Rural health care: A view from the Sunflower State

Ronald Robinson, MD, MPH, MBA, FACHE, and John Tooker, MD, MBA, MACP; introduction by Richard L. Byyny, MD, FACP

Dr. Robinson (AΩA, University of Texas McGovern Medical School, 1993) is Chief Executive and Chief Medical Officer of Centura Health's NW Kansas managed hospitals. Dr. Robinson is a 2015 AΩA Fellow in Leadership.

Dr. Tooker (AΩA, University of Colorado, 1970) is Senior Academic Advisor to the Interim Dean, and Adjunct Professor of Medicine, Tufts University School of Medicine.

Introduction

by Richard L. Byyny, MD, FACP

The COVID-19 pandemic continues to reap havoc on people's health, life, finances, safety, shelter, education, and well-being. The challenges continue to confront us at many different levels. The United States now has more than 10 million cases, and nearly 250,000 deaths. This pandemic has affected everyone and nearly everything in our lives.[1]

The lack of leadership at the federal level continues to impede progress and improvement. States, communities, health care professionals, and communities continue to collectively learn from this health and social crisis. We must, and are, using it as an opportunity for change, and are working together to improve systems and responses to better serve people and society. This pandemic continues to be the defining global health crisis of our time.

The socioeconomic crisis is worsening, and many don't realize the impact on those who have lost, and are losing jobs and income, and the millions who as a result have no health insurance or assurance that they will survive and continue to be able to care for family and friends who have also been adversely affected by the pandemic. It is estimated that as of June 2020 as many as 7.7 million workers lost jobs with employer-sponsored insurance (ESI) because of the pandemic-induced recession. The ESI of these workers also covered 6.9 million of their dependents, which results in a total of 14.6 million affected individuals.[2]

As noted in the Summer 2020 issue of *The Pharos* ("All things considered...The future of the U.S. health care 'system,'" pp. 3–10), the COVID-19 pandemic has revealed severe weaknesses and failures in the U.S. federalist "non-system" of health care and public health. It has exposed how U.S. health care programs and the federalist approach fail to function effectively. This pandemic demonstrates that we must improve overall health care and create a health care system for all of our people that everyone can rely on. This will require leadership and positive change as we recover and move forward.

Many of us grew up and have lived, worked, raised families, and received medical care in urban areas of our country. In these urban areas many of us have been fortunate to have available, accessible, high quality health care. As health professionals many of us have cared for people, families, and communities in these urban areas. We realize that even in urban communities with health care facilities and excellent health care professionals, many do not have equal access to affordable high quality care. In most

communities there are many who are poor, homeless, hungry, unsafe, and sick without basic community resources or health care. And, many who are insured are underinsured.

However, most are not fully aware that rural populations are heterogeneous and comprise about 20 percent or 60 million people of the U.S. population who are living and working in a rural community.[3] Rural usually means areas of low or geographically distributed populations. These areas have an older, sicker, and poorer population with limited employment, housing, transportation, community and public health resources, and availability of health care. In addition, these areas have a higher mortality rate. Many people in rural areas continue to suffer from the adverse effects of the social determinants of health.

For many Americans, health insurance is dependent on currently serving in the military; serving in Congress or the Senate; having served in the military and now receiving Veteran's benefits; being eligible to receive Medicare; being poor enough to receive Medicaid; or being insured through an employer that offers full or partial health care insurance as a benefit of employment. For Americans living in rural areas, access to health care—even with one of the aforementioned insurance options—is limited or completely unattainable. In fact, in many rural areas in our country, there are no insurance companies serving specific counties and/or communities. Also, in many rural areas in the U.S., there are few practicing physicians or other health care providers such as physicians assistants, and limited access to health care facilities.

The growth of specialization in medicine is a major contributor to the geographic distribution of physicians, resulting in underserved rural areas, this has gotten worse since the 1980s. There are programs, including the community health centers and the National Health Service Corps, that have effectively increased the number of new primary care physicians entering health professional shortage areas, often utilizing loan forgiveness programs to recruit physicians. Another issue affecting the availability of physicians in rural areas is the national requirement to license physicians by state, which often limits the number of physicians who can be available to serve, in all specialties, located in nearby locations.

In the past 15 years, about 120 rural hospitals have closed in the U.S., and of those surviving more than half do not have an intensive care unit and survive on minimal operating financial margins. In addition, between 2012-2018, about 388 rural health clinics closed.[4] Since the COVID-19 pandemic hit, 15 hospitals in rural areas of the country have closed. It is predicted there may be as many as 18 rural hospital closings before the year ends. This means that the number of rural physicians and health care workers is disproportionately small and often inadequate for their rural communities.

Many people living in rural communities often have chronic illnesses that can result in serious financial problems. The mortality in rural areas is significantly higher compared to urban areas, and the gap is growing.[3] Many residents of rural areas travel 100 miles or more to get to a health care provider or facility, and when they arrive in these more populated areas to get care, specialty care is often absent which requires an additional lengthy trip to access that care.

Often in rural communities the physicians, nurses, and staff know their patients personally and are well aware of their medical issues. These are very personal relationships, as they know their neighbors, the farms in the area, the employment opportunities of the area. The providers' patients are their family and friends.

Labor and delivery and other obstetric, gynecological, and women's care services have mostly disappeared from rural towns.[6] In addition, there is a growing paucity of primary care physicians living in and serving our rural communities. Only nine percent of physicians practice in rural areas, despite 20 percent of the population living in rural areas. It is estimated that 25 percent of primary care physicians in rural areas are 60 years old or older.[3]

The U.S. needs a next generation rural health care model that provides high quality health care incorporating disease prevention, public health, chronic disease management, and food security. There must be a way to provide accessible transportation to health care and specialty resources, and access to other physicians and health professionals to assist in the care of patients and their communities. Many states have worked on improvements, including creating public-private partnerships to increase access to care; utilizing mobile medical units to rural communities; and utilizing telemedicine and telehealth.

Telemedicine is an ongoing and emerging technology with potential to positively affect the geographic maldistribution of health professionals and other health expertise and services. Telehealth with virtual care has markedly increased during the COVID-19 pandemic. The Centers for Medicare and Medicaid Services reports that more than 34.5 million health care services sessions were delivered via telehealth for Medicare and CHIP patients in March-June, 2020. This is a 2,632 percent increase in services compared to the same time frame in 2019.[7] However, there are still major issues of access to the technology

for patients, and availability of health professionals using telehealth. Telehealth also continues to experience issues related to accessibility, quality of care, clinical outcomes, cost and reimbursement, medical professionalism, and many others, that need to be continually evaluated. The effectiveness of telehealth and telemedicine is, and will be, dependent on adequate digital technology infrastructure as well as technical expertise and training.

Some states have begun experimenting with guarantees of revenue to keep rural hospitals and clinics open. About 35 medical schools now have programs focused on rural medicine, and there are more than 100 rural residency programs with a mission to train and support rural physicians to practice in rural areas.[7] However, there continues to be a great need for pharmacists, community health workers, nurses, nurse practitioners, and others in rural communities. In addition, Area Health Education Centers (AHECs) focus on community-based programs for health professions training and continuing education with community development programs to promote health in the community.

The following editorial provides an educational case study of health and health care in two rural Northwest Kansas counties and communities. While it is the people of these rural communities—clinicians and hospital managers, community leaders, and patients—who are the heart of rural health care, I want to emphasize that this is a story about great leadership. These rural health leaders' experiences demonstrate that, as a team and as individuals, they are exceptional servant leaders. They have an inward sense and understanding of what is right, and they inspire others to care and serve. They are instilling a set of values and trust among their team members, their communities, and those they serve. They clearly demonstrate empathy, listening, healing, awareness, persuasion, conceptualization, foresight, stewardship, humility, and a dedication to a higher purpose worthy of their commitment. They are developing a vision, establishing what matters, articulating why, setting direction, and inspiring and guiding others to follow.

These are passionate leaders who are committed to achieving their vision in the context of caring and doing good. They demonstrate the ability to look at problems and challenges conceptually and think strategically beyond the day to day. They are working to understand the lessons of the past, the realities of the present, and possibilities for the future. They are deeply committed and take responsibility for building community. They are working in their organizations and communities to make a positive, important, and distinctive difference.

As leaders, they are faced with incredible challenges. However, they are making considerable progress. As excellent stewards, they prioritize service over self-interest. They are making weighty decisions about issues they have not encountered before and are working through unique circumstances to make the important and difficult decisions. They exemplify the words of John Quincy Adams, "If your actions inspire others to dream more, learn more, do more, and become more, you are a leader."[9]

Rural health care will require new service models and greater support for physicians and other health professionals. It will also require the development of community health teams to support and share responsibilities for patient care and support for each other. Partnerships with nearby rural communities, regional health care partnerships, and continuing medical and health education must be further developed and supported. Our rural communities need new organizational models, new technologies, well-educated and trained health professionals, and rural-specific care delivery processes and sites. They need sustainable funding, new payment models, economic development, and a health care delivery system that supports their unique localities, geographic needs, and distinctive communities.

Rural physicians and hospitals will not likely survive without great leadership and a change in financial support independent of fee-for-service and philanthropic contributions. They need a solution that doesn't take years to implement. They need a system such as a National Health System Reserve proposed in the Summer issue of *The Pharos.*

Rural health care: A view from the Sunflower State

Ronald Robinson, MD, MPH, MBA, FACHE, and John Tooker, MD, MBA, MACP

This is a story of health and health care in two rural Northwest Kansas counties and communities. Seventeen miles east of the Colorado border on Interstate 70 is Goodland (population 5,917), the largest town and county seat of Sherman County,[10] a land area of more than 1,000 square miles. Neighboring Atwood is the county seat and largest town in Rawlins County (population 2,519), also greater than 1,000 square miles.[11] These two counties, with a population density of six or fewer people per square mile, are federally designated frontier counties (compared to New Jersey, which has a population density of 1,200 people per square mile). About 60 million Americans (20 percent) live in designated rural counties,

which, by definition, are geographically distant from urban and suburban specialty care.

The agricultural economy of these counties is stable with a median household income of about $50,000.[10,11] The median age in Rawlins County is 49 years.[12] While a substantial majority of the Sherman and Rawlins County residents have public and private health insurance and broadband Internet access, about one-third of Rawlins County families' annual income is below 200 percent of the federal poverty level. Sherman and Rawlins are representative of the 12 Northwest Kansas counties—42,000 residents distributed over 12,000 square miles. They are in the Kansas 1st Congressional District, "The Big First," covering 63 counties in western and northern Kansas.

Communities served by rural hospitals tend to have older, sicker, and poorer residents than urban centers, and fewer health care professionals to serve them.[13] In February, the American Heart Association issued a presidential advisory, "Improvements in Rural Health Greatly Needed," calling for rural populations to be health research and policy priorities. It states:

> There is a three-year life expectancy gap between rural and urban populations, with rural areas having 20 percent higher cardiovascular and stroke prevalence and death rates than urban areas. Rural populations have higher rates of tobacco use, physical inactivity and obesity as contributing factors. And, rural residents are more likely to experience mental and behavioral health challenges, including higher rates of depression and suicide than those in urban areas.[14]

Trauma and agriculture-associated carcinogen exposure are also prevalent.

To address these rural health and health care challenges, Sherman and Rawlins counties have adapted and transformed local and regional health care through the leadership of community health professionals and civic leaders, strategic planning, and expert management.

Goodland Regional Medical Center (GRMC), the sole hospital in Sherman County, and Rawlins County Health Center (RCHC) in Atwood and the only hospital in Rawlins County, are nationally recognized "Top 100 Critical Access Hospitals," receiving this frontier health care excellence award from the Chartis Center for Rural Health; RCHC in 2018 and GRMC in 2019.[15,16]

The Chartis Group, the parent company of the Center for Rural Health, is a private company focused on rural health and health care research and analysis. Critical

Northwest Kansas counties.

Access Hospital (CAH) is a designation given to eligible rural hospitals by the Centers for Medicare and Medicaid Services (CMS). Congress created the CAH designation through the Balanced Budget Act of 1997 in response to rural hospital closures during the 1980s and early 1990s.[17]

GRMC and RCHC are county-owned facilities governed by community boards of trustees. The Kansas Department of Healthcare and Environment triennially surveys, and annually licenses, CAHs meeting federal CMS conditions of participation. Both facilities were constructed with funding from the The Hospital Survey and Construction Act of 1946, aka, Hill-Burton federal legislation, signed into law by President Truman. Hill-Burton was designed to address the obsolescence of America's hospitals and provide health care facilities for the 40 percent of the nation's counties without a hospital. When the program ended in 1975, more than 9,200 medical facilities had been built and, for the first time, many rural counties had a long-awaited hospital.[18]

Following the Hill-Burton construction era, the majority of Northwest Kansas CAHs saw little modernization due primarily to financial constraints. Despite county and state financial support, federal funding, such as the 340B Drug Pricing Program (a rebate program authorized by Congress in 1992 to provide safety-net providers, including CAHs, lower-cost pharmaceuticals), and grant support from hospital, local community, and regional foundations, rural hospitals struggled to fund operations and capital investments to remodel and replace aging facilities and keep pace with medical technological advances. Two rural Kansas hospitals—St. Luke's Cushing Hospital in Leavenworth, and Sumner Community Hospital in Wellington—closed in 2019.[19]

Although attention is appropriately paid to CAHs and other rural health care facilities, it is the people of these rural communities—clinicians and hospital management, community leaders, and patients—who are the heart of rural health care. The full-time GRMC

medical staff is 12: Travis Daise, MD (AΩA, University of Kansas School of Medicine, 2000), and chief of staff, two family medicine physicians, a behavioral health licensed clinical social worker (LCSW), three advanced-practice registered nurses (APRNs), and six physician assistants (PAs).


Jessica Gittinger, APRN

Jessica Gittinger, a rural health APRN from Goodland, is the newest clinician to join the GRMC rural health clinic and an excellent example of servant leadership and commitment to community. Twenty-nine specialty physicians, including two general surgeons, provide visiting elective hospital and clinic services one to two days per month, dependent on referral volume.

The GRMC range of services includes 24/7 emergency care, a family medicine clinic, specialty medical care, surgical care, pre- and post-natal care, medical imaging and laboratory, an inpatient unit, and advanced-care coordination to higher-level facilities. The family medicine clinics in Goodland and Atwood provide care through a patient-centered medical home model. Telehealth is available in Goodland and Atwood for pediatric subspecialties, endocrinology, rheumatology, neurology, and urology. Routine obstetrical labor and delivery ceased in 2019 when full-time physician and certified registered nurse anesthetist (CRNA) coverage, required for cesarean sections, became unavailable. However, through a federal Health Resources and Services Administration (HRSA) grant administered by the Rawlins County Health Center Foundation, a study is underway to determine the feasibility of bringing sustainable obstetrical care to the 12 Northwest Kansas counties.


EMS Chief Michael Johnson

Emergency medical services

Countywide emergency medical services (EMS) are critical to providing comprehensive high-quality care. Michael Johnson has been the chief of the Northwest Kansas Ambulance Service (NWKSAS) the past five years. He is a seasoned leader with many years of EMS and flight experience. NWKSAS has established countywide EMS protocols and equipment standards over the past 18 months and expanded the EMS workforce from one paramedic and eight advanced emergency medical technicians (EMTs) to eight paramedics and six advanced EMTs.

EMT and paramedic training are provided in collaboration with local community colleges such as Northwest Kansas Technical College in Goodland. Basic EMT certification requires one college semester, and advanced EMT certification two semesters. Paramedic certification requires a two-year associate degree and 1,200 hours of hands-on training; five new paramedics have been trained in 2020.

This expanded staffing, with improved equipment, provides complex patient ground transport for patients requiring ventilatory and vasopressor support from rural NW Kansas hospitals to higher-level care, a critical consideration when flight teams are not available due to weather or equipment limitations.

Air transport is by fixed-wing aircraft (EagleMed) in Goodland and rotary aircraft (LifeSave) in nearby Colby. Both GRMC and RCHC have rotary aircraft landing facilities.

GRMC is a 24-bed CAH with an average daily census of four, and an adjoining clinic seeing on average 100 outpatients per day. It also has an emergency department (ED) serving an average of eight patients daily. Patients range from infant to geriatric, and are from all social, cultural, and economic backgrounds.[20]

A myocardial infarction in Goodland

In January 1907, Dr. Carmichael opened the first hospital in Goodland on the second floor over the Higdon Drug Store. The hospital had 12 rooms including Dr. Carmichael's office, a dispensary, an operating room, and rooms for patients. All reputable and licensed practitioners were invited to treat patients, medical and surgical.

Dr. Carmichael made front page news in the November 11, 1904 *The Goodland Republic*, diagnosing diphtheria in Mattie Winsell, the daughter of Mr. and Mrs. E.T. Winsell.[20,21]

A 50-year-old Goodland woman called 911 with the onset of chest pain about 7:30 p.m. on January 11, 2020. Northwest Kansas Ambulance Service (NWKSAS) responded, transporting her to the GRMC ED, staffed by a PA, EMT, and an RN within 12 minutes of her call. Her symptoms were consistent with an acute myocardial infarction, confirmed by the ambulance service 12-lead electrocardiogram (ECG). After initial evaluation, the PA contacted Avera eCARE, 500 miles away in Sioux Falls, South Dakota, to obtain, via telemedicine, a board-certified emergency physician consultation.

The ECG confirmed an ST-Elevation Myocardial Infarction (STEMI); thrombolysis was initiated within 17 minutes of ED arrival. The team coordinated transport to Porter Adventist Hospital in Denver, Colorado, the Centura Health network referral hospital 180 miles away. Due to inclement flight weather, the patient was transported to Denver by NWKSAS, a two-and-a-half hour drive. Upon arrival at Porter Adventist, an angioplasty was performed less than four hours after the patient's arrival at GRMC. Due in part to this tightly coordinated care, the patient made a full recovery. The STEMI care goal in NW Kansas is to continue to improve until the 90-minute door to balloon time standard is consistently met.

A limb-saving and life-saving diagnosis

Sixty-six miles to the northeast of Goodland is the RCHC, a founding project of the Atwood Rotary Club and Dr. E. C. Henneberger. Established in 1950, the hospital became a public, county-owned hospital in 1989, directed by a nine-member elected board in compliance with the County Hospital Act of the Kansas State Legislature.[22]

RCHC is a 24-bed CAH, maintaining a full-service 24/7, 365 days per year emergency room with adjacent radiology and laboratory departments. It has a one-room surgical center, a rural family medicine clinic, and a specialty clinic served by outreach specialists who fly and drive to Atwood. A general surgeon is onsite twice monthly. The full-time staff is six: Dr. Travis Daise, also chief of staff at GRMC, a family medicine physician shared with Goodland, two APRNs, and two PAs. The RCHC provider model in the clinic, inpatient, and ED is a team of APRNs and PAs with physician oversight, which may be offsite. These health professionals staff the clinic with an average of 20 daily patient visits, the inpatient unit with an average daily census of two, and the ED, which averages two patients per day.

These small patient volumes require close attention to staffing ratios since personnel costs, which may exceed 80 percent of total CAH operating expense, are the major fixed-facility costs. This staffing model is designed to allow APRNs and PAs to work four-day shifts practicing full-spectrum health care. Three PAs and APRNs work four days out of a 12-day rotation providing 24-hour onsite coverage for the community, while allowing residence closer to suburban and urban centers. There is a similar four-day staffing model in the GRMC ED.

> **"I truly feel that physician assistants and advance practice registered nurses from specialty backgrounds can play a vital role in family practice in rural Kansas, and more generally throughout rural America."**
> Jason Kearns, PA-C

Jason Kearns is a PA-C at RCHC. A 2010 graduate of the Wichita State University physician-assistant program, Kearns worked in an orthopedic practice in southeast Kansas before coming to RCHC. Kearns was asked to see a 14-year-old girl with left knee pain that began after sporting activity two months prior to her initial evaluation. A left knee plain film revealed a concerning distal femur abnormality. The following day, the radiologist's interpretation supported Kearns' suspicion that the lesion in question was likely an osteosarcoma; an MRI performed at RCHC was consistent with an osteosarcoma diagnosis. The patient was promptly referred to Kansas City Children's Hospital for definitive orthopedic surgery, where an osteosarcoma was confirmed and a left leg rotationplasty was performed without evidence of metastases, and likely lifesaving.

Jason Kearns, PA-C

Financial support

External financial support is critical to the RCHC and GRMC missions. Charitable and grant funding are made available through local and regional foundations, and state and federal government. Local foundations include the Goodland Hospital Foundation and the Rawlins County Health Center Foundation, a recent evolution of the Rawlins County Hospital Foundation formed to facilitate donations and grants encompassing the entire Northwest Kansas region.

Regional funding is provided by private foundations such as the Dane G. Hansen Foundation. State funding has come from the Kansas Department of Commerce Tax Credit Award, and a Community Development Block Grant Stimulus Award. At the federal level, RCHC received a $7 million United States Department of Agriculture construction loan in 2012.

The fate of rural hospitals

After the Hill-Burton era, rural health facilities' operating margins steadily declined due to decreased patient volume and revenue, reduced payer reimbursement, and increasing operating costs. Recruiting and retaining staff and physicians, aging physical plants, the expense of equipment maintenance, upgrading, and new technology contributed to

a dire outlook for many rural communities. For the first time in decades, rural hospital closures became national headlines as many facilities succumbed to financial pressures.[23]

Since 2010, there have been an unprecedented 130 rural hospital closures across the U.S., mostly in states that did not expand Medicaid under the Patient Protection and Affordable Care Act (PPACA), including Kansas.[24] And, before the COVID-19 pandemic, more than 600 rural hospitals across the U.S. were vulnerable to closure, according to an estimate from iVantage Health Analytics, a firm that compiles a hospital strength index based on financial stability, patients, and quality indicator data.[25]

There were substantial geographic differences in rural hospitals with a negative total financial margin in 2016, 2017, and 2018; most were CAHs in the South and Midwest; Kansas, by far, had the greatest number of hospitals, 39, with three consecutive years of negative total margins.[26]

Prior to 2018, GRMC, RCHC and nearby Logan County Hospital in Oakley struggled as stand-alone CAHs, to deliver care and be financially viable. GRMC had not effectively coordinated pre-hospital care with Sherman County EMS or with post-hospital transport to tertiary facilities. Patients with time-critical diagnoses (e.g., trauma, stroke, STEMI, and sepsis) experienced care delays due to handoff friction. And, GRMC had not coordinated care or shared a regional management plan with neighboring community hospitals, such as RCHC and Logan County, also experienced management stresses as stand-alone CAHs.

One easily understood measure of financial success and sustainability is days cash on hand, the hospitals' reserve to weather financial shortfalls, such as temporary reductions in insurance payments. In 2018, GRMC had negative two days cash on hand, Logan County two days, and RCHC 50 days.

In 2017, GRMC made the critical decision to acknowledge and address local and regional silos of care with RCHC and Logan County, forming the Northwest Kansas Rural Health Network (NKRHN). Dr. Daise, in his capacity as a community leader and GRMC board member, was the physician lead in the network discussions.

Recognizing the need to improve facility management, NKRHN initiated a dialogue with Denver-based Centura Health (Centura), the largest integrated health system in eastern Colorado and western Kansas. Lou Ann Wilroy, Centura rural health VP, former CEO of the Colorado State Office of Rural Health, and a national rural health consultant, was the Centura lead. On July 24, 2017, NKRHN entered into a management agreement with Centura, becoming the Centura Rural Health Network (CRHN).

CRHN hospitals realized economies of scale through shared services, improved specialty-care access, and improved acute and chronic disease management. Each CRHN member hospital contracts independently with Centura Health, retaining their autonomy and board governance. The Centura Rural Health Network is now (2020) a financial success. Days cash on hand at GRMC and RCHC is 63 days and 166 days, respectively.

Centura Health

Centura Health is an integrated network of 17 Colorado and Kansas hospitals, and 14 affiliated rural hospitals. There are two tertiary Centura referral hospitals in Denver—St. Anthony Hospital and Porter Adventist Hospital. In 2010, Centura developed a corporate outreach department focused on rural health and health care. The rural outreach Centura health care philosophy is:

- Network health care should be local whenever possible.
- Collaboration with local communities should provide the most needed resources and services.
- Clinical and administrative assistance should always be accessible and affordable.
- There should be multiple access points to the Centura tertiary care services.

This program allows rural affiliated hospitals to benefit from a large, urban integrated health care system while maintaining autonomy, local ownership, and community governance. San Luis Valley Health in Alamosa, Colorado, was the first rural hospital to affiliate with Centura.

Under the network agreement, Centura and its affiliate hospitals share a common vision and commitment to improve the delivery of health care through a catalogue of clinical and non-clinical services. In turn, the rural affiliate hospitals agree to participate in the network comprised of all Centura affiliates. Centura representatives participate in, and in some cases, facilitate, strategic planning with the rural affiliate leadership and boards of directors. Centura also actively engages in rural community programs, such as event sponsoring, fundraising, and advocacy.

The Centura rural affiliate network has grown to 14 hospitals; five in Kansas and nine in Colorado.

Leadership and management

The leadership philosophy and style of the CRHN is different from traditional C-suite academic health center "Newtonian" leadership. The model that works well in

Centura Rural Health Network Strategic Leadership Philosophy

Northwest Kansas is "Quantum" leadership, where power is shared broadly in a distributive model, facilitating adaptation to dynamic and complex environments.

Rural health care transformation requires community health professionals, community leadership, and expert management. Daise's leadership and vision to imbed collaborative systems of care at GRMC and RCHC have been a driving force the past two years. As a servant leader, he is focused on providing care to the community by touching the lives of those most in need.

Travis Daise, MD

A native of Goodland (born at GRMC), Travis Daise began his medical journey as a child watching the ED physician suture his sister's scalp laceration sustained when she was ejected from a golf cart young Daise was driving. Following medical school, his family, teachers, and the community were instrumental in encouraging him to return to Goodland to practice medicine.

Daise has observed, at times, a pattern of hospital instability with administrative and medical staff turnover, and the impact of hospital instability on patient care. He is committed to understanding and implementing whatever is necessary to develop and sustain a high-performing patient-centered medical community by, as he explains, "regional engagement through cooperative service lines that support and grow all of us."

Ron Robinson, MD, MPH, MBA, FACHE

The Chief Executive Officer (and Chief Medical Officer) of GRMC and RCHC is Ronald (Ron) Robinson, MD, MPH, MBA, FACHE. Robinson has served in these roles since December 2018. An anesthesiologist, he is employed by Centura and serves GRMC and RCHC through the management agreement between Centura Health and the Sherman and Rawlins County hospitals and clinics.

As the RCHC and GRMC CEO, Robinson, in conjunction with hospital and community leadership, has developed a sustainable rural health strategic plan, and redesigned the organization of both hospitals in a quantum leadership model where power is shared with a broad group of operational managers. In so doing, total staff costs were reduced through staff repositioning and attrition to sustainable levels, moving both hospitals to firm operational and financial footing, improved health care quality, patient and staff satisfaction, earnings, expense management, and financial reserves.

The transformation of health care in Sherman and Rawlins counties would not be possible without the strong leadership and financial support of the community. The chair of the GRMC Board is Greg Cure, a Sherman County rancher whose sense of civic duty and desire to help provide quality health care for his community, family, and employees, inspires him to volunteer as the chair of the hospital board.

CRHN Advisory Committee

The CEOs and two board members from each of the three hospitals constitute a Regional Advisory Committee for the CRHN. This committee is engaged in ongoing strategic planning to:

- Establish a non-profit corporate entity to manage the network hospitals, a Strategic Rural Health Organization.
- Ensure local ownership of the network brick and mortar facilities to protect governmental benefits such as taxing ability, inter-governmental agreements, upper-payment limit, and other benefits, including joint contracting.
- Develop a constituent governing board to provide network management services with oversight by the executive leadership, including the network CEO, operating jointly to achieve synergies such as economies of scale.
- Train and retain on-site administration at each network location.

- Fund the network by a management services agreement and/or membership fees, and fees for services provided to individual members and non-members, potential grants, and other funding.

Education, training, and quality

Continuing education and professional development are critical to developing and sustaining care delivery excellence in rural health care settings. Centura fills this need by offering continuing medical education (CME) and continuing professional development (CPD) opportunities. Centura-associated specialists provide both hands on and remote practice and standards education, such as cardiac-risk stratification and exercise testing. Early warning diagnoses are critical in the rural setting since, when care requirements escalate, ground or flight transport to a higher level of care may be necessary.

The Trauma Nursing Core Course, Advanced Trauma Life Support, Pediatric Advanced Life Support, and Advanced Cardiac Life Support certification are also provided to frontline GRMC and RCHC staff. The CRHN quality measurement program plays an important role in early identification of opportunities for further education, training and evaluation.

Centura network members also benefit from essential operating support such as technical compliance and risk management assistance, policies and procedures, financial analysis, board development, credentialing, and human resource management.

Rural affiliate hospitals may enter into a higher-level management agreement with Centura, where affiliates gain benefits such as hospital CEO recruitment and retention, a position with a high rate of turnover. Rural hospital CEOs with management agreements are employed by Centura and receive ongoing education and leadership training, mentoring, peer relationships with executive colleagues, and direct access to other benefits, tools, and resources of the Centura system, on demand. Through this arrangement, the local hospital board and Centura jointly provide CEO oversight.

Students—medical, APRN, and PA—are welcome and actively participate in patient care at GRMC and RCHC. Gaining exposure to patient care in frontier settings broadens the educational experience and allows students first-hand rural experience to inform their career decision.

Quality

Centura provides a full range of quality measurement and improvement options. There is a focus on time-critical diagnoses—stroke, STEMI, and sepsis. Also, hospital quality data are extracted and analyzed by the University of Kansas Health System Care Collaborative.[27] Additional quality programs are:

- The Kansas Department of Health and Environment sponsored regional trauma program.[28]
- The Kansas Healthcare Collaborative, a non-profit 501(c)3 formed in 2008 by the Kansas Hospital Association in collaboration with the Kansas Medical Society for the purpose of "transforming healthcare through patient-centered initiatives that improve quality, safety, and value."[29,30]

Advanced trauma care

A three-person auto accident occurred on I-70 about a mile east of Goodland in July 2020. The driver swerved to avoid a deer, rolling the vehicle and ejecting the occupants onto the highway. When the paramedics from the NWKSAS arrived, it was apparent that advanced trauma care was needed.

While one crew applied a combat application tourniquet (CAT) to the right arm of a 19-year old male with life-threatening arterial bleeding from a degloving injury, and a pelvic binder to a 19-year old female with an unstable pelvis, the second crew began resuscitating the remaining passenger, a 20-year old male with a closed head injury (CAT tourniquets and pelvic binders had just been added to the NWKSAS capabilities due to a Northwest Kansas Regional Trauma Council "Stop the Bleed" grant.) The trio was transported to the GRMC ED, the first patient arriving within 20 minutes of the accident.


Paul Young, PA-C

Paul Young, PA, Steve Swan, PA, and Jeff Laird, PA, provide continuous coverage for GRMC ED. These seasoned PAs, each with a decade or more of Level 1 trauma center experience, work four days on, and eight days off. In preparation for the accident patients, Young conferred with an emergency medicine physician and trauma nurse at Avera eCARE in Sioux Falls, South Dakota, via telemedicine. Together, the GRMC and Avera teams developed a plan to stabilize the inbound patients during transport and upon arrival. As the patients arrived over a span of 15 minutes, the ED team, bolstered by additional hospital staff

members called in for the mass casualty event, triaged and methodically addressed each patient's injuries.

The head injury patient was intubated by the GRMC respiratory therapist using new airway management technology, the video laryngoscope. This technology allows the GRMC ED PA and respiratory therapist to manage airways, including endotracheal intubation, in the ED with direct, yet remote, telemedicine ED physician supervision.

As the patients were stabilized, the Avera eCARE team began coordinating transport to a tertiary hospital in Denver. Air-asset coordination is enhanced by the recent implementation of the Mission Control computer software in the GRMC ED.

Dr. Robinson loading pups into his Mooney aircraft for transport.

The patient with the head injury was flown to St. Anthony Hospital in Denver 40 minutes after arrival to the GRMC ED. During his six-week hospital stay, he improved from his original intubated and unresponsive state to alert and oriented with occasional confusion. He was discharged to a traumatic brain injury rehabilitation center in his native Arkansas to continue his recovery.

The patient with the pelvic fracture was the next to depart for St. Anthony Hospital where she was observed for 24 hours and discharged to orthopedic follow-up.

The patient with the degloving injury was flown via helicopter one hour and 45 minutes after GRMC ED arrival. On arrival at St. Anthony Hospital, he was taken to the operating room for repair of 11 tendons, ulnar artery and nerve. He was discharged 24 hours after arrival to orthopedic follow-up.

These trauma patients required and received expert triage, stabilization, and careful transport flight to a tertiary center.

Medical air travel has a long history in Northwest Kansas. Dr. M.G. Renner, a Goodland surgeon and pilot for whom Goodland's Renner Field is named, was an early example of a physician using aircraft to deliver care to a widely dispersed patient population. Today, transport of patients in Northwest Kansas is enhanced by the use of general aviation, rotary and fixed-wing aircraft.

Ron Robinson is also a pilot commuting weekly from Denver, flying a Mooney aircraft to and from Goodland. Robinson also rescues dogs in low-resource areas such as rural New Mexico and delivers them to foster-based rescue programs on the Front Range of Colorado.

COVID-19

While the care of COVID-19 patients has not yet been a burden at GRMC and RCHC, patient-generated revenues declined due to a reduction in scheduled care due to patient concerns about viral exposure at GRMC and RCHC while operating expenses continued.[31]

To assist rural hospitals during the pandemic, CMS expanded the Accelerated and Advance Payment Program in March 2020 under the Coronavirus Aid, Relief and Economic Security Act to help offset revenue shortfalls due to COVID-19. As of May 2020, CMS had provided $100 billion in advance payments (loans), mostly to hospitals. However, by August 2020, hospitals receiving Medicare advance payments in the spring of 2020 were required to begin repaying these loans, with most hospitals having one year from the first payment date to repay.

More than 850 rural CAHs received Medicare loans. If the loans are not repaid, CMS can withhold Medicare hospital payments. Given the uncertain financial footing of many rural hospitals before the pandemic, withholding Medicare payments may force additional hospitals to close.[27,32]

The future

Contrary to most perceptions of rural health care,[23] the view from the Northwest Kansas front line is one of optimism. Dedicated rural health care leaders have demonstrated that distributed leadership, modern management, and collaborative problem solving can enable rural hospitals to thrive and provide high-quality health care to their communities.

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The authors' E-mail address are jtooker86@gmail.com and ronaldrobinson@centura.org, respectively.