not be the sole factor in the financial challenges facing critical access and rural hospitals it has had an impact that is certainly now becoming measurable in the performance of the hospitals that are the focus of this study. In the meantime, President Elect Donald Trump and the Republican members of the 114th Congress have promised to "repeal and replace" the PPACA (aka Obamacare) casting further uncertainty upon the future viability of these hospitals.

Benefits of the PPACA to West Virginia Rural and Critical Access Hospitals

Before the passage of the PPACA and adoption of the Medicaid expansion it provided, many West Virginia hospitals were struggling with uncompensated care, the health care services that are provided to patients who are either unable or unwilling to pay reached $696.27 million in 2013. More than 200,000 West Virginians gained health insurance since the passage of the PPACA, including 165,000 new Medicaid recipients and 34,000 newly insured in the individual market. West Virginia's uninsured rate dropped from 17.6 percent in 2013 to 8.3percent in 2015. (West Virginia Health Care Authority, 2015)

Some have concluded that the PPACA infused West Virginia hospitals with millions of additional dollars of funds due to reductions in uncompensated care, "This windfall of savings is a once-in-a-lifetime moment for hospitals to make meaningful changes in the health outcomes for West Virginians," said Perry Bryant, founder and former director of West Virginians for

Affordable Health Care. “If hospitals would direct a fraction of this windfall to fund community efforts, West Virginia could make major strides in reducing obesity, smoking, and drug disease,” he added. (Nuzum, 25 West Virginia Hospitals see $265 Million Drop in Uncompensated Care, 2016)

Adverse Impact of the Patient Protection and Affordable Care Act to West Virginia Rural and Critical Access Hospitals

Others believe that the PPACA has had an adverse impact on West Virginia Hospitals. “The reductions we have felt in the Medicare program to pay for Medicaid expansion and to pay for the exchanges has totally wiped out any increased revenue; in fact, it has put us into a negative,” said Joe Letnauchyn, President and Chief Executive Officer of the West Virginia Hospital Association. “The problem is we’re still providing about $490 million in uncompensated care, and that’s at cost. That’s not an inflated charge; that’s a cost number for (care) that we’re still providing. Everything we get in one pocket is being emptied out of the other pocket by Medicare.” (Maccaro, 2015)

A factor that challenges those small hospitals that are reliant on payments through exchanges, Medicare or Medicaid is the continually decline in payment made by these third parties, which was exacerbated by over $1 billion of reductions in Medicare payment that was reduced from future hospital payments to help fund the implementation of the PPACA. A confounding factor is that as Medicare has reduced payments for most procedures and services, this has also given license to state Medicaid agencies and other third party payer to reduce payment in line with Medicare reductions. The effect is the driving down of the net payment and collection per patient encounter or service.

Potential repeal of the PPACA and implications for Rural West Virginia Hospitals

The election of Donald Trump at President, made the repeal of “Obamacare”, or the Affordable Care Act, a centerpiece of his campaign platform along with the Republican majority in the United State Senate and House of Representatives leaves many healthcare leaders wondering what the implications of such repeal will have on all hospitals and, particularly critical access and rural hospitals such as those in West Virginia.

West Virginia University Assistant Professor of Political Science, Simon F. Haeder fully expects the new President and Congress to “nix” Medicaid expansion and the insurance marketplace. He anticipates that lawmakers will try to phase out the Marketplace and Medicaid expansion over the next two years or so, to give people a way to transition to a difference coverage option or no coverage at all. He expressed his concern that, if the repeal takes place, thousands of West Virginians will lose coverage and rural hospitals will be forced to close their doors. (Holderen, 2016)

Disproportionate Share payment reductions

A major focus of the Patient Protection and Affordable Care Act (PPACA) was to help all hospitals reduce the level of uncompensated care by increasing the number of people with access to health insurance as well as the expansion of the number of individuals who would qualify for state Medicaid health plans. In turn, this reduction in hospital revenue write-offs or revenue reductions would reduce the need for Disproportionate Share (DSH) payments under the Medicaid program. If the PPACA is not repealed or changed, Medicaid DSH payments are scheduled to decline starting in the 2018 fiscal year. (Kaufman, Reiter, Pink, & Holmes, 2016)

Medicare and Medicaid DSH payments to hospitals are projected to be reduced by $34 billion and $22 billion, respectively over the next ten years. Not all rural hospitals that receive

DSH funds experience disproportionately high volumes of Medicaid beneficiaries and uninsured patients. Nonetheless, these funds have been an important source of revenue for some financially vulnerable facilities. (Reiter, Noles, & Pink, 2015, p. 1722)

Because millions of people are likely to remain uninsured, even with full implementation of the PPACA, reductions in DSH payments are likely to create additional financial pressure on hospitals that continue to serve large numbers of uninsured patients, which are typically critical access and rural hospitals, especially in states which did not expand Medicaid eligibility.

Quality of care penalties

The quality of care penalties imposed by the Federal government, particularly under the affordable care act, appear to have a disproportionate financial impact on small hospitals. These penalties may be attributed to a number of factors that could include: lower number of procedures; lower quality of technology availability; use of general surgeons and less reliance on specialists; the general population served by these hospitals that are older, had more co-morbidities and poorer general community health.

Growing Deductibles and Copays

Reimbursement for bad debt (meaning unrecoverable debt) was cut from 100 percent of bad debts to 65 percent in 2012. (Center for Medicare and Medicaid Services, 2012) The federal government's proposed 2016 budget calls for a further reduction in bad debt reimbursement to only 25 percent. This cut, if it occurs, will come at a time when – according to anecdotal evidence – the amount of bad debt is increasing for some hospitals. Some newly insured patients are now accessing health care via high deductible health plans but are unable to meet their deductible, which forces hospitals to bear the cost of patient’s care. (Reiter, Noles, & Pink, 2015, p. 1722)

Hospital executives say that patients with high-deductible health insurance policies, which now represent roughly 20% of all employer-provided health plans, are encouraged to seek care in lower-cost settings to hold down medical bills. That choice is adding up to an already growing move from inpatient care to outpatient settings, often not owned or managed by the local hospital. “Patients are shopping for the lowest cost option,” said Karin Anderson, executive director of strategic management for six-hospital Cone Health in Greensboro, N.C. (Evans, 2015)

Recovery of Medicaid Overpayments

Seven West Virginia critical access and rural hospitals have also faced the potential of recovery of overpayments of Medicaid funds in the amount of almost $8 million paid to them in recent years – a move some hospitals say could result in their financial collapse. The seven critical access hospitals identified for recovery of Medicaid overpayments include Boone Memorial Hospital, Minnie Hamilton Health System, Roane General Hospital, Grafton City Hospital, Jackson General Hospital, Pocahontas Memorial Hospital and Sistersville General Hospital. Each of these seven hospitals operates at least one rural health clinic for which the hospitals have collected money based upon the number of indigent patients they treat. However, new requirements from the Centers for Medicare and Medicaid Services not only disallow these payments but require the hospitals to pay back millions collected on behalf of the clinics dating back to 2011. (Nuzum, Rural Hospitals Fear Medicaid Payment Could Spell Collapse, 2016) The payments are reported to range from a low of approximately $28,000 for Pocahontas Memorial Hospital to $1.8 million for Roane General Hospital.

West Virginia’s Provider Tax

In the 1980’s West Virginia became one of the first states in the nation to implement a “provider tax” on hospitals, nursing homes, and other medical services. Proceeds from the

provider tax were then used by the state to draw down Medicaid funds at a roughly three-to-one federal match, which were then used to supplement payments to the same medical organizations and providers who were taxed. This “shell game,” played at the highest level of government finance and funding, has withstood some court challenges and has since been adopted by other states.

A consequence of this funding scheme has been a 2012 decision by CMS that all West Virginia’s critical access hospitals could not continue to receive Medicaid reimbursement meant to offset the cost of the provider tax they had been paying. Though the issue is yet unresolved, repayment could be retroactive to 2009 and potentially cost each critical access hospital hundreds of thousands of dollars. (Nuzum, Rural Hospitals Fear Medicaid Payment Could Spell Collapse, 2016)

These challenges and other potentially outstanding repayments, such as those determined through Recovery Audit Contractors (RAC) audits conducted by the Centers for Medicare and Medicaid Services (CMS), as well as the West Virginia Department of Health and Human Services leaves many financial issues unknown. (West Virginia Department of Health and Human Resources, 2017) It is unresolved potential financial liabilities like these that create uncertainty for hospital operators as well as any lender who may be considering making loans or extending credit to West Virginia’s small hospitals.

Availability of and access to Capital

Critical access and rural hospitals, especially those that operate independently, may be the most vulnerable to financial distress due to the many factors impacting them. “Small hospitals lack the capital to invest in the primary- and ambulatory facilities to attract patients

needing prevention and wellness services or whose insurers are pushing them to seek care in outpatient settings.” (Evans, 2015)

As banks and other potential lenders continue to see a decrease in the financial strength, reserves, and profitability of critical access and small rural hospitals the availability of funds become limited. Because risk increases in proportion to financial instability fewer lenders are likely to be willing to extend credit to these organizations and, if they do, the interest rates and the security pledges required are likely to become greater.

Physician and Medical Professional Shortages

Despite West Virginia’s poor overall resident health status, the state’s overall supply of physicians ranks near the national average with 240.7 active physicians per 100,000 population, placing it 24th out of 5o states. In the number of active primary care physicians per 100,000 population, Wes Virginia was ranked 17th of 50 states. (American Association of Medical Colleges, 2013). These numbers would appear to indicate an adequate supply of physicians with the number of primary care physicians ranking better than the nation as a whole.

Selected statistics for the West Virginia physician supply are as follows:

Exhibit 1- West Virginia Physician Workplace Profile

	WV	WV Rank	State Median
Active Physicians per 100,000 Population, 2012	240.7	27	244.5
Total Active Patient Care Physicians per 100,000 Population, 2012	211.1	29	217.6
Active Primary Care Physicians Per 100,000 Population, 2012	94.2	21	217.6
Active Patient Care Primary Care Physicians per 100,000 Population, 2012	86.0	17	81.5
Percent Active Female Physicians, 2012	26.0%	43	30.8%
Percent of Active Physicians who are International Medical Graduates, 2012	28.9%	6	18.2%

Percent of Active Physicians Who Are Age 60 or Older, 2012	30.1%	6	26.5%

Source: (American Association of Medical Colleges, 2013)

A potentially troubling area is the percent of physicians who are 60 years of age and older at 30.1%, which places West Virginia at 6th in the nation in the percentage of older physicians. This may be a precursor for the potential of significant changes in the State's physician supply within the next decade. In the past, many older physicians' may have continued practicing well into age 60 and even 70. However, the changing demands of the profession appear to be causing physicians to consider early retirement. Factors identified as potentially driving physicians into early retirement can include forced adaptation to and expensive investment into electronic health records; reduced payments from federal and private insurance; increasing malpractice insurance costs, changing requirements driving income relative to patient outcomes and the overall increased cost to maintain a private medical practice (American Association of Medical Colleges, 2013).

Could Physician Pay be the Issue?

Medical doctors consistently rank among the highest compensated professions in the country. In every state, an average primary care physician earns at least $166,000 more than the average salary across all occupations. However, how much doctors earn varies greatly depending on location and specialty. The average primary care physician's annual salary ranges from roughly $205,000 in West Virginia to $330,000 in Alaska (Stebbins, 2016).

Exhibit 2- Select West Virginia Physician Salary and Health Statistics

Average Physician Salary	$204,750 (50th lowest)
Average Medical Specialist Salary	$373,000

Average Salary for All Occupations	$ 37,880
Primary Care Physicians Per 100,000 Residents	109.2 (18th lowest)
Uninsured Rate	17.1% (18th highest)

(Stebbins, 2016)

While health insurance coverage and health care spending per capita varies widely across states, such factors do not appear to bear a strong direct relationship to doctors' salaries. Rather, basic economic forces largely determine doctor salaries in each state. The correlation between West Virginia physician's salaries, the state's economy and the overall health of the state's citizens form a pattern consistent with a general assumption that quality and outcomes of physician's services may have a direct relationship with their level of compensation (Stebbins, 2016)

The PPACA was intended to "Invest the health care workforce to ensure that people in rural areas have access to doctors, nurses, and high-quality health care. Starting in 2012, the Act was designed to provide funding for the National Health Service Corps ($1.5 billion over five years) for scholarships and loan repayment for primary care practitioners, including doctors and nurses, who work in areas with a shortage of health professionals. The Act also provides more resources to medical schools for training physicians to work in rural and underserved areas and establishes a loan repayment program for pediatric specialists who agree to practice in medically underserved areas such as rural regions. These provisions are designed to help rural Americans who do not have access to primary care." (White House Staff, 2017) However, even with these changes, it is likely that West Virginia will be challenged to meet with primary medical needs of its patients., particularly in rural, remote area lacking reasonably access to hospitals that can provide quality, reliable and modern diagnostic services.

Past Efforts by Government to Assist Rural and Critical Access Hospitals

West Virginia is a unique state in the Eastern United States. It is mountainous, rural, has a relatively low population and lacks major population centers, far different from the characteristics of its immediate neighbors Pennsylvania, Virginia, Ohio, Maryland, Kentucky and other Mid-Atlantic states. Its' plight as impoverished, rural and reputation as being backward in education and economic development is well known.

Politicians within the State and in Washington, D.C. have made many efforts to address the needs of this geographic anomaly. John F. Kennedy, who credited West Virginia with giving him the Democratic nomination, used his first executive order to start a pilot food stamp program, and the first recipient was an out-of-work coal miner from Welch, West Virginia. Lyndon B. Johnson created the Appalachian Regional Commission to jump-start development in the 13 Appalachian states. Moreover, Ronald Reagan made a powerful appeal to coal-miners, saying: "We have an estimated one-half of the known coal reserves in the world. Why aren't we mining more?" (McGinn, 2016)

President Barack Obama's recent budget requests include billions of dollars for a variety of programs to aid communities hurt by the declining coal industry, including initiatives to help out-of-work coal miners to transition to jobs in the green energy sector. Some of the programs have received funding from Congress, like the POWER program that provides $65.8 million in economic development grants to communities and regions that have been negatively impacted by changes in the coal economy – including mining, coal-fired plants, and related transportation, logistics and manufacturing supply chains. (Anderson, 2016) Other proposals for coal communities have gone unfunded, thus furthering the continued decrease in job and population in the communities served by the critical access and rural hospital.

Donald Trump made the restoration of the coal industry as a centerpiece of his campaign for President in West Virginia. He repeatedly promised to save the United States coal industry after years of bankruptcies and dwindling job prospects for coal miners. During his rallies, he stood before crowds waving signs "Trump Digs Coal" and declared that he was the "last shot for miners." (Worland, 2016) Only time will tell if the newly elected President can change what the past 50 or more years of politicians have been unable to do for West Virginia.

Hospital Closure Impact on Community Health

Hospital closures have been demonstrated to have reduced local resident access to care, especially emergency care. While inpatient hospitals in rural West Virginia and other communities may not be sustainable, without new models of health care delivery in place, hospital closures can lead to gaps in access. (Wishner, Solleveld, Rudowitz, Paradise, & Antonisse, 2016)

How Hospitals in America are Changing

New public policy and marketplace incentives are encouraging health systems to promote prevention and keep patients with chronic diseases out of the hospital. The shift to outpatient care, underway for decades, is accelerating. Meanwhile, discretionary surgeries and other procedures are still being postponed since household finances remain stressed, partly because of poor wage growth in the wake of the Great Recession, and partly because more workers are being shifted to high-deductible health insurance plans, which increase household medical bills. (Evans, 2015)

The Impact of Government Policy, Regulation, and Payment on Hospitals

The delivery and provision of accessible and quality rural health is a challenging public policy issue. Rural residents do not have the same level of access to basic primary health services

that are available to other Americans. The role that public policy can play in achieving such objectives has been the cause of growing nationwide discussion and debate. Some factors are converging that give emphasis to policy responses. Demographic changes in rural areas, most notably an aging population, create new demands for health services, while changes in the economics of health care have seen a move toward greater integration of health services through the development of managed care and other approaches that consolidate operations and providers. The National Rural Health Association noted that rural areas are experiencing “the most profound changes in the health care system in modern times, affecting all providers in both the way services are delivered, and the way financing is handled.” (Pollard, 2016)

While West Virginia appears to have a relatively well-distributed health care systems as a result of government policies such as the provision of cost-based Medicare reimbursement for Critical Access Hospitals, Federally Qualified Health Centers and Rural Health Clinics, as well as incentives for physicians and other medical providers (particularly foreign medical graduates seeking opportunities to work while pursuing citizenship or to maintain work visas) by the creation of Healthcare Professional Shortage Areas. Even with these incentives, West Virginia’s rural health care providers appear to be stuck in facilities and services that are from an area that has been long since passed by in urban and metropolitan areas with relatively new medical centers, research facilities and an abundance of medical providers. “No other industry is living in the past like we are (health care in West Virginia), and in an industry that’s so crucial to the viability and the economics of the state – without healthy people, you don’t have a state,” says Kyle Pierson, chief financial officer for the Minnie Hamilton Health Care Center in Grantsville. “It’s putting the whole state in jeopardy. (Nuzum, Rural Hospitals Fear Medicaid Payment Could Spell Collapse, 2016)

Another factor is that admissions to the nation's hospitals have slumped in the wake of the Great Recession and Affordable Care Act. The federal government's two-midnight rule no longer recognizes admissions for patients with very short hospital stays. The rule is fueling the drop in U.S. hospital occupancy rates, which fell to 60% in 2013 from 64% five years earlier and 77% in 1980. (Evans, 2015)

West Virginia has been noted for its heavy regulation of the health care industry. A recent study by the Mercatus Center at George Mason University ranked West Virginia 44th in provider regulation due to the certificate of need laws, which restrict hospital competition and has a restrictive environment on the use of experimental and controversial drugs. Robert Graboyes, Mercatus Senior Research Fellow, noted, "Our data also shows that West Virginia could improve its rankings by lightening the taxation and medical liability burdens on health providers." (Kidd, 2016) The report also listed West Virginia as 31st in state insurer flexibility to determine health insurance pricing, 17th in how physicians are constrained by the threat of malpractice ad 50th in medical professionals' ease at access to licensure. On a positive note, West Virginia ranked 25th in openness to telemedicine that could be extremely beneficial in improving population health, given the state's rural nature.

Analysis of the Reasons for Hospital Closures

Small, independent hospital and academic medical centers may be the most vulnerable to financial stress as hospital occupancy rates decline. "Small hospitals lack the capital to invest in the primary- and ambulatory-care facilities to attract patients seeking prevention and wellness services or whose insurers are pushing them to seek care in outpatient settings." (Evans, 2015)

A study conducted of Rural Hospitals in Mississippi identified seven factors outside of a hospital's control, and four factors are originating at an institutional level that has wide-reaching impacts on rural hospitals. (McDoom, et al., 2015)

Factors identified in the study, outside a hospital's control having a wide-reaching impact on rural Mississippi hospitals:

- Macroeconomic stressors from the 2008 financial crisis
- Population loss in rural areas
- Reduction of Disproportionate Share Hospital (DSH) payments
- Expiration of rural hospital programs
- Loss in hospital reimbursement
- Potential decrease in cost-plus reimbursement
- Quality of care

Factors that originate at an institutional level with wide-ranging impacts on rural Mississippi hospitals:

- Rising cost of providing care
- Small hospital size and lack of capital
- Hospital loss of autonomy
- Costs related to providing tertiary and ancillary care services.

What Additional Factors Affect Hospital Performance?

Population density

Population density is a challenging factor in West Virginia. West Virginia is the second most rural state in the country, with approximately two-thirds of its 1.8 million residents living in communities of 2,500 people or less. With an overall population density of 77.1 resident per

square mile, West Virginia ranks 29th in the United States. (National Center for Analysis of Healthcare Data, 2017) moreover, ranks only behind Vermont and Maine in this statistic in the Eastern United States.

Research has been conducted showing that persons living in more densely populated areas demonstrate a higher quality of life relative to their access to healthcare. Compared to urban residents, rural persons are about twice as likely to live in poverty. Rural elders are more likely than urban elders to have chronic conditions and activity limitation, to live in poorer housing, to have limited personal transportation, and to have poorer access to healthcare services. (Pollard, 2016, p. 1)

These factors are more likely to result in patients needing more comprehensive and expensive services when they do seek out health care due to their limited local options and the challenges they may face having access to non-emergency transportation for physician, diagnostic and other outpatient services.

Other research to identify at-risk hospitals

Research to identify the risk of financial distress, or potential closure, of rural hospitals, has been conducted by numerous agencies of individuals with varying degrees of findings.

From 2005 to 2015, 112 hospital closures were identified (Kaufman, Rutledge, Pink, & Holmes, 2016). Even though six of those 112 hospitals reopened, the author found that the closures “impact millions of residents of rural communities that are typically older and poorer, more dependent on public insurance programs, and in worse health than residents in urban communities.”

The Financial Distress Index (FDI) model assigns hospital to high, mid-high, mid-low or low-risk levels (in two years) using current hospital financial, government reimbursement,

organizational characteristics and market characteristics. The model identified three hospitals in West Virginia with a 0.01% to 10.00% “high risk of financial distress.” The study concluded that “the probability of closure and reduction of services is significantly greater for rural hospitals at high risk of financial distress (Kaufman, Rutledge, Pink, & Holmes, 2016).”

Options for Critical Access and Small Rural Hospitals

Critical access and rural hospitals are clearly at a crossroads in their ability to survive and thrive. It will take visionary community and hospital leaders to formulate strategies to preserve this vital service in rural communities.

One suggestion is that hospital leaders conduct a comprehensive needs assessment and meet with members of the area to determine what is needed for their communities. An example is a work by Charles Lovell, CEO of Barboursville Appalachian Regional Hospital in Knox County Kentucky where they worked with sister hospitals to bring in specialists, added speech-language therapy, occupational and physical therapies and created an outpatient psychiatric day program for older patients. “I’m proud to say I believe we turned the corner. You can’t put a price on being there for a patient having a seizure or a heart attack. It’s important for rural hospitals to remember their scope of practice – to provide good quality primary care.” (Eisinger, 2016)

Meeting the Future Health Care Needs of West Virginia’s Rural Communities

Some rural hospitals may be able to adapt, and new models may be created to address changing demographics and health care delivery systems. Such reconfiguration and adaption to these new models are likely to require state and federal support and assistance, as well as regional planning efforts. (Wishner, Solleveld, Rudowitz, Paradise, & Antonisse, 2016)

Three types of alternative models to hospitals for delivery of health care services in rural communities were discussed in a recent study (Kaufman, et al., 2016, p. 42). Those included the provision of emergency or urgent care services; outpatient services or skilled nursing services in the converted facilities thought the long-term economic and health impact of the conversion of an inpatient acute care facility to an alternative model were not investigated.

Another potential model may be a new initiative being trialed referred to as the Pennsylvania Rural Health Model. This is a new initiative by the Centers for Medicare and Medicaid Services (CMS) through the CMS Innovation Center. This seven-year trial would provide the participating rural hospital with an "all-payer" global budget, funded in part by all participating payers, to cover inpatient and outpatient services. In exchange for the global payment these hospitals will use the funds "to deliberately redesign the care they deliver to improve quality and meet the health care needs of their local communities." Under the plan, Pennsylvania will prospectively set the all-payer global budget based upon each hospital's historical net revenue for inpatient and outpatient hospital-based services from all participating payers. Any Critical Access or rural Pennsylvania hospital may participate in the model. CMS will provide Pennsylvania with a $25 million grant for the implementation of the model. CMS and the Pennsylvania State Health Department will administer the model together (Gooch, 2017).

West Virginia's governmental leaders need to take a look at the regulatory burden on hospitals, health care providers and health care organizations to encourage healthy competition and flexibility to explore these new models of care and to make the state friendlier to licensed medical professionals by removing or reducing laws and regulations that make it difficult to offer new services, buy new equipment and license new doctors and physician extenders. It must also continue to improving the legal climate in a way the further reduces the likelihood of

questionable malpractice claims and the corresponding high cost of professional medical liability insurance.

Chapter III

METHODS

The objective of the study is to measure the financial health of West Virginia's rural and critical access hospitals that are operating less than 100 beds and rank them on variables that are associated with risk of being absorbed into a larger system or closing.

We will use publicly available data submitted by hospitals to public databases for critical access and rural hospitals in West Virginia. We will select hospitals of 100 beds or less to identify those that are potentially at risk of closure. Risk will be measured by observed trends in financial and operational information over five years, with composite scores of financial strength and viability determined by the most recently available fiscal year.

By examining these trends and most recent results in financial performance and correlating those findings with generally accepted indicators of hospital financial health, we will be able to rank hospitals on closure risk. The resulting list can then be used to identify specific hospital which may require assistance or intervention by government agencies or private sector organizations that may intercede to prevent hospitals closures, which may have a devastating impact on the citizens they serve and even the economic viability of communities in which these hospitals operate.

The study's primary method of determining financial strength was the utilization of the Financial Strength Index® or FSI®**,** is which is a proprietary method of determining hospital financial well-being developed by William O. Cleverly. The FSI® aggregates what are considered key factors of hospital financial performance by measuring profitability, liquidity, capital structure, and age facilities into a composite rating that can be used both for comparison purposes as well as rankings. The general objective of each factor would be:

- Profitability, as measured by the total or excess margin, is considered the key determinant of how much money an organization makes.
- Liquidity, as measure by the number of days' cash on hand the organization has, is used to determine how easily the organization can meet short-term financial obligations, such as those that may requirement payment in cash.
- Capital structure, as measured by debt load, determines the amount of debt that the organization has accumulated and must service with routine payments.
- Age of facilities, as measured by the age of plant, is a calculation used to determine if an organization has generally maintained and reinvested into equipment and facilities.

The formula for the FSI® is stated as follows (Cleverly, Song, & Cleverly, 2011, p. 249):

$$\text{Financial Strength Index}^{®} = \frac{\text{Total Margin} - 4\%}{4\%} + \frac{\text{Days Cash on Hand} - 120}{120} + \frac{50\% - \text{Debt Financing}\%)}{50\%} + \frac{9.0 - \text{Average Age of Plant}}{9.0}$$

The FSI® does not have a minimum or maximum, though a theoretical score of 0 might be considered a national median, this will vary based such factors as the ownership structure, facility size, location and payer mix. In general, a hospital with an FSI® score over 3.0 is considered in excellent financial health; an FSI® of 0 to 3.0 would be in good financial health; a hospital with an FSI® between -2.0 and 0 may be considered in fair condition; and any hospital with a composite FSI® of -2.0 or less would be considered in poor financial condition. The lower the score, the more critical it may be for a further investigation into the financial health of the organization or the need to take a corrective action (Cleverly, Song, & Cleverly, 2011, pp. 248-52).

Another potential tool considered for the study was the Critical Access Hospitals Financial Indicator Report (CAHFIR). Since CAH's are rural by definition, among other requirements, and thus have a significant overlap in this study, since 20 of the 24 hospitals in the study's population are CAH's. (Flex Monitoring Team, 2016)

However, since the population selected included all rural hospitals of 100 beds or less, the application of the CAHFIR, which focuses on solely on CAH's, which receive cost-based reimbursement for inpatient and outpatient care appears invalid for this study. Because there are organizational differences between CAH's and other hospitals applying this as the sole methodology to judge financial health of West Virginia's rural and CAH's would have presented potentially adverse and misleading outcomes. However, CAH benchmark financial data from the universally collected and analyzed Optum Almanac of Hospital Financial and Operational Indicators was selected to provide more uniform financial standards applicable to the entire population of study.

Characteristics of the Study Data

This study represents a significant inquiry into the financial performance and related operational statistics of critical access and rural hospitals in West Virginia. The information contained in this study has generally been gathered through governmental sources and databases that provide significant data required by federal and state law or regulations from licensed West Virginia hospitals. Though there are differences in the manner by which hospitals report data, particularly those difference between not-for-profit, governmental and for-profit organizations the general requirement that the data be submitted in a factual manner, typically subject to state or federal government audit and verification, would likely give a level of credibility of the

sampled data that may not be possible through typical survey, sampling or other data collection methods.

In most instances, failure to collect, compile and submit this data in an accurate manner consistent with generally accepted accounting standards or in a format prescribed by the government agency subjects hospital chief executive officers, chief financial officers, auditing firms, hospital boards and others charged with collecting and reporting of accurate with potentially significant criminal financial penalties or imprisonment likely creates a stong incentive for accurate presentation of hospital financial and statistical reports.

West Virginia's requirements for timely financial disclosure are considerable and comprehensive. This provides for a more detailed and timely investigation into the financial and operational statistics for hospitals and other health care providers operating within the State. These laws and regulations stipulate the following submissions and time frames:

West Virginia Hospital Disclosure Requirements

Facilities and related organizations required to file financial disclosure documents with this agency pursuant to the West Virginia Health Care Financial Disclosure Act W. Va. Code § 16-5F-1, et seq. and the Financial Disclosure Rule, 65 C.S.R. § 13 must submit the following documents within 120 days of the end of the facility or organization's fiscal year (unless otherwise stated). If any document does not apply to the facility or related organization, this must be indicated in a cover letter accompanying the financial disclosure submissions. The following is an overview of the requirements for financial reporting and disclosure. For the full text, please consult the above-referenced sources.

All covered facilities and related organizations must submit a:

1. Complete audited financial report prepared and presented by an independent accountant or auditor of the facility. All notes, schedules, and documents as required by the audit guidelines of the American Institute of Certified Public Accountants shall accompany the report.

If the facility does not prepare an audited report, the facility must provide a statement of revenue and expenses, statement of changes in retained earnings (fund balances), a statement of cash flows, a balance sheet and/or other statement as required by generally accepted accounting principles. Multi-state facilities must provide statements reflecting their West Virginia operations.

Under certain circumstances a consolidated format is acceptable for the audited statements; but if a covered facility is included in the consolidation, separate statements specific to the covered facility must be submitted. These may be unaudited. (West Virginia Health Care Authority, 2017)

Study Operational Definitions

For purposes of this research project, the following definitions shall be considered:

Chief Executive Officer: The senior officer responsible to a corporation or board of trustees for the operation of a hospital facility.

Critical Access Hospital: A small, generally geographically remote facility that provides outpatient and inpatient hospital services to people in rural areas. The designation was established by law, for special payments under the Medicare program. To be designated as a critical access hospital, a hospital must be located in a rural area, provide 24-hour emergency services; have an average length-of-stay for its patients of 96 hours or less; be located more than 35 miles (or more than 15 miles in areas with mountainous terrain) from the nearest hospital or

be designated by its State as a "necessary provider". Critical access hospitals may have no more than 25 beds.

Hospital: General acute-care facility providing inpatient services and registered by the federal government as participating in the Medicare program.

Hospital closure: A previously operating hospital that "stopped providing general, short-term acute inpatient services…" Further, in accordance with the definition promulgated by the Office of the Inspector General of the Department of Health and Human Services, a hospital closure is not considered to have occurred if the original facility continued to provide inpatient care after a merger or sale or if it closes and reopens during the same calendar year. However, in a departure from the OIG definition, a closure was considered to have occurred if a merger resulted in the termination of inpatient services at a previously occupied location but not if a hospital moved to a new location (OIG, 1990).

Intractable factor: A factor affecting or influencing the operational and financial viability of an organization that is considered outside the ability of a typical organization to manage or control in the short term, i.e. location, unemployment, federal policy or population characteristics.

Tractable factor: A factor affecting or influencing the operational and financial viability of an organization that is considered within the ability of a typical organization to manage or control in the short-term, i.e. financial management, delivery of services, technology compliment, and medical staff size.

Urban area: "The Census Bureau's urban areas represent densely developed territory and encompass residential, commercial, and other non-residential urban land uses.

The Census Bureau identifies two types of urban areas (United States Census Bureau, n.d.):

- Urbanized Areas (UAs) of 50,000 or more people;
- Urban Clusters (UCs) of at least 2,500 and less than 50,000 people.

Rural area: "All population, housing and territory not include within an urban area" (United States Census Bureau, n.d.).

Data Sources Used for Extraction

Data is extracted from public use files from the West Virginia Health Care Authority, the American Hospital Association, United State Census Bureau, Centers for Medicare and Medicaid Services, United States Department of Health and Human Services – Health Research and Services Agency, West Virginia Hospital Association and West Virginia Department of Health and Human Services and other.

Data Extraction Process

Initially, the project began with a focus primarily on the financial condition of hospitals in West Virginia. As the project progressed, it became apparent West Virginia Hospitals of 100 beds and less did, in fact, have financial struggles. Preliminary research demonstrated that of the sixteen of the 24 hospitals (66.7%) in the study incurred a negative return on equity and fifteen of the 24 (62.5%) had a negative total margin for the most recent reported fiscal year.[2]

Based on this initial finding it was clear that West Virginia hospitals do face financial challenges that may threaten the ability of many of these hospitals to continue to operate or to

[2] One hospital, St. Joseph's Hospital of Buckhannon, had a positive total margin, but recorded a negative return on equity due to balance statement adjustments as a result of the hospital's change in ownership during the most recently reported fiscal year.

maintain facilities, services, and staffing in their present form. This finding led to the need to expand the data samples to determine more of the cause and to explore potential solutions based on not only financial factors but other factors including population trends, poverty levels, unemployment rates, health care professional shortages, average community age, population density and others.

Limitations in the Data and Definitions of Variables

Limitations that affect the ability to draw general conclusions from the study include the following:

Timeliness of data. The West Virginia Health Care Authority became the primary source of financial data for the study due to the relatively timely nature of reports available through YODA (Your On-line Data Access) portal. Hospital in West Virginia are required to provide audited, reviewed or compiled financial data with six months of the end of their fiscal year. This provided a time-lag of the most current data ranging from generally six months to twelve months after the most recently ended hospital fiscal year.

Changes in hospital ownership. Due to the rapidly changing environment in which hospitals must operate in West Virginia and across the nation, there is a trend to hospital acquisitions, consolidations, and mergers. This is also true in West Virginia as no less than twelve of the 24 hospitals in the study were already part of a multi-hospital ownership or systems structure, had formerly announced plans to become part of the system or were actively pursuing such plans, but without formal announcements. These completed or in-process consolidations had a significant impact on the financial reporting of some the facilities in the studies population.

Consistency of reporting. The accounting firm of Arnett, Carbis, and Toothman LLP (Charleston, West Virginia) provided the annual audited, compiled or consolidated financial

reports for no less than sixteen of the 24 hospitals or hospital organizations contained in the sample. This provided for a general consistency in reporting. However, there were variations due to other accounting firm report formats which may impact the comparability of the ratios or financial calculations contained in this study. Often this resulted in the need for a more detailed search and review of the Uniform Financial Reports that were also completed, submitted and available via the West Virginia Healthcare Review Authority YODA portal.

Chapter IV

RESULTS

A hospital in financial distress, or one that ultimately fails, is not just the failure of the organization it also results in the loss of a primary community resource for primary and emergency health care, employment, economic activity and is a vital resource in the attraction of investment in the community such as new industries. The failure of a hospital has far reaching implication. Thus, finding a way to identify and bring to the attention of key decision and policy makers those hospitals that are facing financial distress in a timely manner that may result in the ability to take action to preserve these organizations and what they mean to their local community and economies should be considered a worthy exercise in fiscal evaluation.

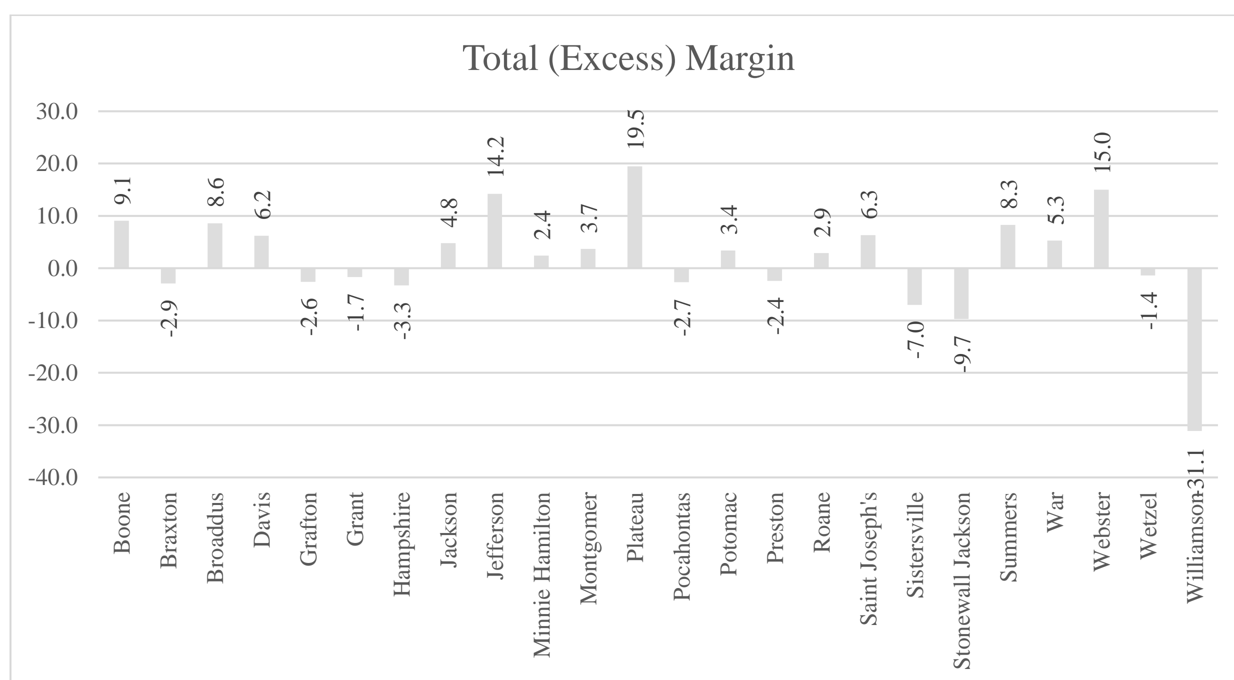
Though other models and approaches toward this project were considered by the author chose to apply a standard measure of hospital financial viability that seemed most obvious. Because the focus is on financial operations, no evaluation, assessment or commentary on quality or value of services is attempted. The author would suggest that those with such interest explore many of the publicly available resources provided both by governments and other public sources.

Profitability

Profitability is the combined result of many financial and operational decisions. In general, profitability measures the ability to generate a positive financial return that is necessary to replace equipment, improve facilities, meet increasing needs for service and to either provide a return to investors or in the case of not-for-profit organizations, accumulate funds for future organization operations or investments.

West Virginia hospitals operating 100 beds or less ranged in profitability from a low of -31.1% to a high of 19.5% with 10 of the 24 hospitals reporting negative excess margins for their most recently reported fiscal year. The average West Virginia hospital in this group has a 1.8% total (excess) margin as compared to the national averages for hospitals of 100 beds or less of 2.9% and Critical Access Hospitals nationally at 3.5%.

Figure 1 - Total (Excess Margin) of West Virginia Rural and Critical Access Hospitals – Most Recently Reported Fiscal Year.



Liquidity

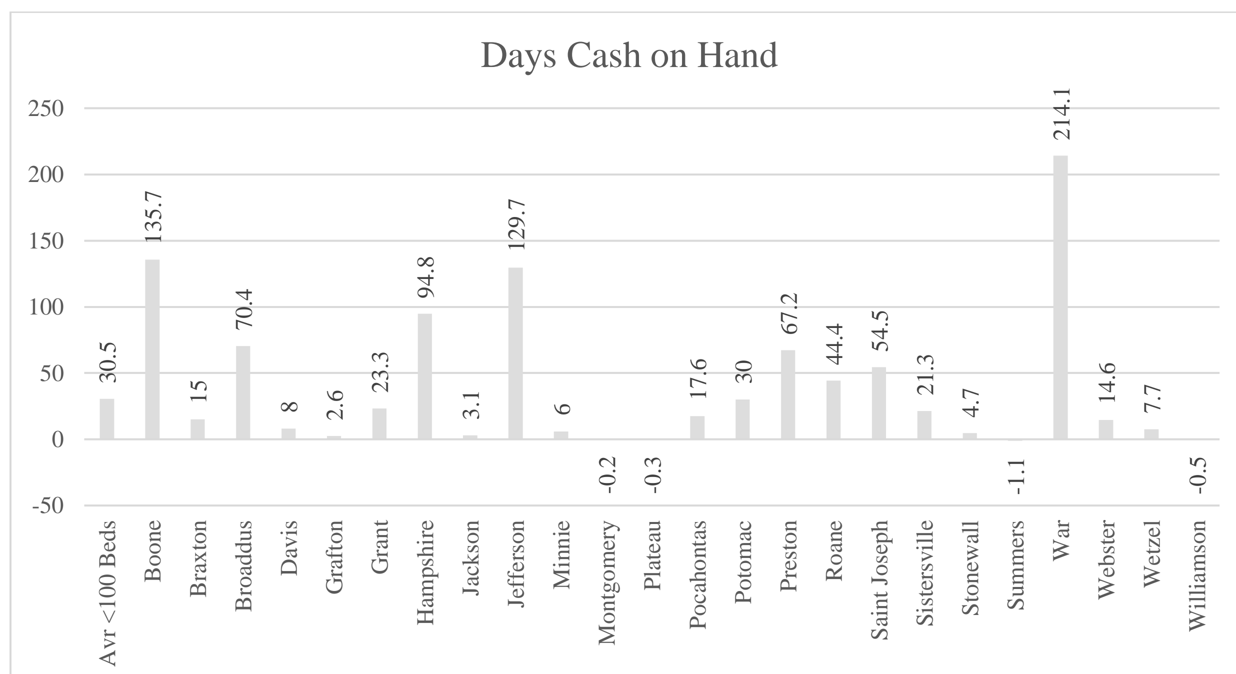
The basic question of "can and organization pay its vendors for daily operational needs and services organization debt" can be answered by measures of liquidity. Liquidity is generally the measure of cash and marketable securities readily available to meet these needs.

In terms or liquidity, or ability to meet current and short-term financial needs, the range of available cash-on-hand for West Virginia Hospitals of less than 100 beds ranged from negative days' cash-on-hand of -1.1 to a high of 214.1. The West Virginia average was 40.1 days

with a mean of just 16.3 days. War Memorial Hospital at 214.1 days' cash on hand appeared to be an outlier with the next hospital ranked behind it at 135.7 days' cash-on-hand, this the significant difference between the mean and median in the rankings.

West Virginia hospitals fell short of the national average for hospitals of 100 beds or less which has an average of 30.5 days' cash-on-hand and the national average of Critical Access Hospitals of 43.0 days' cash-on-hand. Due to the outlier of 214.1 days, it would appear difficult to come to a general conclusion regarding the liquidity of these West Virginia Hospitals. However, when considering the mean of 16.3 days compared to both the national averages for hospitals of 100 beds or less of 30.5 days and national Critical Access Hospital average of 43.0 days, thus further indicating the financial challenges faced by these selected hospitals.

Figure 2 - Days Cash on Hand of West Virginia Rural and Critical Access Hospitals – Most Recently Reported Fiscal Year



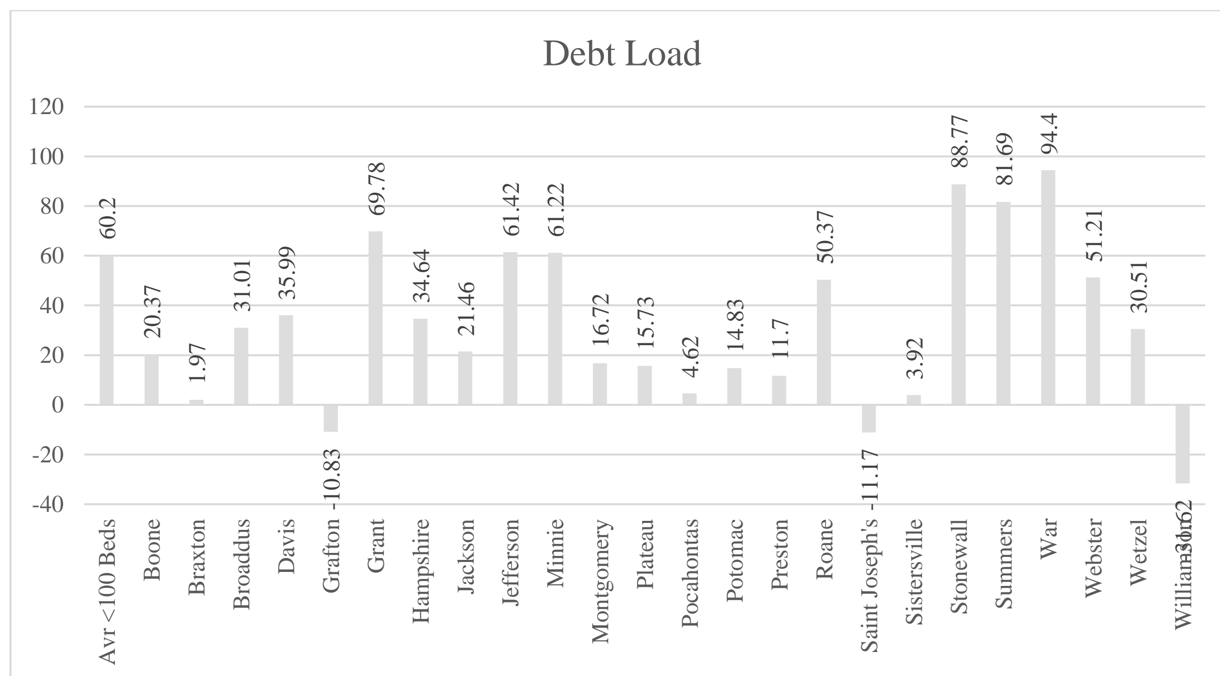
Capital Structure

Organizations can use debt in a variety of ways. It allows not-for-profit organizations to provide more or enhanced services than if it were only reliant on contributed capital and retained earnings. Debt also provides a degree of financial safety and security to provide funding for short-term operational needs and longer-term capital investments in equipment and facilities. In some cases, invested funds of an organization can earn a great return than the cost of debt, particularly for financially strong organizations.

The calculation of debt load is expected to gauge an organization's reliance on debt to fund operations. In the case of the FSI®, an organization with a 50% debt financing ratio (Cleverly, Song, & Cleverly, 2011, p. 119) subtracting net assets from total assets, then dividing by total assets. Debt is not always negative and prudent use of debt to improve equipment and facilities is a practical way for a hospital to leverage its assets to meet the needs of the community it serves.

In the case of West Virginia hospitals, the debt loan numbers range from a -31.62% to a positive 94.4%. These extremes make it difficult to come to a standard conclusion on debt alone as a practical measurement of the financial viability of the selected hospitals. A full 16 of the 24 hospitals in the study had a debt loan ratio of less than 50%, which might suggest either extremely conservative boards or leadership not willing to utilize debt in the conventional financing of hospital operations or a potential inability of these hospitals to access credit at favorable terms.

Figure 3 - Debt loan Ratio of West Virginia Rural and Critical Access Hospitals



Facilities and Equipment Age

In general, patients want to be treated in a facility that appears modern and well maintained. In an age during which health care providers have taken on a "technology arms race" the age, quality and reliability of equipment, particularly diagnostic equipment such as radiology, lab, surgical and patient room equipment can affect the quality and outcomes of care. Patients recognize this and many hospitals actively marker their "state of the art" equipment and facilities.

This fourth measure commonly referred to as "age of plant" is an indirect measure of the hospital's physical facilities and is calculated by dividing accumulated depreciation by gross property and equipment value.

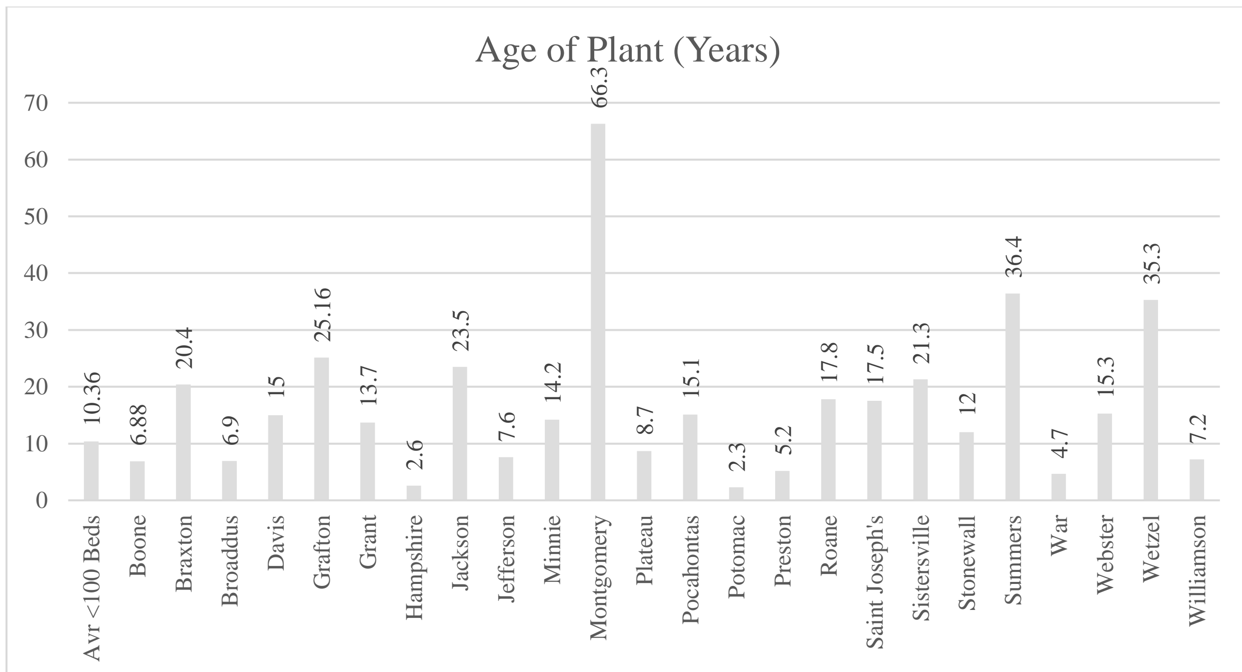
In an evaluation of West Virginia's rural hospital of 100 beds or less, we found a broad range of measurements. New Critical Access Hospitals, like those at Potomac Valley (2.3 years),

Hampshire Memorial (2.6 years), War Memorial (4.7 years), and Preston Memorial (5.2 years) were on the extreme lower range of the scale indicating new facilities and new equipment.

On the more extreme range, hospitals including Montgomery General (66.3 years), Grafton City (25.16 years), Summers County Appalachian Regional (36.4) and Wetzel County Hospital (35.3) indicated a significant lack of reinvestment into plant and equipment.

The overall range was from a low of 2.3 years (Potomac Valley) to 66.3 years (Montgomery General) with a West Virginia average of 16.71 years for the age of plant and 14.6 years mean age of plant. These numbers compared unfavorable to the national average for hospitals of 100 beds or less of 10.36 years and the average for all Critical Access Hospitals of 9.41 years. A further indication of the frail condition of many of these remote hospitals and their ability to serve their communities with reliable, accurate, state-of-the-art equipment in relative modern and well-maintained facilities.

Figure 4 - Age of Plant in Years of West Virginia Rural and Critical Access Hospitals



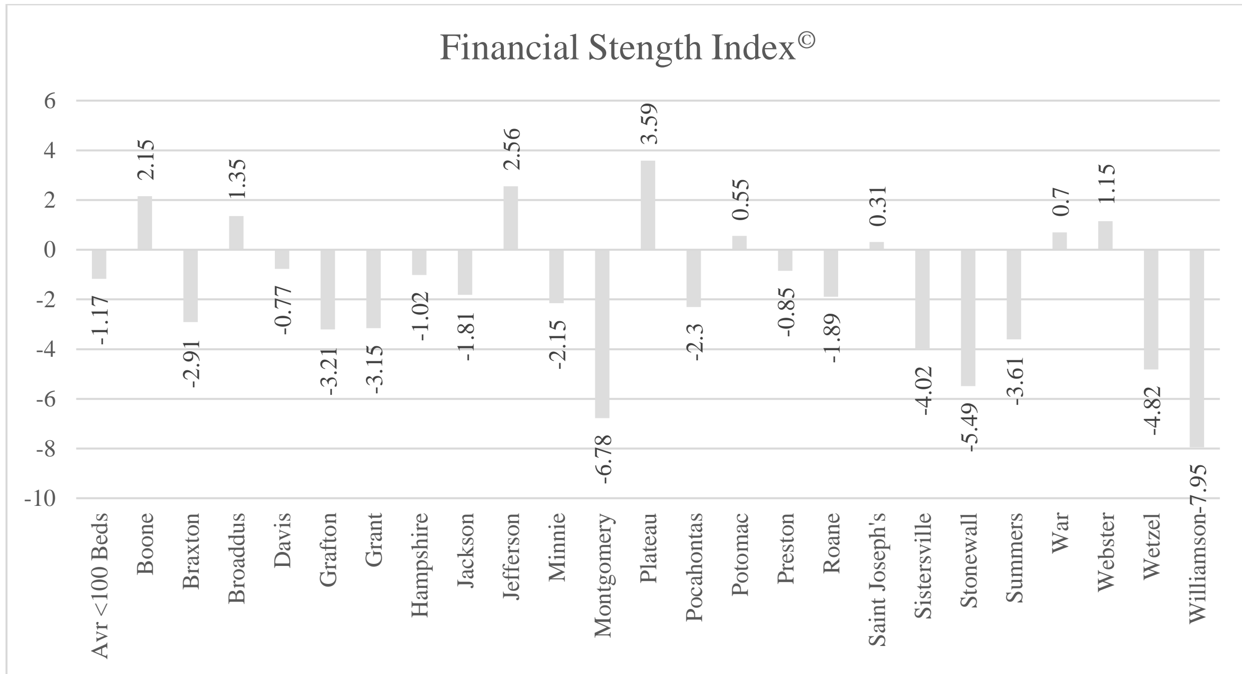
Aggregation through the Financial Strength Index©

Utilizing the Financial Strength Index© a reasonable assumption can be made that if a hospital is unprofitable, illiquid, relies heavily on debt financing and lacks modern equipment in old and poorly maintained facilities, they are facing potentially unconquerable challenges. Current Medicare, Medicaid, and other third-party payments for services are at, or below costs placing the ability of these hospitals to maintain or resume profitability at a level sufficient to build cash, quality for flexible debt financing and the capacity to invest in equipment and facilities in serious doubt.

The measures of total (excess) margin, days cash-on-hand, debt loan and age of plant were weighted and aggregated in Microsoft Excel utilizing the Financial Strength Index© formula upon which the hospitals could be evaluated and ranked.

The outcomes of the aggregate calculations generated a range of FSI® was from a low of -7.95 for Williamson Memorial Hospital to a high of 3.59 for Plateau Medical Center. West Virginia Hospitals have a composite average of -1.68 and mean of -1.85 as compared to the national average for hospitals of 100 beds or less of -1.17 and the National Critical Access Hospital average of -0.95. These scores further emphasize the relatively poor financial condition of West Virginia small and rural hospitals which will impact their potential bonds ratings, access to debt financing, may increase the interest rates and other requirements for borrowing.

Figure 5 - Financial Strength Index(r) of West Virginia Rural and Critical Access Hospitals



Chapter V

DISCUSSION AND CONCLUSIONS

Summary of Findings

The construction of the FSI® is designed to calculate a relative, weighted value of the financial strength, or weakness, of a hospital. Utilizing four critical measures of hospital financial strength (profitability, liquidity, capital structure and age of facilities) to come up with a final number to allow one to make a reasonable assumptions that a hospital that is unprofitable, illiquid, operates on debt financing, and has aged facilities and equipment facing severe challenges to open its doors each day and is unlikely to be able to generate sufficient future revenue to reasonably pay employees, let along invest in needed capital improvements.

The significance of this problem is best illustrated in that nearly one-half, or eleven of the 24 hospitals from the population studied had mean FSI® scores that were below a -2 (see Table 4 for FSI® scores of the entire population of 24 hospitals), which are considered in poor financial condition (Cleverly, Song, & Cleverly, 2011). They include:

Hospital	Financial Strength Index
Hospitals in extremely poor financial condition (FSI® of -4.0 or greater).	
Williamson Memorial Hospital	-7.95
Montgomery General Hospital	-6.78
Stonewall Jackson Memorial Hospital	-5.49
Wetzel County Hospital	-4.82
Sistersville General Hospital	-4.02
Summers County Appalachian Regional Hospital	-3.61

Hospital	Financial Strength Index
Hospitals in poor financial condition (FSI® of -2.0 to 3.99).	
Grafton City Hospital	-3.21
Grant Memorial Hospital	-3.15
Braxton County Memorial Hospital	-2.91
Pocahontas Memorial Hospital	-2.30
Minnie Hamilton Health Care Center	-2.15

Five of the remaining 24 hospitals had FSI® scores between -2.0 and 0 and only eight of the 24 organizations had an FSI® greater than zero.

Extended Period Financial Strength Ratings

An evaluation was conducted over a 5-year period to determine if hospitals in the populations had an isolated year of financial distress or if these current calculations are reflective of longer term financial stress.

The FSI® scores for all 24 hospitals were calculated over a 5-year period and a simple average and weighted average of those scores were calculated. The weighted average was calculated by assigned a 40% weight to the most recent fiscal year, 30% weight to the second most recent year; 15% weight to the third most recent year, 10% weight to the fourth most recent year and 5% weight to the 5th most recent year. The five-year average and five-year weighted average results for all 24 hospitals are presented in Table 5.

In evaluating those results to the most current fiscal years the finding resulted in just two hospitals falling into the “extremely poor” category and two that could be classified as being in “poor” financial condition.

Hospital	Five Year Average	Five Year Weighted Average
Hospitals in extremely poor financial condition (FSI® of -4.0 or greater) over the most recently reported five-year period.		
Montgomery General Hospital	-6.03	-6.58
Williamson Memorial Hospital	-4.57	-5.75
Hospitals in poor financial condition (FSI® of -2.0 to 3.99) over the most recently reported five-year period		
Grafton City Hospital	-3.73	-3.65
Wetzel County Hospital	-3.48	-3.79
Hospitals in fair financial condition (FSI® of -0.0 to 2.99) over the most recently reported five-year period		
Braxton County Memorial Hospital	-2.96	-2.69
Pocahontas Memorial Hospital	-2.73	-2.30
Summers County Appalachian Regional Hospital	-2.62	-2.91
Minnie Hamilton Health Care Center	-2.67	-2.99
Hampshire Memorial Hospital	-2.57	-1.62
Grant Memorial Hospital	-2.52	-2.91
Saint Joseph’s Hospital of Buckhannon	-2.23	-1.06
Sistersville General	-1.80	-2.04
Stonewall Jackson Hospital	-1.70	-2.64
Roane General Hospital	-1.68	-1.78

Hospital	Five Year Average	Five Year Weighted Average
Davis Memorial Hospital	-1.67	-1.47
Jackson General Hospital	-1.22	-0.95
War Memorial Hospital	-1.66	-0.10
Preston Memorial Hospital	-0.70	-0.14
Broaddus Hospital	-0.36	0.10
Potomac Valley Hospital	-0.10	-0.21

Discussion of Findings

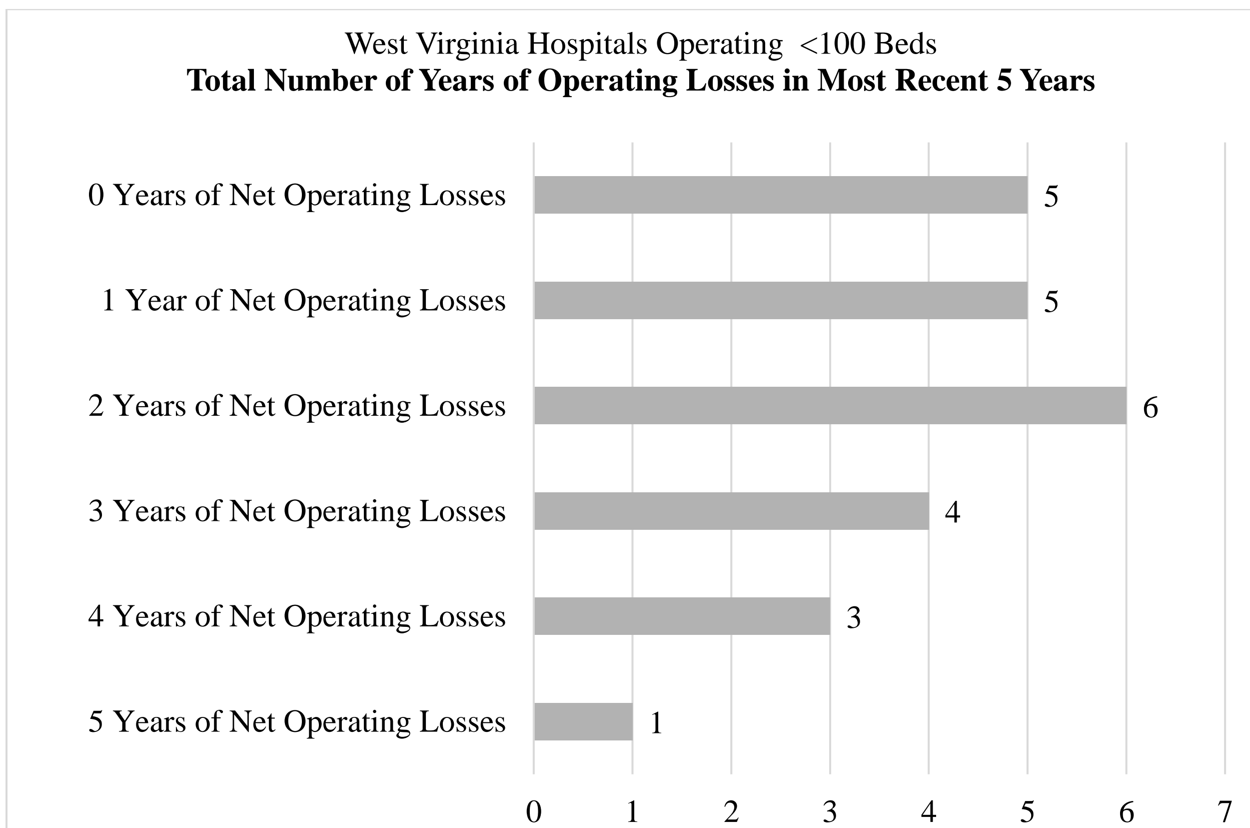
Any ranking of financial performance is purely a snapshot of an organization at a particular time. While there are countless ways to measure and gauge the financial performance of any organization, particularly hospitals, many will debate the choice and results of the FSI® as a method to evaluate or rank a population.

However, in a review of the longer-term performance of this population those hospitals that ranked the lowest on the FSI® were also generally those that have demonstrated a recent history of operational losses, as follows:

- Five years of losses – Hampshire Hospital
- Four out of the five most recent years with operating losses – Braxton County Memorial Hospital, Grafton City Hospital, and Wetzel County Hospital
- Three out of the five most recent years with operating losses – Grant Memorial Hospital, Montgomery General Hospital, Pocahontas Memorial Hospital and Williamson Memorial Hospital.

Thus, fully six of twelve lowest ranking hospitals have had losses in at least three of the last five years, and another three hospitals (Summers County Appalachian Regional Hospital, Sistersville General Hospital, and Minnie Hamilton Health Care Center) had operational deficits in at least two of the five most recent years.

Figure 7 - Years of Operating Losses of West Virginia Rural and Critical Access Hospitals



While the FSI® is one way to measure financial strength, weakness or stability of a hospital, there are many other measures. Also, the FSI® the author analyzed a number of other measures that can be used in conjunction with the FSI® to investigate the performance and stability of these organizations further. Shown in Table 3 is a list of critical factors that can also

be used both separately and in conjunction with the FSI® to gauge hospital financial performance.

For example, Williamson Memorial Hospital had the lowest FSI® at -7.95. The challenges that Williamson Memorial Hospital faces could also be related to the greatest 15-year population loss of any of the studied services areas at -5.52% and a 35-year population loss of -32.26% (see Table 6). Williamson Hospital is owned and operated by Community Health Systems, Brentwood, Tennessee, which has recently been spinning off many of its small, rural hospitals to a separately owned company. Even though Williamson was not one of the hospitals listed on the initial list of those being divested, with continuing poor financial performance, it's value to Community Health Systems may be of question (Community Health Systems, 2015).

Coincidentally, most of the other hospitals ranking low on the FSI® were also located in areas suffering from rapid population loss (see Table 6) including Montgomery General Hospital, which ranked second lowest on the FSI® index at -6.78, which has a 15-year population loss of -2.17% and 35-year population loss of -22.24%; Stonewall Jackson Memorial Hospital at an FSI® -5.49 had a 15-year population gain of just 0.31%, but a 35-year population loss of -12.57%; while Wetzel County Hospital at a -4.82 FSI® had a 15-year population loss of -4.45% and a 35-year loss of -27.69%.

As with this example and the other 12 struggling hospitals, the author would conclude it difficult for anyone to argue that West Virginia rural and CAH's are not under duress and, unless a hospital with weak financial results that can be measured by a low FSI® or any other means either makes significant internal financial and operational changes, or finds a larger hospital or system with which to partner, their ability to continue to operate in their existing fashion would

raise significant questions by regulators, financial institutions and more importantly the communities and patients they serve.

Implication of Findings

The author identified the increasing financial pressure and resulting financial instability that has developed in West Virginia's rural and Critical Access Hospitals. This increasing negative pressure on operating margins and likely to result in continued partnerships of desirable or margin rural and Critical Access Hospitals in West Virginia with at least two systems, West Virginia University Medicine or Mon Health System. Though the Charleston Area Medical System is the second largest system in the State of West Virginia, they have shown little desire and have not acted to acquire or provide economic partnerships with these small hospitals.

In the absence of significant change in public policy or reimbursement practices the most fragile and difficult to serve communities and populations, that stimulated the creation of the Critical Access Hospital systems and various other methods for enhanced reimbursement their rural counterparts, a citizen in those communities may lose their hospitals and their access.

Recommendations for Further Research

Some potentially valuable studies could be carried out that might add significantly to the knowledge base of what is needed for critical access and rural hospitals to rethink their mission, services, operations, and finances, including:

1. A comprehensive study of the knowledge of, and resources available to, local Board of Trustees to help them provide better oversight and guidance of their respective health care organizations.

While most studies focused on hospital financial distress and closure in general, there is some evidence that certain populations may be a greater risk, that may be worthy of additional

study. It was noted that “markets with the highest percentage of White residents were most likely to retain emergency or urgent care services. While poverty and per capita income were similar among abandoned and converted groups, the high proportion of Blacks in the markets of abandoned hospitals is an indication that racial resident segregation could be a characteristic unique to abandoned rural hospitals.” (Thomas, et al., 2015) This general conclusion might be the rationale for further study to determine if racial, ethnic or other disparities are a risk factor for rural hospital closure.

Recommendations

There are a number of ways in which government and other agencies may act, which may help preclude the potential closure of financially fragile hospitals in West Virginia. These might include:

1. **County Tax Referendums** – If the present hospital is governmental owned and operated, the home county may consider the implementation of a tax referendum to provide funds for general operations or specific purposes for a governmental hospital, such as for the replacement of the entire facility, building additions or select equipment replacement.
2. **Government-backed Loans** – The State of West Virginia may consider the implementation of a finance system which provides for the backing of development bonds that may be used for hospital replacement, building additions or select equipment replacement that would provide access to low or responsibly priced debt for vulnerable hospitals which may not qualify for reasonable, but essential debt.
3. **Medicaid Payment Enhancements** – Due to the large proportion of citizens in the State of West Virginia who are eligible for the Medicaid health care program, the

State may consider increasing Medicaid payments to select groups of hospitals to increase their flow of revenue. Because West Virginia receives the second highest Federal Medicaid Assistance Percentage (FMAP) in the nation, at 71.8% for the Federal fiscal year 2017 (MACPAC Medicaid and CHIP Payment and Access Commission, 2017), such an investment would only cost the State of West Virginia $.28 for each dollar that would be generated for these facilities.

4. **Public Employee Assistance Payment Increases** – The State of West Virginia provides health insurance to over 450,000 of its slightly more than 1.8 million citizens who are state, county, city or school workers and their families through the publicly funded West Virginia Public Employees Insurance Agency (P.E.I.A.) (Kabler, 2016). The P.E.I.A. is recognized by most medical providers in the State as being a poor payer for health care. Any ability of the state of West Virginia to increase payment for health care services to public employees and their families would directly benefit West Virginia Hospitals.

Alternative Care Delivery Models

Many of West Virginia's currently operating rural and critical access hospitals were constructed in the 1970's and 1980's when inpatient stays were more common, and lengths of stay were much longer. Because of these changes, a reasonable person might conclude that these facilities are not designed to meet today's growing outpatient demand. Further, the cost to heat, cool, clean and maintain these underutilized facilities created an opportunity for their replacement with more modern, efficient, and practical models. These might include:

1. **Micro-hospitals** – While no micro-hospital is identical to another, most micro-hospitals are acute care hospitals that meet all federal and state licensing and

regulatory requirements. They focus on treating low-acuity patients and providing ambulatory and emergency services, leaving more complex surgeries and service lines for their larger counterparts. They also have fewer beds, usually around eight to 12, and don't take up much space — they typically are only 15,000 to 50,000 square feet. (Punke, 2016)

2. **Hospitals without Beds** - These facilities offer a mix of telemedicine, imaging, short-term observation care and surgery. Technology allows patients to avoid being kept overnight for monitoring. Many routine checks can be done through remote digital technology. (Royce, 2015)

3. **Free-Standing Emergency Departments** – A freestanding emergency department (FSED) is a facility that is structurally separate and distinct from a hospital and provides emergency care. There are two distinct types of FSEDs: a hospital outpatient department (HOPD), also referred to as an off-site hospital-based or satellite emergency department (ED), and independent freestanding emergency centers (IFECs). The number of FSEDs is increasing rapidly with an ever-changing regulatory and health care environment. (American College of Emergency Physicians, 2014)

4. **Urgent Care Clinics** – definition of urgent care varies, but most centers have a few things in common. These include provision of unscheduled care, after-hours access, expanded services compared to primary care, and a lower cost than emergency care. Urgent care provides acute episodic care to patients who are unscheduled. Some provide scheduled appointments and primary care, but these are not always present and represent a variation from typical urgent care

practice. Expanded access is a key to the definition of urgent care. Most urgent care centers are open at least twelve hours a day on weekdays. (McNeely, 2012)

5. **Federally Qualified Health Centers (FQHC's)** – FQHCs are outpatient clinics that qualify for specific reimbursement systems under Medicare and Medicaid. FQHCs include federally-supported health centers (both grantees and Look-Alikes) as well as certain outpatient Indian providers. Note that different rules apply to outpatient Indian providers who enroll in Medicare or Medicaid as FQHCs. (Rural Health Information Hub, 2017)
6. **Rural Health Clinics (RHC's)** - The Rural Health Clinic (RHC) program is intended to increase access to primary care services for Medicaid and Medicare patients in rural communities. RHCs can be public, nonprofit, or for-profit healthcare facilities, however, they must be located in rural, underserved areas. They are required to use a team approach of physicians working with non-physician practitioners such as nurse practitioners (NP), physician assistants (PA), and certified nurse midwives (CNM) to provide services. The clinic must be staffed at least 50% of the time with a NP, PA, or CNM. RHCs are required to provide outpatient primary care services and basic laboratory services. (Rural Health Information Hub, 2017)

Clinics, such as urgent care, Rural Health Clinics (RHC's) and Federally Qualified Health Centers (FQHC's) can meet many of the routine medical needs and community health needs of these citizens, but any model with limited operating hours and the absence of non-

emergency services are like to leave citizens without reasonable access to immediate medical attention, which is critical to the medical needs of West Virginia's aging and poor population.

An essential element of any of these alternative models must be their acceptance of any and all patients, regardless of source of payment.

Conclusion

Rural and Critical Access Hospitals are vital community resources for economic and health-related reasons. The large variety of Federal and State policy changes have been well intentioned, but have directly and indirectly made it more difficult for these hospitals to survive, let alone thrive. If a small hospital closes, the implications can be significant, as these facilities are often the largest local employers and result in significant purchases from local businesses. As safety net providers for vulnerable populations, the loss of a local hospital can have devastating implications for community health.

It will take more than funds from the Federal government to save healthcare in West Virginia. It may very well take a revolution in the way that emergency, acute, primary care and population health is designed and delivered in the State. There needs to be a strong look at how critical access hospitals are structured, governed and operated. The lack of resources and objective, independent operational assistance to local hospital boards of trustees is a significant factor in the ability of these organizations to operate efficiently, think and plan strategically. Few of these hospitals have changed significantly in the services they offer and the way they have been offered over the past 25-50 years. A move away from dependence on acute inpatient services and toward a larger focus on emergency, primary care, and population health must be designed, funded and implemented.

It appears the greatest opportunities may lie not in the operation of the hospital's themselves but in the ability of the state to bring back hope in the form of jobs, education, opportunity, and optimism. If the out-migration of young people from the State can somehow be reduced and new jobs become available with a minimum of middle-class wages and quality health insurance benefits than much of the burden of the high cost of delivering care to a population characterized as old, sick, unemployed, drug-dependent and economically stressed can be lessened and a real focus on improving the State's population health can be made.

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Tables

Table 1

Critical Access and Rural Acute Care Hospitals by Number of Beds in West Virginia.

As of December 31, 2016

Hospital Name	City	County	Hospital Type	Total Beds	Type	Owner
Grafton City Hospital	Grafton	Taylor	Critical Access	25	NFP Other	City of Grafton, Grafton, WV
Davis Memorial Hospital	Elkins	Randolph	Acute Care	90	NFP	Davis Health System, Elkins, WV
Williamson Memorial Hospital	Williamson	Mingo	Acute Care	76	FP	Community Health Systems, Inc. Brentwood, TN
Broaddus Hospital Association, Inc.	Philippi	Barbour	Critical Access	12	NFP	Davis Health System, Elkins, WV
Stonewall Jackson Memorial Hospital	Weston	Lewis	Acute Care	72	NFP	Stonewall Jackson Hospital, Inc., Weston, WV
Montgomery General Hospital	Montgomery	Fayette	Critical Access	25	NFP	Minnie Hamilton Hospital Association, Montgomery, WV
Grant Memorial Hospital	Petersburg	Grant	Critical Access	25	GOV	Grant County Commission, Petersburg, WV

Hospital Name	City	County	Hospital Type	Total Beds	Type	Owner
Roane General Hospital	Spencer	Roane	Critical Access	25	NFP	Roane General Hospital, Inc., Spencer, WV
Wetzel County Hospital	New Martinsville	Wetzel	Acute Care	48	GOV	Wetzel County Commission, New Martinsville, WV
St. Joseph's Hospital of Buckhannon	Buckhannon	Upshur	Critical Access	25	NFP	West Virginia University Medicine, Morgantown, WV
Jackson General Hospital	Ripley	Jackson	Critical Access	25	NFP	Jackson General Hospital, Inc., Ripley, WV
Hampshire Memorial Hospital	Romney	Hampshire	Critical Access	14	NFP	Valley Health System, Winchester, VA
Minnie Hamilton Health Care Center	Grantsville	Calhoun	Critical Access	25	NFP	Minnie Hamilton Health System, Grantsville, WV
War Memorial Hospital	Berkeley Springs	Morgan	Critical Access	25	GOV	Owned by City-County, Operated by Valley Health System, Winchester, VA
Boone Memorial Hospital	Madison	Boone	Critical Access	25	GOV	Boone County Commission, Madison, WV
Braxton Memorial Hospital	Gassaway	Braxton	Critical Access	25	NFP Other	Braxton County Commission, Sutton, WV

Hospital Name	City	County	Hospital Type	Total Beds	Type	Owner
Jefferson Medical Center	Ranson	Jefferson	Critical Access	25	NFP	West Virginia University Medicine Morgantown, WV
Plateau Medical Center	Oak Hill	Fayette	Critical Access	25	FP	Community Health Systems, Inc. Brentwood, TN
Pocahontas Memorial Hospital	Buckeye	Pocahontas	Critical Access	25	GOV	Pocahontas County Commission, Marlington, WV
Potomac Valley Hospital	Keyser	Mineral	Critical Access	25	NFP	West Virginia University Medicine, Morgantown, WV
Preston Memorial Hospital	Kingwood	Preston	Critical Access	25	NFP	MonHealth System, Morgantown, WV
Summers County Appalachian Regional Healthcare Hospital	Hinton	Summers	Critical Access	25	FP	Appalachian Regional Healthcare Lexington, KY
Webster County Memorial Hospital, Inc.	Webster Springs	Webster	Critical Access	25	GOV	Webster County Commission, Webster Springs, WV
Sistersville General Hospital	Sistersville	Tyler	Critical Access	12	GOV	City of Sistersville, WV

Source: West Virginia Health Care Authority, December 2016

Table 2 - Definitions of Hospital Financial Variables

Variable		Operational Definition
Profitability variables		
Return on equity	Net income / (total assets – total liabilities) * 100	The ratio of net income divided by total equity. The primary financial criterion that should be used to evaluate and target financial performance of any organization.
Current ratio	Total current assets / total current liabilities	This liquidity ratio measures the proportion of all current assets to all current liabilities to determine how easily current debt can be paid off. It is one of the most commonly used ratios (also known as current assets-to-current liability).
Excess margin	(Total operating revenue + total operating expense) / (total operating revenue + non-operating revenue) * 100	Operating income plus other income. This is analogous to net income before taxes in for-profit entities (also known as excess of revenue over expenses).
Operating variables		
Salaries and benefits as a percent of net revenue	(salary expense + contract labor + fringe benefits) / total operating revenue * 100	This ratio can be used to determine if staffing levels and costs are in line with hospitals of comparable size and with comparable services.
Age of plant	Accumulated depreciation / depreciation expense	A ratio that indicates the average number of years an organization has owned its plant and equipment.
Liquidity variables		

Variable		Operational Definition
Days cash on hand	(Cash on hand + marketable securities) / (total expenses – depreciation) / 365	A ratio that indicates the number of days' worth of expense an organization can cover with its most liquid assets (cash and marketable securities).
Days in net total receivables	(Accounts receivable + notes receivable + other receivables – allowance for uncollectible) / (total operating revenue / 365)	This ratio indicates how quick a hospital is converting its accounts receivable into cash. It provides an estimate of how may days' revenues are yet to be collected.

(Cleverly, Song, & Cleverly, 2011)

Table 3

West Virginia Critical Access and Rural Hospital Key Financial Ratios

Most Recently Reported Fiscal Year

Hospital	Return on Equity	Current Ratio	Salaries & Benefits as % Net Revenue	Days in Net Total Receivables
Grafton City Hospital	-64.1%	0.5	69.3%	43.8
Davis Memorial Hospital	33.8%	.4	57.8%	-2.7
Williamson Memorial Hospital	141.4%	0.2	50.6	43.5
Broaddus Hospital Association, Inc.	48.0%	1.68	63.1	37.5
Stonewall Jackson Memorial Hospital	-6.9%	1.5	63.5%	60.9
Montgomery General Hospital	25.85%	1.0	66.3%	62.7
Grant Memorial Hospital	-3.7%	-1.7	50.0%	51.7
Roane General Hospital	-9.0%	1.2	58.6%	42.3
Wetzel County Hospital	-7.2%	1.7	59.2%	52.7
St. Joseph's Hospital of Buckhannon	-51.4%	1.0	47.5%	59.8

Hospital	Return on Equity	Current Ratio	Salaries & Benefits as % Net Revenue	Days in Net Total Receivables
Jackson General Hospital	58.7%	0.9	56.4%	48.6
Hampshire Memorial Hospital	-5.3%	2.9	45.2%	53.2
Minnie Hamilton Health Care Center	10.1%	3.9	73.3%	97.4
War Memorial Hospital	2.5%	5.6	51.2%	45.3
Boone Memorial Hospital	26.4%	1.4	42.6%	38.1
Braxton Memorial Hospital	-333.56%	1.05	63.2%	53.7
Jefferson Medical Center	12.6%	2.2	43.1%	33.6
Plateau Medical Center	21.1%	0.6	27.9%	50.4
Pocahontas Memorial Hospital	-112.7%	0.9	65.8%	51.4
Potomac Valley Hospital	17.7%	1.2	50.7%	50.2
Preston Memorial Hospital	-14.4%	1.9	58.0%	36.1
Summers County Appalachian Regional Healthcare Hospital	-7.1%	18.0	54.1%	-477.3

Hospital	Return on Equity	Current Ratio	Salaries & Benefits as % Net Revenue	Days in Net Total Receivables
Webster County Memorial Hospital, Inc.	55.1%	2.3	57.8%	140.7
Sistersville General Hospital	-450.9%	0.8%	74.2%	58.0

Source: West Virginia Health Care Authority, Hospital Annual Financial Disclosures 2016

Table 4

West Virginia Critical Access and Community Hospital Ranked by Financial Strength Index

(most recently reported fiscal year)

Hospital	Total (Excess) Margin	Days Cash on Hand	Debt Percentage	Age of Plant	Financial Strength Index
Boone Memorial Hospital	9.1%	135.7	24.51%	6.88	2.15
Braxton County Memorial Hospital	-2.9%	15.0	1.97%	20.4	-2.91
Broaddus Hospital	8.6%	70.4	31.01%	6.9	1.35
Davis Memorial Hospital	6.2%	8.0	35.99%	15.0	-0.77
Grafton City Hospital	-2.6%	2.6	-10.83%	25.16	-3.21
Grant Memorial Hospital	-1.7%	23.3	69.78%	13.7	-3.15
Hampshire Memorial Hospital	-3.3%	94.8	34.64%	2.6	-1.02
Jackson General Hospital	4.8%	3.1	21.46%	23.5	-1.81
Jefferson Medical Center	14.2%	129.7	61.42%	7.6	2.56
Minnie Hamilton Health Care Center	2.4%	6.0	61.22%	14.2	-2.15
Montgomery General	3.7%	-0.2	16.72%	66.3	-6.78
Plateau Medical Center	19.5%	-0.3	15.73%	8.7	3.59
Pocahontas Memorial Hospital	-2.7%	17.6	4.62%	15.1	-2.30
Potomac Valley Hospital	3.4%	30.0	14.83%	2.3	0.55
Preston Memorial Hospital	-2.4	67.2	11.70%	5.2	-0.85
Roane General Hospital	2.9%	44.4	50.37%	17.8	-1.89
Saint Joseph’s of Buckhannon	6.3%	54.5	-11.17	17.5	0.31
Sistersville General Hospital	-7.0%	21.3	3.92%	21.3	-4.02

Hospital	Total (Excess) Margin	Days Cash on Hand	Debt Percentage	Age of Plant	Financial Strength Index
Stonewall Jackson Memorial Hospital	-9.7%	4.7	88.77%	12.0	-5.49
Summers County Appalachian Regional Hospital	8.3%	-1.1	81.69%	36.4	-3.61
War Memorial Hospital	5.3%	214.1	94.40%	4.7	0.70
Webster County Memorial Hospital	15.0%	14.6	51.21%	15.3	1.15
Wetzel County Hospital	-1.4%	7.7	30.51%	35.3	-4.82
Williamson Memorial Hospital	-31.1	-0.5	-31.62	7.2	-7.95
West Virginia Average	1.87%	40.11	31.37%	16.71	-1.68
West Virginia Median	3.15%	16.30	27.51%	14.60	-1.85
2012 Average Hospital <100 Beds	3.7%	30.5	60.20%	10.36	-1.17
2012 Average Critical Access Hospital	3.5%	43.0	56.60%	9.41	-0.95

Table 5

West Virginia Critical Access and Community Hospital Ranked by Financial Strength Index (most recently reported five fiscal years)

Hospital	Most Recent Fiscal Year	2nd Past Fiscal Year	3rd Past Fiscal Year	4th Past Fiscal Year	5th Past Fiscal Year	5 Year Average	5 Year Weight Average
Boone Memorial Hospital	2.15	0.67	-2.07	-1.40	3.48	0.57	0.92
Braxton County Memorial Hospital	-2.91	-2.01	-2.93	-2.67	-4.30	-2.96	-2.69
Broaddus Hospital	1.35	-0.56	-1.06	-0.80	-0.74	-0.36	0.10
Davis Memorial Hospital	-0.77	-1.86	-2.43	-1.58	-1.70	-1.67	-1.47
Grafton City Hospital	-3.21	-4.22	-4.43	-1.98	-4.80	-3.73	-3.65
Grant Memorial Hospital	-3.15	-3.40	-1.84	-2.82	-1.40	-2.52	-2.91
Hampshire Memorial Hospital	-1.02	-0.73	-2.45	-3.78	-4.89	-2.57	-1.62
Jackson General Hospital	-1.81	0.96	-1.46	-2.17	-1.64	-1.22	-0.95
Jefferson Medical Center	2.56	1.84	2.41	3.73	4.83	3.08	2.55
Minnie Hamilton Health Care Center	-2.15	-4.49	-3.84	-1.23	-1.65	-2.67	-2.99
Montgomery General	-6.78	-7.38	-5.58	-5.91	-4.48	-6.03	-6.58

Hospital	Most Recent Fiscal Year	2nd Past Fiscal Year	3rd Past Fiscal Year	4th Past Fiscal Year	5th Past Fiscal Year	5 Year Average	5 Year Weight Average
Plateau Medical Center	3.59	1.64	1.08	1.91	1.21	1.89	2.34
Pocahontas Memorial Hospital	-2.30	-1.64	-1.19	-5.57	-2.96	-2.73	-2.30
Potomac Valley Hospital	0.55	-1.72	0.12	0.86	-0.34	-0.10	-0.21
Preston Memorial Hospital	-0.85	2.70	-2.33	-2.17	-0.84	-0.70	-0.14
Roane General Hospital	-1.89	-1.81	-1.65	-1.59	-1.43	-1.68	-1.78
Saint Joseph's of Buckhannon	0.31	0.43	-6.02	-2.41	-3.47	-2.23	-1.06
Sistersville General Hospital	-4.02	0.26	-1.79	-1.45	-2.02	-1.80	-2.04
Stonewall Jackson Memorial Hospital	-5.49	-0.67	-1.40	0.20	-1.14	-1.70	-2.64
Summers County Appalachian Regional Hospital	-3.61	-3.05	-1.46	-1.63	-3.35	-2.62	-2.91
War Memorial Hospital	0.70	0.71	-0.54	-3.58	-3.07	-1.16	-0.10
Webster County Memorial Hospital	1.15	2.02	1.70	-1.12	1.36	1.02	1.28

Hospital	Most Recent Fiscal Year	2nd Past Fiscal Year	3rd Past Fiscal Year	4th Past Fiscal Year	5th Past Fiscal Year	5 Year Average	5 Year Weight Average
Wetzel County Hospital	-4.82	-2.48	-4.56	-3.15	-2.39	-3.48	-3.79
Williamson Memorial Hospital	-7.95	-4.82	-4.63	-3.11	-2.34	-4.57	-5.75
West Virginia Average	-1.68	-1.23	-2.01	-1.81	-1.59	-1.66	-1.71
West Virginia Median	-1.85	-1.18	-1.81	-1.81	-1.67	-1.67	-1.70

Table 6

West Virginia Critical Access and Community Hospital Service Area Population Tends

1980 to 2015

Hospital	County	1980	1990	2000	2010	2015	35-year Change	15-Year Change
Grafton City Hospital	Taylor	16584	15144	16809	16887	16912	1.98%	.15%
Davis Memorial Hospital	Randolph	28734	27803	28262	29369	29126	1.36%	-0.83%
Williamson Memorial Hospital	Mingo	37336	33739	28253	26770	25292	-32.26%	-5.52%
Broaddus Hospital Association, Inc.	Barbour	16639	15699	15557	16596	16704	0.39%	0.65%
Stonewall Jackson Memorial Hospital	Lewis	18813	17223	16919	16397	16448	-12.57%	0.31%
Montgomery General Hospital	Fayette	57863	47952	47579	45997	44997	-22.24%	-2.17%
Grant Memorial Hospital	Grant	10210	10428	11299	11914	11766	15.24%	-1.24%
Roane General Hospital	Roane	15952	15120	15446	14876	14435	-9.51%	-2.96%
Wetzel County Hospital	Wetzel	21874	19258	17693	16552	15816	-27.69%	-4.45%
St. Joseph's Hospital of Buckhannon	Upshur	23427	22867	23404	24245	24758	-5.86	-2.12%
Jackson General Hospital	Jackson	25794	25938	28000	29271	29237	13.35%	-0.12%

Hospital	County	1980	1990	2000	2010	2015	35-year Change	15-Year Change
Hampshire Memorial Hospital	Hampshire	14867	16498	20203	23948	23353	57.08%	-2.48%
Minnie Hamilton Health Care Center	Calhoun	8250	7885	7582	7643	7470	-9.45%	-2.26%
War Memorial Hospital	Morgan	10711	12128	14943	17516	17524	63.61%	0.05%
Boone Memorial Hospital	Boone	30447	25870	25535	24585	23372	-23.24%	-4.93%
Braxton Memorial Hospital	Braxton	13894	12998	14702	14527	14415	3.75%	-0.77%
Jefferson Medical Center	Jefferson	30302	35926	42910	53626	56482	86.40%	5.52%
Plateau Medical Center	Fayette	57863	47952	45579	45997	44997	-22.24%	-2.17%
Pocahontas Memorial Hospital	Pocahontas	9919	9008	9131	8712	8607	-13.23%	-1.12%
Potomac Valley Hospital	Mineral	27234	26697	27078	28229	27451	-0.80%	-2.76
Preston Memorial Hospital	Preston	30460	29037	29334	33551	33940	11.42%	1.16%
Summer County Appalachian Regional Hospital	Summers	15875	14204	12999	13941	13239	-16.60%	-5.04%
Webster County Memorial Hospital	Webster	12245	10729	9719	9155	8755	-28.50%	-4.73%
Sistersville General Hospital	Tyler	11320	9796	9592	9184	8975	-20.72%	-2.28%

Source: United States Census Bureau, December 2016

Table 7

West Virginia Critical Access and Rural Hospital County Poverty and Unemployment Rates

Small Area Income and Poverty Estimates (SAIPE) All Ages in Poverty 2015 West Virginia

Hospital	County	Median Income[3]	Poverty Rate[1]	Median Age[3]	Unemployment Rate[2]	Population Density[3]	Designated HPSA Area and Priority Scores[4]
Grafton City Hospital	Taylor	$39,536	16.2	42	4.7	98	PC RHC-12 CHC-8
Davis Memorial Hospital	Randolph	$37,276	19.8	43	5.2	29	PC CHC-9 HD-8
Williamson Memorial Hospital	Mingo	$35,955	29.0	41	10.5	64	PC CHC-15
Broaddus Hospital Association, Inc.	Barbour	$37,327	20.1	42	5.2	49	PC G-8 CHC-11 RHC-11
Stonewall Jackson Memorial Hospital	Lewis	$36,199	20.6	43	6.9	42	No
Montgomery General Hospital	Fayette	$33,771	19.9	43	7.0	69	PC G-16 CHC 15
Grant Memorial Hospital	Grant	$41,368	15.9	44	4.9	25	No
Roane General Hospital	Roane	$28,513	21.1	44	9.1	31	PC CHC-10 RHC-5 LIP-6
Wetzel County Hospital	Wetzel	$37,969	20.0	45	7.4	46	PC G-8 RHC-4
St. Joseph’s Hospital of Buckhannon	Upshur	$39,381	17.3	41	6.3	70	PC CHC-16

Hospital	County	Median Income[3]	Poverty Rate[1]	Median Age[3]	Unemployment Rate[2]	Population Density[3]	Designated HPSA Area and Priority Scores[4]
Jackson General Hospital	Jackson	$40.376	15.4	42	5.4	63	PC G-8
Hampshire Memorial Hospital	Hampshire	$27,766	18.6	43	3.4	29	PC G-13
Minnie Hamilton Health Care Center	Calhoun	$31,679	20.0	45	11.1	28	PC SC High Needs-11 CHC-12
War Memorial Hospital	Morgan	$36,046	14.1	45	3.7	77	PC G-7 FQHC
Boone Memorial Hospital	Boone	$42,156	23.4	41	7.0	49	PC G-18 FQHC-11 RHC-11 LIP
Braxton Memorial Hospital	Braxton	$31,848	23.7	44	7.4	28	PC G-10 High Needs RHC-4
Jefferson Medical Center	Jefferson	$65,304	10.6	39	2.8	262	PC RHC-0
Plateau Medical Center	Fayette	$33,771	19.9	43	7.0	69	PC G-16 CHC 15
Pocahontas Memorial Hospital	Pocahontas	$33,729	18.9	47	7.0	9	PC RHC-13
Potomac Valley Hospital	Mineral	$31.163	15.4	42	5.0	87	PC G LIP-7 RHC-0
Preston Memorial Hospital	Preston	$45,413	17.0	42	4.6	53	PC G LIP-10

Hospital	County	Median Income[3]	Poverty Rate[1]	Median Age[3]	Unemployment Rate[2]	Population Density[3]	Designated HPSA Area and Priority Scores[4]
Summers County Appalachian Regional Hospital	Summers	$33,874	26.4	46	5.5	38	PC G LIP-12 RHC-13
Webster County Memorial Hospital	Webster	$27,645	29.6	44	7.3	17	PC G-14 CHC-10 RHC-13
Sistersville General Hospital	Tyler	$39,206	16.3	45	7.5	35	PC G-14
West Virginia	Statewide	$41,253	18.0	38.9	5.1	77.1	
United States	National	$56,516	14.7	37.8	4.6	89.5	

Sources: [1]United State Census Bureau 2015

[2]Workforce West Virginia 2016

[3]National Center for Analysis of Healthcare Data, 2015

[4]United States Department of Health and Human Services – Health Services and Resources Data Warehouse 2016

Y = Yes PC=Primary Care CHC =Community Health Clinic FQHC=Federally Qualified Health Care Center HD=Health Department LIP=Low Income Population RHC=Rural Health Clinic G=Geographic designation for entire county

Table 8

United States - State-by-State Breakdown of 80 Rural Hospital Closures

January 2010 to November 2016

State	Hospital Name	City
Alabama	Chilton Medical Center	Clanton
	Elba General Hospital	Elba
	Florala Memorial Hospital	Florala
	Randolph Medical Center	Roanoke
	South West Alabama Medical Center	Thomasville
Arizona	Cochise Regional Hospital	Douglas
	Florence Community Hospital	Florence
	Hualapai Mountain Medical Center	Kingman
California	Colusa Regional Medical Center	Colusa
	Corcoran District Hospital	Corcoran
	Kingsburg Medical Center	Kingsburg
Georgia	Calhoun Memorial Hospital	Arlington
	Charlton Memorial Hospital	Folkston
	Hart County Hospital	Hartwell
	Lower Oconee Community Hospital	Glenwood
	North Georgia Medical Center	Ellijay
	Stewart-Webster Hospital	Richland
Illinois	St. Mary's Hospital	Streator
Kansas	Central Kansas Medical Center	Great Bend
	Mercy Hospital Independence	Independence

State	Hospital Name	City
Kentucky	New Horizons Medical Center	Owenton
	Nicholas County Hospital	Carlisle
	Parkway Regional Hospital	Fulton
	Westlake Regional Hospital	Columbia
Maine	Parkview Adventist Medical Center	Brunswick
	Southern Maine Health Care	Sanford
	St. Andrews Hospital	Boothbay Harbor
Massachusetts	North Adams Regional Hospital	North Adams
Michigan	Cheboygan Memorial Hospital	Cheboygan
Minnesota	Albany Area Hospital	Albany
	Lakeside Medical Center	Pine City
Mississippi	Kilmichael Hospital	Kilmichael
	Merit Health Natchez - Community Campus	Natchez
	Patient's Choice Medical Center of Humphreys County	Belzoni
	Pioneer Community Hospital of Newton	Newton
	Quitman County Hospital	Marks
Missouri	Parkland Health Center – Weber Road	Farmington
	Sac-Osage Hospital	Osceola
	SoutheastHEALTH Center of Reynolds County	Ellington
Nebraska	Tilden Community Hospital	Tilden
Nevada	Nye Regional Medical Center	Tonopah

State	Hospital Name	City
North Carolina	Blowing Rock Hospital	Blowing Rock
	Vidant Pungo Hospital	Belhaven
	Yadkin Valley Community Hospital	Yadkinville
Ohio	Doctors Hospital of Nelsonville	Nelsonville
	Physician's Choice Hospital	Fremont
Oklahoma	Epic Medical Center	Eufaula
	Memorial Hospital and Physician Group	Frederick
	Muskogee Community Hospital	Muskogee
	Sayre Memorial Hospital	Sayre
Pennsylvania	Mid-Valley Hospital	Peckville
	Saint Catherine Medical Center Fountain Springs	Ashland
South Carolina	Bamberg County Memorial Hospital	Bamberg
	Marlboro Park Hospital	Bennettsville
	Southern Palmetto Hospital	Barnwell
	Williamsburg Regional Hospital	Kingstree
South Dakota	Holy Infant Hospital	Hoven
Tennessee	Gibson General Hospital	Trenton
	Haywood Park Community Hospital	Brownsville
	Humboldt General Hospital	Humboldt
	McNairy Regional Hospital	Selmer
	Parkridge West Hospital	Jasper
	Pioneer Community Hospital	Oneida
	Starr Regional Medical Center	Etoway
	United Regional Medical Center	Manchester

State	Hospital Name	City
Texas	Bowie Memorial	Bowie
	East Texas Medical Center – Clarksville	Clarksville
	East Texas Medical Center – Gilmer	Gilmer
	East Texas Medical Center – Mount Vernon	Mount Vernon
	Good Shepherd Medical Center	Lindon
	Gulf Coast Medical Center	Wharton
	Hunt Regional Hospital of Commerce	Hunt
	Lake Whitney Medical Center	Whitney
	Nix Community General Hospital	Dilley
	Renaissance Hospital Terrell	Terrell
	Shelby Regional Medical Center	Center
	Weimar Medical Center	Weimar
	Wise Regional Health System	Bridgeport
Virginia	Lee Regional Medical Center	Pennington Gap
Wisconsin	Franciscan Skemp Medical Center	Arcadia

Source: North Carolina Rural Health Research Program, December 2016