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Rethinking the Rural Hospital: A Rural Health Alliance

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This article is based on the winning presentation in the 2022 Business School Alliance of Healthcare Management (BAHM) Case Competition. Students representing schools that are members of BAHM, the publisher of HMPI, compete annually and propose new models to help innovate health care.

Abstract

What is the message? To increase access, provide quality care, and reduce healthcare costs for the Eastern Oklahoma Native American population, the authors propose establishing a novel rural health alliance, called the East Oklahoma Allied Health, comprised of existing clinics and critical access hospitals, a university partnership to train and recruit Native American healthcare professionals in the area, and a hospital partnership to provide access to specialty care.

What is the evidence? The authors investigated the need for healthcare change in the Eastern Oklahoma Native American population by researching current clinics, critical access hospitals, current physician specialties and social determinants of health. As seen in rural hospital data, without change, critical access hospitals will continue to close and further restrict access to these vulnerable populations. Along with this information, the authors researched financial data of the six facilities, created an in-depth financial analysis based on reimbursement rates, and found supporting evidence based on other successful healthcare alliances and academic partnerships across rural America to show that a rural health alliance is sustainable and will provide quality care through the Eastern Oklahoma Native American population.

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Links: Executive Summary and Appendices

Introduction

The 2022 BAHM Case Competition prompt asked: Can the Hospital of the Future Solve the Growing Challenges of Rural Hospital Care?

Due to a major population shift from rural to urban areas, rural communities have faced a major healthcare crisis due to limited access to sustainable health services. The rural hospital closure rate has increased in the last two years, leaving underserved populations without adequate primary or specialty care (20). Even with several federal programs targeting rural hospitals, such as critical access status, negative margins are ultimately reducing the number of rural hospitals (19). The purpose of the 2022 BAHM Case Competition was to identify a key population in a rural or remote area and to design a “hospital of the future” that increases access to quality care. We hope our proposed solution can serve as a blueprint for addressing access issues in rural areas.

Our team, comprised of three students from Baylor University’s Robbins Healthcare MBA program, focused on the Eastern Oklahoma Native American region that includes three major tribes: Osage Tribe, Cherokee Nation, and Creek Nations. These populations struggle with poor social determinants of health, including mental and behavioral health issues, structural inequality, limited food availability and food insecurity, and historical trauma (1). On average, these tribes have a lifespan that is 4.4 years shorter than that of other populations, are twice as likely to be diagnosed with diabetes, and are more likely to be obese and have high blood pressure.(1) Many of these issues lead to depression, alcoholism, and behavioral health

problems. (1) In addition, individuals in these tribes lack support and sufficient internet access, which limits use of telehealth resources. Like many other rural communities, these nations struggle with a medical personnel shortage.(1, 2, 3) The Osage Nation comprises around 20,000 people, the Creek Nation over 80,000, and Cherokee Nation over 141,000 people living within their borders. (4, 5)

Currently, there are six clinics and critical access hospitals within this region. The six rural facilities are the Wah-Zha-Zhi Health Center, WW Hastings, Okmulgee Hospital, Vinita Hospital, Okemah Hospital, and Coweta Hospital. (5, 6, 7, 8, 9) Within the Osage nation, the Wah-Zha-Zhi Health Center has the most limited access, with only one primary care physician. In the Cherokee Nation, there are 37 practicing physicians across six specialties, and in the Creek Nation, there are 17 practicing physicians. (5, 8, 9) The standard doctor-to-patient ratio is less than one doctor per 1,000, well below the national average of 2.6 per 1,000. (5) The current breakdown of primary and specialty services provided at each of the rural hospitals and clinics can be seen in Appendix 1.

The payer mix of the population is 45% Medicaid, 25% Medicare, 20% private insurance such as the Creek Nation Native Blue Cross PPO, and 10% uninsured.(13)

Even with significant government funding through Indian Health Services (IHS), Medicare, and Medicaid, the net present service revenue is -40%, with margins ranging from -23% to -56%.(1, 3) The hospitals of the East Oklahoma Native American tribes are at risk of closing, further restricting healthcare access to this vulnerable population.

Solution

Due to these unsustainable financial circumstances and limited access to care for Eastern Oklahoma Native American tribes, we proposed a rural health alliance comprised of the following: a newly formed East Oklahoma Allied Health (EOAH) combining six existing clinics and critical access hospitals, as well as partnerships with the Saint Francis Health System and Oklahoma State University. Our solution also recommends practice consolidations and home-health and telehealth initiatives. Our rural health alliance can provide a sustainable rural hospital system that adequately serves the community and provides quality primary and specialty care while respecting Native American Nation values.

East Oklahoma Allied Health

The six rural facilities – Wah-Zha-Zhi Health Center, WW Hastings, Okmulgee Hospital, Vinita Hospital, Okemah Hospital, and Coweta Hospital – will form a mutually beneficial alliance to help increase access and reduce costs. The first way this alliance will reduce costs is by pairing down existing physician roles (Appendix 1) and management roles. These six facilities will primarily focus on providing primary and emergency care, while some of the more central locations will offer specialties such as optometry and behavioral health to combat the diabetes and mental health endemic in East Oklahoma. Through the alliance, every resident in the area will have access to each of the specialties through a telehealth and mobile health initiative (addressed below). By increasing the primary care focus, each of the hospitals and clinics can expand their care delivery. Most of the patients across the region have limited access to primary care and therefore, opportunities to prevent disease. With increased focus on primary care and prevention, the hospitals can provide better continuity of care and manage patients in a value-based environment. By also regionalizing specialty services, the alliance helps to retain critical physician specialties. It also allows the alliance to provide competitive salaries and increase overall access to specialty care. The areas we picked for each specialty (Appendix 1) are based on centralized hospitals and population density. However, every patient will have equal access to these physicians through the mobile and telehealth initiatives.

The second way the EOAH will reduce costs is by centralizing and standardizing contracts such as laundry, labs, billing, and electronic medical records (EMR). That will reduce the repetition of services, and centralized hospitals such as Coweta and Okmulgee can provide the services directly. The third way to reduce costs is to reduce the number of administrators across the hospital system and create one consolidated management team. One CEO, CFO and CMO will be in charge of the six facilities. Each facility will have their own VP of Finance, Operations and CNO to ensure operations run smoothly. These positions will first be filled by the current administration at each of the rural hospitals or clinics. Any open position will be filled by individuals who hold a stake in the community. Physicians, nurses, administrators, and other healthcare personnel will be retained through competitive salaries and in line with the mission of the East Oklahoma Allied Health: to serve the community, to provide quality care, and to establish a sustainable rural health system. Quality leadership is also crucial to a sustainable alliance. We propose that these six facilities seek servant leaders who are dedicated to gaining understanding, to serving the community, and to obtaining buy-in from all parties. These leaders

must be collaborative, believe in accountability, be technically competent, think longer term, and emphasize the vision, values and motivation of the alliance.(10, 11, 12)

It is important to note that although we recommend a strategic alliance, there may be weaknesses. By centralizing contracts and reducing costs across each of the hospitals, there is a greater focus on the whole system instead of individual facilities. This may lead to one system obtaining better results while another hospital or clinic suffers. Additionally, alliances may fail due to lack of cooperation from other hospitals within the system and there may not be much added value from each hospital.(25) However, strategic alliances have also done significantly better than individual entities because of their ability to work together, consolidate similar services, expand other services, increase overall revenue, reduce costs, and provide increased access to physicians.(26) Cerner provides several examples of rural partnerships that were successful.(27) One of the most challenging aspects of a strategic alliance is starting the partnership. However, once the alliance is set up, it becomes easier to establish a continuity of care for the community. Rural hospitals have opportunities and a history of enhancing the patient experience through these strategic alliances, further strengthening community connections and building on their local governance to provide quality care. Without alliances, rural hospitals and critical access hospitals will continue to close. We believe that this proposal will be successful since several other rural healthcare systems have established a similar solution. The majority of critical access hospitals have been declining over the last 25 years due to limited financial benefits. However, a network membership (similar to what we are proposing) has become significantly more common among these critical access hospitals.(28) Additionally, tightly integrated physician organizations are more common in these settings since they provide greater access to patient populations in rural communities, ultimately increasing the financial economies of scale.(28)

Saint Francis Partnership

The Saint Francis Partnership provides EOAH with specialists that are not currently integrated into the rural health system. We chose St. Francis because of its range of specialists that patients could access through telehealth and mobile health initiatives. Some examples of specialty care physicians are psychiatrists, endocrinologists, dieticians, pharmacists, and surgeons. This partnership business model would be based on an agreement to have dedicated specialists rotate through the EOAH van once a week: mental health specialists on Monday,

dietitians on Tuesday, and so on, until Friday. Considering the current staffing climate, it would be difficult for specialists to be available for longer periods. However, as EOAH vans will be equipped for different specialty services, the van would be used every workday. EOAH will pay specialists one fifth of their salary plus their portion of benefits. In addition, if a specialty is not offered by one of the six facilities, EOAH would agree to refer patients to their hospital to help drive referrals and volume.

OSU Academic Partnership

A partnership with the Oklahoma State University (OSU) Academic center is essential for the EOAH to promote and retain talented healthcare professionals. The facilities will partner with OSU to create a Rural Nurse Recruitment Program that provides nursing pathways for Native American residents to earn their Advanced Practitioner Nursing (APN) license. Individuals in the community are provided with financial aid to attend the program and then to serve in the community as APNs through the mobile health initiative. Previous research has shown that minority community patients are much more comfortable with providers from similar backgrounds.(18)

OSU is committed to rural health and already has in place some pathways to place current healthcare staff in rural communities. EOAH would capitalize on these established programs and offer a full tuition reimbursement for undergraduate nursing programs as well as various advanced practitioner pathways (up to a limit). The EOAH model falls in line with the institution's mission and vision, so there should be no issues affecting the participation of students from these tribes.

Home Health Initiative

In addition to EOAH's Saint Francis and OSU partnerships, we propose a Home Health Initiative to increase access to quality medical care. One year after forming EOAH, Advanced Practitioner Nurses (APNs) will begin visiting patients at their homes. These APNs will travel with a laptop connecting patients to specialty physicians through Cerner's telehealth technologies.(21) Each provider will have access to an electronic health record that provides a digital platform for telehealth appointments through an app. Telehealth access will be mediated by Starlink satellite internet, which addresses the limited signal and internet in these rural areas.(22) The APNs will

use this technology to connect the patient to a provider after completing physical exams. They will travel Monday through Friday for two years until the cost savings from the consolidation enables EOAH to outfit a mobile health vehicle.

By year three, the mobile clinic will be operational and operated by APNs. The mobile health vehicle will be outfitted with common medical equipment including a scale, blood pressure cuff, thermometers, ophthalmoscope, tuning forks, a small fridge, as well as a telehealth connection point. The vehicle will have 24/7 high-speed internet through Starlink satellite internet.

The Home Health Initiative will allow patients to see culturally competent providers in or near their home instead of having to travel up to two hours to receive care. The Home Health Initiative will also provide EOAH an additional revenue stream to further the mission of improving access to quality care for members of the Osage, Cherokee and Muskogee tribes.

A framework for evaluating public health proposals such EOAH's Home Health Initiative is the six-factor alignment: structure, financing, accountability, public policy, consumers, and technology.(16) The structure of the Home Health Initiative is relevant to the current environment because it is an additional service and revenue stream to the conventional rural hospital. Additionally, the home health service will help alleviate capacity issues at the rural hospitals. The plan will be financed through the common mechanisms of Indian Health Services, Medicare, Medicaid, and private insurance. The cost savings from the EOAH consolidation will provide the seed money. The initiative will be held accountable by open-source accounting, quality metrics, as well as a demonstrated increase in access to care. The innovation is perfectly aligned with public policy including care initiatives spurred by the COVID-19 pandemic that support telehealth services. Consumers will welcome the proposal because of the increased access to specialty physicians, providing a long-term and much broader continuum of care that these patients currently do not receive. Additionally, the home health service will alleviate transportation and disability/mobility issues for those patients who have trouble leaving their houses. Lastly, no new technologies are presented that could not be easily upgraded or replaced. However, there is an estimated upfront cost of $45,000 to set up internet (Appendix 4), which is further explained in the Financials section of the paper.

Other important considerations are environmental, social, and governance concerns. The alliance and Home Health Initiative will eliminate unnecessary waste and redundant in-office

healthcare visits. Socially, the proposal addresses the need for culturally competent physicians through the OSU partnership. These new practitioners will be encouraged and incentivized to return to their communities to provide care. Lastly, the Initiative will rely on Indian Health Services and local community governance to make it a reality.

Implementation

Timeline

The implementation timeline (Appendix 3) will begin when the six hospitals agree to form EOAH and complete the consolidation efforts. In establishing the alliance, EOAH will purchase Cerner as their EHR (explained further in the Financials section). This purchase falls under year zero with the consolidated contract services along with one lab contract, one laundry contract, and one billing system. The partnerships with Oklahoma State University and St. Francis Hospital will also be worked out in year zero. After these partnerships have been established, the first set of APNs begin in year one, as does a big push to begin financing and outfitting the van to provide home health and telehealth services. While the van is being outfitted, home health and specialty telehealth services begin. In year two, the mobile clinic will begin to be marketed to the community for its introduction by the start of year three. By year three, the van will be run by the APNs. At this time, quality metrics and greater access to care will be presented to the hospital board as well as to the public through tribal councils. In year five, another mobile health clinic will be operational.

Engaging the Community

The most important piece of this proposal is community engagement and empowerment. As it stands, the hospitals are all struggling with access and financial issues even with extensive government support. However, together, the community has the necessary resources and expertise to be successful. This proposal simply gives them a framework for maximum success. To achieve it, the financial, access, and quality benefits will need to be presented to the many stakeholders, including tribal councils and Indian Health Services. Before these presentations, it will be important to find EOAH allies who are influential members of these organizations. Because the rural health alliance is to provide quality care *for* and *by* the community, we need these champions to advocate and help push the proposal through the necessary steps. These

leaders will be responsible for the governance of the hospitals and buy-in from the community. We believe that this alliance needs to be community led because of the many cultural considerations. With community governance, the tribes will feel empowered to change their own health and trajectory. Another key issue is the consolidation of contracts. Due to the history of the United States and these tribes, it is important to be clear about the purpose of consolidation, explaining the financial benefits without giving the impression that the tribes will lose resources. Lastly, there may be differences among the tribes. Community leaders championing the proposal sets an example for the rest of the Native American community.

Marketing

Marketing the rural health alliance begins in year zero and will consist of a massive rebranding to include community fliers, a user-friendly website, and an application (app). The slogan will be "Together We Thrive." The mobile health initiative and academic partnership will also be a large part of the marketing plan. To promote widespread awareness, marketing efforts will take place at tribal councils and community events.

Key Performance Indicators

A number of key performance indicators will be used to provide objective feedback and ensure goals are being met. These indicators can be further subdivided into structural, process, and outcome measures at both macro and micro levels as outlined by the Donabedian Model.(17) Structural measures will assess the systems-level inputs to ensure the alliance is providing benefits at a macro level. Process and outcome measures will be used to determine success at the patient level and provide a more specific framework for improvement at the micro level.

The structural measures are focused on more convenient accessibility for both patients and providers. The proposal calls for implementing a universal electronic medical record throughout the alliance. This is critical to the success of the EOAH, considering the Department of Indian Health Services does not use a standardized EMR systemwide (Appendix 3 under consolidated contract services). A commercial version of Cerner would be more cost effective than using alternatives such as Epic or Meditech (explained further in the Financials section). Other structural measures include increasing the provider-to-patient ratio and percentage of referrals in-network.

The process and outcome metrics will measure specific clinical outcomes of the patient population. The Native American population has higher rates of hypertension, obesity, diabetes and mental health disorders than the general U.S. population. Many of these can be addressed with preventative visits, so the first goal here is process oriented: for over 75% of current patients to undergo annual preventative visits. For diabetic patients, the goal is over 80% of the patient population with controlled A1C levels. Finally, given the prevalence of mental health issues, the alliance calls for over 80% of the at-risk population to be screened, diagnosed, and treated with medication or to receive counseling. Outcome measures will focus on a standard array of inpatient metrics related to patient safety and outcomes, such as hospital-acquired infections, surgical mortality, surgical complications and readmission rates, as well as emergency room use (i.e., left without being seen and time until provider is seen after check-in).

It is important to note that the EOAH aims to address key social determinants of health but may not be able to address them all. These social determinants are a core focus of the alliance but given that the community is rural and the population is spread out, the six facilities may not be able to positively impact every population group. It is still imperative, however, to set and pursue realistic goals as the focal point of the EOAH mission. Additionally, it is difficult to monitor the impact of efforts to address the social determinants of health due to the extended period that individuals are affected by them. However, we believe the first step to addressing these issues is to recruit individuals that value change and want to serve their community. By providing opportunities for a better education and a greater commitment to health continuity, this population will have greater representation in their own healthcare experiences and in their future.

Financials

East Oklahoma Allied Health Financials

The current financial situation for the hospitals and clinics is dire. They currently have net patient service revenue margins that range from -23% to -56%, with a system-wide average of about -40%. (13) Compared to other hospitals in the region and country, this represents a significant lag lag that is not viable for long-term operation. To make up for poor reimbursement and volume constraints that cause significantly negative revenues, the federal government allots funds for these hospitals to continue operating. Even with these subsidies, the hospitals

have a negative overall margin. Consolidating and merging the hospitals would allow them to save on administrative and operational costs. Similar consolidations in other regions achieved between 15% and 30% operational cost savings.(14, 15) Considering our proposal allots some funds for scholarships, mobile health, and other projects, we estimate a 10% reduction in total costs. With sustained levels of government aid, this would result in a positive profit margin of approximately 5% for the system. One source of government aid is from the Indian Health Services, which receives a budget appropriation from the federal government to help run the hospitals and facilities under their domain. In 2020, this amount was approximately $6 billion.(23) This money can be allocated to each facility directly or held in a reserve until it is needed. In addition, grants for various initiatives (diabetes, mental health, water sanitation) are awarded.(24) On average, less is spent on an IHS patient than the average patient in the United States ($4078 compared to $9726, respectively). Taking this into consideration, a sensitivity analysis was conducted to estimate the range of potential outcomes. The worst-case scenario would only achieve a reduction of costs of about 3%, whereas the best-case scenario achieved a 20% cost reduction (Appendix 4). This proposal would improve the financial outlook for the alliance and allow for continued operations.

Van Financials

The estimated startup funds for the van and mobile health initiative would be approximately $400,000 to obtain, equip, and brand a van. The funds would be generated from the cost savings of the consolidation. The van would be in operation by the third year, though there would be a ramp-up period to facilitate patient adoption of this form of healthcare. It is estimated that by the fourth year, the van would be in full operation and by the fifth year, there would be a second van. With these estimates and a 10% cost of capital, there is a five-year net present value of $23,750 and an internal rate of return of about 12%. It is important to note that the vans will continue to operate and generate profit for many years beyond the initial five-year project period, making it quite sustainable with potential to subsidize other areas.

Conclusion

This proposal aims to address the issues of the Eastern Oklahoma Native American population by establishing a rural health alliance comprised of East Oklahoma Allied Health (an alliance made up of six existing clinics and critical access hospitals in the region), the Oklahoma State

University Academic Partnership, which will recruit natives of the area to become an APN, and the Saint Francis Partnership, which provides access to more specialty care. Through the alliance and a unified health system, this rural population will take their health into their own hands while costs will be reduced. The cost savings will allow EOAH to fund a telehealth and mobile health initiative. Each element of this proposal furthers the ability of these rural hospitals to be sustainable, to provide quality care, and to increase access to healthcare throughout the Osage, Creek and Cherokee Nations.

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