Ensuring Health Across Rural Minnesota in 2030

Appendices to the Final Report

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NATIONAL
RURAL HEALTH
RESOURCE CENTER

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Introduction

With funding from the Mayo Foundation for Medical Education and Research, The National Rural Health Resource Center (The Center) partnered with The College of St. Scholastica (The College) to conduct and examine trends and disruptors within the rural health care environment that will influence access to affordable, quality care across rural Minnesota (MN) in 2030. The goals of this study were to illustrate interacting components of health in rural communities, provide a framework for planning with data, and highlight and elevate rural health policy in MN.

This appendices supports the project report, "**Ensuring Health Across Rural Minnesota in 2030"**. The report with this appendices and a recorded presentation of the financial projection recommendations are posted to the National Rural Health Resource Center website.

The goals of the appendices document are to

1. Clearly describe the methodology of the study to demonstrate the breadth of collaborative effort and knowledge incorporated into the findings and recommendations to build confidence in using the results for making policy level decisions.
2. Provide guidance for replicating this approach and processes within other states or regions.
3. Compile reference information cited within the report into one document to ease access to supporting information.

Appendix 1: Project Team

The Rural Health Summit included rural health leaders with diverse roles, perspectives, and expertise. Most participants represented a MN perspective, but some came with a national point of view. Represented areas of expertise included primary and specialty health care, mental and behavioral health care, critical access hospital and clinic administration, emergency medical services, rural policy, quality improvement, technical assistance, and foundations.

Table 1: Project Team

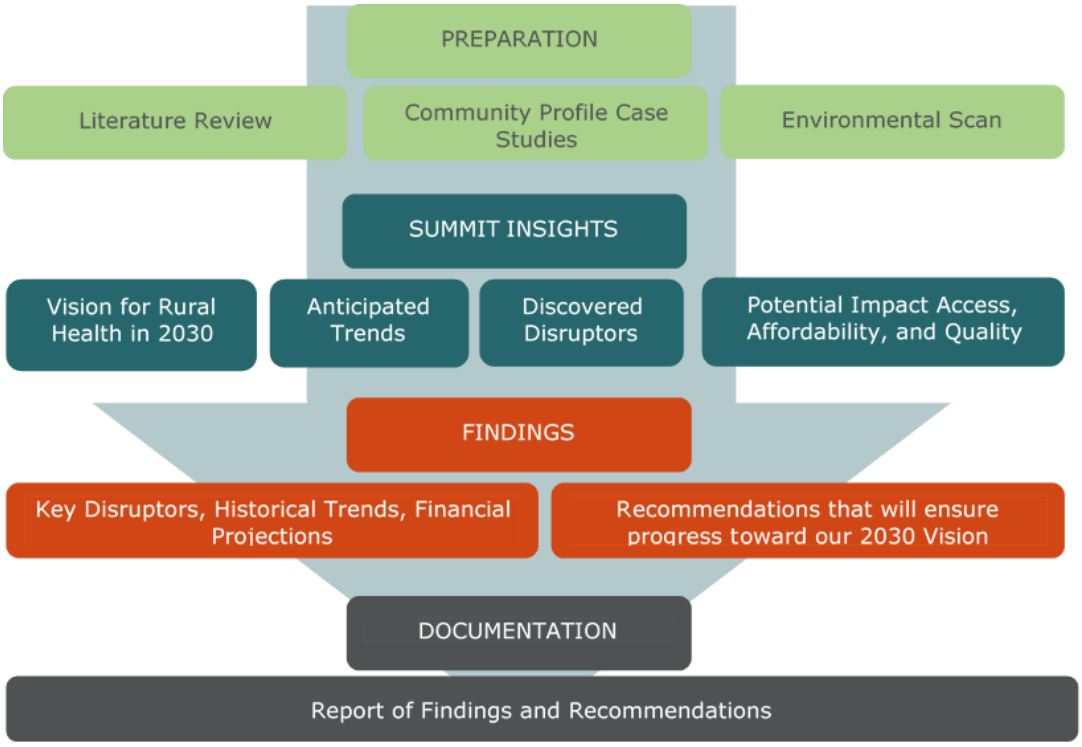
Name	Credentials	Job Title	Organization
Sally Buck	MS	Chief Executive Officer	The Center
Terry Hill	MPA	Senior Advisor for Rural Health Leadership and Policy	The Center
Keely Lonetto		Program Coordinator II	The Center
Shannon Studden	MS, PHR	Senior Program Specialist	The Center
Kap Wilkes	MBA	Director or Program Development	The Center
Marcella De La Torre	EdD	Adjunct Professor, MBA in Rural Health and Change and Leadership	The College
David Marc	PhD, CHDA	Associate Professor, Department Chair, and Health Informatics Graduate Program Director	The College
Brandon Olson	PhD, PMP	Professor of Computer Information Systems and Director of the Master of Science in Applied Data Analytics	The College
David Swenson	PhD LP	Professor, Stender School of Business and Technology and Forensic Psychologist	The College
Randy Schubring	MA	Director of Policy Development, Government Relation	Mayo Clinic
Kate Johansen	JD	State Government Relations Director	Mayo Clinic
Piper Nieters Su	JD	Division Chair, External Relations	Mayo Clinic

Name	Credentials	Job Title	Organization
Dan Given	CPA	Consultant	Stroudwater Associates
Eric Shell	MBA, CPA	Principle Consultant	Stroudwater Associates

Appendix 2: Methodology

This section describes what, how, and why specific data or information was gathered, analyzed, and synthesized through the study. The information presented here may be helpful for those wishing to conduct a similar study as it describes each of the major steps in the study's design. Diagram 1 illustrates the four primary components: preparation, Summit insights, findings, and documentation. Each component of this design illustrated in Diagram 1 was used to formulate and inform the next step.

Diagram 1: Illustration of Project Design



A. Literature Review

Authoritative literature over the past 10 years was identified that included scholarly journal articles and publications related to health care trends and disruptors and authored by health care organizations and researchers. Members of the project team reviewed the literature, tracked the frequency of various topics reporting statistics when available, and finally merged them under themes related to the project purpose. Search engines and databases included Google Search, Google Scholar, WebMD, and ProQuest Database. Search terms included a combination of the terms health care, rural health, trends, disruptors, change drivers, crisis, future, predictions, and trajectory. Titles, abstracts, summaries and cross references, and level of authority of the author or sponsoring organization or association were used to determine the appropriateness for further reading and possible inclusion in the report. Sources for key examples or themes were cited for reference.

The first draft of the literature review was circulated to all members of the project team for review and revision. Prominent and recurrent themes in the literature were identified and served as the outline for presenting the background literature on trends and disruptors. Before and during the Summit, the literature review served as a tool for helping Summit participants understand historical factors impacting rural health, identify and define important trends and disruptors, and merge these trends and disruptors into categorical themes.

B. Community selection creating four case studies

The project team used findings from the literature review to identify key criteria to be used for selecting case study communities, with the goal of creating four distinct yet representative communities. The four characteristics identified as strongly associated with access to affordable, quality care included:

- Household income
- Percentage of community members with health insurance
- Population-to-provider ratio (primary care)
- Access to broadband internet

To find the case study communities on which community profiles would be based, data for all MN counties on these four measures was collected and evaluated based on normalized scores. Each county was placed into quartiles for each of the four

measures to assess relative performance across all non-metropolitan counties across the state.

Table 2: MN state Environmental Scan of key characteristics of Case Study Communities

Cast Study Community	Quartile Results* of Normalized Results			
	Income	**Insured**	**Access**	**Broadband**
Charlie Pines	4	4	1	1
Bravo Prairie	4	4	2	2
Delta Lake	2	2	3	4
Alphaville	2	2	4	1

*Numbers indicate quartiles when compared to other non-metropolitan counties in the state of MN.

Using the quartiles for the measures, communities were selected to represent a broad range of performance against the measures. Because the community profiles are being used as case studies the profiles incorporate supplemental data from outside each community. The fictional "composite" data differentiates the four profiles into case study scenarios. Due to the case study nature of each profile, the project team assigned each community case study an "alias" rather than using the names of the various communities themselves. Following are the project team's naming and key differentiating case study characteristics.

- Alphaville was selected for its top quartile access to broadband but bottom quartile access to health care providers.
- Bravo Prairie was selected to represent bottom quartile access to health care providers, lower quartile broadband access, and lower quartile household income.
- Charlie Pines was selected due to a top quartile broadband access and top quartile access to health care providers.
- Delta Lake was selected due to lower quartile access to health care providers, and bottom quartile access to broadband internet.

C. MN state environmental scan of key characteristics of rural communities

An environmental scan was completed of each of the profiled communities to add detail and depth to the scenarios. The scan used key characteristics identified through the literature review. This evaluation was carried out integrating data from sources listed in Table 3, (note that because data sources are updated with varying frequency a link to the data sources is not included). Additionally, a brief description of the purpose of the data with the published date of the data is included.

Table 3: Data sources used for environmental scan, *listed alphabetically by the source name*

Source	Purpose
2020 County Health Rankings	Collection of county scores against a series of metrics (2020 summarized data with source data between 2010 and 2020)
CMS Medicare Enrollment Dashboard	Medicare and Medicare Advantage enrollments (2019)
CMS Geographic Variation in Standardized Medicare Spending	Health care spending (2020)
Homeland Infrastructure Foundation-Level Data	Quantity and status of hospitals and nursing homes for each county (2019)
Kaiser Family Foundation Health Insurance Marketplace Calculator	Health insurance premium estimates (2020)
Mapping Broadband Health in America – Federal Communications Commission	Broadband Internet access rates for each county in the United States (2017)
Medicare.gov Hospital Compare - HCAHPS (Hospital Consumer Assessment of Healthcare Providers and Systems)	HCAHPS survey results (2019)
Medicare.gov Hospital Compare - Timely and Effective Care	Timely response measures (2019)
US Census 2017 Core Based Statistical Area CBSA CBSA is a U.S. geographic area defined by the Office of Management and Budget (OMB)	CBSA is used to designate "either" and "Micro" counties as "Rural" for the purposes of this study (August 2017)

US Census State Population Change	Measure of county population change from 2010 - 2019

The data for each of the four communities was compared against the median values for all rural communities across MN and the United States. The results of the environmental scan of the four communities are summarized in Appendix 2d.

D. Community profiles to focus analysis

The four community profiles, created as case studies for this project, describe fictitious "composite" communities defined by actual data compiled from multiple sources. Each Summit participant received one community profile in a Summit prework packet. In preparation for attending the Summit, participants were asked to read their assigned community profile and complete a reflection question worksheet. Reflection questions were designed to stimulate thinking about trends that support and pose challenges to access, affordability, and quality in their assigned community and to identify disruptors with the strongest potential to act upon these trends and characteristics. Discussions during the first day of the Summit pulled from and built on these preparatory reflection questions.

The four community profile documents, used by the Summit participants, are included in Appendix 4. The data sources are listed in Appendix 2 c., Table 3 in this appendix as well as within each of the four profiles. While much of the data in the profiles was drawn from these sources, some creative liberties were taken in the writing of the final versions to create profiles of four representative communities across the state.

E. Summit design: rural health Summit

The goal of the Summit was to answer the question: What are the key rural health disrupters that influence access to quality, affordable care in rural MN over the coming 10 years?

Following is the invitation to rural subject matter experts to participate in the rural health Summit:

> The National Rural Health Resource Center is hosting a Summit in Minneapolis, MN to explore the question: "What are the key rural health disruptors that influence access to affordable, quality care in rural MN?" The outcome of this study will be a report of findings to be shared with MN policy makers, business

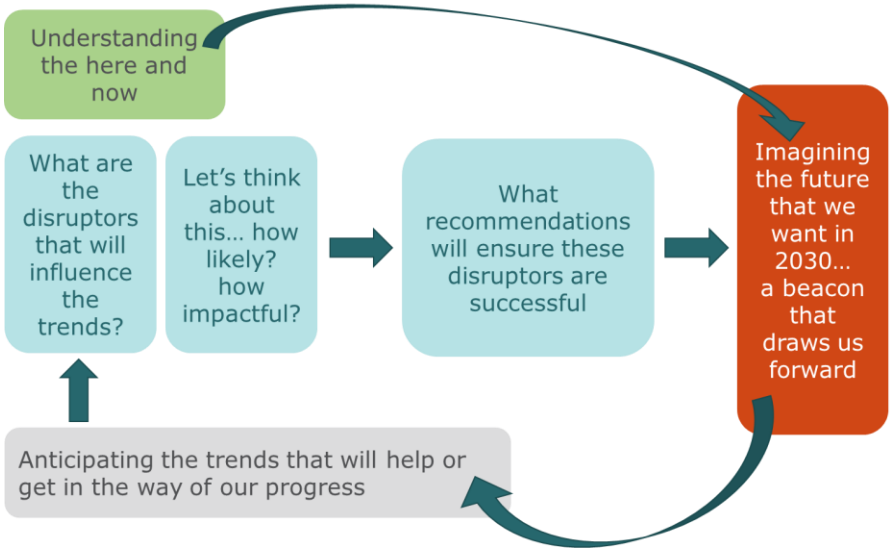
leaders, communities, and health care providers. I have attached a brief description of our Summit purpose and goals to provide additional background.

THE ROLE OF PARTICIPANTS: Come to the Summit prepared to add your voice to the conversation, share your perspective, and collaborate with other rural health experts and practitioners to inform policy work at the state level.

Due to the COVID-19 pandemic, an in-person gathering spread over two half days was transitioned to a virtual meeting. The eight hours of content was revised to focus the synchronous meeting time, during the actual Summit, on discussion and dialogue. The Pre-Summit and Post Summit work was designed as asynchronous time for reflection and formulating individual feedback.

The process of envisioning a health care system where the three attributes of access, affordability, and quality are available in rural MN communities was complex and required a systems approach. Acknowledging this complexity, the project was oriented toward participation from a wide variety of subject matter experts and structured on a concept of change that kept the vision in the forefront. Throughout the design and implementation process the vision served as a guidepost to orient learning, discussion, and prioritizing of ideas (Diagram 2).

Diagram 2: Rural Health Summit Design



F. Summit participants

The Rural Health Summit included rural health leaders with diverse roles, perspectives, and expertise. Most participants represented a Minnesota perspective, but some came with a national point of view. Represented areas of expertise included primary and specialty health care, mental and behavioral health care, critical access hospital and clinic administration, emergency medical services, rural policy, quality improvement, technical assistance, and foundations.

Table 4: Rural Health Summit Participants

Name	Credentials	Job Title	Organization
Summer Allen	MD	Family Physician	Mayo Clinic
Sally Buck	MS	Chief Executive Officer	The Center
Santo Cruz	JD	Senior VP & General Council and Member of the National Governor's Association	CentraCare
Cindy Firkins-Smith	MD, MCHI	Chief Executive Officer	Carris Health - Rice Memorial Hospital
Terry Hill	MPA	Senior Advisor for Rural Health Leadership and Policy	The Center
Heidi Korstad	MD	Board Chair	Blandin Foundation

Stacey Lee	JD, CPA, LNHA	Chief Executive Officer	Johnson Memorial Hospital
Dave Lee	MA, LP, LMFT, LICSW	Director and Chair of the Minnesota State Advisory Council on Mental Health	Carlton County Public Health & Human Services
Jennifer Lundblad	PhD, MBA	President and Chief Executive Officer	Stratis Health
Zora Radosevich	MPA	Director	Minnesota State Office of Rural Health
Tim Rice	MA	President and Chief Executive Officer	Lakewood Heath System
Joe Sertich	EdD, MEd	President and Chief Executive Officer	Chisholm Ambulance Service
Brock Slabach	MPH, FACHE	Senior V*P* for Member Services	National Rural Health Association
Julie Tesch	MEd	President and Chief Executive Officer	Center for Rural Policy and Development

G. Analysis and synthesis of Summit findings

During the Summit, participants spent time in small group discussion with others assigned to the same community profiles. Within these groups, participants joined in a facilitated discussion of these questions:

- *What vision do we imagine in 2030 for health care in rural communities across MN?*
- *What trends do we anticipate observing over the coming 10 years?*
- *What key rural health disrupters will impact access to quality, affordable care in rural MN over the coming 10 years?*

Participants shared their thoughts on a vision for health care in 2030, trends that could either help or challenge achievement of that vision, and finally, disruptors that may act on or influence those trends. Coming out of the small group discussions each group reported out their insights.

H. Finding common understanding and identifying priorities

In this step of the study and during the Summit, participants provided their individual perspectives and leaned on their experience and expertise to identify the key vision elements for rural MN in 2030, trends, and disruptors to use for modeling and analysis through the remainder of the project.

Finding key disruptors was a primary objective of the Summit. To help participants prioritize disruptors identified within their small groups, each participant was asked to prioritize three of the disruptors that would influence access, affordability or quality of care when seeking to achieve the identified vision of health in 2030. Through this prioritizing process during the Summit, participants identified 13 disruptors.

I. Disruptor assessment of likelihood and impact

Directly following identifying disruptors, during the Summit, participants were asked to evaluate each disruptor for the likelihood that the disruptor would occur and, if it were to occur, its impact on rural health care access, affordability, and quality. Each participant responded by indicating either a high, moderate, or low likelihood and impact for each disruptor.

Following the Summit, the project team analyzed responses to determine the overall mean evaluation for each disruptor as well as the level of agreement the participants demonstrated for each evaluation. The level of agreement was calculated as the percentage of participants whose evaluation was equal to the calculated mean evaluation measure for the disruptor, using standard rounding to the nearest whole number. An overall high likelihood or impact was interpreted to mean that the disruptor is thought to have an important role in the future of rural health care. A higher percent of agreement indicated a stronger, or more uniform, evaluation across the perspectives of the individual participants.

A note that four of the thirteen disruptors that were identified by participants during the Summit were not selected by the project team to include in the ongoing project steps. Each of these four had a low degree of agreement by participants, meaning that there were both high and low rating for likelihood and impact. In response to this

data, the project team opted to not include these four within the next project steps but to incorporate them into the recommendations, (see Appendix 5).

- Free cloud-based community-based interoperable EHR (Electronic Health Record)
- Insurance coverage disconnected from employment
- Paid education for all H.C. professional levels
- Universal health care with capitated form of reimbursement where community partners are part of the payment model

A final step of analysis included clarifying a final list of key disruptors from the 9 that were identified during the Summit to use for modeling and recommendations. To accomplish this the project team worked together pulling from their own subject matter expertise to condense the remaining 9 disruptors into a final set of 6 key disruptors. Syntax analysis was used to validate the team's work and the analysis showed support for the resulting six disruptors. This final list of six key disruptors served as the basis for subsequent steps in the project.

J. Historical trends to 2030

An examination of historical trend data began by compiling 2011-2020 County Health Rankings data. The data was filtered to include only non-metropolitan counties in MN as defined by Core Based Statistical Area (CBSA). Sixty non-metropolitan counties were included in the analysis, with 37 metrics used to evaluate each county.

A multiple linear regression was used to identify the relationship of the 37 metrics to the year the data was released. Stepwise elimination was used to identify the combination of metrics that led to the highest performing prediction of the year of the data. The result was a model that included 24 metrics related to access, affordability, and quality of care for each county in MN. The resulting model showed a significantly strong correlation (p-value<0.001, r-squared$=0.95$) between the model and the predicted year. This high performing multiple linear regression model allowed predictions to be made on the health of rural MN counties in year 2030. Detailed results of the linear regression and historical trend analysis is available upon request.

A listing of the 24 metrics included in the trend modeling follows:

- Percent with poor or fair health
- Percent of adult population that smoke
- Percent considered physically inactive

- Percent considered to drink excessively
- Ratio of primary care physicians to population size
- Ratio of mental health providers to population size
- Preventable hospital stays
- Percent of the female that receive mammography screenings*
- Percent that graduate high school
- Percent with some college education
- Percent unemployed
- Percent of children in poverty
- Number of violent crimes
- Percentage that drive alone to work
- Motor vehicle accidents per 100,000 population
- Percentage uninsured
- Median household income
- Percent 65 years old and older
- Percent Asian
- Percent Native Hawaiian or other Pacific Islander
- Percent Hispanic
- Percent American Indian or Alaskan Native
- Percent non proficient in English
- Percent living in a rural area

**Screening criteria changed, which may be resulting in the observed trend*

The model results predict that some health metrics will change favorably over the next 10 years while some will change unfavorably, and some will have no change. A list of trended metrics categorized as favorable, unfavorable, or no change were provided within the report. The trend analysis provides direction on specific metrics that may benefit from targeted intervention and activity to attain Summit participants' 2030 vision of access to affordable, quality care in rural MN.

Rural projections for 2030 were also compared to projections for urban communities to identify similarities and differences between the two. Urban counties were defined using CBSA definitions for micropolitan or metropolitan. A model comparing urban and rural counties was constructed using the same metrics and multiple linear regression model as the historical comparison of rural only. Based on this model, predictions for the year 2030 were categorized as having higher or lower rates as compared to urban counties. The results of this trend analysis provide direction on metrics that may benefit from targeted intervention and activity to attain Summit participants' 2030 vision of access to affordable, quality care in rural MN.

K. Financial projections of four case studies

The original study objectives identified a need for financial projections informed by the findings of Summit participants as experts in the field of rural health. This component of the study was reinforced as critical through Summit participants' selection of "Innovative rural population health care and payment models that ensure viable health services within rural communities and address financial pressures" as one of the key disruptors. Repeatedly, throughout the Summit and in subsequent virtual meetings, participants stressed the necessity of a financial solution to address anticipated trends and ultimately enable the 2030 vision of health.

Stroudwater Associates, a partner with deep expertise and knowledge of rural health financial systems, was charged with developing a financial model and projecting this model to 2030 for each of the four case study communities. Stroudwater created a base model and a Global Budget with Share Savings and Community Health Investment model. The recommended financial model and case study projections are expected to influence strategies for implementing Summit recommendations and provide critical insights for specific policy and projects to be enacted at local, regional, and state decision-making levels.

A presentation of the financial projections, including background, rationale for the recommended financial global budget with shared savings and investment in community health, projection assumptions, and results are included in Appendix 6 of this document. A recording of this presentation is available as an extension to this appendices document and the project report: Ensuring Health Across Rural MN in 2030: Financial Model and Projections. Additional detail of the financial projection calculations is available by contacting the project team.

L. Formulation of recommendations

Recommendations were formulated for the intended audience of policy makers, care providers, and business and community leaders through a two-step process.

The first step included gathering input from Summit participants. Directly following the Summit, participants were asked to provide regional, state, and national level recommendations for the disruptors discovered during the Summit. In this process, participants provided over 150 recommendations (see Appendix 5 for a complete listing). These recommendations were coded within the six key disruptors. The project team then, using affinity diagram analysis and refining through group consensus,

grouped the recommendations into thirty clusters by theme and named the clusters. This analysis created the final 30 recommendations, which were further fine-tuned through discussion and input from the Summit participants. The final listing of 30 recommendations, organized by key disruptor, are included in the report.

The second step of formulating recommendations was for Summit participants to identify those disruptors and recommendations most in need of targeted policy efforts to ensure progress toward the 2030 vision of access to affordable, quality care. This discussion took place in a post-Summit meeting following review of the project design and the 30 recommendations. These priority recommendations provide additional insights for policy makers looking to focus efforts, decisions, and projects. However, it does not lessen the importance of all six disruptors and remaining recommendations. Because of the complexity and interconnectedness of all disruptors and recommendations, a systems approach is vital if we are to truly make progress toward the 2030 vision of healthy rural communities in Minnesota.

Appendix 3: Literature Review

The Future of Rural Health Care: Trends & Disruptors

In this review of literature, completed in June 2020, we were broadly looking for insights, data, and stories that describe the current trends and possible disruptors to health care in the United States and, within Minnesota. With the review, we have identified the prevalent themes within trends and disruptors of rural health care. These themes have been used to organize the literature. References are cited and listed at the end of this review for further study.

DEFINITION OF TRENDS AND DISRUPTORS

A trend is usually understood as a general direction in which something is continuing, developing, or changing. The aging of Americans is considered a trend due to its continuity and the increase in longevity in recent decades. Some innovations are considered as disruptors of trends, and they may be threats or opportunities.

Disruptors are events that can affect current trends, require a change in thinking, and alter how we respond to or participate in change. However, the novel and uncertain nature of disruptors prevents them from being identified as shorter or longer term for impact on access, affordability, and quality. Examples of disruptors include the changing consumerism of health care, new technologies, and re-imagined care environments. Some trends may change dramatically such that at some point they may become disruptors to their previous pattern, for example, global integration and interdependence.

A. Review of trends

- Increasing diversity and aging population
- Increasing health care costs
- Expanding connectivity and broadband access
- Continuing integration of technology into health care solutions
- Increasing partnerships, networks, and mergers in health care
- Continuing shortages of workforce in our health care system
- Progressing toward integrated Behavioral Health with Primary Care
- Recognizing the impact of social determinants on health and wellness

In this survey of literature, a summary is provided with each of the eight identified trends.

INCREASING DIVERSITY AND AGING POPULATION

Demographics continue to change in rural areas across our country, for example, nine out of 10 rural areas are more diverse now than they were 20 years ago. This is due to jobs in construction, manufacturing, agriculture, and meat packing that have brought immigrants to new places in recent decades (PRB, 2017).

In Minnesota, about 27% of residents reside in small towns and rural areas, 8% of whom live in isolated areas with little or no access to health care. Although projections indicate that overall populations will continue to grow, partly due to immigration, current political issues with immigration and climate related population displacements make the size of immigration trends unclear. The forecasts are for continued declining populations in rural areas overall (Ewing, 2018), however, it is possible that migrations may revitalize rural communities. The state may benefit from strategically recruiting people from the 30-49-year-olds migrating across the state in rural areas (Asche, 2019).

MN is experiencing changes in ethnicity and cultural origins. The state is ethnically composed predominantly of Caucasians (83.3%) owing to the Scandinavian, German, and Irish immigrants of the 19th century, (Statistical Atlas, 2018). These are followed by African American (6.2%), Asian (4.8%), two or more races (2.9%), Native American (1.1%), and Pacific Islander (.04%) residents. Immigrants have settled in some counties that have rejuvenated their economies. For example, Hmong, Laotian, and Hispanic immigrants in Nobles county and the town of Worthington have added to the labor force (Mahon, 2018).

Residents of small towns and isolated rural areas have only 2.3% and 1.4% household incomes above the Minnesota median income, and about 122,000 live in

concentrated poverty areas widening the gap to affordable and accessible medical care (Greater Minnesota, 2017).

Many rural residents are older Americans, and twice as likely to be 80 or older than urban residents (Rural Health Information Hub, 2010). By 2030, it is estimated that 20% of Minnesotans, in general, will be over the age of 65. As longevity increases, lifestyle and chronic diseases and disabilities will require health care specific to this population, such as home health care, visiting nurses, and others. For example, community paramedicine ("mobile integrated health") being explored in California may expand the roles of currently underutilized paramedics. They may provide short-term post discharge follow-up, contact high Emergency Room (ER) users outside the ER, provide directly observed therapy for tuberculosis, hospice calls, behavioral health transport to appropriate settings (rather than ER), and medication deliveries (Coffman, et.al. 2020).

INCREASING HEALTH CARE COSTS

Rates of public health insurance in rural areas are generally higher than in urban areas. This is due to a higher population of age 65 or older who rely on Medicare, lower incomes and eligibility for state public programs, and lower employment that has less access to employer coverage (Minnesota Department of Health, 2019). Pharmaceutical and out-of-pocket costs are higher in the US than many other countries. These costs can interfere with patients' ability to afford them and may also deter other health-related decisions. For example, a 2020 report in Consumer Reports on growing out-of-pocket medication expenses showed that 23% of community members did not fill a prescription, 20% put off a physician visit, 14% took an expired medication, and 13% declined a medical test or procedure (Gill, 2020).

EXPANDING CONNECTIVITY AND BROADBAND ACCESS

Connectivity and broadband can provide essential access to health care information and providers including educational material, monitoring of real-time or stored health data, transmitting radiological images, diagnostic assessments, prescriptions, and video-based direct provider visits. Broadband is usually defined as the capability of transmitting 25 megabits per second, that can accomplish the above goals (Zimmer, 2018). While broadband is being established in urban counties, where it has about 96% penetration, in rural areas it ranges from 38-62%. In addition, even when broadband may be available, residents who cannot afford the rates, or who travel to local libraries where it is available, cannot benefit from it easily. Wireless technology (e.g., smartphones) is "line of sight" meaning that terrain barriers and weather can disrupt it. In other cases, users must find "hot spots" in their communities where telecommunications work. Finally, for remote and frontier

residents, most communication companies cannot justify the extensive cost of infrastructure to reach limited populations (NCTA, 2020). There are speculative programs, such as Elon Musk's SpaceX project, in which he proposes to distribute thousands of miniature satellites into orbit that may transmit communications over a much wider basis (ZDnet, 2020). Fifth generation wireless 5G technology was rolled out in 2019 and promises to revolutionize healthcare. However, it will rely on many towers and different bandwidths are not currently compatible and perform differently. Rural areas are likely to continue to have low and mid band ranges for data transfer (Segan, 2020).

CONTINUING INTEGRATION OF TECHNOLOGY INTO HEALTH CARE SOLUTIONS

Remote patient monitoring, electronic incident reporting and overall impact of the Electronic Health Record (EHR) on patient safety continue to improve as more evidence of the effectiveness of these solutions is being captured. (Rural Health Information Hub, 2020a) The Health Information Technology for Economic and Clinical Health (HITECH) was part of the American Recovery and Reinvestment Act (ARRA) of 2009. It was a health policy initiative to promote the use of electronic health information as a tool for reforming the delivery of health care and improving health outcomes. The activities related to the HITECH Act included development of Health Information Exchanges (HIE) and Meaningful Use of EHR. Progress in meaningfully using EHRs has continued in the past ten years and some form of an EHR exits in most professional practices and hospitals. Although barriers to interoperability persist, it has been found that more information is being shared electronically and the focus of attention has shifted from adoption of EHRs to issues related to using health information technology as a tool to provide health care delivery (Gold & McLaughlin, 2016). There is continuing support of integrating technology into health care solutions through the Minnesota Department of Health as seen through the MN E-Health Assessments (Minnesota Department of Health, 2020a).

Federal support of technology that supports and promotes health care solutions has continued from establishment in 2006 of the first Telehealth Resource Centers (TRC) to having 12 regional and 2 national resources centers working collaboratively in 2017 as the National Consortium of Telehealth Resource Centers. This consortium aims to help overcome barriers to using telehealth, promote telehealth education, and provide resources. This consortium of resources is funded through the Health Resources and Services Administration (HRSA) Office of the Advancement of Telehealth (OAT) (Center for Connected Health Policy, 2020). Various modes of telehealth connect health care providers and patients, including videoconferencing, remote monitoring, electronic consults, and wireless communications. Since 2010, the percent of hospitals

that are fully or partially implementing computerized telehealth systems has increased 100% from 35% to 76%. Additionally, by 2017 more than half of all hospitals had implemented some capability for remote patient monitoring (American Hospital Association, 2020).

Virtual health programs for behavioral health can provide confidentiality for rural residents who are aware that in small communities, "everyone knows everyone and their business." Disclosing sensitive issues such as substance abuse, sexual concerns, domestic violence, and other topics can be done with specialists outside the community on secure networks (Schulte, Majerol, & Nadler, 2019).

5G is also touted as having the potential for transforming behavioral health care in rural areas through online therapy but is only in planning stages for most communities. A Cisco Consortium in the UK is testing a 5GRuralFirst Program in Southwest England, but the United States lags on implementation (Malenfant, 2019).

INCREASING PARTNERSHIPS, NETWORKS, AND MERGERS IN HEALTH CARE

With the rising costs of health care, there is an increasing trend for consolidating resources, and reducing competition. This is contributing to an increase in organizational partnerships (ECG, 2017). These range from semi-independent collaborations, alliances, networks and coalitions to full mergers and acquisitions. The lower level alliances and networks usually form to address shared needs in a community. These may be narrow or broad goals that can change over time and involve a broad representation of stakeholders from providers, government, educators, nonprofits, and public organizations. Retail entrants are also recognizing the advantage of partnering with healthcare organizations. Examples of these entrants collaborating with established health care entities include CVS and Aetna; Walmart and Humana; Amazon, JP Morgan, and Berkshire Hathaway; Apple, IBM, JNJ, and Medtronic; United Healthcare, DaVita, and Optum (Woodson, 2019).

The trend in rural health mergers show steady increases from 2005 to 2015 with a slight drop in 2016 but hitting a record high in 2018. Over this ten-year span, about 12% of hospitals have merged, more than half in 11 states and mostly in the South. The benefits may include a wider selection of provider options, a gain in market share, and savings with economies of scale and increased purchasing power. Concerns may include outsourcing support services, reduction in use of full-time nurses, and residents having to drive longer distances for some care. In addition, more centralized administration outside the rural area can contribute to fears of losing local control and independence (Williams, Thomas, Howard & Pink, 2018).

CONTINUING SHORTAGES OF WORKFORCE IN OUR HEALTH CARE SYSTEM

Lack of job creation, retirements, and workforce shortages are contributing factors of the rural health care crisis (Rural Health Information Hub, 2020b). The primary employers in rural communities are education, health services, trade, transportation, and utilities. As high as 50% of residents are employed in these areas across all rural settings. In contrast to urban employment in business and professional fields, rural areas employ more people in agriculture, government, or self-employment. The highest job vacancies and increased salaries have occurred in rural areas, but the salaries are still not on par with urban jobs (Asche, 2019).

Hospitals are primary employers across the United States, providing more than 16 million jobs (American Hospital Association, 2020). A healthy hospital system and employment often drive more employment, schools, transportation, and other services. Decreasing services can initiate a decline in the local economy and new businesses are reluctant to enter (NRHA, 2018).

Regarding the health services sector, it is worth noting that over 7,000 regions across the country have been designated as Health Professional Shortage Areas by the Health Resources and Services Administration, and about 60% of those are located in rural areas (Sukel, 2019). The patient-to-physician ratio is about 40 to every 100,000 people in rural areas, compared to just over 53 per 100,000 in urban areas. Dentists are even less accessible with 22 per 100,000 compared to 30 per 100,000 in urban areas (Doescher, 2009). The 2016 census reported that 30% of physicians are age 60 or older, and a 2017 physician survey by CompHealth found that, on average, they planned on retiring by age 68 (Sweeney, 2019). About a third of Minnesota rural physicians plan to retire within the next five years. This will further create a shortage of physicians and nurses as a greater number will retire in the coming years (Facer, 2018). Another study, *The complexities of physician supply and demand: Projections from 2017 to 2032*, by the Association of American Medical Colleges, 2019, has projected a shortage of 122,000 full-time physicians by 2032 for the general population, with presumably even greater shortages in rural areas. Nearly all health care providers in rural areas of Minnesota are in short supply including CNAs, LPNs, RNs; of special concern are OB/GYN physicians, pediatricians, and psychiatrists (NRHA, 2012). Such shortages are due to decreasing working hours, more demand, retirements, and burnout (Buerhaus, Skinner, Auerbach, & Staiger, 2017).

In Minnesota, 80% of counties qualify as mental health professional shortage areas; a majority of rural areas (65%) do not have a psychiatrist and nearly half do not have an available psychologist (Andrilla, Patterson, Garberson, Coulthard & Larson, 2018). This shortage of psychiatry services can be thought of as a "silent shortage" (Merritt Hawkins, 2018). Although there is demand for mental health support, in

general, "mental health problems in the United States, their causes, cures and those who suffer from them, tend to be swept under the carpet" (Merritt Hawkins, 2018).

PROGRESSING TOWARD INTEGRATED BEHAVIORAL HEALTH WITH PRIMARY CARE

Integration of behavioral health with traditional health is more commonly understood thanks to efforts at increased awareness. "Mental illness" has long been stigmatized and been rebranded as "mental health" and more recently as "behavioral health" (Shim, Rust, 2013). This positive reframing is helpful and emphasizes personal growth and more integration with traditional health practices. Delay of early intervention and appropriate treatment can exacerbate these conditions and add others, increasing disability, unemployment, family stress, and ultimate cost (Cheung, et al. 2017). There has been an increasing trend in addressing the need for integration including upgrading skills of available providers in rural communities, telehealth for consultation, diagnostics, medication, and psychotherapy. Current challenges include availability of psychological and psychiatric services in rural communities, perceptions of confidentiality, alcohol and opioid misuse, depression, and anxiety. Suicide rates have grown steadily in rural areas and increased 41% between 1999 and 2016 (CDC, 2018).

Although "safeTALK" training sessions by the Minnesota Department of Agriculture have increased awareness in communities of how to identify mental health crises, there are still limited options of intervention available.

In addition, people living with mental health conditions are at a much higher risk of experiencing a myriad of chronic health conditions. The mental conditions patients experience could adversely affect the ability of taking care of themselves and diminish quality of life. Conversely, having one or more chronic health conditions could lead to mental health issues. Mental health and physical health are fundamentally linked and the longer these two factors coexist, the more chances for affecting health outcomes long term. This situation also generates economic costs to society due to lost work productivity and increased health service use (Canadian Mental Health Association, 2008). The major chronic health conditions listed by the Canadian Mental Health Association are diabetes, stroke, COPD, breast cancer, colon cancer, lung cancer, respiratory conditions, and arthritis.

RECOGNIZING THE IMPACT OF SOCIAL DETERMINANTS ON HEALTH AND WELLNESS

Studies such as Healthy People 2020 from the Office of Disease Prevention and Health Promotion (2020) have shown the importance of addressing health and health care in a systemic way. Healthy People 2020 highlights the importance of addressing health in our homes, schools, workplaces, neighborhoods, and communities. It is no longer

enough to see a medical provider; continuity of care and longitudinal primary care are the best approaches to healthy communities. In addition, our health is also determined in part by access to social and economic opportunities, the resources and supports available in our homes, neighborhoods, and communities, the quality of our schooling, the safety of our workplaces, the cleanliness of our water, food, and air, and the nature of our social interactions and relationships. The conditions in which we live explain in part why some Americans are healthier than others and why Americans more generally are not as healthy as they could be.

B. Review of disruptors

Disruptors can affect current trends, require a change in thinking, and alter how we respond to or participate in change. Identification of disruptors in healthcare are essential to the accurate formulation of policy in rural communities.

The following seven disruptor themes were identified through our literature review:

- Health care consumers focused on lower cost and convenience
- Innovation and value-based payment models drive new care models
- New technologies are supplanting and supplementing traditional care services
- Financial pressure is impacting decision making and the future of health care facilities
- Changing roles are providing care in new ways
- Leading health care as a complex and adaptive system
- Global integration and interdependence

HEALTH CARE CONSUMERS FOCUSED ON LOWER COST AND CONVENIENCE

New retail and technology entrants will change the competitive and service landscape. For example, the costs and dissatisfactions with current health care is creating an emerging market for new entrants (PwC, 2014). In 2018 large corporations from retail, technology, telecommunications, consumer products, and automotive industries initiated disruptive innovations. An earlier survey by the Health Research Institute, in 2014, found that consumers who were looking for lower cost and more convenient healthcare would be willing to shift from their current providers to new ones. This shift was estimated to be worth about $64 billion and will likely shift market share from traditional health care as well as wellness and fitness. These challenges will likely increase competition with already stressed-to-the-limit hospitals. A survey of generational cohorts regarding preference for retail clinics, urgent care, and doctors' offices showed that younger cohorts did not have as strong a preference for primary care physician (PCP) visits and instead cared more about convenience, speed, and ease of access that are more promoted by retail services (Stanek, 2019). Examples of new services include at-home medical tests, sending digital images to a physician for

diagnosis, providing simple procedures at local pharmacies, having wireless devices (including phones) transmit real time or stored monitoring information, online medical consultation, and delivering or retrieving medication or medical specimens via drone.

INNOVATION AND VALUE-BASED PAYMENT MODELS DRIVE NEW CARE MODELS

It has been nearly a decade since Don Berwick and his colleagues at the Institute for Health Improvement introduced the concept of the "Triple Aim" to the healthcare policy debate. (Minnesota Department of Health, 2017). The goal of the health system should be to achieve three interdependent outcomes: improved care for individual patients, improved population health, and reduced costs of care. Among public payers, Medicare has taken a leadership role in implementing value-based payments, setting a goal in 2014 of tying 30% of Medicare payments to value by 2016 and 90% by 2018 (Minnesota Department of Human Services, 2020). This goal, as described with the Minnesota Integrated Health Partnerships (IHP) Overview has led to the rollout of numerous value-based payment initiatives by the Centers for Medicare and Medicaid Services Innovation Center (CMMI). Congress also has passed major legislation (PAMA and MACRA) that require value-based payment in Medicare. While Medicare is obviously an influential player in the healthcare system, states retain significant authority over their regional health care market and can play a critical role in moving health care toward value. Medicaid now provides coverage for 21% of the covered lives in the United States, behind employer-based coverage at 49% but ahead of Medicare at an estimated 14%.3 In addition, individual states have authority over both Medicaid operations and private insurance markets within their jurisdiction. States have significant power to move their state health insurance markets toward value-based payment reform (Change Healthcare, 2020).

An example of a new value-based payment system in Minnesota, as part of a 2008 Health Reform Law, is development of a "basket of care" initiative related to a particular disease state, including those for both chronic conditions as well as surgical procedures. Minnesota also has implemented the Integrated Health Partnership (IHP) demonstration which is a shared- risk ACO program for the Medicaid population (Minnesota Department of Human Services, 2019). Change Healthcare, Research Study in 2020 on Value-Based Care in America: State by State, describes that Value-based care (VBC) is being delivered across the United States. These new care and payment models are designed to improve quality and reduce costs. They are influencing how care providers practice medicine and how they are compensated for their services. Between 2008 and 2018, there has been a seven-fold growth in the number of states and territories implementing value-based reimbursement programs with a total of 48 states implementing nationwide (Change Healthcare, 2020).

FINANCIAL PRESSURE IS IMPACTING DECISION MAKING AND THE FUTURE OF HEALTH CARE FACILITIES

Since 2012, a significant shift has occurred in hospital payment programs nationwide, with Medicare, Medicaid, and private insurance payers transitioning from payment for procedures to payment for value and population health management. In the new payment models, quality outcomes and controlled costs are rewarded. Hospitals are taking on more responsibility for managing the general health of their populations. Many CAHs have already become part of the new payment models like Accountable Care Organizations (ACOs), and others are preparing to be part of value-based models (Rural Health Research Gateway, 2018).

Many aspects of the complex health care environment influence health care finance, including new care models that focus on improving quality and reducing costs by changing compensation models and improving operational efficiencies. One value-based model is ACO, that incentivizes transition to value-models and shared savings. In 2018 there was an approximate shared savings of $93 per beneficiary for a total of $983 million (CMS, 2020). Historically rural hospitals have a high Medicare and Medicaid payer mix. A reimbursement rate of 87% in 2017 creates financial pressure on the hospital. There has been an accelerated rate of rural hospital closings across the country. The Chartis Group developed a model designed to identify the probability of closure for the nation's hospitals. This model allows for analysis of performance variables having the greatest impact on increasing or decreasing a rural hospital's likelihood of closing. Running this model in 2020 the findings identified, across the country, 216 “most vulnerable”, 453 as “vulnerable”, and 237 as “at risk”. In Minnesota, this model identifies that within the 95 total rural hospitals, in 2020, two hospitals meet criteria for most vulnerable and seven are at risk hospitals. Minnesota has had three hospitals close since 2010 (The Chartis Group, 2020).

It has been discovered that liquidity is key to financial stability for rural hospitals as they transition to value-based payment systems. A cash reserve is required to make proactive investments in new payment systems and care delivery models. (National Rural Health Resource Center, 2019).

NEW TECHNOLOGIES ARE SUPPLANTING AND SUPPLEMENTING TRADITIONAL HEALTH CARE SERVICES

Telehealth technology is also referred to as mobile health and telepresence; all these technologies build on opportunities to connect care providers with patients in virtual ways. The telemedicine market is set to be valued at $175.5B by 2026, indicating a need and demand. The recent trajectory of telehealth has been amplified with the COVID19 pandemic. It was already poised for significant growth as it plays an important role in care delivery. There are some key factors contributing to the success

of widely adopting telehealth solutions: patients and providers becoming more comfortable with the technology, the information infrastructure is expanding access to reliable broadband, changes to payment restrictions allow for increased funding to providers utilizing telehealth solutions, and new tools are being used that enhance care within a telehealth environment (Harbaz, 2020).

Since 2010 over 120 rural hospitals have closed across our country, but there are alternative delivery systems on the horizon that may be options for delivering and receiving care beyond the traditional brick and mortar hospital setting (Rural Health Information Hub, 2020c). One example of alternative delivery systems is using mobile technology to connect patients with their care providers. This technology includes video meetings, patient portals, scheduling platforms, and chat box video. These offer greater convenience, patient engagement in care plans, and improved outcomes (American Hospital Association, 2018).

Artificial Intelligence (AI) is supplementing traditional services and bolstering new entrants. This is a promising disruptors affecting health care (Health IT Analytics, 2020). Powerful computers that can simulate human learning are demonstrating that they can perform many health care functions accurately, efficiently, and without fatigue or cognitive bias that can affect human problem solving and judgment. The use of neural networks that can sift through big data can create algorithms capable of diagnosing conditions and reading radiologic images at or exceeding the skill of trained providers (Topol, 2019). For example, human accuracy in diagnosing dermatology melanoma is 75-84%, while algorithms are between 91-95% (Tobeitz, 2017). Current applications with promise include guiding researchers in constructing cohorts for clinical trials, surgical robots, targeted messaging alerts, and personalizing and contextualizing services (Davenport & Kalakota, 2019).

CHANGING ROLES ARE PROVIDING CARE IN NEW WAYS

Hospitals are primary employers across the US, providing more than 16 million jobs (American Hospital Association, 2020). A healthy hospital and employment often drive more employment, schools, transportation, and other services. Decreasing services can initiate a decline in the local economy and new businesses are reluctant to enter (NRHA, 2018).

Expanded roles of health professionals and cross training could be factors to be considered when painting a picture of the future workforce (AHRQ, 2007). To meet current provider shortages and facing staffing shortages, many communities are relying on volunteer rural emergency medical services. However, such rosters are shrinking, schedules are difficult to staff (e.g., weekends and holidays), and nearly 60% of facilities do not have shifts covered a day in advance. Although 88% of

agencies have Basic Life Support available, they do not have paramedic services available (Minnesota Department of Health, 2019). An emerging new role in health care is the community paramedic (CP). A CP has additional training to deliver primary and preventive health care services in patients' homes and community settings and seeks to connect patients to local community and public health resources. In 2019 there were 144 certified community paramedics in Minnesota. Other emerging roles that support the health of rural communities in Minnesota as care transitions toward population health and in addition help to fill gaps in access to care include Collaborative Practice Dental Hygienists, Community Health Workers (CHW), and Dental Therapists. There are currently more than 700 certified CHW's in Minnesota. They are a frontline public health worker who is a trusted member of the community and serves as a liaison to community, health, and social services. CHW's ensure culturally competent services are delivered to community members and are looked to as a solution for increasing access to care. They are also being leveraged as a connection between primary care and social service agencies to effectively address issues of health related to social determinants (Minnesota Department of Health, 2019).

The impact of Artificial intelligence on the health care workforce is unclear and estimates of replacement of workers range from 5% to 35%. In some cases, replacement may be restricted due to automation technology cost, growth of the labor market, unexpected benefits of automation, and regulatory and social acceptance of automation. There may also be ethical issues such as supplementing or replacing humans with non-human judgement on some critical tasks, the need for empathy and human contact, and the lack of transparency on complex black-box algorithms (Davenport & Kalakota, 2019). A combination of cross training and artificial intelligence could potentially solve some of the current shortages in rural areas (Nancarrow, 2015).

There are high rates of physician burnout reflected in a 2017 survey of over 5,000 physicians, with 44% reporting a least one symptom of burnout (Shanafelt et al., 2019). The study of burnout and satisfaction with work-life integration with physicians and the general working population between 2011 and 2017 (Shanafelt et al., 2019) concluded that physicians were more at risk for burnout and had less satisfaction in work-life integration than other US workers. It is also likely that there will be additional shortages due to the stress and trauma experienced by current health care workers due to COVID-19. Although it is uncertain how many health care workers have become seriously ill and some died from the pandemic, others have expressed feelings of burnout and may leave the field or shift the focus of their work into new care arenas, such as public health.

Foreign-born physicians have long been a resource in high need areas, and about one in four physicians have international roots. While these numbers help in addressing the high need gap, the 2019 Executive Order restricting travel has adversely impacted these numbers and such declines affects the diversity of the medical workforce as well as the familiarity of physicians with the diverse cultural groups needing healthcare in the US (Mathema, 2019).

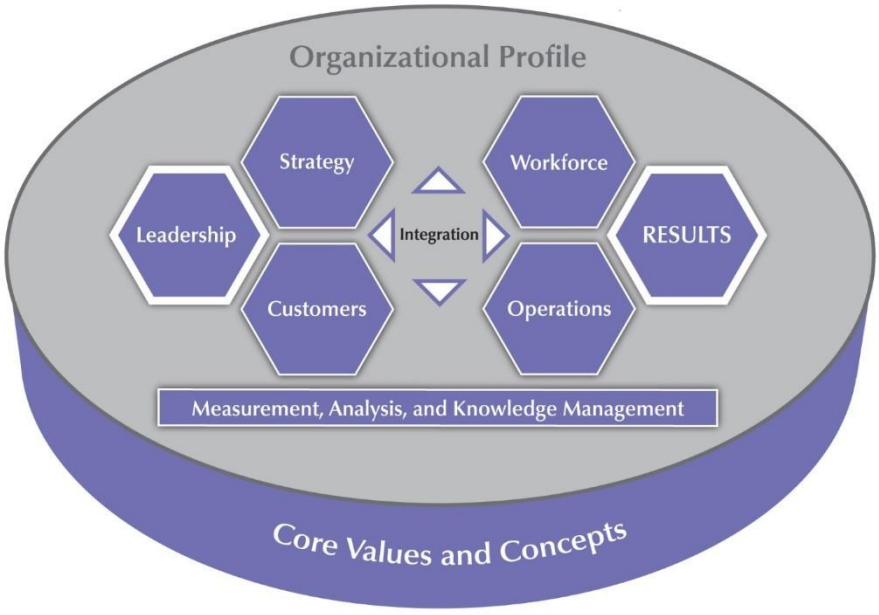
LEADING HEALTH CARE AS A COMPLEX ADAPTIVE SYSTEM

As we are rethinking the business of health care and its complexity, new leadership skills such as change management and organization development are driving change and leading resilient systems. The new models of leadership demonstrate a paradigm shift that aims to increase staff and community engagement (Research Gate, 2018).

Health care organizations have been described as possibly being the most complex organizations in human history (Drucker, 2002) due to their complicated design and nonlinear and dynamic connections among people and processes (Lipsitz, 2012). It is this complexity that requires of health care leaders an adaptive approach. This high level of complexity is often called a "wicked problem." Such problems are ongoing and emergent, have multiple and diverse stakeholders with different values and perspectives, the problem is ill-defined and changing, facts are changing, the problem is connected to other problems, and there are unexpected consequences. This environment of complexity requires a more dynamic and flexible leadership approach. Often this is found within a systems framework, such as the Baldrige Performance Excellence Framework. Systems and complexity thinking has a long history in the fields of engineering, technology, and social science, but less so in health care. As such, it can be considered a disruptor since it requires such a different view toward problem management and is the opposite of time-limited, top-down, executive decision making in most cases. Viewing health care as a complex adaptive system allows for an adaptive approach (Coiera, Ash & Berg, 2016; Hsieh, 2019). Figure 1, below, is an image that describes the 7 components of the Baldrige framework and illustrates the interconnectedness of those components. This is not a linear frame of thinking but rather a frame that allows for learning, reflection, intersections, interconnections, ripple effects, consequences, iterations of solutions, etc. (NIST, 2011) An example of the complexity of health care in Minnesota is described as one person's health expenditure is another's income, the value of health is difficult to quantify, savings are difficult to track, and rural health care facilities are an important part of a communities' fabric and history (Minnesota Department of Health, 2019). As we better understand the make-up of a wicked problem there is a commitment to a different approach to thinking and problem solving that involves broad perspective, tolerance of uncertainty and ambiguity, ongoing dialog among stakeholders, and using new tools such as systems and causal loop mapping to

manage transformative change (Khan, Vandermorris, Shepherd, et al., 2018; Lipsitz, 2012; Martin, 2018).

Figure 1: Baldrige Performance Excellence Framework Diagram:



From Baldrige Performance Excellence Program. 2019. *2019–2020 Baldrige Excellence Framework: Proven Leadership and Management Practices for High Performance (Health Care)*. Gaithersburg, MD: U.S. Department of Commerce, National Institute of Standards and Technology. https://www.nist.gov/baldrige.

An illustration of complexity within health care is the growing awareness and intention to integrate social determinants of health into more traditional care models. This is a key focus within Healthy People 2020, which is designed to identify ways to create social and physical environments that promote good health for all. There is a common intention and goal that everyone deserves an equal opportunity to make choices that lead to good health (Frith of Norheim, Asada 2009). Leaders within health care are beginning to shift in their leadership style and purpose and advance opportunities to integrate SDOH needs and challenges into care models, such as education, childcare, housing, business, law, media, community planning, transportation, and agriculture. This evolving health care leadership model works to create effective collaboration through increasing our interconnectedness, embracing systems thinking, developing constructive relationships, and working across governing (Rural Health Information Hub, 2020).

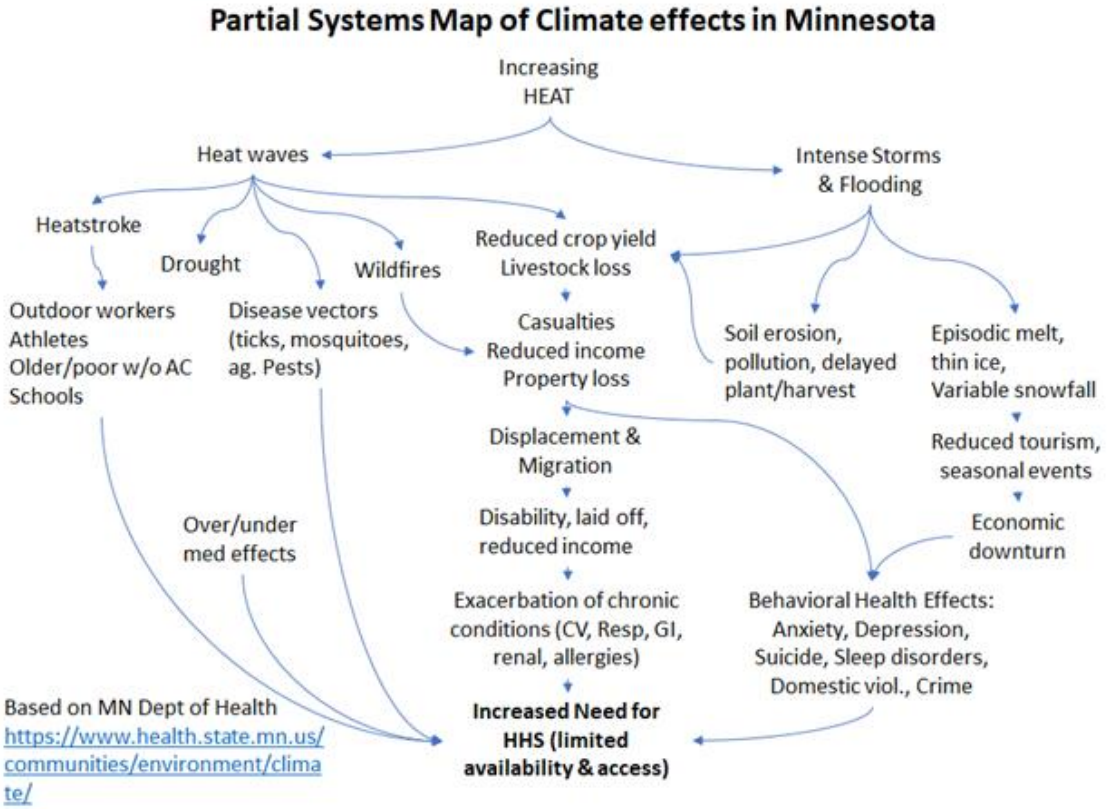
GLOBAL INTEGRATION AND INTERDEPENDENCE

Climate change is accelerating with dramatic effects on many aspects of health care and emergency services (Minnesota Department of Health, 2020). Climate change has reached a consensus among 97% of climate change scientists as well as 195 international signatories at the United Nations Paris Climate (NASA, 2020). Already the impact of the environment is demonstrating health impacts such as direct

personal injury, and death, damage to food and water resources, mental health trauma, and disruption of human and health care services. A recent article in the New England Journal of Medicine (Haines & Ebi, 2020) warns providers and encourages them to take action to prepare more thoroughly for the health impacts of climate change. A 2018 FEMA high resolution flood mapping study of flood risk in Minnesota showed that over a half million people would be exposed to 100-year flood waters (Wing, et al., 2018). Many residents often have little or no insurance, limited transportation, insufficient telecommunications, and restricted range of services locally. Rural communities have begun to engage in discussions about how they will deal with these impacts. As an example, Winona County, Minnesota initiated the Winona Rural Climate Dialog with broad representation to discuss these issues (Pottorff, 2016). The global population displacements and migrations due to climate change are very likely to continue. An example of a systems thinking method is a systems map. Figure 2, below, illustrates the complexity of components, the myriad of impacts, and the many intersecting factors in play within Minnesota when consider the wicked problem of climate change.

Pandemics are among the most unexpected and violent disruptors. The current COVID-19 outbreak is an example of how swiftly a disease can spread in our interconnected world. Such outbreaks can overwhelm the health care system, cause high anxiety, and produce economic disruption and social unrest. Planning for potential outbreaks is a challenge given the uncertainty of such events. Although the impacts of the COVID-19 pandemic are still emerging, it appears that it is having dramatic effects on front line providers including anxiety and depression, infection and death, low morale, and is likely to increase retirements. The delays in elective surgeries and patients' deciding to delay treatments may have long term effects on their conditions; perhaps leading to greater disability and care costs, as well as, significant financial impact to the health care industry due to a severe reduction in non-emergent services. The use of telehealth in some states has grown by 257% nationally, and as much as 700% in Washington (Ducharme, 2020). The impact of COVID-19 harbors many potential outcomes including strategic revision of health care, some populations moving to rural areas for better isolation from urban congestion, more support for development of and reliance on telecommunication, and more rapid government and community responsiveness (National Review, 2020).

Figure 2: Partial Systems Map of Climate Effects in Minnesota, based on Minnesota Department of Health



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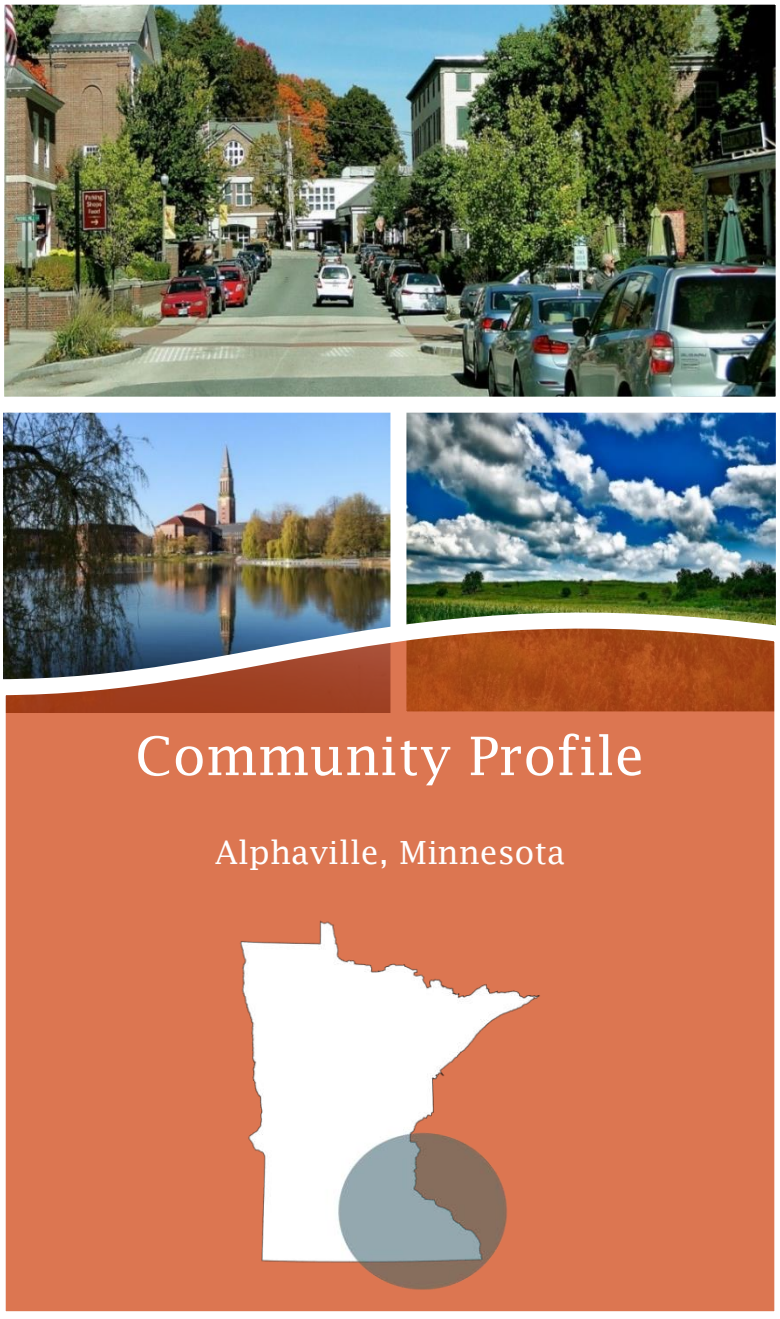
Appendix 4: Community Profiles

A. Alphaville Profile



Project and Community Profile Overview

This project was developed through a partnership between the National Rural Health Resource Center and The College of St. Scholastica with funding from the Mayo Clinic Foundation. The goal of the project is to examine what the rural health care environment will look like in 2030. The study examines current trends and, in parallel, disruptors that may ensure access to quality, affordable care in rural Minnesota.

The methodology used in this project includes:

- An environmental scan of demographic, economic, health care facility, and provider data, both current and trending to 2030, in rural and urban Minnesota
- Focused rural Minnesota community profiles created from the environmental scan and additional information representing the four regions of the state
- Case studies of the profiled communities with disrupters applied in trend analysis
- Key informants that were convened to identify key disruptors and develop scenarios of the changing health landscape
- An analysis of key disrupters applied to community profiles to assess the impact on access to affordable and quality care in 2030
- A policy paper presenting data, disrupter scenarios, Summit findings and case studies

The four community profiles created as part of this project describe fictitious "composite" communities defined by data compiled from multiple sources. These sources included data at the hospital, county, regional, state and national levels. While much of the data in the profiles was drawn from these sources for Minnesota communities, some creative liberties were taken in the writing of the final versions in order to create profiles of four distinct communities from each area of the state (Northeast, Northwest, Southeast, and Southwest).

Alphaville Community Overview

Alphaville is a town of approximately 9,000 residents located in southeastern Minnesota. The region surrounding the community is made up primarily of rolling farmland intersected by a few rivers and several small lakes.

Over the past several decades, Alphaville has evolved from a small farming community into a regional economic center. Alphaville is now considered a "peri-urban" area, defined as a zone of transition from rural to urban land located between

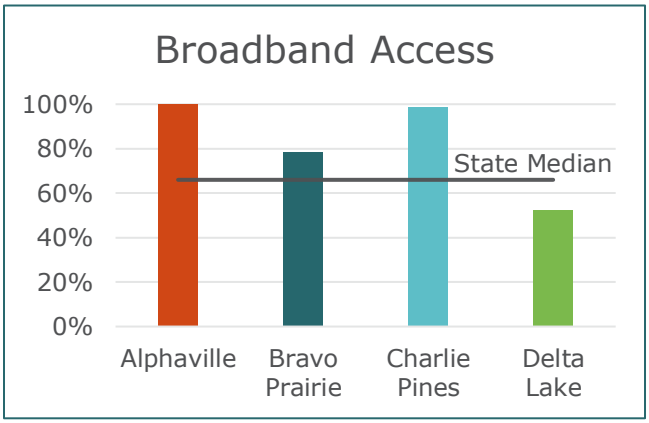
the outer limits of an urban center (the Twin Cities metropolitan area) and the rural environment.

Between 2010 and 2019, Alphaville's population decreased by 2.78%. During the same time period, rural counties across the U.S. saw a 2.41% median decrease in population while Minnesota's rural counties saw a 1.65% median population decrease.

Distinguishing Characteristics

COMMUNITY INFRASTRUCTURE AND ECONOMY

Alphaville is a technologically connected community, with 100% of the population having access to broadband internet. This is significantly higher than the state median[1] of 66%, and the highest of our four profiled communities.



The nearest 2-year technical college and 4-year university are each 30 miles away.

The largest proportion of jobs in Alphaville are in the health care and social assistance fields (making up almost 20% of the job market). Manufacturing jobs are a close second at 18%, and educational services third at 11%.

Alphaville's Major Employers

Educational Services

Health Care

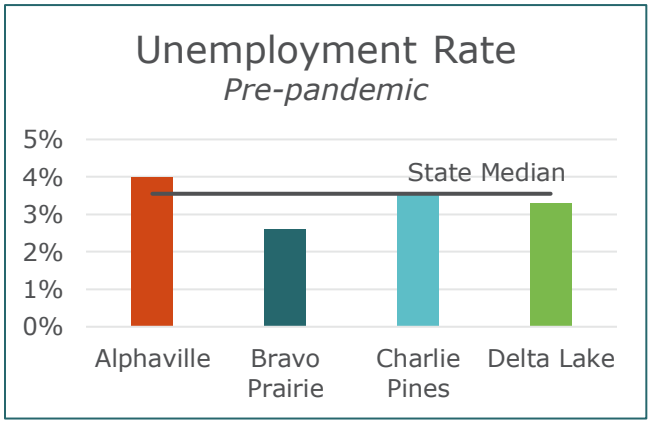
Manufacturing

Retail

[1] *Unless otherwise specified, all medians referenced in this document and data tables refer to the median of counties designated as Micropolitan or Noncore (non-Metropolitan counties).*

Alphaville's largest employers include the local school district, health care, a tractor manufacturing plant, and major retailer, Wal-Mart. For decades the manufacturing plant has played a major role in Alphaville's economy and has been a consistent contributor to community organizations. Residents hold the company in high regard.

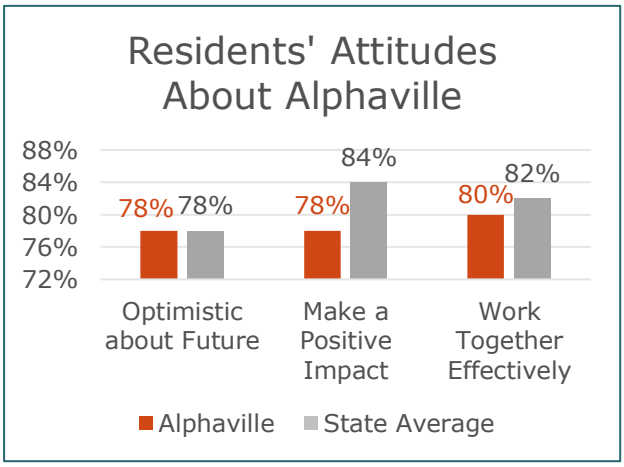
The community suffered an economic blow in 2017 when a large employer, a vegetable packing plant, closed and left about 400 employees out of work. Many of the laid-off workers found jobs outside of Alphaville, with some choosing to commute from Alphaville and others opting to move away. Local leaders have recently worked to attract new manufacturing and services companies to the area.



Prior to the COVID-19 pandemic, Alphaville's unemployment rate of 4.1% (not seasonally adjusted) was slightly higher than the state median of 3.55%. See *COVID-19 Impact and Response* below for more details on the pandemic's impact on the community's unemployment rate.

CULTURE AND CIVIC ENGAGEMENT

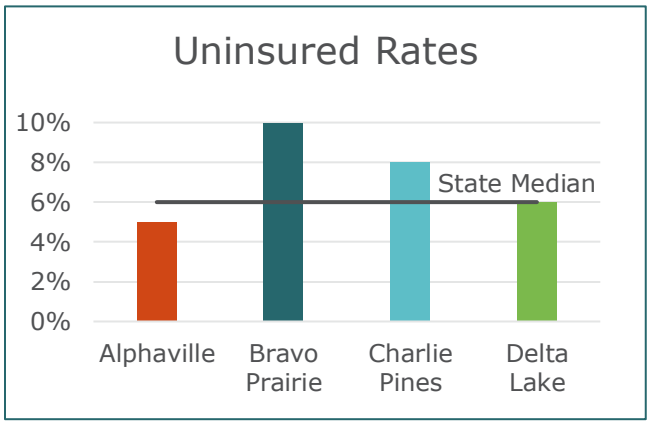
Alphaville's voter turnout in the 2016 presidential election was 70%, which was lower than the state average of 75%.



A 2019 survey measuring residents' attitudes about Alphaville shows optimism about the community's future equal to the state average. Respondents report feeling less of an ability to make a positive impact on the community and less confidence in residents' ability to work together than overall state averages.

HEALTH CARE ACCESS

Five percent of Alphaville's residents under age 65 do not have health insurance. This is slightly lower than the state median of 6%, and the lowest uninsured rate of the four profiled communities. 22.6% of Alphaville's county residents are enrolled in Medicaid or MNCare, slightly higher than the state average of 21.4%.

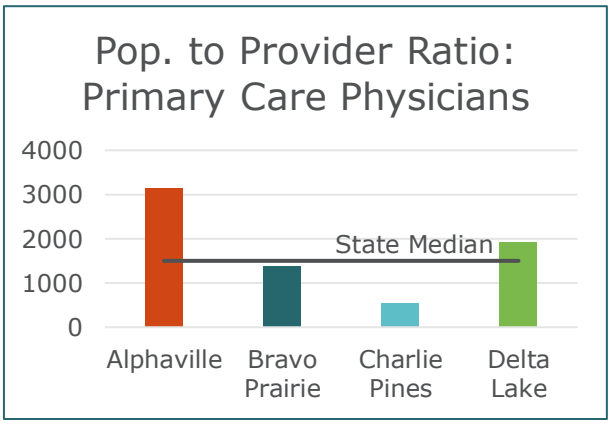


Even before the COVID-19 pandemic, Alphaville had a high rate of telehealth usage, likely facilitated by widespread access to broadband internet. Telepresence options within health care facilities include sophisticated systems providing remote monitoring, tele-pharmacy, and tele-primary care support. Telehealth services have been expanded the past two years for chronic care and mental health services with more coverage by Medicaid and private payers. During changes due to COVID-19, additional telepresence services are becoming more widely available.

HEALTH CARE

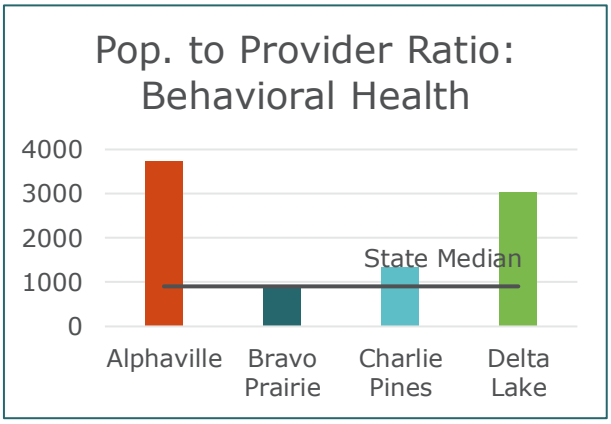
The local health care facility, owned by a health system, is a critical access hospital (CAH) with a primary care clinic and emergency department. As part of a large health system, residents have access to integrated services encompassing both physical and behavioral health. However, residents also experience frustration with a narrow insurance coverage network that limits their choice to select local providers for health care. This limited network takes away local revenue for outpatient services.

The operating margin and the percent of revenue from outpatient services of Alphaville's CAH are both close to Minnesota's 2018 median of 2.8% and 77.3%, respectively.



The community health clinic in Alphaville also offers a broad spectrum of medical and behavioral health services. Still, the community has a high population-to-provider ratio in both primary care (3131:1 for physicians, 3115:1 for other primary care providers) and behavioral health (3738:1) when compared to the state medians of 1501:1 for physicians, 1412:1 for other primary care providers, and 905:1 for behavioral health providers.

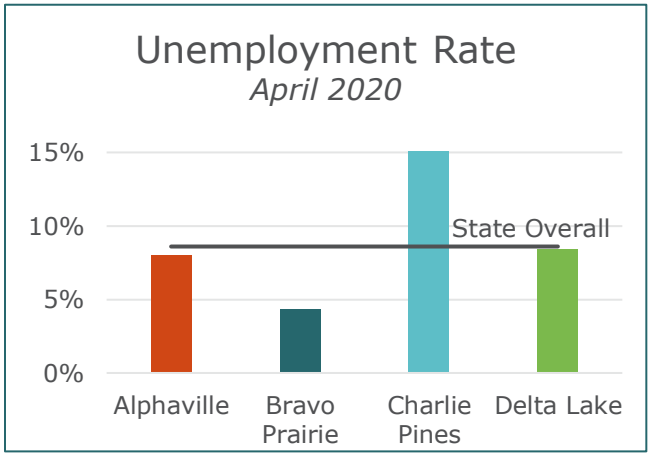
A rural health network in this region supports alliances between clinical and community organizations. Network services include a hospital-based coordination service that involves both social workers and registered nurses.



COVID-19 IMPACT AND RESPONSE

A report issued by Iowa State University's Extension and Outreach suggests that semi-rural towns like Alphaville may be at higher risk for severe cases of COVID-19 than small-, mid-, and large-size metropolitan areas due to higher proportions of residents who are older, have health conditions putting them at higher risk for complications, and live in congregate facilities.

As of early June 2020, however, Alphaville's COVID-19 infection rate was significantly lower than the infection rate of rural counties across the country overall, with no deaths reported. This is especially surprising given that Alphaville is located in a county classified by the United States Department of Agriculture (USDA) as having a manufacturing-dependent economy, and counties that rely heavily on manufacturing have had the highest infection rate of all rural counties to date.



At the end of April 2020, Alphaville's unemployment rate had increased to 8.0%, compared to 3.9% in April 2019.

Sociodemographic Data

Measure *Definition*	Alphaville	State Median	National Median	% Above/Below State Median	% Above/Below National Median
Income & Education					
Income *Median annual household income*	**$58,335**	$55,533	$47,409	5.1%	23.1%
Children in Poverty *% of people under age 18 living in poverty*	**12.0%**	14.0%	22.0%	-14.3%	-45.5%
HS Graduation *% of students completing high school on time*	**83.0%**	88.0%	90.0%	-5.7%	-7.8%
College *%of population with college credits*	**66.0%**	66.0%	55.0%	0.0%	20.0%
Age					
Age – Youth *% of population below age 18*	**23.2%**	22.7%	21.9%	2.2%	5.9%
Age – Elderly *% of population age 65+*	**18.2%**	21.1%	20.1%	-13.5%	-9.5%
Ethnicity and Language					
Black *% of population that is non-Hispanic black*	**2.1%**	0.7%	1.2%	200.0%	75.0%
Indian *% of population that is American Indian or Alaska Native*	**0.7%**	0.8%	0.7%	-12.5%	0.0%
Asian *% of population that is Asian*	**0.9%**	0.7%	0.6%	28.6%	50.0%
Islander *% of the population that is native to Hawaii or other Pacific islands*	**0.0%**	0.0%	0.1%	0.0%	-100.0%
Hispanic *% of the population that is Hispanic*	**6.3%**	3.7%	3.7%	70.3%	70.3%
White *% of the population that is non-Hispanic white*	**88.9%**	91.0%	86.7%	-2.3%	2.6%
Proficiency *% of population that is not proficient in English*	**1.0%**	1.0%	1.0%	0.0%	0.0%

Community Infrastructure & Economy

Measure *Definition*	Alphaville	State Median	National Median	% Above/Below State Median	% Above/Below National Median
Unemployment *% of population age 16+ unemployed but seeking work in 2018*	**4.1%**	3.6%	4.0%	15.5%	2.5%
Broadband *% of population with access to broadband internet*	**100.0%**	66.0%	62.8%	51.5%	59.4%
Access to exercise *% of population with adequate access to locations for physical activity (parks and recreation facilities)*	**79.0%**	65.0%	60.0%	21.5%	31.7%

Health Status & Risk

Measure *Definition*	Alphaville	State Median	National Median	% Above/Below State Median	% Above/Below National Median
Health Outcomes					
Life Expectancy *Average number of years a person can expect to live*	**81.3**	80.3	77.0	1.3%	5.6%
Birthweight *% of live births with low birthweight (<2500 g)*	**5.0%**	6.0%	8.0%	-16.7%	-37.5%
Poor Health *% of adults reporting fair or poor health (age-adjusted)*	**13.0%**	13.0%	18.0%	0.0%	-27.8%
Physical Distress *% of adults reporting 14 or more days of poor physical health per month*	**9.0%**	9.0%	12.0%	0.0%	-25.0%
Mental Distress *% of adults reporting 14 or more days of poor mental health per month*	**10.0%**	10.0%	13.0%	0.0%	-23.1%
Health Factors					
Smoking *% of adults who are current smokers*	**15.0%**	15.0%	17.0%	0.0%	-11.8%
Obesity *% of adult population (age 20+ reporting a BMI greater than or equal to 30 kg/m^2)*	**33.0%**	32.5%	34.0%	1.5%	-2.9%
Food Insecurity *Index of factors that contribute to a healthy food environment, from 0 (worst) to 10 (best)*	**8.4**	8.3	7.5	1.2%	12.0%
Physical Inactivity *% of adults age 20+ reporting no leisure-time physical activity*	**25.0%**	25.5%	28.0%	-2.0%	-10.7%
Drinking *% of adults reporting binge or heavy drinking*	**20.0%**	20.0%	17.0%	0.0%	17.7%

Health Care Resources & Access

Measure *Definition*	Alphaville	State Median	National Median	% Above/Below State Median	% Above/Below National Median
Providers & Facilities					
Primary Care Physicians *Ratio of population to primary care physicians*	**3131:1**	1501:1	2136:1	108.6%	46.6%
Other Primary Care Providers *Ratio of population to other primary care providers (NP, PA, clinical nurse specialists)*	**3115:1**	1412:1	1320:1	120.6%	136.0%
Mental Health Providers *Ratio of population to mental health providers*	**3788:1**	905:1	1047:1	313.0%	257.0%
Hospitals *Number of open hospitals in the county*	**1.0**	1.0	1.0	0.0%	0.0%
Nursing Homes *Number of open nursing homes in the county*	**4.0**	6.0	3.0	-33.3%	33.3%
Insurance					
Uninsured Rate *% of population under age 65 without health insurance*	**5.0%**	6.0%	11.0%	-16.7%	-54.6%
Medicare Hospital or Medical Enrollment *% of population enrolled in the program in 2018*	**8.7%**	10.1%	11.8%[2]	-14.5%	-26.8%
Medicare Advantage and Other Plans Enrollment *% of population enrolled in the program in 2018*	**13.0%**	13.2%	6.5%[3]	-1.9%	99.1%
2020 ACA Monthly Premiums *Percent of median county income (2 nonsmoking adults age 40, no children)*	**0.8%**	Data not available	0.8%[4]	N/A	-0.1%
Medicare Spending per Beneficiary *Total spending per beneficiary in 2018*	**$8,001**	$9,126[5]	$10,096[6]	-12.3%	-20.8%

[2] *Includes both urban and rural counties.*
[3] *Includes both urban and rural counties.*
[4] *Includes both urban and rural counties.*
[5] *Includes both urban and rural counties.*
[6] *Includes both urban and rural counties.*

Quality of Care

Measure *Definition*	Alphaville	State Median[7]	National Median[8]	% Above/Below State Median	% Above/Below National Median
Preventable Hospital Stays *Rate of hospital stays for ambulatory-sensitive conditions per 100,000 Medicare enrollees*	**7,292**	6,015	4,368	21.2%	66.9%
Screening Mammograms *Percentage of female Medicare enrollees ages 65-74 who received an annual mammography screening*	**49.0%**	46.0%	43.0%	6.5%	14.0%
Vaccinations *Percentage of fee-for-service Medicare enrollees who had an annual flu vaccine*	**51.0%**	50.0%	46.0%	2.0%	10.9%
Overall Rank *Rank among all 87 Minnesota counties (urban and rural) for overall health outcomes*	**24.0**	N/A	N/A	N/A	N/A
Recommendation Rating *Percentage of patients reporting YES, they would definitely recommend this hospital on HCAHPS survey*	**93.0%**[9]	90.0	88.0	3.3%	5.0%

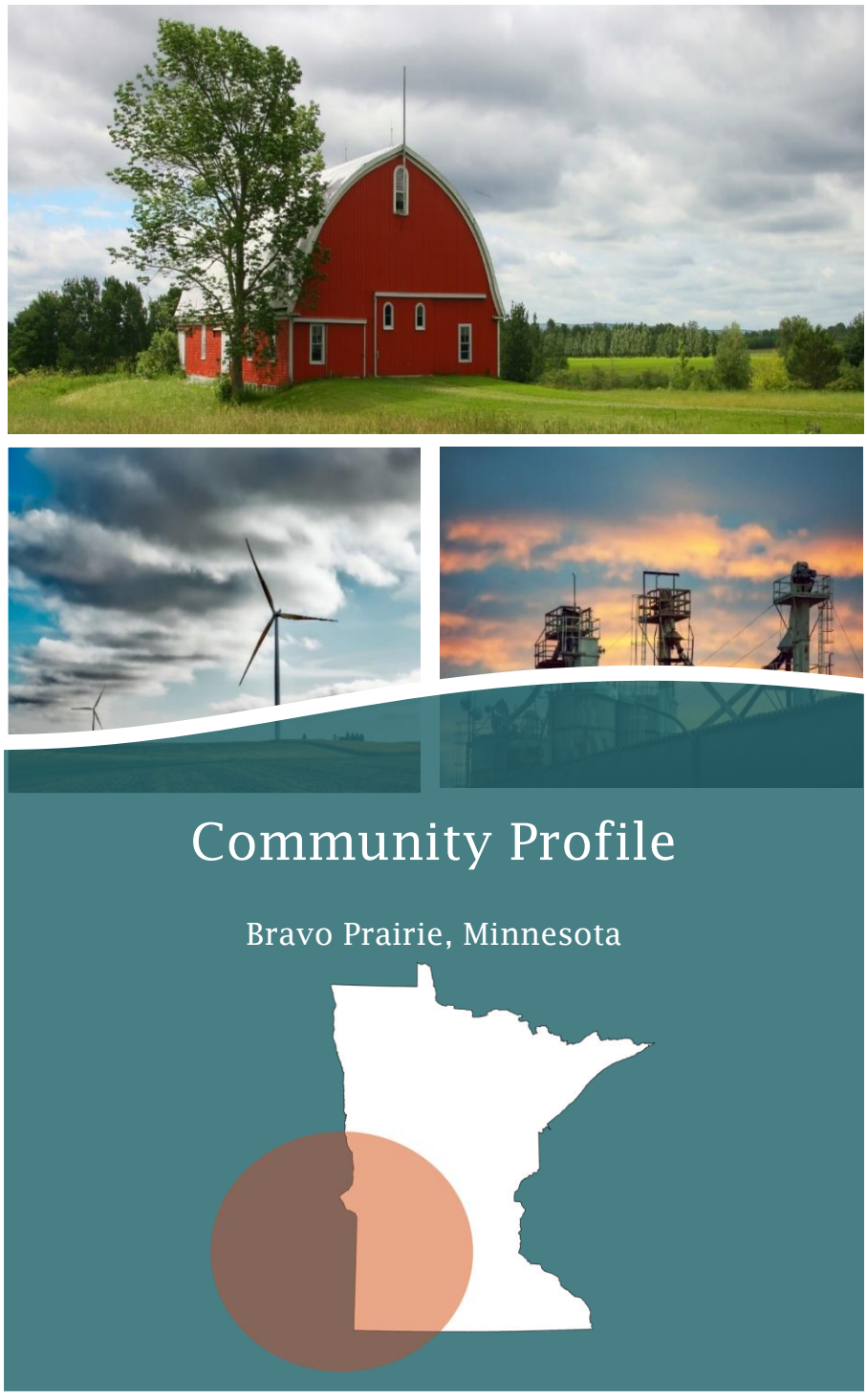
[7] *Includes both urban and rural counties.*
[8] *Includes both urban and rural counties.*
[9] *Due to low patient volume, critical access hospitals are not well-represented in Hospital Compare. This makes comparison to state and national medians a challenge.*

Data Sources

Overview	Measure	Source
	Agricultural Production	MN Regional Agriculture Report 2008
	COVID-19 Infection Rate	MN Dept. of Health Situation Update
	COVID-19 Unemployment	MN DEED Local Area Unemployment Statistics
	Designation	US Census 2017 CBSAs
	Economy Classification	USDA County Economic Types, 2015
	FIPS	2020 County Health Rankings
	Foreign-Born Residents	MN DEED County Profiles
	Medicaid Enrollment	MN DHS Medicaid and MinnesotaCare Dashboard Data
	Voter Turnout	MN Secretary of State Historical Voter Turnout
Sociodemographic	**Measure**	**Source**
	Income	2020 County Health Rankings
	Children in Poverty	2020 County Health Rankings
	HS Graduation	2020 County Health Rankings
	College	2020 County Health Rankings
	Age - Youth	2020 County Health Rankings
	Age – Elderly	2020 County Health Rankings
	Ethnicity	2020 County Health Rankings
	Proficiency	2020 County Health Rankings
	Migration (population change)	US Census State Population Change
Infrastructure	**Measure**	**Source**
	Unemployment	2020 County Health Rankings
	Broadband	Mapping Broadband Health in America - FCC
	Exercise	2020 County Health Rankings
Status & Risk	**Measure**	**Source**
	Life Expectancy	2020 County Health Rankings
	Birthweight	2020 County Health Rankings
	Poor Health	2020 County Health Rankings
	Physical Distress	2020 County Health Rankings
	Mental Distress	2020 County Health Rankings
	Smoking	2020 County Health Rankings
	Obesity	2020 County Health Rankings
	Food Insecurity	2020 County Health Rankings
	Physical Inactivity	2020 County Health Rankings
	Drinking	2020 County Health Rankings
Resources	**Measure**	**Source**
	Access to Primary Care Physicians	2020 County Health Rankings
	Access to Other Primary Care Providers	2020 County Health Rankings
	Access to Mental Health Providers	2020 County Health Rankings
	Hospitals	Homeland Infrastructure Foundation-Level Data - Hospitals

	Nursing Homes	Homeland Infrastructure Foundation-Level Data - Nursing Homes
	Uninsured Rate	2020 County Health Rankings
	Medicare Hospital or Medical Enrollment	CMS Medicare Enrollment Dashboard
	Medicare Advantage and Other Plans Enrollment	CMS Medicare Enrollment Dashboard
	ACA Premiums	Kaiser Family Foundation Health Insurance Marketplace Calculator
	Medicare Spending per Beneficiary (total spending)	CMS Geographic Variation in Standardized Medicare Spending
Quality	**Measure**	**Source**
	Preventable Hospital Stays	2020 County Health Rankings - Quality of Care
	Screening Mammograms	2020 County Health Rankings - Quality of Care
	Vaccinations	2020 County Health Rankings - Quality of Care
	Overall Rank	2020 County Health Rankings - Quality of Care
HCAHPS	**Measure**	**Source**
	Recommendation Rating	Medicare.gov Hospital Compare - HCAHPS

B. Bravo Prairie Profile



Project and Community Profile Overview

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The four community profiles created as part of this project describe fictitious "composite" communities defined by data compiled from multiple sources. These sources included data at the hospital, county, regional, state and national levels. While much of the data in the profiles was drawn from these sources for Minnesota communities, some creative liberties were taken in the writing of the final versions in order to create profiles of four distinct communities from each area of the state (Northeast, Northwest, Southeast, and Southwest).

Bravo Prairie Community Overview

Bravo Prairie is a community of approximately 13,000 residents located in southwestern Minnesota. The surrounding region is made up of rolling hills and farmland dotted with wind turbines. Agriculture is the main economic driver in the area surrounding Bravo Prairie, but the community also has a strong manufacturing and research presence.

Bravo Prairie's population is slowly growing. Between 2010 and 2019, its population grew almost 1%. By contrast, the population of rural counties across the state of Minnesota shrunk by a median[10] of 1.65% during the same time period. Bravo Prairie's population growth coincides with increased immigration by residents born outside of the United States.

Distinguishing Characteristics

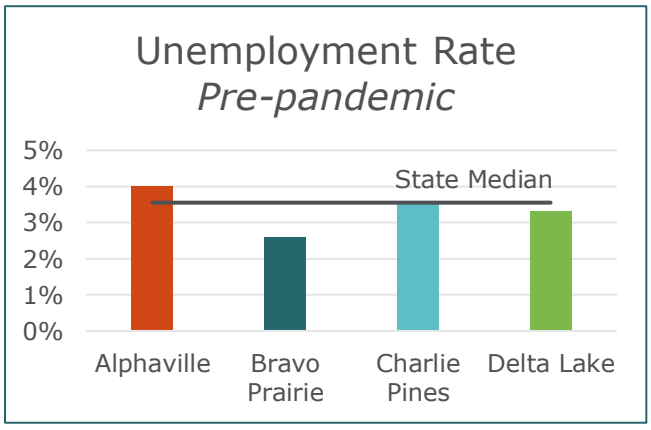
COMMUNITY INFRASTRUCTURE AND ECONOMY

Several major highways run through the area surrounding Bravo Prairie, making it a regional transportation hub. Its location makes it very attractive to companies needing to transport their products.

Brave Prairie's Major Employers

While agriculture plays a major role in Bravo Prairie's economy, by far the largest industry in the area is food processing, employing close to 2,500 employees. In addition to the health system, other major employers include the local school district, a biotechnology firm, large local retailers and small-to mid-size manufacturers.

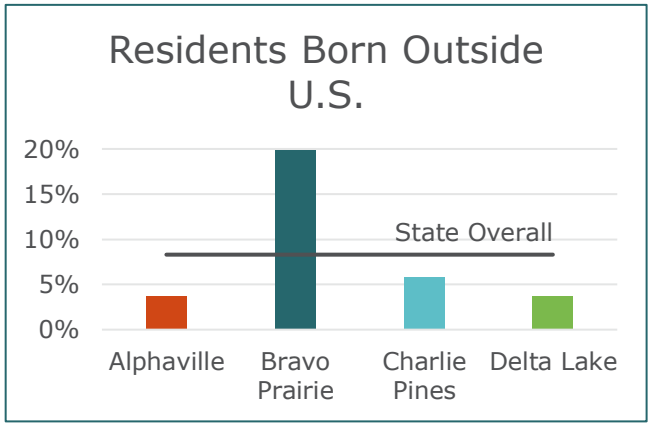
The job market here is tight: Prior to the COVID-19 outbreak, the Bravo Prairie's unemployment rate (not seasonally adjusted) was 2.6%, the 3rd lowest unemployment rate in the state of Minnesota. See *COVID-19 Impact and Response* below for more details on the pandemic's impact on the community's unemployment rate.



[10] *Unless otherwise specified, all medians referenced in this document and data tables refer to the median of counties designated as Micropolitan or Noncore (non-Metropolitan counties).*

Bravo Prairie residents are younger than most rural areas across the state, with only 16.4% of residents aged 65 or older. This is lower than the state median of 21.05%.

Bravo Prairie has a high concentration of foreign-born residents compared to other rural areas of the state. As of 2017, about 20% of residents were born outside of the United States, a 37.8% increase since 2010. About 2/3 of foreign-born residents are from Latin America, and 11% of community residents are not proficient in English.

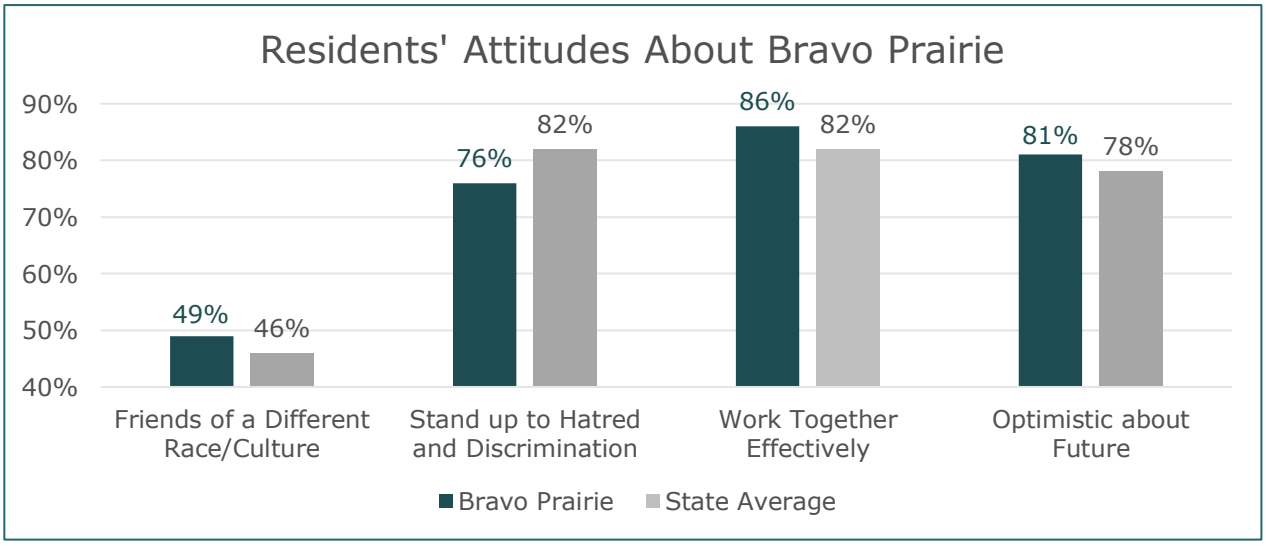


CULTURE AND CIVIC ENGAGEMENT

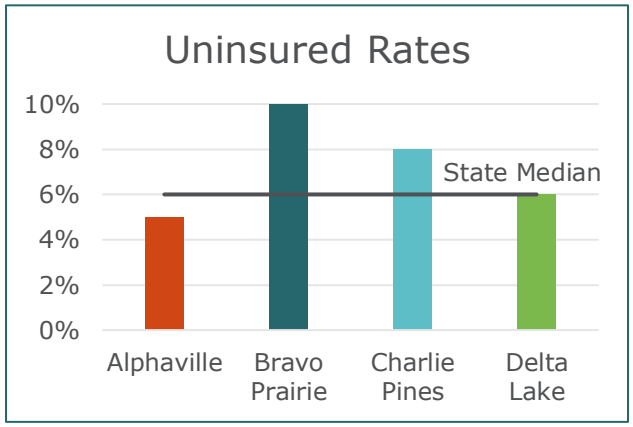
Bravo Prairie's voter turnout in the 2016 presidential election was 67%, which was lower than the state average of 75%.

Immigrating families have experienced varying levels of acceptance from long-term Bravo Prairie residents. In a 2019 study, 49% of the region's residents reported having some close friends of a different race or culture, which was higher than the average of rural areas across the state. In the same study, 76% of the region's residents said they believe that people in the community are able to stand up to hatred and discrimination. This was lower than the state average.

Overall, however, residents gave high scores for their ability to work together effectively and optimism about Bravo Prairie's future.



HEALTH CARE ACCESS



Ten percent of Bravo Prairie residents are uninsured. This is the highest uninsured rate in the state of Minnesota.

About 28% of Bravo Prairie's residents are enrolled in Medicaid or MNCare, higher than the state average of 21.4%. Limited telehealth options for primary and specialty care services were available prior to the COVID-19 pandemic. However, telehealth services for emergent behavioral health conditions have been in place within the emergency department for some time.

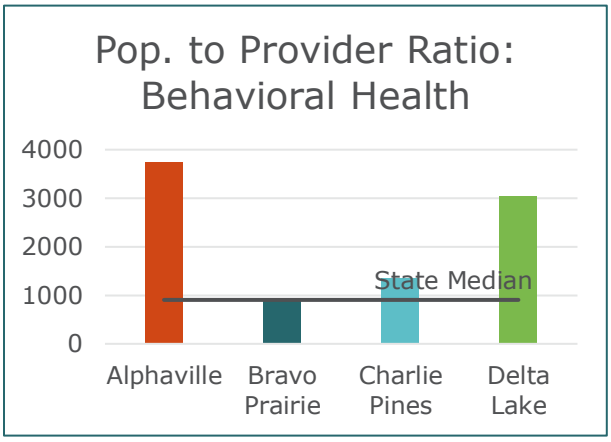
HEALTH CARE RESOURCES

The local 48-bed hospital is owned by a health system. The system operates facilities in locations across the country, but the vast majority of its operations are concentrated in the Midwest. Many specialists work full-time at the Bravo Prairie facility, and additional specialists employed by the system visit the facility on a regular basis. Surgical services are offered onsite, as are emergency care, home care and hospice.

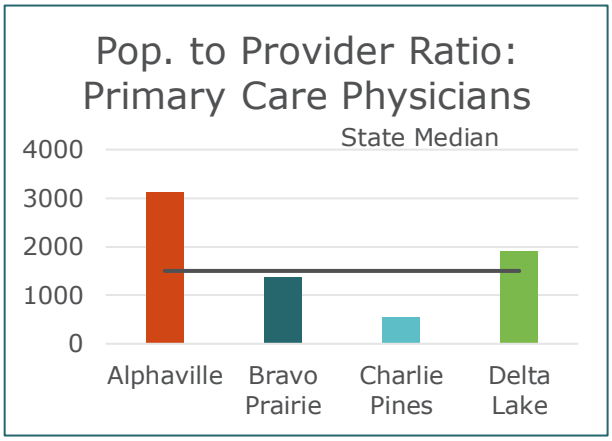
The hospital had an operating margin of -10% in 2018 with 70% of its revenue from outpatient services. This operating margin is significantly lower than Minnesota's average of +2.8% and the outpatient revenue rate is lower than Minnesota's median of 77%. This operating margin and outpatient ratio are aligned with criteria that could place this hospital in the "Vulnerable" category as identified by The Chartis Group. As of February 2020, 453 hospitals across the country are identified as vulnerable.

In-person behavioral health services are limited through the hospital, but patients can travel to another system facility 30 miles away to see a behavioral health provider

A second health system has a presence in Bravo Prairie, operating a surgery center, medical clinic and behavioral health center. In addition, a community health worker program has been initiated through community agencies to address social determinants of health.



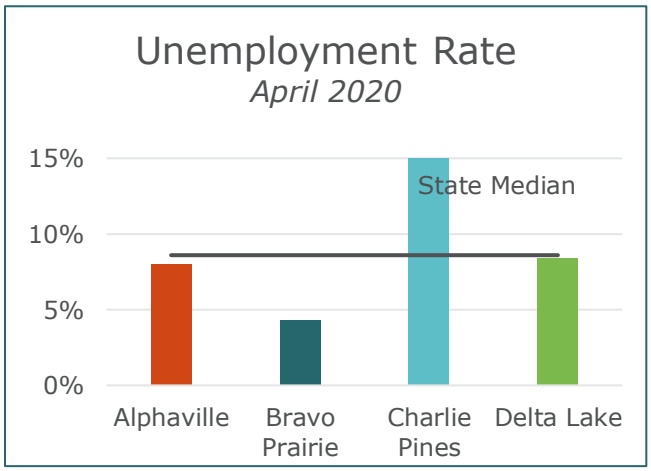
Adverse Childhood Experiences (ACEs) have been recognized as a challenge in Bravo Prairie. Resources to address these challenges exist within the community, demonstrated by its population-to-behavioral health provider ratio (877:1) and primary care physician ratio (1372:1), both slightly lower than state medians.



COVID-19 IMPACT AND RESPONSE

As of early May 2020, data showed that COVID-19 infection rates in rural areas were highest in counties where manufacturing is a major part of the economy (258.1 cases per 100,000 residents, compared to the overall national rural infection rate of 168.3). As a community whose economy depends heavily on manufacturing, Bravo Prairie mirrored this trend, with infection rates many times higher than rural counties across the country overall.

At the end of April 2020, Bravo Prairie's unemployment rate was 4.3%. This is an increase over April 2019 (when the rate was 3.5%), State Overall but significantly lower than the April 2020 unemployment rate of 8.6% across the state as a whole.



Telehealth usage has increased dramatically during the pandemic with the number of telehealth visits increasing from 5 visits during the month of January 2020 to more than 200 visits during April 2020.

Sociodemographic Data

Measure *Definition*	Bravo Prairie	State Median	National Median	% Above/Below State Median	% Above/Below National Median
Income & Education					
Income *Median annual household income*	**$55,766**	$55,533	$47,409	0.4%	17.6%
Children in Poverty *% of people under age 18 living in poverty*	**14.0%**	14.0%	22.0%	0.0%	-36.3%
HS Graduation *% of students completing high school on time*	**78.0%**	88.0%	90.0%	-11.4%	-13.3%
College *% of population with college credits*	**48.%**	66.0%	55.0%	-27.3%	-12.7%
Age					
Age – Youth *% of population below age 18*	**27.4%**	22.7%	21.9%	20.7%	25.1%
Age – Elderly *% of population age 65+*	**16.4%**	21.1%	20.1%	-22.1%	-18.4%
Ethnicity and Language					
Black *% of population that is non-Hispanic black*	**5.1%**	0.7%	1.2%	628.6%	325.0%
Indian *% of population that is American Indian or Alaska Native*	**1.3%**	0.8%	0.7%	62.5%	85.7%
Asian *% of population that is Asian*	**7.1%**	0.7%	0.6%	914.3%	1083.3%
Islander *% of the population that is native to Hawaii or other Pacific islands*	**0.1%**	0.0%	0.1%	N/A (State Median=0)	0.0%
Hispanic *% of the population that is Hispanic*	**28.4%**	3.7%	3.7%	667.6%	667.6%
White *% of the population that is non-Hispanic white*	**58.2%**	91.0%	86.7%	-36.0%	-32.8%
Proficiency *% of population that is not proficient in English*	**11.0%**	1.0%	1.0%	1000.0%	1000.0%

Community Infrastructure & Economy

Measure *Definition*	Bravo Prairie	State Median	National Median	% Above/Below State Median	% Above/Below National Median
Unemployment *% of population age 16+ unemployed but seeking work in 2018*	**2.6%**	3.6%	4.0%	-26.8%	-35.0%
Broadband *% of population with access to broadband internet*	**78.5%**	66.0%	62.8%	18.9%	25.1%
Access to exercise *% of population with adequate access to locations for physical activity (parks and recreation facilities)*	**65.0%**	65.0%	60.0%	0.0%	8.3%

Health Status & Risk

Measure *Definition*	Bravo Prairie	State Median	National Median	% Above/Below State Median	% Above/Below National Median
Health Outcomes					
Life Expectancy *Average number of years a person can expect to live*	**81.8**	80.3	77.0	1.9%	6.3%
Birthweight *% of live births with low birthweight (<2500 g)*	**5.0%**	6.0%	8.0%	-16.7%	-37.5%
Poor Health *% of adults reporting fair or poor health (age-adjusted)*	**16.0%**	13.0%	18.0%	23.1%	-11.1%
Physical Distress *% of adults reporting 14 or more days of poor physical health per month*	**10.0%**	9.0%	12.0%	11.1%	-16.7%
Mental Distress *% of adults reporting 14 or more days of poor mental health per month*	**10.0%**	10.0%	13.0%	0.0%	-23.1%
Health Factors					
Smoking *% of adults who are current smokers*	**14.0%**	15.0%	17.0%	-6.7%	-17.7%
Obesity *% of adult population (age 20+ reporting a BMI greater than or equal to 30 kg/m^2)*	**33.0%**	32.5%	34.0%	1.5%	-2.9%
Food Insecurity *Index of factors that contribute to a healthy food environment, from 0 (worst) to 10 (best)*	**8.5**	8.3	7.5	2.4%	13.3%
Physical Inactivity *% of adults age 20+ reporting no leisure-time physical activity*	**28.0%**	25.5%	28.0%	9.8%	0.0%
Drinking *% of adults reporting binge or heavy drinking*	**18.0%**	20.0%	17.0%	-10.0%	5.9%

Health Care Resources & Access

Measure *Definition*	Bravo Prairie	State Median	National Median	% Above/Below State Median	% Above/Below National Median
Providers & Facilities					
Primary Care Physicians *Ratio of population to primary care physicians*	**1372:1**	1501:1	2136:1	-8.6%	-35.8%
Other Primary Care Providers *Ratio of population to other primary care providers (NP, PA, clinical nurse specialists)*	**1827:1**	1412:1	1320:1	29.4%	38.4%
Mental Health Providers *Ratio of population to mental health providers*	**877:1**	905:1	1047:1	-3.1%	-16.2%
Hospitals *Number of open hospitals in the county*	**1.0**	1.0	1.0	0.0%	0.0%
Nursing Homes *Number of open nursing homes in the county*	**4.0**	6.0	3.0	-33.3%	33.3%
Insurance					
Uninsured Rate *% of population under age 65 without health insurance*	**10.0%**	6.0%	11.0%	66.7%	-9.1%
Medicare Hospital or Medical Enrollment *% of population enrolled in the program in 2018*	**11.3%**	10.1%	11.8%[11]	11.3%	-4.7%
Medicare Advantage and Other Plans Enrollment *% of population enrolled in the program in 2018*	**6.4%**	13.2%	6.53%[12]	-52.0%	-2.5%
2020 ACA Monthly Premiums *Percent of median county income (2 nonsmoking adults age 40, no children)*	**0.8%**	Data not available	0.8%[13]	N/A	-0.1%
Medicare Spending per Beneficiary *Total spending per beneficiary 2018*	**$8,336**	$9,126[14]	$10,096[15]	-8.7%	-17.4%

[11] *Includes both urban and rural counties.*
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[13] *Includes both urban and rural counties.*
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Quality of Care

Measure *Definition*	Bravo Prairie	State Median[16]	National Median[17]	% Above/Below State Median	% Above/Below National Median
Preventable Hospital Stays *Rate of hospital stays for ambulatory-sensitive conditions per 100,000 Medicare enrollees*	**3,598**	6,015	4,368	-40.2%	-17.6%
Screening Mammograms *Percentage of female Medicare enrollees ages 65-74 who received an annual mammography screening*	**55.0%**	46.0%	43.0%	19.6%	27.9%
Vaccinations *Percentage of fee-for-service Medicare enrollees who had an annual flu vaccine*	**53.0%**	50.0%	46.0%	6.0%	15.2%
Overall Rank *Rank among all 87 Minnesota counties (urban and rural) for overall health outcomes*	**37.0**	N/A	N/A	N/A	N/A
Recommendation Rating *Percentage of patients reporting YES, they would definitely recommend this hospital on HCAHPS survey*	**86.0%**[18]	90.0	88.0	-4.4%	-2.3%

[16] *Includes both urban and rural counties.*
[17] *Includes both urban and rural counties.*
[18] *Due to low patient volume, critical access hospitals are not well-represented in Hospital Compare. This makes comparison to state and national medians a challenge.*

Data Sources

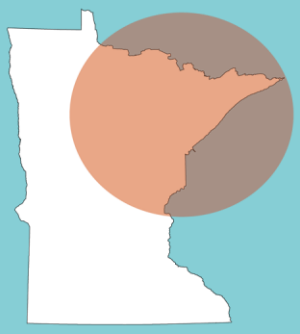
Overview	Measure	Source
	Agricultural Production	MN Regional Agriculture Report 2008
	COVID-19 Infection Rate	MN Dept. of Health Situation Update
	COVID-19 Unemployment	MN DEED Local Area Unemployment Statistics
	Designation	US Census 2017 CBSAs
	Economy Classification	USDA County Economic Types, 2015
	FIPS	2020 County Health Rankings
	Foreign-Born Residents	MN DEED County Profiles
	Medicaid Enrollment	MN DHS Medicaid and MinnesotaCare Dashboard Data
	Voter Turnout	MN Secretary of State Historical Voter Turnout
Sociodemographic	**Measure**	**Source**
	Income	2020 County Health Rankings
	Children in Poverty	2020 County Health Rankings
	HS Graduation	2020 County Health Rankings
	College	2020 County Health Rankings
	Age - Youth	2020 County Health Rankings
	Age – Elderly	2020 County Health Rankings
	Ethnicity	2020 County Health Rankings
	Proficiency	2020 County Health Rankings
	Migration (population change)	US Census State Population Change
Infrastructure	**Measure**	**Source**
	Unemployment	2020 County Health Rankings
	Broadband	Mapping Broadband Health in America - FCC
	Exercise	2020 County Health Rankings
Status & Risk	**Measure**	**Source**
	Life Expectancy	2020 County Health Rankings
	Birthweight	2020 County Health Rankings
	Poor Health	2020 County Health Rankings
	Physical Distress	2020 County Health Rankings
	Mental Distress	2020 County Health Rankings
	Smoking	2020 County Health Rankings
	Obesity	2020 County Health Rankings
	Food Insecurity	2020 County Health Rankings
	Physical Inactivity	2020 County Health Rankings
	Drinking	2020 County Health Rankings
Resources	**Measure**	**Source**
	Access to Primary Care Physicians	2020 County Health Rankings
	Access to Other Primary Care Providers	2020 County Health Rankings
	Access to Mental Health Providers	2020 County Health Rankings
	Hospitals	Homeland Infrastructure Foundation-Level Data - Hospitals

	Nursing Homes	Homeland Infrastructure Foundation-Level Data - Nursing Homes
	Uninsured Rate	2020 County Health Rankings
	Medicare Hospital or Medical Enrollment	CMS Medicare Enrollment Dashboard
	Medicare Advantage and Other Plans Enrollment	CMS Medicare Enrollment Dashboard
	ACA Premiums	Kaiser Family Foundation Health Insurance Marketplace Calculator
	Medicare Spending per Beneficiary (total spending)	CMS Geographic Variation in Standardized Medicare Spending
Quality	**Measure**	**Source**
	Preventable Hospital Stays	2020 County Health Rankings - Quality of Care
	Screening Mammograms	2020 County Health Rankings - Quality of Care
	Vaccinations	2020 County Health Rankings - Quality of Care
	Overall Rank	2020 County Health Rankings - Quality of Care
HCAHPS	**Measure**	**Source**
	Recommendation Rating	Medicare.gov Hospital Compare - HCAHPS

C. Charlie Pines Profile

Community Profile

Charlie Pines, Minnesota



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Charlie Pines Community Overview

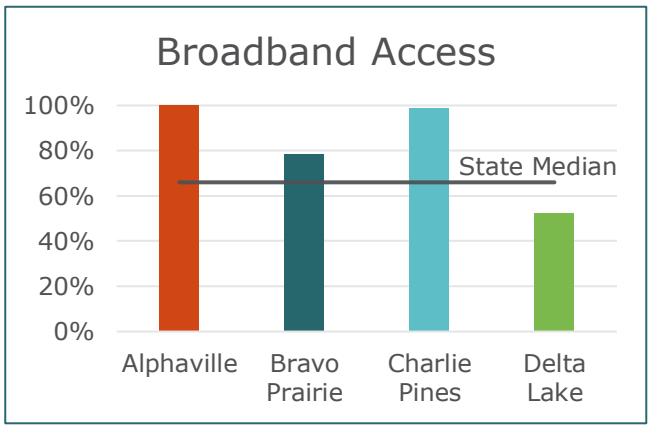
Charlie Pines is a county seat within a county of nearly 6,000 residents. Within this northeastern region of Minnesota there are approximately four people per square mile. The geography is made up primarily of forest with lakes and rivers and is quite rugged. The economy is heavily driven by tourism and the region sees a significant influx of residents during the summer months. This region seems to be open to change and has a vibrant art scene.

Distinguishing Characteristics

DEMOGRAPHICS, INFRASTRUCTURE AND ECONOMY

Between 2010 and 2019, the population of Charlie Pines increased by 5.85%. By contrast, the population of rural counties across the state of Minnesota shrunk by a median[19] of 1.65% during the same time period.

Charlie Pines has technological advantages with nearly 100% of the population having access to broadband internet. This is significantly higher than the state median of 66%.



Although the region is predominantly white, 87% in 2017, it has experienced an increase in non-white residents. More than 70% of residents are college-educated. This is higher than the state average of 66%.

Tourism is a significant driver of this region's economy. It is estimated that sales during the peak season of June through October are two to three times higher than other times of the year as people from across the country come to this region to relax and play.

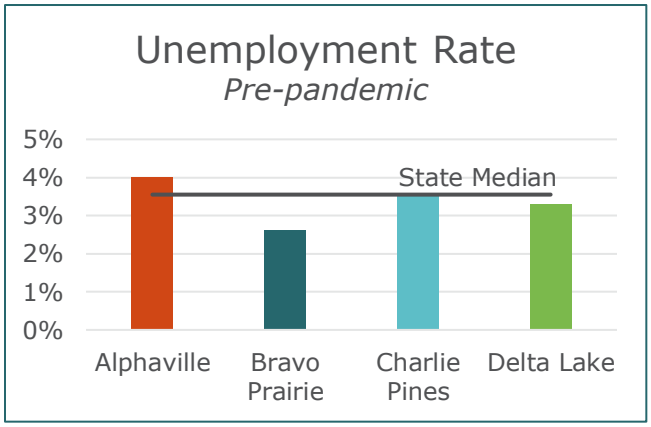
[19] *Unless otherwise specified, all medians referenced in this document and data tables refer to the median of counties designated as Micropolitan or Noncore (non-Metropolitan counties).*

Charlie Pines' Major Employers

Educational Services | Health Care | Accommodation and Food | Logging | Mining

In addition to typical rural employers of the local school district and health care system, there is significant employment associated with tourism, including accommodations and food services. Other predominant industries are logging and mining.

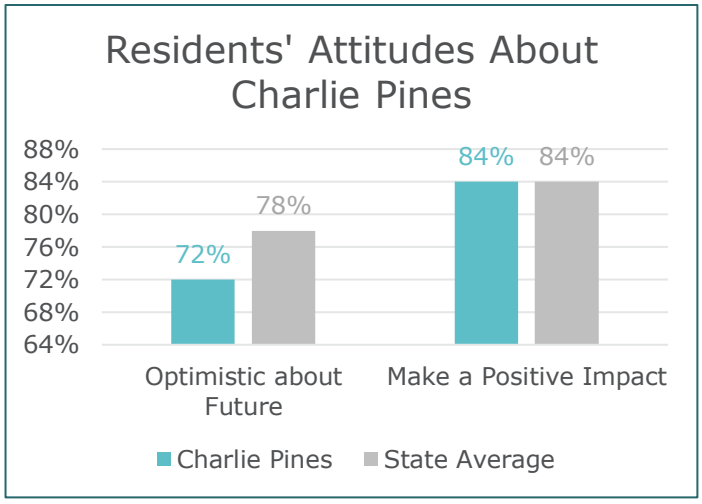
Prior to the COVID-19 pandemic, Charlie Pines' unemployment rate, not seasonally adjusted, was 3.5% in 2018, slightly lower than the state median of 3.6%. See *COVID-19 Impact and Response* below for more details on the pandemic's impact on the community's unemployment rate.



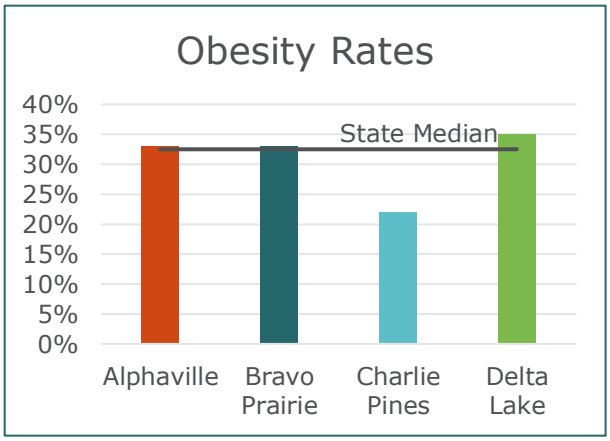
CULTURE AND CIVIC ENGAGEMENT

The region is civically engaged as seen in an 82% voter turnout in 2018 that is higher than the state average of 75%. Over the past few years there have been numerous community projects encouraging civility and collaboration, such as a Speak Your Peace event and a Compassion and Unconscious Bias Workshop. The county has a full time Community Vitality Educator on staff. Additionally, the region has a community radio and webpage that facilitates and promotes arts and learning. The county residents have continually voted for a health care tax which supports the hospital and local emergency medical services.

A recent survey measuring residents' attitudes about Charlie Pines shows that 72% of community members feel optimistic about the future, lower than the overall state response of 78%. However, 84% of respondents reported feeling confident in their ability to make a positive impact which is equal to the state average.



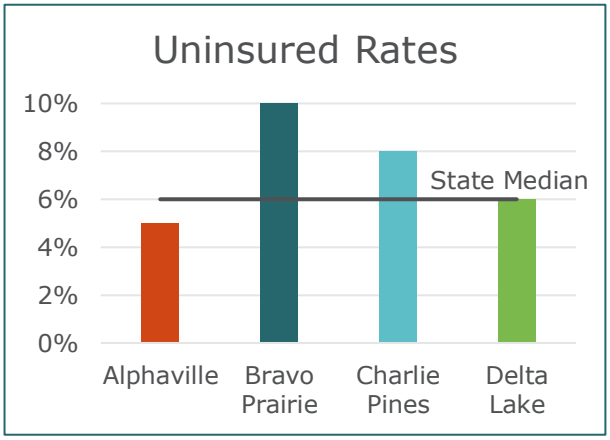
Residents of Charlie Pines are generally healthier than the state and national averages. For example, the percentage of adults over 20 years that are active is 82%, nearly 30% points higher than the state average. Coinciding with these behaviors, 22% of Charlie Pines' residents are considered obese compared to the state median of 32.5%.



HEALTH CARE ACCESS

Eight percent of Charlie Pine residents under age 65 do not have health insurance. This is higher than the state median of 6%.

About 23% of Charlie Pines' county residents are enrolled in Medicaid or MNCare, higher than the state average of 21.4%.



A supporting factor of access to health care is availability of telehealth. In the northeast region of Minnesota there has been investment in telepresence across a broad spectrum of agencies. Although there are pockets where broadband is not available due to the rugged natural environment, telepresence services such as tele-psychiatry

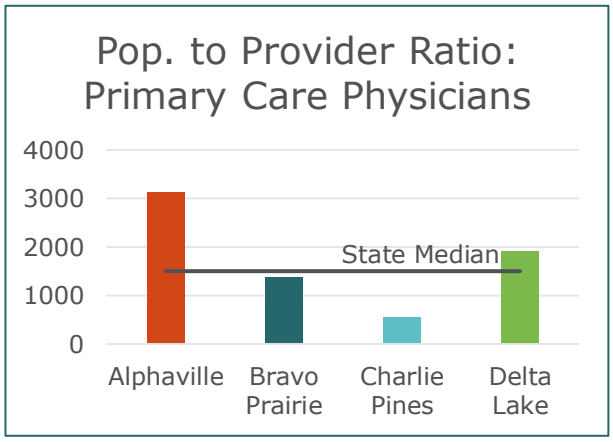
and therapy, remote monitoring, tele-pharmacy, tele-primary care and specialists, tele-ER, and tele-stroke are in place.

HEALTH CARE RESOURCES

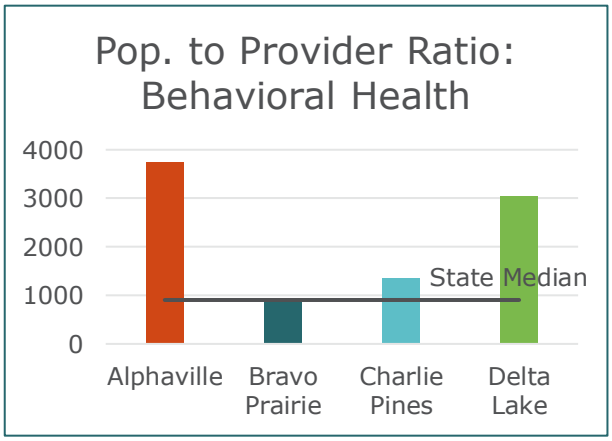
The local health care facility, a critical access hospital, is public (county owned) and houses a long-term care facility and an emergency department. Neither surgical services nor OB/GYN services are available; the nearest hospital providing these services is over 60 miles away. There is helicopter airlift service available to a regional trauma center. The hospital operating margin in 2018 was slightly lower than the state's average of 2.8% primarily due to nursing home ownership.

Seventy-four percent of its revenue is generated from outpatient services. This outpatient revenue rate is lower than Minnesota's median of 77%.

There is an established care coordination service in the region that connects primary care with behavioral and mental health and community resources. All members of the care team are valued members. Population health efforts have recently focused on reducing stigma related to mental and behavioral health. There is an independent primary care clinic in the community. Together the hospital and clinic are participating in a rural accountable care organization (ACO) with other hospitals in the region.



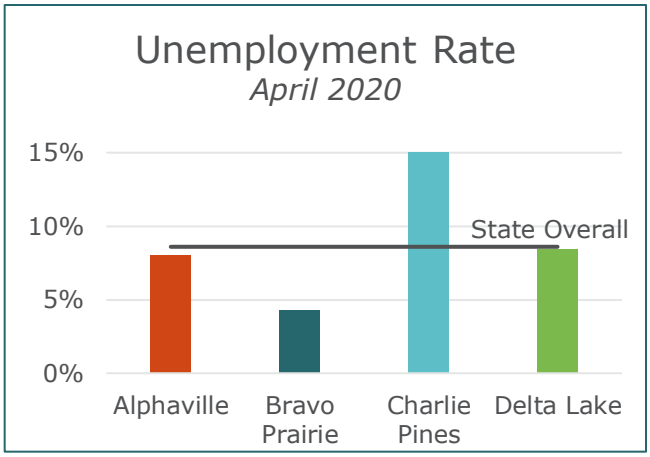
The population-to-primary care physician ratio (540:1) is positive when compared to the state median of 1501:1. There is a gap in mental health providers, seen in the ratio 1348:1 compared to the state median of 905:1.



COVID-19 IMPACT AND RESPONSE

As of early May 2020, the infection rate of COVID-19 in Charlie Pines was very low.

As a community whose economy depends heavily on tourism there is risk of significant unemployment during a pandemic. As of late April 2020, the unemployment rate in Charlie Pines had increased to 15.1%. This is one of the highest unemployment rates in the state. This is an increase over the March 2020 rate of 3.5%, and significantly higher than the April 2020 unemployment rate of 8.6% across the state as a whole.



Sociodemographic Data

Measure *Definition*	Charlie Pines	State Media	National Median	% Above/Below State Median	% Above/Below National Median
Income & Education					
Income *Median annual household income*	**$54,465**	$55,533	$47,409	-1.9%	14.9%
Children in Poverty *% of people under age 18 living in poverty*	**14.0%**	14.0%	22.0%	0.0%	-36.4%
HS Graduation *% of students completing high school on time*	**93.0%**	88.0%	90.0%	5.7%	3.3%
College *%of population with college credits*	**77.0%**	66.0%	55.0%	16.7%	40.0%
Age					
Age – Youth *% of population below age 18*	**15.8%**	22.7%	21.9%	-30.4%	-27.9%
Age – Elderly *% of population age 65+*	**28.6%**	21.1%	20.1%	35.9%	42.3%
Ethnicity and Language					
Black *% of population that is non-Hispanic black*	**0.8%**	0.7%	1.2%	14.3%	-33.3%
Indian *% of population that is American Indian or Alaska Native*	**8.5%**	0.8%	0.7%	962.5%	1114.3%
Asian *% of population that is Asian*	**0.9%**	0.7%	0.6%	28.6%	50.0%
Islander *% of the population that is native to Hawaii or other Pacific islands*	**0.0%**	0.0%	0.1%	0.0%	-100.0%
Hispanic *% of the population that is Hispanic*	**2.5%**	3.7%	3.7%	-32.4%	-32.4%
White *% of the population that is non-Hispanic white*	**85.0%**	91.0%	86.7%	-6.5%	-1.9%
Proficiency *% of population that is not proficient in English*	**0.0%**	1.0%	1.0%	-100.0%	-100.0%

Community Infrastructure & Economy

Measure *Definition*	Charlie Pines	State Median	National Median	% Above/Below State Median	% Above/Below National Median
Unemployment *% of population age 16+ unemployed but seeking work in 2018*	**3.5%**	3.6%	4.0%	-1.4%	-12.5%
Broadband *% of population with access to broadband internet*	**98.9%**	66.0%	62.8%	49.9%	57.6%
Access to exercise *% of population with adequate access to locations for physical activity (parks and recreation facilities)*	**99.0%**	65.0%	60.0%	52.3%	65.0%

Health Status & Risk

Measure *Definition*	Charlie Pines	State Median	National Median	% Above/Below State Median	% Above/Below National Median
Health Outcomes					
Life Expectancy *Average number of years a person can expect to live*	**82.2**	80.3	77.0	2.4%	6.8%
Birthweight *% of live births with low birthweight (<2500 g)*	**10.0%**	6.0%	8.0%	66.7%	25.0%
Poor Health *% of adults reporting fair or poor health (age-adjusted)*	**13.0%**	13.0%	18.0%	0.0%	27.8%
Physical Distress *% of adults reporting 14 or more days of poor physical health per month*	**10.0%**	9.0%	12.0%	11.1%	-16.7%
Mental Distress *% of adults reporting 14 or more days of poor mental health per month*	**11.0%**	10.0%	13.0%	10.0%	-15.4%
Health Factors					
Smoking *% of adults who are current smokers*	**15.0%**	15.0%	17.0%	0.0%	-11.8%
Obesity *% of adult population (age 20+ reporting a BMI greater than or equal to 30 kg/m^2)*	**22.0%**	32.5%	34.0%	-32.3%	-35.3%
Food Insecurity *Index of factors that contribute to a healthy food environment, from 0 (worst) to 10 (best)*	**8.0**	8.3	7.5	-3.6%	6.7%
Physical Inactivity *% of adults age 20+ reporting no leisure-time physical activity*	**18.0%**	25.5%	28.0%	-29.4%	-35.7%
Drinking *% of adults reporting binge or heavy drinking*	**21.0%**	20.0%	17.0%	5.0%	25.5%

Health Care Resources & Access

Measure *Definition*	Charlie Pines	State Median	National Median	% Above/Below State Median	% Above/Below National Median
Providers & Facilities					
Primary Care Physicians *Ratio of population to primary care physicians*	**540:1**	1501:1	2136:1	-64.0%	-74.7%
Other Primary Care Providers *Ratio of population to other primary care providers (NP, PA, clinical nurse specialists)*	**5393:1**	1412:1	1320:1	281.9%	308.6%
Mental Health Providers *Ratio of population to mental health providers*	**1348:1**	905:1	1047:1	49.0%	28.8%
Hospitals *Number of open hospitals in the county*	**1.0**	1.0	1.0	0.0%	0.0%
Nursing Homes *Number of open nursing homes in the county*	**1.0**	6.0	3.0	-83.3%	-66.7%
Insurance					
Uninsured Rate *% of population under age 65 without health insurance*	**8.0%**	6.0%	11.0%	33.3%	-27.3%
Medicare Hospital or Medical Enrollment *% of population enrolled in the program in 2018*	**13.7%**	10.1%	11.8%[20]	35.0%	15.5%
Medicare Advantage and Other Plans Enrollment *% of population enrolled in the program in 2018*	**17.4%**	13.2%	6.5%[21]	31.3%	166.3%
2020 ACA Monthly Premiums *Percent of median county income (2 nonsmoking adults age 40, no children)*	**0.8%**	Data not available	0.8%[22]	N/A	0.0%
Medicare Spending per Beneficiary *Total spending per beneficiary in 2018*	**$8,737**	$9,126[23]	$10,096[24]	-4.3%	-13.5%

[20] *Includes both urban and rural counties.*
[21] *Includes both urban and rural counties.*
[22] *Includes both urban and rural counties.*
[23] *Includes both urban and rural counties.*
[24] *Includes both urban and rural counties.*

Quality of Care

Measure *Definition*	Charlie Pines	State Median[25]	National Median[26]	% Above/Below State Median	% Above/Below National Median
Preventable Hospital Stays *Rate of hospital stays for ambulatory-sensitive conditions per 100,000 Medicare enrollees*	**2,649**	6,015	4,368	-56.0%	-39.4%
Screening Mammograms *Percentage of female Medicare enrollees ages 65-74 who received an annual mammography screening*	**32.0%**	46.0%	43.0%	-30.4%	-25.6%
Vaccinations *Percentage of fee-for-service Medicare enrollees who had an annual flu vaccine*	**34.0%**	50.0%	46.0%	-32.0%	-26.1%
Overall Rank *Rank among all 87 Minnesota counties (urban and rural) for overall health outcomes*	**76.0**	N/A	N/A	N/A	N/A
Recommendation Rating *Percentage of patients reporting YES, they would definitely recommend this hospital on HCAHPS survey*	**87.0%**[27]	90.0	88.0	-3.3%	-1.1%

[25] *Includes both urban and rural counties.*
[26] *Includes both urban and rural counties.*
[27] *Due to low patient volume, critical access hospitals are not well-represented in Hospital Compare. This makes comparison to state and national medians a challenge.*

Data Sources

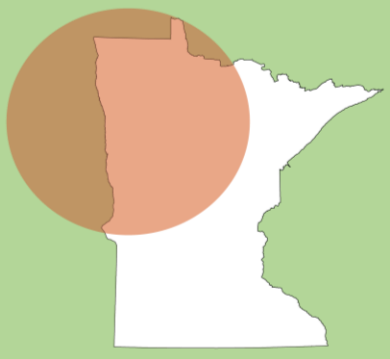
Overview	Measure	Source
	Agricultural Production	MN Regional Agriculture Report 2008
	COVID-19 Infection Rate	MN Dept. of Health Situation Update
	COVID-19 Unemployment	MN DEED Local Area Unemployment Statistics
	Designation	US Census 2017 CBSAs
	Economy Classification	USDA County Economic Types, 2015
	FIPS	2020 County Health Rankings
	Foreign-Born Residents	MN DEED County Profiles
	Medicaid Enrollment	MN DHS Medicaid and MinnesotaCare Dashboard Data
	Voter Turnout	MN Secretary of State Historical Voter Turnout
Sociodemographic	**Measure**	**Source**
	Income	2020 County Health Rankings
	Children in Poverty	2020 County Health Rankings
	HS Graduation	2020 County Health Rankings
	College	2020 County Health Rankings
	Age - Youth	2020 County Health Rankings
	Age – Elderly	2020 County Health Rankings
	Ethnicity	2020 County Health Rankings
	Proficiency	2020 County Health Rankings
	Migration (population change)	US Census State Population Change
Infrastructure	**Measure**	**Source**
	Unemployment	2020 County Health Rankings
	Broadband	Mapping Broadband Health in America - FCC
	Exercise	2020 County Health Rankings
Status & Risk	**Measure**	**Source**
	Life Expectancy	2020 County Health Rankings
	Birthweight	2020 County Health Rankings
	Poor Health	2020 County Health Rankings
	Physical Distress	2020 County Health Rankings
	Mental Distress	2020 County Health Rankings
	Smoking	2020 County Health Rankings
	Obesity	2020 County Health Rankings
	Food Insecurity	2020 County Health Rankings
	Physical Inactivity	2020 County Health Rankings
	Drinking	2020 County Health Rankings
Resources	**Measure**	**Source**
	Access to Primary Care Physicians	2020 County Health Rankings
	Access to Other Primary Care Providers	2020 County Health Rankings
	Access to Mental Health Providers	2020 County Health Rankings
	Hospitals	Homeland Infrastructure Foundation-Level Data - Hospitals

	Nursing Homes	Homeland Infrastructure Foundation-Level Data - Nursing Homes
	Uninsured Rate	2020 County Health Rankings
	Medicare Hospital or Medical Enrollment	CMS Medicare Enrollment Dashboard
	Medicare Advantage and Other Plans Enrollment	CMS Medicare Enrollment Dashboard
	ACA Premiums	Kaiser Family Foundation Health Insurance Marketplace Calculator
	Medicare Spending per Beneficiary (total spending)	CMS Geographic Variation in Standardized Medicare Spending
Quality	**Measure**	**Source**
	Preventable Hospital Stays	2020 County Health Rankings - Quality of Care
	Screening Mammograms	2020 County Health Rankings - Quality of Care
	Vaccinations	2020 County Health Rankings - Quality of Care
	Overall Rank	2020 County Health Rankings - Quality of Care
HCAHPS	**Measure**	**Source**
	Recommendation Rating	Medicare.gov Hospital Compare - HCAHPS

D. Delta Lake Profile

Community Profile

Delta Lake, Minnesota



Project and Community Profile Overview

This project was developed through a partnership between the National Rural Health Resource Center and The College of St. Scholastica with funding from the Mayo Clinic Foundation. The goal of the project is to examine what the rural health care environment will look like in 2030. The study examines current trends and, in parallel, disruptors that may ensure access to quality, affordable care in rural Minnesota.

The methodology used in this project includes:

- An environmental scan of demographic, economic, health care facility, and provider data, both current and trending to 2030, in rural and urban Minnesota
- Focused rural Minnesota community profiles created from the environmental scan and additional information representing the four regions of the state
- Case studies of the profiled communities with disrupters applied in trend analysis
- Key informants that were convened to identify key disruptors and develop scenarios of the changing health landscape
- An analysis of key disrupters applied to community profiles to assess the impact on access to affordable and quality care in 2030
- A policy paper presenting data, disrupter scenarios, Summit findings and case studies

The four community profiles created as part of this project describe fictitious "composite" communities defined by data compiled from multiple sources. These sources included data at the hospital, county, regional, state and national levels. While much of the data in the profiles was drawn from these sources for Minnesota communities, some creative liberties were taken in the writing of the final versions in order to create profiles of four distinct communities from each area of the state (Northeast, Northwest, Southeast, and Southwest).

Delta Lake Community Overview

Delta Lake, located in the northwestern region of Minnesota, is in a geographical transition zone to the great plains. It has 15,000 people living within the county with significant manufacturing and agriculture activity driving its economy. This county's products are part of construction, tourism, and outdoors activity industries. The Delta Lake region is ranked 1st in the state for canola production and 8th in the state for sugar beet production.

The climate in the northwest region of Minnesota can be severe and this county has bragging rights as the coldest place in the lower 48. There is a strong culture of family in Delta Lake and residents tend to work more independently than collaboratively on community solutions.

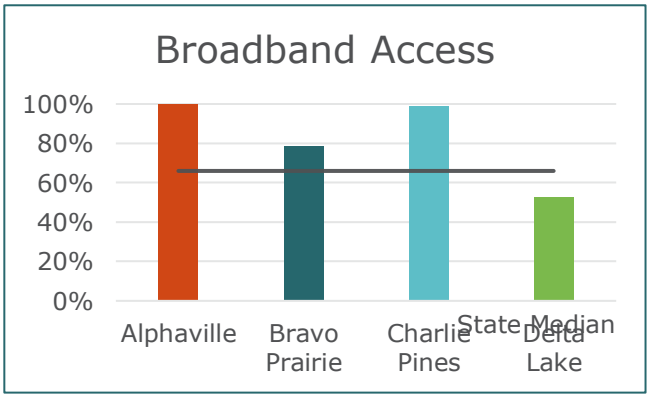
Distinguishing Characteristics

DEMOGRAPHICS, INFRASTRUCTURE AND ECONOMY

Delta Lake has seen a decline in its total population over the past 10 years but is expected to increase by 1% in the coming ten years. This is a lower rate than the expected increase across the state of 5%.

The region is predominantly white, 93% in 2017, and has experienced some increase in non-white residents over the past 10 years. The number of residents that are 15-34 years old matches the number of residents that are 45 to 65 years old. More than 90% of adult residents have at least a high school degree, and 55% are college-educated. This is lower than the state average of 66%.

53% of Delta Lake residents have access to broadband internet, compared to the state median[28] of 66%.

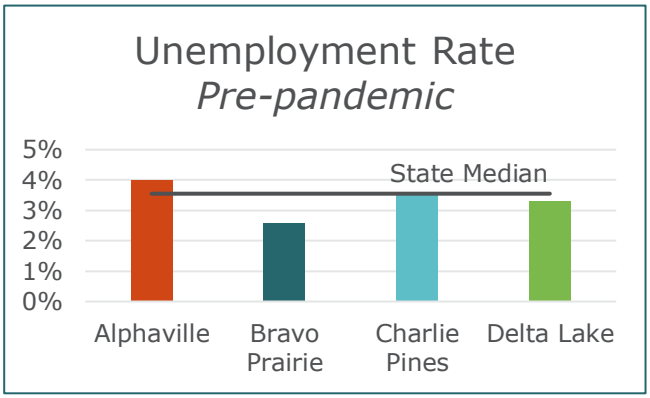


[28] *Unless otherwise specified, all medians referenced in this document and data tables refer to the median of counties designated as Micropolitan or Noncore (non-Metropolitan counties).*

Delta Lake's Major Employers

Manufacturing | Health Care | Retail | Educational Services | Accommodation and Food

As is often the case in rural areas, the health care system is one of Delta Lake's major employers. There is also significant employment associated with manufacturing and the agriculture and tourism industries, including accommodation and food services.

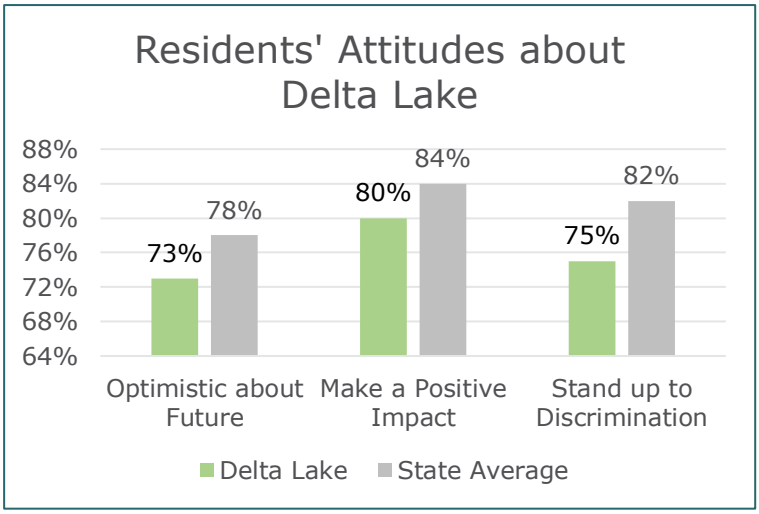


Prior to the COVID-19 pandemic, Delta Lake's unemployment rate, not seasonally adjusted, was 3.3% in 2018, slightly lower than the state median of 3.55%. See *COVID-19 Impact and Response* below for more details on the pandemic's impact on the community's unemployment rate.

CULTURE AND CIVIC ENGAGEMENT

The region's voter turnout in 2018 of 69% was lower than the state average of 75%. There is a strong culture of independence in the region with an emphasis on self-sufficiency and not needing help from the outside. Over the past few years, the county has been working on a comprehensive planning project that has a goal of encouraging civic engagement. Several towns in the region have been actively involved in a community building collaborative focused on increasing economic development, recreational opportunities, and addressing other social determinants of health. However,

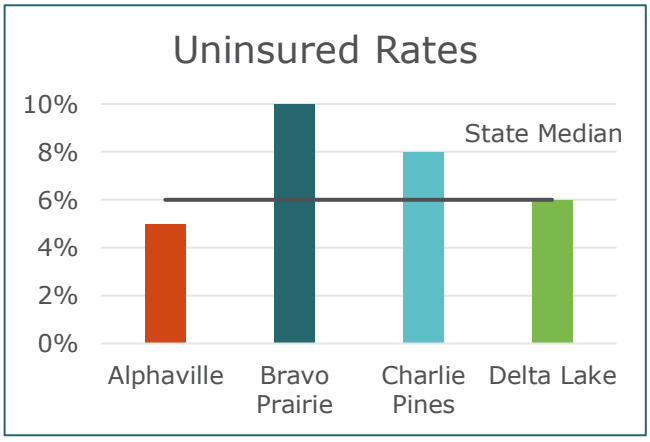
a recent survey measuring residents' attitudes about Delta Lake shows there is slightly less confidence than residents across the state that individuals in Delta Lake can have a positive impact on their community and some doubt that overall, the community is able to stand up to hatred and discrimination. Respondents also report feeling optimistic about the future to a lesser degree than the state average of 78%.



HEALTH CARE ACCESS

Six percent of Delta Lake residents under age 65 do not have health insurance. This matches the state median.

18.3% of Delta Lake's residents are enrolled in Medicaid or MNCare, slightly less than the state average of 21.4%.



There has been little investment in telehealth infrastructure related to remote monitoring and patient portals; however, the hospital and primary care clinic have had some success working with a larger health system for implementing tele-pharmacy, tele-ER, and tele-stroke services.

HEALTH CARE RESOURCES

The local health care facility, a critical access hospital, is an independent entity that partners closely with a regional health system. It houses a primary care clinic, long term care facility with a memory unit, pharmacy, small surgery unit, and emergency department.

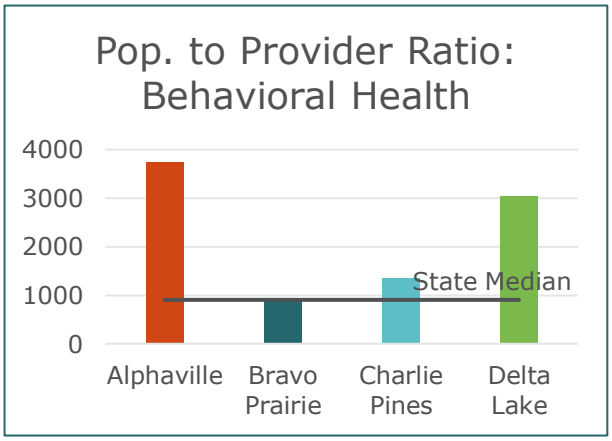
In 2020, the hospital demonstrated indicators of a top performing hospital by excelling in managing risk, achieving higher quality, securing better outcomes, increasing patient satisfaction, and operating at a lower cost than many of their peers. The operating margin was above the 2% median for Minnesota and the 84% of revenue generated from outpatient services significantly exceeds the state mean of 77%.

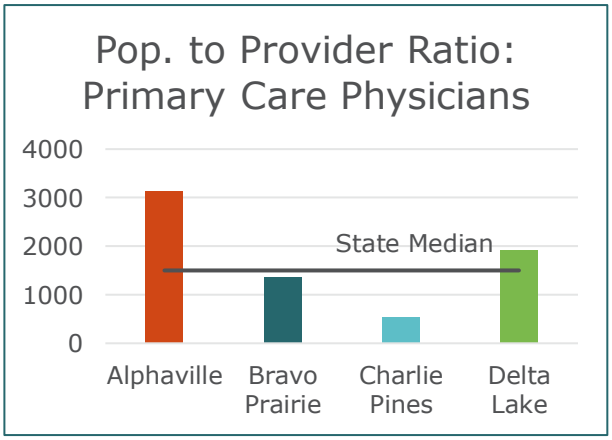
Although the hospital does not have a clinical care coordination service available, an informal coalition of social service agencies coordinates aging services and manages a resource referral system within the county.

The primary care clinic in Delta Lake offers a broad spectrum of medical and behavioral health services. However, the population to mental health provider ratio is 3030:1, higher than the state median of 905:1.

The population to primary care physician ratio is 1916:1, compared to the state median of 1501:1.

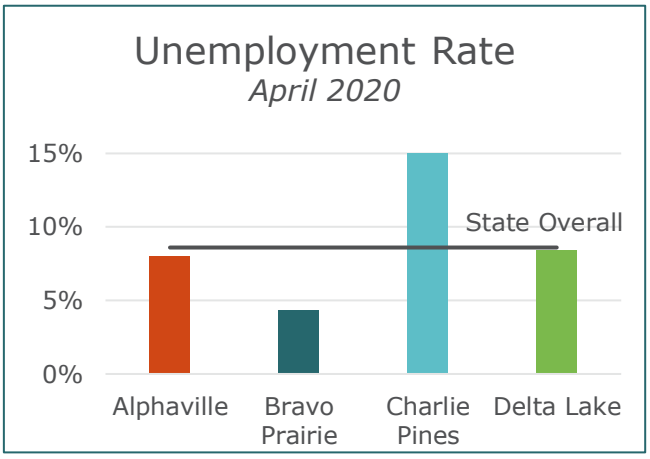
Delta Lake has excelled at provider recruitment and retention and fosters a health professional pipeline by hosting many students for clinical rotations and partnering with the high school and regional community college.





COVID-19 IMPACT AND RESPONSE

As of late April 2020, the unemployment rate in Delta Lake had increased to 8.4% as a result of the COVID-19 pandemic.



By May 2020, Delta Lake had reported fewer than 5 positive cases of COVID-19 and zero deaths from the virus. This low number is especially surprising given that Delta Lake is located in a county classified by the United States Department of Agriculture (USDA) as having a manufacturing-dependent economy, and counties that rely heavily on manufacturing have had the highest infection rate of all rural counties to date.

Sociodemographic Data

Measure *Definition*	Delta Lake	State Median	National Median	% Above/Below State Median	% Above/Below National Median
Income & Education					
Income *Median annual household income*	**$60,239**	$55,533	$47,409	8.5%	27.1%
Children in Poverty *% of people under age 18 living in poverty*	**12.0%**	14.0%	22.0%	-14.3%	-45.5%
HS Graduation *% of students completing high school on time*	**93.0%**	88.0%	90.0%	5.7%	3.3%
College *%of population with college credits*	**65.0%**	66.0%	55.0%	-1.5%	18.2%
Age					
Age – Youth *% of population below age 18*	**24.1%**	22.7%	21.9%	6.2%	10.1%
Age – Elderly *% of population age 65+*	**17.5%**	21.1%	20.1%	-16.9%	-12.9%
Ethnicity and Language					
Black *% of population that is non-Hispanic black*	**0.6%**	0.7%	1.2%	-14.3%	-50.0%
Indian *% of population that is American Indian or Alaska Native*	**2.0%**	0.8%	0.7%	150.0%	185.7%
Asian *% of population that is Asian*	**2.8%**	0.7%	0.6%	300.0%	366.7%
Islander *% of the population that is native to Hawaii or other Pacific islands*	**0.0%**	0.0%	0.1%	0.0%	-100.0%
Hispanic *% of the population that is Hispanic*	**1.4%**	3.7%	3.7%	-62.2%	-62.2%
White *% of the population that is non-Hispanic white*	**91.7%**	91.0%	86.7%	0.8%	5.8%
Proficiency *% of population that is not proficient in English*	**1.0%**	1.0%	1.0%	0.0%	0.0%

Community Infrastructure & Economy

Measure *Definition*	Delta Lake	State Median	National Median	% Above/Below State Median	% Above/Below National Median
Unemployment *% of population age 16+ unemployed but seeking work in 2018*	**3.3%**	3.6%	4.0%	-7.0%	-17.5%
Broadband *% of population with access to broadband internet*	**52.6%**	66.0%	62.8%	-20.3%	-16.2%
Access to exercise *% of population with adequate access to locations for physical activity (parks and recreation facilities)*	**48.0%**	65.0%	60.0%	-26.2%	-20.0%

Health Status & Risk

Measure *Definition*	Delta Lake	State Median	National Median	% Above/Below State Median	% Above/Below National Median
Health Outcomes					
Life Expectancy *Average number of years a person can expect to live*	**80.6**	80.3	77.0	0.4%	4.7%
Birthweight *% of live births with low birthweight (<2500 g)*	**6.0%**	6.0%	8.0%	0.0%	-25.0%
Poor Health *% of adults reporting fair or poor health (age-adjusted)*	**12.0%**	13.0%	18.0%	-7.7%	-33.3%
Physical Distress *% of adults reporting 14 or more days of poor physical health per month*	**9.0%**	9.0%	12.0%	0.0%	-25.0%
Mental Distress *% of adults reporting 14 or more days of poor mental health per month*	**10.0%**	10.0%	13.0%	0.0%	-23.1%
Health Factors					
Smoking *% of adults who are current smokers*	**15.0%**	15.0%	17.0%	0.0%	-11.8%
Obesity *% of adult population (age 20+ reporting a BMI greater than or equal to 30 kg/m^2)*	**35.0%**	32.5%	34.0%	7.7%	2.9%
Food Insecurity *Index of factors that contribute to a healthy food environment, from 0 (worst) to 10 (best)*	**8.3**	8.3	7.5	0.0%	10.7%
Physical Inactivity *% of adults age 20+ reporting no leisure-time physical activity*	**26.0%**	25.5%	28.0%	2.0%	-7.1%
Drinking *% of adults reporting binge or heavy drinking*	**22.0%**	20.0%	17.0%	10.0%	29.4%

Health Care Resources & Access

Measure *Definition*	Delta Lake	State Median	National Median	% Above/Below State Median	% Above/Below National Median
Providers & Facilities					
Primary Care Physicians *Ratio of population to primary care physicians*	**1916:1**	1501:1	2136:1	27.7%	-10.3%
Other Primary Care Providers *Ratio of population to other primary care providers (NP, PA, clinical nurse specialists)*	**1515:1**	1412:1	1320:1	7.3%	14.8%
Mental Health Providers *Ratio of population to mental health providers*	**3030:1**	905:1	1047:1	234.8%	189.40%
Hospitals *Number of open hospitals in the county*	**1.0**	1.0	1.0	0.0%	0.0%
Nursing Homes *Number of open nursing homes in the county*	**6.0**	6.0	3.0	0.0%	-30.8%
Insurance					
Uninsured Rate *% of population under age 65 without health insurance*	**6.0%**	6.0%	11.0%	0.0%	-45.5%
Medicare Hospital or Medical Enrollment *% of population enrolled in the program in 2018*	**7.1%**	10.1%	11.84%[29]	-29.6%	-39.8%
Medicare Advantage and Other Plans Enrollment *% of population enrolled in the program in 2018*	**13.1%**	13.2%	6.53%[30]	-1.2%	100.5%
2020 ACA Monthly Premiums *Percent of median county income (2 nonsmoking adults age 40, no children)*	**0.8%**	Data not available	0.8%[31]	N/A	0.00%
Medicare Spending per Beneficiary *Total spending per beneficiary in 2018*	**$8,827**	$9,126[32]	$10,096[33]	-3.3%	-12.6%

[29] *Includes both urban and rural counties.*
[30] *Includes both urban and rural counties.*
[31] *Includes both urban and rural counties.*
[32] *Includes both urban and rural counties.*
[33] *Includes both urban and rural counties.*

Quality of Care

Measure *Definition*	Delta Lake	State Median[34]	National Median[35]	% Above/Below State Median	% Above/Below National Median
Preventable Hospital Stays *Rate of hospital stays for ambulatory-sensitive conditions per 100,000 Medicare enrollees*	**11,923**	6,015	4,368	98.2%	173.0%
Screening Mammograms *Percentage of female Medicare enrollees ages 65-74 who received an annual mammography screening*	**44.0%**	46.0%	43.0%	-4.4%	2.3%
Vaccinations *Percentage of fee-for-service Medicare enrollees who had an annual flu vaccine*	**48.0%**	50.0%	46.0%	-4.0%	4.4%
Overall Rank *Rank among all 87 Minnesota counties (urban and rural) for overall health outcomes*	**44**	N/A	N/A	N/A	N/A
Recommendation Rating *Percentage of patients reporting YES, they would definitely recommend this hospital on HCAHPS survey*	**93.0%**[36]	90.0	88.0	3.3%	5.7%

[34] *Includes both urban and rural counties.*
[35] *Includes both urban and rural counties.*
[36] *Due to low patient volume, critical access hospitals are not well-represented in Hospital Compare. This makes comparison to state and national medians a challenge.*

Data Sources

Overview	Measure	Source
	Agricultural Production	MN Regional Agriculture Report 2008
	COVID-19 Infection Rate	MN Dept. of Health Situation Update
	COVID-19 Unemployment	MN DEED Local Area Unemployment Statistics
	Designation	US Census 2017 CBSAs
	Economy Classification	USDA County Economic Types, 2015
	FIPS	2020 County Health Rankings
	Foreign-Born Residents	MN DEED County Profiles
	Voter Turnout	MN Secretary of State Historical Voter Turnout
Sociodemographic	**Measure**	**Source**
	Income	2020 County Health Rankings
	Children in Poverty	2020 County Health Rankings
	HS Graduation	2020 County Health Rankings
	College	2020 County Health Rankings
	Age - Youth	2020 County Health Rankings
	Age – Elderly	2020 County Health Rankings
	Ethnicity	2020 County Health Rankings
	Proficiency	2020 County Health Rankings
	Migration (population change)	US Census State Population Change
Infrastructure	**Measure**	**Source**
	Unemployment	2020 County Health Rankings
	Broadband	Mapping Broadband Health in America - FCC
	Exercise	2020 County Health Rankings
Status & Risk	**Measure**	**Source**
	Life Expectancy	2020 County Health Rankings
	Birthweight	2020 County Health Rankings
	Poor Health	2020 County Health Rankings
	Physical Distress	2020 County Health Rankings
	Mental Distress	2020 County Health Rankings
	Smoking	2020 County Health Rankings
	Obesity	2020 County Health Rankings
	Food Insecurity	2020 County Health Rankings
	Physical Inactivity	2020 County Health Rankings
	Drinking	2020 County Health Rankings
Resources	**Measure**	**Source**
	Access to Primary Care Physicians	2020 County Health Rankings
	Access to Other Primary Care Providers	2020 County Health Rankings
	Access to Mental Health Providers	2020 County Health Rankings
	Hospitals	Homeland Infrastructure Foundation-Level Data - Hospitals
	Nursing Homes	Homeland Infrastructure Foundation-Level Data - Nursing Homes
	Uninsured Rate	2020 County Health Rankings

	Medicare Hospital or Medical Enrollment	CMS Medicare Enrollment Dashboard
	Medicare Advantage and Other Plans Enrollment	CMS Medicare Enrollment Dashboard
	ACA Premiums	Kaiser Family Foundation Health Insurance Marketplace Calculator
	Medicare Spending per Beneficiary (total spending)	CMS Geographic Variation in Standardized Medicare Spending
Quality	**Measure**	**Source**
	Preventable Hospital Stays	2020 County Health Rankings - Quality of Care
	Screening Mammograms	2020 County Health Rankings - Quality of Care
	Vaccinations	2020 County Health Rankings - Quality of Care
	Overall Rank	2020 County Health Rankings - Quality of Care
HCAHPS	**Measure**	**Source**
	Recommendation Rating	Medicare.gov Hospital Compare - HCAHPS

E. Supplemental References for Community Profiles

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Appendix 5: Participant Recommendations
Organized into 30 final recommendations by key disruptors

A component of the summit included gathering initial recommendations from summit participants for each of the thirteen original disruptors identified during the summit meeting. These thirteen were combined by the project team to a final six key disruptors using syntax analysis and affinity diagramming. The following six tables provide the initial list of 157 recommendations sorted into the six key disruptors. Because of the magnitude of recommendations these initial recommendations were combined into the final thirty recommendations, again using syntax analysis and affiliation diagramming. However, it is suggested by the project team to readers of this report, that the original recommendations can be used to gather specific insights and actions shared by the summit participants. The final thirty recommendations are listed within the report.

Consumer Driven Options to Access Health Care Using Non-Traditional Avenues

Ensure that the right perspectives are included in the planning and evaluation process	Focus planning and funding on care that must be available close by and in person	Create policies and practices that set high standards for non-traditional sources	Remove barriers to technology-based health care delivery and support	Educate about the downsides of non-traditional sources	Encourage and pursue partnerships with non-traditional sources	
• Consider new ways to measure rural outcomes that take into account small rural numbers • Keep the consumer at the table • Health systems and public health collaborate -	• Invest in the equipment and infrastructure for 24/7 staffing for rural ER - • Deep discounts to giant providers like to rural on Medicare payments • Giant Omnicell or vending machine with multiple available drugs • Ins. coverage disconnected from employment	• Regulation will be needed • Assure quality standards • Regulations will be needed Ensure continuity of care with these new players	• Medicaid and Medicare pay for virtual healthcare • Medicare allows for collaborations between community providers and online sources • Use a systems analysis and approach when setting reimbursement parameters for technology-advance solutions • Convince regulators to consider all impacts, not just cost, of technology advanced models of care • Invest in virtual care	• Promote viability of the local healthcare organizations • Inform large retailers of the financial strain they are putting on local community hospitals • Increase awareness of threat of non-traditional providers Demonstrate Economic Impact	• Create incentives for partnerships. • Deep discounts to giant providers like to rural on Medicare payments • Pursue options for collaborations in Medicaid and MN Sure w/ local providers and online sources • Make sure HC is at the table with non-traditional care providers, like amazon • Bring these large retailers together with the local healthcare organizations to work together. Collaborate with non-traditional players for mutual benefit	• Approach these non- traditional players as an opportunity • Consider partnerships with CVS, Walgreens, Walmart • Collaboration between Federal and state government and private providers • Develop local partnerships with health care providers • Ensure continuity of care with these new players Demonstrate Economic Impact

Dramatic, Focused Social Investment Within Rural Communities to Address Health Disparities Through Social Determinants of Health and Build Community Connections

Invest local resources on priorities focused by CHNA plans	Establish community coalitions to address SDOH	Ensure universal broad band in MN	Create public and private funding opportunities and value- based incentives	Better funding for public health	Create a new baseline of heath for all citizens
• Lobby the world to let them know the worth of folks who thrive on living rural • Focus on CHNA plans and help pay for top goals to be pursued • Use of Medicaid and foundation funding to invest in basic, scattered site housing resources Supports local control, and provides structure and/or funding	• Establish local commissions to address needs • Communities working together to take care of its members • Engage diverse input to county planning for SDOH issues • Engage diverse input to state rural planning • Utilize coalitions to plan and implement coordinated approaches to meeting social needs • Health care industry at all levels become new partners in the fight against poverty, homelessness, and hunger • Federal funding and incentives for collaboration within communities working together providing community care	• Ensure universal broad band	• State funding and incentives for collaboration within communities working together providing community care • Partner with large corporations to invest in SDOH • Move the national managed care procurement process to more of a value-based structure Address disparities within the state and make funding available	• Universal basic income • All indigenous and POC receive an interest free home loan as reparations • Better funding for public health • Better funding for public health • Allow SDOH expenses in health care treatment and prevention	• Create a new baseline for all citizens

Increased Attention on Rural Health Vulnerabilities as Exposed by the COVID-19 Pandemic

Collaborate locally in pandemic preparedness, response, and financial recovery	Increase rural Medicaid reimbursement	Provide models and funding for preparedness collaboration including data sharing and public health	Provide forgiveness or more time for federal pandemic loans and payments	Continue CAH reimbursement and programs to ensure rural access
• Focus on preparedness • Collaborate in Preparedness and financial recovery • Use newfound collaboration and cooperation • Publicize and educate about the virtual visits and other services. • Promote reimbursement models • Establish and maintain infrastructure of working together	• Promote reimbursement models State must increase Medicaid reimbursement.	• Invest a more robust statewide data collection, data reporting, • Encourage regional thinking in all of health care • Provide models and funding to support Collaboration in Preparedness • Apprise regulators of the need to work with both rural and metro community partners • Include rural voices and considerations with metro in collaborative solutions • Invest in public health infrastructure. (duplicate) • Incentivize newfound knowledge and collaborative possibilities	• Just like the loan payment plan for small business Fed could help retire the debt (as could the state) of small hospitals. Provide forgiveness of SBA loans and more time for Accelerated payments	• Continuation of CAH reimbursement and programs to ensure rural access Promote reimbursement models to address weaknesses exposed during pandemic • Paid education for all health care professional levels

Innovative Rural Population Health Care & Payment Models that Ensure Viable Health Services Within Rural Communities and Address Financial Pressures

Transition to value-based payment structures that share revenues and moderate risk	Hold a long-term perspective of investment	Keep Medicaid and Medicare patients in mind when making decisions	Create opportunities to find innovative solutions to meet demand for care	Expand investment in collab. between clinical care, public health, and community agencies	Invest in rural leadership capacity
• Create consistent value-based contract payment models • Bring multiple ins. carriers to the table • Implement state-based all-payer programs • Integrate new national policies for value-based contracts with state contributions. • Explore capitated payment systems like global budgets • Combine a base, cost-reimbursed system, with an add-on for high quality/access/lower total costs of care. - • Payment disincentivize bad health choices by the patient • Create risk network of all rural health care facility to increase #s • Payment model where community stakeholder shares risk& revenue • Universal health care w/ capitated reimb. where community partners part of payment model	• Place Quality of Care before finance decisions and invest for long-term success • Keep ACA • Pay off the debt of rural hospitals • Change the way health care providers are compensated • New payment model with the right incentives • Develop payment model for population health work and results • New organization models to provide care and share risk and revenue • Move state and national managed care procurement process to a value-based structure • Pursue new org models/non-profits to share risk revenue	• Work with state on Medicaid population Government support for Medicare beneficiaries during pandemic environment.	• Ensure affordable access • House HC professionals outside of traditional care building New models in collaboration, pool resources	• Community partnerships need to be established to address the social determinants of healthcare • Support a legion of public health workers in every corner of the US contacting (in person or virtually) every citizen about their health • Work more directly with public health • Engage and expand public health workers Seek to fund state models such as Accountable Communities in Health	• Collab. between Federal, state, regional, local orgs • Work with both rural and metro H.C. orgs • Communities need to be involved in discussions • Empower patients to lobby for increased reimb. • Support local community hospitals, vs contracting with larger systems • Greater hospital leadership support • Reimb. models include development time, resource invest. and ongoing costs - funding includes pop.health exp

5. New Technologies Integrated into Health Care that Supplant or Support Traditional Care

State investment in tele-health technology solutions	Internet available to all Medicaid patients	Use technology to increase connections to care providers
• Fund telehealth hubs • Support PC hubs in rural for emergent care and Procedures • Fund telepresence in every CAH and rural hospital to a network of emergency providers at tertiary hospitals • Establish community tele-health hubs across regions • Collaboration at regional levels to ensure access to technology • Utilize mobile telehealth hubs • State encourages best practice for tele-hubs Pay for telepresence visits fully to all Medicare and ACA participants	• Ensure Medicaid patients have internet/device Medicaid funding to enable use of technology	• Bundle specialty clinics with other sites • Maximize use of AI in healthcare and wellness • Adopt telehealth for chronic care and limited access to specialists • Nationally Include rural voices and consideration with metro in collaborative solutions • Health care providers to integrate [new technology] into practices • Free cloud-based community-based interoperable EHR

6. Telehealth Technology, Payment and Regulations that Enable Care Providers to Interact Virtually with Patients and Community Members

Partner with other rural community providers to ensure access to a wide range of tele-services	Provide adequate, ongoing means of payment for tele-health services	Continue expansion of various types of telemedicine	Maximize the strength of and access to broadband
• Develop partnerships with local community hospital, school, businesses to provide telehealth • Public-private partnership / platform for an interoperable secure telepresence system • Include community, state, and national voices in rural health policy making Public-private partnership / platform for an interoperable secure telepresence system	• Pay same rates for in-person versus telehealth • Pay same rates for in-person versus telehealth. • State Medicaid pay for tele visits Feds must pay for Medicare visits in full	• Utilization of a common telepresence platform that will allow for care to remain local • Increase awareness of the available virtual visits from their own local provider • Adopt telehealth • Provide accessible telehealth to elderly public-private partnership / platform for an interoperable secure telepresence system	• Promote last mile broadband • Promote last mile broadband • Internet access considered a utility • Fund broadband infrastructure and ensure the last mile is covered • Maintain the telehealth policy and regulatory changes put in place under emergency order in response to COVID-19 • Promote last mile broadband with town and county leaders • fund broadband access across the state and country as the essential utility it is. • Expand broadband everywhere Ensure Medicaid patients have internet/device

Appendix 6: Financial Model and Projections

Presentation of background, rationale, assumptions, and results

The Functional Imperative to Change the Driver of the Current "Healthcare Payment System"

Trends and Disruptors in Rural Minnesota

August 28th, 2020

Eric K. Shell, CPA, MBA

Dan Given, CPA

STROUDWATER

Overview

STROUDWATER

- Fee-For-Service (FFS) payment predominates our healthcare system for which providers have organized/formed to meet the functional imperatives of providing episodic sick care services
  - Functional Imperatives:
    - Increase "sick" care utilization;
    - Increase "sick" care price per unit of service; and
    - Reduce costs.
  - The FFS payment system does not promote healthcare and specifically excludes investments in healthcare
- Current healthcare disruptors driven by market forces, technological innovation, and changes to regulation have begun to dislodge the traditional FFS payment system
- Stakeholders must first determine the optimal function of the healthcare system which should then dictate the form that is necessary to achieve this function
  - Only after the optimal function is determined, and the form necessary to achieve the function, should a payment system be designed
- Stroudwater's 2030 Financial Projection models a change in the payment system that maintains and promotes an optimal function which includes:
  - Improving the health of the community
  - Access to traditional high quality "sick care" treatment

DISRUPTORS DRIVERS ASSUMPTIONS MODELS CONCLUSIONS 2

Current Healthcare System Challenges

STROUDWATER

Increased Costs to Consumers – average family premiums now exceed $20K per year with 55% of firms offering high-deductible plans, pushing consumers to "shop" for healthcare

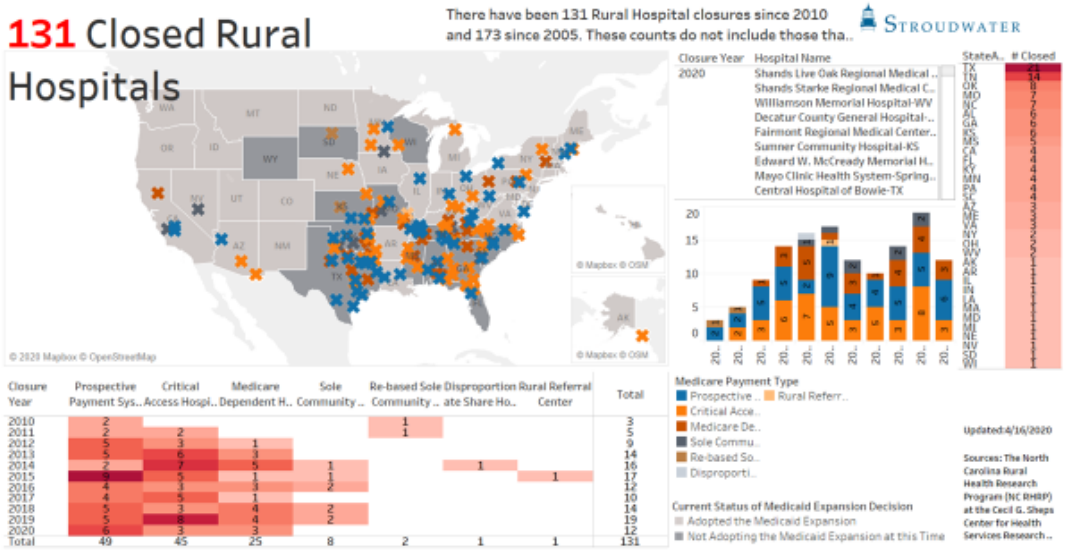
Declining Hospital Volumes – inpatient stays have declined while hospital outpatient volumes decreased for the first time between 2017 and 2018

Financial Pressure – insurers refusing to pay for certain inpatient stays and outpatient services in the hospital setting

Regulations – CMS is pushing providers to abandon the fee-for-service model by intentionally reducing traditional reimbursement for services and promoting alternative payment models

Impact of Disruptors - Rural Hospital Closures

STROUDWATER

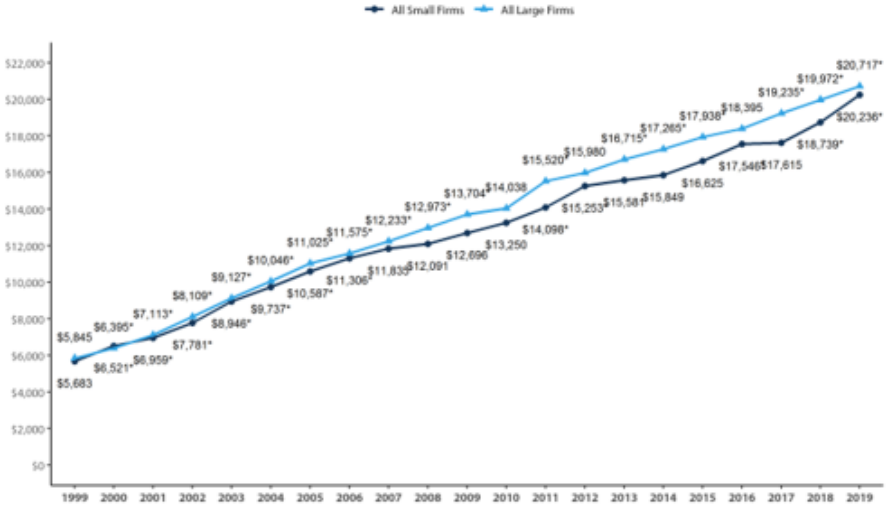


Source: NC Rural Health Research Program at the Cecil G. Sheps Center for Health Services and Research and KFF.org

Challenges - Increasing Premiums

STROUDWATER

Average Annual Premiums for Covered Workers with Family Coverage, by Firm Size, 1999-2019

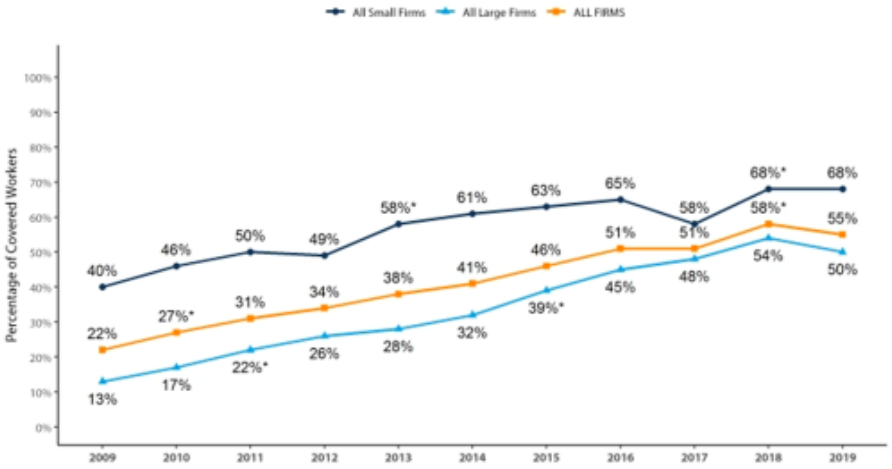


* Estimate is statistically different from estimate for the previous year shown ($p < .05$).
NOTE: Small Firms have 3-199 workers and Large Firms have 200 or more workers.
SOURCE: KFF Employer Health Benefits Survey, 2018-2019; Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 1999-2017

Challenges - Increasing Deductibles

STROUDWATER

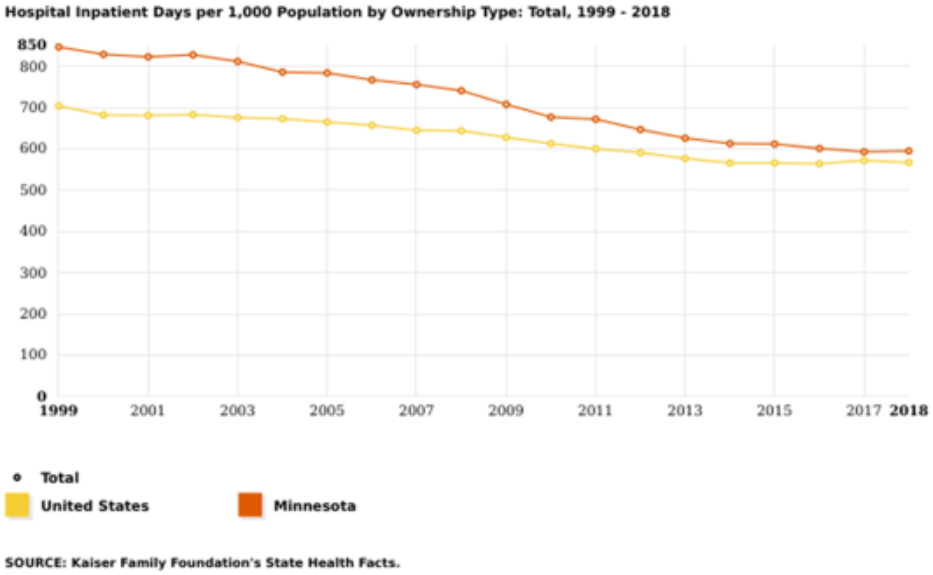
Percentage of Covered Workers Enrolled in a Plan with a General Annual Deductible of $1,000 or More for Single Coverage, by Firm Size, 2009-2019



* Estimate is statistically different from estimate for the previous year shown ($p < .05$).
NOTE: Small Firms have 3-199 workers and Large Firms have 200 or more workers. These estimates include workers enrolled in HDHP/SOs and other plan types. Average general annual deductibles are for in-network providers.
SOURCE: KFF Employer Health Benefits Survey, 2018-2019; Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 2009-2017

Challenges - Decreasing Inpatient Volume

STROUDWATER



SOURCE: Kaiser Family Foundation's State Health Facts.

Challenges - Decreasing Outpatient Volume

STROUDWATER

In 2018, US hospital outpatient visits declined for the first time since 1983, specifically in the number of emergency outpatient visits

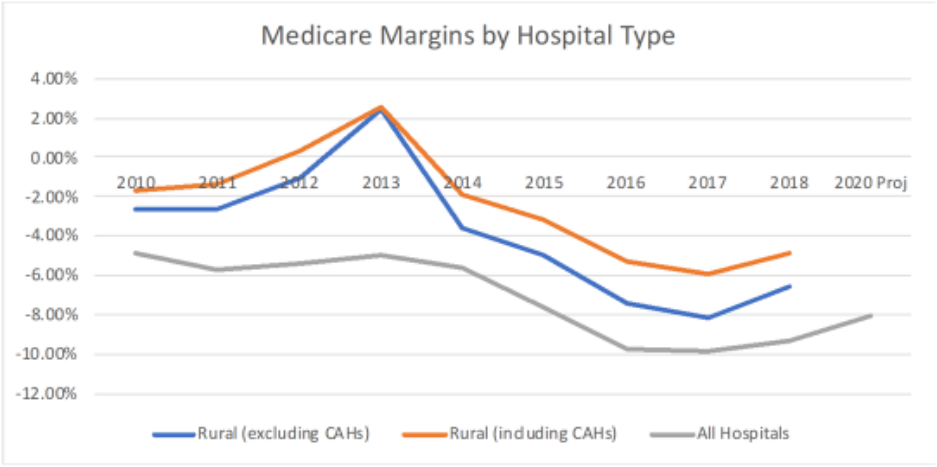
Per the American Hospital Association's 2020 Hospital Statistics report, 6,146 US hospitals delivered 879.6 million outpatient visits in 2018, 0.9% less than in 2017, when they delivered 880.5 million outpatient visits

The report cites that the amount of outpatient care delivered has most likely increased, but that care is being delivered in competitive new options such as urgent care centers and retail clinics such as those recently launched by CVS Health

Insurers have contributed to the trend, with UnitedHealthcare recently refusing to pay for certain outpatient surgeries in hospital settings to save money

Regulations – Medicare Margins by Hospital Type

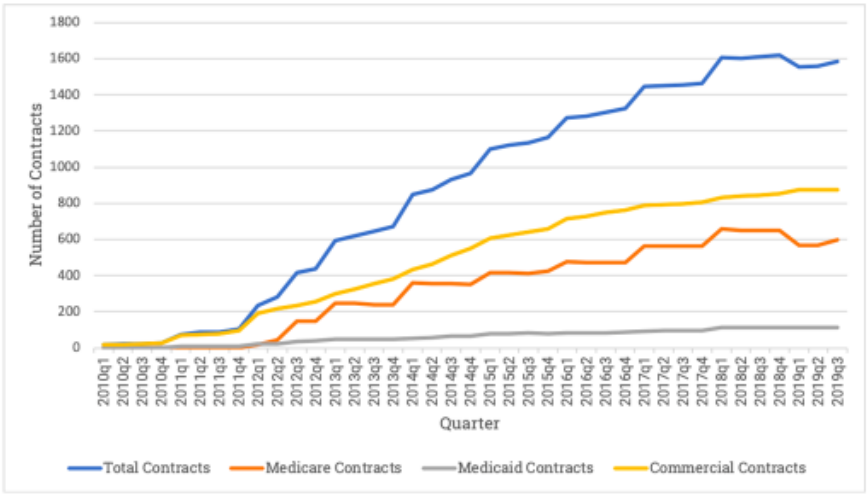
STROUDWATER



Source: MedPAC Report to Congress, March 15, 2020

Regulations – Spread of ACOs And Value-Based Payment Models

STROUDWATER



Source: Health Affairs, Spread of ACOs And Value-Based Payment Models In 2019: Gauging the Impact of Pathways to Success, David Muhlestein Robert Saunders Robert Richards Mark McClellan, 10/21/2019 https://www.healthaffairs.org/do/10.1377/hblog20191020.962600/full/

DISRUPTORS

Market
Technology
Regulations
Impact

Key Disruptors - Market, Technology, Regulation

STROUDWATER

- New Entrants – new non-traditional healthcare players, (Amazon, CVS, etc.)
- Substitution – new technology supplanting traditional care (telehealth, healthcare hubs, telepresence, etc.)
- Consumer Driven Healthcare Access – smartphones, watches, handheld smart devices, apps, etc. have increased consumer healthcare access and expectations of traditional providers
- Alternative Payment Models – emergence of experimental payment models (global budget, Accountable Care Organizations, Primary Care First, etc.)

Market - New Entrants

STROUDWATER

- Partnership to provide healthcare to organizations' employees and eventually expanded to benefit all Americans
- "Free from profit-making incentives and constraints" (Jamie Diamond, CEO JPMorgan Chase)
- "Reducing health care's costs and burden on the economy while improving outcomes would be worth the effort" (Jeff Bezos, CEO Amazon)

The New York Times

TECHNOLOGY

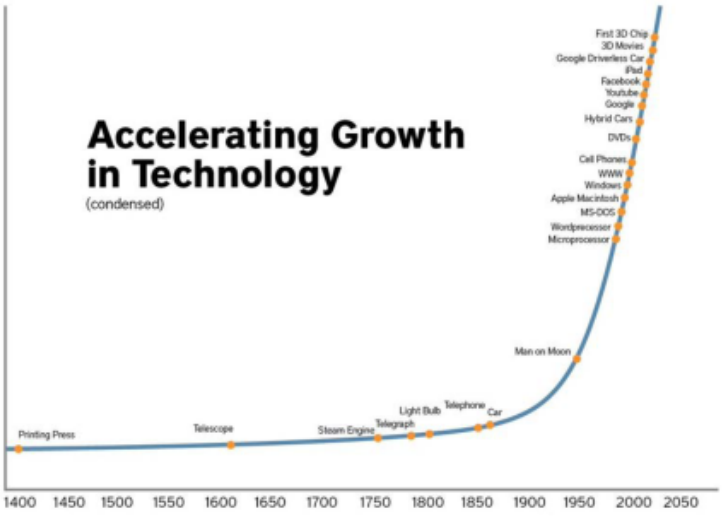
Amazon, Berkshire Hathaway and JPMorgan Team Up to Try to Disrupt Health Care

Source: New York Times, January 30, 2018

Source: New York Times, January 30, 2018

New Technology - Growth

STROUDWATER



Source: Khalid Hamdan, Accelerating Growth in Technology

New Technology - Substitution

STROUDWATER

EverlyWell Raises $50 Million To Make At-Home Lab Testing More Accessible

- Founded in 2015 to offer validated at-home lab tests that are reviewed by physicians at a certified lab
- Offers 35 different types of tests including ones for food sensitivity, hormone levels, Lyme disease, and sexually transmitted diseases
- Tests currently available at Target, CVS, Humana and the EarlyWell website

Source: Forbes, April 18, 2019

New Technology - Consumer Driven Healthcare Access

STROUDWATER

Get a complete medical exam wherever you are with TytoCare TytoHome. This electronic health care device allows you to receive on-demand physical exams via live video chat with a doctor's office using an exam camera and a basal thermometer and otoscope, stethoscope and tongue depressor adapters. This HIPAA-secure TytoCare TytoHome digital device transmits test results to an electronic health record for easy monitoring .

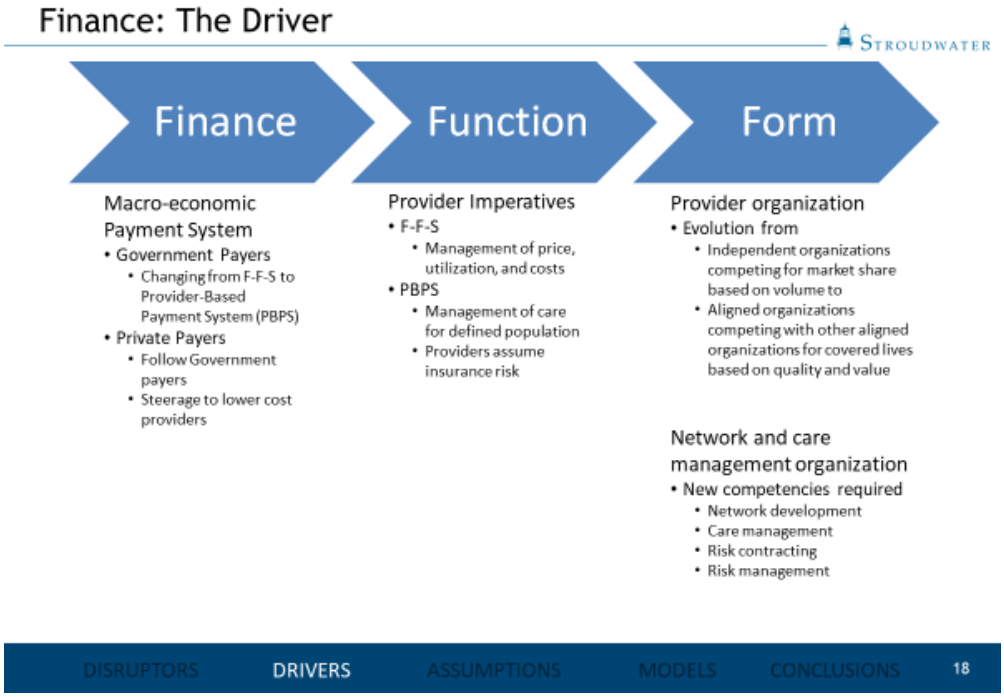
Best Buy expands reach into digital health space with Tyto Care partnership

- Handheld device that can examine heart, lungs, ears, throat and abdomen as well as measure body temperature to enable remote diagnosis of acute care situations like ear infections, sore throats, fever, cold, flu, allergies, stomachaches, upper respiratory infections and rashes
  - Information sent to a primary are provider for diagnosis through a telehealth platform
- Acquisition in line with Best Buy 2020 Strategy to enrich human lives through technology by addressing human needs

Source: Fierce Healthcare, April 17, 2019

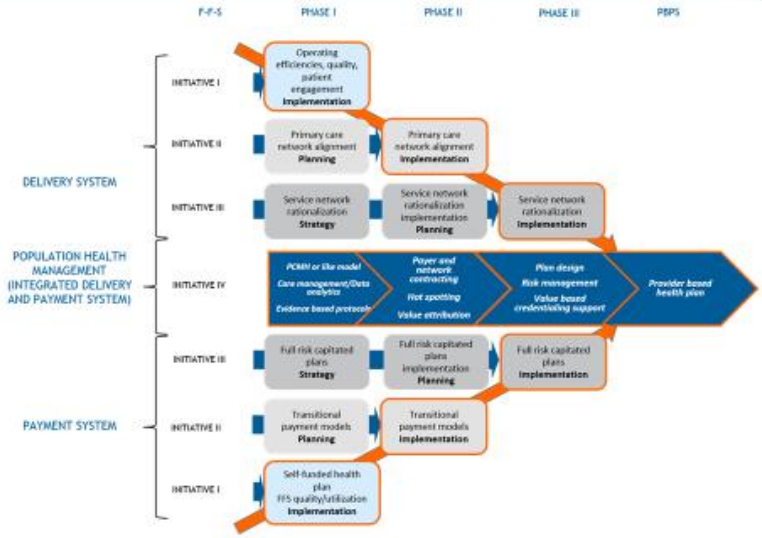
DRIVERS

Finance
Function
Form



The Plan

STROUDWATER

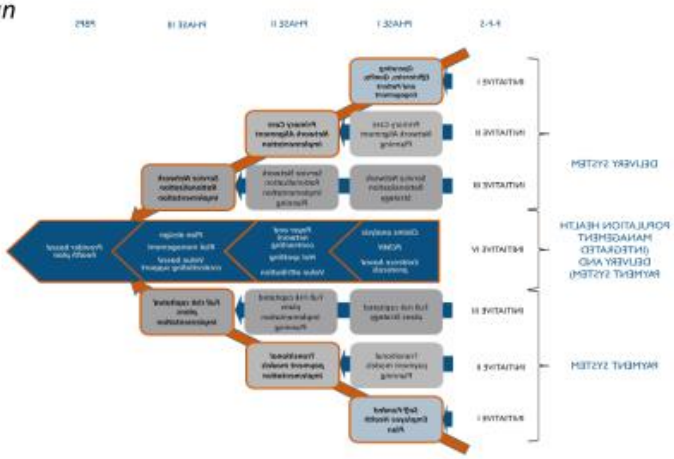


DISRUPTORS DRIVERS ASSUMPTIONS MODELS CONCLUSIONS 19

Rural Minnesota Healthcare 2030

STROUDWATER

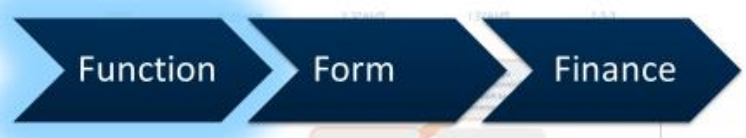
- Vision:
  - *Rural Minnesota health systems partner with community to improve health while preserving appropriate access to patient care – flipping the plan*



DISRUPTORS DRIVERS ASSUMPTIONS MODELS CONCLUSIONS 20

Rural Minnesota Healthcare 2030

STROUDWATER



- Function
  - Rural health systems partnering with community to improve health of a defined population with preserving appropriate access to traditional care
    - Chronic disease management
    - Increased relevance of health system in healthcare
  - Access to appropriate and right-sized traditional patient care
    - Right care, right time, right place, right provider
    - Common evidenced based protocols
    - Quality and patient safety are critical
- Requirements:
  - Common vision for healthcare of rural Minnesotans
  - Payment system that provides incentives for healthcare

DISRUPTORS DRIVERS ASSUMPTIONS MODELS CONCLUSIONS 21

Rural Minnesota Healthcare 2030

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- Form
  - Aligned providers
    - High level of integration
    - Non-traditional partners (Public health, Mental health, Wellness, etc.)
    - Primary care with patient attribution
  - New roles for health systems
    - Claims analysis, network contracting, risk management, risk contracting
  - Integration of payment and delivery system functions
  - Requirements
    - Patient lives to diversify insurance risk
    - Centralized decision making to appropriate "right-size" delivery system
    - Common information technology platform

DISRUPTORS DRIVERS ASSUMPTIONS MODELS CONCLUSIONS 22

Rural Minnesota Healthcare 2030

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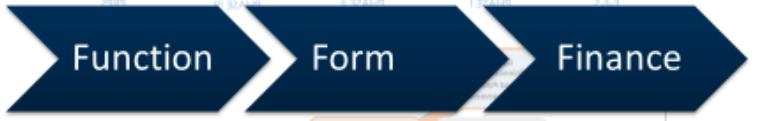
- Finance
  - Payment must fund necessary access to healthcare while preserving traditional patient care
    - Payment incentives cannot preclude health interventions
    - Payment incentives cannot preclude access to appropriate patient care
  - Financial reporting to reflect "income" for both healthcare and sick care
- Requirements
  - Nearly 100% global payment to healthcare providers based on attributed population
    - May require healthcare providers to assume insurance risk
  - Financial reporting methods to be adopted to new payment methodologies
    - "Credit on income statement" for improved population health
  - New "cost centers" are provided budgets to manage within

Rural Minnesota Healthcare 2030

STROUDWATER



- Short-Term Imperatives
  - Proactive approach to determine vision for rural Minnesotan healthcare
    - Statewide initiative led by Governor's office (e.g., Healthier Washington approach)
    - Must step outside of current challenges as they are "all-consuming"
  - Rural healthcare providers to accumulate scale and centralized decision making
  - Develop care management organizing framework (i.e., PHO)
    - Alignment with rural medical staff
    - Initial claims analysis capabilities
  - Partnership with commercial insurers to pilot population payment models

ASSUMPTIONS

Payment System
Trended Data
Shared Savings

Model Assumptions

STROUDWATER

- The current FFS payment system – designed to pay for "sick care" – precludes incentives or payment for meaningful investment in "health care" activities, programs, or infrastructure
  - Currently, the "function" of health care is dictated by "finance" as the fee-for-service payment system was designed to pay for episodes of "sick care"
- A healthcare system that starts with the optimal "function" of healthcare requires both:
  - Patient access to high quality "sick care" and
  - Investment in health and wellness activities, program, and infrastructure to generate "health care"
- A Global Budget payment system maintains a predictable and steady revenue stream so a local health system can maintain access to high quality "sick care" while investing in community health
- A Shared Savings incentive payment provides the funds to invest in "health care"

Model Assumptions

STROUDWATER

- Payments System Transition
  - FY 2017-2020 – fee-for-service and cost-based payment for CAHs
  - FY 2021-2022 – transitional period with all-payer cost-based payment
    - Assumes an average all-payer cost-based payment of 90% of costs unless current patient revenues exceed the 90% payment of costs
  - FY 2023-2030 – all payer global budget based prior year revenue with shared savings based on total cost of care spend
- Financial Data
  - FY 2017-2018 – based on the Medicare Cost report data
  - FY 2019 – based on Medicare Cost Report Data if available; otherwise, trended forward
  - FY 2020 – based on trended Medicare Cost report data with Covid-19 impact offset by CARES Act funding
  - FY 2021-2030 – global budget revenue is based on trended historical data

Model Assumptions

STROUDWATER

- Local Healthcare Inflation Factor:

Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Healthcare Inflation Factor			3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%

- Total Healthcare Spend Inflation Factor:

Total Healthcare Spend Inflation	3.0%

- Fee-For-Service Reimbursement Assumptions:

Price Increase	2%
Utilization Growth	0%

- Percent of Attributed Population All-Payer Cost-Based Payment :

Cost-Based Payment	90%

- Global Budget Increases:

Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Global Budget Increases	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%

- Health and Wellness Investment:

Health and Wellness Investment	50%

- Other Income/Expenses Increases:

Other Income Increase	1%
Other Expenses Increase	1%

Model Assumptions

STROUDWATER

- Shared Savings for each case assumes:
  - Total Service Population (unique to case)
  - Yearly Growth in Total Service Population (unique to case)
  - Attributed Beneficiaries Percentage (blanket 90%)
  - Total Healthcare Spend Per Beneficiary (assumed MN per capita spend trended forward to 2017 at Healthcare Inflation Assumption Growth):

KFF - Custom State Reports	Minnesota	
	2014	2017
Health Spending per Capita	$ 8,871.00	$ 9,411.24

  - Local Health System Spend per Beneficiary: (Local Health System Net Patient Revenue / Total Service Population)
  - Non-Local Health System Adjustment to Healthcare Spend External of Local Health System (savings of total health spend): 3% (2021) increasing to 12% (2030)
  - Retained Shared Savings Percentage: 50%
  - Quality Score Results: 91%

FINANCIAL MODEL

Projection – Charlie Pines: Base Case

STROUDWATER

- Summary of Charlie Pines historical and projected Base Case operating revenues and expenses (based on Medicare cost report data)

CHARLIE PINES BASE CASE	Historical Fee-For-Service Payment Model				Fee-For-Service "Sidecar" Payment Model									
	Pre-Year 1	Pre-Year 2	Pre-Year 3	Pre-Year 4	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
REVENUE														
TRADITIONAL PATIENT REVENUE	$ 14,887,312	$ 15,556,390	$ 16,669,556	$ 17,227,548	$ 17,571,699	$ 17,923,134	$ 18,281,601	$ 18,647,437	$ 19,020,385	$ 19,400,793	$ 19,788,809	$ 20,184,585	$ 20,588,277	$ 21,000,042
OTHER INCOME	$ 930,948	$ 1,659,520	$ 1,676,125	$ 1,692,887	$ 1,709,815	$ 1,726,914	$ 1,744,183	$ 1,761,625	$ 1,779,241	$ 1,797,033	$ 1,815,004	$ 1,833,154	$ 1,851,485	$ 1,870,000
TOTAL REVENUE	$ 15,818,261	$ 18,217,910	$ 18,345,682	$ 18,920,236	$ 19,281,711	$ 19,650,247	$ 20,025,968	$ 20,409,061	$ 20,799,626	$ 21,197,826	$ 21,603,813	$ 22,017,739	$ 22,439,762	$ 22,870,042
EXPENSES														
OPERATING EXPENSES	$ 17,062,617	$ 19,441,114	$ 20,021,958	$ 20,639,359	$ 21,226,037	$ 21,668,127	$ 22,522,102	$ 23,194,767	$ 23,887,468	$ 24,600,887	$ 25,335,645	$ 26,092,381	$ 26,871,751	$ 27,674,435
OTHER EXPENSES	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
OPERATING MARGIN	$ 17,062,617	$ 19,441,114	$ 20,021,958	$ 20,639,359	$ 21,226,037	$ 21,668,127	$ 22,522,102	$ 23,194,767	$ 23,887,468	$ 24,600,887	$ 25,335,645	$ 26,092,381	$ 26,871,751	$ 27,674,435
NET INCOME	$ (1,484,356)	$ (1,223,194)	$ (1,456,875)	$ (1,699,123)	$ (1,953,326)	$ (2,218,880)	$ (2,496,134)	$ (2,785,706)	$ (3,087,842)	$ (3,403,061)	$ (3,731,833)	$ (4,074,642)	$ (4,431,989)	$ (4,804,393)

- Charlie Pines projected Base Case model assumes no changes to the payment system
- Net Income declines as healthcare costs exceed increases in price and utilization growth of the local health system

Projection – Charlie Pines: Global Budget

STROUDWATER

- Summary of Charlie Pines historical and projected Global Budget operating revenues and expenses based on Medicare cost report data

CHARLIE PINES VALUE MODEL	Historical Fee-For-Service Payment Model				Transitional All-Payer Cost-Based Model		All Payer Global Budget /Shared Savings "Healthcare" Payment Model							
	Pre-Year 1	Pre-Year 2	Pre-Year 3	Pre-Year 4	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
REVENUE														
TRADITIONAL PATIENT REVENUE	$ 14,887,512	$ 16,556,390	$ 16,888,558	$ 17,227,549										
ALL-PAYER COST-BASED REVENUE					$ 18,845,081	$ 19,610,434								
GLOBAL BUDGET REVENUE							$ 19,992,747	$ 20,592,529	$ 21,210,305	$ 21,846,614	$ 22,502,012	$ 23,177,073	$ 23,872,385	$ 24,588,556
SHARED SAVINGS REVENUE							$ 847,633	$ 1,047,922	$ 1,259,253	$ 1,482,321	$ 1,717,639	$ 1,965,743	$ 2,227,186	$ 2,502,547
OTHER INCOME	$ 930,949	$ 1,659,530	$ 1,676,126	$ 1,692,887	$ 1,709,815	$ 1,726,914	$ 1,744,183	$ 1,761,625	$ 1,779,241	$ 1,797,033	$ 1,815,004	$ 1,833,154	$ 1,851,485	$ 1,870,000
TOTAL REVENUE	$ 15,818,461	$ 18,215,920	$ 18,564,683	$ 18,920,436	$ 20,554,897	$ 21,337,347	$ 22,584,763	$ 23,402,075	$ 24,248,798	$ 25,125,968	$ 26,034,655	$ 26,975,969	$ 27,951,056	$ 28,961,104
EXPENSES														
OPERATING EXPENSES	$ 17,062,617	$ 19,441,114	$ 20,021,358	$ 20,619,359	$ 21,255,037	$ 21,868,127	$ 22,521,182	$ 23,194,787	$ 23,887,468	$ 24,600,887	$ 25,335,645	$ 26,092,381	$ 26,871,751	$ 27,674,435
HEALTH & WELLNESS INVESTMENT					$ 219,798	$ 329,266	$ 423,917	$ 523,961	$ 629,626	$ 741,160	$ 858,819	$ 982,871	$ 1,113,593	$ 1,251,274
OTHER EXPENSES	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
OPERATING MARGIN	$ 17,062,617	$ 19,441,114	$ 20,021,358	$ 20,619,359	$ 21,474,834	$ 22,198,393	$ 22,945,098	$ 23,718,748	$ 24,517,094	$ 25,342,048	$ 26,194,465	$ 27,075,252	$ 27,985,344	$ 28,925,709
NET INCOME	$ (1,244,156)	$ (1,225,194)	$ (1,456,675)	$ (1,699,123)	$ (919,937)	$ (1,061,046)	$ (361,336)	$ (316,672)	$ (268,296)	$ (216,080)	$ (159,810)	$ (99,283)	$ (34,288)	$ 35,395
BASE CASE VARIANCE	$ -	$ -	$ -	$ -	$ 1,033,626	$ 1,157,844	$ 2,134,663	$ 2,459,053	$ 2,818,946	$ 3,186,901	$ 3,572,023	$ 3,975,259	$ 4,397,701	$ 4,839,788

- Charlie Pines projected global budget and shared saving revenues begin to grow and exceed the traditional payments system revenues reducing projected losses

Projection – Charlie Pines: Shared Savings Detail

STROUDWATER

- Shared Savings Summary:

CHARLIE PINES SHARED SAVINGS	Historical Fee-For-Service Payment Model				Transitional All-Payer Cost-Based Model		All Payer Global Budget /Shared Savings "Healthcare" Payment Model							
	Pre-Year 1	Pre-Year 2	Pre-Year 3	Pre-Year 4	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
TOTAL CASE POPULATION:	5,393	5,393	5,393	5,393	5,393	5,393	5,393	5,393	5,393	5,393	5,393	5,393	5,393	5,393
TOTAL ESTIMATED HEALTHCARE SPEND FOR POPULATION:	$ 45,679,166	$ 47,049,735	$ 48,461,227	$ 49,915,064	$ 51,412,516	$ 52,954,891	$ 54,543,538	$ 56,179,844	$ 57,865,240	$ 59,601,197	$ 61,389,233	$ 63,230,910	$ 65,127,837	$ 67,081,672
TOTAL SHARED SAVINGS:					$ 1,053,643	$ 1,447,279	$ 1,863,370	$ 2,303,125	$ 2,767,889	$ 3,267,847	$ 3,775,031	$ 4,330,213	$ 4,894,914	$ 5,500,104
NET HEALTHCARE SPEND FOR POPULATION:	$ 45,679,358	$ 47,049,735	$ 48,461,227	$ 49,915,064	$ 50,358,873	$ 51,507,614	$ 52,680,168	$ 53,876,719	$ 55,097,351	$ 56,343,350	$ 57,614,202	$ 58,910,597	$ 60,232,923	$ 61,581,568
TOTAL SHARED SAVINGS:	$ -	$ -	$ -	$ -	$ 1,053,643	$ 1,447,279	$ 1,863,370	$ 2,303,125	$ 2,767,889	$ 3,267,847	$ 3,775,031	$ 4,330,213	$ 4,894,914	$ 5,500,104
INCREASED PAYMENT TO LOCAL HEALTH SYSTEM:	$ -	$ -	$ -	$ -	$ 1,273,185	$ 1,487,100	$ 2,558,779	$ 2,993,004	$ 3,448,172	$ 3,928,141	$ 4,450,842	$ 4,958,250	$ 5,511,294	$ 6,091,081
TOTAL NET SAVINGS:	$ -	$ -	$ -	$ -	$ (219,342)	$ (39,823)	$ (695,409)	$ (689,880)	$ (680,284)	$ (670,294)	$ (675,812)	$ (627,917)	$ (616,380)	$ (590,968)

- Total Shared Savings never eclipse the additional payments made to Charlie Pines' local health system as the population for Charlie Pines is relatively small compared to other cases

Projection – Delta Lake: Base Case

STROUDWATER

- Summary of Delta Lake historical and projected Base Case operating revenues and expenses based on Medicare cost report data

DELTA LAKE BASE CASE	Historical Fee-For-Service Payment Model				Fee-For-Service "Sidecar" Payment Model									
	Pre-Year 1	Pre-Year 2	Pre-Year 3	Pre-Year 4	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
REVENUE														
TRADITIONAL PATIENT REVENUE	$ 44,750,048	$ 48,599,304	$ 51,491,840	$ 52,521,677	$ 53,572,110	$ 54,643,553	$ 55,736,424	$ 56,851,152	$ 57,988,175	$ 59,147,939	$ 60,330,897	$ 61,537,515	$ 62,768,266	$ 64,023,631
OTHER INCOME	$ 2,136,220	$ 1,910,964	$ 2,704,329	$ 2,704,329	$ 2,704,329	$ 2,704,329	$ 2,704,329	$ 2,704,329	$ 2,704,329	$ 2,704,329	$ 2,704,329	$ 2,704,329	$ 2,704,329	$ 2,704,329
TOTAL REVENUE	$ 46,886,268	$ 50,510,268	$ 54,196,169	$ 55,226,006	$ 56,276,439	$ 57,347,882	$ 58,440,753	$ 59,555,481	$ 60,692,504	$ 61,852,268	$ 63,035,226	$ 64,241,844	$ 65,472,595	$ 66,727,960
EXPENSES														
OPERATING EXPENSES	$ 43,164,409	$ 44,704,463	$ 47,827,717	$ 48,272,849	$ 50,761,084	$ 52,273,665	$ 53,841,772	$ 55,467,026	$ 57,130,726	$ 58,834,268	$ 60,599,289	$ 62,417,270	$ 64,289,891	$ 66,218,588
OTHER EXPENSES	$ 37,470	$ 305,110	$ 1,391,018	$ 1,391,018	$ 1,391,018	$ 1,391,018	$ 1,391,018	$ 1,391,018	$ 1,391,018	$ 1,391,018	$ 1,391,018	$ 1,391,018	$ 1,391,018	$ 1,391,018
OPERATING MARGIN	$ 43,201,879	$ 44,807,583	$ 49,218,735	$ 50,863,867	$ 52,342,052	$ 53,664,683	$ 55,232,790	$ 56,848,043	$ 58,513,754	$ 60,225,378	$ 61,990,407	$ 63,808,388	$ 65,680,909	$ 67,609,606
NET INCOME	$ 3,474,389	$ 5,710,685	$ 4,967,454	$ 4,362,139	$ 4,154,387	$ 3,683,199	$ 3,207,963	$ 2,707,438	$ 2,180,750	$ 1,626,892	$ 1,044,820	$ 433,456	$ (208,315)	$ (881,646)

- Delta Lake projected Base Case model assumes no changes to the payment system
- Net Income steadily declines as healthcare costs exceed increases in price and utilization growth of the local health system

Projection – Delta Lake: Global Budget

STROUDWATER

- Summary of Delta Lake historical and projected Base Case operating revenues and expenses based on Medicare cost report data

DELTA LAKE VALUE MODEL	Historical Fee-For-Service Payment Model				Transitional All-Payer Cost-Based Model		All Payer Global Budget /Shared Savings "Healthcare" Payment Model							
	Pre-Year 1	Pre-Year 2	Pre-Year 3	Pre-Year 4	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
REVENUE														
TRADITIONAL PATIENT REVENUE	$ 44,750,048	$ 48,599,304	$ 51,450,840	$ 52,521,677										
ALL-PAYER COST-BASED REVENUE					$ 53,672,110	$ 55,179,274								
GLOBAL BUDGET REVENUE							$ 56,834,652	$ 58,539,691	$ 60,295,882	$ 62,104,758	$ 63,967,901	$ 65,886,938	$ 67,863,547	$ 69,899,453
SHARED SAVINGS REVENUE							$ 3,725,968	$ 4,605,321	$ 5,534,060	$ 6,514,260	$ 7,548,538	$ 8,638,882	$ 9,787,653	$ 10,997,980
OTHER INCOME	$ 2,136,220	$ 1,918,954	$ 2,704,329	$ 2,704,329	$ 2,704,329	$ 2,704,329	$ 2,704,329	$ 2,704,329	$ 2,704,329	$ 2,704,329	$ 2,704,329	$ 2,704,329	$ 2,704,329	$ 2,704,329
TOTAL REVENUE	$ 46,886,268	$ 50,518,258	$ 54,156,169	$ 55,226,006	$ 56,376,439	$ 57,883,603	$ 63,264,949	$ 65,849,341	$ 68,534,272	$ 71,323,467	$ 74,220,768	$ 77,230,149	$ 80,355,729	$ 83,601,770
EXPENSES														
OPERATING EXPENSES	$ 43,354,409	$ 44,704,453	$ 47,837,717	$ 48,272,849	$ 50,751,084	$ 52,273,565	$ 53,841,772	$ 55,457,025	$ 57,120,736	$ 58,834,358	$ 60,599,389	$ 62,417,370	$ 64,289,891	$ 66,218,588
HEALTH & WELLNESS INVESTMENT					$ 1,053,630	$ 1,446,986	$ 1,862,994	$ 2,302,660	$ 2,767,030	$ 3,257,190	$ 3,774,269	$ 4,319,461	$ 4,893,927	$ 5,498,994
OTHER EXPENSES	$ 37,470	$ 102,110	$ 1,390,010	$ 1,391,018	$ 1,391,018	$ 1,391,018	$ 1,391,018	$ 1,391,018	$ 1,391,018	$ 1,391,018	$ 1,391,018	$ 1,391,018	$ 1,391,018	$ 1,391,018
OPERATING MARGIN	$ 43,391,879	$ 44,807,563	$ 49,228,716	$ 50,663,867	$ 53,196,682	$ 55,111,569	$ 57,095,784	$ 59,150,703	$ 61,278,784	$ 63,482,566	$ 65,764,676	$ 68,127,849	$ 70,574,836	$ 73,108,600
NET INCOME	$ 3,474,389	$ 5,710,695	$ 4,927,454	$ 4,562,139	$ 3,180,757	$ 2,772,034	$ 6,169,165	$ 6,698,638	$ 7,255,488	$ 7,840,902	$ 8,456,092	$ 9,102,300	$ 9,780,893	$ 10,493,170
BASE CASE VARIANCE	$ -	$ -	$ -	$ -	$ (1,053,630)	$ (911,264)	$ 2,961,222	$ 3,991,200	$ 5,079,737	$ 6,216,010	$ 7,411,273	$ 8,668,864	$ 9,989,208	$ 11,374,856

- Delta Lake projected revenues begin to grow and exceed the traditional payment system revenues as Delta Lake's shared savings and global budget grows

Projection – Delta Lake: Shared Savings Detail

STROUDWATER

- Shared Savings Summary:

DELTA LAKE SHARED SAVINGS	Historical Fee-For-Service Payment Model				Transitional All-Payer Cost-Based Model		All Payer Global Budget /Shared Savings "Healthcare" Payment Model							
	Pre-Year 1	Pre-Year 2	Pre-Year 3	Pre-Year 4	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
TOTAL CASE POPULATION:	21,924	21,924	21,924	21,924	21,924	21,924	21,924	21,924	21,924	21,924	21,924	21,924	21,924	21,924
TOTAL ESTIMATED HEALTHCARE SPEND FOR POPULATION:	$ 185,690,900	$ 191,269,887	$ 197,007,983	$ 202,918,102	$ 209,006,748	$ 215,276,921	$ 221,734,198	$ 228,386,224	$ 235,237,811	$ 242,294,945	$ 249,563,794	$ 257,050,707	$ 264,762,228	$ 272,705,095
TOTAL SHARED SAVINGS:					$ 4,631,342	$ 6,360,376	$ 8,180,994	$ 10,121,584	$ 12,162,770	$ 14,317,318	$ 16,590,192	$ 18,986,554	$ 21,511,766	$ 24,171,402
NET HEALTHCARE SPEND FOR POPULATION:	$ 185,690,900	$ 191,269,887	$ 197,007,983	$ 202,918,102	$ 204,374,406	$ 208,915,545	$ 213,545,214	$ 218,264,640	$ 223,075,041	$ 227,977,627	$ 232,973,601	$ 238,064,154	$ 243,250,463	$ 248,533,694
TOTAL SHARED SAVINGS:	$ -	$ -	$ -	$ -	$ 4,631,342	$ 6,360,376	$ 8,180,994	$ 10,121,584	$ 12,162,770	$ 14,317,318	$ 16,590,192	$ 18,986,554	$ 21,511,766	$ 24,171,402
INCREASED PAYMENT TO LOCAL HEALTH SYSTEM:	$ -	$ -	$ -	$ -	$ -	$ 535,721	$ 4,824,218	$ 6,295,880	$ 7,841,768	$ 9,471,200	$ 11,185,542	$ 12,988,305	$ 14,885,134	$ 16,875,810
TOTAL NET SAVINGS:	$ -	$ -	$ -	$ -	$ 4,631,342	$ 5,824,655	$ 3,356,776	$ 3,825,704	$ 4,321,003	$ 4,846,118	$ 5,404,651	$ 5,998,249	$ 6,626,631	$ 7,295,592

- Total Shared Savings exceed increased investments and payment to the local health system assuming health and wellness is achieved to generate savings

Projection – Alphaville: Base Case

STROUDWATER

- Summary of Alphaville historical and projected Base Case operating revenues and expenses based on Medicare cost report data

ALPHAVILLE BASE CASE	Historical Fee-For-Service Payment Model				Fee-For-Service "Sidecar" Payment Model									
	Pre-Year 1	Pre-Year 2	Pre-Year 3	Pre-Year 4	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
REVENUE														
TRADITIONAL PATIENT REVENUE	$ 18,506,261	$ 13,599,580	$ 15,073,551	$ 14,148,982	$ 14,451,982	$ 14,720,801	$ 15,025,013	$ 15,315,513	$ 15,621,820	$ 15,934,052	$ 16,252,733	$ 16,577,788	$ 16,909,344	$ 17,247,530
OTHER INCOME	$ 1,660,548	$ 1,890,284	$ 1,908,107	$ 1,928,279	$ 1,947,661	$ 1,967,027	$ 1,986,707	$ 2,006,576	$ 2,026,640	$ 2,046,907	$ 2,067,376	$ 2,088,050	$ 2,108,930	$ 2,130,019
TOTAL REVENUE	$ 18,166,810	$ 15,489,864	$ 16,798,728	$ 16,077,261	$ 16,279,623	$ 16,687,828	$ 17,001,721	$ 17,321,088	$ 17,648,260	$ 17,980,959	$ 18,320,109	$ 18,665,837	$ 19,018,274	$ 19,377,549
EXPENSES														
OPERATING EXPENSES	$ 18,135,251	$ 16,011,324	$ 16,491,664	$ 16,986,414	$ 17,496,006	$ 18,020,886	$ 18,561,513	$ 19,118,358	$ 19,691,909	$ 20,282,666	$ 20,891,146	$ 21,517,881	$ 22,163,417	$ 22,828,320
OTHER EXPENSES	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
OPERATING MARGIN	$ 18,135,251	$ 16,011,324	$ 16,491,664	$ 16,986,414	$ 17,496,006	$ 18,020,886	$ 18,561,513	$ 19,118,358	$ 19,691,909	$ 20,282,666	$ 20,891,146	$ 21,517,881	$ 22,163,417	$ 22,828,320
NET INCOME	$ 2,021,559	$ (521,460)	$ (710,816)	$ (909,153)	$ (1,116,483)	$ (1,333,248)	$ (1,559,792)	$ (1,796,470)	$ (2,043,649)	$ (2,301,707)	$ (2,571,037)	$ (2,852,043)	$ (3,145,143)	$ (3,450,770)

- Alphaville projected Base Case model assumes no changes to the payment system
- Net Income steadily deteriorates as healthcare costs exceed increases in price and utilization growth of the health system

Projection - Alphaville: Global Budget

STROUDWATER

- Summary of Alphaville historical and projected operating revenues and expenses based on Medicare cost report data

ALPHAVILLE VALUE MODEL	Historical Fee-For-Service Payment Model				Transitional All-Payer Cost-Based Model		All Payer Global Budget /Shared Savings "Healthcare" Payment Model							
	Pre-Year 1	Pre-Year 2	Pre-Year 3	Pre-Year 4	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
REVENUE														
TRADITIONAL PATIENT REVENUE	$ 18,506,261	$ 13,999,580	$ 15,872,551	$ 14,148,582										
ALL-PAYER COST-BASED REVENUE					$ 15,746,405	$ 16,218,798								
GLOBAL BUDGET REVENUE							$ 16,705,162	$ 17,206,523	$ 17,722,718	$ 18,254,400	$ 18,802,032	$ 19,366,093	$ 19,947,076	$ 20,545,488
SHARED SAVINGS REVENUE							$ 2,949,057	$ 3,646,036	$ 4,260,220	$ 5,167,439	$ 5,976,182	$ 6,038,409	$ 7,749,050	$ 8,707,116
OTHER INCOME	$ 1,650,549	$ 1,890,284	$ 1,908,107	$ 1,928,278	$ 1,947,561	$ 1,967,037	$ 1,986,707	$ 2,006,575	$ 2,026,640	$ 2,046,907	$ 2,067,376	$ 2,088,050	$ 2,108,930	$ 2,130,019
TOTAL REVENUE	$ 18,156,810	$ 15,489,864	$ 15,780,658	$ 16,077,260	$ 17,693,967	$ 18,185,835	$ 21,641,926	$ 22,859,133	$ 24,150,878	$ 25,468,745	$ 26,845,590	$ 28,199,551	$ 29,805,056	$ 31,382,621
EXPENSES														
OPERATING EXPENSES	$ 18,135,151	$ 16,011,324	$ 16,490,864	$ 16,986,414	$ 17,496,006	$ 18,020,886	$ 18,561,513	$ 19,118,358	$ 19,691,909	$ 20,282,668	$ 20,891,148	$ 21,517,881	$ 22,163,417	$ 22,828,320
HEALTH & WELLNESS INVESTMENT					$ 834,160	$ 1,145,979	$ 1,474,914	$ 1,823,018	$ 2,190,660	$ 2,578,720	$ 2,988,091	$ 3,418,704	$ 3,874,526	$ 4,351,557
OTHER EXPENSES	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
OPERATING MARGIN	$ 18,135,151	$ 16,011,324	$ 16,490,864	$ 16,986,414	$ 18,330,166	$ 19,166,866	$ 20,036,446	$ 20,941,376	$ 21,882,569	$ 22,861,386	$ 23,879,237	$ 24,937,585	$ 26,037,942	$ 27,181,877
NET INCOME	$ 2,021,659	$ (521,460)	$ (710,206)	$ (909,153)	$ (636,199)	$ (981,031)	$ 1,605,480	$ 1,917,757	$ 2,268,309	$ 2,607,360	$ 2,966,352	$ 3,261,966	$ 3,767,113	$ 4,200,745
BASE CASE VARIANCE	$ -	$ -	$ -	$ -	$ 660,284	$ 362,617	$ 3,165,262	$ 3,714,227	$ 4,291,758	$ 4,899,047	$ 5,537,393	$ 6,208,009	$ 6,912,257	$ 7,651,514

- Alphaville Global Budget projected revenues exceed the traditional payment system revenues eventually generating a positive net income

Projection – Alphaville: Shared Savings Detail

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- Shared Savings Summary:

ALPHAVILLE SHARED SAVINGS	Historical Fee-For-Service Payment Model				Transitional All-Payer Cost-Based Model		All Payer Global Budget /Shared Savings "Healthcare" Payment Model							
	Pre-Year 1	Pre-Year 2	Pre-Year 3	Pre-Year 4	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
TOTAL CASE POPULATION:	15,150	15,150	15,150	15,150	15,150	15,150	15,150	15,150	15,150	15,150	15,150	15,150	15,150	15,150
TOTAL ESTIMATED HEALTHCARE SPEND FOR POPULATION:	$ 128,222,211	$ 132,171,980	$ 136,137,139	$ 140,221,263	$ 144,427,891	$ 148,763,728	$ 153,223,550	$ 157,820,256	$ 162,554,864	$ 167,431,510	$ 172,454,455	$ 177,628,089	$ 182,956,931	$ 188,446,639
TOTAL SHARED SAVINGS:					$ 3,666,626	$ 5,036,514	$ 6,483,224	$ 8,013,265	$ 9,628,274	$ 11,335,031	$ 13,134,467	$ 15,031,668	$ 17,030,880	$ 19,136,536
NET HEALTHCARE SPEND FOR POPULATION:	$ 128,222,211	$ 132,171,980	$ 136,137,139	$ 140,221,263	$ 140,761,265	$ 143,726,214	$ 146,740,335	$ 149,806,991	$ 152,925,590	$ 156,096,479	$ 159,319,988	$ 162,596,421	$ 165,926,052	$ 169,309,124
TOTAL SHARED SAVINGS:	$ -	$ -	$ -	$ -	$ 3,666,636	$ 5,038,514	$ 6,483,224	$ 8,013,285	$ 9,628,274	$ 11,335,031	$ 13,134,467	$ 15,031,668	$ 17,030,880	$ 19,136,536
INCREASED PAYMENT TO LOCAL HEALTH SYSTEM:	$ -	$ -	$ -	$ -	$ 1,314,444	$ 1,498,196	$ 4,640,215	$ 5,537,246	$ 6,482,418	$ 7,477,787	$ 8,526,481	$ 9,627,714	$ 10,786,782	$ 12,005,072
TOTAL NET SAVINGS:	$ -	$ -	$ -	$ -	$ 2,352,193	$ 3,537,318	$ 1,843,009	$ 2,476,021	$ 3,146,856	$ 3,857,244	$ 4,608,986	$ 5,403,954	$ 6,244,098	$ 7,131,444

- Total Shared Savings exceed increased investments and payment to the local health system assuming health and wellness is achieved to generate savings

DISRUPTORS DRIVERS ASSUMPTIONS MODELS CONCLUSIONS 39

Projection – Bravo Prairie: Base Case

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- Summary of Bravo Prairie historical and projected Base Case operating revenues and expenses based on Medicare cost report data

BRAVO PRAIRIE BASE CASE	Historical Fee-For-Service Payment Model				Fee-For-Service "Sickcare" Payment Model									
	Pre-Year 1	Pre-Year 2	Pre-Year 3	Pre-Year 4	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
REVENUE														
TRADITIONAL PATIENT REVENUE	$ 39,237,060	$ 40,860,684	$ 41,677,896	$ 42,511,458	$ 43,361,685	$ 44,228,918	$ 45,113,497	$ 46,015,767	$ 46,936,082	$ 47,874,804	$ 48,832,300	$ 49,808,946	$ 50,805,125	$ 51,821,227
OTHER INCOME	$ 998,801	$ 802,528	$ 810,553	$ 818,658	$ 826,845	$ 835,114	$ 843,465	$ 851,900	$ 860,419	$ 869,023	$ 877,713	$ 886,490	$ 895,355	$ 904,309
TOTAL REVENUE	$ 40,235,861	$ 41,663,212	$ 42,488,451	$ 43,330,114	$ 44,188,530	$ 45,064,032	$ 45,956,963	$ 46,867,666	$ 47,796,501	$ 48,743,827	$ 49,710,013	$ 50,695,436	$ 51,700,480	$ 52,725,536
EXPENSES														
OPERATING EXPENSES	$ 47,085,025	$ 46,120,584	$ 47,514,512	$ 48,939,947	$ 50,408,146	$ 51,920,390	$ 53,478,002	$ 55,082,342	$ 56,734,812	$ 58,436,856	$ 60,189,962	$ 61,995,661	$ 63,855,531	$ 65,771,197
OTHER EXPENSES	$ 21,023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
OPERATING MARGIN	$ 47,106,048	$ 46,120,584	$ 47,514,512	$ 48,939,947	$ 50,408,146	$ 51,920,390	$ 53,478,002	$ 55,082,342	$ 56,734,812	$ 58,436,856	$ 60,189,962	$ 61,995,661	$ 63,855,531	$ 65,771,197
NET INCOME	$ (6,870,188)	$ (4,457,372)	$ (5,026,061)	$ (5,609,833)	$ (6,219,615)	$ (6,856,358)	$ (7,521,040)	$ (8,214,675)	$ (8,938,311)	$ (9,693,030)	$ (10,479,949)	$ (11,300,225)	$ (12,155,051)	$ (13,045,661)

- Bravo Prairie projected Base Case model assumes no changes to the payment system
- Net Income steadily deteriorates as healthcare costs exceed increases in price and utilization growth of the health system

Projection – Bravo Prairie: Global Budget

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- Summary of Bravo Prairie Global Budget historical and projected operating revenues and expenses based on Medicare cost report data

BRAVO PRAIRIE VALUE MODEL	Historical Fee-For-Service Payment Model				Transitional All-Payer Cost-Based Model		All Payer Global Budget /Shared Savings "Healthcare" Payment Model							
	Pre-Year 1	Pre-Year 2	Pre-Year 3	Pre-Year 4	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
REVENUE														
TRADITIONAL PATIENT REVENUE	$ 39,237,060	$ 40,860,684	$ 41,677,898	$ 42,511,456										
ALL-PAYER COST-BASED REVENUE					$ 45,367,331	$ 46,728,351								
GLOBAL BUDGET REVENUE							$ 48,130,201	$ 49,574,108	$ 51,061,331	$ 52,593,171	$ 54,170,966	$ 55,796,095	$ 57,469,978	$ 59,194,077
SHARED SAVINGS REVENUE							$ 2,222,939	$ 2,863,553	$ 4,706,903	$ 5,634,068	$ 6,519,434	$ 7,472,540	$ 8,466,268	$ 9,513,141
OTHER INCOME	$ 998,801	$ 802,528	$ 810,553	$ 818,658	$ 826,845	$ 835,114	$ 843,465	$ 851,900	$ 860,419	$ 869,023	$ 877,713	$ 886,490	$ 895,355	$ 904,309
TOTAL REVENUE	$ 40,235,861	$ 41,663,212	$ 42,488,451	$ 43,330,114	$ 46,194,176	$ 47,563,465	$ 52,196,608	$ 54,409,560	$ 56,708,652	$ 59,097,062	$ 61,573,083	$ 64,155,125	$ 66,831,731	$ 69,611,527
EXPENSES														
OPERATING EXPENSES	$ 47,085,835	$ 46,150,584	$ 47,514,512	$ 48,939,947	$ 50,408,146	$ 51,920,390	$ 53,478,002	$ 55,082,342	$ 56,734,812	$ 58,436,856	$ 60,189,962	$ 61,995,661	$ 63,855,531	$ 65,771,197
HEALTH & WELLNESS INVESTMENT					$ 911,379	$ 1,261,627	$ 1,611,470	$ 1,991,776	$ 2,369,451	$ 2,817,434	$ 3,264,702	$ 3,736,270	$ 4,233,194	$ 4,756,571
OTHER EXPENSES	$ 21,021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
OPERATING MARGIN	$ 47,106,856	$ 46,150,584	$ 47,514,512	$ 48,939,947	$ 51,319,524	$ 53,172,017	$ 55,089,471	$ 57,074,118	$ 59,128,263	$ 61,254,290	$ 63,454,664	$ 65,731,931	$ 68,088,725	$ 70,527,767
NET INCOME	$ (6,870,995)	$ (4,487,372)	$ (5,026,061)	$ (5,609,833)	$ (5,125,348)	$ (5,608,552)	$ (2,892,866)	$ (2,664,558)	$ (2,419,611)	$ (2,157,229)	$ (1,876,581)	$ (1,576,806)	$ (1,257,006)	$ (916,240)
BASE CASE VARIANCE	$ -	$ -	$ -	$ -	$ 1,094,267	$ 1,247,806	$ 1,620,171	$ 1,550,117	$ 1,618,700	$ 1,535,601	$ 1,403,368	$ 1,722,419	$ 10,890,047	$ 12,129,620

- Bravo Prairie projected global budget and shared savings revenues streams exceed the traditional payment system revenues reducing projected losses

Projection – Bravo Prairie: Shared Savings Detail

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- Shared Savings Summary:

BRAVO PRAIRIE: SHARED SAVINGS	Historical Fee-For-Service Payment Model				Transitional All-Payer Cost-Based Model		All Payer Global Budget /Shared Savings "Healthcare" Payment Model							
	Pre-Year 1	Pre-Year 2	Pre-Year 3	Pre-Year 4	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
TOTAL CASE POPULATION:	18,691	18,691	18,691	18,691	18,691	18,691	18,691	18,691	18,691	18,691	18,691	18,691	18,691	18,691
TOTAL ESTIMATED HEALTHCARE SPEND FOR POPULATION:	$ 158,215,004	$ 163,064,464	$ 167,956,207	$ 172,895,079	$ 174,104,921	$ 183,630,479	$ 188,036,294	$ 194,707,486	$ 200,648,710	$ 206,565,172	$ 212,762,127	$ 219,144,990	$ 225,719,340	$ 232,490,920
TOTAL SHARED SAVINGS:					$ 4,006,061	$ 5,501,657	$ 7,082,269	$ 8,755,062	$ 10,520,666	$ 12,384,226	$ 14,350,338	$ 16,423,165	$ 18,607,446	$ 20,908,009
NET HEALTHCARE SPEND FOR POPULATION:	$ 158,215,004	$ 163,064,464	$ 167,956,207	$ 172,895,079	$ 174,170,971	$ 178,028,823	$ 180,953,011	$ 185,952,424	$ 190,028,045	$ 194,180,946	$ 198,411,788	$ 202,721,826	$ 207,111,894	$ 211,582,910
TOTAL SHARED SAVINGS:	$ -	$ -	$ -	$ -	$ 4,006,061	$ 5,501,657	$ 7,083,583	$ 8,755,062	$ 10,520,666	$ 12,384,528	$ 14,350,338	$ 16,423,165	$ 18,607,448	$ 20,908,009
INCREASED PAYMENT TO LOCAL HEALTH SYSTEM:	$ -	$ -	$ -	$ -	$ 2,005,646	$ 2,499,422	$ 6,239,644	$ 7,841,894	$ 9,912,152	$ 10,352,226	$ 11,860,070	$ 12,468,629	$ 13,121,241	$ 13,805,981
TOTAL NET SAVINGS:	$ -	$ -	$ -	$ -	$ 2,000,414	$ 3,002,234	$ 843,739	$ 1,213,168	$ 1,608,514	$ 2,031,091	$ 2,482,268	$ 2,968,476	$ 3,476,208	$ 4,012,012

- Total Shared Savings exceed increased investments and payment to the local health system assuming health and wellness is achieved to generate savings

CONCLUSIONS

Conclusions

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- FFS payment precludes our healthcare system from investing in community health
- The payment system modeled in this report is based on a global budget for the rural health system combined with a shared savings for reducing total patient cost of care
  - The global budget allows continued access to sick care services while not precluding investments in community health
  - The shared savings incentive creates health system interest in improving their community's health
- All cases under Base Case projections have margins deteriorated as healthcare expenses are assumed to continue to rise and exceed increases in payment
- All cases improve margins under the Global Payment and Shared Savings projections
- Three of the four cases see net savings generated from the total population health spend

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