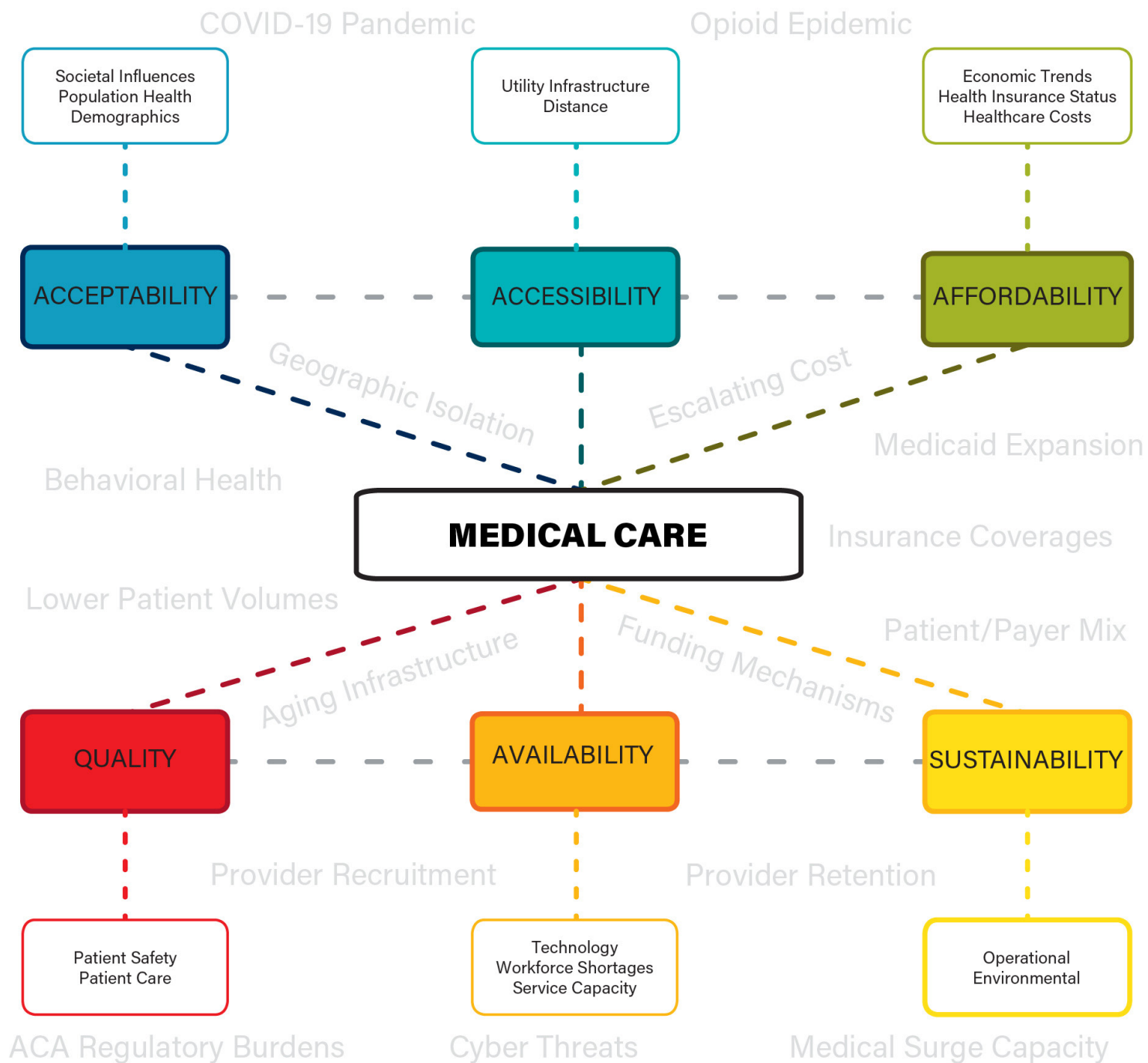# Accessible Health |

AN EVIDENCED BASED APPROACH TO IMPROVE USER EXPERIENCE AND CLINICAL SUSTAINABILITY WITHIN RURAL HEALTHCARE

John Coughlin

The College of Architecture at the University of Nebraska | May 2021

COVID-19 Pandemic   Opioid Epidemic

Societal Influences
Population Health
Demographics

Utility Infrastructure
Distance

Economic Trends
Health Insurance Status
Healthcare Costs

ACCEPTABILITY   ACCESSIBILITY   AFFORDABILITY

Geographic Isolation   Escalating Cost

Behavioral Health   Medicaid Expansion

MEDICAL CARE

Insurance Coverages

Lower Patient Volumes   Patient/Payer Mix

Aging Infrastructure   Funding Mechanisms

QUALITY   AVAILABILITY   SUSTAINABILITY

Provider Recruitment   Provider Retention

Patient Safety
Patient Care

Technology
Workforce Shortages
Service Capacity

Operational
Environmental

ACA Regulatory Burdens   Cyber Threats   Medical Surge Capacity

RURAL HEALTHCARE CHALLENGES

Of the 163 rural hospitals that have closed since 2005, more than 60% shut their doors since 2012.

RURAL HOSPITAL CLOSURES

Legend: More than 20 | 10 to 19 | 5 to 9 | Fewer than 5
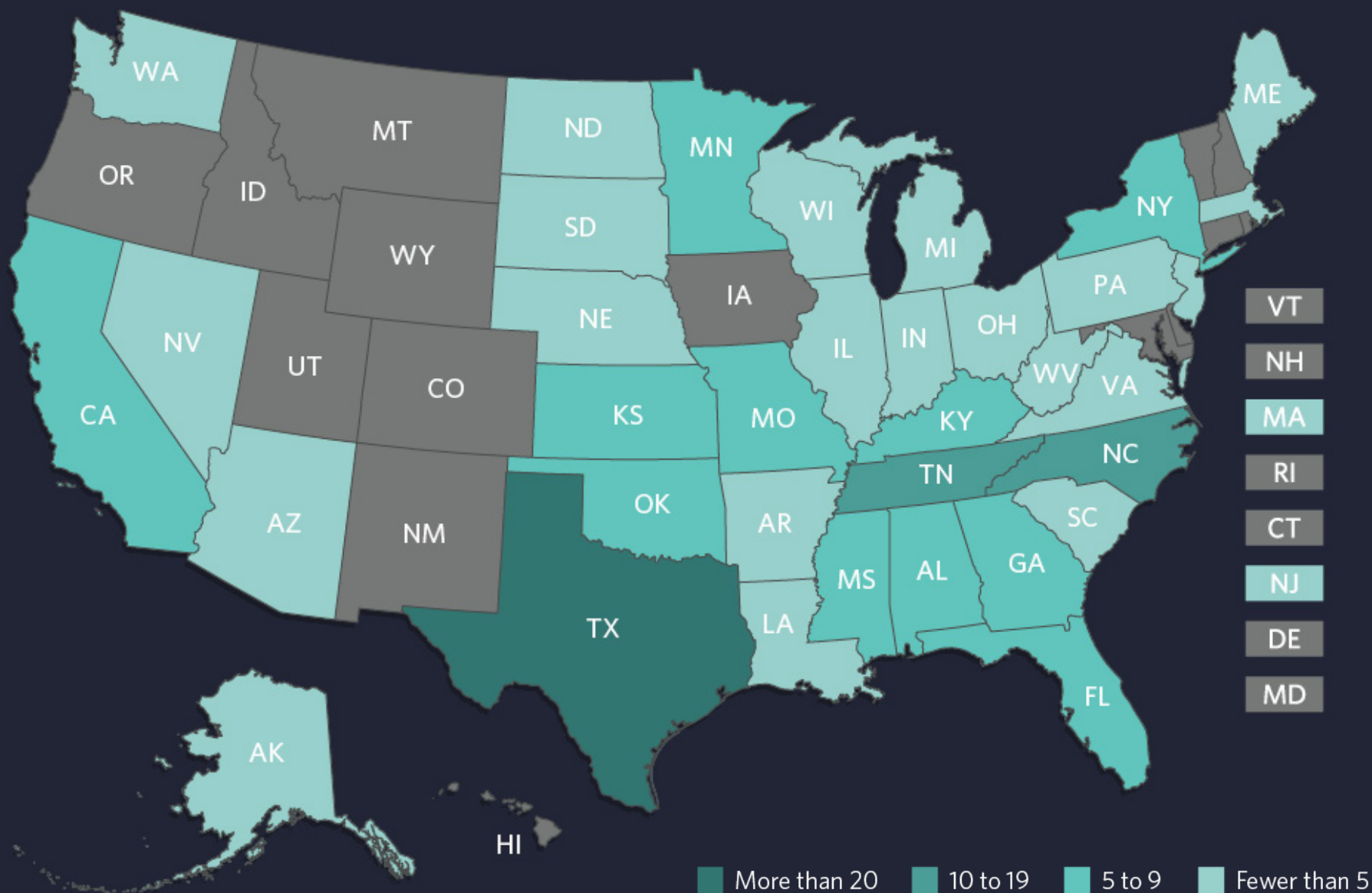
2020: The Year Health Care Is Forever Changed

IMPACTS COVID-19 ON HEALTHCARE

2020   2021   2022   2023   2024   2025   2030
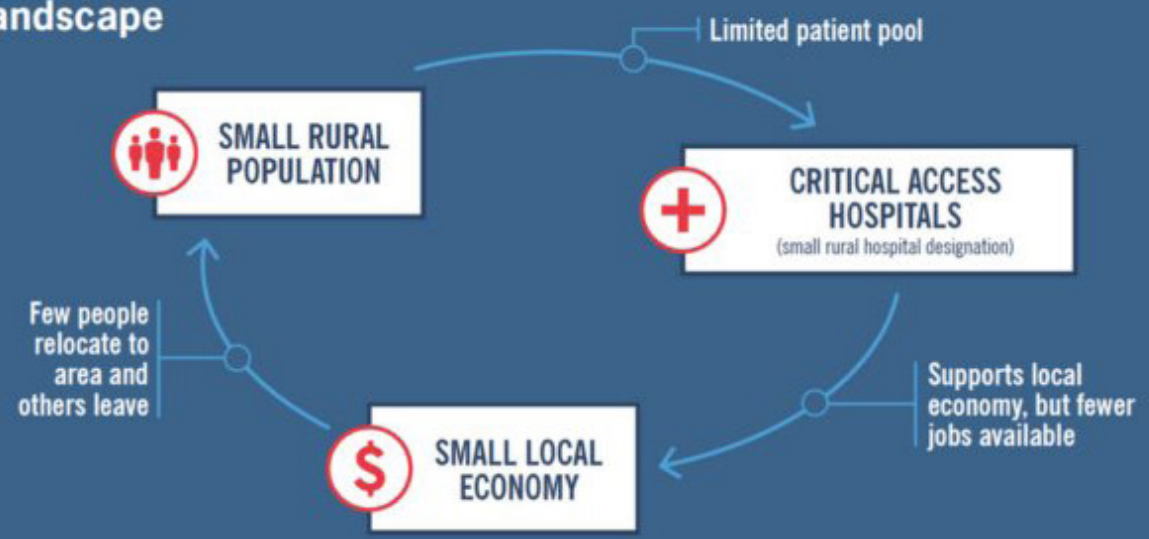
Weakened Patient Confidence
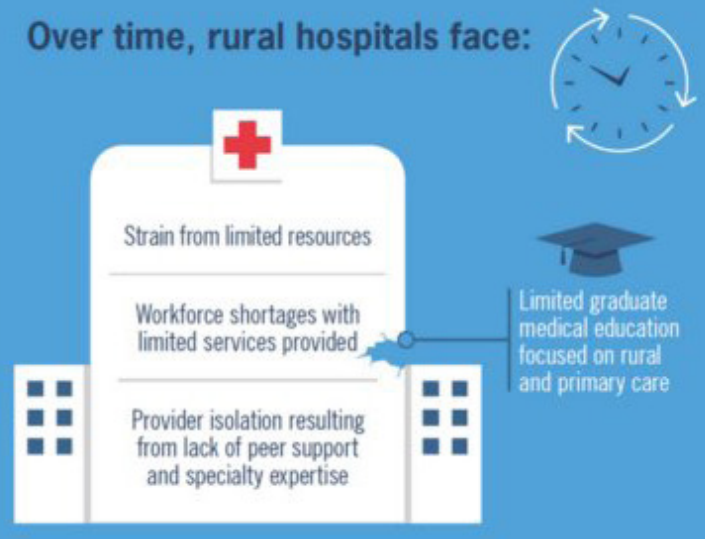
Loss of Insurance Coverage

Accelerated Shift in Point of Care

Accelerated Decline in Healthcare Utilization

Long-term COVID-19 & Deferred Care Health Impacts

Landscape

SMALL RURAL POPULATION

Limited patient pool

CRITICAL ACCESS HOSPITALS
(small rural hospital designation)

Supports local economy, but fewer jobs available

SMALL LOCAL ECONOMY

Few people relocate to area and others leave

Over time, rural hospitals face:

Strain from limited resources

Workforce shortages with limited services provided

Provider isolation resulting from lack of peer support and specialty expertise

Limited graduate medical education focused on rural and primary care

OPPORTUNITY TO BREAK THE CYCLE

CHANGE IS INEVITABLE, PROGRESS IS OPTIONAL

MEASURE

The research team implements the research study as outlined in the research plan, tracks any changes, and makes necessary adjustments. Data collection is the most time-consuming and costly phase of a research project.

MONITOR

It is the responsibility of the project team to ensure that all design strategies are executed as specified in the design documents and in compliance with the proposed research plan. At the end of construction, the project team verifies that the commissioned building complies with the EBD intent and is ready for post-occupancy research.

COLLECT

Assess the current processes at a macro level and define project metrics that will be used to measure outcomes. These will aid in the creation of the functional and space program.

HYPOTHESIZE

Develop hypotheses to predict the expected relationship between variables. Hypotheses point out the direction for data collection and provide guidance for analyzing and interpreting the data.

DEFINE

Establish a vision that defines the intentions, direction, and goals & objectives for the project. The team can then properly articulate the project goals in terms of their desired outcomes.
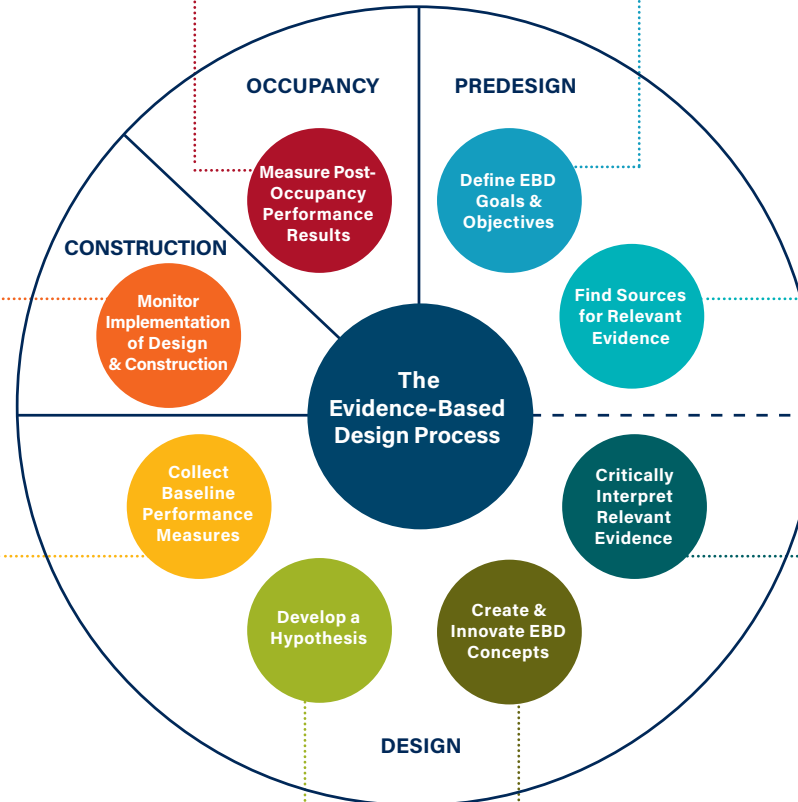
FIND

A literature review will identify gaps in knowledge, determine what relevant research has already been performed, and inform the basis for new research.
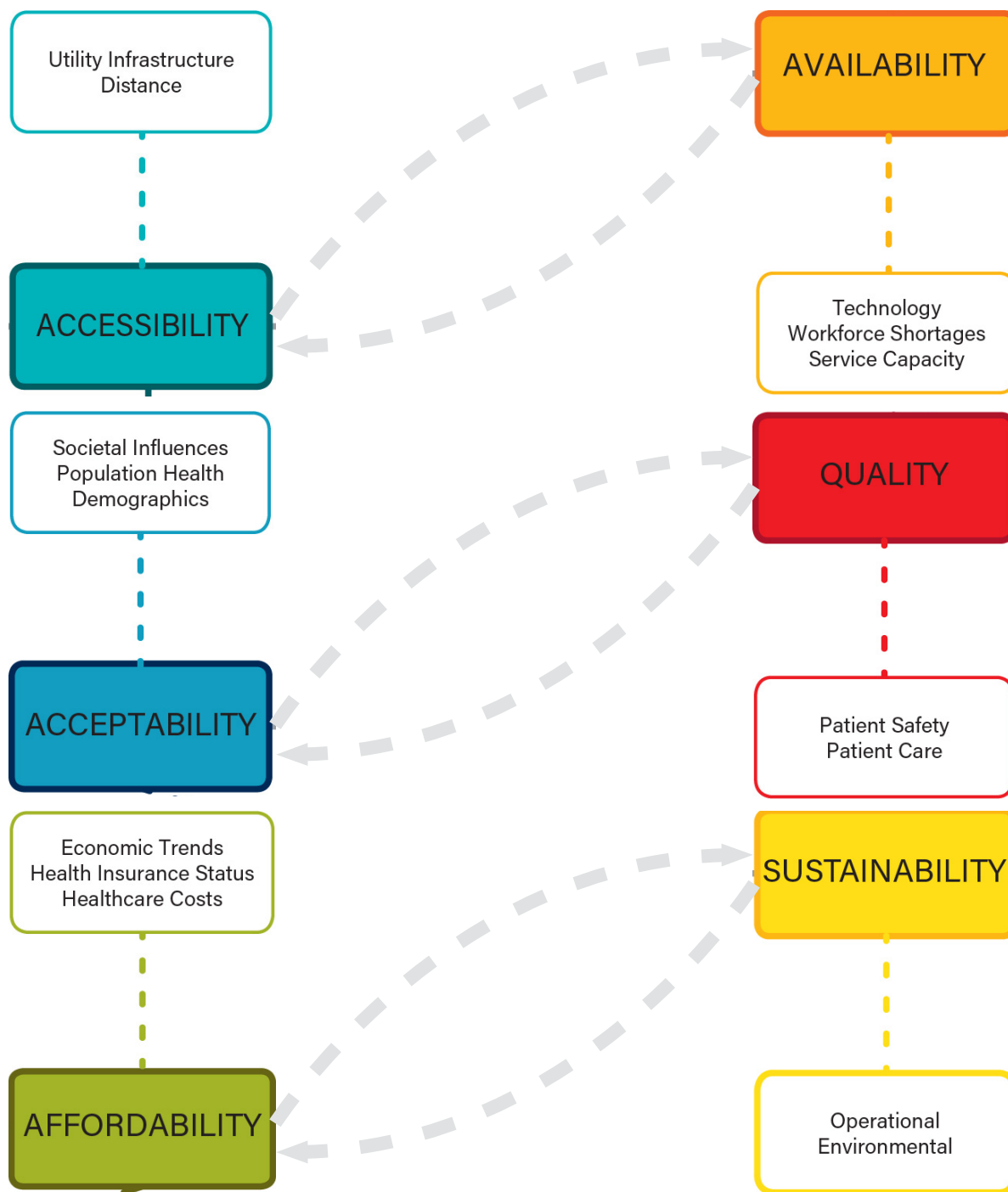
INTERPRET

To determine if the evidence is credible and can be used to inform the design and the hypotheses, it is important to understand the relevance, rigor, validity and generalization of the information cited.

CREATE

Translate relevant evidence into design guidelines—summary statements that designers use for guiding aesthetic, functional, or compositional decisions. The team can begin to create preliminary design concepts derived from the design guidelines.

OCCUPANCY

PREDESIGN

CONSTRUCTION

DESIGN

Measure Post-Occupancy Performance Results

Define EBD Goals & Objectives

Monitor Implementation of Design & Construction

Find Sources for Relevant Evidence

The Evidence-Based Design Process

Critically Interpret Relevant Evidence

Collect Baseline Performance Measures

Develop a Hypothesis

Create & Innovate EBD Concepts

EVIDENCE BASED DESIGN PROCESS

Utility Infrastructure Distance		AVAILABILITY
ACCESSIBILITY		Technology Workforce Shortages Service Capacity
Societal Influences Population Health Demographics		QUALITY
ACCEPTABILITY		Patient Safety Patient Care
Economic Trends Health Insurance Status Healthcare Costs		SUSTAINABILITY
AFFORDABILITY		Operational Environmental

DEFINE GOALS & OBJECTIVES

"We don't have preconceived ideas; we work, we analyze, we read, we step into projects knowing that we're not the first ones there."

- Elizabeth Diller
Architect & Cofounder of Diller Scofidio + Renfro

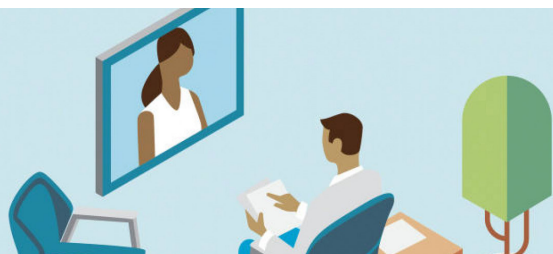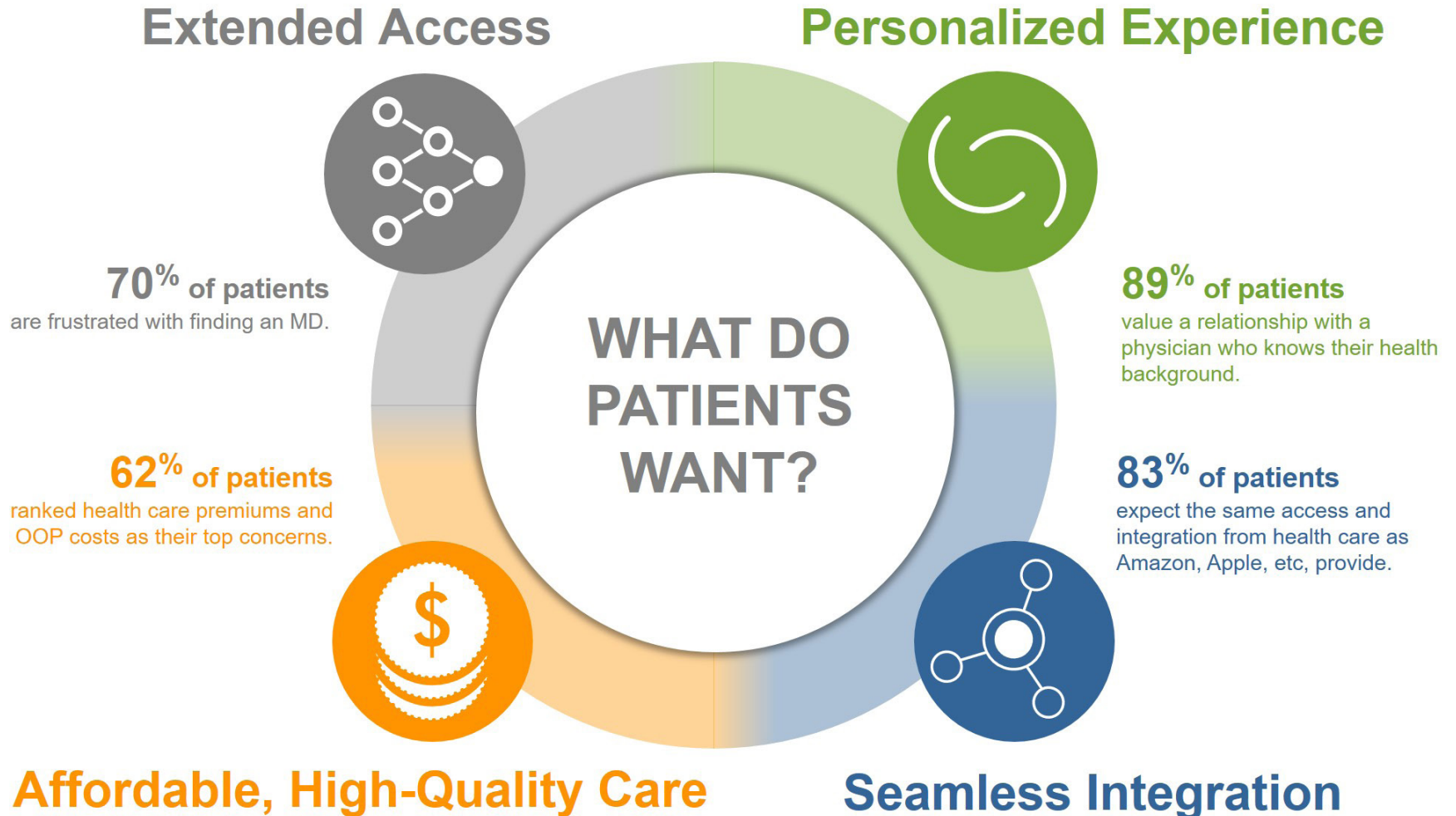**FIND SOURCES FOR RELEVANT EVIDENCE**
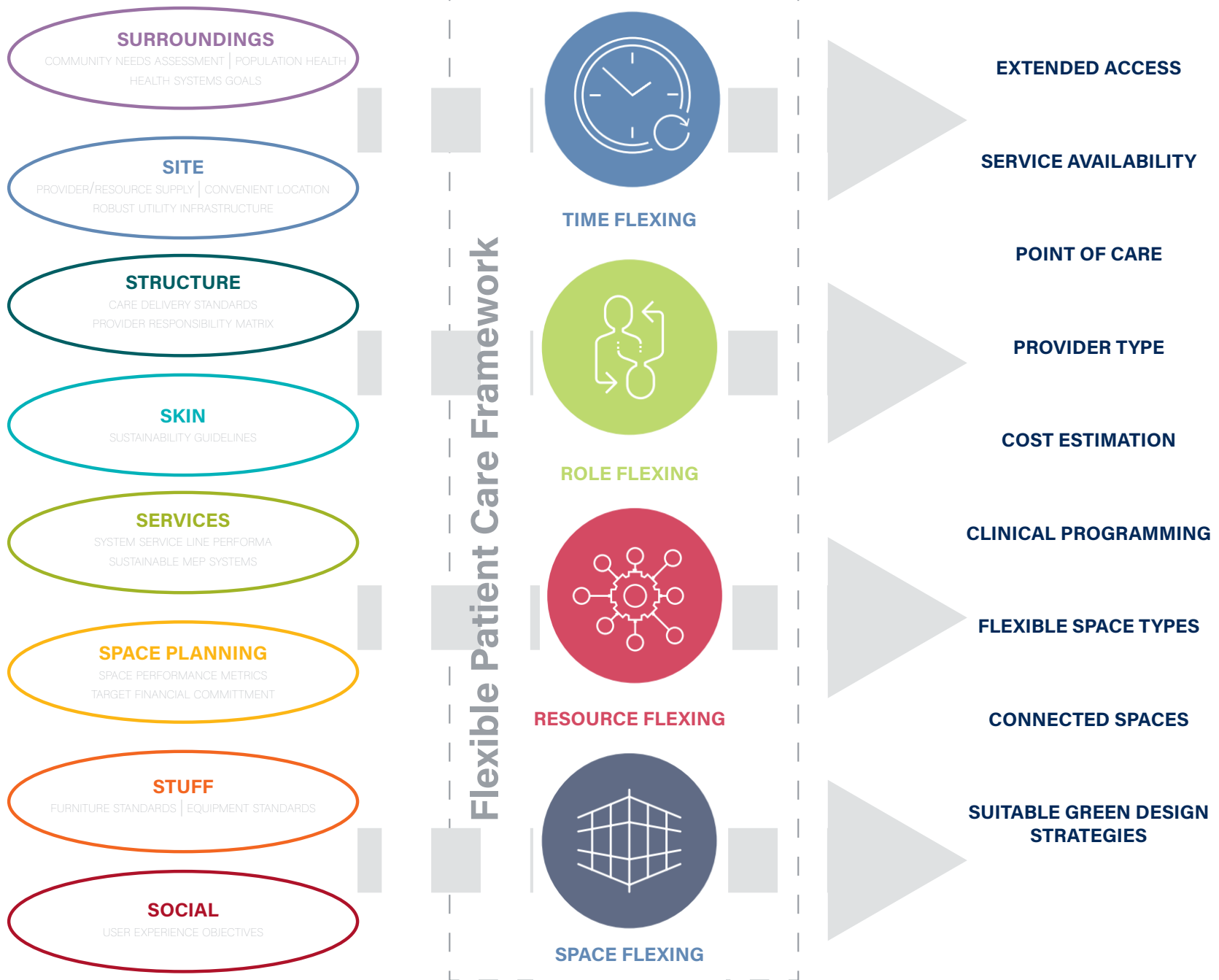
SYSTEM

PATIENT
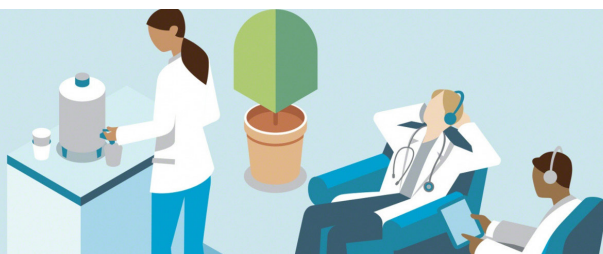
CARE TEAM

STANDARD OF CARE

TECHNOLOGY

INTERPRET RELEVANT EVIDENCE

WHAT DO PATIENTS WANT?

Extended Access

70% of patients are frustrated with finding an MD.

Personalized Experience

89% of patients value a relationship with a physician who knows their health background.

Affordable, High-Quality Care

62% of patients ranked health care premiums and OOP costs as their top concerns.

Seamless Integration

83% of patients expect the same access and integration from health care as Amazon, Apple, etc, provide.

CREATE AND INNOVATE CONCEPTS

Flexible Patient Care Framework

SURROUNDINGS
COMMUNITY NEEDS ASSESSMENT | POPULATION HEALTH
HEALTH SYSTEMS GOALS

SITE
PROVIDER/RESOURCE SUPPLY | CONVENIENT LOCATION
ROBUST UTILITY INFRASTRUCTURE

STRUCTURE
CARE DELIVERY STANDARDS
PROVIDER RESPONSIBILITY MATRIX

SKIN
SUSTAINABILITY GUIDELINES

SERVICES
SYSTEM SERVICE LINE PERFORMA
SUSTAINABLE MEP SYSTEMS

SPACE PLANNING
SPACE PERFORMANCE METRICS
TARGET FINANCIAL COMMITTMENT

STUFF
FURNITURE STANDARDS | EQUIPMENT STANDARDS

SOCIAL
USER EXPERIENCE OBJECTIVES

TIME FLEXING

ROLE FLEXING

RESOURCE FLEXING

SPACE FLEXING

EXTENDED ACCESS

SERVICE AVAILABILITY

POINT OF CARE

PROVIDER TYPE

COST ESTIMATION

CLINICAL PROGRAMMING

FLEXIBLE SPACE TYPES

CONNECTED SPACES

SUITABLE GREEN DESIGN
STRATEGIES

DEVELOP A HYPOTHESIS

SOCIAL

STUFF
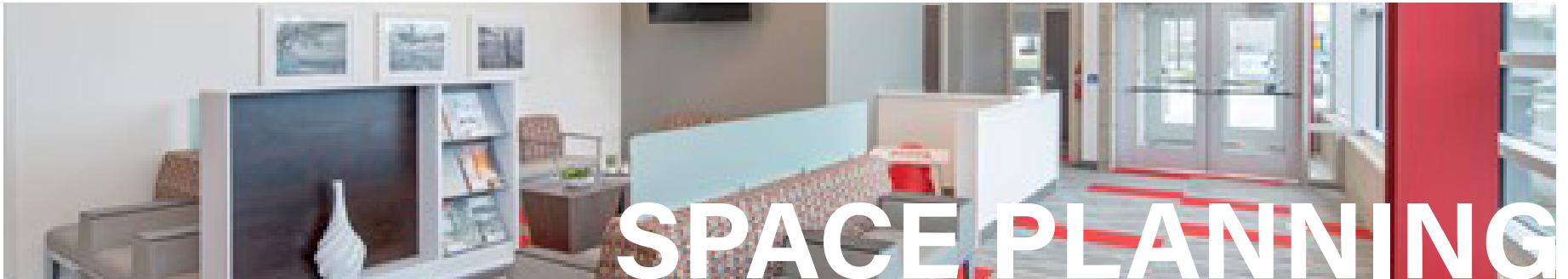
SPACE PLANNING
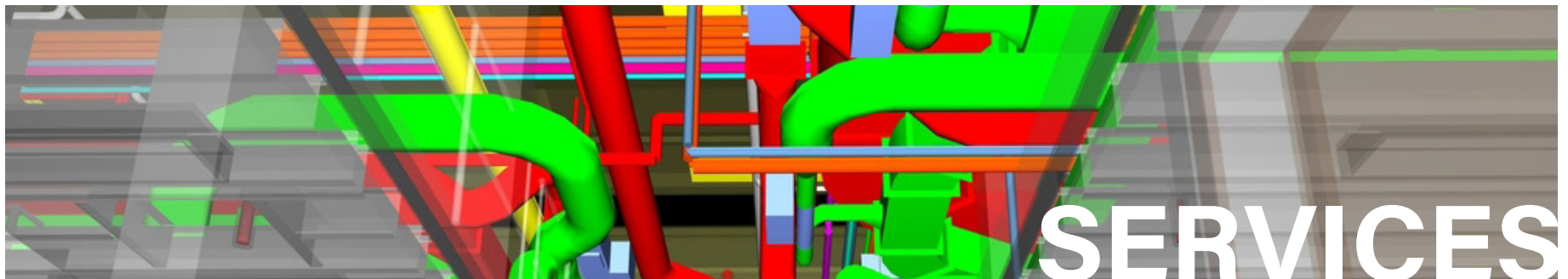
SERVICES

FRAMEWORK INPUTS
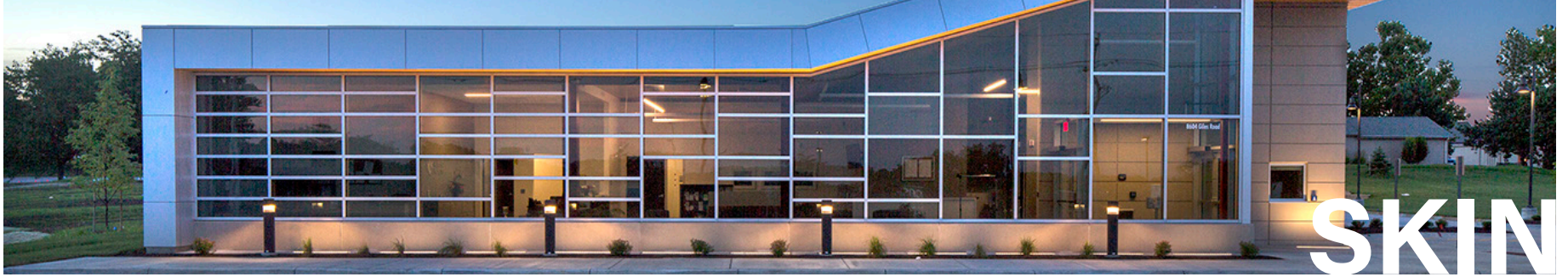
SKIN

STRUCTURE
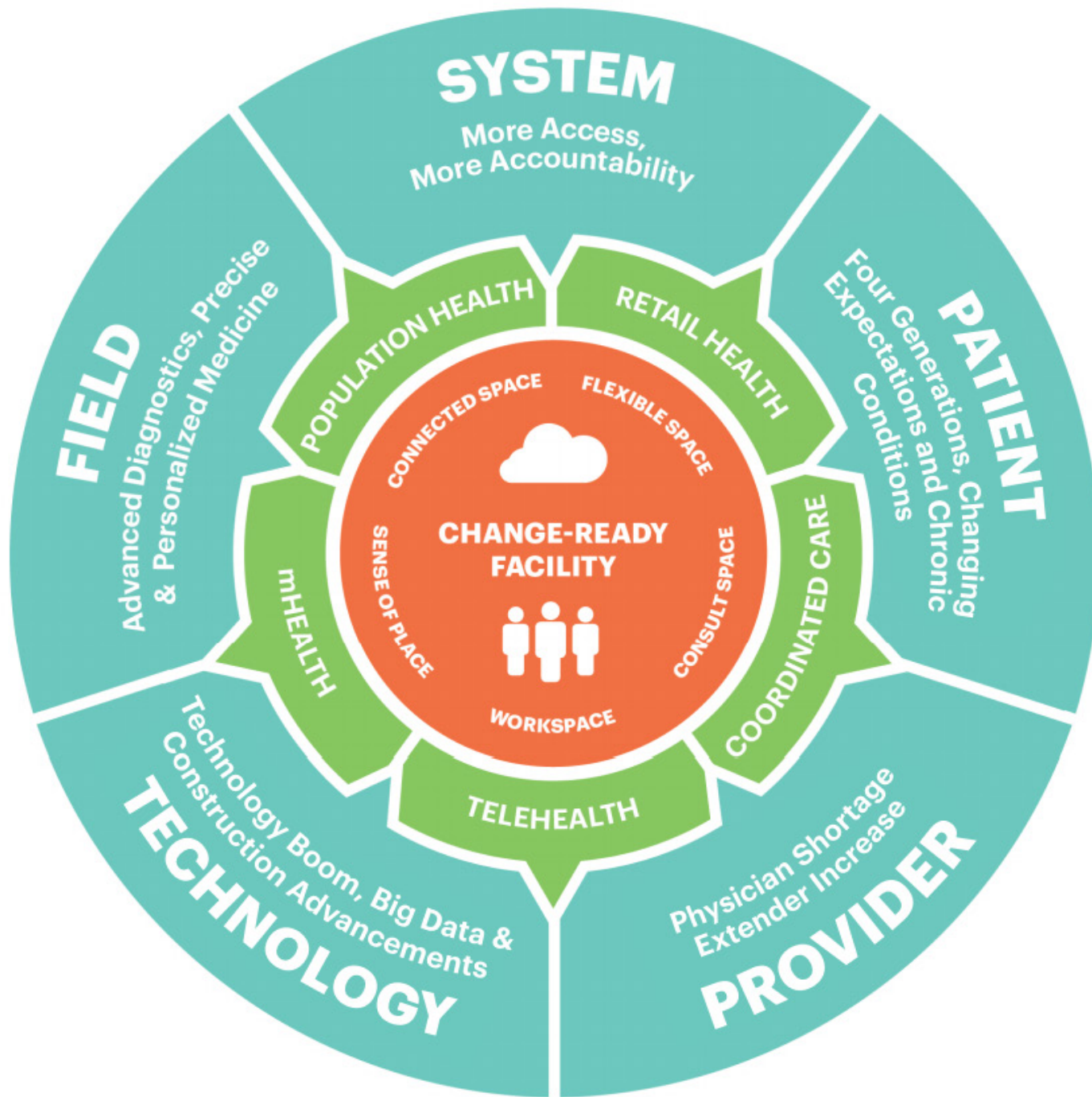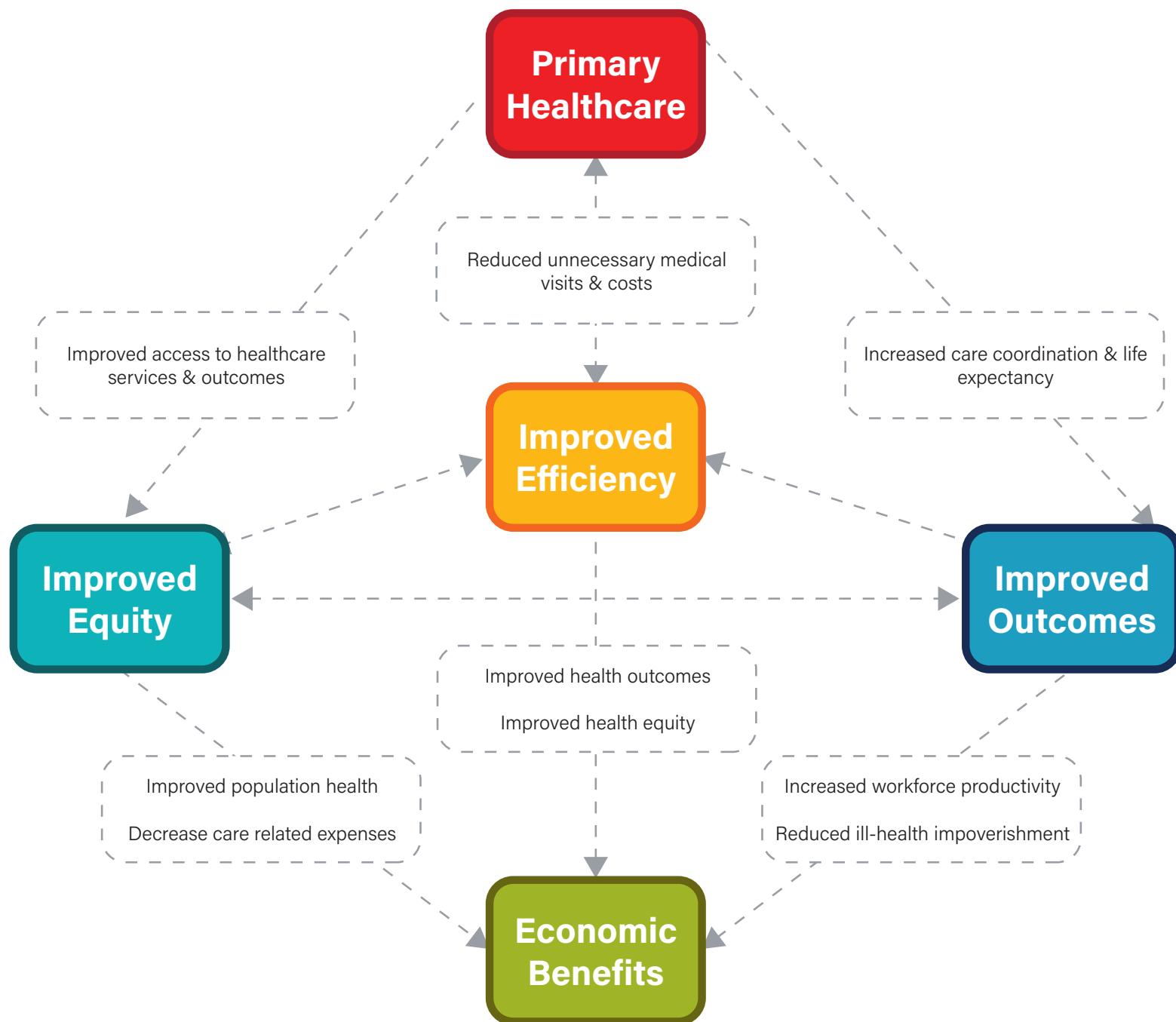
SITE

SURROUNDINGS

FRAMEWORK INPUTS

SYSTEM
More Access, More Accountability

PATIENT
Four Generations, Changing Expectations and Chronic Conditions

PROVIDER
Physician Shortage Extender Increase

TECHNOLOGY
Technology Boom, Big Data & Construction Advancements

FIELD
Advanced Diagnostics, Precise & Personalized Medicine

POPULATION HEALTH

RETAIL HEALTH

COORDINATED CARE

TELEHEALTH

mHEALTH

CONNECTED SPACE

FLEXIBLE SPACE

CONSULT SPACE

WORKSPACE

SENSE OF PLACE

CHANGE-READY FACILITY

FRAMEWORK RECOMMENDATIONS

```
                          ┌──────────────────┐
                          │     Primary       │
                          │    Healthcare     │
                          └──────────────────┘

  Improved access to           Reduced unnecessary          Increased care
  healthcare services          medical visits & costs       coordination & life
  & outcomes                                                 expectancy

                          ┌──────────────────┐
                          │     Improved      │
                          │    Efficiency     │
                          └──────────────────┘

  ┌──────────────┐                                        ┌──────────────┐
  │   Improved   │        Improved health outcomes        │   Improved   │
  │    Equity    │        Improved health equity          │   Outcomes   │
  └──────────────┘                                        └──────────────┘

  Improved population health                  Increased workforce productivity
  Decrease care related expenses              Reduced ill-health impoverishment

                          ┌──────────────────┐
                          │    Economic       │
                          │    Benefits       │
                          └──────────────────┘
```

SYSTEM IMPLICATIONS

Accessible Health

An Evidenced Based Approach to Improve User Experience and Clinical Sustainability within Rural Healthcare

by

John Phillip Coughlin

A Design Thesis

Presented to the Faculty of
The College of Architecture and the College of Graduate Studies at the University of Nebraska

In Partial Fulfillment of the Requirements

For the Degree of Master of Architecture
Major: Architecture

For the Degree of Master of Community Regional Planning
Major: Community Regional Planning

Under the Supervision of Professors:
Lloyd (Bud) Shenefelt, Yunwoo Nam, Steve Hardy, & Gordon Scholz

Lincoln, Nebraska

May 2021

Accessible Health |

AN EVIDENCED BASED APPROACH TO IMPROVE USER EXPERIENCE AND CLINICAL SUSTAINABILITY WITHIN RURAL HEALTHCARE

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Figure 1- Rural Farm Midwest

ABSTRACT

The manner through which health care is provided evolves through advances in medical knowledge as well as improvements in supporting infrastructure and processes. The rate at which this change is made possible is increasingly driven by non-medical factors. These factors include, but are not limited to, the necessity to operate safely in a COVID-19 pandemic while simultaneously operating with economically sustainable processes and infrastructure. This is especially true for underserved populations in rural communities. Acknowledging and understanding these changing environments allows one to better optimize the sometimes competing interests of user experience with sustainable clinical practices.

Healthcare is vital to the economic viability and wellbeing of rural communities. This study explores existing research and precedents focused on promoting access and delivery of primary care to underserved populations while supporting sustainable operations for medical facilities. Minimizing the distance between patients and their providers while maintaining a high quality of care at each clinic will make healthcare more accessible and relevant for people living in rural communities. This Tyranny of Distance influences user access to necessary healthcare services while concurrently shaping available options for sustainable clinical support. What are the best practices to extend care delivery and optimize clinical operations to improve the healthcare experience in these areas? This study identified best practices and implemented an evidence based approach capable of creating and supporting accessible, adaptable patient care settings. The patient experience and their willingness to accept new approaches, such as virtual care, must always be at the forefront of care and include efficient, effective, high quality care.

A broad comprehensive literature review was employed to understand challenges in healthcare as well as identify what are driving the trends we see in the primary care designs today. From the extensive literature review, over 110 articles were reviewed all of which were applicable to topics related to rural healthcare objectives. Primary research was completed through

interviewing design professionals, health providers, and facilities managers associated with healthcare in Nebraska. The extensive research was used to identify and develop a framework for which various drivers, trends, and data streams can be synthesized to generate a flexible framework for rural healthcare delivery.

Figure 2- Rural Harvest

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Define EBD Goals & Objectives

INTRODUCTION

Figure 4- Rural Grasses

INTRODUCTION

THESIS OVERVIEW

STATEMENT

Healthcare is important to maintain/grow the economic viability and wellbeing of any community. The difficulties faced by medical providers and patients in rural communities are more complicated than their urban counterparts with no easy solutions, and recent events, such as COVID-19, primary care manager scarcity, and fiscal resourcing, have further challenged the American healthcare system. Challenges provide opportunities to generate innovative progress toward increased access to high-quality healthcare to all, especially under-served populations with finite resources. Change is inevitable; embracing the opportunity to optimize progress is optional.

QUESTION

How can Nebraska's healthcare system adapt to issues facing the delivery of patient care in rural areas to enable and maintain progress in ensuring accessible healthcare?

INTENT

This thesis focuses on the decline of rural healthcare services and how current events can provide a crucial opportunity for innovation in the patient care environment in rural healthcare facilities. This investigation intends to establish an evidence based design (EBD) framework for rural healthcare capable of:

(1) Extending Access to Care | (2) Affordable, High Quality Patient Care
(3)Seamless Integration | (4) Personalized Experience

Figure 5- Rural School House

INTRODUCTION

KEY TERMS

ENVIRONMENT OF CARE (EOC) - REFERS TO ANY SITE WHERE PATIENTS ARE TREATED, INCLUDING INPATIENT AND OUTPATIENT SETTINGS WITH THE MAIN OBJECTIVE TO PROVIDE A SAFE, FUNCTIONAL & EFFECTIVE ENVIRONMENT FOR PATIENTS, STAFF MEMBERS, AND OTHERS.

EVIDENCE BASED CARE - A SCIENTIFIC APPROACH TO HEALTH CARE THAT REQUIRES THE INTEGRATION OF THE BEST RESEARCH EVIDENCE, CLINICAL EXPERTISE AND THE PATIENT'S UNIQUE VALUES AND CIRCUMSTANCES

EVIDENCE BASED DESIGN - THE PROCESS OF BASING DECISIONS ABOUT THE BUILT ENVIRONMENT ON CREDIBLE RESEARCH TO ACHIEVE THE BEST POSSIBLE OUTCOMES

HEALTH CARE - SPECIFIC THINGS THAT PROVIDERS DO SUCH AS SEE A PATIENT OR PRESCRIBE A MEDICATION

HEALTHCARE - AN INDUSTRY WITH SUPPORTING SYSTEMS BY WHICH PEOPLE GET THE HEALTH CARE THEY NEED

MEDICAL HOME MODEL - PHILOSOPHY OF PRIMARY CARE THAT IS PATIENT-CENTERED, COMPREHENSIVE, TEAM-BASED, COORDINATED, ACCESSIBLE, AND FOCUSED ON QUALITY AND SAFETY.

NON-PHARMACOLOGICAL INTERVENTIONS - SCIENCE-BASED AND NON-INVASIVE INTERVENTIONS ON HUMAN HEALTH THAT AIM TO PREVENT, CARE, OR CURE HEALTH PROBLEMS WITHOUT MEDICATION

PATIENT EXPERIENCE - ENCOMPASSES THE RANGE OF INTERACTIONS THAT PATIENTS HAVE WITH THE HEALTH CARE SYSTEM, INCLUDING THEIR CARE FROM HEALTH PLANS, AND FROM DOCTORS, NURSES, AND STAFF IN HOSPITALS, PHYSICIAN PRACTICES, AND OTHER HEALTH CARE FACILITIES.

PRIMARY CARE PROVIDER - IS A PHYSICIAN WHO SERVES AS THE ENTRY POINT TO THE HEALTHCARE SYSTEM AND PROVIDES COMPREHENSIVE CARE FOR THE COMMUNITY

UNDER-RESOURCED COMMUNITIES- RELATIVELY HIGH-POVERTY, LOW-INCOME AREAS THAT HAVE INSUFFICIENT COMMUNITY RESOURCES INCLUDING LEADERSHIP, PHYSICAL ASSETS, MONEY, POWER, POLITICAL WILL, INSTITUTIONS, COMMUNITY COHESIONS, AND SERVICES

UNDERSERVED - IN REGARD TO HEALTH CARE, REFERS TO POPULATION WHICH ARE DISADVANTAGED BECAUSE OF ABILITY TO PAY OR ABILITY TO ACCESS COMPREHENSIVE HEALTHCARE, OR OTHER DISPARITIES FOR REASONS OF RACE, RELIGION, LANGUAGE OR SOCIAL STATUS

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DESIGN

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Monitor Implementation of Design & Construction
Find Sources for Relevant Evidence

The Evidence-Based Design Process

Collect Baseline Performance Measures
Critically Interpret Relevant Evidence
Develop a Hypothesis
Create & Innovate EBD Concepts

Figure 6- The Evidenced-Based Design Process

INTRODUCTION

RESEARCH APPROACH AND METHODS

RESEARCH APPROACH

To approach the larger issue of rural-urban health disparities, a long-standing issue, this study works to implement a multi-disciplinary, evidence-based approach, as depicted in Figure 6, focused on the West North Central Plains, concentrating specifically on the state of Nebraska. The following quote from Blanche Lincoln, a US senator from Arkansas, reinforces a misunderstanding of healthcare in rural communities, "A common misconception is that the costs of health care are cheaper in rural America, when in fact the reality is that they are more expensive and more difficult to access." (Blanche Lincoln Quotes n.d.) This quote emphasizes that rural healthcare is more expensive and difficult to access than in urban areas, therefore challenging the wellbeing of our rural communities. As planners and designers we can bring different approaches to resolving a long standing chronic issue. Our ability to select, diagnose, and resolve aspects of complex intricacies challenging rural healthcare all while comprehending and discriminating the needs and interest of diverse stakeholders enable us to guide communities in creation of plans and policies for the future of rural healthcare that value justice, equity, fairness, efficiency, order and beauty for all.

RESEARCH METHODS

"We don't have preconceived ideas; we work, we analyze, we read, we step into projects knowing that we're not the first ones there" (IIT College of Architecture 2019).

This quote, by Elizabeth Diller, an American architect and cofounder of Diller Scofidio + Renfro, reemphasizes the importance to read and analyze the vast array of references addressing the complex intricacies of providing care in rural areas of America. This study utilizes a broad comprehensive research, via literature review, data analysis, precedent and case study analysis as well as interviews with subject matter experts, to understand challenges in healthcare as well identify what was driving the trends we see in the primary care designs today.

Due to COVID-19, this study relied heavily on qualitative research methods resulting in extensive literature reviews and interviews with design professionals, health providers, and facilities managers associated with healthcare in Nebraska all focused on best practices to promote access and delivery of primary care to underserved populations while supporting sustainable operations within the environment of care. As illustrated in Figure 7, Research brought out six main issues relevant to rural health care and the architecture of rural environment of care:

User: Acceptability, Accessibility, Affordability

Clinical Operations: Quality, Availability, Sustainability

Quantitative research methods we are also utilized to collect measurable data to determine the supply and demand of healthcare services for Nebraska. This include facility and provider supply data aligned with population demographics and community social determinants of health. The extensive research was used to identify and develop a framework for which various drivers, trends, and data streams to be synthesized to generate a flexible framework for rural healthcare delivery. and generate the radical innovative progress for rural communities accessing patient care and embracing the forced change caused by COVID-19.
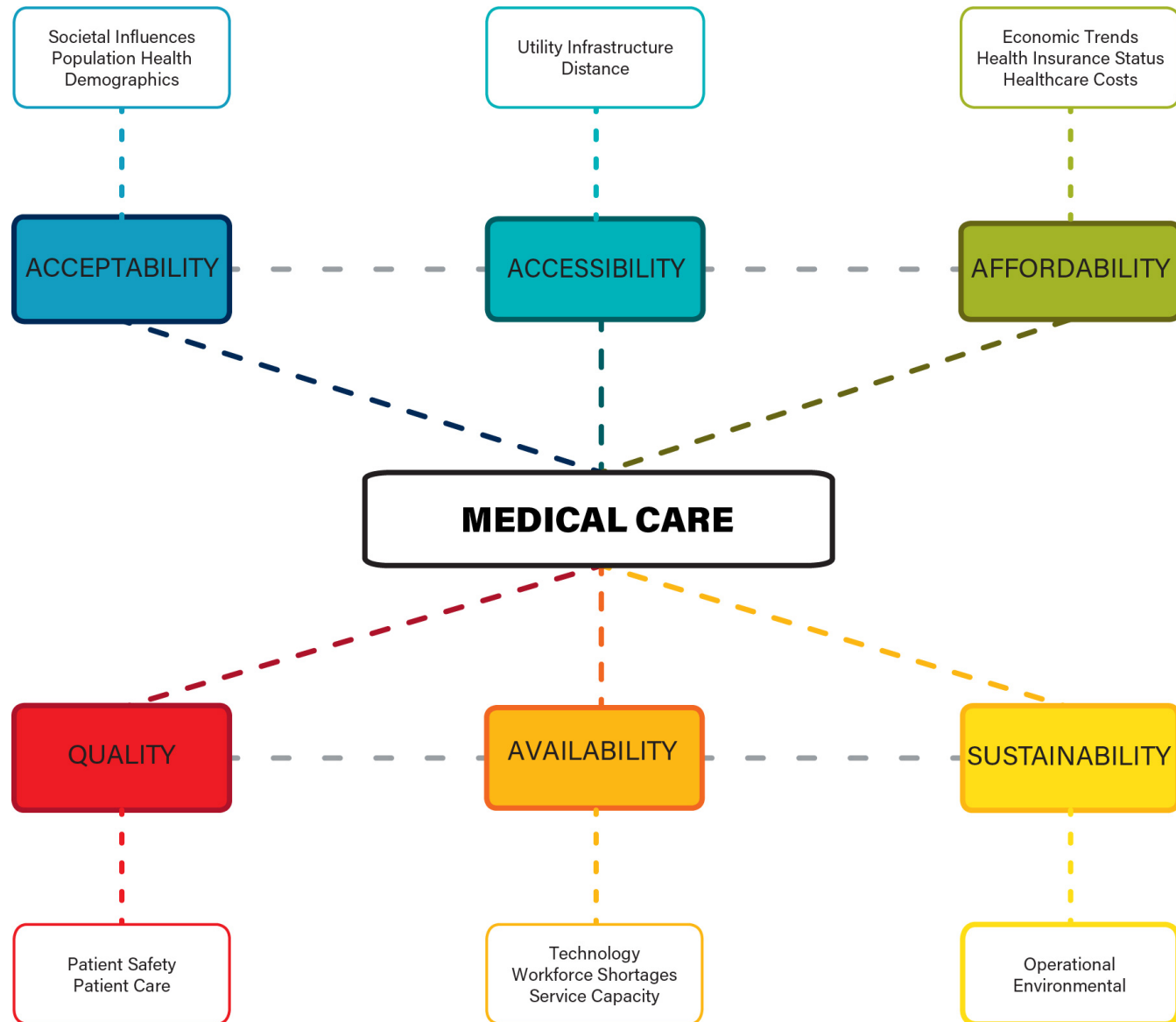
Figure 7- Research Methods

Figure 8- Country Road

INTRODUCTION

CONTEXTUAL FRAMEWORK OF RURAL PRIMARY CARE

A rural lifestyle typically involves independent living and reliance on the natural environment. Rural communities are often isolated from many basic services. Access to these basic services like healthcare often requires long travel distances. Healthcare services in rural regions are typically used for primary care needs and urgent/emergency care. This travel distance to access healthcare continues to increase as healthcare facilities are forced to close as a result of under-resourced clinical operations. This increased travel distance has reduced access and has forced many rural populations to do without preventative care. This lack of preventative care, combined with the aging population has led to a decline in the quality of health in rural communities.

WHAT IS RURAL?

For the average American, rural is an abstract concept of rolling hills and farmland rather than a concrete definition. Thus, it can be a difficult task trying to define the term "rural" and an even harder task trying to explain it.

WHAT IS QUALITY RURAL MEDICAL CARE?

Medical care in rural communities must be accessible and promote safe quality care. Rural health must be organized to provide the right treatment at the right time that is consistent with the optimal desired outcome while sustaining operational & resource efficiency. Quality, reliable rural healthcare aims to: improve population health, deliver better patient experience, manage costs, and improve clinician experience. To achieve this aim requires striking a balance of the patient and provider experience while managing finite available resources.
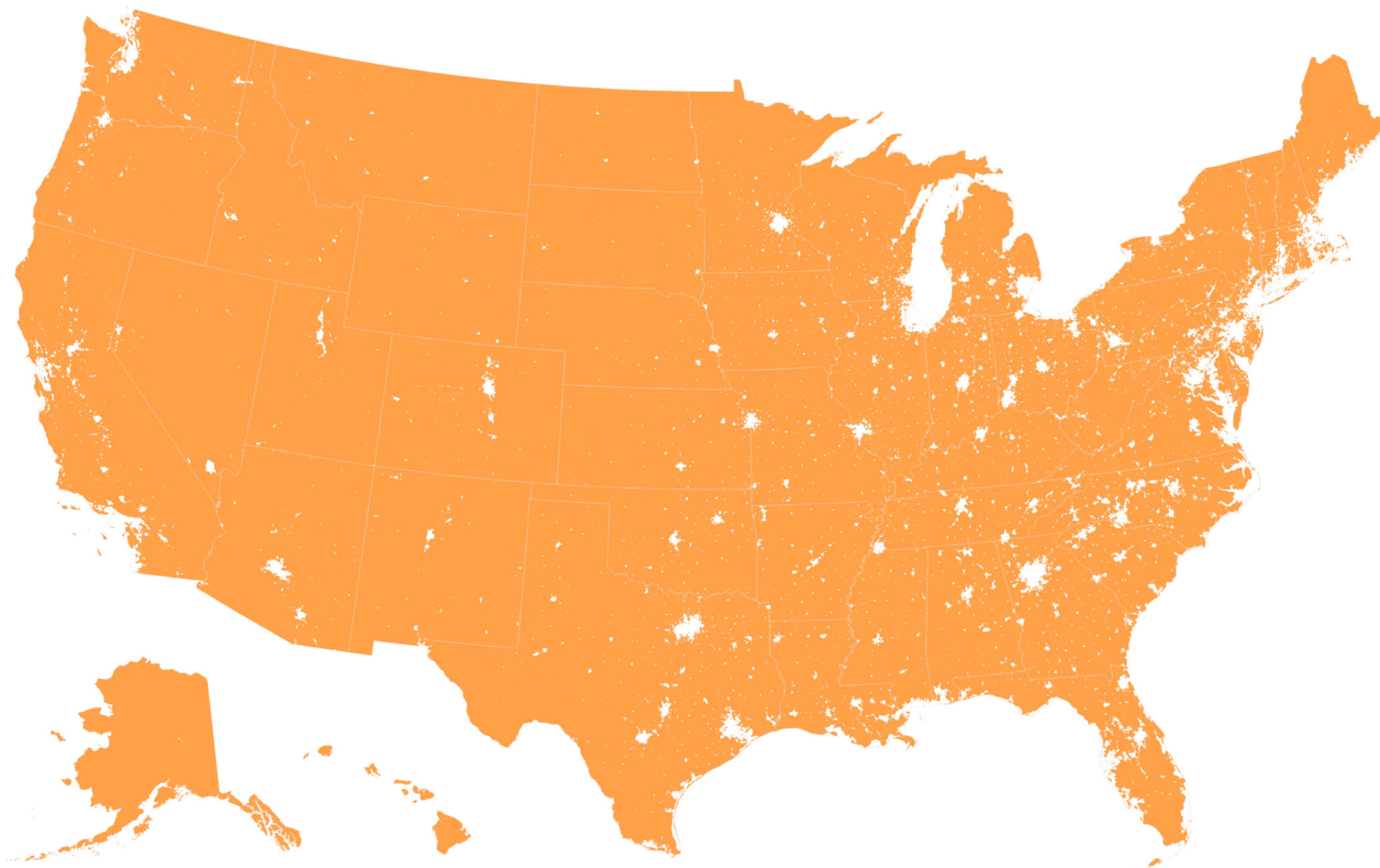
Figure 9- A Map of Rural America as defined by US Census

THE US CENSUS DEFINES RURAL:

From the inception of the classification of urbanity in 1910, the Census Bureau has been identifying the extent of the urban landscape with the residual landscape being deemed rural. The Bureau's urban-rural classification systems provides an important baseline set of urban and rural areas. These areas are used to analyze changes in urban and rural population demographics and distribution. This baseline is meant for statistical purposes only; however, various entities use these classifications. In fact, the Office of Management and Budget bases its definitions of metropolitan and micropolitan statistical areas on the US Census Bureau's classification scheme.

The US Census Bureau's classification of urbanity has been based on decennial census counts of population and density of development. Although the definition process has relied upon residential population data collected via the census, the intent remains to represent the entirety of the urban landscape. Today, urban is defined as densely settled area having a population of at least 2,500 (US Census Bureau n.d.). Urban consists of two types of geographies:

- Urbanized Areas have a population of 50,000 or more.

- Urban Clusters have a population of at least 2,500 and less than 50,000.

The Census Bureau's definition of urban is vital to understanding the extent of rurality. The Census Bureau classifies rural as any population, housing, or territory not in an urban area (US Census Bureau n.d.). The orange area on the map in Figure 9 are the areas in the United States that are classified as rural based on this definition. The US Census Bureau further clarifies the extent of rurality by adding frontier status on the continuum of urban-rural. Frontier classifies the most rural areas of our nation and is defined as any rural area with a population density of fewer than 6 people per square mile (US Census n.d.). Urbanized Areas, Urban Clusters, Rural, and Frontier define the urban-rural continuum.

We are an urban nation with very rural roots. Yet, as the nation becomes increasingly more

urban, and as urban areas reach further into rural territory, the notion of what constitutes rural is changing. The US Census Bureau uses periodic reviews to introduce conceptual and methodological changes to ensure that the urban-rural classification continues to be useful and relevant. The urban landscape has changed to the extent that the sharp dichotomy between urban and rural areas no longer exists.

NEBRASKA RURALITY AS CURRENTLY DEFINED BY THE US CENSUS BUREAU

Nebraska exemplifies the need for further investigation into the urban rural continuum. The definitions provided by the US Census Bureau regarding population density reinforces the perception that Nebraska is largely a rural state. In fact, the results of applying the density classification scheme to Nebraska, as shown in Figure 10, shows 92 out of 93 counties in Nebraska are non-urban. County designations are not very telling of the urbanity of a state. In fact, according to the latest American Community Survey (ACS), 54.4 percent of people living in rural areas are within a metro area. Historically, this has been the case as rural populations resided on farms producing food and other goods for nearby urban centers or resided in small market and mill towns. However the need to classify at the county level is vital as measure of health, demographic, economic, and environmental characteristics are widely available at the county level laying a common foundation for comparing a multitude of qualitative and quantitative research. This perceived need for county level classification led the investigation to research how population health was reported and categorized along the urban-rural continuum.

Frontier
Fewer than 6 people / square Mile

Rural
Non Frontier & Non Urban

Urban
At least 1000 people / square mile
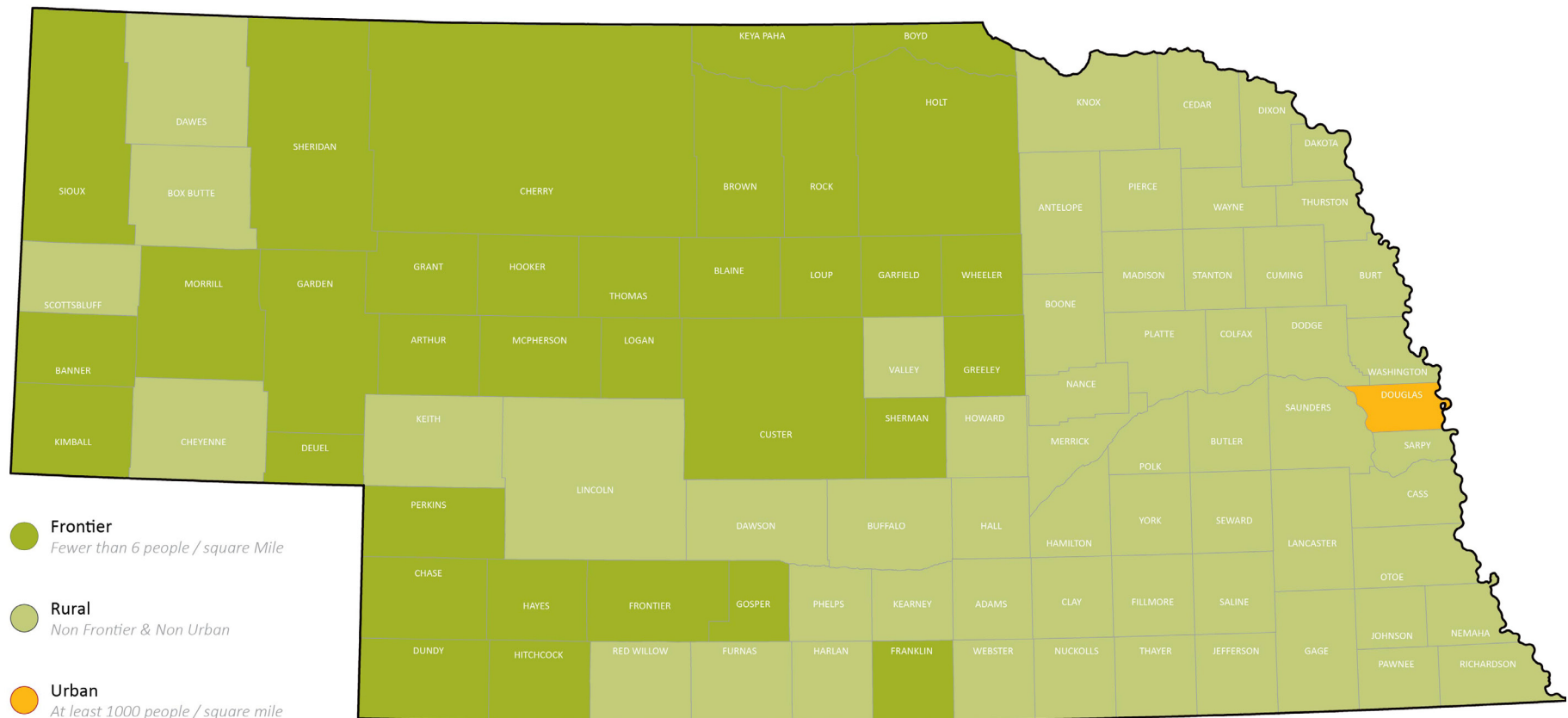
Figure 10- Nebraska Counties Classified by US Census Population Density
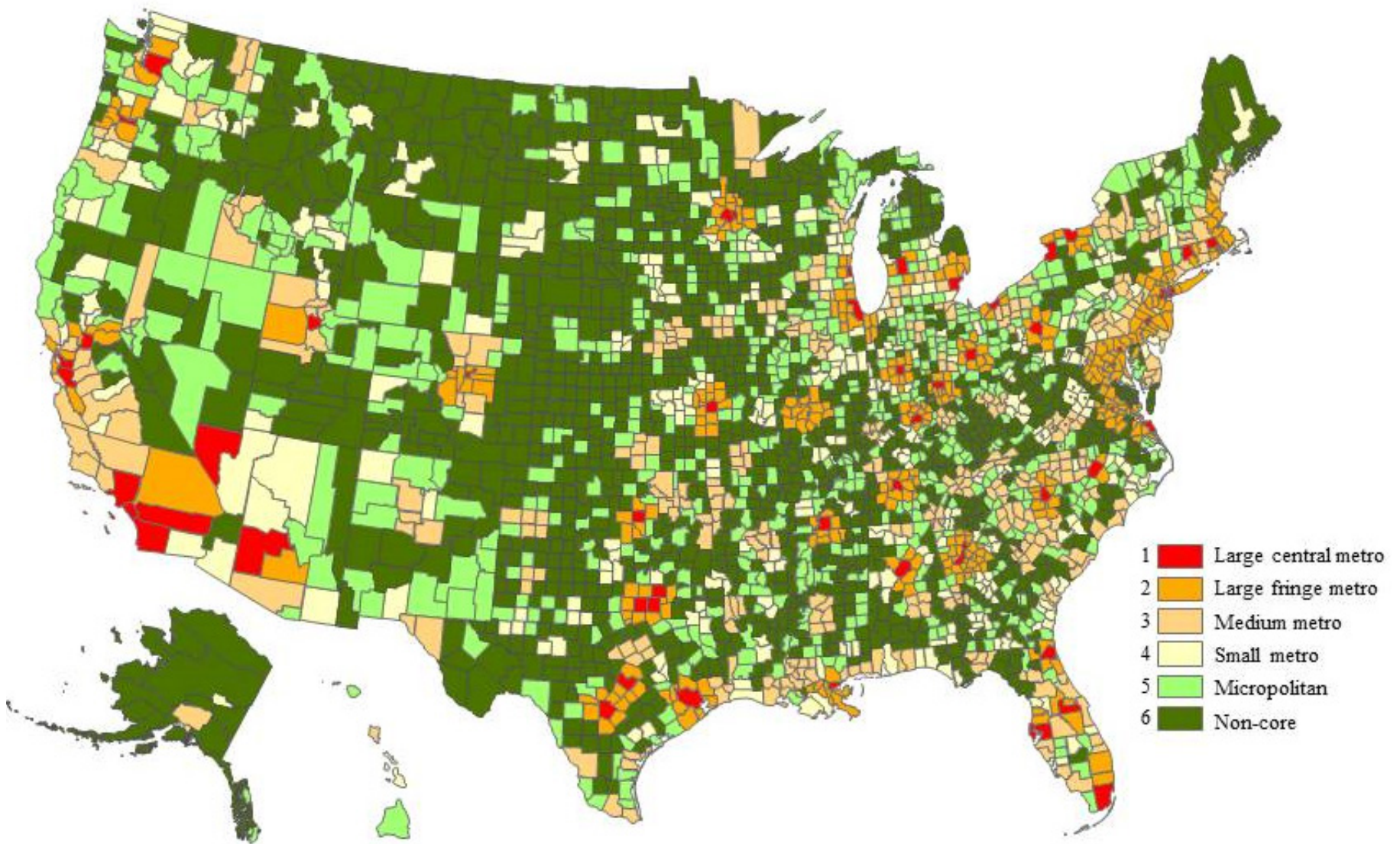
Figure 11- A Map of America as classified by US Center for Disease Control's National Center for Health Statistics

NATIONAL CENTER FOR HEALTH STATISTICS (NCHS) DEFINES RURAL:

The Center for Disease Control's National Center for Health Statistics (NCHS) reports data that is often utilized by other entities to study the associations between urbanization level and health, as well as to monitor the health of urban and rural residents (Center for Disease Control and Prevention n.d.). The scheme, as illustrated in Figure 11, groups U.S. counties and county-equivalent entities on a continuum ranging from the most urban to most rural. The most urban category consists of "central" counties of large metropolitan areas and the most rural category consists of nonmetropolitan "noncore" counties. The NCHS urban–rural schemes are county-based because counties are primary political units of local government and have programmatic importance at the federal and state levels, and their boundaries are relatively stable (Center for Disease Control and Prevention n.d.).

The levels of the NCHS scheme were identified for their utility in studying health differences across the urban-rural continuum. The NCHS scheme has more metropolitan levels than nonmetropolitan levels because the large U.S. metropolitan population can support more levels for health analyses than the relatively small nonmetropolitan populations (Center for Disease Control and Prevention n.d.). An important feature of the NCHS urban-rural scheme, which makes it particularly well-suited for health analyses, is that it separates counties within large metropolitan areas into two categories. This is notable feature of the NCHS urban-rural scheme because for a number of health measures, residents of large fringe metro areas fare substantially better than residents of other urbanization levels. For these reasons, residents of the inner cities and suburbs of large metropolitan areas must be differentiated to ensure an accurate reflection of health disparities across the full urban-rural continuum is available.

From the most urban to the most rural, the six levels of the 2013 NCHS scheme are defined according to the following classification rules (Center for Disease Control and Prevention n.d.):

- Large "Central" Metro: Counties in Metropolitan Statistical Areas (MSAs) of 1 million or more population that:

    - Contain the entire population of the largest principal city of the MSA

    - Have their entire population contained in the largest principal city

    - Contain at least 250,000 inhabitants of any principal city of the MSA

- Large " Fringe" Metro: Counties in MSAs of 1 million or more population that are not central metro

- Medium Metro: Counties in MSAs of populations of 250,000 to 999,999

- Small Metro: Counties in MSAs of populations of less than 250,000

- Micropolitan- Counties in micropolitan statistical areas

- Noncore: Nonmetropolitan counties that did not qualify as micropolitan.

NEBRASKA RURALITY AS CLASSIFIED BY NCHS

Utilizing the definitions provided by the NCHS scheme, Nebraska, as illustrated in Figure 12, can still be defined as a largely rural state. While this scheme certainly identifies the urban centers throughout the state, it show little delineation within the non-urban areas of the state.

Figure 12- Nebraska Counties Classified by NCHS Urban-Rural Classification Scheme

Urban				Rural		
Large Central Metropolitan Statistical Area	**Large Fringe Metropolitan Statistical Area**	**Medium Metropolitan Statistical Area**	**Small Metropolitan Statistical Area**	**Micropolitan Statistical Area**	**Non-Core**	**Non-Core: Frontier**
Populations greater than 999,999*	*Populations greater than 999,999 & Non Central*	*Populations of 250,000 to 999,999*	*Populations less than 250,000*	*A Micropoltitan Statistical Area*	*Nonmetropolitan & Nonmicropolitan*	*Non-Core & Fewer than 6 people/sq. mile*
NEW YORK, NY	*CHICAGO, IL*	*OMAHA, NE*	*GRAND ISLAND, NE*	*NORFOLK, NE*	*SIDNEY, NE*	*GORDON, NE*

Figure 13- Expanded Urban-Rural Classification Scheme

THIS STUDY DEFINES RURAL:

Rurality is an inexact term often defined by what it is not. Different definitions depend on the spatial scale, intensity of development, and population density. Varied definitions of rural exist across the federal and state governments, as well. This study further acknowledges that determining rurality at the county level is also inexact, since most counties have a mix of urban and rural areas, but is crucial to understand health related data sets.

This study utilizes the NCHS classification scheme but expands on the "Non-Core" definition in the scheme, as illustrated in Figure 13. The Non-Core category is expanded to an additional category: Non-Core Frontier. A county is classified as Non-Core Frontier when it is Non-Core with a population density of fewer than 6 people per square mile. This additional category further defines the extent of the most rural parts of America along the urban-rural continuum.

NEBRASKA RURALITY AS CLASSIFIED BY AN EXPANDED NCHS SCHEME

Nebraska covers 76,824 square miles, and 1,934,408 people call Nebraska home. Applying the expanded NCHS classification rules, as illustrated in Figure 13 , to Nebraska provides this study with a basic framework to understand the health differences across the urban-rural continuum in a largely rural state. When the classification rules are applied to Nebraska, as shown in Figure 14, the state's higher population densities are distributed among the counties along Interstate 80. Eighty-six percent of the counties in Nebraska are rural. However, only thirty-four percent of the state's population resides there (US Census Bureau 2019). This imbalance in Nebraska has continued to grow since 2010, with an estimated rural population decline of 3.48% and an urban population increase of 3.95% (US Census Bureau 2019). The Omaha-Council Bluffs, NE-IA MSA will quickly become a Large MSA if population growth trends continue in the MSA; current population estimates show 949,442 residents within the MSA.

Non-Core: Frontier
Non-Core & fewer than 6 people/sq. mile

Non-Core
Nonmetropolitan & Nonmicropolitan.

Micropolitan Statistical Area
Designated Micropolitan Statistical Areas

Small Metropolitan Statistical Area
Populations less than 250,000

Medium Metropolitan Statistical Area
Populations of 250,000 to 999,999

Large Metropolitan Statistical Area
Populations greater than 999,999

Figure 14- Nebraska Counties Classified by Adapted Rural-Urban Classification Scheme
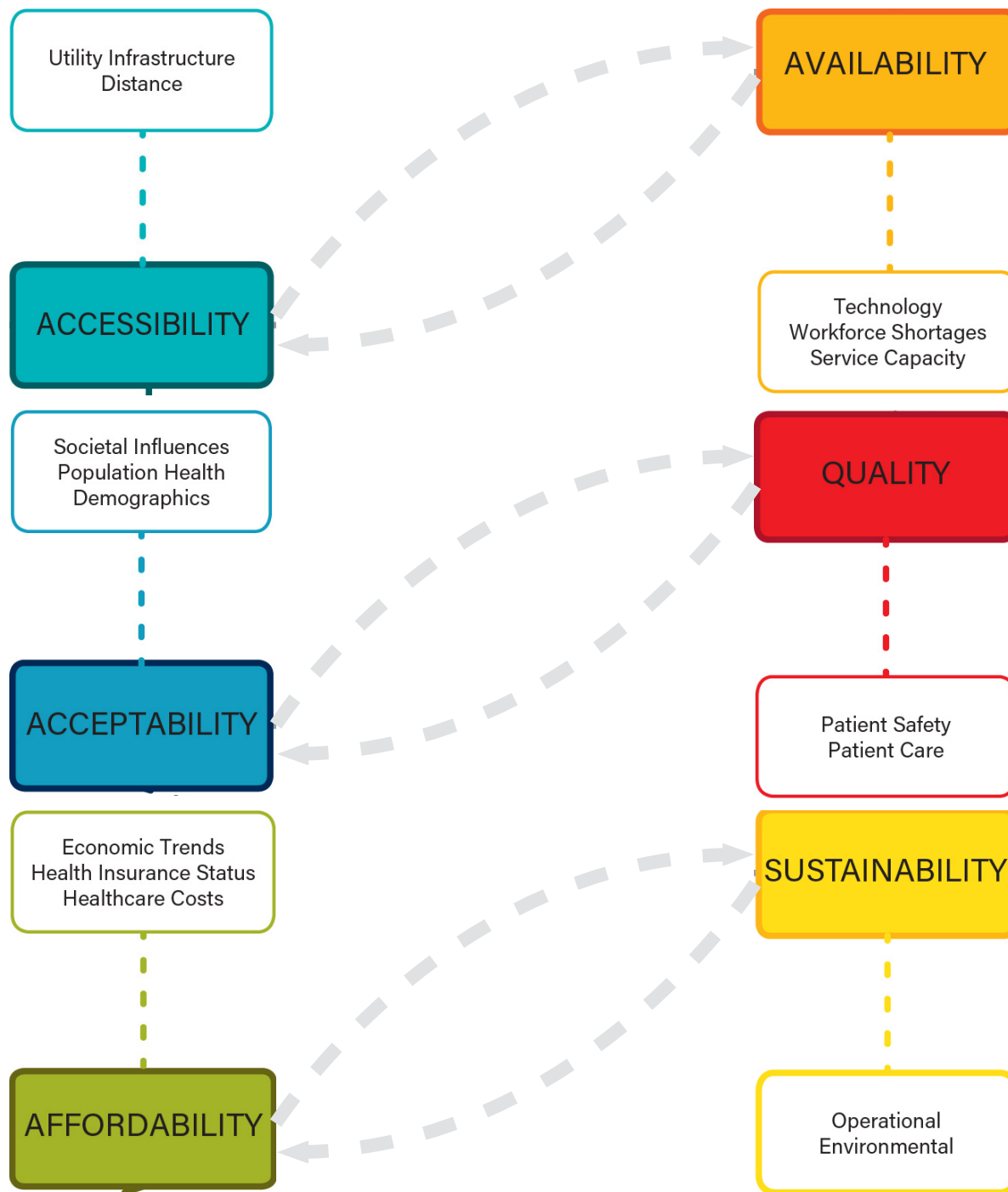
Figure 15- Conceptual Framework for Patient & Provider Experience

QUALITY AND RELIABLE MEDICAL CARE

Healthcare is personal and intimate, even more so in rural communities. The relationships between providers, patients and their families is the foundation for quality medical care. Quality, reliable rural healthcare aims to: improve population health, deliver better patient experience, manage costs, and improve provider experience. To achieve this aim requires striking a balance of the user experience and clinical operations, as noted in Figure 15, while managing finite available resources.

User experience is more important than ever as medical costs and insurance premiums rise and patients find a greater financial and social risk associated with accessing care.

- Accessibility: Rural residents often have greater difficulties accessing healthcare providers whether through physical or virtual travel.

- Acceptability: Rural communities are aging thereby increasing needs for communal health services; however, social influences have created challenges to receiving care.

- Affordability: Rural residents are more often uninsured & less affluent, leading to less access to care.

Rural health providers seek to practice within a stable, well resourced system enabling them to provide quality care to their patients while also providing opportunities for continued growth.

- Quality Patient Care: Rural clinics often require in-depth coordination of evidence-based care to ensure that timely and appropriate care is provided.

- Operational Sustainability: Rural clinics often have significant strain, whether operational or environmental, thereby restricting their abilities to provide patient care.

- Service & Resource Availability: Rural clinics often have chronic shortages of health professionals and medical equipment, leading to reductions of available care options.

Figure 16- Lexington Regional Health Center Outpatient West Entrance

INTRODUCTION

CURRENT ARCHITECTURAL CONTEXT

Medical facilities that successfully support rural areas must be located in accessible locations and serve scattered populations. Residents of rural communities lack adequate primary care services due to acceptability, accessibility, and affordability barriers. Rural medical facilities must support an optimal level of care, similar to their urban counterparts, but with more limited resources, lower patient volumes, and a complicated patient/payer mix. Rural medical care delivery systems rely heavily on federal designations and reimbursements. The following are the most common types of medical facilities providing care in rural America:

- Critical Access Hospitals

- Federally Qualified Health Centers

- Rural Health Clinics

The Affordable Care Act (ACA) has changed funding mechanisms and is placing new demands on small, rural health centers. It was the intent of the ACA to expanded medical coverage to more populations and reduce the charity care performed by medical facilities (Van Sant and Hegarty 2019b). This expanded medical coverage would ideally increase patient volumes for primary care and increase utilization of rural medical care.

This increase in utilization of medical care and patient volumes would have resulted in a need for increased provider space, treatment space and the accommodation of new practices related to medical home models for these communities. Many facilities in rural communities are outdated and lack adequate space to provide the increased level of care that is anticipated. In fact, the entire healthcare delivery system may not have the capacity to meet the projected demand increase. Learning how to provide enhanced care with fewer resources is critical to be able to expand capacity in rural areas.

CRITICAL ACCESS HOSPITALS (CAH)

Critical Access Hospitals, like Lexington Regional Health Center and Gordon Memorial Hosptial illustrated in Figures 16 and 17 respectively, have historically served the primary care needs of rural communities. According to federal regulations CAHs have minial inpatient bed capacity of twenty-five as well as minimal speciality services (Staloch 2015, 9). This forces medical providers to be jacks of all trades. These hospitals are also struggling with the constant changes in the federal reimbursement model for Medicare and Medicaid patients. Reimbursements are decreasing while requirements for reimbursement are rising. These requirements and the growing focus on quality of care are challenges to meet when providing care in antiquated under-resourced environments of care. CAHs face even greater funding challenges, given that they cannot claim reimbursements for any emergency care that is delivered outside of a qualified facility. Most rural facilities have service or architectural deficiencies that result in facilities being ineligible for federal reimbursements for these services. This ineligibility ultimately results in unused inpatient space and lower reimbursements increasing the financial insecurity of these care facilities.

FEDERALLY QUALIFIED HEALTH CENTERS (FQHC)

Federally qualified health centers are community-based environments of care that are funded to provide comprehensive primary care in underserved areas or to under-resourced populations across the urban-rural continuum (Staloch 2015, 10). They must adhere to a stringent set of requirements, including providing care on a sliding fee scale based on ability to pay. These facilities often receive enhanced reimbursements from Medicare and Medicaid for the services they provide but still do not include funding for emergency care.

Figure 17- Gordon Memorial Hospital Main Entrance

RURAL HEALTH CENTERS (RHC)

The Rural Health Center program intends to increase access to primary care services for patients with federal health insurance. To qualify for the RHC designation, they must:

- Implement a care team approach with physicians and advanced care practitioners

- Be staffed at least 50% of the time with a clinician

- Provide outpatient primary care

- Service basic laboratory needs.

These rural clinics can operate independently, but most operate as part of a larger medical network system. These facilities are also not reimbursed for any emergency care. Many clinics continue to serve as urgent care centers to provide an equivalent level of care for the region, given that emergency care may be many miles away.

This underfunded model of healthcare delivery places further financial strain on many rural medical facilities that are already under-resourced. Many rural facilities do operate as urgent care sites in order to provide the community with services that are reimbursable by Medicare and Medicaid.

Figure 18- Community Parade in Sidney, Nebraska

CARE FOR VULNERABLE POPULATIONS

115,473 PATIENTS SERVED

387,814 PATIENT VISITS

9% 4-YEAR PATIENT GROWTH

94% of patients are LOW INCOME

38,102 of patients are CHILDREN & ADOLESCENTS

66% of patients identify as an ETHNIC OR RACIAL MINORITY

1% of patients are VETERANS

1% of patients are AGRICULTURAL WORKERS

8% of patients are HOMELESS

Figure 19- 2019 Community Wellbeing Impact

INTRODUCTION

WHY HEALTHCARE? WHY RURAL? WHY NOW?

WHY HEALTHCARE?

Healthcare is important to maintain and grow the wellbeing of the communities. Access to medical care is important for maintaining health, managing disease, and reducing unnecessary disability and premature death. Primary Care is the first point of contact with the healthcare system. That means Primary Care Providers (PCP) are often the first to see depression, early signs of cancer or chronic disease, and other health concerns. They are tasked within fulfilling the general medical needs of the patient populations. They ensure patients get the right care, in the right place, by the right provider at the right time, and in a manner consistent with the patient's desires and values. Benefits of reliable access to primary care include:

- Preventive Services

- Care Coordination

- Lower Mortality Rates

- Improved Health Behaviors & Outcomes

- Reduced Healthcare Costs

The Federally Qualified Health Centers in Nebraska are tasked with providing care for some of the most vulnerable populations in Nebraska. As noted in Figures 19 and 20, these centers improved their community's wellbeing through 387,814 visits, taking care of 115,473 patients, most of which were low income (Health Center Association of Nebraska 2019). These centers are just one of the many ways patients access the medical care in communities across

Nebraska.

Healthcare is also vital to the economic viability of communities. It is one of the largest drivers in community development. In fact in 2019, the US spent $11,582 per capita on healthcare or approximately 17.7% of gross domestic product (U.S. Centers for Medicare & Medicaid Services 2020). During the same year Nebraska's federally qualified health centers helped generate $177 million of total economic impact, saved the health system $180 million and finally generated $22 million in annual tax revenues (Health Center Association of Nebraska 2019). The local economic stimulus provided by healthcare is continuing to be threatened as many rural healthcare providers continue to leave the workforce and healthcare facilities are closing their doors. The losses economies of communities face when readily accessible healthcare is lost is often inevitable and unmeasurable.

ECONOMIC STIMULUS

1,513
TOTAL JOBS

1,003
HEALTH CENTER JOBS

510
OTHER JOBS
in the community

$177 Million
TOTAL ECONOMIC
IMPACT of current
operations

$100 Million
DIRECT HEALTH
CENTER SPENDING

$77 Million
COMMUNITY
SPENDING

SAVINGS TO THE SYSTEM

24%
LOWER COSTS
FOR HEALTH CENTER
MEDICAID PATIENTS

$73 Million
SAVINGS TO
MEDICAID

$180 Million
SAVINGS TO THE
OVERALL HEALTH
SYSTEM

$22 Million
ANNUAL TAX
REVENUES

$ 6 Million
STATE & LOCAL TAX
REVENUES

$16 Million
FEDERAL TAX REVENUES

Figure 20- 2019 Community Savings & Economic Value and Impact
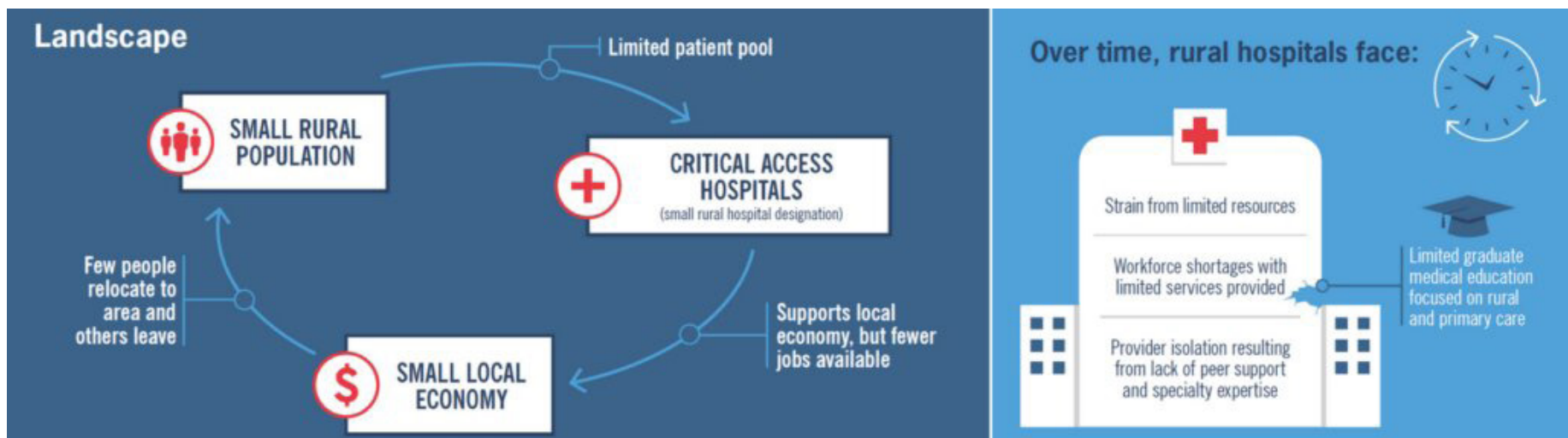
Figure 21- Rural Healthcare Landscape

WHY RURAL?

Rural communities account for a significant portion of the U.S. population and economy. This threat to a community's wellbeing and economic viability, through the loss of access to primary care, is especially hard hitting for rural communities. These communities, decline continues as employment and opportunities become more and more difficult to find. In the U.S., this effect is occurring most severely in the region of the Great Plains, primarily due to a non-diversified economic base. This lack of diversity makes rural areas increasingly vulnerable to employment shifts.

This vulnerable landscape of the Great Plains rural communities significantly weaken its healthcare system. The system is further weakened by additional challenges and impractical funding mechanisms. There are a number of factors converging to place pressure on rural hospitals. These factors, represented in Figure 21, include federal policies, rural health disparities, lower patient volumes, shifts in patient care, population migration and staffing. It's not one or two issues, it's an array of complex interrelated challenges rural hospitals have to confront. As a result many hospitals have had to cut costs by reducing services. As the rural care system continues to weaken access to reliable patient care is lost. This lack of access has led to deterioration in the health of people, as well as the economic wellbeing of rural communities.

WHY NOW?

The decline of rural healthcare has been a slow-moving train wreck that recently has been accelerating. As shown in Figure 22, Nationally 163 rural hospitals have been forced to close since ~~2010~~ 2005, more than 60% have closed since 2012 (Ollove, Michael. 2020). Since 2010, Nebraska has only had one rural facility close, however, 40% of rural hospitals in Nebraska operate with a negative operating margin. This means the services being provided aren't enough to sustain the hospitals clinical operations. Due to financial strains, more than one-third of rural hospitals in the

U.S. are financially vulnerable and at high risk of closure. As bad as that may seem, things are likely to get much worse, and soon. In the past three years hospitals operating at a nationwide loss has increased six percent from 40% in 2017 to 46% in 2019 (Nebraska Rural Health Association 2017).

The COVID-19 Pandemic has further challenged the U.S. health system. The challenges brought on by the global pandemic are yet to be fully realized. However, certain trends are becoming evident as the journey to return to normal continues. A significant drop in patient confidence in safely accessing medical care has emerged over the past year in our fight with COVID-19. Many states implemented strategies to reduce non-medically necessary procedures in order to preserve resources thereby furthering a decline in medical care utilization. Over the past year the economy has also suffered significantly resulting in significant job loss across the country. This job loss resulted in many Americans losing their employer provided healthcare coverage. The unrealized impacts of the global pandemic are the long term health impacts of COVID-19 exposure and other deferred care.

The pandemic also forced acceleration in shifting point of care. The non-pharmaceutical interventions increased demand for alternative points of medical care. This demand has led to virtual care for many medical service lines, including primary care. Unprecedented growth in virtual care has resulted in large part to regulatory waivers and mutual benefit to both patients and providers. The wide acceptance and for some preference of virtual care over face-to-face office visits have further pushed the healthcare system to pursue this method of care and have led to increased reimbursement rates for virtual care visits. Virtual care targets to ease access to convenient, affordable, quality care for patients and leverage efficiency of limited resources by providing care in a lower cost setting. COVID-19 provided a crucial opportunity which through radical innovation can generate progress in ensuring equitable access to quality primary care for all Nebraskans. Change is inevitable, progress is optional.
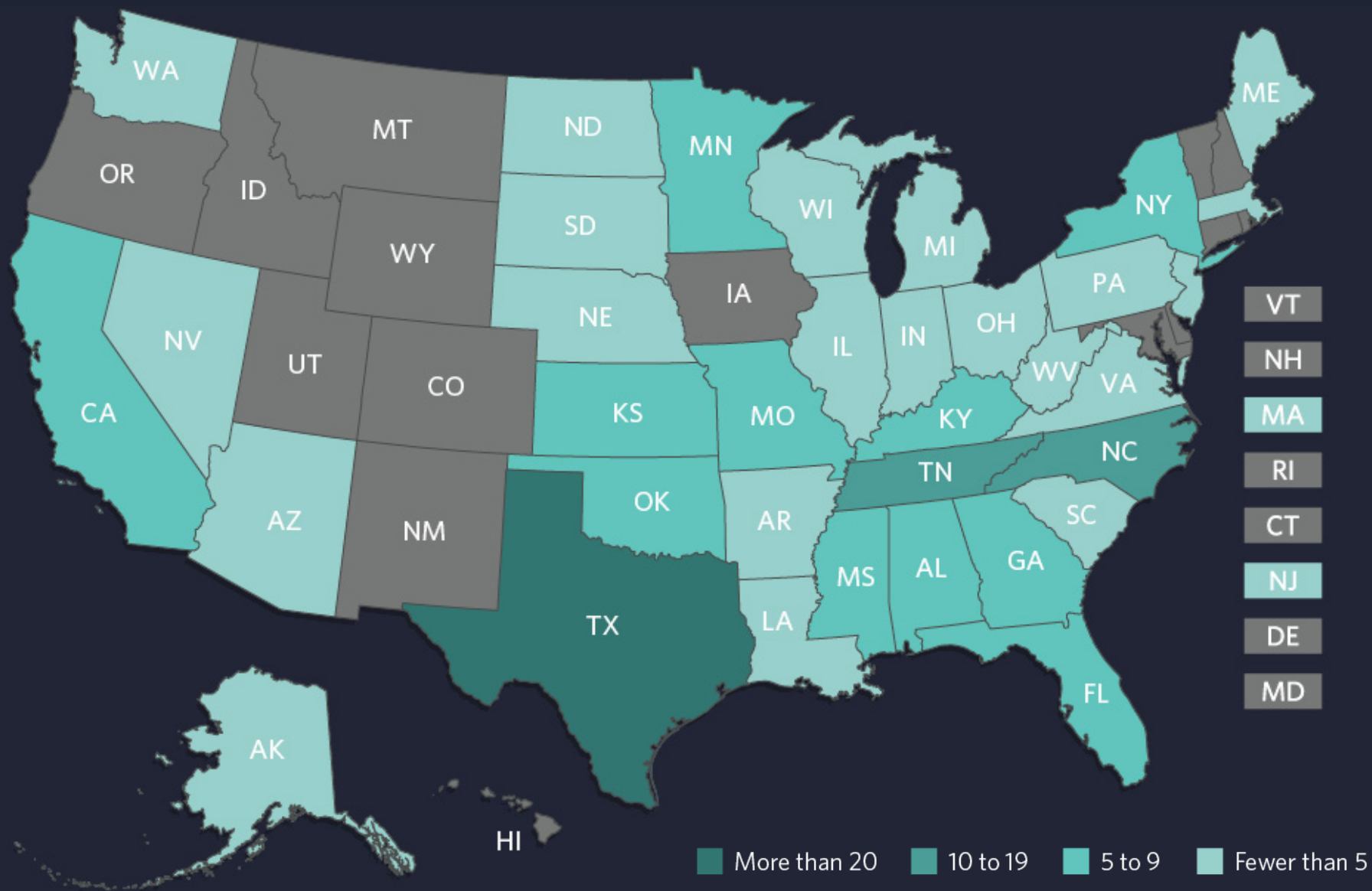
Figure 22- Rural Hospital Closures Since 2005
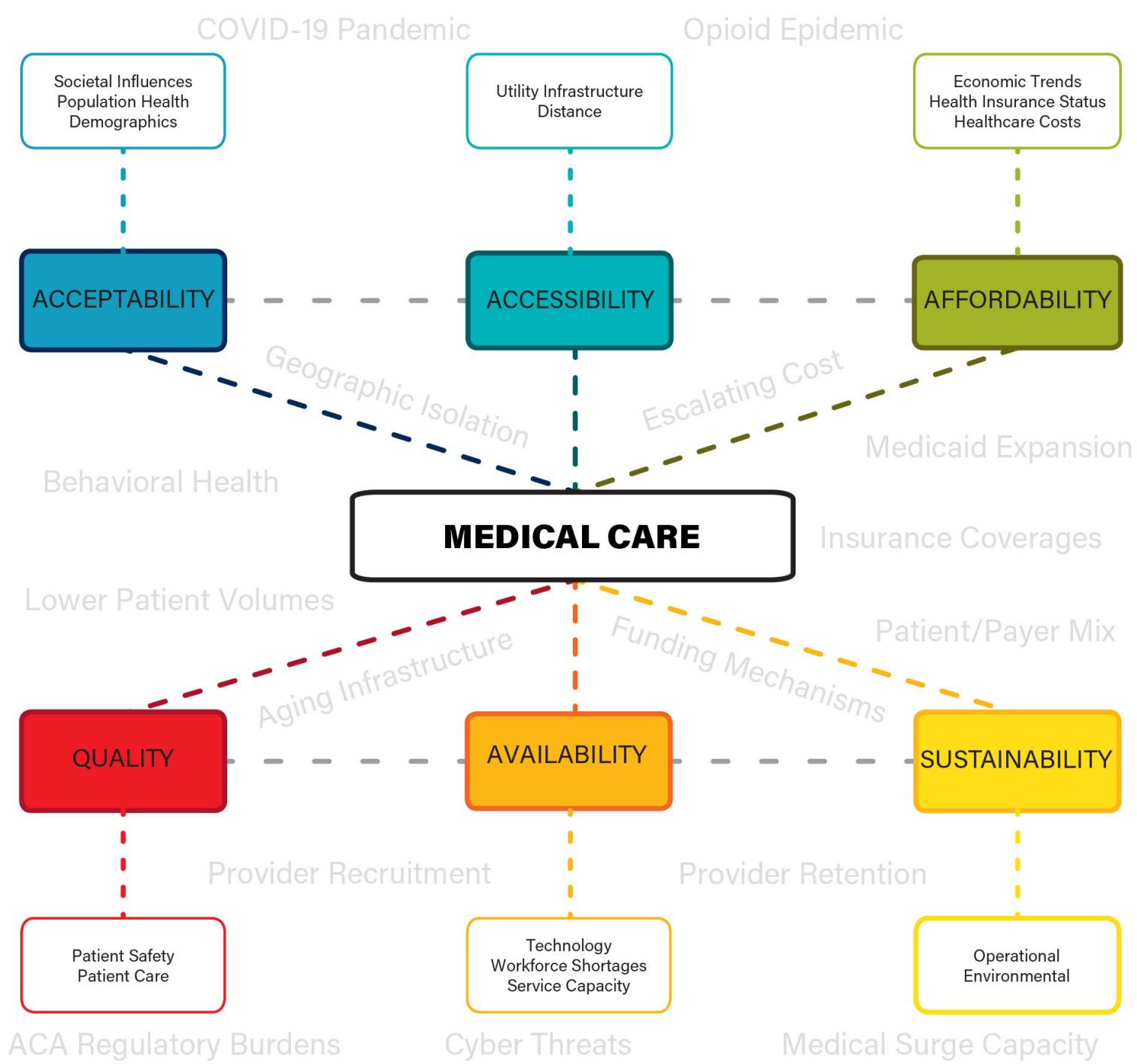
Figure 23- Medical Care Challenges Mind Mapping

Find Sources for Relevant Evidence

RURAL HEALTH CHALLENGES

Socioeconomic Factors

Education | Job Status | Family/ Social Support | Income | Community Safety

40%

Physical Environment

Rural | Urban

10%

30%

Health Behaviors

Tobacco Use | Diet & Exercise | Alcohol Use | Sexual Activity | Sufficient Sleep

20 **%**

Health Care

Access to Quality Care
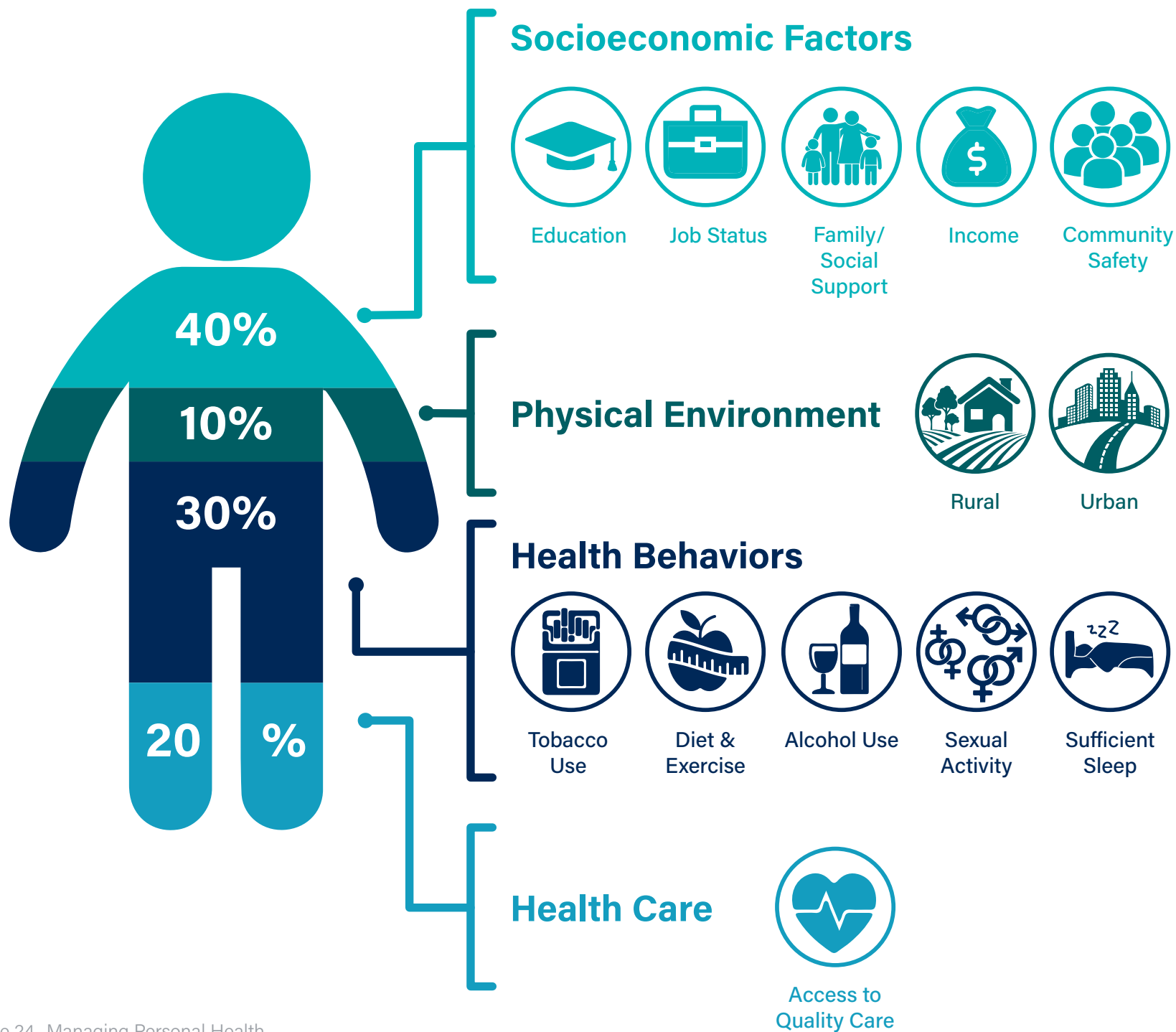
Figure 24- Managing Personal Health

RURAL HEALTH CHALLENGES

A USER EXPERIENCE

Efforts to improve health in the U.S. have traditionally looked to the health care system as the key driver of health and health outcomes. However, there has been increased recognition that improving health and achieving health equity will require broader approaches that address social, economic, and environmental factors that influence health. Social determinants of health are the conditions in which people are born, grow, live, work and age. Addressing social determinants of health is important for improving health and reducing health disparities.

Though healthcare is essential foundation to managing personal health, it is a relatively weak health determinant, as illustrated in Figure 24. Results from the Behavioral Risk Factor Surveillance System 2013-2019 survey, performed by the Centers for Disease Control and Prevention, show 20% of adults in Nebraska do not have a primary care provider (Kaiser Family Foundation 2020). The problem is worse among minorities. For instance, more than half of the adult Hispanic population in Nebraska (52%) report not having a primary care provider (Kaiser Family Foundation 2020).

Studies suggest that health behaviors, physical environment, and socioeconomic factors are the primary drivers of health outcomes and can often be traced back to one's zip code. 30% of a person's health status can be predicted by their health behavioral factors. Despite improvements in the overall health of Americans, those living in rural areas are less likely to practice health behaviors that could protect them from chronic disease. In fact, according to the CDC, only 1 in 4 rural adults practice at least 4 of the health-related behaviors, also noted in Figure 24. Socioeconomic and physical environment help shape how individuals manage their health. Some rural areas have characteristics that put residents at higher risk of death, such as long travel distances to specialty and emergency care or exposures to specific environmental hazards.
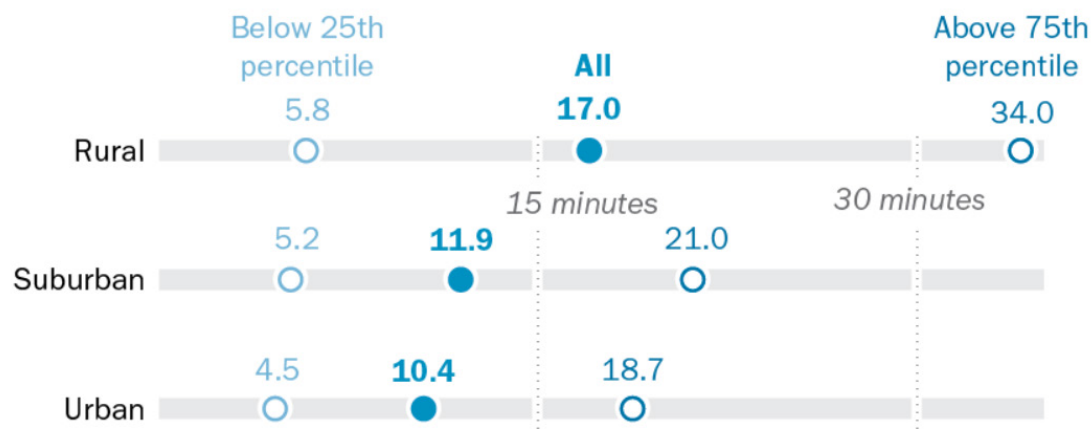
Figure 25- 2018 Average Travel Time by Car to Nearest Hospital by Community Type

	Below 25th percentile	All	Above 75th percentile
Rural	5.8	**17.0**	34.0
		15 minutes	30 minutes
Suburban	5.2	**11.9**	21.0
Urban	4.5	**10.4**	18.7

16 minutes
15
14
13
12
11

Pacific
11.4

Mountain
13.7

West North Central
15.8

East North Central
12.4

New England
13.0

Middle Atlantic
11.7

South Atlantic
13.3

West South Central
12.3

East South Central
14.2

Pacific
11.4
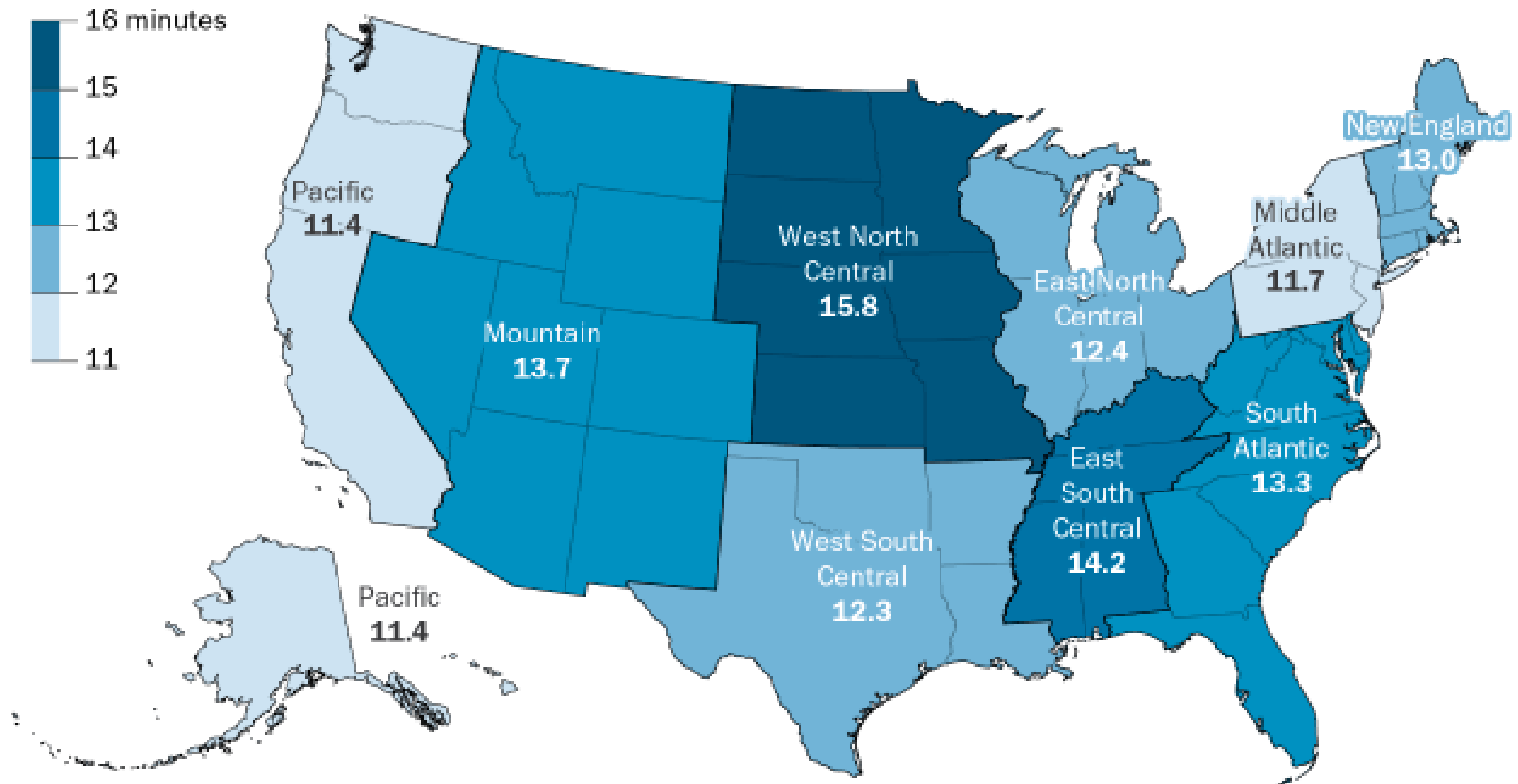
Figure 26- 2018 Average Travel Time by Car to Nearest Hospital by US Census Region

Utility Infrastructure
Distance
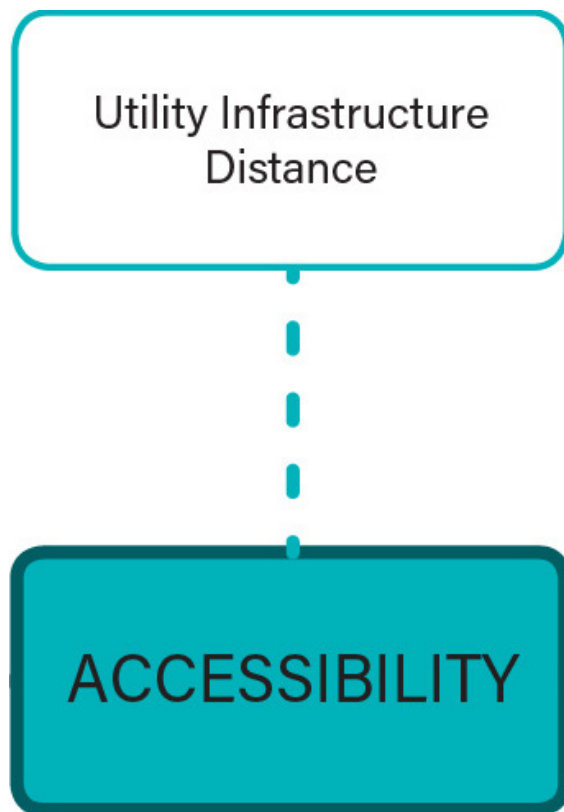
ACCESSIBILITY

ACCESSIBILITY TO QUALITY MEDICAL CARE

Access to acceptable and affordable healthcare services is important foundation for maintaining health, managing disease, and reducing unnecessary disability and premature deaths. Travel distance to health services is a significant barrier in rural communities accessing affordable medical care. Rural residents often have long travel distance to access care. In fact, as illustrated in Figure 25 and 26, nationwide it takes most rural Americans as little as 5 mins or as much as 34 mins to access medical care, however on average rural residents in West North Central region of the US travel 15.8 mins on average to access medical services (Lam 2018). Costs associated with this travel, such as lost wages, trip costs, and child care expenses, quickly make care economically challenging. The travel distance and costs associated with travel reduces the likelihood of rural communities accessing primary care services. This reduction in utilization of primary care services impacts the ability of patients to manage their personal health, as often preventative steps aren't taken soon enough to reduce the likelihood of chronic diseases. These travel costs and distances are continuing to increase as care facilities close, thus requiring persons living in rural communities to travel further and often pay more to access care.

Bridging the healthcare access divide for rural communities requires balancing access to healthcare and sustaining operational efficiency. Only a comprehensive healthcare delivery system that connects regional medical resources to local demand, while managing underlying economic forces, can address the multitude of factors causing this imbalance. Virtual Care Networks have promoted their ability to bridge the access divide. Rural Americans would still struggle to access virtual care services due to a lack of access to acceptable and affordable internet services.

Access to acceptable and affordable internet services is vital to the success for virtual care networks. According to Federal Communications Commission, 22% of rural Americans do not have ability to access minimum broadband internet service (25/3 Mbps) compared to only 1% of urban populations (United States Federal Communications Commission 2020). This ability

to access the digital age is critical to economic opportunity, job creation, education, and civic engagement, but there are too many parts of this country where ability to access remains unavailable. In Nebraska only 65% of rural Nebraskans have access to minimum broadband service compared to 98.4% of urban Nebraskans (United States Federal Communications Commission 2020). All told, the FCC estimates that nearly 30 million Americans cannot reap the benefits of the digital age as shown in Figure 27 and 28. These estimates woefully under estimate the lack of coverage in rural areas due to the inherent lack of population weight found in rural areas of our country. However, COVID-19 has further illustrated that this estimate is woefully underestimated, as too many Americans cannot access online work, medical help, and distance learning because broadband is too expensive or not available.

During this pandemic, many people had to find a free Wi-Fi signal as it is the only way they have to connect. Parking-lot Wi-Fi became a thing as so many had to sit in cars in front of shuttered facilities to pick up a free Wi-Fi signal. The use of virtual care has provided doctors and patients safe ways to deliver and secure care without the risk of viral transmission. But in rural communities this is often not possible. Changes to laws in Iowa, for instance, recently expanded virtual care in the state but also demonstrated that one in five Iowans lack the bandwidth required for video consultations. These lived experiences of many Americans suggest that access to acceptable and affordable internet service is an issue. It is argued that the minimum broadband standard is too low for a nation that has moved so much of daily life online.

Finding the balance to accessible healthcare service either in-person or virtually requires a balance of access/affordability for users and availability/operability for healthcare systems. Only a comprehensive rural health delivery system able to effectively distribute available resources for patients and providers will assist in bridging the healthcare access divide in America.

0 - 20%
20 - 40%
40 - 60%
60 - 80%
80 - 100%
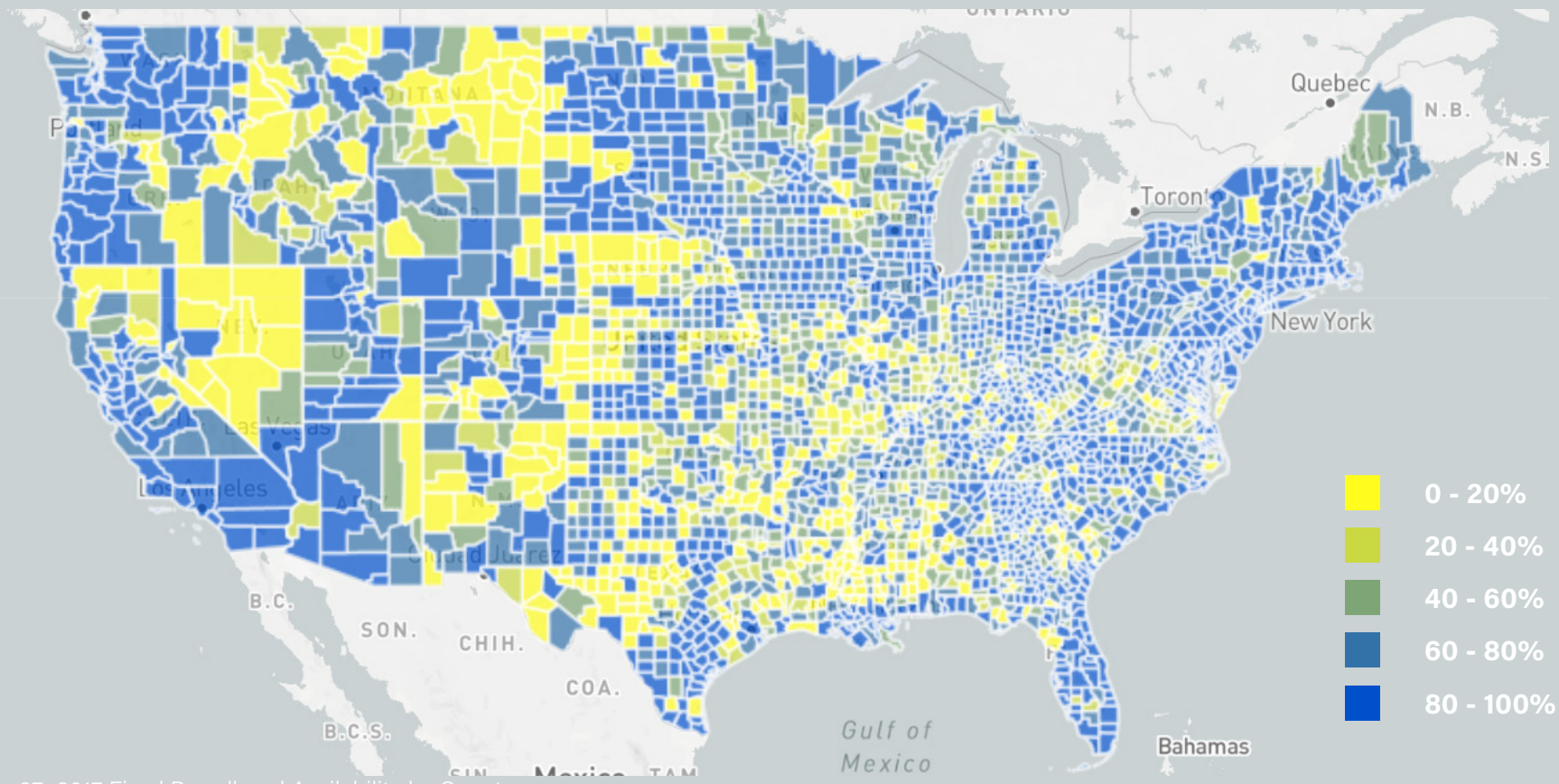
Figure 27- 2017 Fixed Broadband Availability by County
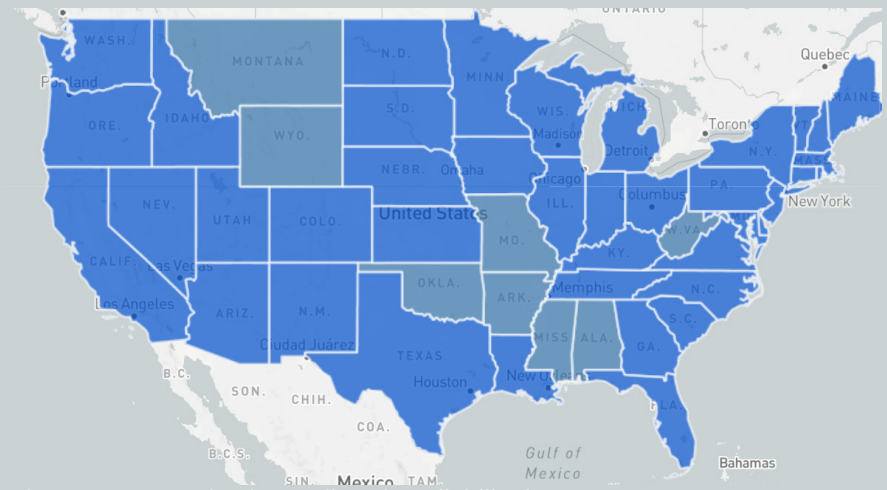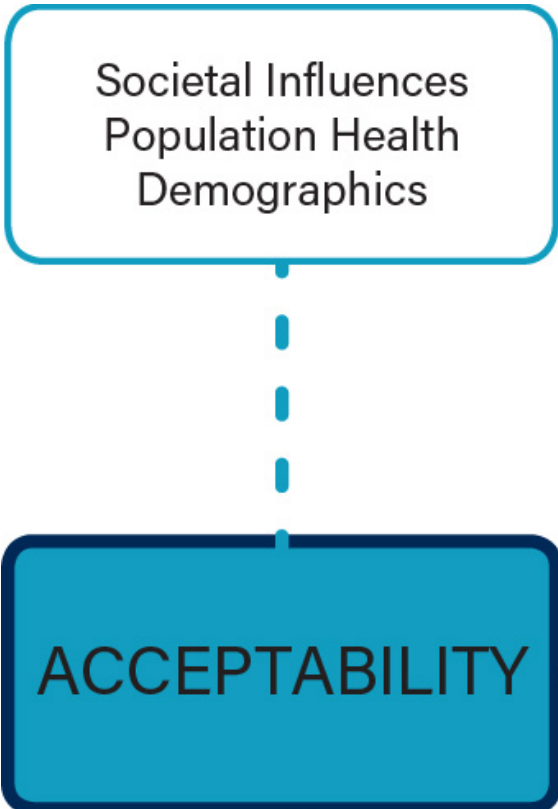
Figure 28- 2017 Fixed Broadband Availability by State

Figure 29- Social Determinants of Health

ACCEPTABILITY- SOCIAL & PHYSICAL DETERMINANTS OF HEALTH

Social determinants of health are, "the conditions in the environments where people live, learn, work, and play that affect a wide range of health, functioning, and quality-of-life outcomes and risks" (United States Department of Health and Human Services n.d.). These determinants, noted in Figure 29, contribute to wide health disparities and inequities that raise their likelihood of reduced life expectancy and health outcomes and an increase in healthcare expenses and mortality (Rural Health Information Hub 2016). Just promoting healthy choices won't eliminate these and other health disparities. Instead, public health organizations and their partners in sectors like education, transportation, and housing need to take action to improve the conditions within the community. People's neighborhoods, relationships, and education have a major impact on their health and well-being.

Many in the United States face challenges and dangers they can't control. Racial/ethnic minorities and people with low incomes are more likely to live in places with these risks. These risks can have a negative impact on health and safety . Positive relationships and community support can help reduce these negative impacts by connecting people with the social and community support they need in order to improve their health and well-being (Rural Health Information Hub, 2016). A strength of rural communities is the attachment to their collective identity and overall sense of belonging. Community and collaboration create peoples' sense of belonging.

Culture and community factors significantly impact the way rural populations seek out and receive care. The stigma of needing or receiving health care and fewer choices of trained professionals create barriers to care. Rural communities, as shown in Figure 30, are faced with decreasing population, aging demographic, increasing poverty, limited health insurance, and more frequent occurrences of illness and chronic conditions. In fact, Nebraska rural areas are seeing 3.5% population decline, a 12.3% rate of poverty, 11% uninsured compared and are continuing to age faster than urban ones (Strategic 2009). Rural areas have more frequent

occurrences of diabetes and coronary heart disease than non-rural areas as well (National Rural Health Association, n.d.). As people live longer and longer, managing the health needs of the aging population is more important than ever.

People with higher levels of education are more likely to be healthier and live longer. Children from low-income families, children with disabilities, and children who routinely experience forms of social discrimination are more likely to struggle in school and less likely to graduate high school resulting in challenges finding safe, high-paying jobs and increases the likelihood of health problems (United States Department of Health and Human Services n.d.). In addition, some children live in places with poorly performing schools, and many families can't afford to send their children to college. The stress of living in poverty can also affect children's brain development, making it harder for them to do well in school. Interventions to help children and adolescents do well in school and help families pay for college can have long-term health benefits. A person's health literacy is greatly improved with higher levels of education. An individual's health literacy depends on the ability to understand and act on important health concepts that determine wellbeing for the individual and the community (Frenzen 2020). The 2019 Nebraska Annual Social Indicators Survey suggest that rural Nebraskans tend to defer to the authority of their care providers (Frenzen 2020). Having a solid foundation of how to access information ultimately leads to better informed health behaviors.

	Rural	Urban	Statewide
Population Characteristics			
County Population (2010)	673,094	1,153,218	1,826,312
County Population (2019)	660,417	1,273,991	1,934,408
Population Trend	-3.48%	3.95%	5.90%
Population (% in 2019)	34.1%	65.9%	-
Population / Square Mile (2019)	9.40	194.27	25.18
Persons Under 18 years (Percent)	22.6%	24.9%	24.6%
Persons 18-65 years (Percent)	54.2%	57.8%	50.1%
Persons Over 65 years (Percent)	23.2%	17.3%	25.3%
Per capita income (2018 Dollars)	$27,843.34	$30,484.85	$31,101.00
Persons in Poverty (Percent)	12.3%	9.3%	9.9%
Persons without Health Insurance under 65 years (Percent)	10.9%	8.1%	9.8%

Figure 30- Demographics of Nebraska

US Healthcare Costs: Condition Critical

HEALTHCARE WASTE COSTS BREAKDOWN

In 2011, US healthcare expenditure totalled:

$2.7 trillion...

...that's **9x** more than global pharmaceutical sales figures for the same year...

SMALL PHARMA

$4.8tn
2.7tn

...and is expected to rise to $4.8tn by 2021.

5% of patients consume **50%** of healthcare spending. Most are chronically ill.

95% **5%**

The amount of money going to waste in US healthcare ($750bn)...

750bn $ 750bn

NHS

...is nearly **five times** the total operating budget of the NHS in the UK*

Fraud: **$75bn**

Prevention failures: **$55bn**

Inflated prices: **$105bn**

Inefficient delivery of care: **$130bn**

Excess administrative costs: **$190bn**

Unnecessary services: **$210bn**

Almost **8 out of 10** American workers have at least one chronic condition – half of those have

more than one

Figure 31- US Healthcare Costs: Critical Condition

Economic Trends
Health Insurance Status
Healthcare Costs

AFFORDABILITY

AFFORDABILITY- ECONOMIC DETERMINANTS OF HEALTH

The cost of health care, as depicted in Figure 31, affects every aspect of the U.S. healthcare system. It dominates political discussions on health care, impacts decisions about insurance coverage, and ranks at the top of things Americans worry about. Even Americans with health insurance are not immune to problems with health care costs. However, families where someone has a chronic medical condition, or are under-resourced are more likely to struggle with medical bills and delay care because of cost.

In the United States, 1 in 10 people live in poverty, and many people can't afford things like healthy foods, healthcare, and housing (Kaiser Family Foundation 2020). People with steady employment are less likely to live in poverty and more likely to be healthy, but many people have trouble finding and keeping a job. Even with steady work, many Americans still don't earn enough to afford the things they need to stay healthy. As shown in Figure 32 and, 33 the nationwide poll by the Kaiser Family Foundation conducted in 2018 illustrates a large majority of Americans are worried about being able to afford costs associated with medical care and have deferred care as a result.

The cost of medical care plays a significant role in the a patient's decision on whether or not to get care often impacting their patient experience. About half of U.S. adults say they or a family member put off or skipped some sort of health care or dental care in the past year because of the cost and about one in eight say their medical condition got worse because they delayed their care (Kirzinger et al. 2019). This is even higher among those without insurance. In fact, 76% of adults who do not have health insurance reported they or a family have postponed or put off care due to costs (Kirzinger et al. 2019).

Rural communities typically have more uninsured residents, higher rates of unemployment and poverty, leading to less access to care. In Nebraska, rural communities actually see lower rates of unemployment than the rest of the state but see a 3% increase in rate of poverty and uninsured residents and $3,258 less in annual income per capita (United States Census Bureau

2019). Rural residents often have greater costs associated with accessing healthcare. In 2017, Nebraska's rural-area benchmark premiums were, on average, $187 more per month (51% higher) than those in urban areas compared to nation-wide rural-area averages of $39 more per month or 10% higher (Wengle, Blumberg, and Holahan 2018). Travel costs associated with medical care, such as lost wages, trip costs, and child care expenses, and health insurance premiums can often make accessing medical care unattainable.

COVID-19 has resulted in a significant economic crisis in the U.S. The pandemic disrupted daily life and created a global economic crisis unprecedented in scale. The pandemic created an impact in demand, supply and financial aspects all at once (Bauer et al. 2020). The impact from quarantine, unemployment, and business closures decreased consumer demand while at the same time, social distancing and lock-down measures reduced the economy's ability to produce goods and services. All of this economic instability has led to dramatic swings in household spending. Low-income families with children were most likely to experience an income shock and food insecurity (Bauer et al. 2020).

How worried, if at all, are you about being able to afford each of the following for you and your family?

■ Very worried ■ Somewhat worried ■ Not too worried □ Not at all worried

	Very worried	Somewhat worried	Not too worried	Not at all worried
Unexpected medical bills	38%	29%	16%	16%
Your health insurance deductible*	24%	29%	20%	25%
Gasoline or other transportation costs	20%	26%	25%	28%
Your prescription drug costs	22%	23%	23%	31%
Your monthly utilities like electricity or heat	19%	24%	27%	30%
Your monthly health insurance premium*	18%	24%	25%	32%
Your rent or mortgage	22%	19%	21%	35%
Food	17%	20%	25%	38%

Figure 32- Affordability of Healthy Lifestyle

Percent who say they or a family member living in their household **did each of the following in the past 12 months because of the cost:**

Relied on home remedies or over-the-counter drugs instead of going to the doctor	31%
Skipped dental care or checkups	30%
Postponed needed care	26%
Skipped a recommended medical test or treatment	21%
Had problems getting mental health care	12%
Experienced any of the above	51%
Condition got worse as a result	13%
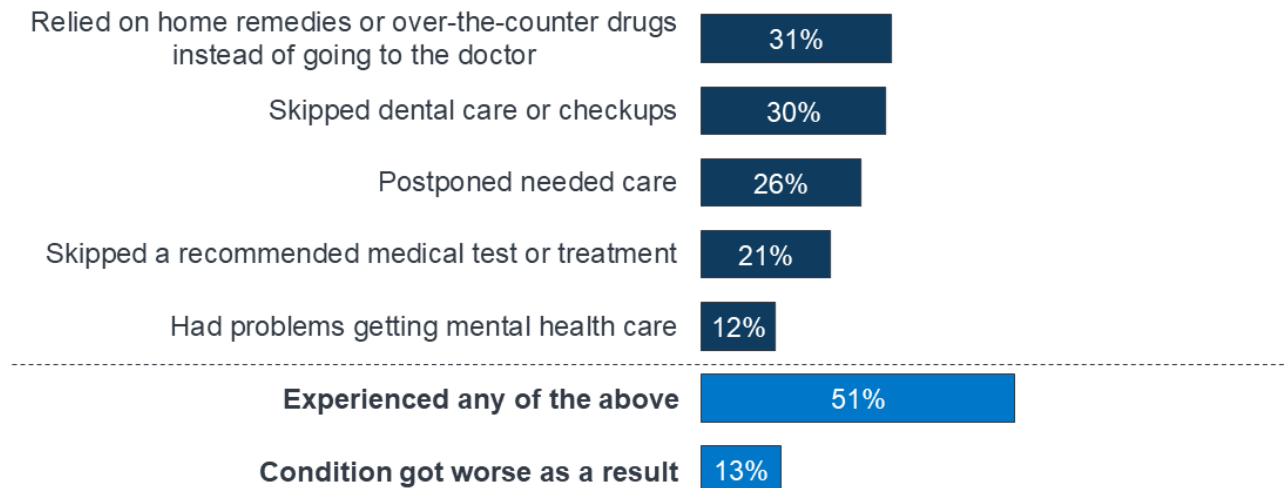
Figure 33- Delaying Medical Care Due to Costs

Figure 34- Rural Health Providers

RURAL HEALTH CHALLENGES

A CLINICAL OPERATION

Unfortunately, primary care often falls short for the low-income and rural communities that stand to benefit from it the most. Primary care providers can help dismantle some of these barriers for patients, but they, too, face daily obstacles that undermine their ability to provide the high-quality, comprehensive care they know their patients need. Insufficient time with patients, administrative hassles, and low reimbursement rates create barriers to good primary care (Lewis and Abrams 2018). The need for more primary care providers was already critical particularly in rural America but now, they are an emergent need. The consistent decline in primary care will have a negative impact on population health and sustainability of the U.S. healthcare system. Under-resourced rural patients struggle to access quality, acceptable healthcare services, and rural health delivery systems struggle to ensure that quality patient care is readily available to the communities they serve.

Rural Hospital Closures

106 rural hospitals have closed since 2010.

% Rural Hospitals <0% Operating Margin

- <10% Rural Hospitals 'in the Red'
- 10-25% Rural Hospitals 'in the Red'
- 25-50% Rural Hospitals 'in the Red'
- 50-75% Rural Hospitals 'in the Red'
- >75% Rural Hospitals 'in the Red'

673 rural hospitals are vulnerable to closure.

Losing vulnerable providers will jeopardize

137k community jobs lost within 1 year

$277B loss to GDP within 10 years

11.7M patient encounters within 1 year

99k healthcare jobs lost within 1 year

Figure 35- Rural Health Closures

SUSTAINABILITY

Operational
Environmental

OPERATIONAL SUSTAINABILITY

Operational sustainability requires using resources wisely to protect the human and environmental health of the community through meeting current and future needs. Due to lower patient volumes, rural primary care providers often lack diversified payers, weakening their reimbursements for services provided (American Hospital Association n.d). The insufficient reimbursement from insurers impacts the systems' ability to provide high quality care for their patients. In fact, Medicaid, the nation's largest insurer historically reimburses less than the cost of providing care (Kaiser Family Foundation 2020). Rural primary care providers are more likely to serve a population that ~~rely~~ relies on Medicare and Medicaid. Dependence on government programs alone makes hospitals vulnerable to shifts in government policies resulting in reductions in reimbursements (American Hospital Association n.d). The ongoing movement from inpatient care toward more outpatient services is problematic for some facilities, especially those with low patient volumes, especially as federal funding programs still emphasize acute inpatient care (American Hospital Association n.d). These reimbursement declines not only affect patients but also threaten the financial security of rural primary care, as shown in Figure 35.

Rural primary care providers that were already operating on tight budgets are dealing with sudden and rapid loss of revenue as a result of the pandemic. The pandemic is pushing already struggling health providers to the brink with pay cuts, furloughs, and supply shortages (Harvard Pilgrim Health Care 2020). Ultimately, a lack operational sustainability will lead to buy-outs, relocations, or complete closures (Harvard Pilgrim Health Care 2020). In order to continue providing optimal rural patient care, rural health must ensure operational sustainability to ensure availability and accessibility to medical care services for their communities.
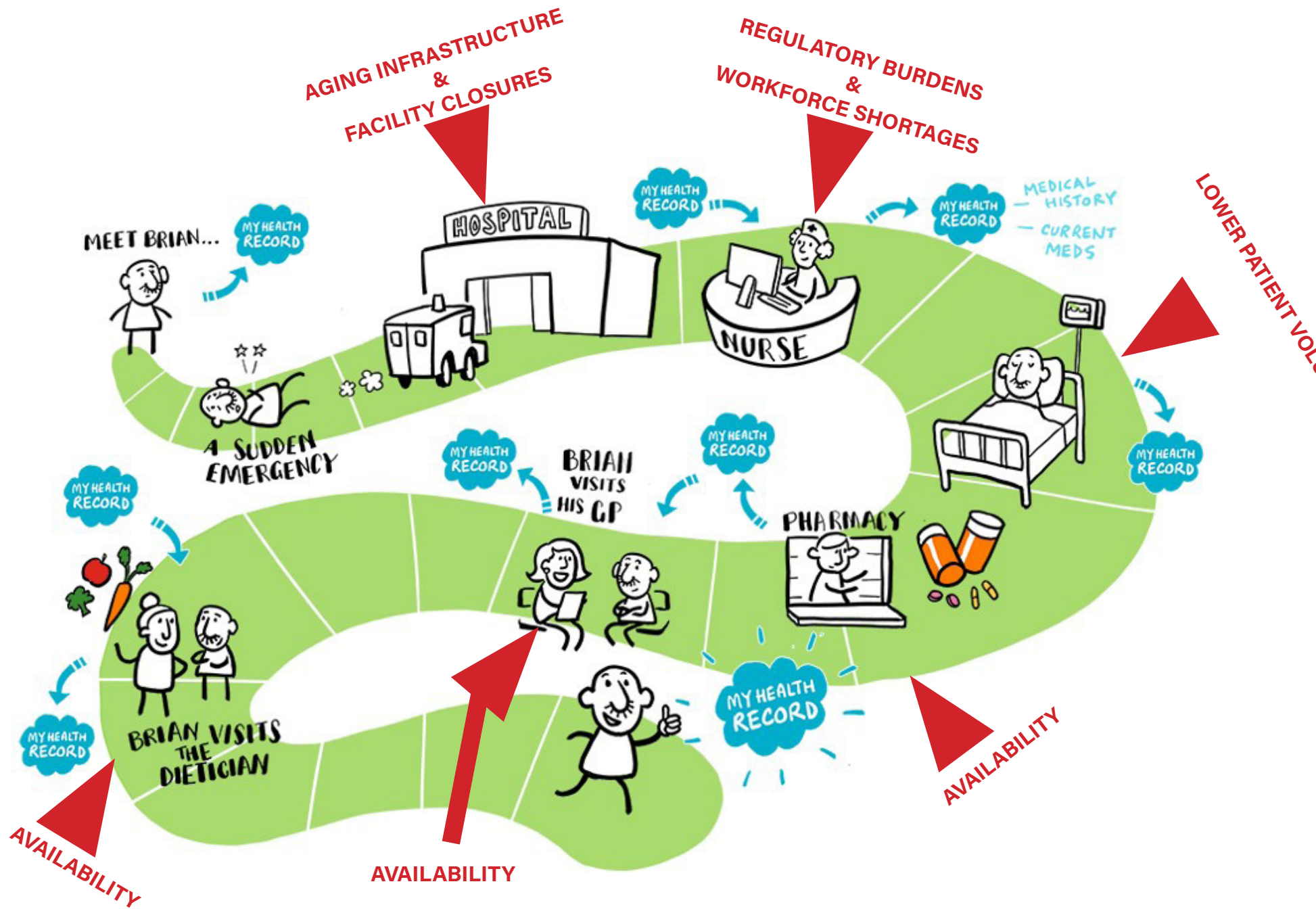
Figure 36- Barriers to Quality Patient Care

QUALITY PATIENT CARE

Quality, reliable rural healthcare aims to: improve population health, deliver better patient experience, manage costs, and improve clinician experience (Sheppard's Business Interiors. 2021a). Optimal rural patient care must be available and promote safe quality patient care while maintaining operational sustainability. Rural health delivery systems must be organized to provide the right care and the right time within the limitations imposed by their remote context, as illustrated in Figure 36. Often rural care providers must provide patient care through efficient use of patient care resources in a less than ideal environment of care. Currently, many rural facilities need to update their patient care environment and services to better align with how care is delivered in the 21st century. However, narrow financial margins limit rural facilities' ability to retain earnings and secure access to capital or qualify for federal programs.

These already narrow financial margins are growing increasingly slimmer, caused by increasing operating costs as a result of non-clinical regulatory requirements. In fact, health systems and post-acute care providers spend $39 billion each year on non-clinical regulatory requirements (American Hospital Association n.d.). The volume of regulation, pace of change, and complexity of the regulatory framework often requires large scale operations to implement and rural areas simply lack this scale. Providers often have to go through significant administrative red tape to get patients the care they need. For many services, providers are required to get prior authorization from the patient's insurance provider (Lewis and Abrams 2018). Not only are pre-authorizations time-consuming, but worse, the process often delays critical patient care. Changing and inconsistent insurance prescription drug coverages are another source of frustration for primary care providers. The changing coverages lead patients to frequently change or forego critical medications (Lewis and Abrams 2018). While provides must contend with these hassles, pre-authorizations and changing drug coverages can be especially problematic for patients who cannot afford to pay for necessary, but denied, tests, and they often lack the time and resources to fight with insurance companies over coverage.
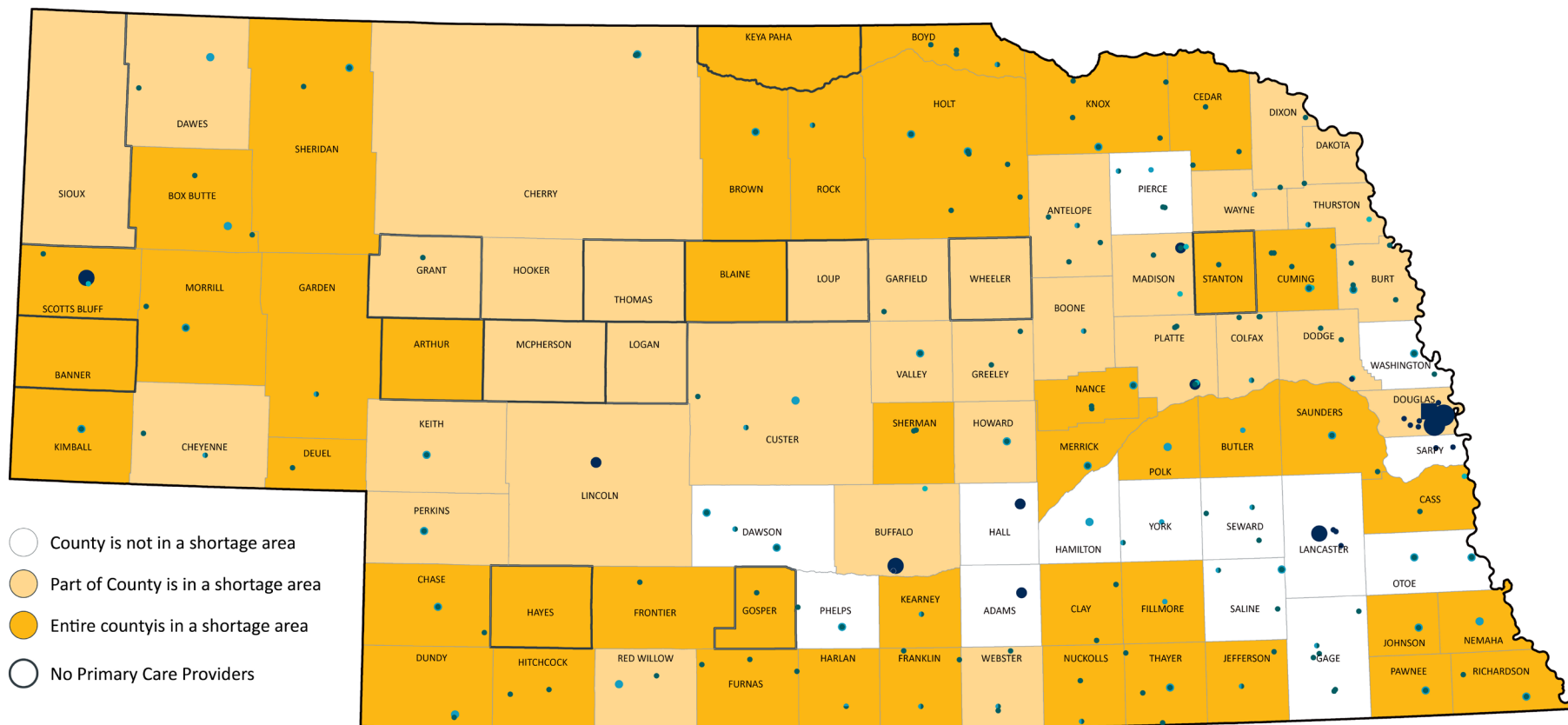
Figure 37- 2021 Nebraska Primary Care Health Professional Shortage Areas by County

Legend:
- County is not in a shortage area
- Part of County is in a shortage area
- Entire county is in a shortage area
- No Primary Care Providers

AVAILABILITY

Technology
Workforce Shortages
Service Capacity
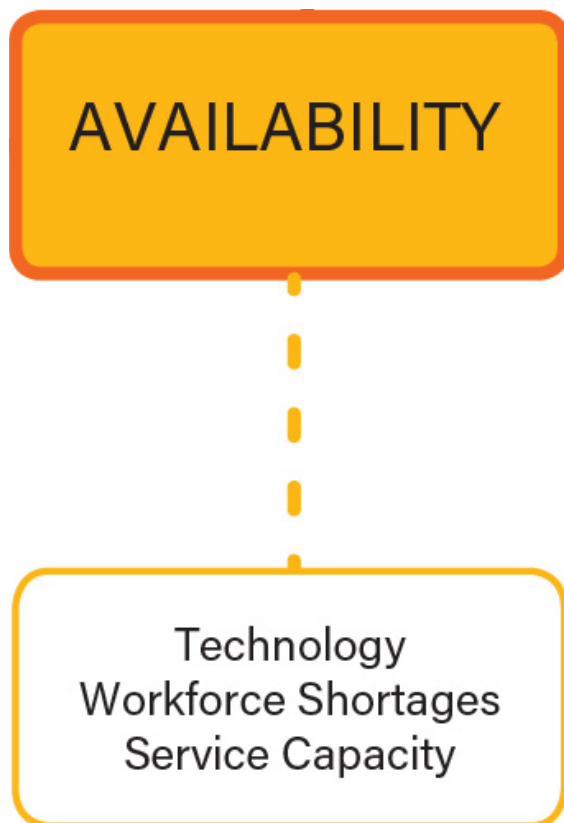
SERVICE & RESOURCE AVAILABILITY

Primary care providers, like many employees, seek to practice their craft within a stable, well resourced environment, enabling them to provide quality care to their patients while also providing opportunities for continued growth. Often rural healthcare systems are unable to attract and retain providers because they are often resource or opportunity limited and are unable to compete in the competitive salary market and overcome typical provider preference for urban lifestyles (Hing and Hsiao 2014). However rural primary care can provide the right opportunity for the right provider.

Chronic shortages of health professionals exist, especially in rural and under-served urban areas. Many rural areas are classified as medically underserved because of chronic shortages. In fact, 87% (71 out of 84) of Nebraska's rural counties are medically underserved in some capacity (Rural Health Information Hub 2019). As illustrated in Figure 37, 17% (14 out of 84) of Nebraska's rural counties, in 2019, were so underserved that no provider is was providing care in these counties as their primary location (University of Nebraska Medical Center 2020). Many rural communities struggle even more to attract speciality care providers.

Advancement in technology can minimize the limited human capital and also increase service capacity for primary and speciality care providers. These new technologies are significantly changing the nature of care and how healthcare is delivered. These technologies can easily be accommodated with minimal impact on the environment of care.

SYSTEM

PATIENT

CARE TEAM

STANDARD

OF CARE
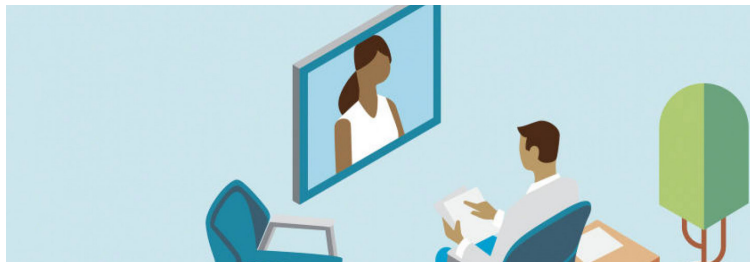
TECHNOLOGY

Figure 38- Quadruple Aim of Healthcare

Critically Interpret Relevant Evidence

DRIVING INNOVATION IN PATIENT CARE

2020 has been the year that has forever changed healthcare. In the midst of ongoing chronic challenges, the pandemic has forced additional emergent challenges. Through challenges comes opportunities to break the cycle and generate progress through innovation to determine how to provide a high-quality patient-centered care to all, especially underserved populations with finite resources. Change is inevitable; progress is optional. Now is the opportunity to turn change into radical systemic progress through driving innovation in patient care. Architectural settings for the delivery of rural healthcare must support improved user experience and promote the delivery of sustainable care. Figure 38 illustrates the drivers toward this improved environment of care and include:

- **Reimagined Care Delivery System:** *MORE ACCESS AND MORE ACCOUNTABILITY*

- **Evolving Patient Population:** *FOUR GENERATIONS, CHANGING EXPECTATIONS, AND CHRONIC CONDITIONS*

- **Emerging Patient Care Team:** *PHYSICIAN SHORTAGE AND AN INCREASE IN CARE TEAMS*

- **New Standard of Care:** *ADVANCED DIAGNOSTICS AND PRECISE AND PERSONALIZED MEDICINE*

- **Embracing Technology:** *TECHNOLOGY BOOM, BIG DATA, AND CONSTRUCTION ADVANCEMENTS*

HEALTHY INDIVIDUAL LIFESTYLE
- Health Food Stores
- Fitness Centers
- Farmers Markets
- Community Gardens
- Health Education Clinics
- Recreational Parks and Trails

DIAGNOSTICS AND HEALTH MANAGEMENT
- Primary Care Center
- Micro Clinic
- Community Care Center
- In-Home Diagnostic and Disease Management
- Physician Office
- Retail Clinic
- Virtual Clinic
- Telemedicine
- Multi-Specialty Clinic

LONG TERM CARE
- Assisted Living Care
- Independent Living Care
- Skilled Nursing Facility
- Hospice
- Dementia/Memory Care

ACUTE CARE
- Rehab
- Inpatient Hospital

URGENT CARE
- Hybrid Urgent/Emergent Care Center
- Free Standing ED
- Urgent Care Center

Figure 39- Expanding Access Across the Care Continuum

DRIVING INNOVATION IN PATIENT CARE

REIMAGINED CARE DELIVERY SYSTEM

The nation's healthcare delivery system lacks affordability and access to care, especially in rural areas. Healthcare reform requires increasing accountability, as witnessed in the rise in accountable care organizations, patient-centered medical homes, and shifts from volume based care to value based care (Nanda et al. 2015). Though healthcare reform is becoming more accountable, it is not as accessible or affordable as it needs to be. High deductible health plans (consumer-driven health plans) have emerged as part of healthcare reform. These health plans are gaining popularity but have significant challenges and often lead to Americans struggling to afford quality care and often delaying care (Nanda et al. 2015).

As a result of the Affordable Care Act, the nation's care delivery systems is also shifting from volume-based care to value-based care. Historically, care delivery systems were reimbursed via fee-for-service. This reimbursement system valued volume and intensity of services. Since 2010, the system has been shifting to value-based care system focused on rewarding quality and efficiency. Care has now been largely reorganized around key initiatives, illustrated in Figure 39\ (Nanda et al. 2015). The emergence of Accountable Care Organizations (ACOs) and patient-centered medical homes (PCMHs)have resulted in increased value and demand for care coordination which is expanding the spectrum of outpatient care. Figure 39, shows the importance of establishing point of care networks that are connected within communities to manage population health. 10 years after the passing of the Affordable Care Act, the largest health crisis in the modern world permanently altered the healthcare delivery system. No one anticipated a situation where people couldn't or were afraid to see their doctors, but through our fight with COVID that became a reality.

Living Longer

More Chronic and Complex Conditions

More Access & Choices in Healthcare
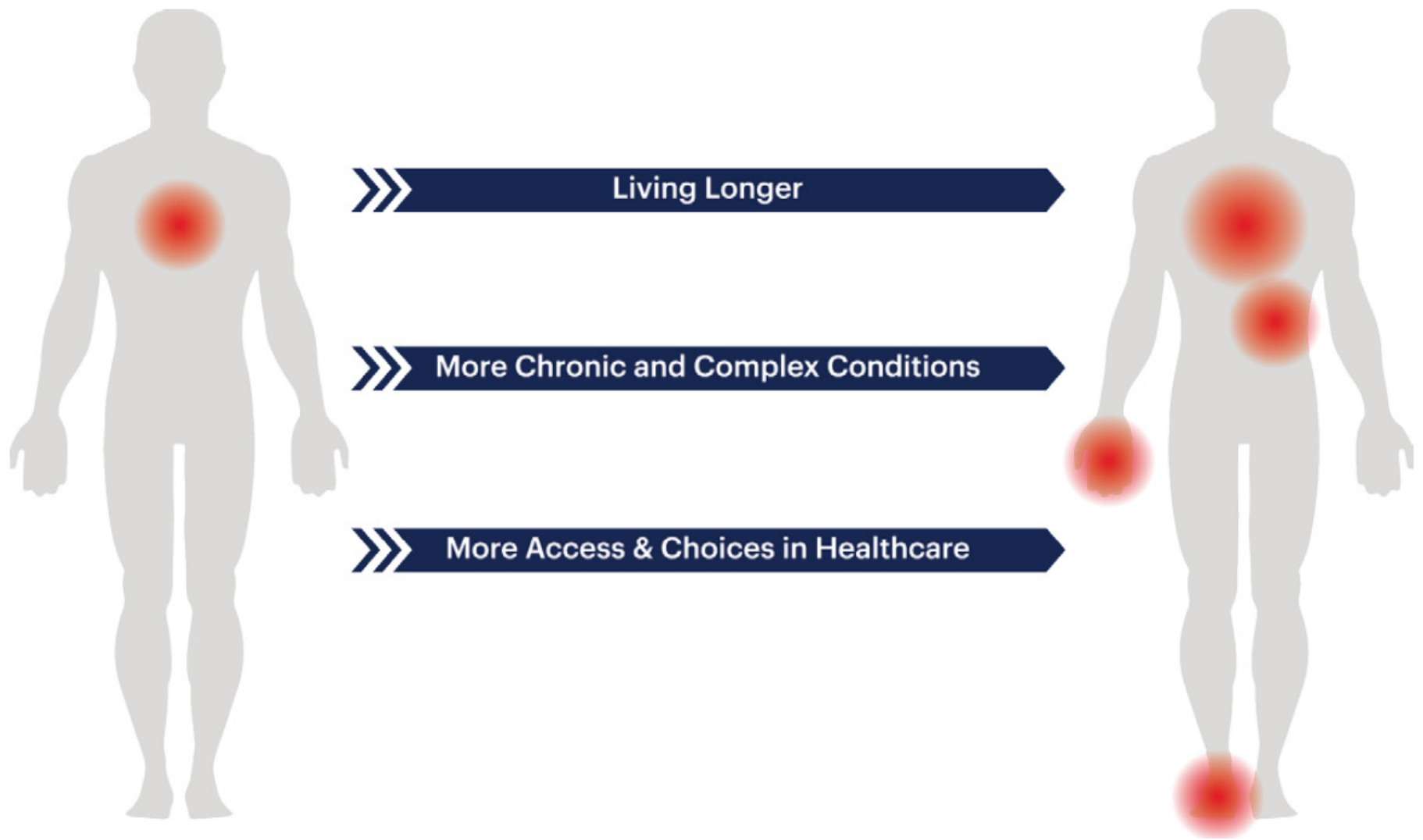
Figure 40- The Patient, Then and Now

DRIVING INNOVATION IN PATIENT CARE

EVOLVING PATIENT POPULATIONS

Much has been written about the different generations and their vast differences in approaches to life, work and health; however, all generations share the increased demand for instant gratification of needs (Nanda et al. 2015). The provider-patient relationship used to be simple. In the information age of today, patients, regardless of age, are demanding increase quality care that is readily available. Readily available quality patient care put wide ranging demands on our providers (Kaiser Family Foundation 2020). Most patients view themselves as patients needing health services and medical decisions are really need-based and often not want-based. Today's patients, as noted in Figure 40, are living longer, but often present with multiple complex medical conditions. The complexity of today's patients has revolutionized care delivery from a physician-centered practice to patient-centered care.
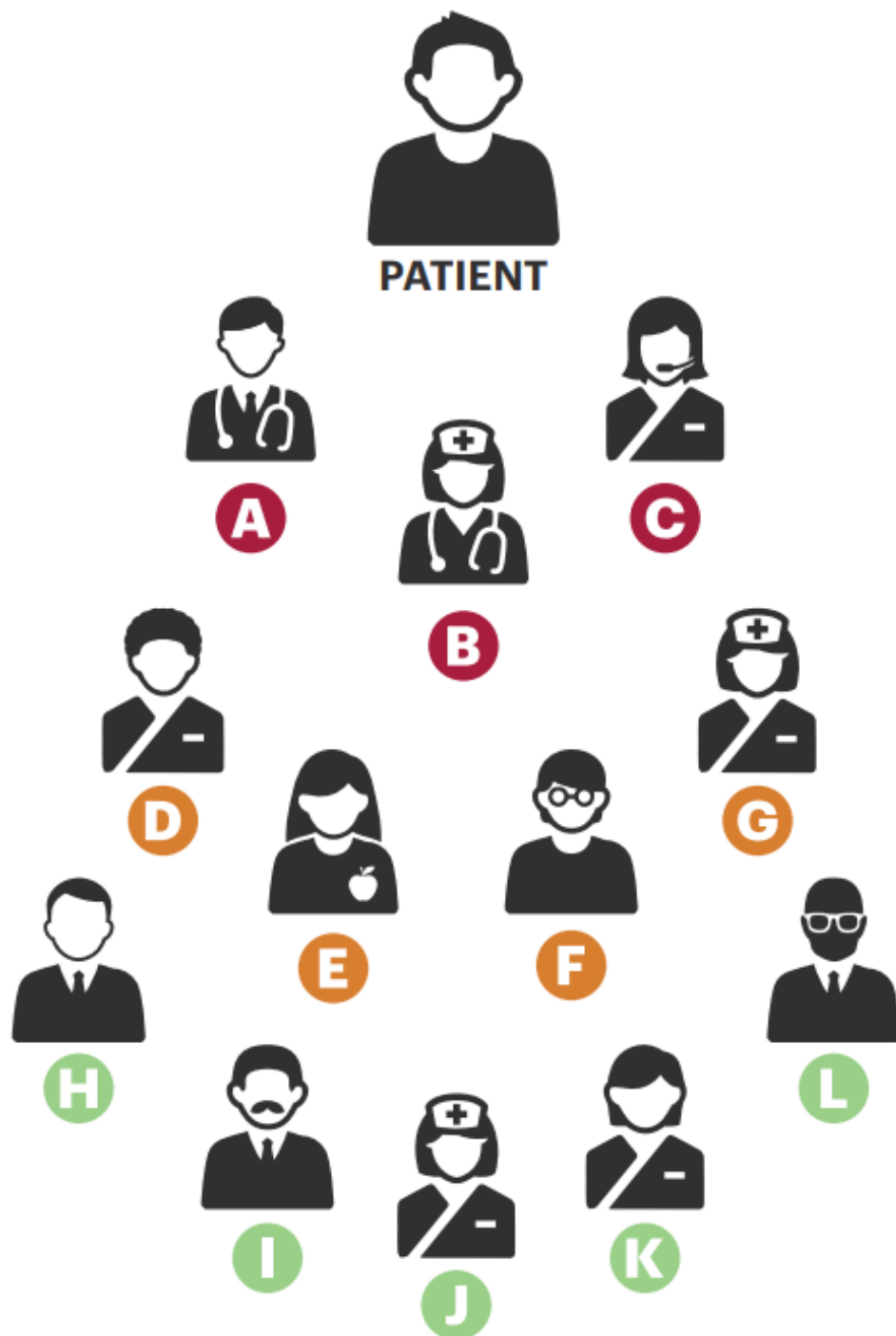
PATIENT

A. Physician
B. Physician Extender
C. Telenurse
D. Medical Assistant
E. Health Coach
F. Behavior Coach
G. Case Manager
H. Pharmacist
I. Patient Advocate
J. Registered Nurse
K. Physical Therapist/ Occupational Therapist
L. Researcher

Figure 41- The Emerging Patient Care Team

DRIVING INNOVATION IN PATIENT CARE

EMERGING PATIENT CARE TEAM

As the complexity of today's patients' needs and expectations continue to rapidly evolve, so has the provider structure. Unfortunately, chronic provider shortages and demand for a larger range of expertise has forced the provider model to change from provider-focused practice to a team-based care model (Nanda et al. 2015). This shift to a team-based care model, as illustrated in Figure 41, allows for a focus on whole health of a patient and improves the patient and provider experience. As medical technology continues to integrate into the environment of care, the need for more technical knowledge is becoming necessary to support care coordination. The challenge with a diverse team-based care model is that without care coordination the team can often fail their patient.

Low Acuity

Traditional Access Points

High Acuity

Primary Care
Practice

Emergency
Department

Virtual Visits

Concierge
Services

Retail Clinic

Urgent Care
Clinic

Multi-Specialty
Clinic

**Consumer-Oriented
Access Points**

Cloud

Clinic Facility
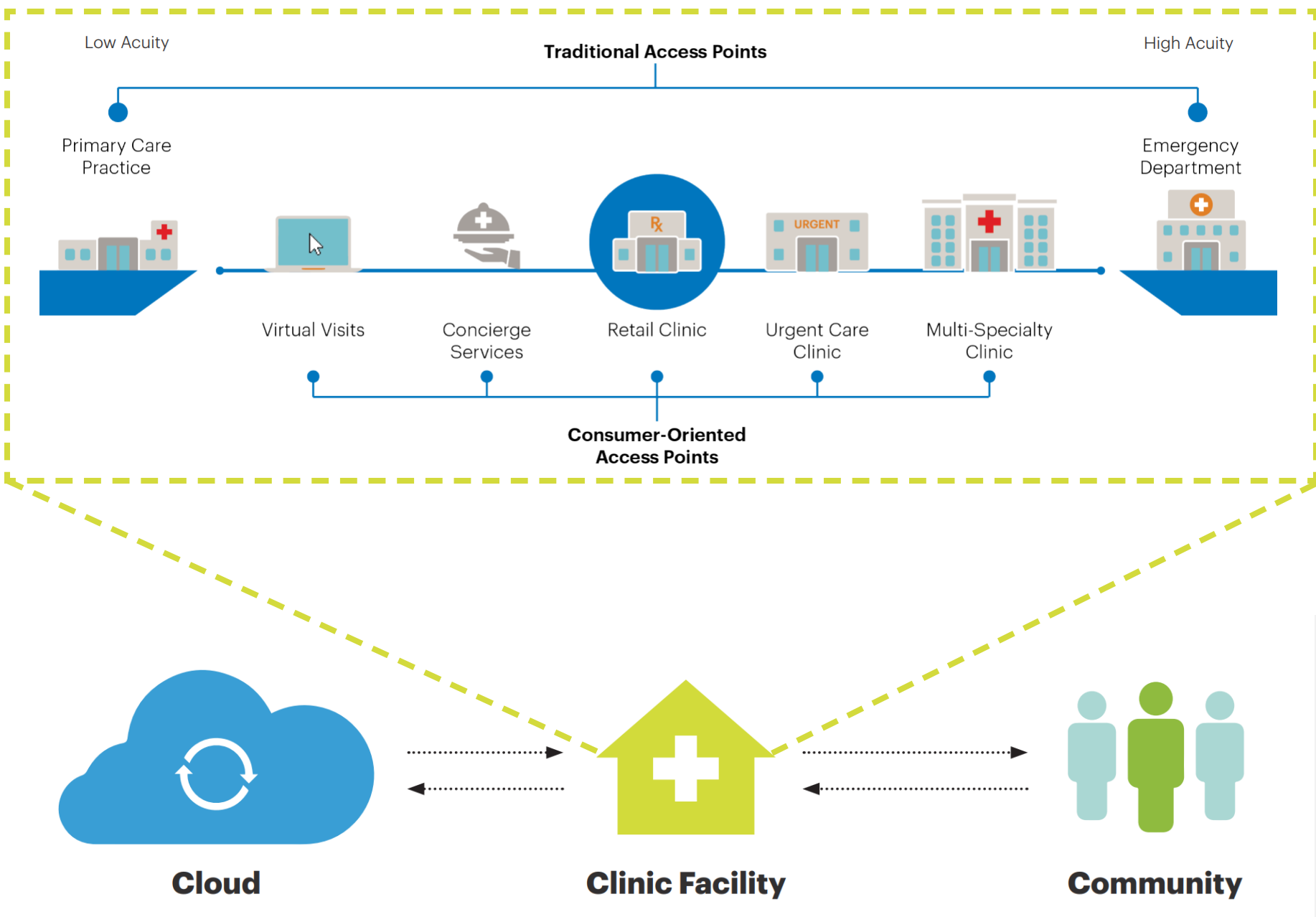
Community

Figure 42- Patient Oriented Primary Care Access Points: a Conduit Between the Cloud and the Community

DRIVING INNOVATION IN PATIENT CARE

NEW STANDARD OF CARE

The role of primary care is shifting to managing patient and population health. In order to manage health, it is essential for primary care providers to coordinate care to achieve patient health goals and manage population health one patient at a time. Managing population health is a continuum of care, illustrated in Figures 42, with rapidly evolving access points, the cloud, the clinic, and the community. The environment of care provided in primary care clinic is a "critical portal for precise personalized medicine, often being the first point of contact between a patient and the healthcare system" (Nanda et al. 2015). Precise, Personalized, Managed care is the future standard of care. Advancements in the technology and medical field have enabled the ability to better diagnose and manage larger data sets of information. This increased ability has allowed care teams to tailor care plans to specific individuals and has enabled wider reach and better care coordination (Nanda et al. 2015).
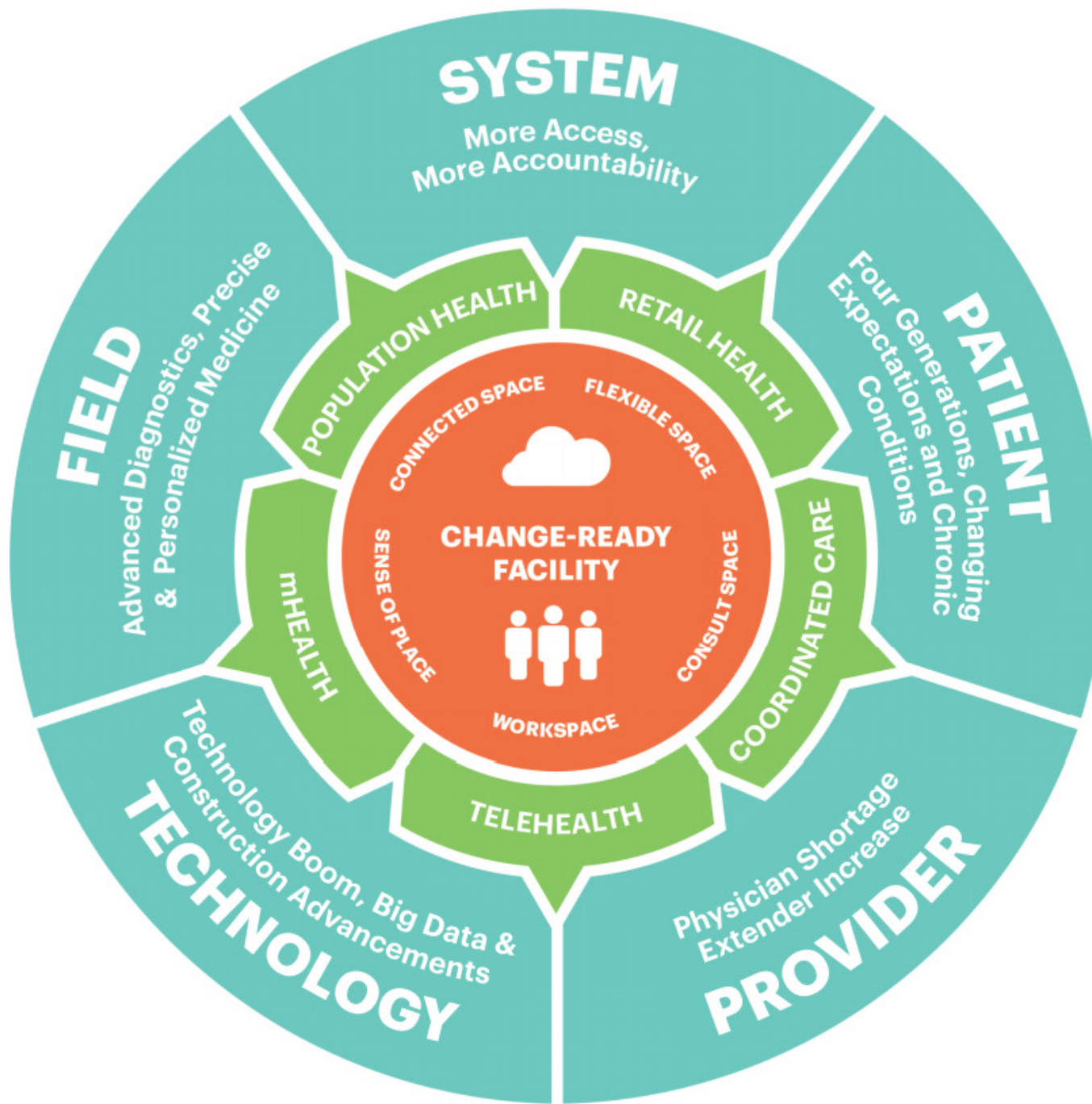
Figure 43- A Change Ready Facility

DRIVING INNOVATION IN PATIENT CARE
EMBRACING TECHNOLOGY

The digital age brought a technology boom that has seen the rise of mobile devices and data driven diagnostics (Nanda et. al 2015). Healthcare is slowly but surely coming to embrace the digital age. Healthcare has slowly transitioned into the digital age by shifting physical patient records to electronic health records. Electronic health records (EHRs) are the information spine of most healthcare systems (Nanda et al. 2015). This has enabled the possibility of personalized precise patient care. EHRs aim to systematically document and electronically store patient health information. The systematic documentation and patient health information stored electronically allows for the integration of technology into the environment of care. One of the most successful uses of technology seems to be the digital tracking of the patient through their care journey, allowing the system to become more patient-centered. While many challenges remain in seamlessly integrating technology into the environment of care, the intent and access to data marks a significant shift in our delivery of patient care.

Emerging technologies will continue change health care by providing improved patient outcomes and creating new patient care delivery methods. New adaptive health care facility design requirements and implementation strategies, represented in Figure 43, will be needed to stay in front of these changes. Academic Medical Centers like the University of Nebraska Medical Center have been leading the charge by adopting state of the art technology tools to teach the future medical providers for the region. Technology driven facilities, like the Davis Global Center located on the University of Nebraska Medical Center Omaha Campus is home to state of the art visualization technology that will lay the groundwork for healthcare providers to fully embrace the opportunity technology can provide.

Extended Access

Personalized Experience

70% **of patients**
are frustrated with finding an MD.

89% **of patients**
value a relationship with a physician who knows their health background.

WHAT DO PATIENTS WANT?

62% **of patients**
ranked health care premiums and OOP costs as their top concerns.

83% **of patients**
expect the same access and integration from health care as Amazon, Apple, etc, provide.

Affordable, High-Quality Care

Seamless Integration

Figure 44- Patient Centered Vantage Point

Create & Innovate EBD Concepts

INNOVATIVE PATIENT-CENTERED TRENDS

Patients and care providers are clamoring for change in where and how healthcare is delivered. The current pandemic and CARES Act have compelled the redefinition of healthcare and our methods of service delivery. COVID has validated a need for a more readily available, user-friendly digital experience. A virtual care model enables increased access to care, reduces risk of transmission, and conserves personal protective equipment. This public health crisis provides the opportunity to generate radical systemic progress toward innovative patient care in order to expand capabilities and capacity to meet the unmet needs of today and set a path toward meeting the challenges of the future. Rural health systems that incorporate these changes, illustrated in Figure 44, will come back stronger, more resilient and, closer to achieving more effective healthcare delivery.

FOUR TRENDS OF RADICAL SYSTEMIC PROGRESS TOWARD INNOVATIVE PATIENT CENTERED CARE

- Extended Access to Care

- Affordable, High Quality Care

- Seamless Integration

- Personalized Experience

Distributive Access to Care
Increase patient access and deliver care in lower-cost, lower-risk settings where possible

Expanded Capacity of Care Teams
Increase touchpoints and scale solutions to address staffing shortages and transform the cost/care equation

Increased access

At a lower cost

In lower-risk settings

More touchpoints

Increased staffing

More value

Current capacity
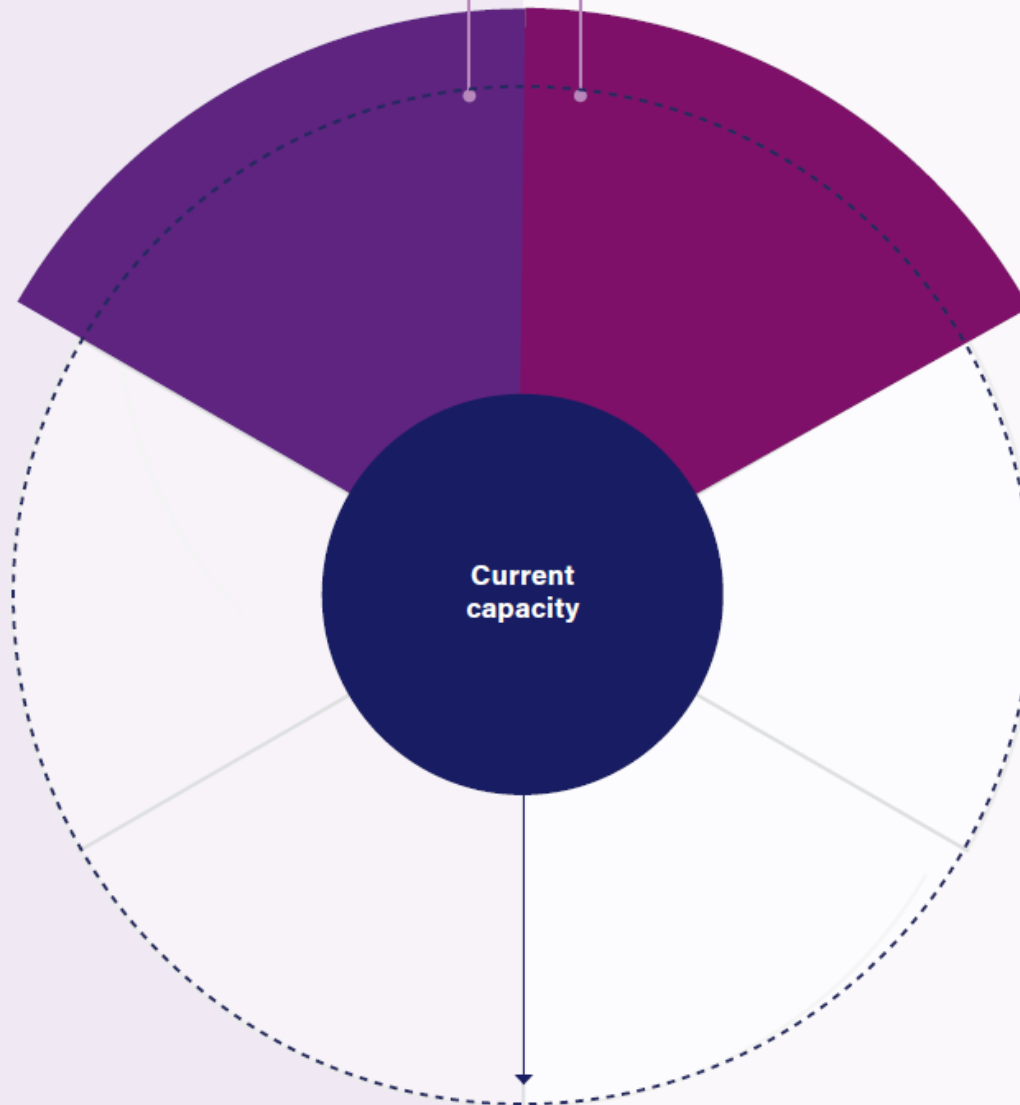
Needed capacity

Figure 45- Extended Care Delivery

INNOVATIVE PATIENT-CENTERED TRENDS

EXTENDED ACCESS TO CARE

Extending where and how care is delivered for a stronger healthcare system is the future of medicine, especially in rural communities. A comprehensive care network would ensure primary care is accessible statewide by extending primary care to many locations. Through public-private partnerships and health system partnerships generating a hierarchy in care environments based upon patient acuity would ensure care can reach those in most rural areas. This collaborative delivery system would distribute access to care closer to patients, as well as increase availability of providers to rural communities. Distributing access to care provides patients with increased access to providers delivering care in lower cost and risk settings, improving the patient experience while providing health systems more patient entry points (Philips Government Solutions 2020a).

Extending access to care in additional settings expands the capacity of providers. Health systems often need to address staff shortages by aligning staff to better meet the needs of the patients they serve. This distributive care increases efficiencies that can often lead to better patient and provider experiences and help reduce costs and provider burnout. Expanding the capacity of our care providers through increasing touch points and providing opportunities to address staffing shortages can combine to transform the cost-to-care equation and ultimately improve the user experience (Philips Government Solutions 2020b).
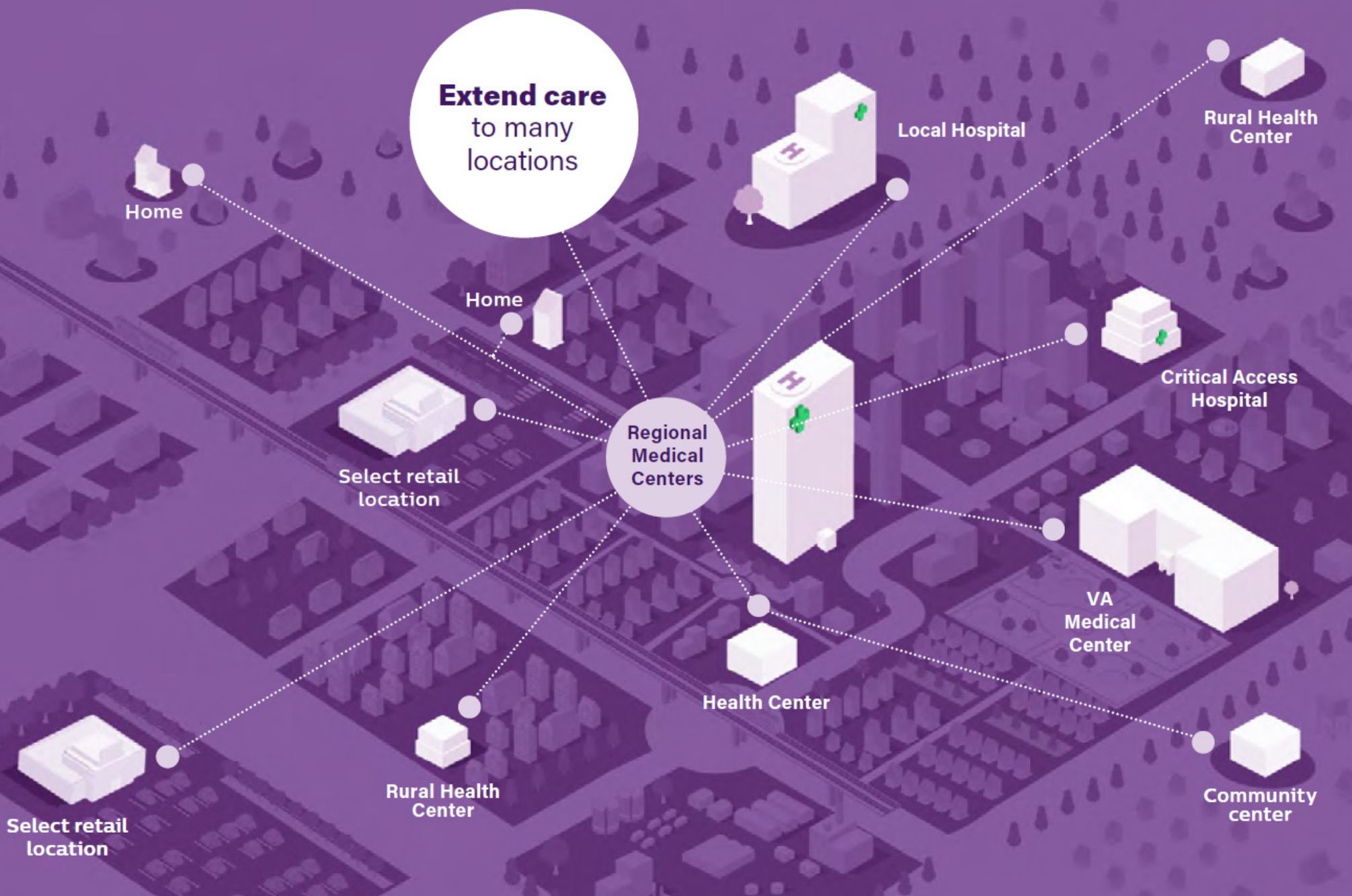
Figure 46- Distributive Access to Care

DISTRIBUTIVE ACCESS TO CARE

The pandemic has accelerated and provided a crucial opportunity for the U.S. healthcare system to ensure equitable access to care for everyone. Extending care means helping patients manage their health and their schedule distributing access to care throughout communities in Nebraska, as illustrated in Figure 46, by establishing care sites in local settings (Philips Government Solutions 2020a). This level of access will allow health systems to reach and help patients no matter where they are and help patients take care of their health in places that are convenient and comfortable for them. In doing so, the role of the hospital can shift from a central event in the patient's healthcare journey to a peripheral event that can be avoided by providing quality primary care along the way (Philips Government Solutions 2020b). This transition to prioritizing outpatient care has been ongoing but the pandemic has accelerated the shift toward distributive outpatient care. Distributive outpatient care can improve the continuity of care provided in a lower cost setting with increased consistency. Increase consistency of care focusing on preventative care can keep patients healthy and away from our hospitals. In the event patients must move between care settings, ensuring seamless care throughout their journey is crucial.

Virtual care can address many of the challenges facing rural healthcare. Its adoption by patients and providers has massively accelerated during the pandemic. A U.S.-based healthcare system saw non-urgent visits rise 4,330% from 95 daily visits prior to COVID to 4,209 daily visits during the pandemic (Taylor 2020). Virtual home care can extend care to the home provided adequate internet connectivity is available. This home care allows for increased remote screening and triage, which allows providers to proactively manage patients in lower costs settings (Philips Government Solutions 2020b). Virtual community care can provide local access to patients who may not have connectivity otherwise. Improving the patient experience by providing patient-centered care in easily accessible settings will only increase patient's utilization of primary care services.

EXPANDED CAPACITY OF CARE TEAMS

Chronic provider shortages plague the U.S. healthcare system. Due to limited numbers of providers and the cost to attract and retain them, many rural health systems find it challenging to adequately staff primary care service lines. This problem is only growing as existing providers continue to age and are likely to retire in the near future. In fact, in Nebraska nearly 25% of primary care providers are more than 60 years old and likely to retire in the near future (Wehbi et al. 2020). This loss of primary care providers is likely to harm rural patients' access to care. Women in Nebraska are unable to access OB/GYN services in 54 counties in Nebraska, an increase of 10 counties from 2017 (Wehbi et al. 2020). By scaling how and where staff can deliver care, health systems can transform the cost-to-care equation and provide for better patient outcomes. This is vital to rural healthcare delivery where virtual health programs enable patients to access care anywhere, anytime.

Remote patient monitoring is a powerful way to support busy care providers. Through remote patient monitoring, health systems can align and shift staff according to care volumes (Philips Government Solutions 2020b). This on-demand support improves the capacity of care providers. Furthermore remote patient monitoring can shift chronic care management from hospitals to locations closer to home relieving workload from care providers by enabling care providers to intervene earlier, reducing costs and readmissions to better mange patients with chronic diseases (Philips Government Solutions 2020b).

Supporting rural providers through remote provider consultations is another way to improve the rural provider experience. Remote provider consultations can bring real-time expertise where and when its needed from off-site locations. This can help reduce the isolation many rural providers feel when providing care in remote locations and allowing patients access to specialist, like those referenced in Figure 47, who may not be readily available otherwise. This ability to collaborate and advise colleagues from other locations will distribute workload and knowledge for the betterment of the provider experience and improvement patient outcomes.

IT STARTS WITH YOU — THE PATIENT.

YOU CHOOSE THE PROVIDER THAT'S PERFECT FOR YOU.

Providers and nurses care for you during your stay at the hospital, a nursing home, or a rehab facility.

Your primary provider will lead your healthcare team in making a plan for your lifelong health.

YOUR PROVIDER PUTS TOGETHER **THE BEST CARE TEAM** FOR YOU.

The patient-centered medical home was designed to make care better for YOU with family and caregivers as an important part of your care team.

Specialists like cardiologists or orthopedic surgeons care for specific healthcare needs you may have along the way.

Other team members are here to help you achieve health, like pharmacists, dietitians and health coaches.

One of your team members is your Care Coordinator. Think of this person as your health team manager. The care coordinator works with you and your provider to oversee all your care transitions and any other healthcare issues you need help navigating.

Figure 47- Patient Centered Medical Home Infographic

Improve operational efficiency
Saving time and money with process improvements, automation and smart utilization of resources

Improve clinical care
Reducing variability and improving outcomes with enhanced decision support and accessible, standardized and integrated care

Save time and money

Smart utilization of resources

Automate workflows

Current capacity

Standardized care pathways

Enhanced decision support

Integrated care

Needed capacity

Figure 48- Optimize Clinical and Operational Workflows

INNOVATIVE PATIENT-CENTERED TRENDS

AFFORDABLE, HIGH QUALITY CARE

Our nation's healthcare system is rapidly changing in ways many thought was impossible. The global pandemic has shed light on vulnerabilities in our health system and has forced accelerated shifts in how we care for patients. Optimizing for efficiency is particularly vital as our nation's health system emerges from the pandemic. As we continue to return to the new normal, delivering streamlined efficient care is vital. Delivering this streamlined efficient care with often chronic staffing shortages and already burned out providers challenges the nation's health delivery system. As we continue to pursue the new normal, its imperative to ensure our underserved populations, like those in rural areas, are able to receive accessible, timely, first-time-right diagnosis they desperately need to enable a care path with precise treatments and recovery. To expand today's capacity and capabilities to meet the needs of the future, health systems will need to embrace radical change. One way to improve patient care is through reducing variability and improving outcomes with enhanced decision support and accessible, standardized integrated care (Philips Government Solutions 2020a). A second is to improve operational efficiency through saving time and money with process improvements and efficient utilization of resources (Philips Government Solutions 2020c). While improving efficiency is crucial for rural healthcare transformation, it should not come at the expense of quality care.

Scheduling and prep

Image acquisition

Data interpretation

Data and technology

Continuous Improvement

Artificial intelligence

Outcomes and follow-up

Therapy and treatment

Reporting
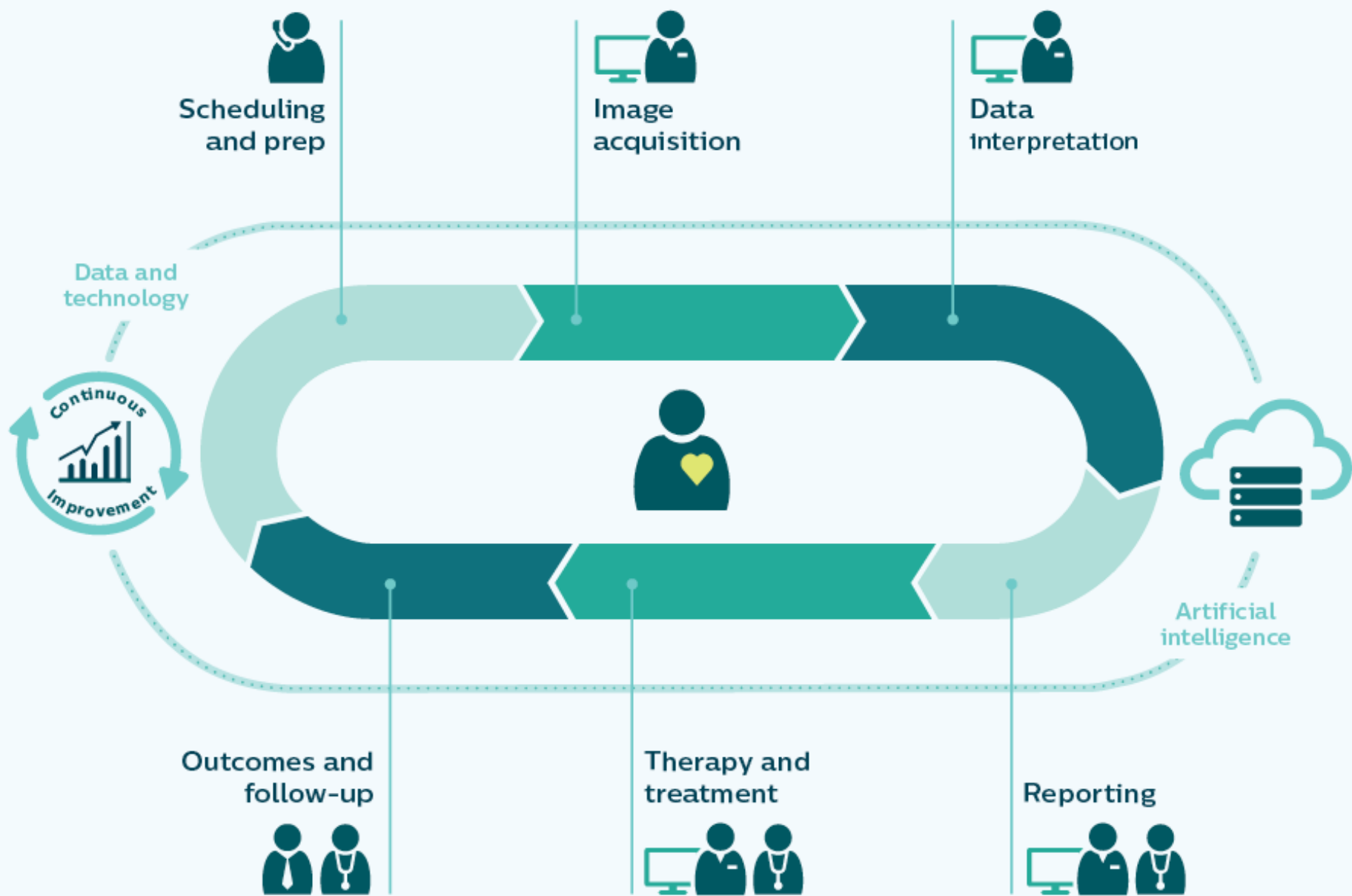
Figure 49- A Systems View

IMPROVE CLINICAL CARE

Training and experience of care providers can be diverse and can often lead to highly varied exam quality. Providers also struggle to keep up with evolving care to help direct patients towards the right care path to ensure safe patient care. When quality of care varies, it has a cascading effect of higher costs and unpredictable outcomes that can be reduced by standardizing clinical pathways with evidence-based care and operational efficiency (Philips Government Solutions 2020c). Through technology, standardization can be realized, which will improve workflow quality and lead to optimal patient care and improve the overall user experience.

Our care teams are stretched, and the complexity of providing quality patient care and the pace of change is not helping. Care providers need support to make quick decisions at all points of a patient's care. timely, insight-driven, evidenced-based data provided by technology, can make care smarter and bring care closer to the patient no matter where they are. There are opportunities through embracing technology that innovation can streamline work flows for greater efficiency, ease workloads for overburdened care providers and provide better quality of care for all those underserved by our federal government's healthcare programs.

IMPROVE OPERATIONAL EFFICIENCY

Improving operational efficiency is complicated with providers handling increasingly complex patients with fewer resources. It takes a multidisciplinary approach to look at the full environment of care to map and measure each step in a patient's health care journey to identify opportunities for improvement. Looking at every step and the sum of the parts can drive value-based care improving the experience for providers and patients and the sustainability of the healthcare system (Philips Government Solutions 2020a). Transforming healthcare operations through implementing performance analytics can lead to reduce costs, improve patient and provider experience and improve efficiency.

Health systems are complex and often inefficient. These inefficiencies can actually lead to poor

patient experience with patients leaving the system. Patient satisfaction doesn't solely rely on an efficient patient visit. Ensuring patients are comfortable throughout their experience is paramount to improving their experience. Comfort starts with ensuring patients are prepared for their appointments. Patients who are not prepared for their appointments often miss their appointment or require additional unnecessary follow-up appointments (Philips Government Solutions 2020c). Providers are able to prepare their patients through technology by sending timely educational and instructional messages often lead to smoother and more efficient patient experiences.

To ensure a smooth efficient patient visit, providers must also be prepared. To be the most effective, staff and equipment need to be utilized efficiently, finding the right balance between too much and risking burnout or too little and risking financial stability (Sheppard's Business Interiors n.d.). You can't manage what you don't measure. Managing efficiency requires knowing where, how, and when services are needed and balancing human capital and patient care equipment supplies. Finding this balance often requires distributing resources and staffing to ease demand on care providers.

More and more, too much of care providers' time is spent on administrative tasks. In fact, the Commonwealth Fund, through a series of focus groups, found that the largest challenges providers face when caring for their patients are insufficient time and administrative hassles to meet the care needs of their patients (Lewis and Abrams 2018). Limited time is not unique to primary care physicians serving low-income patients, but it is particularly concerning for them as their patients often have social and economic complications that require more time to address. Through increased training and improved technology like those proposed in the continuum of telehealth in Figure 50, these barriers can be reduced to allow more time and focus spent on their patients. A first-time-right diagnosis and high quality patient care depend on providers having access to seamless integration of technology into the patient visit.

Telehealth continuum
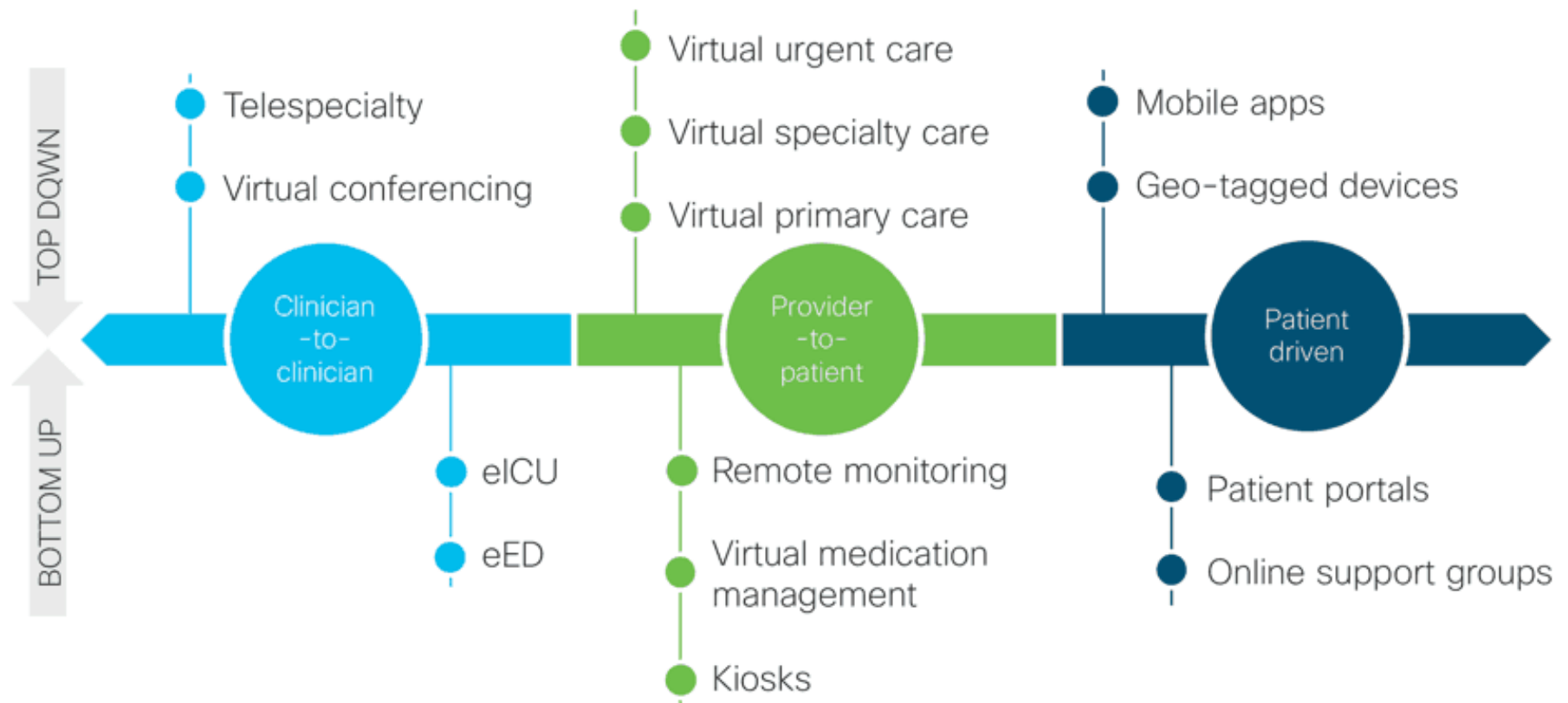
Figure 50- Dive deeper: Explore healthcare telehealth use cases across the continuum of care.

Connect data and technology
Leveraging open APIs and approved standards like IHE-HL7 to enable seamless data exchange across multiple sources and vendors throughout the continuum of care so healthcare providers can deliver the right care at the right time in the right place with minimal friction.

Secure data and systems
Taking a proactive approach to protecting sensitive health technology and patient information across devices, systems and settings so administrators, healthcare providers and patients have confidence in how care is delivered.

Frictionless connections

Scalable technologies

Multivendor positive

Current capacity

Standards based

Protected patient information

Smooth exchange across points of care

Needed capacity
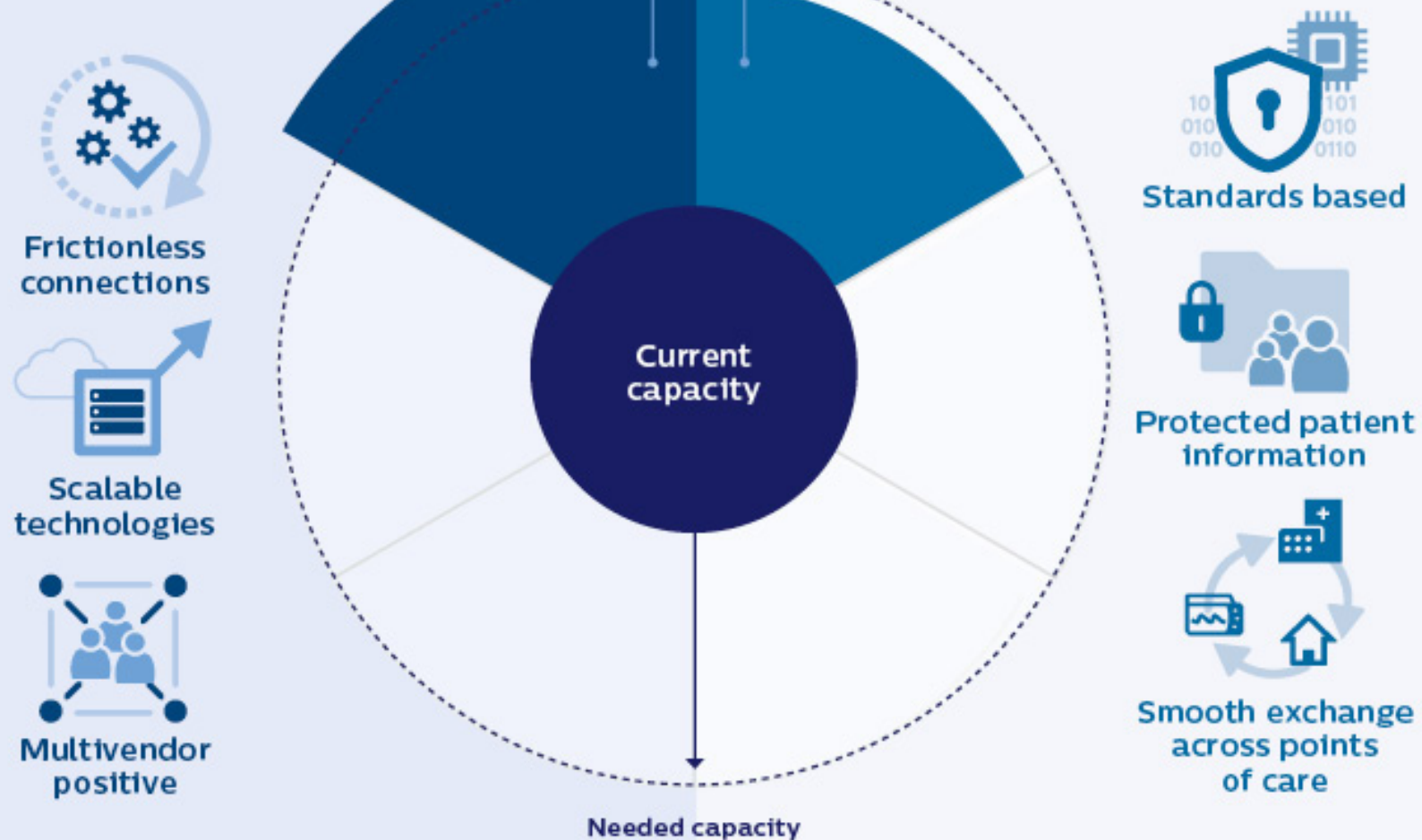
Figure 51- Robust Interoperability and cybersecurity

INNOVATIVE PATIENT-CENTERED TRENDS

SEAMLESS INTEGRATION

The pandemic continues to incentivize hospitals to extend care to reach patient with affordable high-quality care wherever they are. This requires seamless integration of technology protected by enhanced cyber security, which is essential to the success of radical innovation in patient care. It takes a multidisciplinary approach to look at the full environment of care to map and measure each step in a patient electronic health record's journey to identify opportunities for improvement, like those proposed in Figure 51. Only through this approach can we ensure the technology is working to support the patients and providers across platforms and locations, the data is secured and protected, and the information flows throughout the health system (Philips Government Solutions 2020a).

This seamless integration of technology is not a new challenge. However, technology companies like Amazon and Apple have increased demand for the same access and integration in healthcare. The pandemic has only heightened this demand. However, health systems continue to face substantial difficulties in exchanging data and information securely and efficiently. The inability to exchange data and information has cost the U.S. healthcare system $1.7 billion annually (Philips Goverment Solutions 2020d). This miscommunication leads to systemic vulnerabilities. In 2019, 510 healthcare data breaches were reported exposing 41.3 million patient records (Philips Goverment Solutions 2020d). These data breaches in the healthcare industry take the longest to identify at 96 days and to recover from 236 days (Ikeda 2021). These data breaches in the last decade have affected 90% of the U.S. health systems and a cost an average of $3.86 million each (Philips Goverment Solutions 2020d). These vulnerabilities and miscommunications contribute to operational inefficiencies and patient safety events. When information is not readily available, patient care will be impacted. For these reasons, seamless integration and robust cybersecurity are crucial to an efficient healthcare system.

CONNECT DATA AND TECHNOLOGY

Enabling data from multiple sources and vendors to flow seamlessly from medical devices to the patient's electronic health record and then follow the patient's frictionless journey throughout the many points of their care, as depicted in Figure 52, is essential to building a stronger patient centered healthcare system. This system is also influx as the balance of care continues to shift to prioritize outpatient care and focus on keeping patients out of the hospital. Sharing data with everyone from patients to healthcare providers to families and proxies requires accurate stakeholder identification and stringent access controls and permissions. Care delivered in community settings allows for proactive patient care empowered by remote screening and triage. Reaching patients in lower cost and low acuity settings requires flexible environments of care putting a heightened value on connecting data and technology.

SECURE DATA AND SYSTEMS

Health systems face ongoing cyber threats and exploits. Opportunistic cyber criminals increasingly see medical records as all-in-one identity theft packages and scam toolkits. This has turned attacks on healthcare providers into a $13.2 billion industry, with the average data breach cost per record rising to $499 last year and exposing an estimated 26 million patient records last year (Ikeda 2021). In addition to generally poor handling of the digitization of patient records and movement of them to cloud services, the use of antiquated software unable to keep up with the needs of modern cybersecurity ~~needs~~ leaves healthcare systems especially vulnerable. Protecting health technology and patient privacy requires ongoing vigilance, proactive approaches, and immediate responses (Philips Goverment Solutions 2020d). Outsourcing and collaboration often eases the time and costs associated with such security measures.

Figure 52- Interoperability in Health Care

Figure 53- Closing the Capacity Cap

INNOVATIVE PATIENT-CENTERED TRENDS

PERSONALIZED EXPERIENCE

Healthcare is personal and intimate. The patient and provider relationship is the foundation to effective primary care. These relationships among patients, families, and providers require trust, clear communication, and accurate triage (Steelcase Health 2019b). Prior to the pandemic this foundation was thought only to be possible through face-to-face interactions. Through the pandemic response, patients and providers found that this foundation was possible through virtual care. Patients and providers were forced to embrace virtual care in order to continue treating patients while keeping patients and providers safe while conserving valuable personal protective equipment. This shift was not unanticipated, as patients were already embracing the convenience provided by the digital age for many aspects of daily life. Virtual Care provides benefits for patients, providers and health systems as long as the care remains personal, as illustrated in Figure 53. Patients continue to appreciate the convenience of virtual care, providers appreciate the ability to treat more people, all while the health systems see decreased cost in providing primary care.

Developing a web-side manner similar to the typical bed-side manner for a primary care provider is crucial to maintain this personalized experience. Delivering an effective web-side manner requires more than technology. Besides technology, providers non-verbal mannerisms are often missed during in-person exams but are front and center during a virtual visit and can often lead to poor patient experience (Steelcase Health 2019b). Despite being a virtual visit, the physical healthcare space where provider and patient engage in the virtual visit plays major role in both the provider and patient experience (Steelcase Health 2019b). The creation of physical space that is effective and appealing is paramount to creating a personalized experience for both users.

SURROUNDINGS
COMMUNITY NEEDS ASSESSMENT │ POPULATION HEALTH
HEALTH SYSTEMS GOALS

SITE
PROVIDER/RESOURCE SUPPLY │ CONVENIENT LOCATION
ROBUST UTILITY INFRASTRUCTURE

STRUCTURE
CARE DELIVERY STANDARDS
PROVIDER RESPONSIBILITY MATRIX

SKIN
SUSTAINABILITY GUIDELINES

SERVICES
SYSTEM SERVICE LINE PERFORMA
SUSTAINABLE MEP SYSTEMS

SPACE PLANNING
SPACE PERFORMANCE METRICS
TARGET FINANCIAL COMMITTMENT

STUFF
FURNITURE STANDARDS │ EQUIPMENT STANDARDS

SOCIAL
USER EXPERIENCE OBJECTIVES

Flexible Patient Care Framework

TIME FLEXING

ROLE FLEXING

RESOURCE FLEXING

SPACE FLEXING

EXTENDED ACCESS

SERVICE AVAILABILITY

POINT OF CARE

PROVIDER TYPE

COST ESTIMATION

CLINICAL PROGRAMMING

FLEXIBLE SPACE TYPES

CONNECTED SPACES

SUITABLE GREEN DESIGN STRATEGIES

Figure 54- Flexible Care Framework Process

Develop a Hypothesis

FLEXIBLE PATIENT CARE FRAMEWORK

The U.S. health systems are entrusted to maintain and grow the wellbeing of their communities one patient at a time. This mission requires striving to improve population health, deliver better patient experiences, manage costs, and improve the provider experience. However, study after study continue to show that our health systems particularly in rural areas, responsible for serving almost 15% of our population (Center for Disease Control 2020), are not able to reliably achieve their mission. When this investigation began, it was intentionally broad to understand the complex and often interrelated issues associated with patient care in rural/remote areas of the country. Unpacking the complex web of dependencies that induce, hinder, and accommodate rural patient care in the U.S. allows for formation of frameworks capable of effectively accommodating the evolving demands of healthcare in rural America. The presence of so many approaches confirms that the issues challenging rural healthcare delivery are incredibly complex, with numerous perspectives.

To reliably meet this calling requires multi-disciplinary efforts to find a balance in the multitude of perspectives while striving to improve equity, efficiency, and outcomes in the care continuum. Extending access to personalized, affordable, high quality care that incorporates seamless integration of technology is the future of primary care, especially in rural areas. To successfully accomplish these objectives and implement these strategies, rural patient care requires a flexible care framework as depicted in Figure 54. This framework serves to provide a starting point for the systemic change-readiness often required in rural healthcare. Each aspect of the framework establishes flexibility strategies for the betterment of rural patient care that aims to improve equity, efficiency, and health outcomes in rural communities.

Non-Core: Frontier
Non-Core & fewer than 6 people/sq. mile

Rural
Not metropolitan & not non-core frontier

Urban
Designated Metropolitan Statistical Areas

Short Term Acute Care Facility

Critical Access Hospital (CAH's)

Rural Federally Qualified Health Centers (FQHC's)

Rural Health Centers (RHC's)
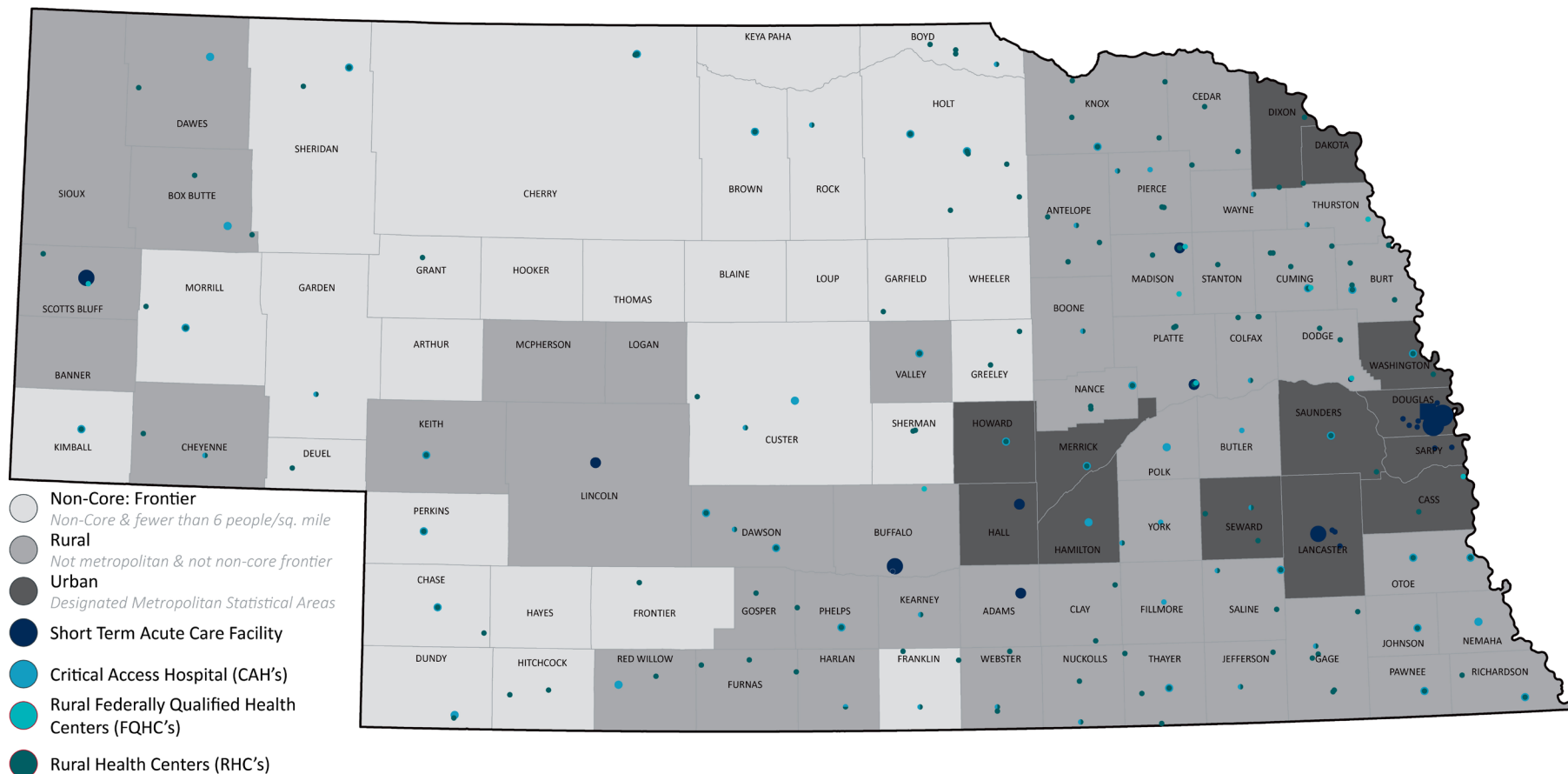
Figure 55- Medical Facilities in Nebraska Counties

FLEXIBLE PATIENT CARE FRAMEWORK

STRATEGIC MASTER PLANNING

Rural healthcare facilities should be accessible to all users. Optimizing user accessibility in rural healthcare requires managing local accessibility barriers in order to ensure healthcare is just as accessible as other services supporting the community and often requires strategic master planning. Travel distance to face-to-face health services is a significant barrier in rural communities while access to acceptable and affordable internet services is a significant barrier to virtual care. User accessibility design strategies to consider in the environment of care for equitable, efficient care with improved health outcomes include providing convenient sites colocated with other community services and ensuring access to acceptable and affordable utility services, including internet connectivity.

STRATEGIC SITE LOCATIONS

Rural primary care is best when centrally located to dispersed populations and along major highways. Rural primary care sites should be coordinated to allow the most direct access to the greatest number of people within the targeted service area (Staloch 2015). Most people within the targeted service area should be able to access a primary care site within one hour after departure from their residence (The Center for Health Design n.d.b). Optimizing access to rural healthcare services often requires colocating near other essential community services allowing rural residents to conveniently access all facets of daily life in a single trip. In fact it is recommended that primary care site locations should consider locating facility within 3 minute walking distance to other essential community services (The Center for Health Design n.d.b).

ACCESSIBLE ROBUST UTILITY INFRASTRUCTURE

Ideally, primary care sites can be located near reliable utility services. However, in remote areas, reliable utility systems may not always be available. Regardless, It is imperative to minimize utility demand overall and, when necessary, be able to operate self sufficiently (Staloch 2015). Often, a combination of active and passive design strategies, as illustrated in Figure 56, can enable the facility to lower utility demand and provide opportunities to meet the needs of the facility independently when necessary. The feasibility of proposed primary care sites can often be impacted when these sustainable design strategies are highly prioritized. As an essential community service, rural health facilities should be able to continue providing patient care without concern for a disruption of utility services.

Locations for primary care facilities should also include access to acceptable and affordable internet service. Internet connectivity in healthcare is almost a must nowadays; however, it is often not readily available. Access to broadband internet is ideal, but at the very least, mobile internet should be available for primary care sites.

ROOFING
High Solar Reflective Index (SRI) reflects heat

STEEL FRAMING
High recycled content

MADE IN AMERICA
Locally-sourced manufactured steel

HVAC
Three independent ventilation systems

OPEN CIRCULATION
25% of the building area is open circulation

WATER WELL
All water provided on site

LOW MAINTENANCE SITE DEVELOPMENT
Existing natural meadow maintained

SEPTIC SYSTEM
On-site sewage disposal system

SITE GRADING
Maintains natural site drainage

SOUTH FACADES
Horizontal overhangs improve thermal comfort and reduce solar heat gain

EAST AND WEST FACADES
Minimal openings reduce solar heat gain

GLAZING
Double-glazed high-performance glass

LANDSCAPING
Areas planted with native drought-tolerant ground cover

● LAND MANAGEMENT
● WATER EFFICIENCY
● ENERGY EFFICIENCY & ATMOSPHERIC PROTECTION
● MATERIAL AND RESOURCE USE
● INDOOR ENVIRONMENTAL QUALITY

SUSTAINABLE DESIGN STRATEGIES

Figure 56- Sustainable Design Strategies

CURRENT STATE

Exam Room	Exam Room	Exam Room
Exam Room	Exam Room	Exam Room
Exam Room	Exam Room	Exam Room
Exam Room	Exam Room	Exam Room

Reception/ Waiting Room
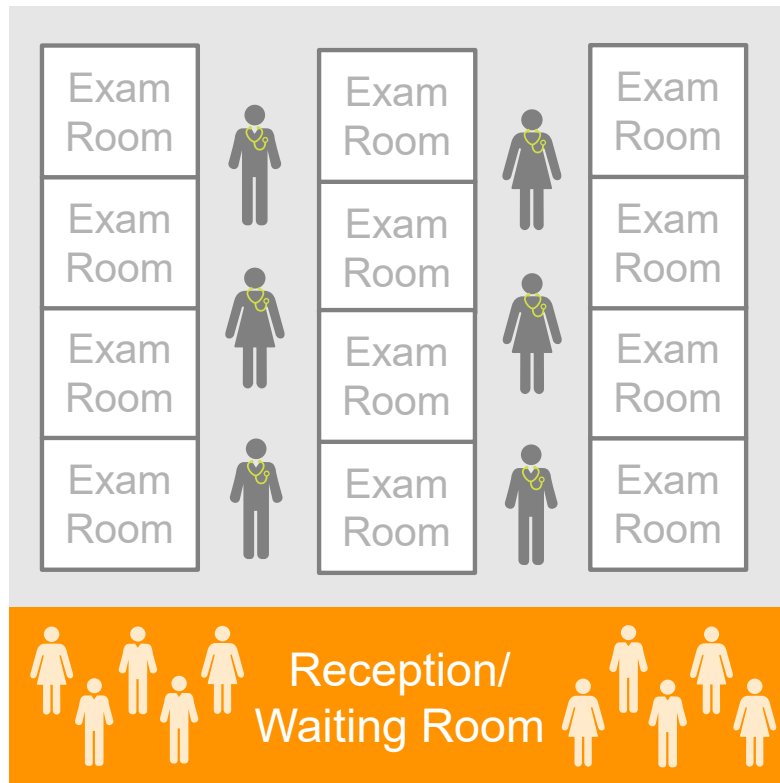
- 9 visits/room/day
- 2 rooms/doctor
- 100 square feet per room
- **Inefficient.** Doctor goes to patient from room to room.

FUTURE STATE

Exam Room	Exam Room	Procedure Room
Exam Room	Exam Room	
Exam Room		Virtual Hub (3 rooms)
Exam Room		

Virtual Reception/ Waiting Room

Drive-thru Clinic
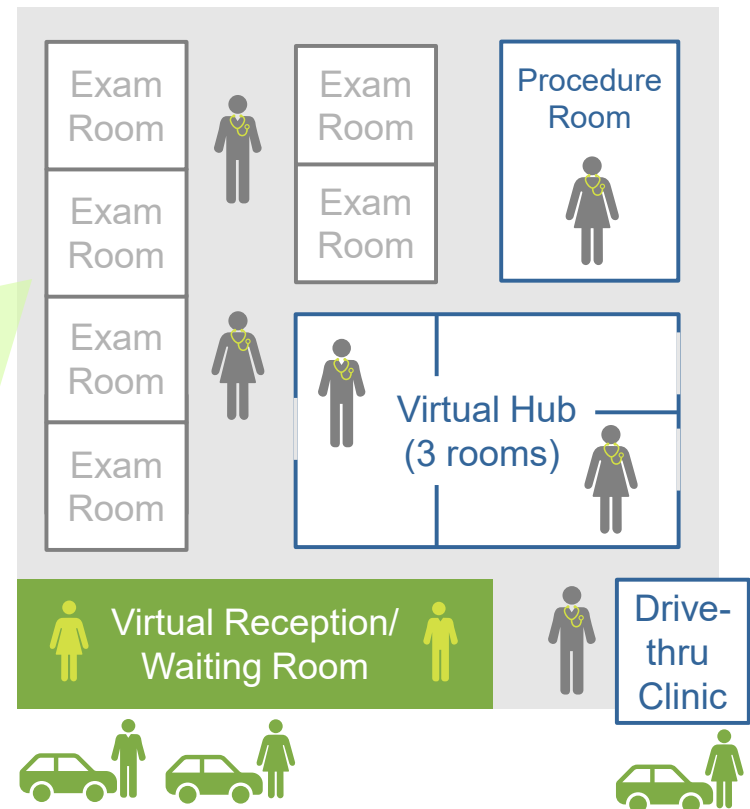
- 32 visits/room/day
- 80 square feet per room
- Fewer support staff needs
- **Efficient.** Patient comes to doctor (virtually).

Figure 57- Innovative Environment of Care Programming Benchmarks

FLEXIBLE PATIENT CARE FRAMEWORK
SCALABLE DATA-DRIVEN PROGRAMMING

Rural health clinics must be able to accommodate fluctuations in staff and workloads while ensuring standardized care delivery. Training and experience of care providers can be diverse, and their ability to provide a first-time-right diagnosis can often lead to highly varied quality patient care. When quality of care varies, it has a cascading effect of higher costs and unpredictable outcomes. Quality of care variation can be reduced by standardizing care delivery with evidence-based care and operational efficiency. Standardizing care delivery introduces predictability in typically unpredictable environment.

Standardizing clinical spaces requires a standardized care delivery, thereby driving clinical configurations and dimensions for a consistent environment of care. The standardization of clinical space is extremely useful for traveling providers to deliver seamless care across a variety of locations. Rural healthcare facilities must create an environment of care that is suitable for embracing their strengths and mitigating their challenges. This requires a scalable program.

Rural healthcare delivery is not a one-size-fits-all. What often works for one community won't be successful in another. However, developing environment of care performance benchmarks, like those proposed in Figure 57, can help lead data-driven programming and provide more evidence-based recommendations for a primary clinic model. These benchmarks are data-based assumptions that lend ability to right-size a clinic based on variety of community factors, like socioeconomic demographics, population health, and social determinants of health impacting the community. Incorporating population health data, health market analysis, and provider availability can lend itself to community driven recommendations for community medical care. Through data driven standardization, adaptability can be realized.

VERSATILITY	MODIFIABILITY	CONVERTIBILITY	SCALABILITY
Allows multiple uses	Manipulate for different uses	Adapt for new uses	Expands or contracts
"I can do different things in it"	"I can change it"	"It can be changed"	"It can grow or shrink"
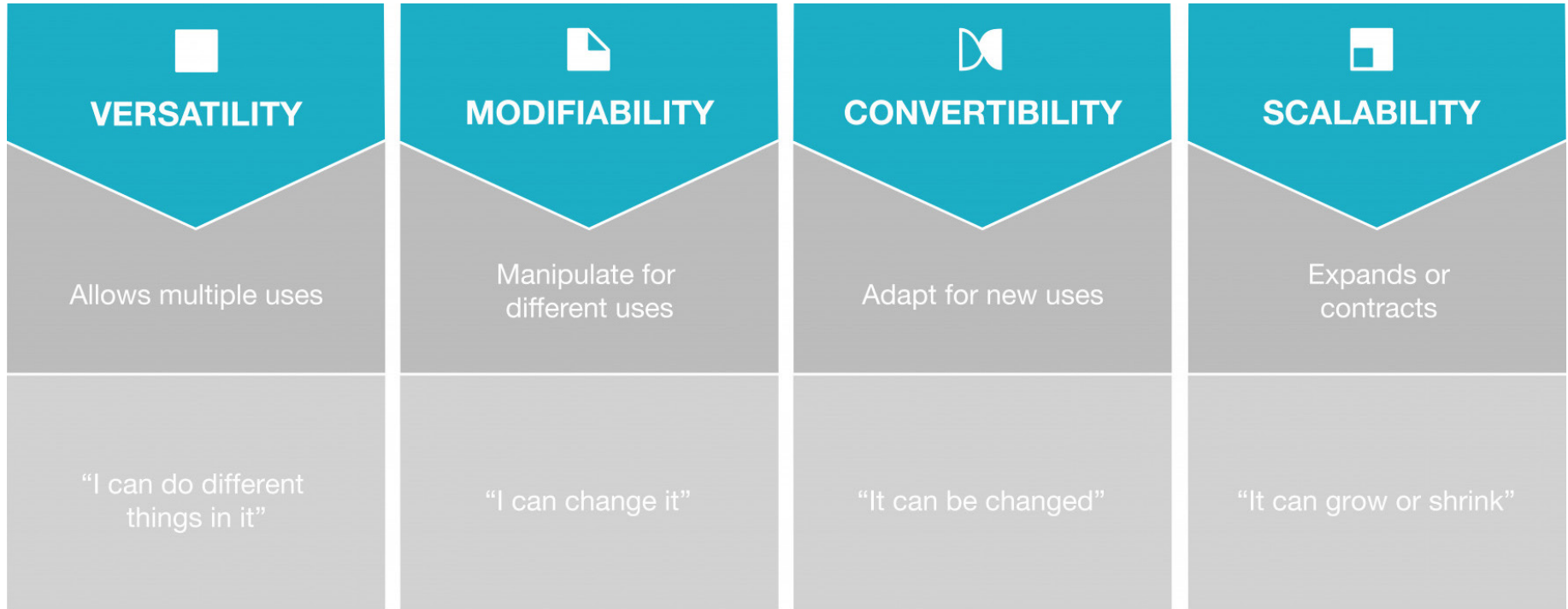
Figure 58- Adaptability in Healthcare Environments

FLEXIBLE PATIENT CARE FRAMEWORK

STANDARDIZED ADAPTIVE DESIGN

"Technology is changing so fast that providers can bring care to the consumer quicker and in a different way" (Nanda et al. 2019). Providers recognize that they need to simply deliver complex care differently than they have in the past. To do so, providers need standardized adaptable environments of care that can evolve with innovations. Standardized Adaptive Design can reduce complexity, which is important when adaptability is needed . Standardization is a key strategy to reduce risk of error and improve quality in patient care. For rural primary care providers, standardization of patient rooms, treatment rooms, equipment and care processes, reduces reliance on short-term memory.

The lengthy healthcare design and construction process is often misaligned with the rapid cycle of innovation and standardization in patient care. As a result, some facilities are partially obsolete when they open, and nearly every healthcare structure will be obsolete before it has completed its usable life (Joint Commission 2008). The pace of change in the industry, combined with an increased value in sustainability, requires a closer look at the intent of healthcare design. Sustainable healthcare design necessitates a framework to pursue standardized adaptive design in the environment of care. Standardized adaptive design, as depicted in Figures 58 and 59, is a way to reduce the inconvenience and cost of these inevitable changes in patient care through versatility, modifiability, convertibility, and scalability strategies (Nanda et al. 2019).

VERSATILITY

The ability or intention for a space to be used for multiple functions requiring no physical change epitomizes versatility (Steelcase Health 2019b). As a design strategy, it empowers people to determine how they use it. An example is a patient room with versatile design can accommodate the standard patient exam, as well as small procedures (Joint Commission 2008). The different

functions can be accommodated by simply designing the space to maximize use through providing the flexibility to operate for a different function as needed.

MODIFIABILITY

Modifiability welcomes a user to actively change a space to support a desired function without permanent structure change (Steelcase Health 2019b). As a design strategy, modifiability aligns mostly with the building interior with signifcant impacts on the furniture, fixtures, and equipment (Nanda et al. 2019). An example is a patient room equipped with plumbing, gasses, and electrical systems in the wall for ability to modify space for critical care program (Joint Commission 2008).

CONVERTIBILITY

Convertibility adapts space for new uses that typically require minor renovation (Steelcase Health 2019b). While similar to modifiability it operates at a larger scale and tends to remain altered for a longer period of time (Nanda et al. 2019). Including a storage space with a knockout panel in the floor slab to allow for a future elevator is a great example of this type of convertibility (Joint Commission 2008).

SCALABILITY

The ability for a building to expand or contract according to changing demands exemplifies scalability (Nanda et al. 2019). Scalable spaces can physically grow or shrink, but often need major renovation work (Steelcase Health 2019b). This ability often requires understanding of the entirety of the building systems. This knowledge makes this the most complex adaptive strategy. A typical example of this in healthcare is providing a shell space in a building, that is left intentionally unfinished but was constructed in order to meet future needs for expansion.

Kitchen Table

Baby Crib

Shipping Container

International Space Station

VERSATILITY
I can do different things in it

MODIFIABILITY
I can change it

CONVERTIBILITY
It can change

SCALABILITY
It can grow or shrink

LEVEL OF EASE

easy — difficult

easy — difficult

easy — difficult

easy — difficult

EXAMPLES

+ multi-purpose space
+ built-ins with multiple uses

+ mobile furniture
+ moveable partitions
+ rolling equipment

+ demountable partitions
+ reconfigurable walls

+ structure
+MEP

TIMEFRAME

a single user can change use within minutes

a single user can change within minutes to weeks

a facility can change within weeks to months

a facility can change within months to years

COST

first cost

first cost

renovation

new construction

STATE CHANGE

Adapt between states

Adapt to a new state

Figure 59- Standardized Adaptable Design

Figure 60- Shearing Building Layers: Social

Figure 61- Shearing Building Layers: Stuff
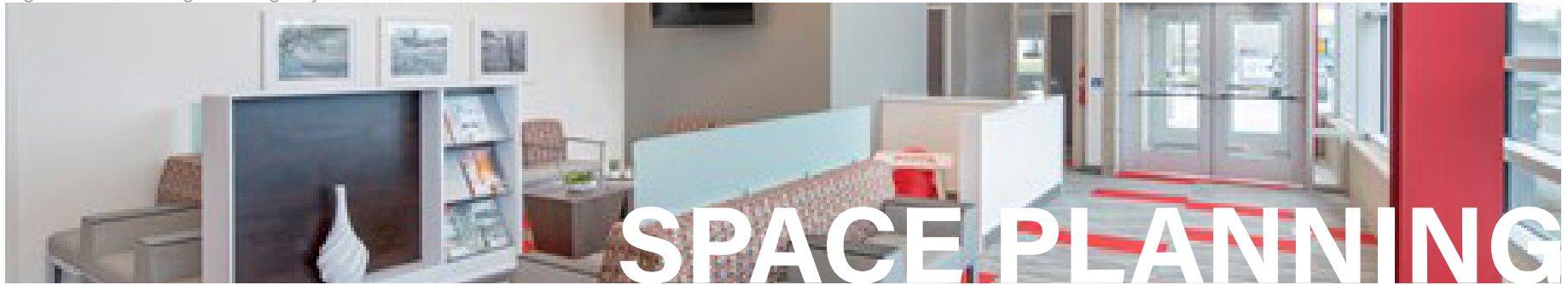
Figure 62- Shearing Building Layers: Space Planning
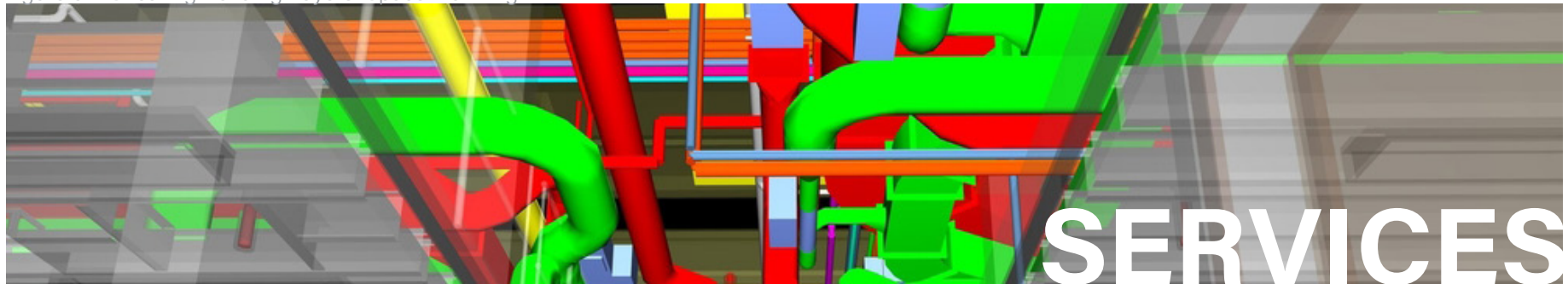
Figure 63- Shearing Building Layers: Services
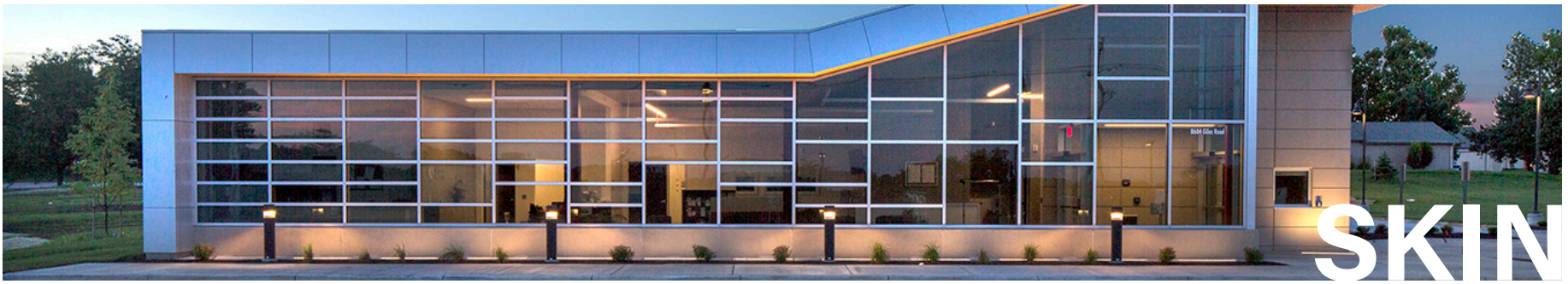
SKIN

Figure 64- Shearing Building Layers: Skin

STRUCTURE

Figure 65- Shearing Building Layers: Structure

SITE

Figure 66- Shearing Building Layers: Site

SURROUNDINGS

Figure 67- Shearing Building Layers: Surrounding
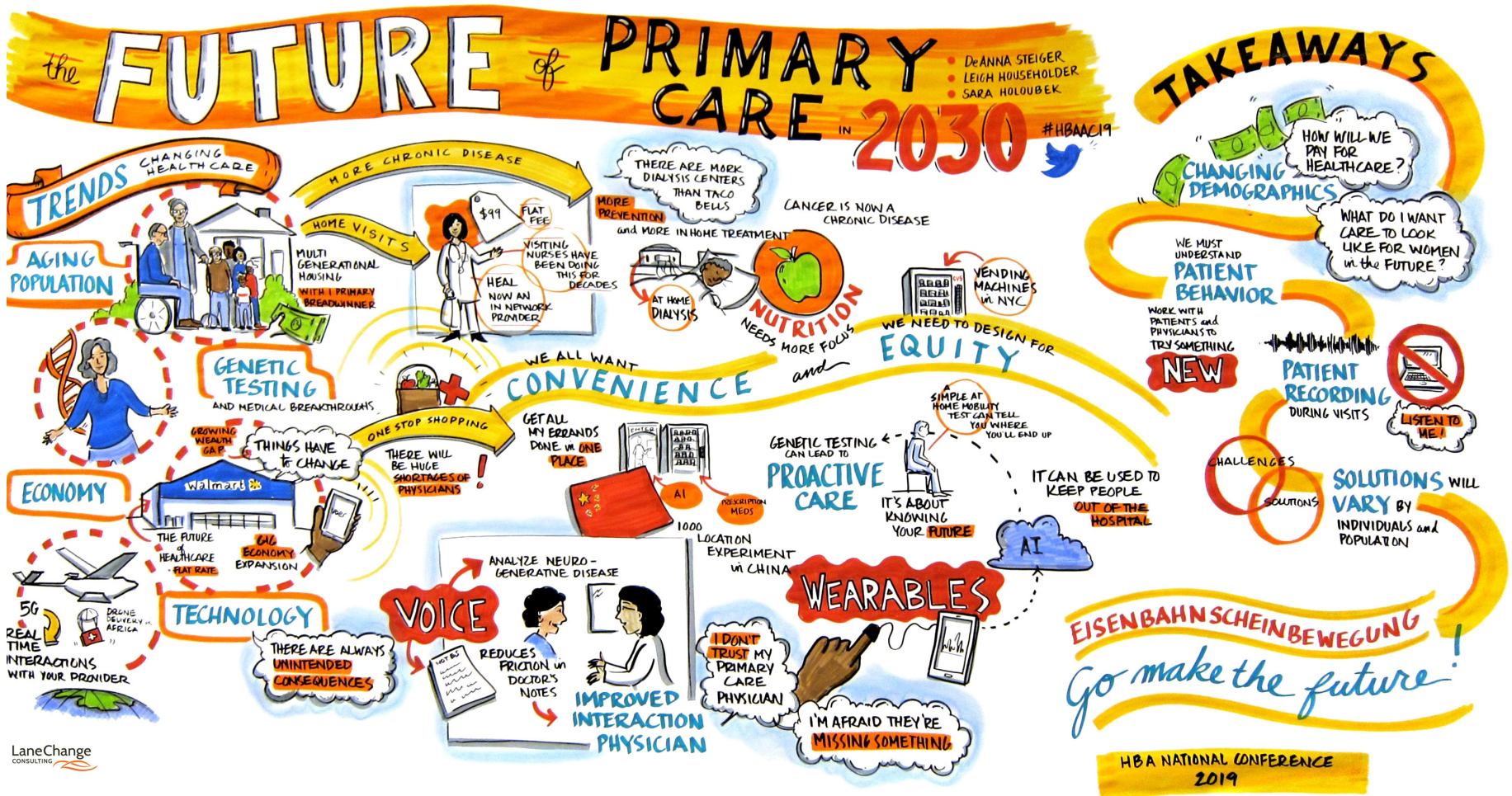
Figure 68- The Future of Primary Care

Collect Baseline Performance Measures

CONCLUSION

When this investigation began it wasn't known where the investigation would go. The investigation started intentionally broad to understand the complex interrelated challenges associated with rural patient care. Through this investigation six barriers to the user experience and clinical sustainability within rural patient care were identified: accessibility to healthcare services; acceptability of need-based care; affordability of healthcare services; sustainability of clinical operations; quality medical care; and finally, availability of human capital and medical resources.

These barriers lessened the impact of primary healthcare in rural areas. Further research was conducted to understand what was driving the trends in design in order to improve equity, efficiency and outcomes to improve economic benefits of primary care in rural communities. The research identified five key drivers for the future or primary care: a changing healthcare system stimulated by a global pandemic and ongoing healthcare reform; an emerging multi-generational patient population with more complex chronic medical conditions; new team-based care model as a result of chronic staffing shortages; embracing technology in patient care; and revolutionizing the standard of care toward a more precise personalized medical care. These drivers are pushing a key trend in patient care to extend access to affordable high quality care met with seamless integration of technology, to ensure a personalized experience. The future of primary care is on the horizon through understanding the barriers, drivers, and trends of health care in America we can begin to realize the potential innovative change on the horizon, as depicted in Figure 68. The Future of Primary Care is being driven to improve the environment of care by adopting innovative trends to enable a change ready care delivery system. However, to reach equity, find efficiency, and improve outcomes solutions will vary by local circumstances.

OPERATIONS

TIME FLEX + ROLE FLEX + RESOURCE FLEX + SPACE FLEX = SYSTEMIC CHANGE-READINESS

VERSATILITY   MODIFIABILITY   CONVERTIBILITY   SCALABILITY
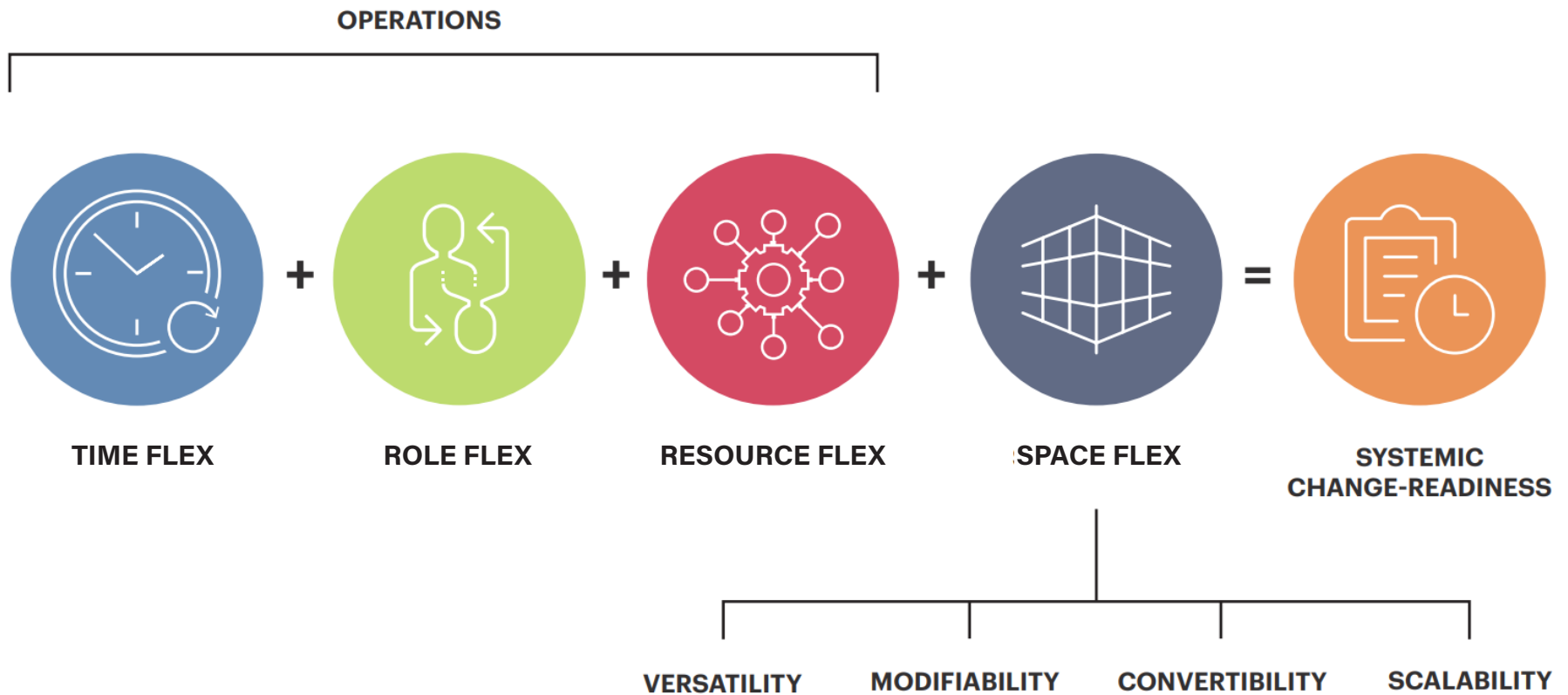
Figure 69- A Flexible Framework

CONCLUSION

COMMUNITY REGIONAL PLANNING IMPLICATIONS

Improving the user experience and clinical sustainability in rural Nebraska is vital to the economic stability of the state. The benefits that community health centers bring to their communities are significant. Actively engaging with patients where they are living increases the likelihood of utilization of preventative care. Proper preventative care improves population health by improving individual health outcomes, improves equity through reduced ill-health impoverishment and increases efficiency by decreasing care-related expenses and reducing unnecessary medical visits. An efficient care delivery system with improved outcomes that equitably serves their patients leads to significant economic benefits locally and regionally. Enabling systemic progress to radically innovate patient care delivery systems in rural areas takes harnessing a multi-disciplinary approach to collect quantitative and qualitative data in order to identify where intervention is needed. However, harnessing the amount of data available and providing steps toward progress takes change ready health systems.

vertical circulation

building envelope

primary plant

structure

main corridors

access points

ceiling

equipment

furniture

interior partitions

floor plan layout

floors

SPACE FLEX

VERSATILITY   MODIFIABILITY   CONVERTIBILITY   SCALABILITY
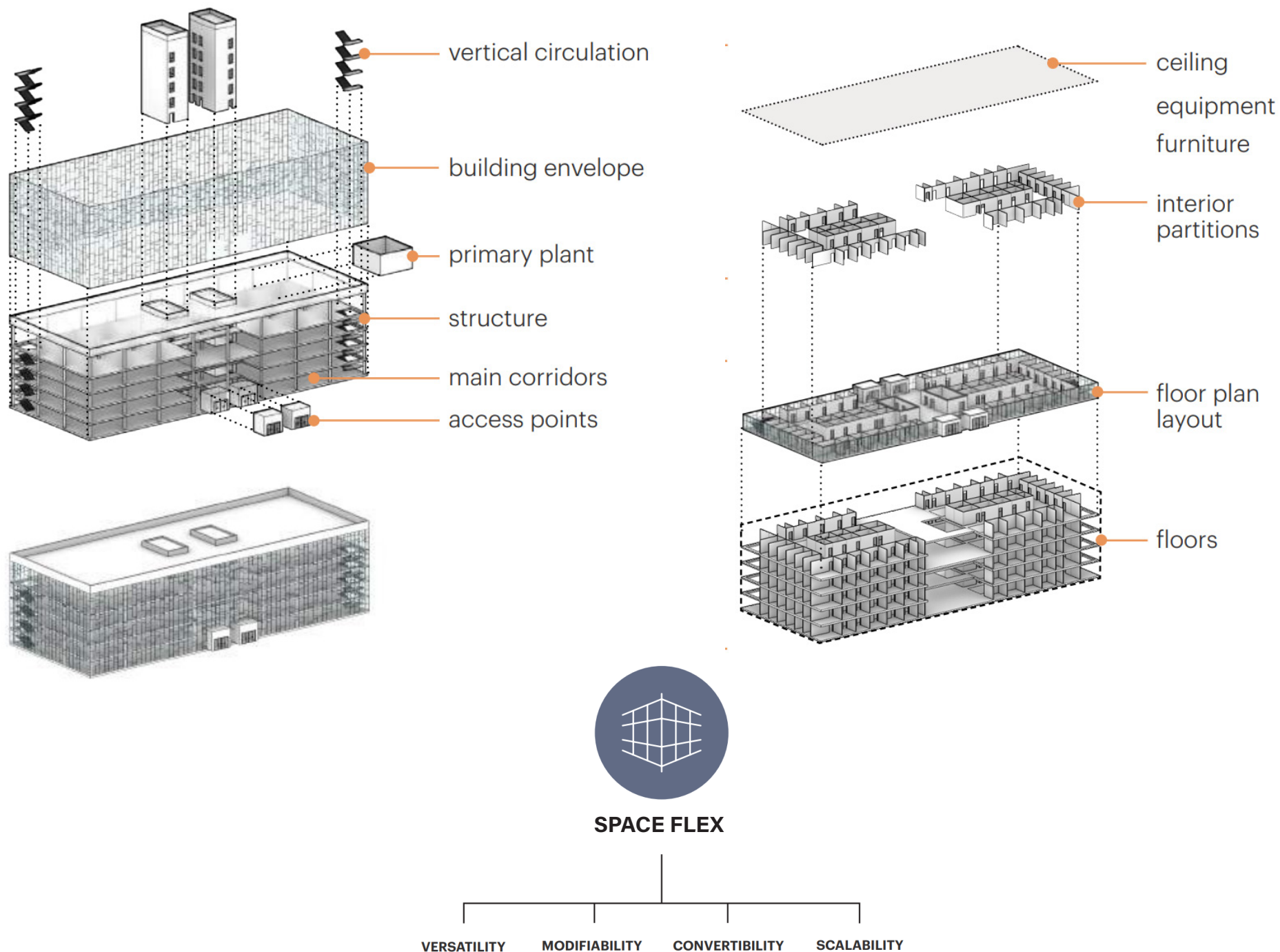
Figure 70- Base Building- Primary System

CONCLUSION

ARCHITECTURAL IMPLICATIONS

The flexible care framework distilled from the research outlines how a multidisciplinary approach can support improve equity, efficiency, and outcomes and provide adaptable settings for small rural primary care clinics. Flexible environments of care offer opportunity to adapt to operational, functional, demographic, climate and economic changes over time to ensure the facility remains a strategic asset. Various guidelines should be taken into account when formulating a comprehensive flexible care framework. The most common users of a primary care clinic are members of the care team and the design guidelines need to express their patient care delivery model. Buildings must be flexible in order to adapt.

Following the establishment of design guidelines, a model space program provides options to verify space needs for a rural primary care facility. The exam area is the nexus of a successful patient encounter focusing on whole-health. Primary care services are now often supplemented with lifestyle and mental health education, and that increases the dynamics of the exam room. Activating the patient to manage their own personal health means a fundamental shift in consultation. The ability to support the care coordination across the emerging patient care team is a driving facility concern. Enabling collaboration and care coordination while also managing patient privacy concerns is important. In order to foster this collaborative work teams, centralized shared workspaces are quite effective to intensify the relationship between provider and care staff.
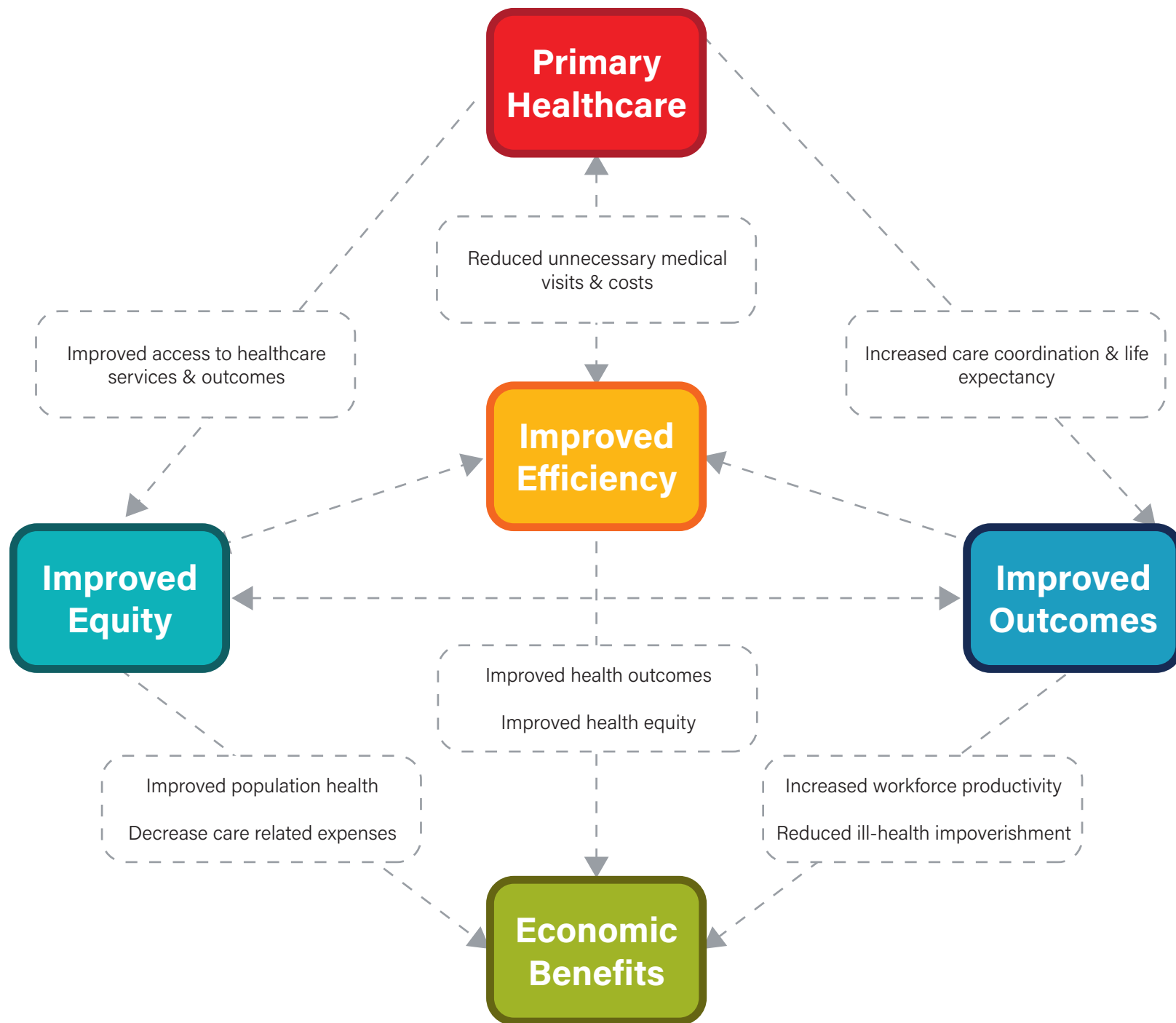
Figure 71- Conceptual Framework for Improved Primary Healthcare

CONCLUSION

CRITIQUE OF POTENTIAL INNOVATION IN RURAL HEALTHCARE

Our reality is changing at an ever-increasing rate. COVID-19 pandemic and other factors and trends are changing perceptions of healthcare. While this presents challenges, it also creates opportunities. The rapid acceptance of alternative healthcare delivery models as a result of the ongoing global pandemic provides opportunities to reinvent how and where to provide high-quality healthcare to under-served populations with limited resources. To succeed, we all must anticipate and take advantage of constantly changing environments. In order to capture the radical opportunity to drive innovative patient-centered care to all Americans will require the seamless integration of technology to enable an affordable high quality personalized patient care that is extended throughout the nation. This innovative patient-centered care will need to impact all levels of the environment of care to improve outcomes, efficiency and equity in order to realize the lasting evolutionary impact, shown in Figure 41. As designers we have direct impact on the physical environment of care; however, we can generate a systemic evolution in the environment of care driven by data and evidence-based interventions to lead a multi-disciplinary reimagining of the patient experience while operational efficiency for our health providers.

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APPENDIX

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APPENDIX

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APPENDICES

APPENDICES

APPENDIX A: TABLE OF RURAL HEALTH CLINICS IN NEBRASKA

Facility Name	Address	City	County	Facility Type	Trauma Designation
AMH Clearwater Clinic	308 Nevada St, Clearwater, NE 68726	Clearwater	Antelope	Rural Health Clinics (RHC)	Level 5- No Designation
AMH Elgin Clinic	101 West Cedar Street	Elgin	Antelope	Rural Health Clinics (RHC)	Level 5- No Designation
AMH Neligh Clinic	109 West 11th St	Neligh	Antelope	Rural Health Clinics (RHC)	Level 5- No Designation
AMH Orchard Clinic	103 Washington Street	Orchard	Antelope	Rural Health Clinics (RHC)	Level 5- No Designation
AMH Tilden Clinic	200 South Antelope St	Tilden	Antelope	Rural Health Clinics (RHC)	Level 5- No Designation
FRPS Family Medicine- Neligh	306 L St, Neligh, NE 68756	Neligh	Antelope	Rural Health Clinics (RHC)	Level 5- No Designation
FRPS Family Medicine- Tilden	306 W. 2nd St, Tilden, NE 68781	Tilden	Antelope	Rural Health Clinics (RHC)	Level 5- No Designation
Boone County Medical Clinic	1019 S 8th St, Albion, NE 68620	Albion	Boone	Rural Health Clinics (RHC)	Level 5- No Designation
Greater Nebraska Medical & Surgical Services- Alliance	2091 Box Butte Ave, Alliance, NE 69301	Alliance	Box Butte	Rural Health Clinics (RHC)	Level 5- No Designation
Greater Nebraska Medical & Surgical Services- Hemingford	812 Laramie Ave, Hemingford, NE 69348	Hemingford	Box Butte	Rural Health Clinics (RHC)	Level 5- No Designation
Avera Medical Group Butte	730 Wilson St, Butte, NE 68722	Butte	Boyd	Rural Health Clinics (RHC)	Level 5- No Designation
Avera Medical Group Spencer	103 South Thayer St, Spencer, NE 68777	Spencer	Boyd	Rural Health Clinics (RHC)	Level 5- No Designation
Niobrara Valley Medical Clinic- Lynch	401 5th St, Lynch, NE 68746	Lynch	Boyd	Rural Health Clinics (RHC)	Level 5- No Designation
Niobrara Valley Medical Clinic-Spencer	108 W Evans St, Spencer, NE 68777	Spencer	Boyd	Rural Health Clinics (RHC)	Level 5- No Designation
Ainsworth Family Clinic	913 E Zero St, Ainsworth, NE 69210	Ainsworth	Brown	Rural Health Clinics (RHC)	Level 5- No Designation
Burgess Family Clinic Decatur	823 South Broadway #120, Decatur, NE 68020	Decatur	Burt	Rural Health Clinics (RHC)	Level 5- No Designation
MercyOne Lyons Family Medicine	220 N Main St, Lyons, NE 68038	Lyons	Burt	Rural Health Clinics (RHC)	Level 5- No Designation
MercyOne Oakland Family Medicine	211 N Engdahl Ave, Oakland, NE 68045	Oakland	Burt	Rural Health Clinics (RHC)	Level 5- No Designation

Facility Name	Address	City	County	Facility Type	Trauma Designation
MercyOne Tekamah Family Medicine	1121 S. 13th St., Tekamah, Nebraska 68061	Tekamah	Burt	Rural Health Clinics (RHC)	Level 5- No Designation
Mermorial Community Hospital- Cottonwood Clinic	3519 NE-32, Tekamah, NE 68061	Tekamah	Burt	Rural Health Clinics (RHC)	Level 5- No Designation
Oakland Family Practice	100 W 9th St, Oakland, NE 68045	Oakland	Burt	Rural Health Clinics (RHC)	Level 5- No Designation
Syracuse Area Health- Weeping Water Clinic	204 N Randolph St, Weeping Water, NE 68463	Weeping Water	Cass	Rural Health Clinics (RHC)	Level 5- No Designation
Avera Medical Group Hartington	405 W Darlene St, Hartington, NE 68739	Hartington	Cedar	Rural Health Clinics (RHC)	Level 5- No Designation
FRPS Family Medicine- Laurel	218 E. 2nd St, Laurel, NE 68745	Laurel	Cedar	Rural Health Clinics (RHC)	Level 5- No Designation
Randolph Family Practice Clinic	106 E Wayne St, Randolph, NE 68771	Randolph	Cedar	Rural Health Clinics (RHC)	Level 5- No Designation
Chase County Clinic- Imperial	600 W 12th St, Imperial, NE 69033	Imperial	Chase	Rural Health Clinics (RHC)	Level 5- No Designation
Chase County Clinic- Wauneta	308 N Tecumseh Ave, Wauneta, NE 69045	Wauneta	Chase	Rural Health Clinics (RHC)	Level 5- No Designation
Cherry County Clinic	512 N Green St, Valentine, NE 69201	Valentine	Cherry	Rural Health Clinics (RHC)	Level 5- No Designation
Valentine Medical Clinic	502 N Cherry St, Valentine, NE 69201	Valentine	Cherry	Rural Health Clinics (RHC)	Level 5- No Designation
KHS Potter Clinic	922 1/2 Sherman Street, Potter, NE 69156	Potter	Cheyenne	Rural Health Clinics (RHC)	Level 5- No Designation
Sidney Regional Medical Center Physicians Clinic	1000 Pole Creek Crossing, Sidney, NE 69162	Sidney	Cheyenne	Rural Health Clinics (RHC)	Level 5- No Designation
BMH-Edgar Medical Clinic	315 N C St, Edgar, NE 68935	Edgar	Clay	Rural Health Clinics (RHC)	Level 5- No Designation
Sutton Family Practice	208 N French Ave, Sutton, NE 68979	Sutton	Clay	Rural Health Clinics (RHC)	Level 5- No Designation
CHI Health Clinic Clarkson	322 Pine St, Clarkson, NE 68629	Clarkson	Colfax	Rural Health Clinics (RHC)	Level 5- No Designation
CHI Health Clinic Howells	121 S 6th St, Howells, NE 68641	Howells	Colfax	Rural Health Clinics (RHC)	Level 5- No Designation
CHI Health Clinic Schyler	1721 Colfax St, Schuyler, NE 68661	Schuyler	Colfax	Rural Health Clinics (RHC)	Level 5- No Designation
Franciscan Healthcare Howells Clinic	119 S 3rd St, Howells, NE 68641	Howells	Colfax	Rural Health Clinics (RHC)	Level 5- No Designation
Bancroft Medical Clinic	219 N Main St, Bancroft, NE 68004	Bancroft	Cuming	Rural Health Clinics (RHC)	Level 5- No Designation
Beemer Medical Center	212 Main St, Beemer, NE 68716	Beemer	Cuming	Rural Health Clinics (RHC)	Level 5- No Designation
Franciscan Healthcare Clinic- West Point	430 N Monitor St, West Point, NE 68788	West Point	Cuming	Rural Health Clinics (RHC)	Level 5- No Designation
FRPS Family Medicine- Wisner	1101 9th St, Wisner, NE 68791	Wisner	Cuming	Rural Health Clinics (RHC)	Level 5- No Designation

Facility Name	Address	City	County	Facility Type	Trauma Designation
Wisner Family Practice	2100 21st Cir # A, Wisner, NE 68791	Wisner	Cuming	Rural Health Clinics (RHC)	Level 5- No Designation
Arnold Medical Clinic	104 N Broadway St, Arnold, NE 69120	Arnold	Custer	Rural Health Clinics (RHC)	Level 5- No Designation
Callaway Medical Clinic	211 E Kimball St, Callaway, NE 68825	Callaway	Custer	Rural Health Clinics (RHC)	Level 5- No Designation
Emerson Medical Clinic	1003 Main St Suite 1, Emerson, NE 68733	Emerson	Dakota	Rural Health Clinics (RHC)	Level 5- No Designation
Legend Buttes Health Services	11 Paddock St, Crawford, NE 69339	Crawford	Dawes	Rural Health Clinics (RHC)	Level 5- No Designation
Cozad Community Medical Clinic	1803 Papio Ln, Cozad, NE 69130	Cozad	Dawson	Rural Health Clinics (RHC)	Level 5- No Designation
Family Medicine Specialists	1105 N Erie St, Lexington, NE 68850	Lexington	Dawson	Rural Health Clinics (RHC)	Level 5- No Designation
Gothenburg Clinic	918 20th St, Gothenburg, NE 69138	Gothenburg	Dawson	Rural Health Clinics (RHC)	Level 5- No Designation
Gothenburg Medical Arts Rural Health Clinic- The Remedy	619 10th St, Gothenburg, NE 69138	Gothenburg	Dawson	Rural Health Clinics (RHC)	Level 5- No Designation
Sidney Regional Medical Center Physicians Clinic- Chappell	562 Vincent Ave, Chappell, NE 69129	Chappell	Deuel	Rural Health Clinics (RHC)	Level 5- No Designation
FRPS Family Medicine- Wakefield	301 E. 7th St, Wakefield, NE 68784	Wakefield	Dixon	Rural Health Clinics (RHC)	Level 5- No Designation
Ponca Mercy Medical Clinic	111 E 2nd St, Ponca, NE 68770	Ponca	Dixon	Rural Health Clinics (RHC)	Level 5- No Designation
Franciscan Healthcare Scribner Clinic	429 Main St, Scribner, NE 68057	Scribner	Dodge	Rural Health Clinics (RHC)	Level 5- No Designation
Hooper Medical Clinic	600 E Fulton St, Hooper, NE 68031	Hooper	Dodge	Rural Health Clinics (RHC)	Level 5- No Designation
Qualtiy Health Services Medical Clinic	1313 Cheyenne St, Benkelman, NE 69021	Benkelman	Dundy	Rural Health Clinics (RHC)	Level 5- No Designation
FCMH Campbell Medical Clinic	148 S Taylor St, Campbell, NE 68932	Campbell	Franklin	Rural Health Clinics (RHC)	Level 5- No Designation
FCMH Hildreth Medical Clinic	511 Hubbard St, Hildreth, NE 68947	Hildreth	Franklin	Rural Health Clinics (RHC)	Level 5- No Designation
FCMH Pool Medical Clinic	1406 Q St, Franklin, NE 68939	Franklin	Franklin	Rural Health Clinics (RHC)	Level 5- No Designation
Curtis Medical Center	302 E 6th St, Curtis, NE 69025	Curtis	Frontier	Rural Health Clinics (RHC)	Level 5- No Designation
Arapahoe Medical Clinic	609 Locust St, Arapahoe, NE 68922	Arapahoe	Furnas	Rural Health Clinics (RHC)	Level 5- No Designation
Cambridge Medical Clinic	1305 US-6, Cambridge, NE 69022	Cambridge	Furnas	Rural Health Clinics (RHC)	Level 5- No Designation
Heartland Family Medicine- Oxford	811 Howell St, Oxford, NE 68967	Oxford	Furnas	Rural Health Clinics (RHC)	Level 5- No Designation
Adams Primary Care	620 Main St A, Adams, NE 68301	Adams	Gage	Rural Health Clinics (RHC)	Level 5- No Designation

Facility Name	Address	City	County	Facility Type	Trauma Designation
Beatrice Internal Medicine	4800 Hospital Pkwy, Beatrice, NE 68310	Beatrice	Gage	Rural Health Clinics (RHC)	Level 5- No Designation
Beatrice Medical Center	805 W Court St, Beatrice, NE 68310	Beatrice	Gage	Rural Health Clinics (RHC)	Level 5- No Designation
Community Physicians Clinic Wymore	100 N 7th St, Wymore, NE 68466	Wymore	Gage	Rural Health Clinics (RHC)	Level 5- No Designation
Gage County Medical Clnic	1101 N 10th St, Beatrice, NE 68310	Beatrice	Gage	Rural Health Clinics (RHC)	Level 5- No Designation
The Beatrice Women's and Children's Clinic	4800 Hospital Parkway, Beatrice, NE 68310	Beatrice	Gage	Rural Health Clinics (RHC)	Level 5- No Designation
Wymore Medical Clinic	116 E H St, Wymore, NE 68466	Wymore	Gage	Rural Health Clinics (RHC)	Level 5- No Designation
Regional West Garden County Clinic	1100 W 2nd St Ste 100, Oshkosh, NE 69154	Oshkosh	Garden	Rural Health Clinics (RHC)	Level 5- No Designation
VCHS Medical Clinic	105 N 9th Ave STE B, Burwell, NE 68823	Burwell	Garfield	Rural Health Clinics (RHC)	Level 5- No Designation
Lexington Regional Health Center Elwood Clinic	202 Smith Ave, Elwood, NE 68937	Elwood	Gosper	Rural Health Clinics (RHC)	Level 5- No Designation
Greater Nebraska Medical & Surgical Services- Hyannis	111 S Main St, Hyannis, NE 69350	Hyannis	Grant	Rural Health Clinics (RHC)	Level 5- No Designation
Greely Medical Clinic	109 W O'Connor Ave PO Box 357, Greeley, NE 68842	Greeley	Greeley	Rural Health Clinics (RHC)	Level 5- No Designation
Spalding Medical Clinic	131 E Sullivan St, Spalding, NE 68665	Spalding	Greeley	Rural Health Clinics (RHC)	Level 5- No Designation
Heartland Family Medicine- Alma	906 W 7th St, Alma, NE 68920	Alma	Harlan	Rural Health Clinics (RHC)	Level 5- No Designation
Qualtiy Health Services Medical Clinic	903 Bailey Street, Stratton, NE 69043	Stratton	Hitchcock	Rural Health Clinics (RHC)	Level 5- No Designation
Trenton Medical Clinic	406 E 1st St, Trenton, NE 69044	Trenton	Hitchcock	Rural Health Clinics (RHC)	Level 5- No Designation
Avera Medical Group Chambers	110 Park Ave, Chambers, NE 68725	Chambers	Holt	Rural Health Clinics (RHC)	Level 5- No Designation
Avera Medical Group Ewing	202 Nebraska St, Ewing, NE 68735	Ewing	Holt	Rural Health Clinics (RHC)	Level 5- No Designation
Avera Medical Group O'Neill	300 N 2nd St, O'Neill, NE 68763	O'Neill	Holt	Rural Health Clinics (RHC)	Level 5- No Designation
Avera Medical Group Page	103 North 5th St, Page, NE 68766	Page	Holt	Rural Health Clinics (RHC)	Level 5- No Designation
Elkhorn Valley Family Medicine PC	304 E Douglas St, O'Neill, NE 68763	O'Neill	Holt	Rural Health Clinics (RHC)	Level 5- No Designation
West Holt Medical Clinic	405 W Pearl St, Atkinson, NE 68713	Atkinson	Holt	Rural Health Clinics (RHC)	Level 5- No Designation
Howard County Medical Clinic	1113 Sherman St, St Paul, NE 68873	Saint Paul	Howard	Rural Health Clinics (RHC)	Level 5- No Designation
Jefferson Communith Health & Life Fairbury Clinic	825 22nd St, Fairbury, NE 68352	Fairbury	Jefferson	Rural Health Clinics (RHC)	Level 5- No Designation

Facility Name	Address	City	County	Facility Type	Trauma Designation
Jefferson Communith Health & Life Plymouth Clinic	316 N Madison Ave, Plymouth, NE 68424	Plymouth	Jefferson	Rural Health Clinics (RHC)	Level 5- No Designation
Tecumseh Family Health	202 High St STE 100, Tecumseh, NE 68450	Tecumseh	Johnson	Rural Health Clinics (RHC)	Level 5- No Designation
Minden Medical Clinic	727 E 1st St, Minden, NE 68959	Minden	Kearney	Rural Health Clinics (RHC)	Level 5- No Designation
Banner Health Clinic	2601 N Spruce St Ste A, Ogallala, NE 69153	Ogallala	Keith	Rural Health Clinics (RHC)	Level 5- No Designation
KHS Kimball Clinic	505 South Burg Street, Kimball, NE 69145	Kimball	Kimball	Rural Health Clinics (RHC)	Level 5- No Designation
Avera Medical Group Creighton	1503 Main St, Creighton, NE 68729	Creighton	Knox	Rural Health Clinics (RHC)	Level 5- No Designation
Avera Medical Group Crofton	203 W Main St, Crofton, NE 68730	Crofton	Knox	Rural Health Clinics (RHC)	Level 5- No Designation
Avera Medical Group Niobrara	25410 Park Ave Apt E, Niobrara, NE 68760	Niobrara	Knox	Rural Health Clinics (RHC)	Level 5- No Designation
Avera Medical Group Verdigre	401 James St. Verdigre, NE 68783	Verdigre	Knox	Rural Health Clinics (RHC)	Level 5- No Designation
Wausa Medical Clinic	100 N Llincoln St, Wausa, NE 68786	Wausa	Knox	Rural Health Clinics (RHC)	Level 5- No Designation
FRPS Family Medicine- Battle Creek	209 W. Main St, Battle Creek, NE 68715	Battle Creek	Madison	Rural Health Clinics (RHC)	Level 5- No Designation
FRPS Family Medicine- Norfolk	2700 W Norfolk Ave, Norfolk, NE 68701	Norfolk	Madison	Rural Health Clinics (RHC)	Level 5- No Designation
Newman Grove Medical Clinic	108 N 1st St, Newman Grove, NE 68758	Newman Grove	Madison	Rural Health Clinics (RHC)	Level 5- No Designation
Bryan Health- Central City Medical Clinic	2510 18th Ave, Central City, NE 68826	Central City	Merrick	Rural Health Clinics (RHC)	Level 5- No Designation
Chimney Rock Medical Center	320 Main St, Bayard, NE 69334	Bayard	Morrill	Rural Health Clinics (RHC)	Level 5- No Designation
Morill County Hospital Clinic	1313 S St, Bridgeport, NE 69336	Bridgeport	Morrill	Rural Health Clinics (RHC)	Level 5- No Designation
Bryan Health- Fullerton Medical Clinic	901 Broadway St, Fullerton, NE 68638	Fullerton	Nance	Rural Health Clinics (RHC)	Level 5- No Designation
Nance County Medical Clinic	405 Broadway St, Fullerton, NE 68638	Fullerton	Nance	Rural Health Clinics (RHC)	Level 5- No Designation
Park Street Medical Clinic	505 S Park St, Genoa, NE 68640	Genoa	Nance	Rural Health Clinics (RHC)	Level 5- No Designation
BMH- Nelson Family Medical Center	76 W 8th St, Nelson, NE 68961	Nelson	Nuckolls	Rural Health Clinics (RHC)	Level 5- No Designation
Superior Family Medical Center	525 E 11th St, Superior, NE 68978	Superior	Nuckolls	Rural Health Clinics (RHC)	Level 5- No Designation
CHI- Nebraska City Medical Clinic	1301 Grundman Blvd Ste A, Nebraska City, NE 68410	Nebraska City	Otoe	Rural Health Clinics (RHC)	Level 5- No Designation
Syracuse Area Health- Family Practice Clinic	2731 Healthcare Dr, Syracuse, NE 68446	Syracuse	Otoe	Rural Health Clinics (RHC)	Level 5- No Designation

Facility Name	Address	City	County	Facility Type	Trauma Designation
Pawnee County Rural Health Clinic	600 I St, Pawnee City, NE 68420	Pawnee CIty	Pawnee	Rural Health Clinics (RHC)	Level 5- No Designation
Grant Medical Clinic	900 Lincoln Ave, Grant, NE 69140	Grant	Perkins	Rural Health Clinics (RHC)	Level 5- No Designation
Lexington Regional Health Center Bertrand Clinic	402 Minor Ave, Bertrand, NE 68927	Bertrand	Phelps	Rural Health Clinics (RHC)	Level 5- No Designation
Phelps Medical Group	1315 Tibbals St, Holdrege, NE 68949	Holdrege	Phelps	Rural Health Clinics (RHC)	Level 5- No Designation
Avera Medical Group Pierce	503 N 6th St, Pierce, NE 68767	Pierce	Pierce	Rural Health Clinics (RHC)	Level 5- No Designation
CHI Health Clinic Plainview	704 N 3rd St, Plainview, NE 68769	Plainview	Pierce	Rural Health Clinics (RHC)	Level 5- No Designation
FRPS Family Medicine- Pierce	215 E. Main St, Pierce, NE 68767	Pierce	Pierce	Rural Health Clinics (RHC)	Level 5- No Designation
FRPS Columbus Medical Specialities	3763 39th Ave., Ste. 600, Columbus, NE 68601	Columbus	Platte	Rural Health Clinics (RHC)	Level 5- No Designation
FRPS Family Medicine- Humphrey	47452 268th Ave Ste. C, Humphrey, NE 68642	Humphrey	Platte	Rural Health Clinics (RHC)	Level 5- No Designation
Humphrey Medical Clinic	303 Main St, Humphrey, NE 68642	Humphrey	Platte	Rural Health Clinics (RHC)	Level 5- No Designation
Indianola Medical Clinic	119 S 4th St, Indianola, NE 69034	Indianola	Red Willow	Rural Health Clinics (RHC)	Level 5- No Designation
Community Medical Center Family Medicine Clinic	3307 Barada St, Falls City, NE 68355	Falls City	Richardson	Rural Health Clinics (RHC)	Level 5- No Designation
Humboldt Family Medicine	1120 Grand Ave, Humboldt, NE 68376	Humboldt	Richardson	Rural Health Clinics (RHC)	Level 5- No Designation
Rock County Clinic	801 S State St, Bassett, NE 68714	Bassett	Rock County	Rural Health Clinics (RHC)	Level 5- No Designation
Bryan Health- Crete Area Medical Clinic	2910 Betten Dr, Crete, NE 68333	Crete	Saline	Rural Health Clinics (RHC)	Level 5- No Designation
Bryan Health- Friend Medical Center	1210 2nd St, Friend, NE 68359	Friend	Saline	Rural Health Clinics (RHC)	Level 5- No Designation
Bryan Health Wilber Medical Clinic	203 W 4th St, Wilber, NE 68465	Wilber	Saline	Rural Health Clinics (RHC)	Level 5- No Designation
Ashland Family Clinic	705 N 17th Ave, Ashland, NE 68003	Ashland	Saunders	Rural Health Clinics (RHC)	Level 5- No Designation
Saunders Medical Center- Rural Health Clinic	1760 County Road J, Wahoo, NE 68066	Wahoo	Saunders	Rural Health Clinics (RHC)	Level 5- No Designation
Regional West Physicians Clinic	302 Center Ave PO Box 568, Morrill, NE 69358	Morrill	Scotts Bluff	Rural Health Clinics (RHC)	Level 5- No Designation
Milford Family Medical Center	119 S C St, Milford, NE 68405	Milford	Seward	Rural Health Clinics (RHC)	Level 5- No Designation
Seward Family Medical Center	300 N Columbia Ave, Seward, NE 68434	Seward	Seward	Rural Health Clinics (RHC)	Level 5- No Designation
Utica Family Medical Center	100 4th St, Utica, NE 68456	Utica	Seward	Rural Health Clinics (RHC)	Level 5- No Designation

Facility Name	Address	City	County	Facility Type	Trauma Designation
Gordon Clinic	807 N Ash St, Gordon, NE 69343	Gordon	Sheridan	Rural Health Clinics (RHC)	Level 5- No Designation
Rushville Clinic	307 Conrad St, Rushville, NE 69360	Rushville	Sheridan	Rural Health Clinics (RHC)	Level 5- No Designation
Loup City Medical Clinic	130 N 6th St, Loup City, NE 68853	Loup City	Sherman	Rural Health Clinics (RHC)	Level 5- No Designation
VCHS Medical Clinic	130 N 6th St, Loup City, NE 68853	Loup City	Sherman	Rural Health Clinics (RHC)	Level 5- No Designation
FRPS Family Medicine- Stanton	1009 Ivy St, Stanton, NE 68779	Stanton	Stanton	Rural Health Clinics (RHC)	Level 5- No Designation
Chester Medical Clinic	116 Huron St, Chester, NE 68327	Chester	Thayer	Rural Health Clinics (RHC)	Level 5- No Designation
Deshler Medical Clinic	615 4th St, Deshler, NE 68340	Deshler	Thayer	Rural Health Clinics (RHC)	Level 5- No Designation
Hebron Medical Clinic	120 Park Ave Hebron, NE 68370	Hebron	Thayer	Rural Health Clinics (RHC)	Level 5- No Designation
TCHS- Bruning Medical Clinic	108 N Fillmore, Bruning, NE 68322	Bruning	Thayer	Rural Health Clinics (RHC)	Level 5- No Designation
TCHS- Davenport Medical Center	105 S Linden Ave, Davenport, NE 68335	Davenport	Thayer	Rural Health Clinics (RHC)	Level 5- No Designation
Pender Medical Clinic	958 Wellness Way Ste 1, Pender, NE 68047	Pender	Thurston	Rural Health Clinics (RHC)	Level 5- No Designation
VCHS Medical Clinic	2707 L St, Ord, NE 68862	Ord	Valley	Rural Health Clinics (RHC)	Level 5- No Designation
Memorial Community Hospital- Blair Clinic	810 N 22nd St, Blair, NE 68008	Blair	Washington	Rural Health Clinics (RHC)	Level 5- No Designation
Mermorial Community Hospital- Fort Calhoun Clinic	4929 Co Rd P43, Fort Calhoun, NE 68023	Fort Calhoun	Washington	Rural Health Clinics (RHC)	Level 5- No Designation
FRPS Family Medicine- Wayne	615 E. 14th Street, Wayne, NE 68787	Wayne	Wayne	Rural Health Clinics (RHC)	Level 5- No Designation
Blue Hill Medical Center	102 N Pine St, Blue Hill, NE 68930	Blue Hill	Webster	Rural Health Clinics (RHC)	Level 5- No Designation
Main Street Medical Clinic	313 N Webster St, Red Cloud, NE 68970	Red Cloud	Webster	Rural Health Clinics (RHC)	Level 5- No Designation
Webster County Clinic	721 W 6th St, Red Cloud, NE 68970	Red Cloud	Webster	Rural Health Clinics (RHC)	Level 5- No Designation
Henderson Family Care	1621 Front St, Henderson, NE 68371	Henderson	York	Rural Health Clinics (RHC)	Level 5- No Designation

APPENDICES

APPENDIX B: TABLE OF FEDERALLY QUALIFIED HEALTH CENTERS IN NEBRASKA

Facility Name	Address	City	County	Facility Type	Trauma Designation
Heartland Health Center Inc.	104 W Seneca St, Ravenna, NE 68869	Ravenna	Buffalo	Federally Qualified Health Center (FQHC)	Level 5- No Designation
One World Health Centers- Plattsmouth	122 South 6th Street, Plattsmouth, NE 68048	Plattsmouth	Cass	Federally Qualified Health Center (FQHC)	Level 5- No Designation
Midtown Health Center- West Point Clinic	435 N Monitor St, West Point, NE 68788	West Point	Cuming	Federally Qualified Health Center (FQHC)	Level 5- No Designation
Siouxland Community Health Center	3410 Futures Dr, South Sioux City, NE 68776	South Sioux City	Dakota	Federally Qualified Health Center (FQHC)	Level 5- No Designation
Good Neighbor Community Health Center- Fremont Clinic	2740 N Clarkson St, Fremont, NE 68025	Fremont	Dodge	Federally Qualified Health Center (FQHC)	Level 5- No Designation
Charles Drew Health Center at 30 Metro	5319 N 30th St Suite A, Omaha, Nebraska 68111	Omaha	Douglas	Federally Qualified Health Center (FQHC)	Level 5- No Designation
Charles Drew Health Center at Belvedere Elementary School	3775 Curtis Avenue, Omaha, NE 68111	Omaha	Douglas	Federally Qualified Health Center (FQHC)	Level 5- No Designation
Charles Drew Health Center at Crown Tower	5904 Henninger Avenue, Omaha, NE 68104	Omaha	Douglas	Federally Qualified Health Center (FQHC)	Level 5- No Designation
Charles Drew Health Center at Evans Tower	3600 N. 24th Street, Omaha, NE 68110	Omaha	Douglas	Federally Qualified Health Center (FQHC)	Level 5- No Designation
Charles Drew Health Center at Florence Tower	5100 Florence Boulevard, Omaha, NE 68110	Omaha	Douglas	Federally Qualified Health Center (FQHC)	Level 5- No Designation
Charles Drew Health Center at Grant Street	2915 Grant Street, Omaha, Nebraska 68111	Omaha	Douglas	Federally Qualified Health Center (FQHC)	Level 5- No Designation
Charles Drew Health Center at Jackson Tower	600 South 27th Street, Omaha, NE 68105	Omaha	Douglas	Federally Qualified Health Center (FQHC)	Level 5- No Designation
Charles Drew Health Center at Kellom Elementary School	1311 North 24th Street, Omaha, NE 68102	Omaha	Douglas	Federally Qualified Health Center (FQHC)	Level 5- No Designation
Charles Drew Health Center at King Science and Technology Magnet School	3720 Florence Boulevard, Omaha, NE 68110	Omaha	Douglas	Federally Qualified Health Center (FQHC)	Level 5- No Designation
Charles Drew Health Center at Northwest High School	8204 Crown Point, Omaha, Nebraska 68134	Omaha	Douglas	Federally Qualified Health Center (FQHC)	Level 5- No Designation
Charles Drew Health Center at St. Richards	4320 Fort Street, Omaha, NE 68111	Omaha	Douglas	Federally Qualified Health Center (FQHC)	Level 5- No Designation
One World Health Centers Bryan High School	4700 Giles Rd, Omaha, NE 68157	Omaha	Douglas	Federally Qualified Health Center (FQHC)	Level 5- No Designation
One World Health Centers Indian Hill Elementary School	3121 U Street, Omaha, NE 68107	Omaha	Douglas	Federally Qualified Health Center (FQHC)	Level 5- No Designation

Facility Name	Address	City	County	Facility Type	Trauma Designation
One World Health Centers Liberty Elementary School	2021 St. Mary's Ave, Omaha, NE 68102	Omaha	Douglas	Federally Qualified Health Center (FQHC)	Level 5- No Designation
One World Health Centers- Northwest Omaha	4229 North 90th St, Omaha, NE 68134	Omaha	Douglas	Federally Qualified Health Center (FQHC)	Level 5- No Designation
One World Health Centers- Omaha	4930 S. 30th Street, Omaha, NE 68107	Omaha	Douglas	Federally Qualified Health Center (FQHC)	Level 5- No Designation
One World Health Centers Spring Lake Elementary School	4215 S 20th Street, Omaha, NE 68107	Omaha	Douglas	Federally Qualified Health Center (FQHC)	Level 5- No Designation
One World Health Centers- Teen & Young Adult Health Center	4310 South 24th Street, Omaha, NE 68107	Omaha	Douglas	Federally Qualified Health Center (FQHC)	Level 5- No Designation
One World Health Centers- Teen & Young Adult Health Center West	2520 S. 130th Ave., Omaha, NE 68144	Omaha	Douglas	Federally Qualified Health Center (FQHC)	Level 5- No Designation
One World Health Centers West Omaha	4101 South 120th Street, Omaha, NE 68137	Omaha	Douglas	Federally Qualified Health Center (FQHC)	Level 5- No Designation
Heartland Health Center Inc.- Quick Care	423 W 4th St, Grand Island, NE 68801	Grand Island	Hall	Federally Qualified Health Center (FQHC)	Level 5- No Designation
Bluestem Health	1021 N. 27th Street, Lincoln, NE 68503	Lincoln	Lancaster	Federally Qualified Health Center (FQHC)	Level 5- No Designation
Bluestem Health 360 Clinic	2301 O Street, Lincoln, NE 68510	Lincoln	Lancaster	Federally Qualified Health Center (FQHC)	Level 5- No Designation
Bluestem Health Administration	2246 O St, Lincoln, NE 68510	Lincoln	Lancaster	Federally Qualified Health Center (FQHC)	Level 5- No Designation
Bluestem Health Kreshel Clinic	3100 N 14th St, Ste 201, Lincoln, NE 68521	Lincoln	Lancaster	Federally Qualified Health Center (FQHC)	Level 5- No Designation
Bluestem Health- Piedmont Clinic	1500 S. 48th St., Ste. 412, Lincoln, NE 68506	Lincoln	Lancaster	Federally Qualified Health Center (FQHC)	Level 5- No Designation
Bluestem Health Thompson Clinic	2222 S 16th St, Ste. 435, Lincoln, NE 68502	Lincoln	Lancaster	Federally Qualified Health Center (FQHC)	Level 5- No Designation
Midtown Health Center- Madison Clinic	222 Main St, Madison, NE 68748	Madison	Madison	Federally Qualified Health Center (FQHC)	Level 5- No Designation
Midtown Health Center- Norfolk	302 W Phillip Ave, Norfolk, NE 68701	Norfolk	Madison	Federally Qualified Health Center (FQHC)	Level 5- No Designation
Good Neighbor Community Health Center	4321 41st Ave, Columbus, NE 68601	Columbus	Platte	Federally Qualified Health Center (FQHC)	Level 5- No Designation
One World Bellevue	2207 Georgia Avenue, Bellevue, NE 68005	Bellevue	Sarpy	Federally Qualified Health Center (FQHC)	Level 5- No Designation
Community Action Health Center	975 Crescent Dr, Gering, NE 69341	Gering	Scotts Bluff	Federally Qualified Health Center (FQHC)	Level 5- No Designation
Carl T. Curtis Health Center	100 Indian Hills Dr, Macy, NE 68039	Macy	Thurston	Federally Qualified Health Center (FQHC)	Level 5- No Designation

APPENDICES

APPENDIX C: TABLE OF INPATIENT CARE FACILITIES IN NEBRASKA

Facility Name	Address	City	County	Facility Type	Trauma Designation
Mary Lanning Memorial Hospital	715 N St Joseph Ave, Hastings, NE 68901	Hastings	Adams	Short Term Acute Care	Level 3- General
Antelope Memorial Hospital	102 W. 9th Street	Neligh	Antelope	Critical Access Hosptial	Level 5- No Designation
Boone County Health Center	723 W Fairview St, Albion, NE 68620	Albion	Boone	Critical Access Hosptial	Level 5- No Designation
Box Butte General Hospital	2101 Box Butte Ave, Alliance, NE 69301	Alliance	Box Butte	Critical Access Hosptial	Level 4- Basic
Niobrara Valley Hospital	401 5th St, Lynch, NE 68746	Lynch	Boyd	Critical Access Hosptial	Level 5- No Designation
Brown County Hospital	945 E Zero St, Ainsworth, NE 69210	Ainsworth	Brown	Critical Access Hosptial	Level 4- Basic
CHI Health Good Samaritan Hospital	10 E 31st St, Kearney, NE 68847	Kearney	Buffalo	Short Term Acute Care	Level 2- Advanced
Kearney Regional Medical Center	804 22nd Ave, Kearney, NE 68845	Kearney	Buffalo	Short Term Acute Care	Level 5- No Designation
MercyOne Oakland Medical Center	601 E 2nd St, Oakland, NE 68045	Oakland	Burt	Critical Access Hosptial	Level 4- Basic
Butler County Health Care Center	372 S 9th St, David City, NE 68632	David City	Butler	Critical Access Hosptial	Level 5- No Designation
Chase County Community Hospital	600 W 12th St, Imperial, NE 69033	Imperial	Chase	Critical Access Hosptial	Level 4- Basic
Cherry County Hospital	510 N Green St, Valentine, NE 69201	Valentine	Cherry	Critical Access Hosptial	Level 4- Basic
Sidney Regional Medical Center	1000 Pole Creek Crossing, Sidney, NE 69162	Sidney	Cheyenne	Critical Access Hosptial	Level 5- No Designation
CHI Health Schuyler	104 W 17th St, Schuyler, NE 68661	Schuyler	Colfax	Critical Access Hosptial	Level 5- No Designation
St. Francis Memorial Hospital	430 N Monitor St, West Point, NE 68788	West Point	Cuming	Critical Access Hosptial	Level 4- Basic
Callaway District Hospital	211 E Kimball St, Callaway, NE 68825	Callaway	Custer	Critical Access Hosptial	Level 5- No Designation
Jennie M. Melham Memorial Medical Center	145 Memorial Dr, Broken Bow, NE 68822	Broken Bow	Custer	Critical Access Hosptial	Level 4- Basic
Tri Valley Health Systems	1305 Old US Hwy 6 #34, Cambridge, NE 69022	Cambridge	Custer	Critical Access Hosptial	Level 4- Basic

Type of Control	Bed Count	Total Discharges	Total Patient Days	Gross Patient Revenue	Gross Patient Revenue %	Non-Patient Revenue	Non-Patient Revenue %	Total Revenue	Net Revenue	Operating Margin
Voluntary Nonprofit, Other	132	4,973	17,307	$441,064,429	98.4%	$7,358,528	1.6%	$448,422,957	$6,519,333	1.5%
Voluntary Nonprofit, Other	23	158	1,007	$15,940,802	96.2%	$635,701	3.8%	$16,576,503	$263,352	-1.6%
Governmental, County	25	583	3,336	$45,098,712	95.0%	$2,351,924	5.0%	$47,450,636	$1,913,182	4.0%
Governmental, County	25	628	3,112	$69,547,119	98.9%	$791,779	1.1%	$70,338,898	$560,123	-0.8%
Voluntary Nonprofit, Other	15	19	314	$2,171,468	90.6%	$224,278	9.4%	$2,395,746	$11,839	-0.5%
Governmental, County	23	34	1,148	$10,581,745	93.2%	$775,151	6.8%	$11,356,896	$65,519	-0.6%
Voluntary Nonprofit, Church	239	6,989	31,395	$494,749,129	96.1%	$20,331,744	3.9%	$515,080,873	$27,940,899	5.4%
Propreitary, Other	93	2,975	15,620	$391,059,111	99.7%	$1,265,513	0.3%	$392,324,624	$2,953,397	0.8%
Voluntary Nonprofit, Church	16	60	56	$8,050,516	98.8%	$94,189	1.2%	$8,144,705	$207,562	-2.5%
Governmental, County	20	277	1,631	$19,254,209	95.5%	$901,993	4.5%	$20,156,202	$1,178,244	5.8%
Governmental, County	20	86	568	$15,562,995	87.9%	$2,138,892	12.1%	$17,701,887	$652,662	-3.7%
Governmental, County	25	361	1,696	$32,718,164	97.9%	$689,623	2.1%	$33,407,787	$137,251	0.4%
Voluntary Nonprofit, Other	80	520	1,999	$84,582,254	97.2%	$2,436,674	2.8%	$87,018,928	$1,354,113	-1.6%
Voluntary Nonprofit, Church	25	140	445	$15,021,844	96.3%	$571,670	3.7%	$15,593,514	$507,310	3.3%
Voluntary Nonprofit, Church	25	317	2,296	$48,115,740	91.4%	$4,534,252	8.6%	$52,649,992	$5,728,276	10.9%
Governmental, County	12	163	516	$9,201,027	94.7%	$516,314	5.3%	$9,717,341	$356,351	3.7%
Voluntary Nonprofit, Other	23	236	852	$21,737,053	95.9%	$930,248	4.1%	$22,667,301	$1,791,591	7.9%
Voluntary Nonprofit, Other	20	536	2,037	$28,727,857	92.5%	$2,320,257	7.5%	$31,048,114	$1,379,459	-4.4%

Facility Name	Address	City	County	Facility Type	Trauma Designation
Chadron Community Hospital	825 Centennial Dr, Chadron, NE 69337	Chadron	Dawes	Critical Access Hosptial	Level 4- Basic
Cozad Community Hospital	300 E 12th St, Cozad, NE 69130	Cozad	Dawson	Critical Access Hosptial	Level 5- No Designation
Gothenburg Memorial Hospital	910 20th St, Gothenburg, NE 69138	Gothenburg	Dawson	Critical Access Hosptial	Level 4- Basic
Lexington Regional Medical Center	1201 N Erie St, Lexington, NE 68850	Lexington	Dawson	Critical Access Hosptial	Level 4- Basic
Methodist Fremont Health	450 E 23rd St, Fremont, NE 68025	Fremont	Dodge	Short Term Acute Care	Level 5- No Designation
Boys Town National Research Hospital	555 N 30th St, Omaha, NE 68131	Omaha	Douglas	Pediatrics	Level 5- No Designation
Boys Town National Research Hospital- Pacific Street	14000 Boys Town Hospital Rd, Boys Town, NE 68010	Boys Town	Douglas	Pediatrics	Level 5- No Designation
CHI Health Creighton University Medical Center Bergan Mercy	7500 Mercy Rd, Omaha, NE 68124	Omaha	Douglas	Short Term Acute Care	Level 1- Comprehensive
CHI Health Immanuel	6901 N 72nd St, Omaha, NE 68122	Omaha	Douglas	Short Term Acute Care	Level 5- No Designation
CHI Health Lakeside	16901 Lakeside Hills Ct, Omaha, NE 68130	Omaha	Douglas	Short Term Acute Care	Level 5- No Designation
Children's Hospital and Medical Center	8200 Dodge St, Omaha, NE 68114	Omaha	Douglas	Pediatrics	Level 2- Pediatric Advanced
Methodist Hospital	8303 Dodge St, Omaha, NE 68114	Omaha	Douglas	Short Term Acute Care	Level 5- No Designation
Methodist Women's Hospital	707 N 190th Plaza, Elkhorn, NE 68022	Omaha	Douglas	Short Term Acute Care	Level 5- No Designation
Midwest Surgical Hospital	7915 Farnam Dr, Omaha, NE 68114	Omaha	Douglas	Short Term Acute Care	Level 5- No Designation
Omaha VA Medical Center	4101 Woolworth Ave Suite 4199, Omaha, NE 68105	Omaha	Douglas	Short Term Acute Care	Level 5- No Designation
OrthoNebraska	2725 S 144th St Suite #212, Omaha, NE 68144	Omaha	Douglas	Short Term Acute Care	Level 5- No Designation
The Nebraska Medical Center	4350 Dewey Ave, Omaha, NE 68105	Omaha	Douglas	Short Term Acute Care	Level 1- Comprehensive
Dundy County Hospital	1313 Cheyenne St, Benkelman, NE 69021	Benkelman	Dundy	Critical Access Hosptial	Level 4- Basic
Fillmore County Hospital	1900 F St, Geneva, NE 68361	Geneva	Fillmore	Critical Access Hosptial	Level 5- No Designation
Franklin County Memorial Hospital	1406 Q St, Franklin, NE 68939	Franklin	Franklin	Critical Access Hosptial	Level 5- No Designation
Beatrice Community Hospital & Health Center	4800 Hospital Pkwy, Beatrice, NE 68310	Beatrice	Gage	Critical Access Hosptial	Level 5- No Designation
Garden County Health Services	1100 W 2nd St, Oshkosh, NE 69154	Oshkosh	Garden	Critical Access Hosptial	Level 5- No Designation
CHI Health St. Francis Medical Center	2620 W Faidley Ave, Grand Island, NE 68803	Grand Island	Hall	Short Term Acute Care	Level 3- General

Type of Control	Bed Count	Total Discharges	Total Patient Days	Gross Patient Revenue	Gross Patient Revenue %	Non-Patient Revenue	Non-Patient Revenue %	Total Revenue	Net Revenue	Operating Margin
Voluntary Nonprofit, Other	25	383	1,850	$30,002,342	86.3%	$4,774,756	13.7%	$34,777,098	$28,394	0.1%
Governmental Hospital District	20	190	1,249	$19,103,984	88.2%	$2,555,843	11.8%	$21,659,827	$884,992	4.1%
Governmental Hospital District	12	176	960	$29,341,702	95.1%	$1,522,893	4.9%	$30,864,595	$768,410	-2.5%
Governmental Hospital District	25	462	2,649	$42,181,857	95.8%	$1,853,516	4.2%	$44,035,373	$462,332	1.0%
Governmental, County	176	2,207	8,216	$302,615,462.00	98.5%	$4,757,294.00	1.5%	$307,372,756.00	$13,337,987.00	4.3%
Voluntary Nonprofit, Other	77	463	1,350	$282,375,273	94.4%	$16,753,134	5.6%	$299,128,407	$9,205,803	3.1%
Voluntary Nonprofit, Other	0	0	0	$0	#DIV/0!	$0	#DIV/0!	$0	$0	#DIV/0!
Voluntary Nonprofit, Church	385	23,238	111,456	$1,659,211,480	98.0%	$33,173,726	2.0%	$1,692,385,206	$23,143,903	1.4%
Voluntary Nonprofit, Church	232	9,702	41,718	$666,646,885	100.0%	$0	0.0%	$666,646,885	$1,508,779	0.2%
Voluntary Nonprofit, Church	108	6,545	23,144	$579,402,038	99.6%	$2,443,772	0.4%	$581,845,810	$45,649,923	7.8%
Voluntary Nonprofit, Other	145	4,358	36,778	$800,680,762	97.9%	$17,025,272	2.1%	$817,706,034	$43,765,834	5.4%
Voluntary Nonprofit, Other	374	18,748	95,126	$1,483,891,796.00	94.6%	$85,350,369.00	5.4%	$1,569,242,165.00	$97,265,374.00	6.2%
Voluntary Nonprofit, Other	0	0	0	$0.00	#DIV/0!	$0.00	#DIV/0!	$0.00	$0.00	#DIV/0!
Propreitary, Partnership	19	1,227	2,236	$147,754,132.00	99.8%	$332,182.00	0.2%	$148,086,314.00	$21,828,353.00	14.7%
Governmental, Federal	0	0	0	$0.00	#DIV/0!	$0.00	#DIV/0!	$0.00	$0.00	#DIV/0!
Propreitary, Corporation	24	1,816	2,324	$188,989,871.00	98.7%	$2,556,380.00	1.3%	$191,546,251.00	$10,914,649.00	5.7%
Voluntary Nonprofit, Other	578	29,102	167,918	$3,740,475,904.00	88.3%	$495,443,685.00	11.7%	$4,235,919,589.00	$35,625,937.00	0.8%
Governmental, County	14	113	732	$10,248,465	87.8%	$1,418,595	12.2%	$11,667,060	$65,247	-0.6%
Governmental, County	30	331	1,603	$29,293,876	97.8%	$653,051	2.2%	$29,946,927	$245,376	-0.8%
Governmental, County	14	22	232	$4,761,320	88.8%	$602,919	11.2%	$5,364,239	$210,233	-3.9%
Voluntary Nonprofit, Other	25	926	4,578	$134,331,151	98.1%	$2,577,674	1.9%	$136,908,825	$1,237,616	-0.9%
Voluntary Nonprofit, Other	10	80	642	$11,413,212	96.6%	$404,850	3.4%	$11,818,062	$70,175	-0.6%
Voluntary Nonprofit, Church	186	6,407	21,993	$540,380,705	95.9%	$23,017,540	4.1%	$563,398,245	$52,906,798	9.4%

Facility Name	Address	City	County	Facility Type	Trauma Designation
Aurora Memorial Hospital	1423 7th St, Aurora, NE 68818	Aurora	Hamilton	Critical Access Hosptial	Level 4- Basic
Harlan County Health System	717 Brown St, Alma, NE 68920	Alma	Harlan	Critical Access Hosptial	Level 5- No Designation
Avera St. Anthony's Hospital	300 N 2nd St, O'Neill, NE 68763	O'Neil	Holt	Critical Access Hosptial	Level 4- Basic
West Holt Memorial Hospital	406 W Neely St, Atkinson, NE 68713	Atkinson	Holt	Critical Access Hosptial	Level 4- Basic
Howard County Medical Center	1113 Sherman St, St Paul, NE 68873	Saint Paul	Howard	Critical Access Hosptial	Level 4- Basic
Jefferson Community Health & Life Health Center	2200 H Street, Fairbury, NE 68352	Fairbury	Jefferson	Critical Access Hosptial	Level 5- No Designation
Johnson County Hospital	202 High St, Tecumseh, NE 68450	Tecumseh	Johnson	Critical Access Hosptial	Level 4- Basic
Kearney County Health Services	727 E 1st St, Minden, NE 68959	Minden	Kearney	Critical Access Hosptial	Level 5- No Designation
Ogallala Community Hospital	2601 N Spruce St, Ogallala, NE 69153	Ogallala	Keith	Critical Access Hosptial	Level 4- Basic
Kimball Health Services	505 South Burg Street, Kimball, NE 69145	Kimball	Kimball	Critical Access Hosptial	Level 4- Basic
Avera Creighton Hospital	1503 Main St, Creighton, NE 68729	Creighton	Knox	Critical Access Hosptial	Level 4- Basic
Bryan Medical Center East	1600 S 48th St, Lincoln, NE 68506	Lincoln	Lancaster	Short Term Acute Care	Level 5- No Designation
Bryan Medical Center West	2300 S 16th St, Lincoln, NE 68502	Lincoln	Lancaster	Short Term Acute Care	Level 2- Advanced
CHI Health Nebraska Heart	7500 S 91st St, Lincoln, NE 68526	Lincoln	Lancaster	Short Term Acute Care	Level 5- No Designation
CHI Health St. Elizabeth	555 S 70th St, Lincoln, NE 68510	Lincoln	Lancaster	Short Term Acute Care	Level 5- No Designation
Lincoln Surgical Hospital	1710 S 70th St, Lincoln, NE 68506	Lincoln	Lancaster	Short Term Acute Care	Level 5- No Designation
Great Plains Health Medical Center	601 W Leota St, North Platte, NE 69101	North Platte	Lincoln	Short Term Acute Care	Level 3- General
Faith Regional Health Services	2700 W Norfolk Ave, Norfolk, NE 68701	Norfolk	Madison	Short Term Acute Care	Level 3- General
Bryan Health- Merrick Medical Center	1715 26th St, Central City, NE 68826	Central City	Merrick	Critical Access Hosptial	Level 4- Basic
Morrill County Community Hospital	1313 S St, Bridgeport, NE 69336	Bridgeport	Morrill	Critical Access Hosptial	Level 4- Basic
Genoa Community Hopsital	706 Ewing Ave, Genoa, NE 68640	Genoa	Nance	Critical Access Hosptial	Level 4- Basic
Nemaha County Hospital	2022 13th St, Auburn, NE 68305	Auburn	Nemaha	Critical Access Hosptial	Level 4- Basic
Brodstone Memorial Hospital	520 E 10th St, Superior, NE 68978	Superior	Nuckolls	Critical Access Hosptial	Level 5- No Designation

Type of Control	Bed Count	Total Discharges	Total Patient Days	Gross Patient Revenue	Gross Patient Revenue %	Non-Patient Revenue	Non-Patient Revenue %	Total Revenue	Net Revenue	Operating Margin
Voluntary Nonprofit, Other	14	246	1,439	$32,126,777	93.2%	$2,348,392	6.8%	$34,475,169	$278,643	0.8%
Governmental, County	19	60	904	$9,559,374	94.0%	$612,171	6.0%	$10,171,545	$5,267	-0.1%
Voluntary Nonprofit, Church	25	782	3,854	$69,088,319	93.7%	$4,673,684	6.3%	$73,762,003	$6,536,984	8.9%
Voluntary Nonprofit, Other	17	109	673	$10,704,982	76.6%	$3,275,737	23.4%	$13,980,719	$53,132	-0.4%
Governmental, County	16	191	920	$22,186,242	91.3%	$2,127,314	8.7%	$24,313,556	$704,661	2.9%
Voluntary Nonprofit, Other	57	444	2,138	$8,345,553	98.3%	$145,804	1.7%	$8,491,357	$260,869	3.1%
Governmental, County	18	180	1,289	$18,885,275	88.6%	$2,425,201	11.4%	$21,310,476	$833,813	3.9%
Governmental, County	10	81	743	$10,684,801	86.4%	$1,681,708	13.6%	$12,366,509	$560,121	4.5%
Voluntary Nonprofit, Other	18	255	872	$38,076,443	99.9%	$28,752	0.1%	$38,105,195	$1,480,246	-3.9%
Governmental, County	15	136	1,243	$17,057,264	88.0%	$2,336,757	12.0%	$19,394,021	$1,560,219	8.0%
Voluntary Nonprofit, Other	23	82	1,002	$22,357,422	95.4%	$1,088,205	4.6%	$23,445,627	$411,390	1.8%
Voluntary Nonprofit, Other	584	26,318	126,884	$1,965,610,380	96.2%	$78,327,221	3.8%	$2,043,937,601	$125,452,000	6.1%
Voluntary Nonprofit, Other	230	0	0	$0	#DIV/0!	$0	#DIV/0!	$0	$0	#DIV/0!
Voluntary Nonprofit, Other	54	2,707	6,213	$185,338,372	99.8%	$380,550	0.2%	$185,718,922	$12,351,429	6.7%
Voluntary Nonprofit, Church	235	7,655	32,107	$527,128,368	97.3%	$14,417,509	2.7%	$541,545,877	$3,376,495	-0.6%
Proprietary, Partnership	21	1,064	1,421	$150,113,774.00	99.5%	$826,280.00	0.5%	$150,940,054.00	$13,425,018.00	8.9%
Voluntary Nonprofit, Other	116	4,902	18,779	$577,482,692	96.1%	$23,220,449	3.9%	$600,703,141	$32,770,931	5.5%
Voluntary Nonprofit, Other	129	4,709	19,622	$408,331,848	94.5%	$23,845,712	5.5%	$432,177,560	$8,727,645	2.0%
Governmental, County	20	154	885	$19,786,014	87.2%	$2,900,123	12.8%	$22,686,137	$1,786,102	7.9%
Governmental, County	20	136	745	$23,204,853	99.2%	$197,608	0.8%	$23,402,461	$533,402	2.3%
Governmental, City-County	19	65	576	$7,179,416	89.3%	$856,003	10.7%	$8,035,419	$357,624	-4.5%
Governmental, County	16	92	657	$16,852,179	95.9%	$727,274	4.1%	$17,579,453	$200,251	-1.1%
Voluntary Nonprofit, Other	25	394	1,734	$32,785,348	91.6%	$2,991,308	8.4%	$35,776,656	$2,994,312	8.4%

Facility Name	Address	City	County	Facility Type	Trauma Designation
CHI Health St. Mary's	1301 Grundman Blvd, Nebraska City, NE 68410	Nebraska City	Otoe	Critical Access Hosptial	Level 4- Basic
Syracuse Area Health	2731 Healthcare Dr, Syracuse, NE 68446	Syracuse	Otoe	Critical Access Hosptial	Level 4- Basic
Pawnee County Memorial Hospital	600 I St, Pawnee City, NE 68420	Pawnee City	Pawnee	Critical Access Hosptial	Level 4- Basic
Perkins County Health Services	900 Lincoln Ave, Grant, NE 69140	Grant	Perkins	Critical Access Hosptial	Level 4- Basic
Phelps Memorial Health Center	1315 Tibbals St, Holdrege, NE 68949	Holdrege	Phelps	Critical Access Hosptial	Level 4- Basic
CHI Health Planview	704 N 3rd St, Plainview, NE 68769	Plainview	Pierce	Critical Access Hosptial	Level 5- No Designation
Osmond General Hospital	402 N Maple St, Osmond, NE 68765	Osmond	Pierce	Critical Access Hosptial	Level 5- No Designation
Columbus Community Hospital	4600 38th St, Columbus, NE 68601	Columbus	Platte	Short Term Acute Care	Level 3- General
Annie Jeffrey Memorial County Health Center	531 Beebe St, Osceola, NE 68651	Osceola	Polk	Critical Access Hosptial	Level 4- Basic
McCook Community Hospital	1301 E H St, McCook, NE 69001	McCook	Red Willow	Critical Access Hosptial	Level 4- Basic
Community Medical Center, Inc.	3307 Barada St, Falls City, NE 68355	Falls City	Richardson	Critical Access Hosptial	Level 4- Basic
Rock County Hosptial	102 E S St, Bassett, NE 68714	Bassett	Rock County	Critical Access Hosptial	Level 5- No Designation
Bryan Health- Crete Area Medical Center	2910 Betten Dr, Crete, NE 68333	Crete	Saline	Critical Access Hosptial	Level 4- Basic
Warren Memoral Hospital	905 2nd St, Friend, NE 68359	Friend	Saline	Critical Access Hospital	Level 5- No Designation
CHI Health Midlands	11111 S 84th St, Papillion, NE 68046	Papillion	Sarpy	Short Term Acute Care	Level 5- No Designation
Nebraska Medicine- Bellevue Medical Center	2500 Bellevue Medical Center Dr, Bellevue, NE 68123	Bellevue	Sarpy	Short Term Acute Care	Level 5- No Designation
Saunders Medical Center	1760 County Rd J, Wahoo, NE 68066	Wahoo	Saunders	Critical Access Hosptial	Level 4- Basic
Regional West Medical Center	4021 Ave B, Scottsbluff, NE 69361	Scottsbluff	Scotts Bluff	Short Term Acute Care	Level 2- Advanced
Memorial Health Care Systems	300 N Columbia Ave, Seward, NE 68434	Seward	Seward	Critical Access Hosptial	Level 5- No Designation
Gordon Memorial Hospital	300 E 8th St, Gordon, NE 69343	Gordon	Sheridan	Critical Access Hosptial	Level 4- Basic
Thayer County Health Services	120 Park Ave, Hebron, NE 68370	Hebron	Thayer	Critical Access Hosptial	Level 4- Basic
Pender Community Hospitals	100 Hospital Dr, Pender, NE 68047	Pender	Thurston	Critical Access Hosptial	Level 5- No Designation
Valley County Hospital	2707 L St, Ord, NE 68862	Ord	Valley	Critical Access Hosptial	Level 4- Basic

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Voluntary Nonprofit, Church	25	782	3,854	$69,088,319	93.7%	$4,673,684	6.3%	$73,762,003	$6,536,984	8.9%
Voluntary Nonprofit, Other	17	109	673	$10,704,982	76.6%	$3,275,737	23.4%	$13,980,719	$53,132	-0.4%
Governmental, County	16	191	920	$22,186,242	91.3%	$2,127,314	8.7%	$24,313,556	$704,661	2.9%
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Governmental, County	18	180	1,289	$18,885,275	88.6%	$2,425,201	11.4%	$21,310,476	$833,813	3.9%
Governmental, County	10	81	743	$10,684,801	86.4%	$1,681,708	13.6%	$12,366,509	$560,121	4.5%
Voluntary Nonprofit, Other	18	255	872	$38,076,443	99.9%	$28,752	0.1%	$38,105,195	$1,480,246	-3.9%
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Voluntary Nonprofit, Other	54	2,707	6,213	$185,338,372	99.8%	$380,550	0.2%	$185,718,922	$12,351,429	6.7%
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Voluntary Nonprofit, Other	116	4,902	18,779	$577,482,692	96.1%	$23,220,449	3.9%	$600,703,141	$32,770,931	5.5%
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Voluntary Nonprofit, Other	25	394	1,734	$32,785,348	91.6%	$2,991,308	8.4%	$35,776,656	$2,994,312	8.4%

Facility Name	Address	City	County	Facility Type	Trauma Designation
Memorial Community Hospital	810 N 22nd St, Blair, NE 68008	Blair	Washington	Critical Access Hosptial	Level 4- Basic
Providence Medical Center	1200 Providence Rd, Wayne, NE 68787	Wayne	Wayne	Critical Access Hosptial	Level 5- No Designation
Webster County Community Hosptial	621 N Franklin St, Red Cloud, NE 68970	Red Cloud	Webster	Critical Access Hosptial	Level 5- No Designation
Henderson Health Care Services	1621 Front St, Henderson, NE 68371	Henderson	York	Critical Access Hosptial	Level 5- No Designation
York General Health Care Services	2222 N Lincoln Ave, York, NE 68467	York	York	Critical Access Hosptial	Level 5- No Designation

Type of Control	Bed Count	Total Discharges	Total Patient Days	Gross Patient Revenue	Gross Patient Revenue %	Non-Patient Revenue	Non-Patient Revenue %	Total Revenue	Net Revenue	Operating Margin
Voluntary Nonprofit, Other	21	253	944	$49,474,553	98.2%	$923,036	1.8%	$50,397,589	$312,304	0.6%
Voluntary Nonprofit, Other	21	306	1,675	$28,686,255	92.9%	$2,187,100	7.1%	$30,873,355	$1,385,381	4.5%
Governmental, County	13	57	386	$5,250,111	93.7%	$355,206	6.3%	$5,605,317	$110,730	-2.0%
Voluntary Nonprofit, Other	13	110	784	$14,775,058	87.5%	$2,117,485	12.5%	$16,892,543	$1,482,326	8.8%
Voluntary Nonprofit, Other	154	773	2,711	$67,782,989	94.2%	$4,203,056	5.8%	$71,986,045	$2,730,486	3.8%