

SafeTechSolutions

Final Report

**ASSESSMENT
OF
EMERGENCY MEDICAL SERVICES
IN
NORTH BIG HORN COUNTY, WYOMING**

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I. Executive Summary

As operating today, North Big Horn Hospital District (NBHHD) ambulance service is sustainable, and many of the components of long-term sustainability are in place. However, the system's sustainability, reliability, and financial viability are fragile. This fragility is due to three main factors: 1) the proximity of NBHHD to Powell Valley Hospital EMS, which causes competition for financial and human resources, as well as prevents NBHHD from receiving cost-based reimbursement; 2) the missed revenue opportunities from not providing 100% of interfacility transfers; and 3) the need for strong leadership to complete the transition from a club-like or social organization to a business-like organization and department of North Big Horn Hospital District.

While NBHHD ambulance service's long-term sustainability is fragile, its operations today are sustainable. Interviewees reported a deep respect for the EMS department and praised the clinical care provided. Additionally, the leadership of North Big Horn Hospital District made early investments in fulltime ambulance personnel, resulting in the agency having staff even as the rest of the nation faces a continuing volunteer workforce shortages. While this early investment has enabled NBHHD to have staff, they, like many EMS organizations across Wyoming and the nation, are experiencing a crisis in finding and keeping personnel. Their ability to recruit and retention personnel is also affected by their culture and the need to deepen and strengthen the EMS service's leadership.

NBHHD ambulance service, like many rural EMS organizations across Wyoming and the nation, is experiencing a slowly evolving crisis. This crisis made up of many components, including a national change in people's interest in and willingness to enter the EMS profession; the increasing demands and expectations for clinical care; the regionalization of healthcare; ever-decreasing reimbursement paired with ever-increasing costs; the decline of rural communities as the population shifts to urban and suburban communities; and long transporting distances.

Recognizing these challenges, the leadership of NBHHD elected to apply for an agency assessment offered by the Wyoming Office of EMS. The focused assessment resulted in 14 major recommendations built from 18 key observations. These are listed and summarized below:

Major Recommendations:

1. Create a community- and county-wide shared vision for EMS.

This vision should include all stakeholders, operational and clinical expectations, number of vehicles and locations, current and future community growth, and assess communities' willingness to fund the services provided.

2. Ensure all who benefit from a county-wide EMS system help support it.

Resolve the inequities in the way EMS is currently funded.

3. Structure NBHHD ambulance service more like a business and less like a social organization.

Define roles, responsibilities and accountability, and consistently enforce cultural expectations throughout the organization.

<p>4. Invest in the leadership role.</p>	<p>Continue to invest in the training, knowledge and expertise needed to lead a rural EMS workforce.</p>
<p>5. More deeply understand and accept the needs of an emergency medical services agency.</p>	<p>This includes more fully understanding the EMS agency's scope, its roles and responsibilities inside and outside the hospital setting, its workforce's schedule, space and equipment needs, etc.</p>
<p>6. Maximize current revenues.</p>	<p>Ensure rates match expenses, account for discounts and allowances within the EMS budget, account for all salary dollars, and resolve recruitment and retention barriers to ensure there is staff for transfers.</p>
<p>7. Evaluate compensation by considering specific areas of equal size and system design.</p>	<p>Note the area services that pay more for less work, with a more desirable schedule.</p>
<p>8. Clearly define the role of EMS and the roles of EMS personnel within the hospital setting.</p>	<p>Consider aligning EMS personnel members' in-hospital roles with their clinical scopes. Leverage members' out-of-hospital care skills within the in-hospital environment.</p>
<p>9. Consider collaborative models with other agencies such as Powell Valley Healthcare and Cody.</p>	<p>Collaboration could reduce duplication and minimize competition for resources such as funding and personnel.</p>
<p>10. Capture 100% of interfacility transfers.</p>	<p>Interfacility transfers are critical for patient care, continuation of care and hospital patient flow, and they often provide the vast majority of an EMS organization's revenue.</p>
<p>11. A formal capital replacement plan should be created and fully funded.</p>	<p>Using straight line or funded depreciation, ensure there is a dedicated source for future EMS capital needs.</p>
<p>12. Include discounts and allowances in the EMS profit and loss statement, and ensure access to the reports to all who need it.</p>	<p>Access ensures leaders have the information needed to lead; including discounts and allowances shows the EMS department's complete financial picture.</p>
<p>13. Create a new schedule process and model.</p>	<p>Create a staffing model comprised of one basic provider and one advanced provider, and institute a scheduling process that is fair and balanced for all employees.</p>
<p>14. Create a plan to increase cohesiveness between hospital and EMS leadership.</p>	<p>Dismantle the "Us-versus-Them" mindset, hold all accountable and expect the EMS leader to lead the way and set the example.</p>

Key Observations:
1. As operating today, NBHHD ambulance service is sustainable, and many of the key components of sustainability are in place (revenues and expenses).
2. EMS is a vital and desirable element of healthcare and quality of life.
3. NBHHD's ambulance service is well respected and appreciated by the community.
4. NBHHD ambulance service's clinical care appears to be strong and progressive.
5. Collaboration and possible consolidation between Powell Valley Hospital EMS and NBHHD's ambulance service could benefit both organizations (due to the resulting reduction in duplications and competition).
6. Creating a structure to allow for cost-based reimbursement is unlikely to be successful and would likely adversely affect clinical care and operations.
7. Recruitment is, and will likely continue to be, a challenge for NBHHD's ambulance service.
8. NBHHD has been proactive in providing fulltime ALS service to the communities it serves.
9. There is a missed opportunity for revenue with the lost transfers.
10. Worker compensation and the underlying value proposition need evaluation, as compared to other EMS agencies in the area.
11. Staff accountability and expectations could be improved.
12. A new staffing model/process could help with staffing challenges (24's/proactive scheduling/separation of certifications).
13. Roles, responsibilities and expectations of EMS staff in the hospital environment could be better defined and more widely understood.
14. Increased transparency related to EMS finances (for example, including discounts and allowances within the EMS budget) is desirable.
15. There appears to be some concern around trust between NBHHD ambulance service leadership and hospital administration.
16. The culture of NBHHD's ambulance service is sometimes inconsistent with the current and desired culture of NBHHD overall.
17. While NBHHD's ambulance service has made significant progress toward a fulltime business structure, it retains many club-like practices that detract from its growth.
18. Consideration should be given to EMS being made its own department within NBHHD.

While sustainable today, NBHHD should begin to consider steps to reinforce this sustainability and address areas of fragility. The path forward and needed actions may involve new models of delivery and exploring a partnership with Powell Valley Hospital EMS.

Of the many tools needed to aid an organization through a transition, leadership and leaders will be critical. Today, NBHHD's ambulance service behaves in a way that feels disconnected from and inconsistent with the larger organization's culture and norms. Critical work is needed to address the underlying issues that have fostered this division. Only a united organization with a leader who has the needed skills and talents can address the difficult work in front of the ambulance service to ensure the long-term sustainability of services its communities have come to expect and rely on.

II. Introduction and Methodology

SafeTech Solutions, LLP is an EMS consulting firm with extensive knowledge of national and international EMS systems and expertise assisting in the development of rural ambulance services. In December of 2022, SafeTech Solutions, through the Wyoming Office of Emergency Medical Services, began a multi-month assessment of EMS at North Big Horn Hospital District (NBHHD) to consider the sustainability, reliability and long-term viability of the EMS system.

The goals of the North Big Horn Hospital District EMS assessment were to:

- Evaluate the sustainability, reliability and long-term viability of NBHHD's ambulance service;
- Look for system components that are working well;
- Assess whether a collaborative relationship between NBHHD's ambulance service and Powell Valley Hospital EMS could strengthen both organizations; and
- Make recommendations for change and improvement to strengthen long-term sustainability.

The assessment focused on area-wide needs, current operations, system design and available supporting resources, with an eye toward long-term sustainability, reliability and viability. The scope of the assessment was limited. The assessment was not an audit of the organization's finances, clinical care or organizational culture. Air medical services are considered as components of a system, but are not assessed. All data was provided by NBHHD itself and was validated by SafeTech Solutions' best efforts via follow-up questions and further data gathering. SafeTech Solutions provided a list of key stakeholder categories for focused interviews, and NBHHD's ambulance director selected individuals to be interviewed.

The ambulance service at NBHHD, as is the case for many rural, remote and frontier ambulance services across Wyoming and the United States, is facing challenges that have converged into a "perfect storm." First, the ability to recruit and retain staff is at an all-time low; second, the regionalization of healthcare means more and more demands are placed on ambulance service staff who must transport patients further distances; third, the ever-increasing cost of providing EMS, along with ever-decreasing reimbursement for services, makes financial resources available to maintain and grow EMS organizations scarce; and lastly, the multi-year effects of the COVID-19 global pandemic on organizations, leaders and current and future personnel have strained and challenged EMS in ways we are still trying to understand.

Like many rural EMS agencies, the ambulance service at NBHHD is facing challenges in: recruiting and retaining staff; financial sustainability; low call volume; the struggle to provide both 911 and inter-facility transports; insufficient revenues to pay for the true cost of providing EMS;

one entity (NBHHD) paying the lion's share of the costs for EMS on behalf of all communities they serve; the regionalization of healthcare; and demands for ever-more-sophisticated out-of-hospital clinical care. These concerns, among many others, led the organization to request an assessment through the Wyoming Office of Emergency Medical Services.

SafeTech Solutions' approach to assessments capitalizes on the firm's extensive understanding of rural EMS systems and experiences working with leaders and organizations nationwide. The assessment team for the NBHHD project gathered quantitative and qualitative data through research, site visits, interviews and requests for documentation. Two consultants visited NBHHD's ambulance service to review documents and data, conduct interviews and assess operations. In addition to evaluating the ambulance service (including organizational structure, leadership and operations), SafeTech Solutions researched and deeply considered the social, economic, demographic, cultural and political issues in the wider area.

SafeTech Solutions' process aims to produce specific recommendations based on industry best practices that are meaningful, measurable and actionable. This report summarizes the findings, key observations and recommendations resulting from the assessment process.

III. Overview of Big Horn County, Wyoming

Nestled in between Park, Sheridan and Washakie Counties in North Central Wyoming, Big Horn County, Wyoming, sits along the state border, with Montana to the north. The east side of the county is adjacent to the Bighorn Mountains, extending over much of the northeastern part of the Bighorn Basin, of which Big Horn County is a part.¹

The Bighorn River runs down the middle of the county, flowing from south to north, passing through Basin, Wyoming, which serves as the county seat, and Greybull, Wyoming, along the way.² The Shoshone River flows into the northern part of the county from the west, passing close to Byron, Lovell, and the ghost town of Kane, Wyoming, before emptying into Bighorn Lake, which is also fed by the Bighorn River. To the south, the Greybull River flows into the county from the west before meeting up with the Bighorn River below Greybull.

The area was occupied in the mid-1700s by the Crow American Indian Tribe. In 1804, the Lewis and Clark Expedition passed through the area. Three years later, in 1807, George Drouillard, who was part of the expedition, became the first beaver trapper to enter the area. Other expeditions soon followed.³

Beginning in the 1870s, cattle herders and then settlers moved into the Big Horn Basin. Many early farmers brought sheep in addition to cattle. Conflict between open-range cattlemen and those who wanted to fence the land and grow crops gave way by the turn of the century to small farming.⁴

¹ Hein, R. (2014). Big Horn County, Wyoming. In *WyoHistory.org encyclopedia*. Retrieved April 24, 2023, from <https://www.wyohistory.org/encyclopedia/big-horn-county-wyoming>

² Ibid.

³ Ibid.

⁴ Ibid.

Initially over 12,500 square miles in size, Big Horn County was partitioned into its current size of less than a fourth of that in the early 1900s. The formation of Park County to the west occurred in 1911, and Hot Springs and Washakie Counties were organized to the south in 1913.⁵

The town of Lovell was established in 1900, and other towns followed, including Cowley in 1907 and Byron in 1912. Further to the south, the town of Greybull was incorporated in 1909, followed by Emblem in 1918, and Manderson in 1921.⁶ In 1937, the Big Horn Rural Electric Company brought electricity to the county.⁷

The Bighorn National Forest is located along the county's eastern border with Sheridan and Johnson counties. Big Horn County has four school districts, with five high schools, middle schools and elementary schools. Medical facilities include Three Rivers Health in Basin, One Health Greybull/Heritage in Greybull, and the North Big Horn Hospital District in Lovell.

The NBHHD EMS assessment focused on northern Big Horn County, including:

Lovell

As the largest town in Big Horn County, Lovell was named for an early rancher named Henry Lovell. The town of Lovell is known as the gateway to Bighorn Canyon National Recreation Area,⁸ which runs from Bighorn Lake into Wyoming.

Cowley

Named after Matthias F. Cowley, a leader in the Church of Jesus Christ of Latter-Day Saints, the town of Cowley hosts the annual Cowley Pioneer Day. It is also home to the Cowley Pioneer Museum.

Deaver

The small town of Deaver is located on Big Horn County's border, with neighboring Park County to the west. Famous for its wind, Deaver was named after railroad agent named D. Clem Deaver.

Byron

Named after Mormon leader Byron Sessions, the town of Byron is home to the annual Byron Days, which include a run and a parade, among other activities.

Summary of Big Horn County

Big Horn County's location on Wyoming's northern border with Montana gives residents and visitors easy access to the Big Horn National Recreation Area as well as the Bighorn National Forest. Big Horn County's growing population, as well as the yearly influx of tourists, makes it important to properly account for the needs of out-of-hospital EMS.

⁵ Ibid.

⁶ Ibid.

⁷ Big Horn Rural Electric Company. (n.d.). *History*. <https://www.bighornrea.com/history>

⁸ Wyoming Office of Tourism. (n.d.). *Lovell*. Wyoming. <https://travelwyoming.com/places-to-go/cities/lovell/>

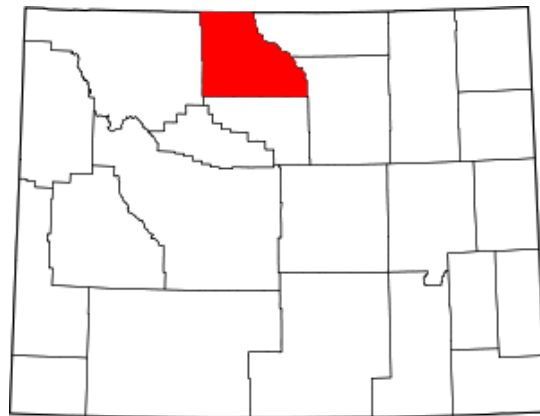
The Land

Big Horn County, Wyoming, contains 3,159 square miles of land and only 22 square miles of that water.⁹ Located along the eastern slope of the Big Horn Mountains, Big Horn County has an average elevation of 4,200 feet above sea level. The highest point is Cloud Peak (13,169 feet).¹⁰

Protected sites in Big Horn County include the Cloud Peak Wilderness, Bighorn Canyon National Recreation Area, Medicine Lodge Archeology Site, and part of Bighorn National Forest. The Cloud Peak Wilderness runs along the eastern edge of the county and is located within the Bighorn National Forest.¹¹ The southern portion of the Bighorn Canyon National Recreation Area lies within Big Horn County, with the remainder found within the adjacent state of Montana to the north.¹²

The Medicine Lodge Archeology Site is located in the southeast of Big Horn County, just to the northeast of Hyattville, Wyoming. Bighorn National Forest runs along the county's eastern border with Sheridan and Johnson Counties, as well as with Washakie County to the south.

The largest body of water in Big Horn County is Bighorn Lake in the north central part of the county. The lake is a reservoir behind Yellowtail Dam and has a surface area of 17,300 acres in both Wyoming and Montana.¹³



The federal government is the largest landowner in Big Horn County, accounting for 77% of all lands, with the Bureau of Land Management overseeing 72% of that, the Forest Service managing 23%, the Bureau of Reclamation 4%, and the Park Service 1%. The State of Wyoming manages an additional 4% of the total land. The remaining 19% of land is privately owned.¹⁴

Transportation

The main road running through Big Horn County is U.S. Highway 310, which enters the county near Deaver, Wyoming, in the northwest part of the county. U.S. Highway 310 then passes through Lovell, before heading to the south, where it connects to U.S. Highway 14 west of Greybull. U.S. Highway 14 enters Big Horn County via the Bighorn National Forest to the east. The roadway then travels west, passing through Shell, Greybull and Emblem, before exiting into Park County to the west of Bighorn County.

⁹ United States Census Bureau. (2010). U.S. Gazetteer Files. https://www2.census.gov/geo/docs/maps-data/data/gazetteer/counties_list_56.txt

¹⁰ *Big Horn County WY Peaks List*. (n.d.) listsofjohn.com. <https://listsofjohn.com/searchres?c=31>

¹¹ U.S. Department of Agriculture, Forest Service. (n.d.). *Cloud Peak Wilderness*. Big Horn National Forest. <https://www.fs.usda.gov/detail/bighorn/specialplaces/?cid=stelprdb5155354>

¹² National Park Service. (2020, February 17). *Spectacular views, endless opportunity*. <https://www.nps.gov/bica/index.htm>

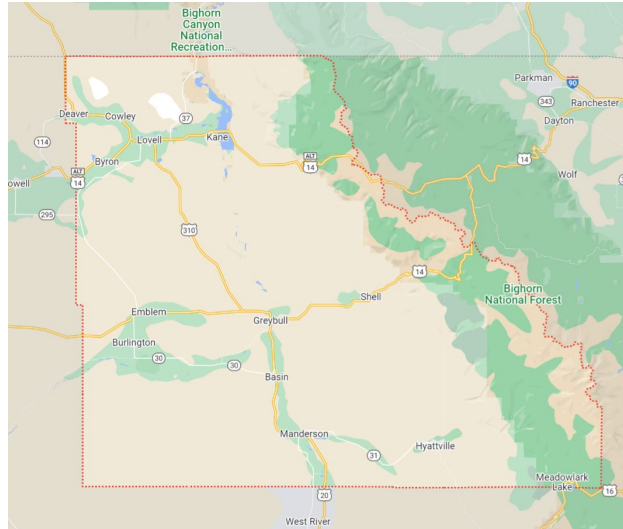
¹³ Coleman Concierge. (n.d.). *A dozen facts about Bighorn Canyon that will blow your mind*. <https://www.colemanconcierge.com/bighorn-canyon/>

¹⁴ Big Horn County Board of County Commissioners. (2017, August). *A Big Horn County profile: Socioeconomics*. https://www.wyo-wcca.org/files/3415/0462/2990/BigHornProfile_Final.pdf

There is also U.S. Highway 14 Alternate further to the north, which enters the county via the Bighorn National Forest. U.S. Highway 14 Alternate runs to the west, crossing Bighorn Lake. The thoroughfare then passes through Lovell on its journey westward toward Byron, before finally passing into Park County.

State Road 37 in north Big Horn County branches off from U.S. Highway 14 Alternate to the east of Lovell. It then travels south through the Bighorn Canyon National Recreational Area and into Montana.

Airports in and near north Big Horn County include North Big Horn County Airport in Cowley, Wyoming; Powell Municipal Airport to the west in Powell; and South Big Horn County Airport in Greybull, in the southern part of the county.



North Big Horn County Airport sees about 112 aircraft operations per week. Around 72% of those are general aviation, while 26% are transient general aviation and 3% air taxi.¹⁵ Powell Municipal Airport sees on average 92 aircraft operations per week, with 75% local general aviation flights, 19% transient general aviation, 6% air taxis, and less than 1% military flights.¹⁶ South Big Horn County Airport in Greybull sees roughly 88 aircraft operations per week. Of those, 62% are general aviation, 35% transient general aviation, 2% air taxis, and 1% military operations.¹⁷

Land Use, Tourism & Industry

Big Horn County has over 322,000 acres of farmland.¹⁸ Farming, however, comprises only a fraction of the total acreage of land use in the county. Land is also used for outdoor recreational purposes, including hunting, fishing, camping and hiking, among other things.¹⁹

Big Horn County is also rich in natural resources, such as oil and gas, with a pipeline established south of Lovell, Wyoming, which runs through Greybull and Basin before continuing into neighboring Washakie County.²⁰ Bentonite is another natural resource mined in the county.²¹

¹⁵ AirNav, LLC. (2023, April 20). U68: North Big Horn County Airport. <https://airnav.com/airport/U68>

¹⁶ AirNav, LLC. (2023, April 20). KPOY: Powell Municipal Airport. <https://www.airnav.com/airport/KPOY>

¹⁷ AirNav, LLC. (2023, April 20). KGEY: South Big Horn County Airport. <https://airnav.com/airport/KGEY>

¹⁸ United States Department of Agriculture, National Agricultural Statistics Service. 2017 Census of Agriculture County Profile: Big Horn County, Wyoming. https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/County_Profiles/Wyoming/cp56003.pdf

¹⁹ Bighornmountains.com. (2021, December 5). <https://www.bighornmountains.com/>

²⁰ Y2 Consultants, LLC & Falen Law Offices. (2020, November 24). Big Horn County Natural Resources Management Plan. <https://www.bighorncountywy.gov/component/edocman/?task=document.viewDoc&id=586>

²¹ Big Horn County, Wyoming. (n.d.). Welcome to Big Horn County, WY. Retrieved April 24, 2023, from <https://www.bighorncountywy.gov/#:~:text=The%20principal%20industries%20in%20Big,self%20sufficiency%2C%20and%20mutual%20support>

The area’s easily accessible historical and natural sites make it a popular destination for tourists. Activities draw visitors year-round, but especially in the winter months when conditions for snowmobiling, skiing, and sledding are ideal.²²

Industry in the region includes healthcare, construction, and educational services, which are the top three employers in Big Horn County. Other industries include wholesale trade; mining, quarrying, and oil and gas extraction; and transportation and warehousing businesses.²³

The People

In 2021, the population of Big Horn County, Wyoming, was 11,632. This is a reduction of less than 1% from a population of 11,668 in 2010.²⁴

Out of 4,408 households in the county, 68% are occupied by married couples and their families, and another 17% are occupied by a males or females alone. The other 15% is composed of non-family households.²⁵

When it comes to the racial makeup of county residents, 87% are White, 10% identify as Hispanic, 2% are American Indian, and 1% are Black.²⁶

Northern Big Horn County has four incorporated towns. These are Lovell, Cowell, Byron, and Deaver, the combination of which represent about 30% of the population. The rest of Big Horn County’s population reside in cities in the southern part of the county or in unincorporated communities located throughout.

Big Horn County’s Incorporated Town Populations

Town	Population	Square Miles
Lovell	2,322	1.10
Cowley	667	0.87
Byron	493	0.95
Deaver	111	1.01
TOTAL	3,593	

Source: U.S. Census Bureau

A little less than half of the population of Big Horn County is made up of working age adults between the ages of 18 and 64, accounting for 48% of the population. The rest of the population is either under 18 (30% of the population), or 65 and over (22% of the population).²⁷

²² Bighornmountains.com. (2021, December 5). <https://www.bighornmountains.com/>

²³ Big Horn County, WY. (n.d.). DATA USA. Retrieved April 24, 2023, from [https://datausa.io/profile/geo/big-horn-county-wy#:~:text=The%20largest%20industries%20in%20Big.%2C%20and%20Transportation%20%26%20Warehousing%20\(%24](https://datausa.io/profile/geo/big-horn-county-wy#:~:text=The%20largest%20industries%20in%20Big.%2C%20and%20Transportation%20%26%20Warehousing%20(%24)

²⁴ U.S. Census Bureau. (2023, March 30). QuickFacts: Big Horn County, WY. Retrieved April 24, 2023, from <https://www.census.gov/quickfacts/bighorncountyywyoming>

²⁵ Big Horn County, WY. (n.d.). Census Reporter. Retrieved April 24, 2023, from <https://censusreporter.org/profiles/05000US56003-big-horn-county-wy/>

²⁶ U.S. Census Bureau. (2023, March 30). QuickFacts: Big Horn County, WY. Retrieved April 24, 2023, from <https://www.census.gov/quickfacts/bighorncountyywyoming>

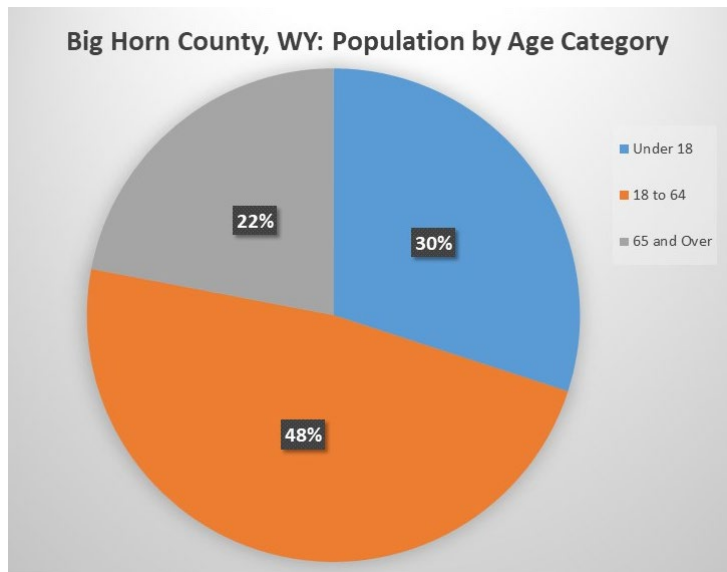
²⁷ Ibid.

In addition to its year-round residents, Big Horn County sees an influx of tourists to the area, with the Bighorn Canyon National Recreation Area getting about 200,000 visitors annually.²⁸ These additional visitors must be taken into account when planning emergency medical resources. Tourists use emergency medical resources when they experience an emergency medical situation or are injured in recreational or vehicle accidents while visiting.

Big Horn County is estimated to grow in the future, with a projected population of 11,960 by 2025, 12,060 by 2030, and 12,150 by 2035.²⁹ In addition to the high numbers of tourists coming to the area each year, the county's projected growth must be taken into account when considering its EMS system.

The Economy

The median household income in Big Horn County is \$51,237.³⁰ This is about \$14,000 less than the median income of the state of Wyoming, which is around \$65,304.³¹ Roughly 12% of the state's population makes between \$70,000 and \$100,000, and the other 10% makes more than that.³²



Roughly 10% of the population in Big Horn County lives at or below the poverty line.³³ The percentage for the state of Wyoming as a whole is 11%, while nationally, 13% of the population lives at or below the poverty line.³⁴ Unemployment in Big Horn County is 3.1%, down from a high of 8.4% in 2020.³⁵ Unemployment in Wyoming overall is 3.3%.³⁶

In Big Horn County, 86.4% of residents have some form of health coverage, including employer provided, private, Medicaid/Medicare, or military/VA plans. The other 13.6% do not.³⁷

²⁸ Big Horn County, Wyoming. (n.d.). *Visit the Bighorn Canyon National Recreation Area*. Retrieved April 24, 2023, from <https://www.bighorncountyyw.gov/news/19-visit-the-bighorn-canyon-national-recreation-area>

²⁹ Wyoming Department of Administration & Information, Economic Analysis Division. (2019, August). *Population for Wyoming, Counties, Cities, and Towns: 2010 to 2040*. <http://eadiv.state.wy.us/pop/wyc&sc40.htm>

³⁰ Big Horn County, WY. (n.d.). DATA USA. Retrieved April 24, 2023, from <https://datausa.io/profile/geo/big-horn-county-wy#:~:text=The%20largest%20industries%20in%20Big,%2C%20and%20Transportation%20%26%20Warehousing%20%24>

³¹ Wyoming. (n.d.). DATA USA. Retrieved April 24, 2023, from <https://datausa.io/profile/geo/wyoming>

³² Big Horn County, WY. (n.d.). DATA USA. Retrieved April 24, 2023, from <https://datausa.io/profile/geo/big-horn-county-wy#economy>

³³ Ibid.

³⁴ United States. (n.d.). DATA USA. Retrieved April 24, 2023, from <https://datausa.io/profile/geo/united-states>

³⁵ Unemployment rate in Big Horn County, WY. (n.d.). FRED. Retrieved April 24, 2023, from <https://fred.stlouisfed.org/series/WYBIGH3URN>

³⁶ Unemployment rate in Wyoming. (n.d.). FRED. Retrieved April 24, 2023, from <https://fred.stlouisfed.org/series/WYUR>

³⁷ Big Horn County, WY - Healthcare Data. (n.d.). Towncharts.com. Retrieved April 20, 2023, from <https://www.towncharts.com/Wyoming/Healthcare/Big-Horn-County-WY-Healthcare-data.html>

IV. Overview of North Big Horn County EMS System

The emergency medical services (EMS) needs of the citizens of northern Big Horn County are currently provided by North Big Horn Hospital District (NBHHD) Ambulance Service, a licensed Advanced Life Support (ALS) ambulance service in the State of Wyoming. North Big Horn Hospital District employs the staff of the EMS division, providing EMS coverage to the citizens of the City of Lovell and the surrounding area.

NBHHD's Ambulance Service is staffed at a level to respond with ALS to the vast majority of the emergency call requests received. The organization employs a full-time director, reporting directly to the hospital Chief Executive Officer. The director does not have assigned hospital duties outside of the ambulance service.

The ambulance service lists three ambulances on its assets list, all stationed at North Big Horn Hospital. Two of the ambulances are kept inside, and one is kept outside due to space limitations.

The ambulance service responds to approximately 500 requests for service annually. Of these, roughly 75% are emergency responses while the remaining 25% are for interfacility transports or standby event coverage. According to ambulance service leadership, facilities in Billings, MT are the only destination for interfacility transports.

North Big Horn Hospital is classified by the State of Wyoming as a Trauma Receiving Facility. Trauma Receiving Facilities may include anything from a hospital with no surgical coverage to a small rural clinic. These facilities provide initial resuscitation and stabilization and, as needed, transfer critically injured patients to a higher-level trauma facility. The current level of services provided at North Big Horn Hospital makes the need for interfacility transports ever-present. Oftentimes, NBHHD's Ambulance Service does not meet the demand for interfacility transports, and thus they are completed by other EMS providers. In these cases, not only does NBHHD cede valuable business revenue, but delays are created in the timely movement of patients to appropriate levels of care.

Staffing levels at NBHHD's Ambulance Service are consistent for providing emergency responses to the citizens within its service area. The schedule for the service's regular shift coverage was found to be minimally acceptable for emergency and non-emergency responses within the service area. Coverage is not, however, adequate or suitable to consistently providing service for interfacility transports. Scheduling practices often have crew configurations of three, thereby shorting the second ambulance to be staffed.

All ambulances are housed on the grounds of North Big Horn Hospital. The assessment uncovered some concerns regarding the ongoing maintenance of ambulances and equipment. Some staff reported these issues are additional stressors to their roles as care providers. The EMS division does have access to space within the hospital to conduct training, and if necessary, quiet rooms for staff. While working, staff are part of the team in the Emergency Department and function at levels within their scope of practice.

The assessment found that internal struggles regarding personalities, respect, and trust have led to additional challenges within the North Big Horn Ambulance operations. Assessment surveyors encountered perceptions of “Us vs. Them” on the part of Ambulance Service staff regarding hospital leadership. Additionally, staff encounter inconsistent expectations and goals in respect to their roles. Some staff with tenure are permitted to stay at their residence and receive duty pay while others are required to be present in the Emergency Department for the duration of their shifts. These differences are creating a non-friendly work environment at times and may be limiting the opportunities for recruitment and retention.

Call Taking, Dispatch & Communications

Big Horn County has duplicated Public Safety Answering Points (PSAPs) for dispatching 911 emergency and non-emergency calls. The dispatch center located in Lovell Police Department dispatches NBHHD’s Ambulance Service. In November of 2022, the PSAP began providing prearrival medical instructions. This service is being provided via the [PowerPhone](#) system.

Notification of requests for service are sent to crew members via the [TangoTango](#) application. This application permits two-way communication from the crew members’ cell phones to the PSAP and to the responding ambulance. There were no recollections of calls not responded to by North Big Horn Hospital Ambulance.

Standard radio communications take place on VHF frequencies. Although WYOlink is available in the area, coverage was stated to be inconsistent and unreliable.

Chute times were reported to be good during periods when crew members were in the Emergency Department. When staff members are not available in the hospital, chute times can be somewhat extended (10 minutes) for emergency requests for service.

First Response

Big Horn Fire Protection District, Big Horn County Sheriff’s Office, and Lovell Police are first responders for North Big Horn Hospital Ambulance. The Big Horn Fire Protection District reported responding to approximately 25 emergent requests for service annually.

Big Horn County Sheriff’s Officers have the option of carrying first-aid equipment, including first-aid kits, Automatic External Defibrillators (AEDs), and Narcan. Roughly 50% of the deputies responding to calls have this level of equipment and training to administer. Lovell Police are auto-dispatched to all emergent requests for service within the city limits of Lovell. All Lovell Police squad cars are equipped with first-aid kits, AEDs, and Narcan. All officers of the Lovell Police Department are certified in CPR.

Ground Ambulance Service

North Big Horn Hospital Ambulance provides service to approximately 2000 square miles in northern Big Horn County as well as a small area in Carbon County, MT. This includes emergent and non-emergent responses to requests for service as well as interfacility transports originating at North Big Horn Hospital. Staffing levels maintain consistent coverage for the emergent and non-emergent call volume; however, staffing levels are not adequate to respond to all interfacility

requests from North Big Horn Hospital. Approximately 50% of all interfacility transports are being served by other ambulance services.

Air Medical Service

Air medical services are utilized sporadically for scene responses. On average, North Big Horn Hospital Ambulance requests air medical to a scene once or twice per year. In addition, due to current staffing challenges, North Big Horn Hospital requests air medical for interfacility transports approximately 25 times per year. Medical staff from North Big Horn Hospital did indicate air medical may be unnecessary for some of these transports; however, no other ground ambulance provider is available to facilitate these requests.

Receiving Facilities and Other County Healthcare Resources

North Big Horn Hospital is the primary receiving facility for all emergent and non-emergent requests. Approximately 5-10% of all transports from scenes result in transport to Powell Valley Healthcare. North Big Horn Hospital, a Trauma Receiving Center, offers a significant number of services for a community hospital.

When interfacility transports are needed, 100% of these list Billings, Montana as the destination. Billings is located approximately 90 miles north of Lovell and is home to a Level II trauma center.

Mobile Integrated Health

Mobile Integrated Health or Community Paramedicine / EMS is not available in the Lovell, Wyoming area at this time.

EMS Education

Northwest College, with a campus in Powell, Wyoming, has a paramedic program based in Cody, which has graduated its first cohort of students with a second cohort currently in process.

Initial EMT, EMT-I, and EMR training, as well as continuing education, is primarily provided by staff from NBHHD Ambulance Service. This delivery model has been sufficient for staff to maintain licensure/registration within the State of Wyoming as well as meet requirements established by North Big Horn Hospital.

EMS System Oversight

NBHHD Ambulance Service is in transition from a primarily volunteer organization to a full-time or part-time employee system. Today, there are three full-time staff members on the roster, including the service director (a paramedic) and two other paramedics. The remainder of the staff are classified as PRN; however, they are paid hourly wages when working from either the hospital or from their residences (provided within the 5-minute response zone).

The ambulance director reports directly to the Chief Executive Officer of North Big Horn Hospital. The director thus has the ability to interact with other leaders within the hospital. This assessment nevertheless encountered evidence of a strong division between the ambulance director and other department heads within the facility.

Clinical oversight is provided by Dr. Michael Hill, Emergency Physician and Medical Director for the ambulance service. Dr. Hill is active in the evaluations of skill performance of the ambulance crew members and has planned to be involved in the annual reviews for all ambulance staff. Dr. Hill is also involved in the revisions and review of the patient care protocols.

How the EMS System Currently Works

Today, on-duty EMS staff are in the Emergency Department of North Big Horn Hospital some of the time. Sometimes, however, staff respond from their residences, provided they are within the 5-minute response zone. New staff hired are required to be in the Emergency Department while working, while staff with tenure are permitted to be on-duty and not in-house. Pay was reported to be the same for both in-house staff and staff on-duty from outside the hospital. When the request for ambulance service is received, these staff move from their roles in the Emergency Department to their roles on the Ambulance Service, or they respond from their residences to the ambulance based at North Big Horn Hospital. Chute times during scheduled shifts for home-based staff can reach 10 minutes during the night hours.

NBHHD Ambulance Service would like to staff two ambulances, 24 hours per day. Staffing levels are currently under discussion, as some shifts have three person crews on the primary duty ambulance and not enough coverage on the second ambulance. Additionally, multiple paramedics may be staffed on one ambulance while no advanced providers are available for the second ambulance.

Staff are permitted to pick their own schedules, with no regular rotation of shifts. In interviews, some staff reported not being scheduled for any weekend coverage, and while knowing this is not fair and equitable, these staff are not inclined to speak up because of perceived repercussions in their personal lives.

NBHHD Ambulance Service lists 20 staff on its roster, with 8 – 10 members described as active. The make-up of staff includes:

- 1 Registered Nurse
- 5 Registered Paramedics (including the director)
- 4 EMT – I
- 6 AEMT
- 4 EMT – B

Staff are notified of requests for service by cellular messages sent by the local PSAP.

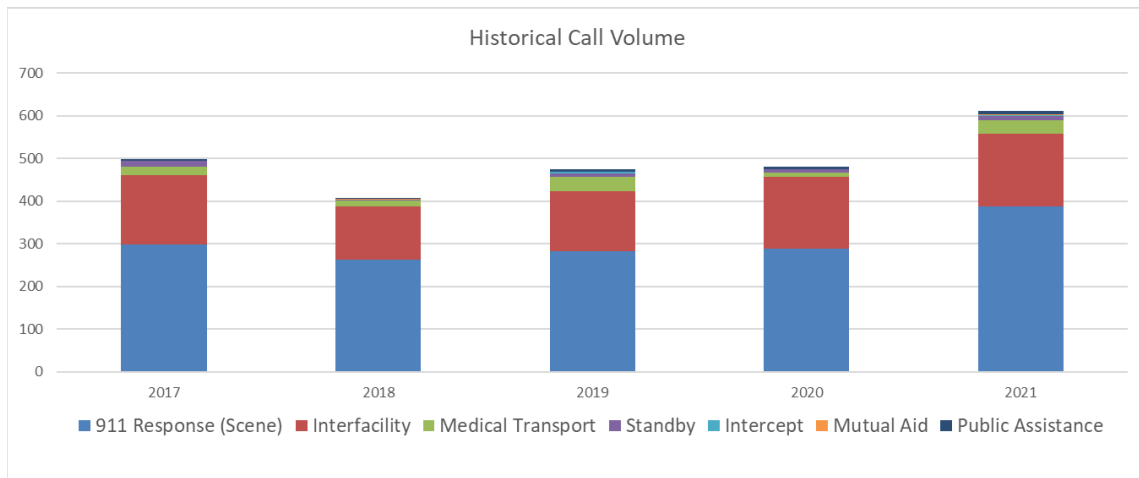
North Big Horn Hospital receives approximately 90% of all patient transports, with Powell Valley Healthcare receiving the other 10%. Patients in need of tertiary care or care levels beyond what North Big Horn Hospital can provide are transported to facilities in Billings, Montana. Ground ambulance services, including NBHHD Ambulance, are not consistently available for these transports. Because of this, air medical services are utilized often – at times, for patients not meeting the medical / trauma criteria for air medical services. During this assessment, NBHHD Ambulance reported lacking available staff for roughly 50% of the requests for interfacility transport. If ground services are available for these transports, crews will originate in Cody, or

Powell, Wyoming. These scenarios create delays in patient transport and are creating stressors on North Big Horn Hospital.

Upon completion of the ambulance call, crew members complete documentation electronically through the system provided by the Wyoming Office of Emergency Medical Services and Trauma. These reports are reviewed for completion and sent to the business office of North Big Horn Hospital, which instigates patient billing.

Call Volume

NBHHD Ambulance Service responds to approximately 500 requests for service annually. Of these, 67% are listed as emergent or non-emergent requests for service through the 911 system, 30% are listed as interfacility or medical transports (flight crew transports), and the remainder of calls are for standby events, intercepts, or public assistance.



	2017	2018	2019	2020	2021	2022
911 Response (Scene)	299	262	283	288	388	316
Interfacility	161	125	140	168	169	105
Medical Transport	20	14	34	10	33	36
Standby	14	2	8	8	9	4
Intercept	0	1	3	0	3	3
Mutual Aid	1	1	1	1	1	1
Public Assistance	4	1	5	6	9	6
Total	499	406	474	481	612	471

V. Description of North Big Horn Hospital Ambulance Service

Historical Development

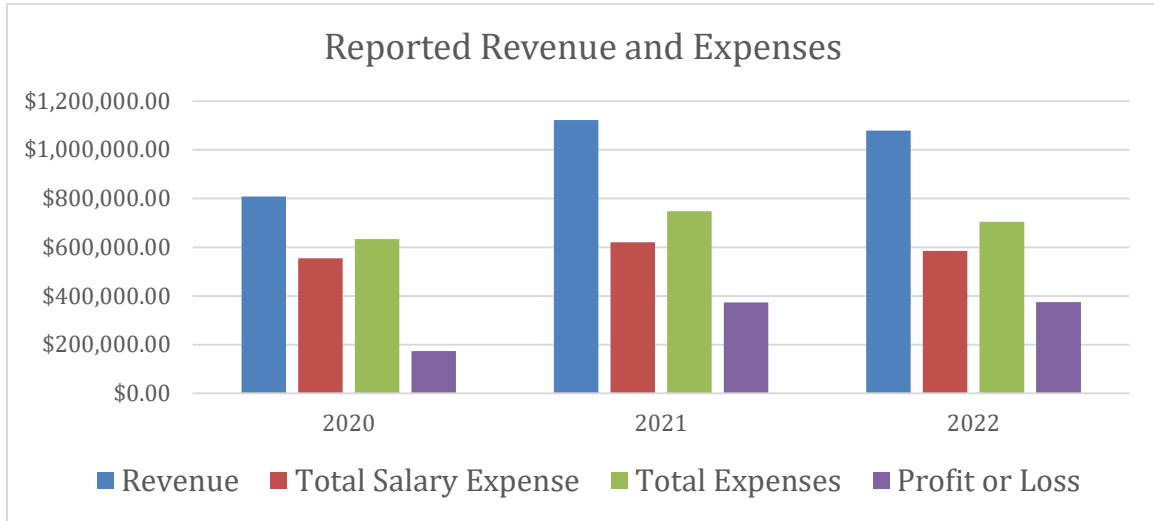
North Big Horn Hospital Ambulance Service operates as a combination paid in-house and paid remote response service. The Ambulance Service is considered a department of North Big Horn Hospital.

Internal Structure

The leadership of the Ambulance Service reports to the Chief Executive Officer of North Big Horn Hospital. The ambulance staff report to the director of the Ambulance Service.

Financial Structure

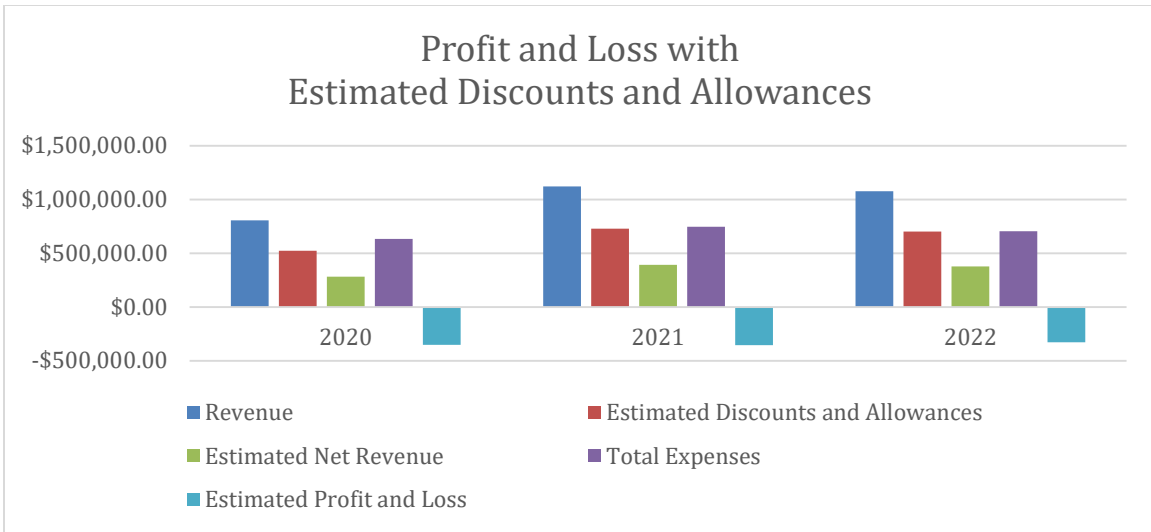
North Big Horn Hospital Ambulance Service does not receive any subsidies for operational needs outside of the assistance provided directly by North Big Horn Hospital.



	2020	2021	2022
Revenue	\$807,533.00	\$1,121,901.04	\$1,078,975.38
Total Salary Expense	\$554,397.00	\$620,643.54	\$584,683.32
Total Expenses	\$633,384.00	\$748,267.98	\$704,699.78
Profit or Loss	\$174,149.00	\$373,633.06	\$374,275.60

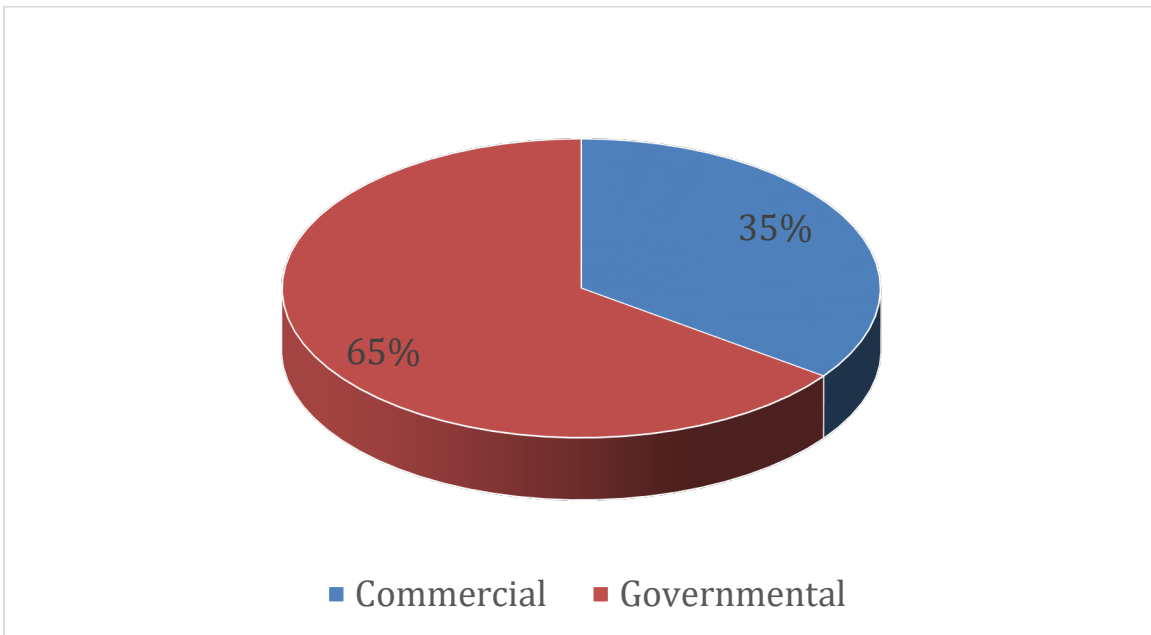
Like many hospital-based EMS organizations, NBHHD does not account for discounts and allowances (the difference between what is billed versus what is actually paid) within each clinical department. Instead, these deductions from revenue are accounted for at the organizational level. While this is a normal and common practice for hospital-based EMS organizations, it results in an inaccurate understanding of the true revenue and expenses for the ambulance department.

Below are the revenue and expenses for NBHHD Ambulance Service when estimating discounts and allowances based on the current payer mix.



	2020	2021	2022
Revenue	\$807,533.00	\$1,121,901.04	\$1,078,975.38
Estimated Discounts and Allowances	\$524,896.45	\$729,235.68	\$701,334.00
Estimated Net Revenue	\$282,636.55	\$392,665.36	\$377,641.38
Total Expenses	\$633,384.00	\$748,267.98	\$704,699.78
Estimated Profit and Loss	(\$350,747.45)	(\$355,602.62)	(\$327,058.40)

NBHHD Ambulance Service payer mix is on average 65% governmental payers (Medicare and Medicaid, for example), resulting in an average 35% collected per billed ambulance call.



Equipment, Facilities & Vehicles

NBHHD Ambulance Service does not have a facility specifically designated as ambulance operational space. Ambulances are kept on the hospital property and some of the on-duty staff function within the Emergency Department while not on calls. Ambulance operations does have the ability to reserve larger rooms at the hospital for training as well as utilization of quiet space for crew members if necessary.

Equipment in the ambulances appeared to be updated and in good working order. Processes were reviewed for vehicle readiness checks, equipment performance verification and cleanliness. Some staff reported processes are not followed for vehicle readiness inspections as well as preventative maintenance on equipment.

Clinical Care, Medical Direction & Quality Assurance

The Medical Director of the NBHHD Ambulance Service reported no concerns with the clinical care being provided today. The Medical Director is active in the review of patient care protocols, has been present for skill verification sessions, and has plans to be part of all annual evaluations.

Today, there is no formal Quality Assurance program in place at NBHHD Ambulance. The need is met solely by the Medical Director's review of patient care reports, and there is no formal process in place to measure care administered according to patient care guidelines/protocols.