



RURAL HEALTH IN 2030

THE ROLE OF THE UNIVERSITY OF NEBRASKA MEDICAL CENTER (UNMC)

The Taskforce on Rural Health – 2030
University of Nebraska Medical Center

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INTRODUCTION

It's time. It's time for Nebraskans and their University of Nebraska Medical Center (UNMC) to assess and revise their collaborative vision and strategy to address disruptive change that will continue to impact Rural Nebraska in health workforce, patient care, health education, technology and research. Together, we must take advantage of this change. We must seek to make every opportunity a new reality and shape every challenge into a new opportunity.

This document is an initial step to begin a conversation with rural stakeholders and others. UNMC will continue to seek open and frank advice. UNMC will continue to seek new collaborations and partnerships. UNMC will listen.

The driving purpose behind this report is essentially threefold. First, to determine whether UNMC's current model of educating and sustaining the rural Nebraska health workforce is still viable. Second, if not, what must UNMC and the state of Nebraska transform, tweak, or alter to make it so? Third, what can UNMC do to assist local providers, patients and students succeed amidst the transformational change that is continuing to occur in rural health care? Over 25 years ago, UNMC first initiated a process to "refresh" and reshape its rural health strategy, goals, and programs. The state was emerging from what many called an agricultural economic "depression" during the 1980s, and rural physicians and other health professionals asked us to do more. Although UNMC was a national leader in rural health education, many suggested that it was resting on its laurels and did not appreciate the changes that were occurring. Through strategic collaboration with rural Nebraskans, a vision for a healthy future for rural health changes developed.

UNMC leaders traveled the state and listened to rural community leaders and rural stakeholders, including health providers, higher education and K-12 communities. They sought opinions from other State and local agencies, institutions and organizations. The goal was to seek input on emerging rural health issues and to derive new solutions to anticipate these trends. Out of this process emerged a new vision jointly shared by rural stakeholders and UNMC that the "The University of Nebraska Medical Center will be recognized as a national and international leader in workforce development with regards to addressing health care workforce shortages in rural communities". Assumptions that drove the UNMC vision included: (1) that the communities, State, aligned organizations and UNMC all would invest in the vision; (2) the vision would be bold and long-term with new initiatives beginning immediately; (3) that "Rural Wahoo" was not the same as "rural Broken Bow," so flexible and adaptable initiatives to achieve the vision would be necessary; (4) an overarching alignment and cooperative model must drive the process; and (5) local control and decision-making were essential.

Rural Nebraskans also took a reality check in the wake of tough times and recognized that not every small town could sustain a physician and that rural Nebraskans were "voting with their feet" as to where they sought health services. Regionalization of health care had already become a quiet disruptor.

Out of this collaborative vision, rural stakeholders and UNMC developed creative programs that became national models. The three most prominent initiatives were: (1) pipeline programs focused on rural elementary and secondary students' interest in the sciences and health careers; (2) required rural rotations for every student at UNMC to expose them to quality rural clinical settings; and (3) the Rural Training Track for

Family Medicine residents that enabled them to spend their last two years practicing in a rural community.

UNMC's vision and the rural community initiatives that were spawned by this creative energy have not been significantly altered over the past 25 years.. UNMC is revisiting its continuing rural vision, model and programs. Much has changed in rural America and Nebraska during those years. Demographics, economic conditions, technology, as well as health care financing and delivery approaches, among other factors, have altered things considerably. Does the current approach and model that worked well during these past two and one-half decades still address the new and future realities of rural health in Nebraska?

An infusion of new vitality, creativity and shared vision in UNMC's rural presence seems warranted. To re-invigorate discussion, the Chancellor of the University of Nebraska Medical Center established a Task Force to develop a revised vision and plan for the continuing role of UNMC in working with rural communities, hospitals and providers. UNMC has been listening and engaging internal and external stakeholders regarding the changing needs, finances, challenges and opportunities in rural health to best understand how to reshape, refresh and transform UNMC's rural health education, services, research, and outreach programs so that rural Nebraskans can thrive in the changing health care environment.

UNMC wants to strengthen and change its vision, where appropriate, to support rural communities and health care providers to successfully meet these disruptive health care forces head on. This report will serve to initiate discussion and to gather input. UNMC hopes to invoke a thoughtful conversation among its stakeholders regarding the future of rural health and health care delivery and of UNMC's role in helping Nebraskans achieve this vision. At this point, discussion will consider what is best for the health and health care of rural Nebraska without consideration of costs. A frank and open discussion of the issues regarding the many new opportunities and challenges will help transform our thinking.

ASSESSMENT OF UNMC'S CURRENT ROLE IN RURAL HEALTH

The collective vision developed in the late 1980s – early 1990s was transformational. UNMC, health care providers and Nebraska communities sought to build a model that would ensure an adequate workforce to provide access and quality health care for rural Nebraskans.

It was becoming evident that every small or mid-sized community would not be able to attract another solo physician once the current one left. New lifestyle issues and economics became a hard reality that rural Nebraskans were ready to confront when trying to recruit or retain physicians, nurses and other health professionals.

An emerging premise, based on new research that drove much of the discussion, was that students from rural backgrounds were much more likely to go back to rural areas to practice. Furthermore, students tended to practice near the place in which they completed their terminal degree. UNMC responded to this awareness by approaching its rural educational programs along a continuum. First, UNMC sought to develop a

pipeline of students from rural areas who were interested in the health care professions. You can't admit them to health professions programs if students don't apply. Second, UNMC exposed every student who matriculated through its programs to a quality rural health experience. Time spent in a rural health care setting was often rated the "best experience" by students. Third, health professionals in rural Nebraska were telling UNMC colleagues that they often felt isolated and missed the opportunity to communicate with colleagues, particularly specialists, on various issues. Programs were developed to break down the isolation of rural practitioners.

The new model, named the Rural Health Education Network (RHEN), incorporated this threefold concept, which in turn led to the development of creative, nationally recognized programs such as the Rural Health Opportunities Program (RHOP) and the Rural Training Track (RTT) Medical Residency Programs for Family Medicine and Internal Medicine Professions. UNMC applied for and received a federal grant that created the Area Health Education Center (AHEC) program. The statewide "8th Grade Science Meet" and the Behavioral Health Education Center of Nebraska (BHECN) also emerged during this time. These programs led to other initiatives that bolstered the pipeline of students interested in applying for entrance into the sciences and health professions and to new programs that exposed students following matriculation at UNMC to quality rural health practices.

These programs also stressed collaboration, and the concept of a "hub-spoke" model was proposed. Small rural hospitals and clinics could turn to regional centers to complement their local coverage and, if needed, to referral centers for tertiary care. UNMC and others in Lincoln and Omaha would be centers for quaternary care referrals. In addition, Nebraska Medicine, UNMC's primary clinical partner, created the Mid-America Hospital Alliance (MAHA) to educate and assist rural hospitals to meet their "back of the house" needs in such areas as auditing, human resources, technology installation/conversions, etc. and to provide training opportunities.

Communities, health systems and state colleges throughout rural Nebraska, along with state government and UNMC, agreed to invest in these initiatives, even though the results would not be known for 4-8 years. The resulting metrics point to success in these major initiatives. To date, 533 professionals have graduated from the RHOP program and 118 residents have gone through the Rural Training Track. In 2015-16 the AHEC's provided exposure to 7,650 rural high school and undergraduate students to health care careers. More than 55 percent of those students reported rural background. Over the past three years, 28 dental graduates have set up practices in rural Nebraska. Additional information is provided in the attachments.

In addition, the UNMC Colleges of Nursing (CON), Dentistry (COD), and Allied Health Professions (CAHP) have expanded their physical presence in rural Nebraska. The CON has established facilities in Scottsbluff, Kearney and Norfolk. The COD has developed Dental Hygiene training programs in Scottsbluff-Gering. The CAHP and the CON have established a presence in a new facility on the University of Nebraska at Kearney (UNK) campus to train students. Recruiting and retaining students from rural areas has been a driving force in developing this presence and UNMC's rural educational and outreach programs blossomed.

Two other major parts of an assessment of UNMC's rural health programs and initiatives involved branding and organizational structure. To some degree, these two are intertwined. As the vision and rural-centric programs matured and received state support in the early 1990s, and the Rural Health Education Network (RHEN) developed, the plan initially called for each college within UNMC to develop programs in their individual academic and outreach programs. It became apparent to faculty and rural stakeholders as they worked together in similar areas that a RHEN coordinator was needed so a coordinator was brought on board and based in the Chancellor's Office. This position developed communication channels, tracked the state dollars and the enrollees and graduates of the programs, coordinated campus and community visits with high school and undergraduate students, and essentially became UNMC's "rural face" for external partners and stakeholders. A statewide advisory board was established to receive continual feedback on rural community health interests and consider opportunities for collaboration.

In its early years, RHEN programs such as the Family Medicine Residency Rural Training Track emerged as a national model. Visitors came from other states and foreign countries to learn about and study our Nebraska Model. This legacy of successful rural health education programs has carried into the present. UNMC has consistently appeared in the Top 20 of Academic Health Science Centers for "rural health". In 2014, the U.S. News and World Report rankings recognized UNMC as ninth in the national among rural medicine programs.

RHEN's role expanded as UNMC colleges worked in collaboration with partner institutions and their faculty to develop rural undergraduate health curricula for pipeline programs and to develop interprofessional rural rotations for UNMC students. The expansion of rural pipeline programs provided a solid foundation for moving rural Nebraska health care forward. Between 2010 and 2016, these programs increased the number of alumni in UNMC pipeline programs by 45percent and jumped the total from 369 to 533.

The success of RHOP's vision led to expansion by other colleges, including Peru State College, the Kearney Health Opportunities Program (KHOP), and the Public Health Early Admission Student Track (PHEAST) partnerships between UNMC, the three state colleges and the University of Nebraska at Kearney (UNK).

In 2007, the RHEN, AHEC and RHOP programs became part of the newly created College of Public Health (COPH), and RHEN's identity as a campus-wide program changed. The decentralization of the pipeline programs in the setting of rapid program growth resulted in challenges for a shared vision for rural these programs. As separate admission and matriculation processes evolved, the sense of cohesive identity and organizational structure of pipeline programs became fragmented.

RURAL HEALTH – 2030

With today's pace of change, it seems almost whimsical to predict what rural health education, care, research, finance and delivery systems will look like in 10-12 years.

Yet this task force needs to anticipate one or more future scenarios to provide a conceptual framework for its planning efforts to achieve a satisfactory rural health vision. The following are some initial thoughts provided by this Task Force.

A. Rural Education. UNMC believes that models for 2030 health education and their impact on rural health will be considerably altered in new and currently unknown ways.

- A paradigm shift in educational models will mirror demographic and ethnographic characteristics of patient populations.
- Understanding and applying population health assessments will be required learning.
- New innovative ways to recruit, train, retain, reward and recognize community volunteer faculty will be developed.
- Pipeline programs will increase and be better coordinated.
- Inter-professional teams of caregivers will deliver care, necessitating the revision of education curricula, the creation of new modalities to provide unique experiences to students enrolled in existing programs, and those enrolled in yet to be developed professional programs.
- Closer alignment and cooperation between and among health care institutions and health education entities will require training in new professional skill sets and development of new educational programs.
- Health care knowledge will be democratized among patients and the public.
- Scope of work among existing professionals will be delineated to improve and share workload and result in new health care training and educational models.
- Educational curricula will expand their content to contain more information on cost factors, best practices and professional wellness as core pieces of learning.

B. Rural Health Care Delivery. The delivery of rural health care in 2030 will have undergone significant change from present-day practice. Due to financing methods, health demographics and technology, more care will be delivered in the home, in the community, and be based on population health demographics.

- Some critical access hospitals will evolve into institutions that solely provide urgent care, emergency care and wellness promotion programs.
- Closer alignment of critical access hospitals, regional hospitals, specialized urban hospitals and trauma centers will be commonplace.
- In 2030 the need for human one-to-one interaction with patients will not diminish, but will be strategically employed in the care continuum due to the advance of new technologies.
- As the average age of rural Nebraskans continues to increase, age-specific care needs will increase.

- Changing demographics of rural Nebraskans as a consequence of immigration will mandate culturally and linguistically appropriate health care.
- The demand for rural inpatient and nursing home care will decrease due to availability of electronic in-home monitoring of elderly patients and driverless transportation.
- Accurate assessment of community health status that provides a baseline for improving community health will continue and grow.
- The incidence of and complications from chronic disease will be a strategic priority of health care institutions to address health care costs.
- Third party payers will collaborate with health care institutions to support pilot programs of new models of care, many of which will require new educational models and newly created health professions.
- Commitment to the provision of care across the care continuum will magnify the importance of inter-professional team-based care and linkages with community based services.

C. Rural Technology. By 2030, technology will transform health education and health care delivery.

- Technology will leverage scarce resources.
- Advances in telehealth including remote patient examination will provide a new kind of access for rural patients, altering the skill set and workload of primary care providers.
- Wearable devices and simpler tools for measuring physiologic functions in the home will create new health professionals to deliver population health.
- Technological advances will allow elderly and chronic disease patients to remain in their homes longer creating new types of health care entities to meet the need of in-home aged and disabled.
- Advancing technology will necessitate new ways to access, evaluate, and create curricular models for emerging types of health care professionals.
- Distance from providers or health care institutions will be a less limiting factor in receiving access to quality care.
- Virtual reality and artificial intelligence will dramatically improve educational modalities for students and practitioners in all disciplines, increasing competencies and limiting the barrier of distance in receiving continuing education and precepting students.
- Technology will assure practice-based life-long learning.
- Portals to electronic health records will provide opportunities for patients to participate in their health care management by sharing with providers their health information collected at home or in community venues.
- Adequate statewide broadband access will become a necessity.

D. UNMC – 2030. Rural health education, care, and research will be better defined and more distributive and streamlined at UNMC.

- UNMC will become the national leader in rural health research and health care delivery.
- UNMC will become “embedded” in the support of rural health care education, training and patient access as needed.
- UNMC’s brand will be recognized in rural Nebraska as a trusted source of health information, education, and patient care.
- UNMC will be nimble, creative and active change-agents to assist our rural stakeholders in addressing the “new order” of health care delivery that is emerging.
- UNMC will be positioned to address rural educational and health delivery issues through its approach of affiliating and cooperating with local providers and public health departments to meet their needs.
- UNMC will expand and strengthen current rural health programs to address new and continuing opportunities or challenges in health care delivery, population health, and education.
- UNMC will leverage new technologies to support rural site-based education programs across the educational continuum – from pipeline programs, to student and rural resident training, to life-long learning for rural practitioners.
- One “umbrella unit” at UNMC that supports required rural needs and requests in education, community services, and clinical programs will be clearly defined and named.

SUMMARY OF STAKEHOLDER INPUT

The changes affecting rural health care in Nebraska mandate the need for a strong statewide approach to planning to ensure that health care access continues to be readily available for Nebraskans. In multiple conversations with rural stakeholders in development of this report, these future trends and developments were identified:

- UNMC must continue to be the national leader for rural health care workforce planning and rural health care education and delivery.
- UNMC should consider the development of a Central Nebraska Rural Health Science Interprofessional Campus that includes:
 - A full complement of professional health degree programs.
 - Rural training residencies for family medicine, internal medicine, surgery and psychiatry.
- The State must evaluate and improve loan repayment opportunities for recruitment and retention of health care providers in Nebraska.
- There will be new types of health care workers that address community and in-home monitoring, delivery of health care services, patient education and disease prevention.

- Changing rural demographics will require a greater emphasis on chronic disease, geriatric care, and patient monitoring in culturally-appropriate services.
- Improved prevention and monitoring of chronic disease patients will require development of regional community health care teams that work with patients and health care providers.
- There must be an assessment of opportunities to enhance the economic basis of rural communities to enhance both development and health care team recruitment.
- Provide support for emergency medicine services education and skill development through use of mobile simulation units.
- Establish partnerships with public health departments to assist patients in their personal health and disease prevention.
- Technology will play an even larger role in rural health care worker education, health care delivery, and health promotion.
- Use of in-home monitoring and hand-held health technologies will improve access to care for rural patients.
- The closure of critical access hospitals in Nebraska will require regional reorganization of care.
- Critical access hospitals and local health care providers will develop demonstration projects of new models of care.
- There is a need for a stable base of funding at the local, state, and federal level to address the health education and health care delivery needs confronting rural regions today.

RECOMMENDED STRATEGIES AND ACTION STEPS

UNMC should focus on five strategic imperatives to assure success in the new era of rural health education, research, service delivery, and outreach. These five strategies and the initiatives to advance them follow.

Strategy I – Rural Education and Workforce Preparation:

Anticipate and prepare the rural health workforce of tomorrow by providing state-of-the-art educational opportunities that emphasize competency-based education, interdisciplinary teamwork, education of new types of health care workers, and the appropriate blend of human interaction with the use of emerging technological tools.

- Develop the trust of rural Nebraskans and health care providers to become a trusted resource for health information and health care delivery when needed.
- Develop population health assessments to provide information that ensures improved health care and disease prevention for Nebraska citizens.

- UNMC and other University of Nebraska campuses should work with the State, local health departments, and other health partners to assess population health issues in Nebraska.
- Engage rural communities to improve health and disease prevention, and delivery of care.
- Identify innovative ways to address and anticipate lifelong learning needs for health professions by partnering with Nebraska community colleges to expand bridge programming.
- Include integration of public health competencies and cultural competency into all UNMC health professions education programs.
- Expand the number of pipeline programs for health professions education.
- Ensure that rural health care providers become experts in prevention of diseases common in rural Nebraska.
- Ensure new investments to develop future health professions educational programs to reduce rural provider shortages, expand health care education opportunities, and provide recruitment/retention of non-traditional students and those from underserved and under-represented populations:
 - Establish local rural career academies for high school students that provide health career information regarding future opportunities for education and training.
 - Consider provision of student service-based learning programs to pilot rural access training.
 - Support training of rural health workers to assist with tele-medicine consultation of patients with regional providers.
 - Support community colleges as they prepare entry-level health care worker training (e.g. the Certified Nursing Assistant).
 - Support development of cross-training programs to enhance skills of entry-level health workers to provide care for rural health needs.
 - Encourage community colleges to develop certificate training programs for community health workers that includes standardized core competencies and scope of practice.
- Expand the role of the UNMC Interprofessional Academy of Educators to include rural preceptors who are training and mentoring students rotating in rural areas.
- Establish a Leadership Academy for undergraduate pre-health majors in pipeline programs.
- Provide interdisciplinary educational experiences for students while serving in rural rotations.
- Extend rural rotations for pipeline and other rural students during clinical training.
- Develop a partnership with UNL's Extension Educators, community hospitals, rural AHEC's, and local health departments to develop programs focused on K-12 students to consider rural health careers.
- Promote opportunities for training in population health assessment.

- Match UNMC students and alumni in rural communities as part of the Alumni Association’s “new era of engagement.”
- Strengthen systems to widely distribute and share health information to reduce isolation of rural practitioners.
- Utilize rural expert providers for specialty presentations or programs.
- Develop and engage RHOP graduates in targeted initiatives of support for pipeline programs and student education.
- Collaborate with other NU campuses to build new programs that meet emerging health needs.

Strategy II – Rural Health Education and Delivery Models:

Create new or extend current public/private partnerships, affiliations, and agreements with a wide variety of educational, health care, philanthropic, and government entities, institutions, and organizations to assure opportunities for rural health workforce development, health care access, health research and delivery of health care services.

- Encourage University of Nebraska campuses to work more closely together in addressing rural health needs of the State:
 - Support economic development opportunities for rural areas to improve health care worker recruitment.
 - Improve rural broadband internet access.
 - Sponsor research studies of the economic consequence of loss of local hospitals and physician practices.
 - Conduct predictive economic analyses of the effect of inadequate health care on the economics of rural communities.
- Recognize the regional nature of health care throughout Nebraska:
 - Establish plans to deal with the loss of critical access hospitals and those closures’ effect on local and regional health care delivery.
 - Consider development of regional networks of health care with sharing of resources.
 - Consider hub and spoke training and health care delivery models as loss of regional critical access hospitals develop.
 - Consider engagement and collaboration of regional Emergency Medical Services to provide access points for needed emergency care.
 - Promote locally based integrated health care programs.
 - Assist communities to repurpose local health care assets including physical plants and provider affiliations.
- Provide local training through mobile simulation training devices for emergency medicine and health care workers.
- Maintain rural provider skills and continuing education with tele-education and on-site and distant simulation and virtual reality.
- Provide loan forgiveness, tax incentives and other economic incentives for health care personnel (and their spouses) to work in rural communities.

- Seek opportunities for collaboration between UNMC and community colleges for the education of entry-level health professionals, current health workers desiring career advancement and newly created health professions.
- Collaboratively launch an expanded Leadership Program for current and future rural health professionals such as hospital administrators, public health experts and newly trained health professionals.
- Develop population health assessments that identify health professional provider needs, and disease management opportunities.
- Develop curricula that integrate leadership development, inter-professional learning, and application of population health assessments.
- Ensure primary care residency training that includes:
 - The skills needed in rural practice.
 - Chronic disease management.
 - Public health.
 - Population health.
 - Practice management.
 - Team-based care.
- Develop new rural residency training programs for family medicine, internal medicine, general surgery and psychiatry residencies in rural Nebraska.
 - Consider collaborating with the Department of Veterans Affairs, Health Resources and Services Administration (HRSA), and Federally Qualified Health Centers for training sites and educational funding.
 - Consider providing rural rotations for surgical and psychiatry residents as part of current urban residency training.
- Provide greater opportunities for training of mental health providers in rural Nebraska.
- Collaborate with the Rural Futures Institute to promote health-focused entrepreneurship and economic development opportunities in rural communities.
- Provide telehealth specialty consultation to critical access hospitals and rural practices.
- Expand telehealth clinical programs to rural physician practices and hospitals.
- Lead a statewide collaboration to promote healthy behavior.
- Explore opportunities with the Institute of Agriculture and Natural Resources (IANR) and Nebraska Extension to train Extension Educators as community health educators.
- Develop health provider teams to promote health education.
- Assess the need for establishing training for industrial hygienists who focus on evaluation and prevention of injury to workers exposed to rural occupational hazards.
- Provide assistance and advice to those critical access hospitals who want to transition to new, emerging models.

- Launch strategic collaborations to provide social networks that assist in the care of immigrant populations and “hidden populations” lacking traditional access to health care education and delivery.
- Consider development of a new rural medical school training site.

Strategy III - Rural Use of Emerging Technologies:

Lead the world in the use of emerging technologies to prepare current and future health practitioners and to provide state-of-the-art health care services at the right place, at the right time, and at the appropriate cost.

- Use telehealth and tele-education to provide direct patient care and enhanced life-long learning of rural health providers and public health practitioners.
- Use technology to routinely connect primary care professionals with specialists in targeted diseases:
 - Ensure that newly developed technology measures are available to rural providers.
- Provide advanced technologies such as “Watson” to rural health providers in Nebraska.
- Embrace the Interprofessional Experiential Center for Enduring Learning (iEXCEL) as a teaching and/or practice tool in community and state college programs, community hospitals, rural health practices, and other entities.
- Utilize virtual reality training to meet continuing education and just-in-time training of rural health care workers.
- Promote patient self-management through technology.
- Ensure collaboration of rural health practices with University of Nebraska computer services and educational units.
- Employ technology that disseminates health information and education to patients to improve their compliance and quality of care.
- Develop education tracks that employ new distance technologies for preceptors.
- Implement direct-to-patient care and remote patient monitoring by using virtual telehealth consultations.
- Use bioinformatics and super-computers to assist in the diagnosis and treatment of disease.
- Share information and treatments of physician and other health care provider burnout across the continuum of Nebraska.

Strategy IV – Rural Health Research:

Vigorously pursue cutting-edge research opportunities with strategic partners that anticipate changes in rural health by advancing interprofessional education models, population health, chronic disease management, assessment metrics, design and use of new technologies, and new practice-based modalities.

- Establish feasibility of health enterprise zones.

- Conduct research on innovative practice models in rural areas:
 - Hand-held technologies
 - In-home patient monitoring
 - Usefulness of tele-consultation
 - Computerized information resources such as “Watson”
 - Education and health delivery models such as Project ECHO
 - Artificial intelligence models
 - Tele-education
 - Outcomes of expanded care provided by new types of health care personnel such as community health workers
 - Provision of pain management for patients with chronic pain syndromes
- Produce information that assists in prioritizing research initiatives in rural health promotion and wellness.
 - Evaluate the need for establishment of a Rural Occupational Medicine research and education program for UNMC.
- Study the effect of the opioid crisis on rural health and rural health care delivery.
- Support research on projected needs for health professional workforce.
- Increase research into prevention and treatment of agricultural injury and disease.
- Increase precision of workforce analysis to better project future workforce needs at local and statewide levels.
- Conduct research on the integration of public health, primary care, and behavioral health in rural settings.
- Seek extramural support for collaborative pilot programs and other research opportunities to evaluate rural health delivery models.
- Collaborate with third-party payers to determine effectiveness of hand-held devices and in-home monitors in remote areas.
- Analyze the current scope of work for key disciplines and determine adjustments that best serve the rural inter-professional model of education and provision of care.
- Promote understanding of how best to apply health assessments with results-oriented metrics.
- Study best practices in establishing affiliation agreements among and between institutions.
- Study the effectiveness of loan repayment for recruitment of rural health workers.
- Conduct research studies on the roles and effectiveness of innovative health care delivery models utilizing community health workers in clinical and community-based settings.
- Promote research to better identify rural health disparities, as well as strategies to address them.

Strategy V – Refresh UNMC Brand and Maximize Organizational Structure:

Refresh the UNMC rural health brand and maximize our rural health organizational structure to assure strategic success in a most effective, efficient and coordinated manner. UNMC will be a nimble, creative, and active change agent to assist our rural stakeholders in transforming health care education, research, delivery, and community outreach.

- Establish an office of UNMC Rural Health within the office of the Vice Chancellor for Academic Affairs.
- Consolidate all UNMC rural health activities within the Office of Rural Health to:
 - Provide a single point of contact for all rural health programs including education, research, and service activities.
 - Align and evaluate all pipeline programs and their effectiveness.
 - Facilitate UNMC educational programs with Nebraska State Colleges and Community Colleges for newly identified types of health care providers.
 - Promote standardized policies and procedures, where possible, in admissions and matriculation of pipeline students.
 - Promote standardized procedures for supporting pipeline student success during their college experience.
 - Link pipeline students as peer mentors during college and advanced training.
 - Establish new pipeline programs, including primary care, for rural students as needed.
 - Develop a leadership academy for pipeline students.
 - Provide support to rural hospitals and practices including HIPAA training for shadowing experiences.
 - Support the formation of HOSA (Health Occupation Students of America) programs in Nebraska high schools.
- Clarify and strengthen the image of UNMC rural health programs by refreshing the brand.
- Explore the possibility of initiating a University-wide rural brand.
- Rural Health Opportunities Program (RHOP):
 - Re-evaluate the naming of pipeline programs:
 - RHOP name readily recognized
 - Develop RHOP pipeline programs that also provide opportunities for under-represented students.
 - This will require culturally and linguistically appropriate student recruitment strategies and support.
 - Coordinate visits to UNMC by Rural Health Opportunity Program (RHOP) students and other rural secondary and undergraduate students interested in health care professions.
 - Investigate measures that predict success of entering students.
 - Engage alumni and other health workers as mentors for pipeline program students prior to and at entry into the program.
 - Provide training opportunities for high school counselors to learn about pipeline programs for graduating high school seniors entering college.

- Expand the concept of pipeline programs to include private and community college affiliations.
- Explore the possibility of increasing educational programs at UNK and expanding the brand and scope of current programs delivered at UNK.
- Improve collaboration with rural Federally Qualified Health Centers (FQHC's), AHEC's and public health departments to identify educational opportunities for health career students.

HIGH-PRIORITY TARGETS

SHORT-TERM

- Strengthen pipeline-training programs.
 - Establish electronic networking between pipeline students, State Colleges, and their on-site training at UNMC.
 - Ensure leadership training of pipeline students throughout their educational program.
 - Work with middle schools, high schools, and community colleges to prepare entry-level students for pipeline programs in State Colleges.
 - Ensure active engagement of pipeline programs and students with rural communities that are hosting the experiences.
- Develop outreach programs such as HOSA (Health Occupation Students of America) programs for elementary and secondary students to provide information on future health careers.
- Develop demonstration projects to train rural behavioral health providers and integrate them into interprofessional practices.
- Establish a long-term commitment to rural physicians and other rural health care providers for continuing education, information management, medical library access, and training for rural educators.
- Develop applications for hand-held devices and computers to provide access to outreach information, in-depth knowledge of specific health career fields, and application forms for pipeline programs.
- Conduct research studies on the roles and effectiveness of innovative health care delivery models utilizing community health workers in clinical and community-based settings.
- Establish a single point of contact for open communication and collaboration of the UNMC Rural Health Office in the Vice Chancellor for Academic Affairs' office to coordinate and promote collaboration in rural health care, research and education.
 - Consider establishment of a rural health advisory board to build trust with rural communities and support the planning, information gathering, and communication of the Rural Health Office.

MID-TERM

- Evaluate and promote changes to educational tuition payback programs including tuition abatement in return for rural service in designated underserved communities and use of loan repayment programs, State tax relief, State Enterprise Zones, and other economic incentives for rural health care service.
- Review and modify current rural training-tract curriculum requirements to ensure that new rural professional providers are ready for practice.
- Utilize in-home health monitoring and tele-health technology to reach underserved rural patients. Expand such services in schools, extended care facilities, churches and other key community locations where high bandwidth wifi services are available.
- Expand tele-health experiential learning and simulation programs to provide site-based training to rural health care providers and other health care workers.
- Enhance the reach of UNMC as the trusted resource for health care information and training for a wide spectrum of health professions life-long learning.
- Assist rural hospitals and practices in development and evaluation of new models of rural health care such as community care teams or health care “cooperatives”.
- Provide support to rural health care workers through innovative programs that sustain their health care skills, maintain and improve personal health care competencies, provide continuing education, and support both patient care and health care worker education through programs such as Project ECHO and artificial intelligence systems, including IBM Watson.

LONG-TERM

- Establish a Central Nebraska Rural Health Science Interprofessional Center at the University of Nebraska at Kearney that awards advanced professional degrees and provides continuing education in health care.
- Explore the feasibility of additional rural training tracks for family medicine, internal medicine, surgery, obstetrics and gynecology, and psychiatry.
- Explore regional training to maintain clinical competencies of care and specialized skills.
- Work with rural communities, their hospitals and physicians, state government, the Department of Veteran Affairs, HRSA and UNMC to develop rural primary residencies in family medicine, internal medicine, surgery, OB and psychiatry.
- Establish rural training tracts for dentists, pharmacists, physician assistants, nurse practitioners in rural communities, mentored by local providers.
- Work with rural hospital administrators to better understand the continuing education requirements for themselves and their staff and develop effective educational models to reach them. Study the effectiveness of innovative rural health care delivery models that utilize community health workers in clinical and community-based settings.

- Develop pipeline programs with state colleges and community colleges that identify and encourage rural under-represented, first-generation, and economically disadvantaged students to enter pipeline programs.
- Study and determine rural opportunities that will improve local place-based economies that will attract and retain health professional families..
- Work with rural communities to improve their broadband internet access. Identify community “hot spots” where patients can obtain high-speed Wi-Fi access for consultations and ongoing telehealth care.
- Implement demonstration projects that promote systems of regional critical access hospitals, departments of health, and rural provider clinics that embed UNMC as a trusted resource.

CONCLUSION

Through creativity, hard work and strategic collaboration, UNMC and rural Nebraskans can shape a new vision for a healthy future. Some long-held assumptions must be jettisoned. New realities must be confronted through bold, innovative actions in rural health education, research and care delivery. Collectively, we not only may have “to do more with less,” but almost certainly, we will have “to do different with less.” Our rural partners can guide and advise, assist and teach us how to transform rural health education, outreach, and care. Disruptive change will continue to impact rural health and lead to an opportunity to create a new vision for health in rural communities. Stasis is not an option. Disruptive change is the “new normal.” Let us address it head-on – together.

Rural Health 2030 Report Appendices

- A. List of Rural Health 2030 Task Force Members
- B. Task Force Editorial team
- C. Brief Chronological History of RHEN key administrative and program changes
- D. Questions to be considered at Stakeholders Meetings
- E. Stakeholder groups receiving and/or commenting on Rural Health Report
- F. RHOP Data
- G. Rural Pipeline Practice Sites RHOP/KHOP/PHEAST
- H. Rural Training Track Data

APPENDIX A

UNMC Rural Health 2030 Task Force

Chair: Bob Bartee, Vice Chancellor for External Affairs

Staff Support: Roxanna Jokela, Vice Chancellor's Office Special Projects

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Cory Shaw, Chief Strategy Officer, Nebraska Medicine

Michael Sitorius, M.D., Chair, Family Medicine; Director, Area Health Education Center

Rowen Zetterman, M.D., MACP, MACG, Director, Faculty Mentorship Programs; Associate Vice Chancellor for Strategic Planning, Academic Affairs

APPENDIX B

Editorial Team – UNMC Rural Health Task Force 2030

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Roxanna Jokela, Special Projects, Chancellor's Office

Greg Karst, PhD, College of Allied Health Professions

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Rowen Zetterman, M.D., MACP, MACG, Academic Affairs Office

Appendix C

Brief Chronological History of the Rural Health Initiatives

- 1986 Western Nebraska Division, College of Nursing opened
- 1989 Rural Health Opportunities Program (RHOP) initiated with UNMC and Chadron State College
- 1990 Proposal submitted by UNMC to Governor Kay Orr to develop Rural Health Education Network
- 1991 RHEN Legislative Bill 652e, Section 24 signed by Governor Ben Nelson providing RHEN funding
- 1991 RHEN Office established under purview of Chancellor's Office
- 1991 Kearney Division, College of Nursing opened
- 1991 Family Medicine Rural Training Track started
- 1993 RHOP Loan Program legislation approved to provide loan funds to RHOP students at UNMC
- 1993 First RHEN Coordinator hired
- 1993 First HRSA Grant Inter-professional Rural Rotation developed through RHEN Office
- 1994 RHOP administration transitioned from Student Services to RHEN Office
- 1995 Statewide Coordinating Committee for Rural Health Education (CCRHE) formed
- 1995 Health Profession Tracking Service established
- 1996 Rural Health Education Distance Learning Research Center established in Kearney
- 1998 Legislation transfers RHOP Loan funds to State Rural Health Advisory Commission authority
- 2000 Nebraska accredited for 5 Family Medicine Rural Training Programs, the most in the Nation
- 2001 Nebraska Area Health Education Center (AHEC) Grant awarded through HRSA Funding
- 2001 AHEC Office becomes part of the umbrella of RHEN. RHEN Coordinator becomes RHEN Director/AHEC Deputy Director
- 2002 Statewide AHEC Advisory Board replaces CCRHE due to AHEC Federal Requirements
- 2003 Dentistry begins Western Division Dental Hygiene Program in Gering-Scottsbluff Nebraska
- 2007 RHEN Office moved to the College of Public Health. RHEN continues AHEC coordination
- 2008 RHEN/AHEC worked on Nebraska Task Force to develop BHECN which began in 2009
- 2010 Northern Division, Norfolk campus College of Nursing opens
- 2011 Colleges of Allied Health Professions, Dentistry, Medicine, Nursing and Pharmacy in collaboration with UNK established the Kearney Health Opportunities Program (KHOP)
- 2011 College of Public Health in collaboration with all three Nebraska State Colleges and UNK established the Public Health Early Admissions Track (PHEAST)
- 2011 College of Public Health received a CDC grant to establish the Central States Center for Agricultural Safety and Health Training Center
- 2011 College of Public Health received a HRSA grant to establish the Great Plains Public Health Training Center
- 2013 University of Nebraska Board of Regents approve construction of the Health Science Education Complex on the UNK Campus
- 2013 RHEN established a health disparities fellowship with the Food and Drug and Administration
- 2015 UNMC College of Dentistry ranks #1 among all dental schools in the U.S. in the number of graduates returning to rural communities to practice
- 2015 College of Nursing established Nebraska RN-BSN Collaborative with all six community colleges
- 2017 College of Nursing celebrates 33 years of Advanced Education Nursing Training support from HRSA for NP students who are from or promise to return to rural or underserved areas

Appendix D

Questions on Strategies to be discussed at Stakeholder Groups

Rural Education and Workforce Preparation

Question: What are the rural education and workforce priorities for Nebraska in the next ten years?

Rural Health Education and Delivery Models

Question: How can UNMC collaborate with rural communities to improve rural health care delivery over the next ten years?

Strategy III - Rural Use of Emerging Technologies

Question: What emerging technologies will improve the delivery of rural health care education and (health care) services in the next 10 years?

Strategy IV – Rural Health Research

Question: What are the rural health research priorities in Nebraska for the next ten years?

Strategy V – Refresh UNMC Brand and Maximize Organizational Structure

Question: Should UNMC consider branding all rural UNMC activities (education, research, and other services) under one umbrella in the next ten years?

Attachment E

Rural Health Vision 2030 - Rural Stakeholder Groups

Internal Stakeholders – UNMC and Nebraska Medicine

Affiliate Partners: Behavioral Health/AHEC

UNL Partners

UNO Partners

UNK Partners

UNMC Students and Recruitment

Hospital and Health System CEOs and Directors of Nursing

State Colleges

Community Colleges

Nebraska State Departments

Rural Practitioner Groups by Profession

Public Health Directors

Philanthropic Foundations

Tribal Health Directors

Economic Development/Chamber Organizations

Federally Qualified Health Centers (FQHCs)

Veterans Hospital Administration

APPENDIX F

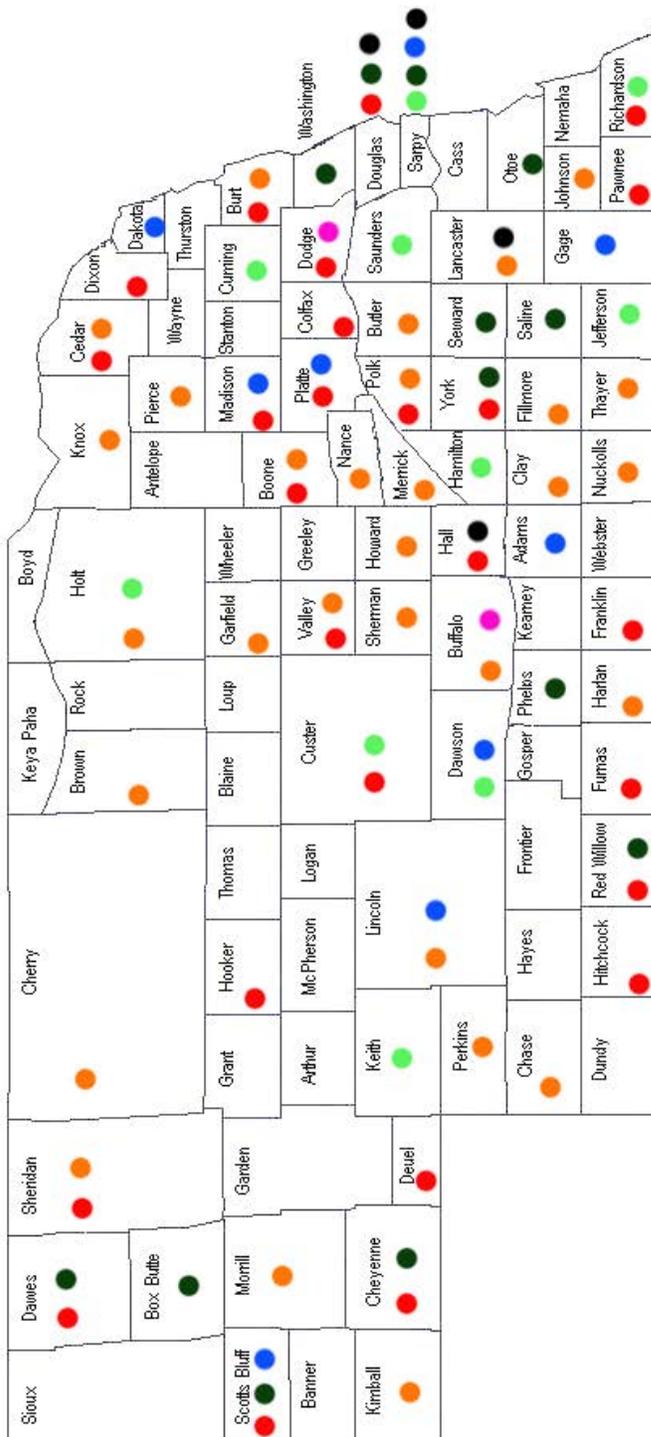
University of Nebraska Medical Center RHOP/KHOP/PHEAST Graduates - end of 2016

Profession	Total	NE Rural		NE Urban	
Medicine	139	58	42%	40	29%
Physician Assistant	55	32	58%	4	7%
Physical Therapist	62	34	55%	7	11%
Medical Radiographer	24	8	33%	10	42%
Medical Laboratory Science	34	13	38%	3	9%
Dentist	66	31	47%	7	11%
Dental Hygienist	39	18	46%	5	13%
Registered Nurse	31	14	45%	3	10%
Pharmacist	82	35	43%	21	26%
Public Health (PHEAST)	1	0	0%	1	100%
Total	533	243	46%	101	19%

Prepared by: Marlene Deras
University of Nebraska Medical Center
College of Public Health, Health Professions Tracking Service (HPTS)
Prepared: 03/27/2017

APPENDIX G

RHOP/KHOP/PHEAST Graduates Practice Sites



Primary & Satellite Practice Locations
 Graduates may be counted more than once if in more than one location

Source: University of Nebraska Medical Center
 Health Professions Tracking Service
 07/21/2017

ATTACHMENT H

RURAL TRAINING TRACK GRADUATE DISTRIBUTION

