The Nebraska Public Health Improvement Plan

A Statewide Plan for Public Health Partners and Stakeholders to Improve the Health of Nebraskans

Prepared by

The State Public Health Improvement Plan Advisory Coalition

and

Division of Public Health
Nebraska Department of Health and Human Services

April 30, 2013

Acknowledgements

The staff in the Office of Community and Rural Health in the Division of Public Health would like to express their gratitude to the many individuals who directly contributed to the successful completion of this plan. We are indebted to the members of the State Public Health Improvement Plan Advisory Coalition for their support, guidance, and commitment in developing this plan. A list of the members begins on the next page. We are also appreciative of the many individuals who served on one or more of the work groups that developed the preliminary goals, objectives, and strategies to move the state priorities forward. The list of members is included in Appendix A. Finally, we are grateful to Pat DeLancey for preparing the final plan and Ann Larimer for preparing numerous drafts.

Produced by the
Office of Community and Rural Health
Community Health Planning and Protection Unit
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To access this document electronically, visit:
http://dhhs.ne.gov/publichealth/Pages/puh_oph.aspx
To obtain this document in an alternate format,
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Suggested citation: Nebraska Department of Health and Human Services, Division of Public Health and the State Health Improvement Plan Advisory Coalition (April 2013). The Nebraska Public Health Improvement Plan, 2013–2016. Lincoln, NE.

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The Nebraska Public Health Improvement Plan

Background and Purpose

In 1997, the Nebraska Department of Health and Human Services received a Turning Point grant from the Robert Wood Johnson Foundation. This grant led to the development of Nebraska's first State Public Health Improvement Plan. The plan was approved in November of 1999 by the Nebraska Community Health Partners Stakeholder Group, which included representatives from many diverse organizations. This plan was the impetus for tremendous changes in the delivery of public health services in Nebraska. The Stakeholder Group recognized that the first step in strengthening and transforming public health was to build the local public health infrastructure. At the time the plan was written, only 22 of the state's 93 counties were served by a local health department. However, with the infusion of Tobacco Settlement funds, the state Legislature passed and the Governor signed the Nebraska Health Care Funding Act of 2001. The Act created $5.6 million in dedicated state funds to develop a statewide public health system. By 2003, all counties were covered by either a single county or a multi-county local health department.

In 2008, a second State Public Health Improvement Plan was developed and approved by the Turning Point Public Health Stakeholders Group. This plan contained seven major strategies that focused mainly on building the public health infrastructure that began in 2001. These strategies included strengthening the public health workforce, making public health data systems more accessible, building the capacity to deliver environmental and health promotion services, and improving access to high quality health care services. The infrastructure changes that occurred in the decade of the 2000s have greatly strengthened the public health system in Nebraska, and it now has the capacity to address a wide range of problems and issues, including new and emerging disease outbreaks such as H1N1. The public health system is also able to track patterns of illness through a new immunization registry and improved surveillance of emergency conditions. In addition, local and state public health agencies have established strong collaborative partnerships with many groups and organizations to address the complex issues of obesity, infant mortality, and racial and ethnic health disparities.

In addition to building the local public health infrastructure, there have been other major successes. For example, a Master of Public Health (MPH)[1] program was created in 2002, and a new College of Public Health was formed in 2007 at the University of Nebraska Medical Center. More recently, Creighton University began offering an online Master of Public Health program as well. These and other academic programs have strengthened the public health workforce and greatly expanded participatory research studies. Another major change was the decision to move many of the state laboratory functions to the University of Nebraska Medical Center in the late 1990s. This decision greatly improved the state's capacity to address infectious and foodborne illness outbreaks in a more timely manner.

Despite these and many other major accomplishments, public health faces many serious challenges due to the changing demographic, economic, social, cultural, and political environments. Fortunately, these changes create enhanced opportunities to strengthen and

[1] For a list of the acronyms used, see Appendix B.

transform public health at both the state and local levels. In order to take advantage of these new opportunities, both the public and private sectors at the state and local levels need to work collaboratively. Such collaboration will improve the health of all individuals in Nebraska and strengthen the partnership between state and local agencies.

This document is intended to be a blueprint for improving the public health system in Nebraska. The plan assumes that one of the necessary ingredients for improving the health status of our population is to focus more on evidence-based prevention strategies and enhance the collaborative efforts between the private and public sectors. There are also opportunities to use new technologies to collect, analyze, and disseminate health data, develop and implement more effective disease prevention and health promotion programs, and integrate public health programs with primary care services through the health care home model. While this document serves as a blueprint for change, it should be emphasized that timely modifications will be needed to respond to the rapid forces of change in the health care environment over the next five years.

Process for Developing the Plan

The Mobilizing for Action through Planning and Partnerships (MAPP) process was used to develop the plan. The MAPP process was selected because it has been used by nearly all of the local health departments in Nebraska. It also encourages strong partnerships and feedback from a wide range of stakeholders. Finally, the process relies on both qualitative and quantitative data and information to assess public health needs. The steps in the MAPP process are shown in Table 1 on page 23.

The first step in this process was to organize a diverse stakeholder group called the State Public Health Improvement Plan Advisory Coalition. This group consists of representatives from local health departments, the Public Health Association of Nebraska, the Nebraska Association of Local Boards of Health, the Nebraska Association of Local Health Directors, the Nebraska Association of Community Health Centers, the Nebraska Medical Association, the Nebraska Dental Association, Area Agencies on Aging, the Nebraska Children and Families Foundation, the Nebraska Division of Behavioral Health, the Nebraska Division of Public Health, the Nebraska Department of Environmental Quality, and the College of Public Health. The purpose of the Coalition was to provide guidance in the development of the plan and enhance the commitment of stakeholders during the implementation phase.

The second step in the MAPP process was to develop a shared vision. After considerable discussion, the Coalition agreed on the following vision:

> **Working together to improve the health and quality of life for all individuals, families, and communities across Nebraska.**

The third major step in the MAPP process was to develop a comprehensive needs assessment. This assessment consisted of an examination of community themes and strengths, community health status, forces of change, and an analysis of the state public health system. After considering the results of the needs assessment, the Advisory Coalition identified the high

priority strategic issues. Once the strategic issues were selected, relatively small "expert" work groups were established to formulate goals, objectives, and strategies. The work groups included some Advisory Coalition members as well as state and local experts in the field. A list of the members of each work group is contained in Appendix A. The recommendations of the expert groups were then reviewed by the entire Advisory Coalition and the plan was formally approved on April 30, 2013.

After the plan is approved, the implementation and monitoring phases will begin. The Advisory Coalition will be responsible for guiding the implementation of the plan. It will be directly involved in disseminating the plan and promoting the recommendations to colleagues and partners. The Advisory Coalition will also be involved with reviewing and monitoring the progress of the plan. The Office of Community and Rural Health in the Division of Public Health will be responsible for developing performance measures related to the objectives and strategies, collecting data and information on these measures, and reporting the results back to the Advisory Coalition.

Outline of the Plan

This plan is divided into four major chapters. The first chapter provides a general overview of the mission, roles, and responsibilities of public health. It also discusses the past and current public health system in Nebraska. The second chapter provides a brief overview of some of the major findings of the MAPP needs assessment. This overview is very limited because the complete results are contained in a separate document entitled *The Nebraska Public Health Needs Assessment* (http://dhhs.ne.gov/publichealth/Pages/puh_oph.aspx). This chapter also includes a discussion of the process for setting the strategic priorities. The third chapter provides background information and a brief summary of the major challenges for each priority. It also includes a detailed work plan that contains the objectives, the strategies to achieve these objectives, and the expected outcomes. The final chapter describes the implementation and performance monitoring process.

Chapter 1
The Role of Public Health

In the past few years, major changes have occurred in both the public and private health systems. Most of these changes have focused on achieving the triple aim of simultaneously improving population health, improving the quality of health care services, and reducing per capita cost.[2] One of the major goals of the triple aim is to move the health system from a focus on sickness and disease to one based on prevention and wellness. In a prevention-oriented system, a greater emphasis is placed on improving both the health and well-being of all population groups. In 2011, the life expectancy of Americans was 78 years, but only 69 of these years would be spent in good health.[3] Keeping people healthy not only improves their health and well-being, but it is also one of the most effective ways of reducing costs. For example, a recent study concluded that if the rates for type 2 diabetes and hypertension were reduced by 5 percent, the nation could save more than $9 billion annually in health care costs. In addition, reducing the prevalence of heart disease, kidney disease, and stroke by 5 percent could increase these savings to almost $25 billion annually.[4] Another study by the National Bureau of Economic Research found that obesity-related medical costs are about $168 billion or 17 percent of U.S. medical costs.[5] Finally, a 2012 study found that tobacco use leads to nearly $200 billion every year in U.S. health care costs and lost productivity. Tobacco use contributes to several types of cancers, cardiovascular disease, lung disease, and pregnancy complications.[6] Finally, a 2012 report from the Trust for America's Health concluded that reducing the average body mass index in the state by five percent could lead to health care savings of more than $1 billion in 10 years and $3 billion in 20 years.[7]

There are many factors that lead to "good" health throughout all stages of life. The National Prevention Council has identified the key factors in the model depicted in Figure 1. In this model, increasing the number of people who are healthy involves changing conditions in communities such as educational and job opportunities, safe and affordable housing, accessible transportation and parks, and the absence of toxic substances. Improving access to clinical and community preventive services can reduce tobacco and drug abuse, improve screening for colon and breast cancer, prevent heart disease through more timely treatment for hypertension, and reduce obesity and diabetes through more active living and healthy eating. "Empowered people" implies that individuals still have the responsibility to make healthy choices. To assist individuals, information must be clear and understandable so they can make consistent choices across the life span. Finally, health disparities must be eliminated before the health of the nation and Nebraska can be improved. These disparities are often associated with social (cultural barriers), economic (poverty), or environmental disadvantages (substandard housing).

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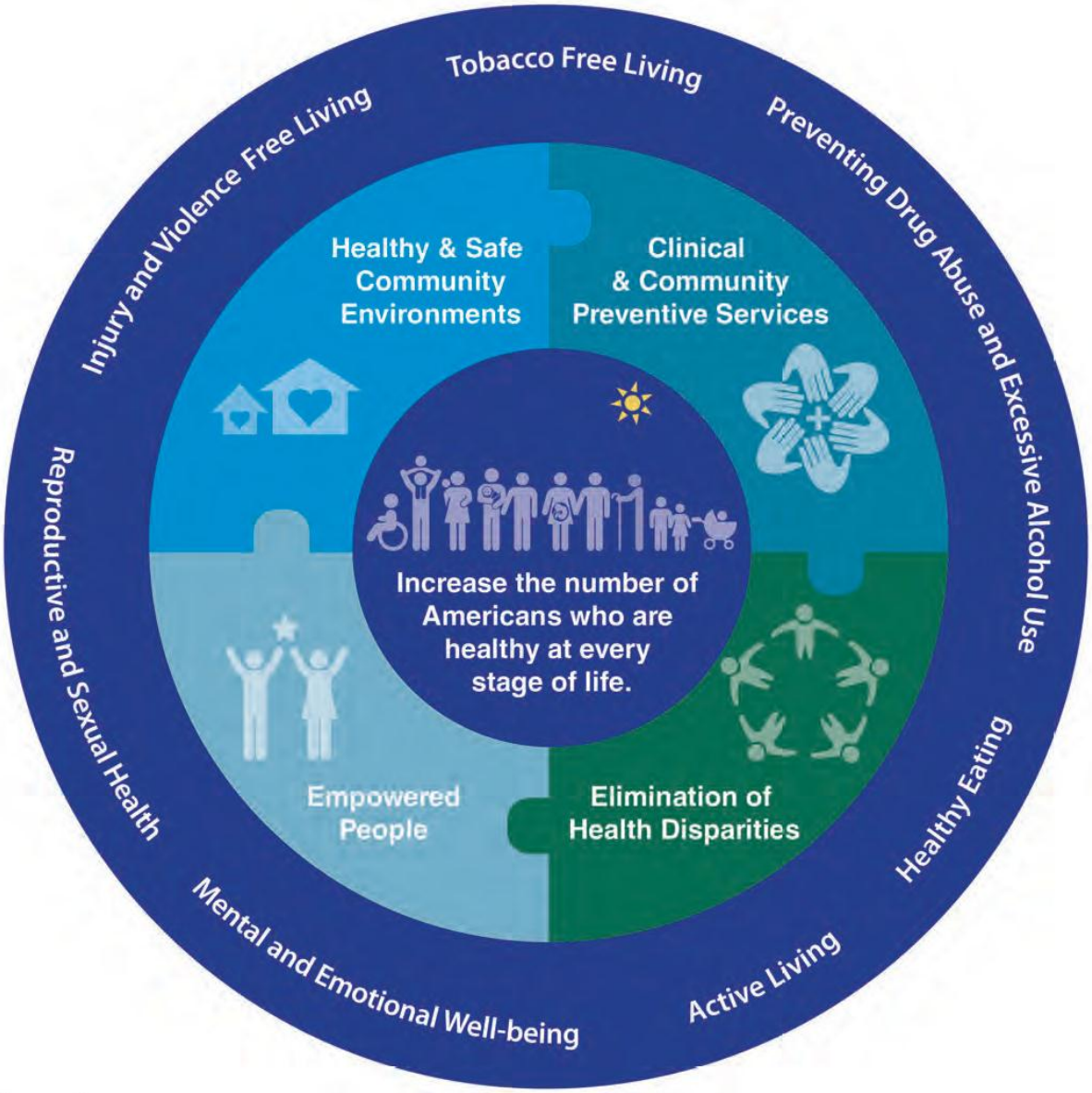
[2] Matthew Stiefel and Kevin Nolan, "A Guide to Measuring the Triple Aim: Population Health, Experience of Care, and Per Capita Cost," The Institute for Health Care Improvement, 2012, p. 1.
[3] National Prevention, Health Promotion, and Public Health Council, National Prevention Strategy, America's Plan for Better Health and Wellness, June 16, 2011, p. 7.
[4] Barbara Orman, et al., "Potential National and State Medical Savings from Primary Disease Prevention," *American Journal of Public Health*, Vol. 101, No. 1, January, 2011, p. 157.
[5] "Obesity costs U.S. $168 billion, Study Finds," *USA Today*, October 19, 2010.
[6] "Health Policy Snapshot," Issue Brief, The Robert Wood Johnson Foundation, August, 2012.
[7] Trust for America's Health (September 2012). Bending the obesity cost curve in Nebraska. Issue Brief.

Figure 1. The National Prevention Strategy, Strategic Directions.[8]



The Life Course Perspective

The Life Course Perspective is used to explore in greater depth how biological, behavioral, psychological, and social risk and protective factors[9] interact and contribute to health outcomes[10]

[8] National Prevention Council, *National Prevention Strategy*, Washington, DC: U.S. Department of Health and Human Services, Office of the Surgeon General, 2011.
[9] Risk factors make us more vulnerable to disease and protective factors reduce risk and enhance resilience.

across the span of a person's life. Socioeconomic status, race, health care, disease status, stress, nutrition and weight status, birth weight, and many other behaviors are some of the key risk and protective factors that may affect health outcomes. The perspective combines a focus on critical periods and early life events with an emphasis on the wear and tear a person experiences over time (e.g., chronic stress). It suggests that each life stage influences the next, and that social, economic, and neighborhood environments acting across the life course have a significant impact on individual and community health.

Understanding the life course perspective creates opportunities to build upon protective factors and reduce risk factors. It encourages both comprehensive public health and clinical interventions that are integrated to address multiple life stages and the entire complex set of factors that impact individual or community health. For example, a healthy pregnancy that includes prenatal care and appropriate weight gain can help both the baby and the mother to live a healthy life. Recently, considerable research has been done on the negative impact of Adverse Childhood Experiences (ACEs) on children as they progress through life. A child who has been verbally, physically, or sexually abused is more likely to experience depression, substance abuse, diabetes, and cardiovascular disease. Also, youth who are obese or drink alcohol are more likely to be at higher risk for diabetes, hypertension, and substance abuse. Finally, it has also been well-established that exercise is an important ingredient of good health regardless of age.

Life Course Models

Some life course models are based in part on the work of Michael Lu and Neal Halfon.[11] Lu and Halfon proposed a model that examines health development across the life course as it impacts birth outcomes among African Americans (Figure 2). The x-axis represents age across the life span and the y-axis represents health development (how an individual's health develops and changes considering the impact of physical, biological, mental, emotional, social, educational, economic and cultural contexts). The health trajectory (the resultant line/curve) is drawn with curves to represent sensitive periods during which health development is susceptible to the influences of risk factors (downward arrows) and protective factors (upward arrows). The curves and slopes in this model are just an illustration as the sensitive periods vary for different health issues and populations. Additionally, the health trajectory represents periods of development and decline outside the sensitive periods. Therefore, a person's level of health and well-being changes as different risk factors make us more vulnerable to disease and protective factors enhance resilience and support better health functioning.

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[10]Health Outcomes are a change in the health status of an individual, group, or population which is attributable to a planned intervention or series of interventions, regardless of whether such an intervention was intended to change health status (from www.definitionofwellness.com).

[11] Lu, M.C. and Halfon, N. (2003). Racial and Ethnic Disparities in Birth Outcomes: A Life-Course Perspective. *Maternal and Child Health Journal, 7* (1), 13 – 30.

Figure 2. Life course model.

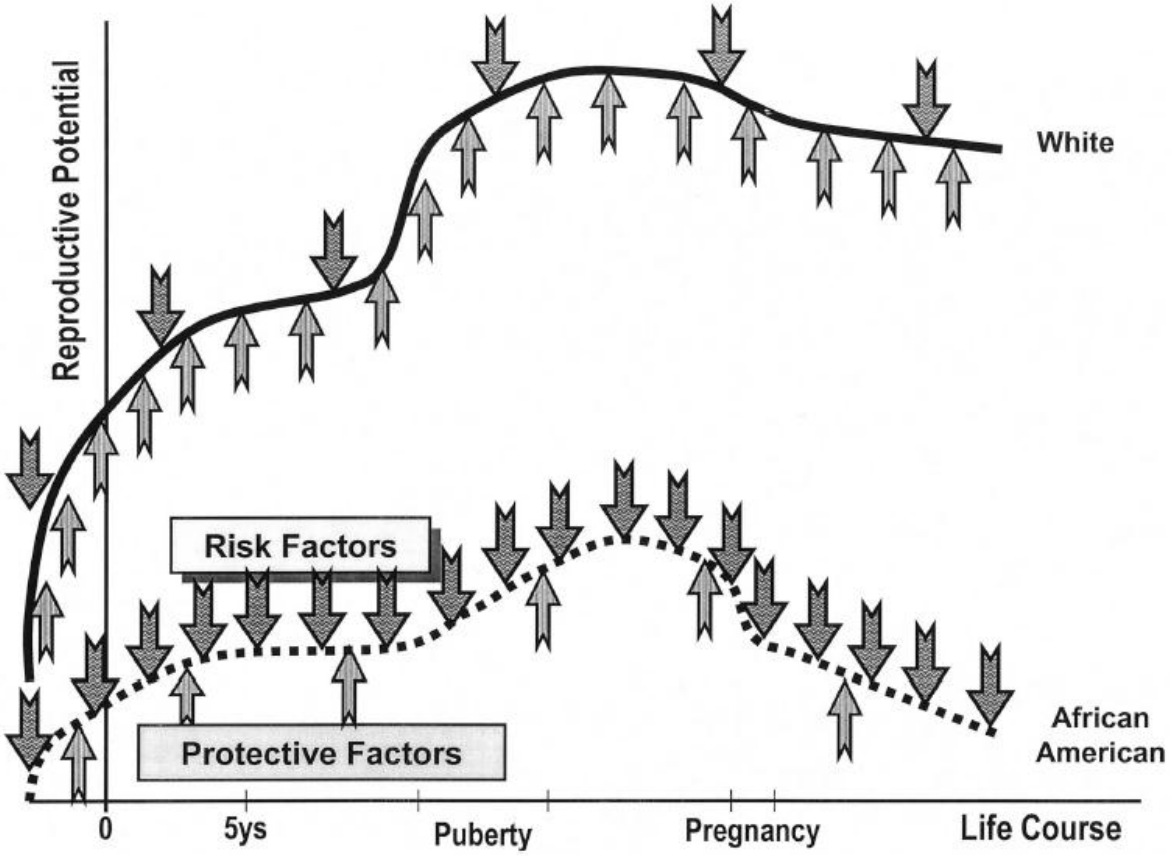


Fig. 2. How differential exposures to risk factors (downward arrows) and protective factors (upward arrows) over the life course affect developmental trajectories and contribute to disparities in birth outcomes. The lower reproductive potential of African American women, relative to White women, results from their cumulative exposure to more risk factors and less protective factors across the life span, particularly during sensitive periods of development.

Reprinted with kind permission from Springer Science+Business Media: Maternal and Child Health Journal, Racial and Ethnic Disparities in Birth Outcomes: A Life Course Perspective, 7, 2003, 13 – 30, Michael Lu and Neal Halfon, Figure 1.

The life course models emphasize the importance of a comprehensive approach when examining a unique health issue, which includes a life course perspective and risk and protective factors. While public health professionals and community stakeholders often have a specific target audience in mind for a prevention program, it is important during the planning stages to think about how the health issue develops over the life course. It is also important to examine all of the factors that contribute to the health issue, whether they enhance or limit health development. This model encourages users to think about a community approach to the health issue instead of focusing on individual treatment or interventions. Certain factors that impact health disparities such as poverty, educational inequalities, environmental threats, access to health care, and acculturation and language barriers are not written out on every life course model, but they do impact the health trajectory in each model. These factors can impact the health trajectory by making it start at a lower level at preconception/birth and thus function at a lower level throughout the life course (as illustrated in Figure 2 by the African American trajectory).

The model developed by the National Prevention Council and the Life Course perspective highlight that "good" health depends on the interaction of a multitude of factors across the life span. Because of the complexity of this interaction, preventing disease and injuries and improving the health of the population will require a collaborative effort involving many partners and stakeholders. These partners, which include physician clinics, hospitals, employers, schools, the faith community, academic institutions, nonprofit agencies, and state and local public health agencies, must work together to enhance the coordination and integration of programs, services, and activities. In addition to working together and coordinating their services, all of the partners must be committed to providing evidence-based programs and services. Many evidence-based programs are cost saving (e.g., immunizations and tobacco cessation programs) or cost effective (e.g., screening programs for colon and breast cancer).

It is also important to recognize that there are many evidence-based prevention programs, policies, and practices that can lead to healthy people living in healthy communities. However, the impact of these interventions can vary significantly. For example, health education programs aimed at reducing tobacco use do not have the same impact as imposing stricter advertising regulations or enacting smoke-free laws. In order to illustrate the levels of evidence-based strategies and their potential impact, the Centers for Disease Control and Prevention (CDC) developed a pyramid of evidence-based intervention strategies. [12] The health impact pyramid begins with counseling and education which has the lowest impact to focusing on programs and policies that will impact the social determinants (e.g., affordable housing, reducing poverty, and eliminating discrimination) of health which has the largest impact. Because of limited resources and the complexity of the social determinants of health, it is critical to focus on implementing interventions at all levels of the pyramid. In essence, health outcomes are most likely to improve when a comprehensive approach is used and interventions are specifically targeted to high need population groups. Because there is no single agency that has the resources or expertise to implement a full array of evidence-based programs, policies, and strategies, extensive collaborative partnerships must be formed.

The Mission, Responsibilities, and Functions of Public Health

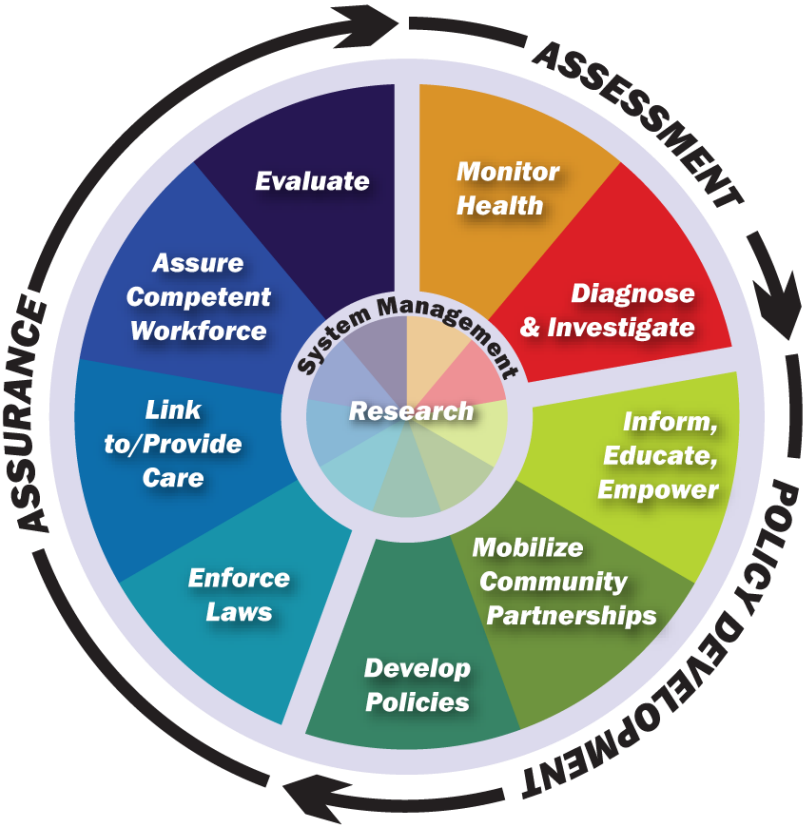
In 1994, a work group representing several national public health organizations came together to provide a framework for characterizing modern public health practice. This group crafted the following mission for public health: Promote physical and mental health and prevent disease, injury, and disability.[13] It also identified the following expectations of public health:

- Prevent epidemics and the spread of disease.
- Protect against environmental hazards.
- Prevent injuries.
- Promote and encourage healthy behaviors and mental health.
- Respond to disasters and assist communities in recovery.
- Assure the quality and accessibility of health services.[14]

[12] Frieden, T.R.. A Framework for Public Health Action: The Health Impact Pyramid. *American Journal of Public Health*: April 2010, Vol. 100, No. 4, pp. 590-595.
[13] Public Health Functions Steering Committee, Fall 1994.
[14] Ibid.

In addition, the work group developed a list of the 10 Essential Public Health Services which support the three core functions of public health: assessment, policy development, and assurance.[15] The core functions and the 10 Essential Services are the foundation of public health and they are closely linked with one another in a continuous cycle. The relationship between the core functions and 10 Essential Public Health Services is shown in Figure 2.

Figure 3. The Relationship between Core Public Health Functions and the 10 Essential Public Health Services



Adopted: Fall 1994, Source: Core Public Health Functions Steering Committee (July 1995)

The assessment function involves the collection and analysis of information to identify important health problems. These problems may involve water quality, the use and abuse of tobacco and alcohol, or the disparity in health status between the white population and racial and ethnic minorities. Once the important health problems have been identified, the policy development function focuses on building coalitions that can develop and advocate for local and state health policies to address the high priority health issues. The assurance function makes state and local health agencies as well as health professionals (e.g., physicians) responsible for ensuring that programs and services are available to meet the high priority needs of the population. These services and programs can be provided directly or through other public or private agencies. The assurance function also involves developing the administrative capacity to manage resources

[15] Institute of Medicine (1988). *The Future of Public Health*. Washington, DC: The National Academy Press.

efficiently, implementing prevention and health promotion programs to modify individual behavior to improve community health, and evaluating programs and services to determine the efficiency and effectiveness of these efforts. The results of measuring the impact of various intervention strategies, regulatory activities, and current health policies can be used during the next assessment process.

10 Essential Public Health Services

1. Monitor health status to identify community health problems.
2. Diagnose and investigate health problems and health hazards in the community.
3. Inform, educate, and empower people about health issues.
4. Mobilize community partnerships to identify and solve health problems.
5. Develop policies and plans that support individual and community health efforts.
6. Enforce laws and regulations that protect health and ensure safety.
7. Link people with needed personal health services and assure the provision of health care when otherwise unavailable.
8. Assure a competent public health and personal health care workforce.
9. Evaluate effectiveness, accessibility, and quality of personal and population-based health services.
10. Research for new insights and innovative solutions to health problems.

The Public Health System in Nebraska

Improving the health of all people in Nebraska has long been recognized as an important policy goal. In 1869, the Nebraska Legislature in its first session gave authority to cities of 3,000 or more population to establish a Board of Health. In 1891, the Legislature created a State Board of Health. These early efforts were primarily focused on controlling the spread of infectious diseases such as smallpox and influenza. Over the years, public health has evolved into many new areas that are aimed at improving environmental health conditions (e.g., water quality), providing maternal and infant health programs, licensing health professionals, collecting various types of health data and information, and preventing chronic diseases. Public health also provides some direct services such as immunizations, prenatal care, breast cancer screening, and well child care.

In the 2000s, the public health system was strengthened with the restructuring of local public health departments. This change was significant because state and local public health agencies provide the foundation for carrying out the core functions and 10 essential services. In carrying out these core functions, these agencies are also responsible for developing collaborative partnerships with health care providers, businesses, faith-based organizations, schools, senior centers, and volunteer organizations. Without the involvement and support of these partners, public health agencies would not be successful in completing the core functions.

The Transformation of the System

At the turn of the 21st Century, the public health system in Nebraska could best be described as fragmented and underfunded. The local public health infrastructure consisted of 16 local public

health departments which covered only 22 of the state's 93 counties (see Figure 4). Although the largest local health departments provided all of the core functions, the vast majority of the smaller health departments had very limited services. None of these smaller health departments provided critical public health services such as data collection and analysis, disease control and monitoring, epidemiology and surveillance, policy development, or environmental health. Compounding this problem was the fact that the workforce needed to develop skills in many of the core public health competencies, such as coalition building, data analysis, and cultural competence.

In 1997, Nebraska received a Turning Point grant from the Robert Wood Johnson Foundation. One of the requirements of the grant was to evaluate the effectiveness of the state's public health system and develop appropriate recommendations in a State Public Health Improvement Plan. When the plan was released in December of 1999, eight major strategies were recommended to strengthen the public health system and the highest priority was to build the public health infrastructure at the local level.

The plan provided a blueprint for action and was used by advocacy groups to approach the Governor and members of the State Legislature about the need for and the benefits of a strong local public health infrastructure. These efforts led to the passage of the Nebraska Health Care Funding Act in 2001. This Act provided $5.6 million to fund 16 new multicounty health departments on an ongoing basis. By 2004, every county was covered by a local public health department (see Figure 5). In 2006, the Legislature appropriated an additional $1.8 million to support expanded surveillance activities for each of these local health departments.

The new multicounty public health departments, along with the two departments in Douglas and Lancaster Counties, have been providing the core functions and essential services of public health. They have engaged and worked with nongovernmental entities such as businesses, schools, the faith community, health care providers, and many nonprofit agencies to carry out these activities. The scope of programs and activities has expanded significantly since these departments were established. All of the departments have formed community-wide coalitions to assess the needs of the population and prepare a community health improvement plan. These plans contain strategic priorities as well as key activities for implementation. Many of these strategies focus on improving capacity to meet natural and man-made disasters, identifying and monitoring infectious and foodborne illness outbreaks, and implementing evidence-based programs to improve nutritional practices, increase physical activity, reduce tobacco and alcohol use, and increase screening for colon and breast cancer.

Many local health departments are also working with their county boards and other stakeholders to enact new local ordinances related to tobacco use and other pressing public health issues. In addition, these departments are working closely with physician clinics, hospitals, and other health care providers to assure the provision of health services and to better coordinate these services. A more complete inventory of the essential services provided by local health departments can be found in the **Annual Report on the Public Health Portion of the Nebraska Health Care Funding Act (LB 692)** (http://dhhs.ne.gov/publichealth/Pages/puh_oph_lhd.aspx).

Figure 4. Nebraska's local public health infrastructure as of September 11, 2001 (16 local public health departments covering only 22 of the state's 93 counties).

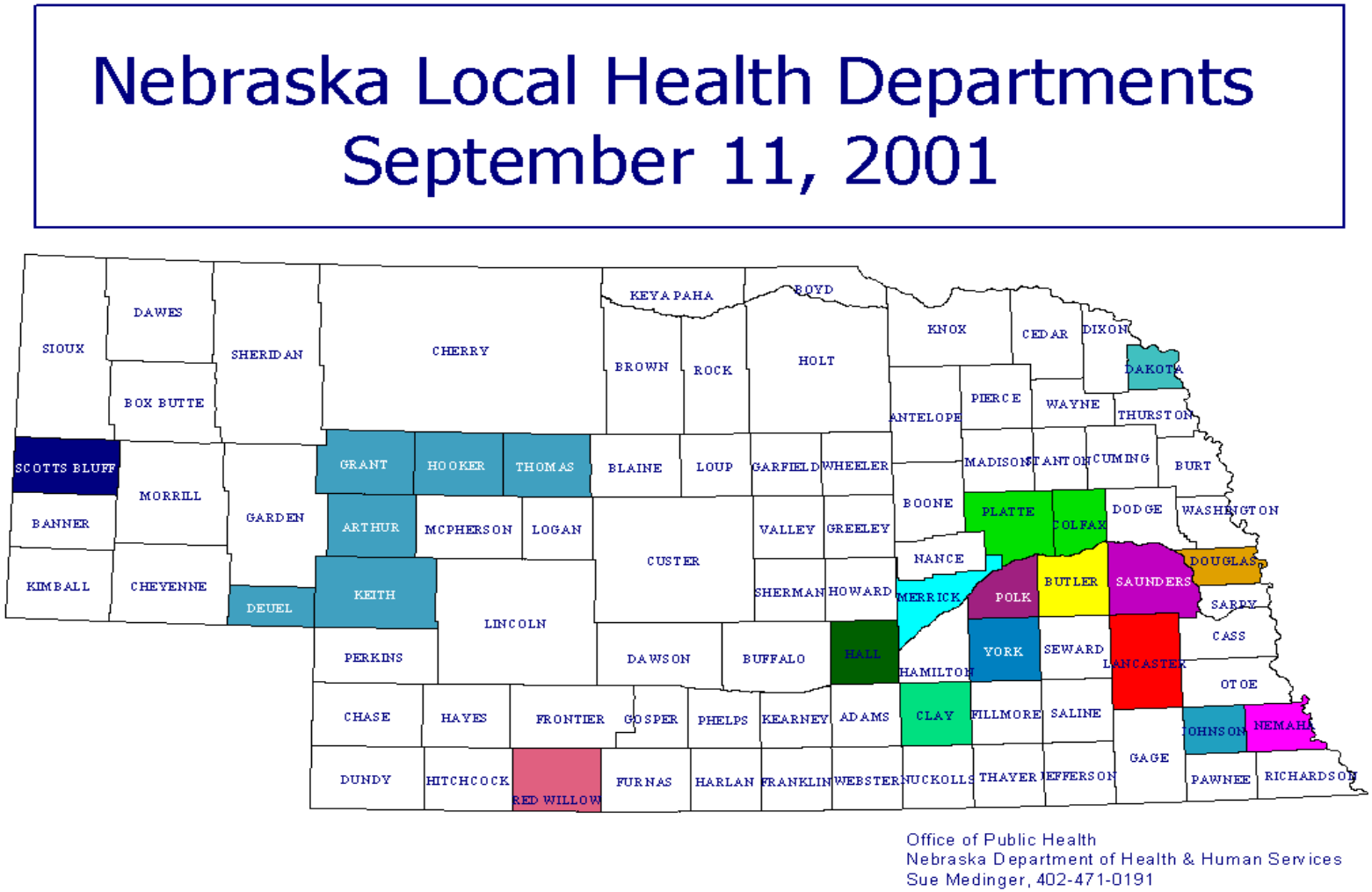
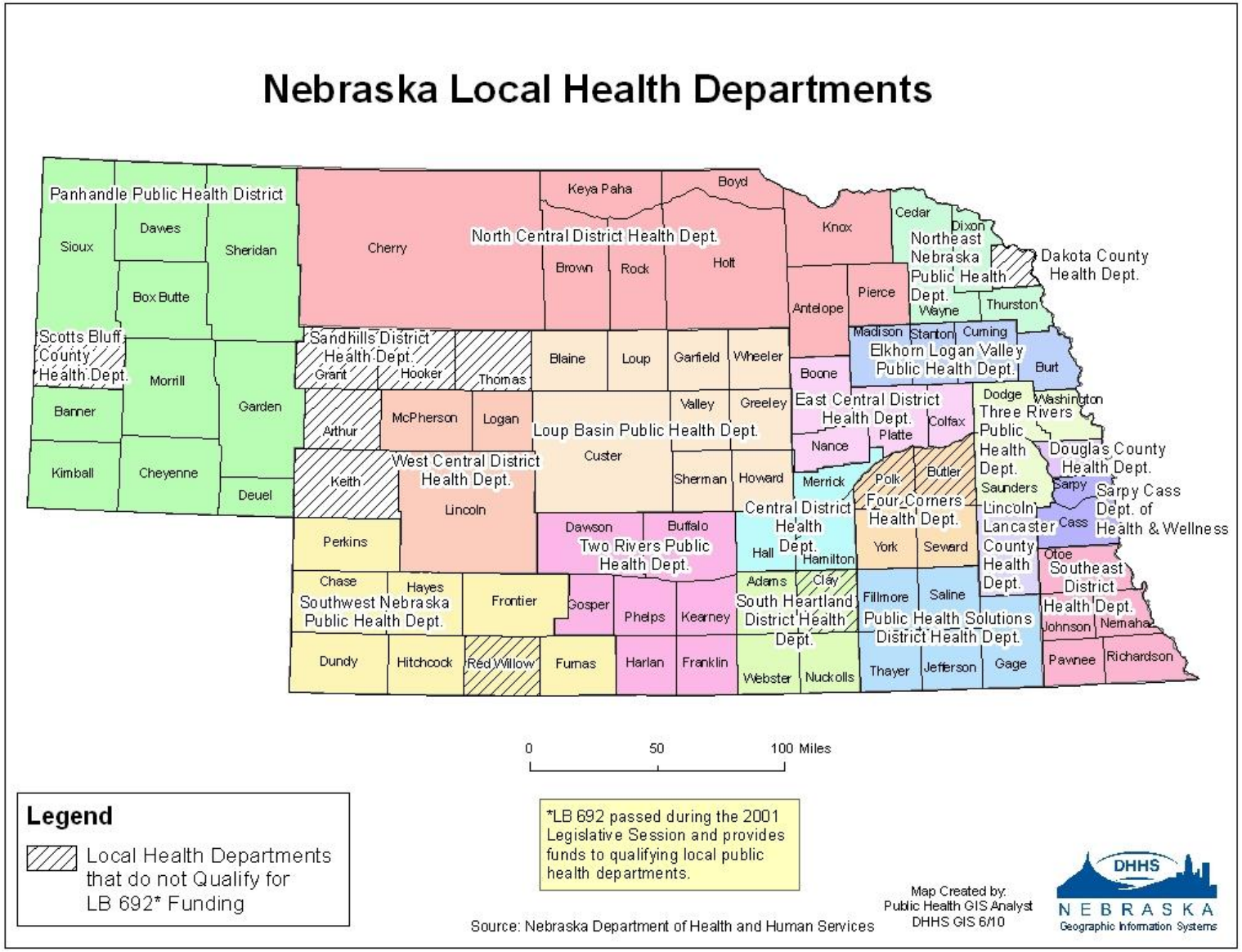


Figure 5. Nebraska's local public health infrastructure after the implementation of the Health Care Funding Act in 2001.



In addition to greatly expanding organizational and funding resources, the workforce capacity has been strengthened in many ways. For example, more people are receiving formal training in public health because of the Master of Public Health (MPH) Program, offered by the College of Public Health at the University of Nebraska Medical Center. In addition to the MPH Program, several other colleges and universities offer related degrees and courses in public health. For example, Creighton University offers a Master of Health Services Administration and an online MPH Program, and the University of Nebraska at Omaha continues to offer both a bachelor's and a master's degree in community health education.

Several other non-degree training and educational programs have been developed and offered. For example, the Great Plains Public Health Leadership Institute (GPPHLI) within the College of Public Health is a yearlong program that began in 2005 to build leadership skills for senior and emerging public health professionals in Nebraska, Iowa, and South Dakota. The Public Health Association of Nebraska and the Center for Preparedness Education have offered a variety of educational programs and workshops directed toward staff from local and state public health agencies, boards of health, and staff from partner organizations.

Data and information systems are an important element of the public health infrastructure. Accurate and timely data are needed to conduct community and statewide needs assessments in order to provide a basis for developing health policies and appropriate intervention strategies. In recent years, several new databases have been created, including a new immunization registry, inpatient syndromic surveillance data from selected hospitals for emergency conditions and cardiovascular disease, and behavioral risk factor data for all local health departments. In addition to new data, work has begun to link health-related databases together. For example, a recent study linked data from the cancer registry with the Every Woman Matters Cancer screening program for low-income women. Linking data sets allows public health staff to better pinpoint health needs and target resources more efficiently and effectively.

One of the most exciting changes is the development of electronic health information exchanges. The Nebraska Health Information Exchange is already capable of exchanging data from electronic health records and from the immunization registry. It also provides the platform for the state's prescription drug monitoring program. Eventually, the chronic disease syndromic surveillance data, electronic lab reporting data, and the cancer registry data will be pulled through the Nebraska Exchange. Plans are also underway to make data more accessible. For example, data from the state Behavioral Risk Factor Surveillance System survey are available through a query system on the DHHS website. Also, all local health departments now have the capability to display data on their websites.

In order to support the local health departments, other organizational structures have also been developed. For example, the Public Health Association of Nebraska (PHAN) has provided several educational and training workshops to improve the skills and competencies of the public health workforce. PHAN staff has also been very active in the areas of emergency preparedness, quality improvement, and accreditation preparation. Under the PHAN organizational structure, the Nebraska State Association of Local Boards of Health (NE-SALBOH) was formed to assist local health department board members to better understand their roles and responsibilities, and provide education about the key issues faced by local health departments. In a decentralized

public health system where board members are held accountable for their decisions, the NE-SALBOH provides a mechanism to exchange information and to share experiences. Finally, the Nebraska Association of Local Health Directors (NALHD) was formed to seek out new funding opportunities and assist local health departments in the implementation of local strategies. For example, NALHD recently received a grant from the Health Resources and Services Administration to address the problem of health literacy.

Although the public health system in Nebraska has been greatly strengthened and transformed, the system still has some gaps. From an organizational perspective, most local health departments have limited capacity to provide comprehensive environmental and epidemiological services. There are also some significant workforce challenges. One major challenge is that the vast majority of the workforce lacks formal education in public health (i.e., public health degrees). A second major challenge is an aging public health workforce at the state level. Many of these staff are likely to retire in the next five to seven years. While many of these workers will be replaced, some positions may not be filled or they will be replaced by staff with considerably less experience. Finally, even though more data will be available through electronic records and health information exchanges, there are many potential problems that may restrict the dissemination of the data. For example, many people have privacy and security concerns. At this point, many private companies consider these data proprietary, which could ultimately limit the amount of data that are released.

Conclusion

At the turn of the 21st century, the public health system in Nebraska was fragmented and severely underfunded. Public health services and programs were available in less than one-quarter of the counties in the state. By 2004, a major transformation occurred. Local public health departments now cover every county and provide all of the core public health functions. The new public health infrastructure now has strong leaders, exciting new partnerships, and improved funding.

Despite this success, many challenges need to be addressed. For example, the public health workforce still needs training and education in many of the core competencies. Also, new resources and leadership are needed to build integrated data systems that are more accessible to researchers and public health practitioners.

There are also many complex problems that can only be resolved through effective collaborative partnerships. Some of these problems include the disparities in health status between the white population and racial and ethnic minority populations, the inadequate supply of health professionals in rural areas, the dramatic increase in the number of people that are overweight and obese, the strong connection between environmental factors and the health of children, and the emergence of new diseases. To meet these challenges, the public health infrastructure will need to be strengthened and become more efficient. There is also a need to demonstrate accountability to both policymakers and the general public through the use of a more business-like model to determine the feasibility of service expansion. Finally, public health leaders must continue to build collaborative partnerships with the medical community, businesses, schools, and many others. Through these diverse partnerships, appropriate strategies can be developed and sufficient resources can be found to achieve the vision of healthy and productive individuals, families, and communities across Nebraska.

Chapter 2
The Results of the Nebraska Health Needs Assessment and the Process for Developing the Strategic Priority Issues

The process for developing the needs assessment was based on the four assessments contained in the Mobilizing for Action through Planning and Partnerships (MAPP) model (see Table 1 on page 23). The MAPP process uses four separate assessments to identify critical health challenges and opportunities. These assessments are both quantitative (health status analysis and the statewide community themes and strengths survey) and qualitative (the state public health system and forces of change assessments). A description of each assessment and some of the key results are discussed below. A more detailed analysis of each assessment is contained in the document entitled *The Nebraska Health Needs Assessment* (http://dhhs.ne.gov/publichealth/Pages/puh_oph.aspx).

The Health Status Assessment

The purpose of the health status assessment is to understand the overall health of Nebraska residents by examining the number of persons at risk (magnitude of the problem), the historical trends, and whenever possible a comparison with national averages. To help guide this process, an internal MAPP Assessment data work group was formed. This work group was responsible for establishing the framework for the assessment and identifying the areas that should be included in the assessment. Based on their recommendations, the analysis involved 11 topic areas (e.g., access to care, chronic diseases and associated risk factors, injuries, maternal and child health, substance abuse, and environmental health). Some of the main results of this assessment were:

- A total of 1 in 7 Nebraska adults do not have a primary care provider.
- The percentage of adults who had a routine checkup in the past year was considerably lower than the nation and has declined over time.
- Heart disease deaths are declining, but lifetime diagnosis of high blood pressure and high cholesterol is rising.
- The percentage of adults with diabetes has increased by 48 percent since 2001.
- Cancer declined gradually over the past decade, but is now the leading cause of death.
- Lung cancer is the leading cause of cancer mortality and accounts for 27 percent of all cancer deaths.
- Colon cancer screening has increased, but is only at 60 percent of adults over 50.
- Past month smoking has dropped in the last decade from 24 percent to 15 percent.
- Both adult and childhood obesity are rising at alarming rates; one third of Nebraska children and two thirds of Nebraska adults were overweight or obese in 2010.

(continued on page 24)

Table 1. The MAPP Model	
Phase of MAPP	**Description**
Organize for Success / Partnership Development	The first phase of MAPP involves two critical and interrelated activities: organizing the planning process and developing the planning partnership. The purpose of this phase is to structure a planning process that builds commitment, engages participants as active partners, uses participants' time well, and results in a plan that can be realistically implemented.
Visioning	The second phase of MAPP guides the state through a collaborative and creative process that leads to a shared vision and common values. During this phase, we answer questions such as "What would we like our state to look like in 10 years?"
Four MAPP Assessments	The four MAPP Assessments are conducted simultaneously and provide critical insights into challenges and opportunities throughout the state.
• Statewide Community Themes and Strengths Assessment	This assessment provides a deep understanding of the issues residents feel are important by answering the questions, "What is important to our state?" "How is quality of life perceived in our state?" and "What assets do we have that can be used to improve state health?"
• State Public Health System Assessment (SPHSA)	This assessment should include all of the organizations and entities that contribute to the public's health. The SPHSA answers the questions, "What are the activities, competencies, and capacities of our local public health system?" and "How are the Essential Services being provided to our state?"
• State Health Status Assessment	This assessment identifies priority state health and quality of life issues. Questions answered during the phase include, "How healthy are our residents?" and "What does the health status of our state look like?"
• Forces of Change Assessment	This assessment focuses on the identification of forces such as legislation, technology, and other impending changes that affect the context in which the state and its public health system operates. This answers the questions, "What is occurring or might occur that affects the health of our state or the public health system?" and "What specific threats or opportunities are generated by these occurrences?"
Identify Strategic Issues	Once a list of challenges and opportunities has been generated from each of the four assessments, the next step is to identify strategic issues. During this phase, participants identify linkages between the MAPP assessments to determine the most critical issues that must be addressed for the state to achieve its vision.
Formulate Goals and Strategies	During this phase, participants take the strategic issues identified in the previous phase and formulate goal statements related to those issues. They, then, identify broad strategies for addressing issues and achieving goals related to the state's vision. The result is the development and adoption of an interrelated set of strategy statements.
The Action Cycle	The Action Cycle links three activities – planning, implementation, and evaluation. Each of these activities builds upon the others in a continuous and iterative manner. While the Action Cycle is the final phase of MAPP, it is by no means the "end" of the process. During this phase, the efforts of the previous phases begin to produce results, as the local public health system develops and implements an action plan for addressing priority goals and objectives. This is also one of the most challenging phases, as it may be difficult to sustain the process and continue implementation over time.

- Only about 20 percent of youth and adults consumed 5 or more fruits and vegetables per day in 2010.

- Slightly more than half of youth and adults met the physical activity recommendations in 2010.

- About 44 percent of infants were still being breastfed at 6 months of age in 2010.

- Alcohol use, binge drinking, and alcohol-impaired driving among adults are more common in Nebraska than among adults nationally. For high school students, alcohol use, binge drinking, and alcohol-impaired driving have been declining and were below the national average in 2010.

- Nearly 1 in 6 adults reported being diagnosed with a depressive disorder in 2010.

Forces of Change Assessment

The purpose of the forces of change assessment is to provide a statewide perspective on the forces of change impacting the health and well-being of Nebraskans. In order to identify the major forces of change, individuals with diverse backgrounds (e.g., representatives from local public health departments, the Nebraska Hospital Association, the Office of Emergency Medical Services [EMS], nonprofit organizations, the Public Health Association of Nebraska, the College of Public Health, and businesses) were invited to participate in the discussion in either North Platte or Lincoln in November 2011.

The participants were asked to identify what trends, factors, and events are or will be influencing the health and quality of life in our communities and how they will impact the work of Nebraska's public health system. Trends, factors, and events were defined as follows:

- **TRENDS** are patterns over time, such as migration in and out of a community or advances in technology.
- **FACTORS** are discrete elements, such as a community's large ethnic population, an urban setting, or a jurisdiction's proximity to a major waterway.
- **EVENTS** are one-time occurrences, such as a hospital closure, a natural disaster, or the passage of new legislation.

Each participant was also encouraged to consider various types of forces, including social, political, economic, technological, environmental, scientific, legal, and ethical.

The participants identified several trends, factors, and events that will have both a positive and negative influence on the health and quality of life in Nebraska communities and the work of the public health system. Some of the trends and factors that will have positive influence include:

- Greater community participation and a better understanding of public health.

- Greater opportunities for collaborative partnerships between public health agencies and hospitals, nonprofit agencies, and academic institutions.

- A greater focus on accountability (e.g., accreditation of public health agencies) and the emphasis on implementing evidence-based programs and practices.
- A greater focus on prevention in schools, worksites, and the community.
- A more knowledgeable and educated public health workforce due to more experience and the programs offered by academic institutions.
- Some reduced access barriers resulting from the development of child advocacy centers, Federally Qualified Health Centers (FQHCs), and urgent care clinics.
- Advances in technology have improved communication through electronic medical records and various types of social media.
- A greater awareness of environmental issues (e.g., Keystone Pipeline and climate change) and their impact on the quality of life.
- New medical breakthroughs (e.g., medications) to reduce the need to hospitalize mental health patients and innovative health system delivery changes (e.g., medical home model).

There are also several forces that could have a negative impact on the health and quality of life in Nebraska communities and the public health system. Some of these forces include:

- Greater instability because of changes in family dynamics (e.g., more working parents).
- Changes in population and socioeconomic status in rural areas (more older, poorer people).
- Greater economic instability because the debt crisis could lead to sharp declines in funding for valuable personal and public health programs.
- Greater political insecurity (e.g., term limits for state legislators and the 2012 presidential election).
- Growing need to continue to build the public health infrastructure and develop more public health leaders.
- Uncertainty of the funding of the health reform law (Affordable Care Act).
- Continued shortages of health professionals, especially in rural areas and the potential impact of an aging workforce.
- Greater access to care barriers (e.g., number of uninsured and underinsured and transportation challenges).
- Increased use of prescription drugs and alcohol.

The State Community Themes and Strengths Assessment

The third assessment under the Mobilizing for Action through Planning and Partnerships (MAPP) strategic planning process is the Community Themes and Strengths Assessment. This assessment was designed to gather information from community residents related to what they feel are areas of importance to their community as well as perceptions related to quality of life, community issues and concerns, and community assets.

To meet the Community Themes and Strengths Assessment component of the MAPP process, the Division of Public Health contracted with the University of Nebraska Medical Center (UNMC) to conduct a telephone survey of Nebraska adults. The purpose of this survey was to assess the attitudes and perceptions of Nebraska residents related to various health factors and health issues impacting Nebraska communities.

The survey was administered by telephone to a random sample of Nebraska adults between July and October 2011. To assist with state and local planning efforts, the survey was stratified by 18 regions in Nebraska, which allowed interested local health departments to have representative local data. A total of 9,077 surveys were collected, with a minimum of 500 being targeted in each region.

The questionnaire was 78 questions long and was based on a 2008 paper and pencil survey developed in collaboration between the local health departments in Nebraska and the Division of Public Health. Survey topics included questions related to eight broad community domains as well as important health issues impacting Nebraska communities.

For further details on the survey methods, to obtain a copy of the survey questionnaire, or to see further detailed tables of the results, including demographic differences, please visit the Nebraska Department of Health and Human Services website at http://dhhs.ne.gov/publichealth/Pages/puh_oph.aspx.

Community Domains

There were eight community domains covered on the survey. For this survey, community was defined as "the city, town or metropolitan area that you live in." All questions across the eight domains asked about the respondents' community, with the exception of some of the questions under the health care domain that asked about the respondents' region, which was defined as the areas within a one hour drive of your home. The eight domains followed by the survey topics covered within each domain, include:

- Health care (availability of general health care services and specialists, quality of hospital care and health care services; asked separately for their community and region)
- Supports for raising children (childcare, schools, after school programs)
- Supports for older adults (housing, transportation, meals, social networks)
- Recreational and leisure options (physical activity, arts/music/culture, leisure time activities for young and middle-age adults)

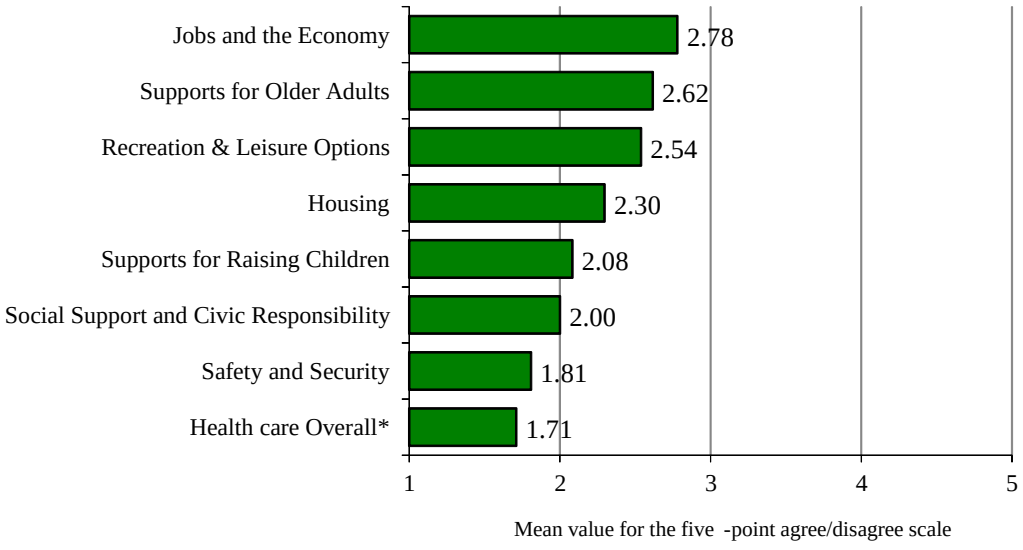
- Jobs and the economy (job availability, advancement, benefits, overall economy)
- Housing (availability and affordability of quality housing)
- Safety and security (safety, crime, trust/support from neighbors)
- Social support and civic responsibility (social support, volunteerism)

For each domain, there were multiple questions asked on a bi-directional five-point scale ranging from 1=strongly agree to 5=strongly disagree. For each domain, the questions were combined and an average score was generated for the domain, allowing the domains to be compared to one another. Lower scores are reflective of more positive feelings while higher scores are reflective of less positive feelings about the domain.

When comparing the eight domains to one another, health care had the most positive feedback. The mean score of 1.71 for health care suggests that, overall, respondents felt positive about the availability and quality of health care services in their community and region. Health care was followed closely by safety and security at 1.81. The domain having the least positive feedback was jobs and the economy at 2.78. It should be noted that all eight domains fell onto the agree side of the five-point scale, suggesting that each domain had more positive than negative feelings. Figure 1 provides the mean scores for all eight domains.

Figure 1: Overall Mean Scores Across the Eight Domains

Mean values based on a scale ranging from1=Strongly Agree to 5=Strongly Disagree with the positive statements asked across each domain



*For the healthcare section only r espondents were asked to answer each question twice, once while thinking about their community (the town, city, or metro area that they live in) and once while thinking about their region (the area within a one hour drive of thier home). Community had a mean of 1.85, region had a mean of 1.56.
Source: 2011 Nebraska Community Themes and Strengths Assessment Survey

When looking at all of the individual survey questions asked across all of the domains, “There are enough health care services, such as hospitals, emergency rooms, doctors’ offices, health

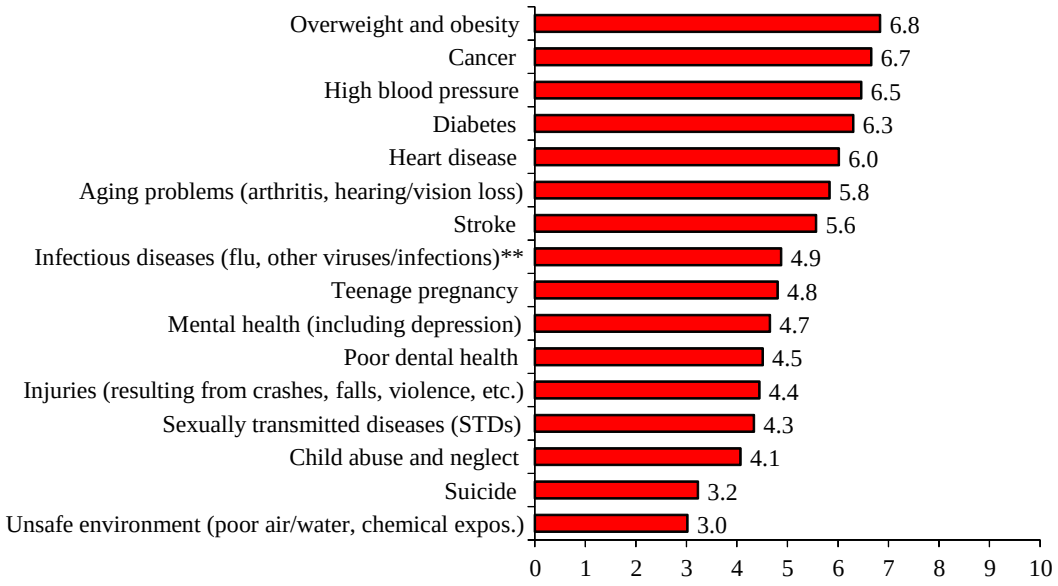
clinics, and so forth, available within your region" had the most positive responses with a mean of 1.36. However, when removing the questions asking about the respondents' region, which were only included in the health care domain, "There are enough health care services, such as hospitals, emergency rooms, doctors' offices, health clinics, and so forth, available within your community" had the most positive responses with a mean of 1.59, which was followed closely by "Your community is a safe place to live, work, and play" at 1.60. In contrast, "The jobs in your community offer opportunities for advancement (such as promotions and on the job training)" had the least positive responses with a mean of 2.99.

Community Health Issues

The survey asked respondents about different health issues and health behaviors in their community. First, respondents were asked to indicate how serious 16 health issues are in their community on an 11-point scale ranging from 0 being not serious at all in your community to 10 being extremely serious in your community.

Overweight and obesity was seen as the most serious health issue among the 16 asked about on the survey, with a mean of 6.8 out of 10.0. Overweight and obesity was followed by cancer, high blood pressure, diabetes, and heart disease, all of which are chronic diseases. Suicide and an unsafe environment were seen as the least serious with mean scores of 3.2 and 3.0, respectively. Figure 2 provides the mean score for each of the 16 health issues.

Figure 2: Mean Score for How Serious each of the following 16 Health Issues are in the Community, based on an 11 -point scale*

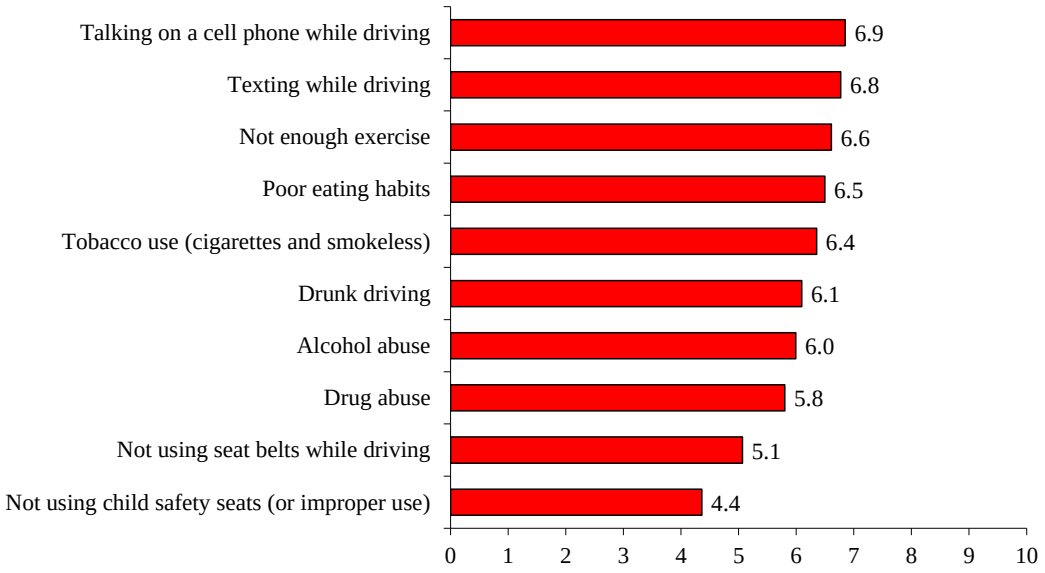


*The 11-point scale from 0=not serious at all in the community to 10=extremely serious in the community
**Includes viruses and infections that are transmitted from person -to-person excluding STDs
Note: Missing data ranged from 2.1% for a health issue to 27.5% for a health issue.
Source: 2011 Nebraska Community Themes and Strengths Assessment Survey

Next, respondents were asked to indicate how much 12 different behaviors impact overall health in their community (such as death, disease, and injuries) on an 11-point scale ranging from 0 being no impact on overall health in our community to 10 being a huge impact on overall health in your community.

Talking on a cell phone while driving and texting while driving were seen as the health behaviors that have the greatest impact on overall health in the community out of the 12 asked about on the survey, with mean scores of 6.9 and 6.8 respectively. Talking and texting while driving were followed closely by not enough exercise, poor eating habits, and tobacco use. Not using seat belts while driving and not using child safety seats (or using them improperly) were seen as the behaviors having the least impact on overall health in the community with mean scores of 5.1 and 4.4, respectively. Figure 3 provides the mean score for each of the 12 health behaviors.

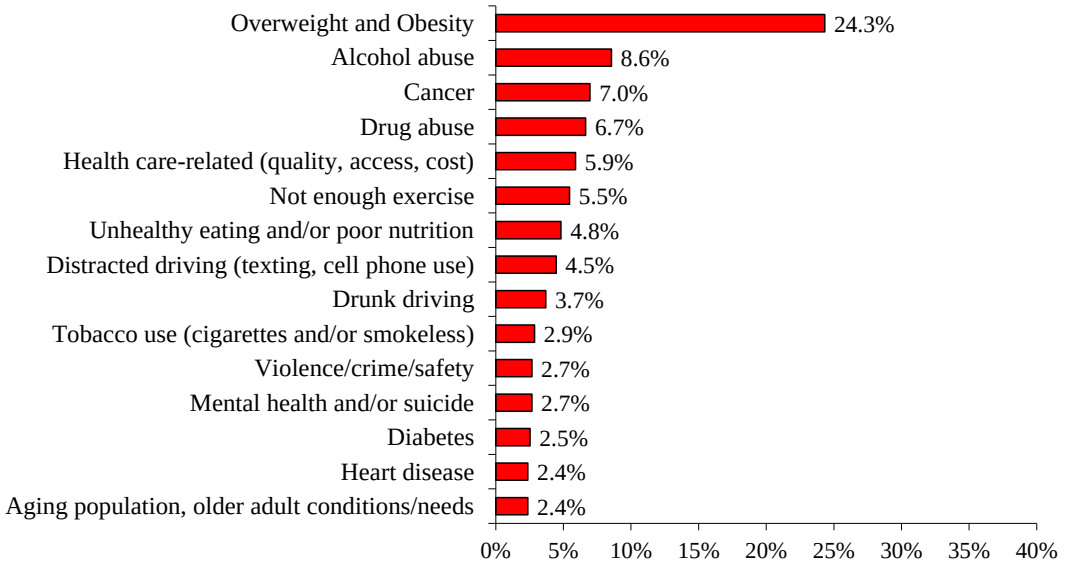
Figure 3: Mean Score for How Much each of the following 12 Health Behaviors Impacts Overall Health in the Community, based on an 11-point scale*



*The 11-point scale from 0=no impact on overall health in the community to 10=huge impact on overall health in the community
Note: Missing data ranged from 2.1% for a health issue to 27.5% for a health issue.
Source: 2011 Nebraska Community Themes and Strengths Assessment Survey

Lastly, respondents were asked, in an open-ended question, what they see as the single most important health issue or health behavior that needs to be addressed in their community. Overweight and obesity was the top response at 24.3 percent, which was three times higher than the second most common response, alcohol abuse at 8.6 percent. Cancer came in at number three, followed by drug abuse, health care-related issues, not enough exercise, and poor diet. Figure 4 lists the top 15 responses.

Figure 4: Top 15 Responses to "What do you think is the single most important health issues or health behavior that needs to be addressed in your community?"



Note: This survey question was open-ended, meaning that respondents could provide any response they wanted without prompt. However, 28 fields were pre-populated for interviewer coding, which reflected the health issues and behaviors asked about in survey questions 33-60.
n=7,377 (missing data=18.7%) *Small number of cases (<1%) overlap with another top 15 category
Source: 2011 Nebraska Community Themes and Strengths Assessment Survey

The State Public Health System Assessment

The purpose of the public health system assessment is to identify the strengths and weaknesses of the state public health system based on the extent to which the 10 Essential Public Health Services are met. The assessment was based on the National Public Health Performance Standards draft version 3.0. The standards focus on the overall public health system which includes state and local governmental public health agencies, other state agencies such as the Department of Agriculture, nonprofit organizations such as community action agencies and substance abuse prevention coalitions, hospitals and physician clinics, faith-based organizations, colleges and universities, private and public insurers, tribes, businesses, and advocacy groups such as the Public Health Association of Nebraska.

In this assessment, four model standards were used to examine each of the essential public health services. These model standards focus on the following four main areas:

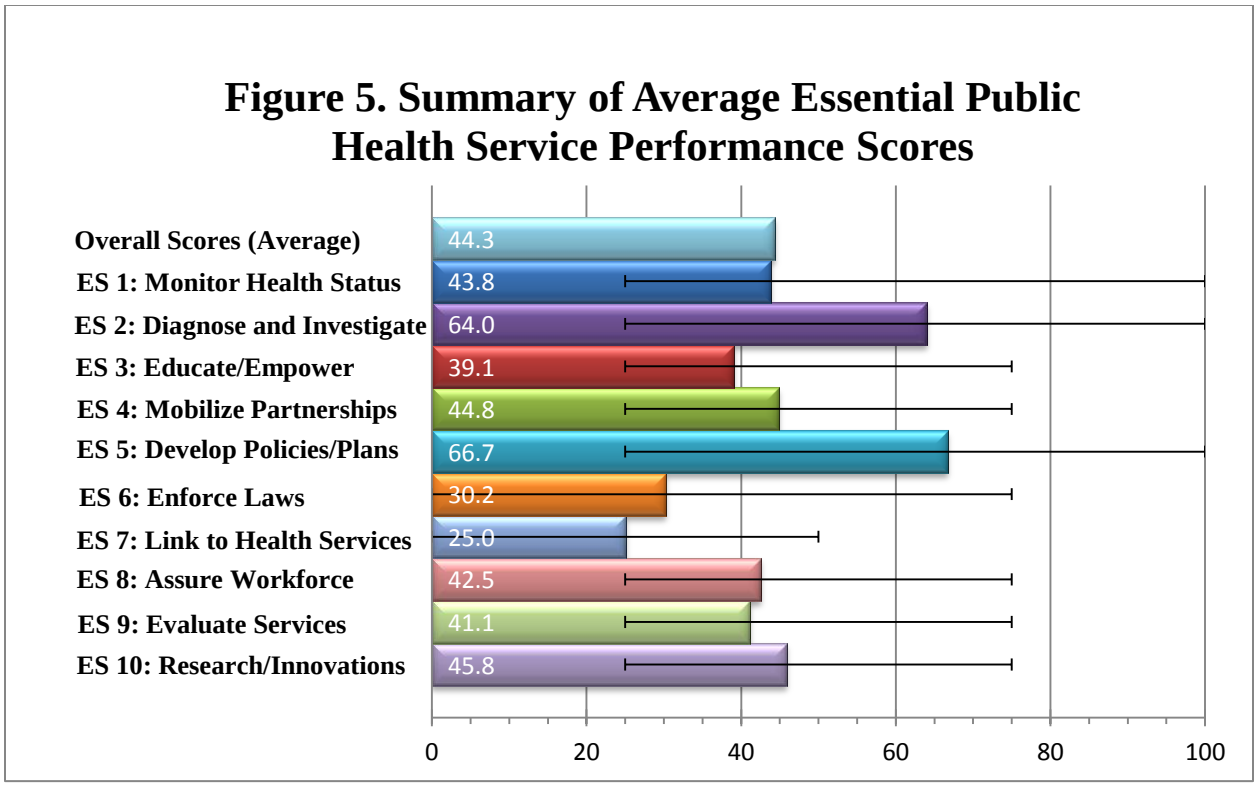
SPHS Assessment Model Standards	
Model Standard 1:	Planning and Implementation
Model Standard 2:	State-Local Relationships
Model Standard 3:	Performance Management and Quality Improvement
Model Standard 4:	Public Health Capacity and Resources

This assessment was conducted on October 4, 2011, and involved 113 state and local representatives that had expertise and knowledge of a particular public health service. For each of the 10 essential services, a group of 8 to 14 people discussed and then voted on how effective the state public health system partners performed each standard. There were five response options associated with each measure, including:

No Activity	**0% or absolutely no activity**
Minimal Activity	**Greater than zero, but no more than 25% of the activity described within the question is met.**
Moderate Activity	**Greater than 25%, but no more than 50% of the activity described within the question is met.**
Significant Activity	**Greater than 50%, but no more than 75% of the activity described within the question is met.**
Optimal Activity	**Greater than 75% of the activity described within the question is met.**

The overall results of the assessment are revealed in Figure 5. Using the responses to all of the assessment questions, a scoring process generates performance scores. Each essential service score can be interpreted as the overall degree to which the public health system meets the performance standards (quality indicators) for each essential service. Scores can range from a minimum value of 0 percent (no activity is performed pursuant to the standards) to a maximum value of 100 percent (all activities associated with the standards are performed at optimal levels). Figure 6 displays the average score for each essential service, along with an overall average assessment score across all 10 essential services. Note that the black bars identify the range of performance score responses within each essential service.

Based on the findings, the state public health system partners were most effective in providing Essential Service 2 (Diagnose and investigate health problems and health hazards in the community) and Essential Service 5 (Develop policies and plans that support individuals and community health efforts). In contrast, there were some essential services at the lower end of the spectrum. For example, Essential Service 7 (Link people to needed personal health services and assure the provision of health care when otherwise unavailable) and Essential Service 6 (Enforce laws and regulations that protect health and ensure safety) were rated very low.



Results

In the assessment of the state public health system, several strengths and weaknesses were identified. Although the scores for eight of the 10 essential services were rated as moderate activity (i.e., greater than 25 percent but less than 50 percent), significant variations were observed within the four model standards. For example, planning and implementation activities were rated considerably higher than the activities associated with performance management and quality improvement. Within each of the 10 essential services, several strengths and weaknesses were identified. A few of these strengths and weaknesses are listed below.

Strengths

- The quality of data collected is very good.
- Local and state health agencies work together to investigate potential health outbreaks.
- Many collaborative health education and health promotion efforts are underway.
- Several planning initiatives have been undertaken at both the state and local levels (e.g., MAPP).
- Important legislative policy changes (tobacco and alcohol) have been made.
- FQHCs have improved access to care for uninsured people.

- Leadership capacity has improved with the Great Plains Public Health Leadership Institute.
- The Nebraska Health Information Exchange will eventually provide useful data to assess needs and evaluate programs.
- There is a greater emphasis on providing evidence-based practices.
- A Performance Management Advisory Council has been formed in the Division of Public Health.

Weaknesses

- Resources impact the amount of data analysis and timeliness of reports.
- More standardized data collection and release procedures are needed.
- Because of data gaps, it is difficult to identify the needs for tribes and other racial/ethnic minority groups.
- There is a need for more public health epidemiologists.
- Siloed funding has led to fragmentation and a lack of coordination.
- Indicators to measure the performance of the public health system need to be developed.
- Some public health laws lag behind the science.
- There is a need for more safety net providers.
- More training and education are needed to enhance the skills of the public health workforce.
- The public health workforce has limited knowledge of the evaluation process.
- Quality and performance improvement should be integral parts of the public health system.
- A detailed public health research agenda is needed.

Conclusion

The results of the four major assessments conducted as part of the MAPP process have revealed several critical health issues and challenges. It also identified several strengths and weaknesses of the public health system based on the 10 essential services. Finally, major trends, factors, and events were identified which have the potential to impact the health and well-being of the population and the overall performance and capacity of the public health system.

The Priority Setting Process

In order to identify the high priority strategic issues, the Nebraska Public Health Improvement Plan Advisory Coalition carefully reviewed the results of the four MAPP assessments. After reviewing these assessments, the Coalition members self-selected into small groups (6-8 people). Once in the groups, each individual was asked to prepare a list of their top 10 priorities. Each individual in the group then reviewed their list with the other members of the group. After sharing their lists, each group then selected their top 15 priorities and wrote them down on flip charts so everyone could see them. The next step was to eliminate all of the duplication and clarify the issues if they were unclear. After narrowing down the issues, there were 37 health problems (e.g., lack of cholesterol and colon cancer screening, infant mortality, and obesity trends) and 25 public health infrastructure issues (e.g., workforce training and coordinating public health and primary care).

After the meeting, staff from the Office of Community and Rural Health analyzed each of the health status issues based on the magnitude or size of the problem, the historical trends, and national rates whenever possible. These results were sent to each Coalition member along with a web-based survey. The purpose of the survey was to provide an opportunity for the Coalition members to rank each potential health status and health system priority. The survey was conducted between April 12 and April 30, 2012 and it was completed by 76 percent of the Coalition members. The survey participants were asked to score each of the 37 potential health status priority issues on three criteria, including:

- Social/economic impact on productivity, health care expenditures, and overall population health in Nebraska.
- Capacity of the public health system in Nebraska (e.g., adequate and knowledgeable workforce and monetary resources) to address the issue.
- Readiness of policymakers; and the general public would support addressing the issue.

The survey also included 25 health system issues and the Coalition members were also asked to rank each of the 25 health system priorities based on the following three criteria:

- Importance of improving health outcomes in Nebraska.
- Readiness and likelihood that health system stakeholders in Nebraska would support addressing the priority issue.
- The likelihood that the priority issue can be changed in Nebraska over the next five years.

The results of the survey were presented at the next Advisory Coalition meeting. After some discussion and clarification of some of the issues, the members reconvened into their small groups. Each group was asked to rank their top five to seven priorities. After considerable discussion, a consensus emerged and the following 5 priorities were unanimously approved on May 14, 2012.

The Priority Strategic Issues

- Reduce heart disease and stroke morbidity, mortality, and associated risk factors.
- Reduce cancer morbidity, mortality, and associated risk factors.
- Expand health promotion capacity to deliver public health prevention programs and policies across the life span.
- Improve the integration of public health, behavioral health (mental health and substance abuse), environmental health, and primary health care services.
- Expand capacity to collect, analyze, and report health data.

The objectives and strategies for addressing these issues are discussed in Chapter 3.

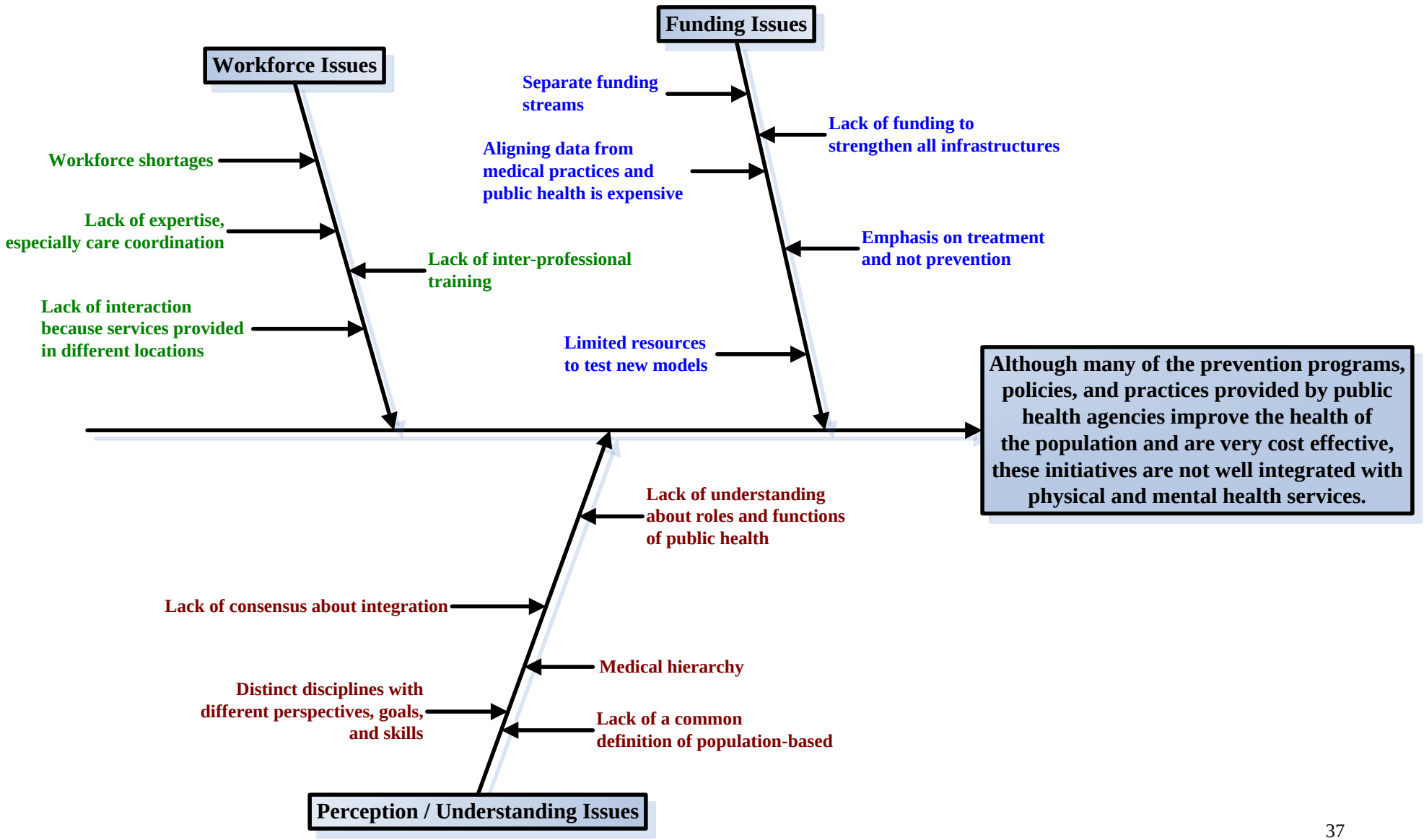
Chapter 3
Action Strategies for Achieving the Priority Issues

In this chapter, the objectives and strategies for achieving the priority strategic issues will be described. For each strategic issue, a common process was used. The first step in this process was to form an "expert" work group. This group consisted of a few members of the Advisory Coalition and representatives from various state and local organizations, including the Division of Public Health, local health departments, the Nebraska Heart Association, the Nebraska Cancer Society, and the College of Public Health. A complete list of the members of each work group is shown in Appendix A. The number of work group meetings ranged from three to six.

At the first meeting, each work group clearly defined the problem and then conducted a root cause analysis. An example of the problem statement and root cause analysis for the priority "Improve the integration of public health, behavioral health, and primary care services" is shown in Figure 7. For this priority issue, the work group identified three main causes (workforce issues, funding issues, and perception/understanding issues) and several sub-causes within each major cause. The purpose of this analysis was to reach a consensus on the major causes of the problem before developing the objectives and the major strategies.

Once the major causes were identified, each work group began to develop the key objectives and major strategies under each objective. Under each strategy, the lead staff, the timeline, the potential partners, and the expected outcomes are also identified. After meeting separately for two meetings, a decision was made to combine the work groups focused on heart disease and cancer because the causes and associated risk factors were identical or very similar. Therefore, the objectives and strategies are included under one priority area.

Figure 7. Problem statement and root cause analysis for the priority "Improve the integration of public health, behavioral health, and primary care services."



Priorities 1 and 2
Reduce heart disease and stroke mortality, morbidity, and associated risk factors
Reduce cancer morbidity, mortality, and associated risk factors

Current Situation

Heart disease, stroke, and cancer are among the top five leading causes of death in Nebraska. In 2010, 23 percent of total deaths in Nebraska were caused by cancer, 22 percent by heart disease, and 6 percent by stroke.[16] They are some of the most widespread and costly health problems facing our nation, and are among the most preventable.[17] The leading modifiable risk factors for heart disease and stroke are: high blood pressure, high cholesterol, cigarette smoking, diabetes, poor diet and physical inactivity, overweight and obesity, and stress. Many cancers are preventable by reducing the following risk factors: use of tobacco products, physical inactivity and poor nutrition, obesity, and ultraviolet light exposure. There are certain population groups (e.g., racial/ethnic minority populations, people diagnosed with behavioral health disorders, or people with low incomes) that tend to be at higher risk for these diseases. The risk of Nebraskans developing and dying from cardiovascular disease and cancer would be greatly reduced if major improvements were made in nutrition and physical activity, control of high blood pressure and cholesterol, tobacco cessation, and screening.

Major Factors Contributing to Heart Disease, Stroke, and Cancer in Nebraska

A group of public health practitioners with expertise in heart disease, stroke, and cancer came together to define the specific challenges in these areas. For heart disease and stroke, the group discussed how cardiovascular disease has a high personal and economic cost, including premature morbidity and mortality, a reduction in quality of life, and a burden on the health care system. For cancer, the group discussed how Nebraskans continue to lag behind the nation in screening and prevention activities, which contributes to too many cancer deaths, especially among minority populations. The group discussed the major factors contributing to the problem and identified the following major causes: (1) lack of screening and follow up, (2) poor preventive behaviors, and (3) lack of access to care.

Screening

According to the results of the state health assessment, the lifetime (ever diagnosed) diagnosis of high blood pressure (27%) and high cholesterol (37%) among Nebraska adults is increasing. The percentage of adults with cholesterol screening in the past five years is increasing (74%), but remains lower than the U.S. (77%). To reduce deaths from heart disease and stroke, screening and follow up needs to increase among Nebraskans for these two important risk factors. There are several factors that inhibit individuals from seeking screening. Individuals may have poor access to care because many rural areas of the state have an inadequate supply of primary care physicians. Another factor that contributes to this problem is that the results from cholesterol and

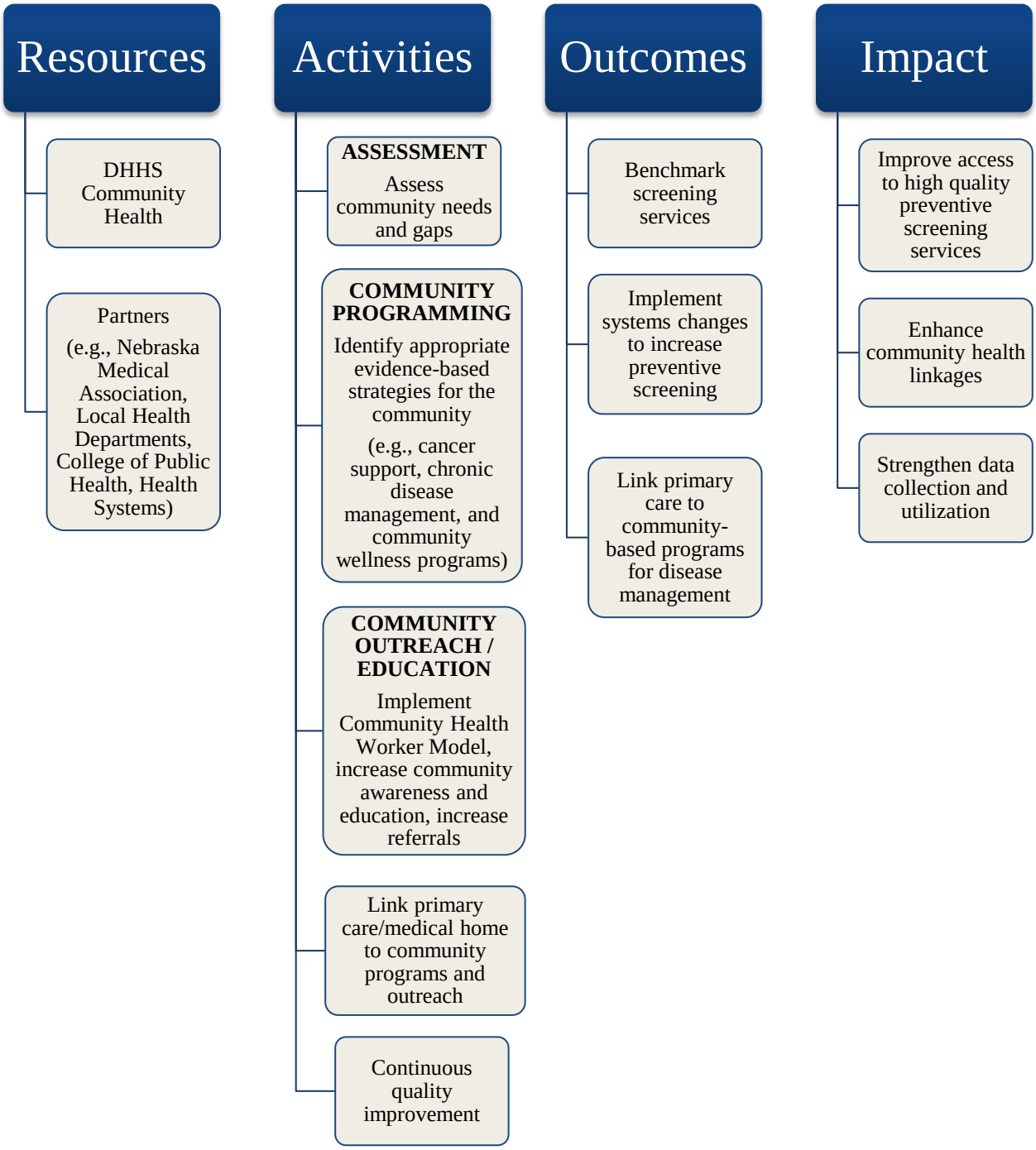
[16] Nebraska DHHS, Division of Public Health, State Health Assessment Report.
[17] Centers for Disease Control and Prevention, 2011. Heart Disease and Stroke Prevention, Addressing the Nation's Leading Killers. Retrieved on November 28, 2012 from: http://www.cdc.gov/chronicdisease/resources/publications/AAG/dhdsp.htm#aag.

blood pressure screenings are not always conveyed to the patient which is part of the clinical guidelines for these screenings.

Screening and follow up also need to increase for colon, breast, and cervical cancers in Nebraska. In 2010, approximately 60 percent of 50 to 75 year olds had a colorectal cancer screening in the past ten years which was lower than the national rate of 64 percent. Approximately 76 percent of women between the ages of 50 and 75 had a breast cancer screening in the past two years compared to 79 percent in the U.S. Cervical cancer screening among women ages 21 to 65 was similar to the national rate (87 %). Factors that prevent individuals from seeking cancer screening include attitude, cost, and health care provider involvement. Some individuals do not seek screening because they would prefer not to know if they have cancer or they believe that they will not ever get the disease. Others do not associate screening with early detection and potentially improved outcomes. In addition, some of the screening tests are invasive and individuals simply do not want to complete them. In terms of health care providers, there is a need for consistent application of and referrals for screenings for patients.

There are some existing promising efforts in Nebraska to increase screening and follow up rates. The Office of Women's and Men's Health at the Division of Public Health is working to provide educational opportunities for health care providers on heart disease, stroke, and cancer screening guidelines. In addition, the Office is implementing a pilot "community health hub" project that makes additional public health resources (e.g., clinical guidelines, evidence-based strategies, Community Health Workers, and new training models) available to health providers in the community (see Figure 1). Each "community health hub" completes a needs assessment, identifies and implements evidence-based strategies to address problems identified in the assessment, and implements systems changes to increase preventive screenings and follow up. The hub also uses a Community Health Worker model to help connect community members to services.

Figure 1. Community Health Hub Model



Preventive Behaviors

Heart disease, stroke, and cancers can be prevented through improved preventive behaviors such as good nutrition, physical activity, tobacco cessation, and maintaining an appropriate weight. The vast majority of youth and adults in Nebraska do not consume enough fruits and vegetables. In 2009, approximately 21 percent of adults consumed fruits and vegetables five or more times per day. In 2010, only 17 percent of high school students consumed the recommended number of fruits and vegetables. Participation in the recommended amount of physical activity has improved over the past decade both for youth and adults. Half of high school students in Nebraska met the physical activity recommendation in 2010 (54%). Adult activity also increased with half (51%) reporting participation in the recommended amount of physical activity in 2009. However, youth reported spending a lot of time doing sedentary activities such as watching television or playing video games; and 25 percent of adults continue to report no leisure time physical activity. In 2010, the smoking rates for youth and adults were 15 percent and 17 percent respectively, which were similar to or lower than the national rates. Adult and childhood overweight and obesity in Nebraska are similar to the U.S. and are increasing at an alarming rate. Among Nebraska children ages 10 to 17, one third (31%) were overweight or obese in 2007. Among Nebraska adults, two thirds (65%) were overweight or obese in 2010. Obesity increased from 21 percent in 2001 to 28 percent in 2010.

In addition to these preventive behaviors, many breastfeeding studies have found lower rates of chronic childhood disease among children who were breastfed.[18] Findings suggest that breastfeeding may reduce the risk of Type 1 and 2 diabetes, celiac disease, inflammatory bowel disease, childhood cancer, and allergic disease/asthma. Breastfeeding, particularly exclusive breastfeeding, also has health benefits for mothers. Studies have shown that breastfeeding leads to a reduced risk of ovarian cancer and premenopausal breast cancer. This issue and recommendations for improvement are outlined in the 2011 Surgeon General's Call to Action to Support Breastfeeding[19] as well as the Healthy People 2020 Goals and Objectives.

Other factors that contribute to poor preventive behaviors include the presence of an overwhelming amount of information which can lead to misinterpretation about how to be healthy and the existence of few policy and systems approaches that have a broad reach and lasting impact. However, there are many good examples of prevention activities that are being implemented across the state. For example, at least seven local health departments are working with local businesses to help them establish worksite wellness programs that improve the health of employees. Others are working with their schools to help them use a coordinated school health approach to improve the health of students and staff. Public health practitioners in Nebraska need to continue to improve these preventive behaviors in an effort to reduce the morbidity and mortality related to heart disease, stroke, and cancer.

[18] US Department of Health and Human Services (HHS), Office on Women's Health. HHS blueprint for action on breastfeeding. Washington: HHS; 2000.
[19] U.S. Department of Health and Human Services. *The Surgeon General's Call to Action to Support Breastfeeding*. Washington, DC: U.S. Department of Health and Human Services, Office of the Surgeon General; 2011.

Lack of Access to Care

Access to care is a challenge in Nebraska. Some of the key factors that contribute to this issue include the need for an integrated system of care, more health care providers especially in rural areas, and insurance coverage. In terms of promising solutions, implementing a Health Care Home Model has the potential to improve the health of the population by improving access to care and reducing health disparities (see Priority 4). For example, racial and ethnic minority populations tend to have a higher incidence of chronic conditions, which could be treated more effectively through more timely clinical preventive services.

Work Plan

The morbidity and mortality of heart disease, stroke, and cancer are caused by many factors, including high risk behaviors (e.g., tobacco use and obesity), poor access to care, and lack of knowledge and understanding of screening (e.g., cholesterol and mammograms). Because of the complexity of the problem, a comprehensive approach involving several collaborative partners must be undertaken. In designing this strategy, the Advisory Coalition recognized that many programs, policies, and practices are currently being implemented across the state. For example, the Nebraska Physical Activity and Nutrition State Plan was completed in October 2011. Based on the plan's recommendations, current implementation efforts are focused on increasing the level of physical activity and improving nutrition in both adults and children. A few of the specific activities include:

- Implement and promote farmers markets and on-site gardens at worksites.
- Provide teachers and child care providers with professional development to educate them on "how" to integrate physical activity and reduce screen time during the day.
- Develop and promote community areas that retain green spaces, including recreation facilities.
- Review, promote, and train staff on hospital breastfeeding policies.

Several other implementation efforts are based on similar plans. These plans include the State Cancer Plan, the Breast Cancer Control Plan, and the Coordinated Chronic Disease Plan.[20] In addition, there are specific activities that are being implemented at the state and community levels based on Centers for Disease Control and Prevention funded initiatives that address hypertension screening, breast cancer screening, and tobacco cessation programs. There are also many other programs and policies that are led by nonprofit organizations such as the Nebraska Heart Association and the Nebraska Cancer Society.

Given all of these current efforts and initiatives, the Advisory Coalition focused on objectives and strategies that will build upon and complement all of these current activities. In essence, these recommended strategies help to fill the gaps and/or extend the scope of current initiatives.

[20] Access to the plans is available at the following locations: the Nebraska Physical Activity and Nutrition State Plan - http://dhhs.ne.gov/publichealth/Pages/hew_hpe_nafh_stateplan.aspx; the Nebraska State Cancer Plan - http://necancer.org/nebraskacancercoalition_statecancerplan.html; and the Nebraska Breast Cancer Control Plan - http://www.bcpartnerships.net/.

They also align with strategy recommendations from the Centers for Disease Control and Prevention, the National Prevention Strategy, and the Healthy People 2020 goals and objectives.

This work plan contains five objectives and several strategies under each objective. The objectives are organized by intervention setting including health care, community, worksite, and school. The health care objectives focus on increasing preventive screening and follow up through improved coordination of health services and increasing professional lactation support across Nebraska. The community objective builds on increasing the capacity of communities to implement evidence-based strategies. The worksite objective is to increase the number of worksites that are implementing comprehensive worksite wellness programs to improve employee health. Finally, the school objective focuses on increasing the number of schools that implement a Coordinated School Health approach to improve the health of students by focusing on healthy eating, physical activity, obesity, and tobacco prevention.

The Department of Education is already leading a coordinated effort to implement Coordinated School Health. Coordinated School Health (CSH) is an evidence-based, systems-building process by which schools, school districts, and communities develop capacity and create infrastructure that supports continuous improvement in health-promoting environments for students, staff and community.

Nebraska's Coordinated School Health Initiative consists of two components: structure and process. The Coordinated School Health *structure* outlines eight components schools must address to tend to student's holistic health needs: health education; physical education; health services; nutrition services; counseling and psychological services; healthy school environment; health promotion for staff; and family and community involvement. Many of these programs are already in place in schools, but are often fragmented. The Coordinated School Health *process* is designed to purposefully integrate the efforts and resources of education and public health to provide a full set of programs without duplication or fragmentation by emphasizing needs assessment; planning based on data; sound science; analysis of gaps and redundancies; and evaluation. Nebraska's Coordinated School Health Initiative assists in the development of a coordinated, comprehensive, multifaceted infrastructure that enhances environmental supports, public health policy, and the capacity of schools to ensure their academic mission. Through this plan, efforts will be expanded statewide.

Health Care Setting

Objective 1: By December 2016, increase the number of Nebraskans who receive preventive health screenings and follow up as a result of improved coordination of health services by multiple partners through the community health hub project.

Background: The Health Care Home Model and Community Health Worker Model are two strategies that relate to this objective that are described in Priority 4. The Community Health Hub is a framework where public health resources are passed down to the community through collaborative teams and activities in a structured manner that improves access to high-quality preventive screening services, enhances community linkages, and strengthens data collection and utilization. Key activities that occur within health hubs are: 1) assessment of needs and gaps in knowledge, attitudes, and behaviors of community members; 2) identification of appropriate evidence-based strategies that will increase clinical preventive screenings that are tailored to meet the needs of the community served (e.g., clinical policies to educate all patients over the age of 50 about colon cancer screening); 3) implementation of community health worker model; 4) linkages to primary health care medical homes; 5) implementation of systems changes to increase preventive screening; and 6) linkages from primary care to community-based programming for disease self-management. In 2012, the Division of Public Health, Office of Women's and Men's Health initiated a Community Health Hub pilot project in six regions: Charles Drew Health Center, Community Action Partnership of Western Nebraska, and four local health departments (Four Corners Health Department, Public Health Solutions District Health Department, Central District Health Department, and South Heartland District Health Department).

Key Strategies and Activities	Lead Role	Timeline	Partners	Expected Outcomes
Complete and evaluate Community Health Hub pilot project to determine if screenings and follow up increased • Share evaluation results	Office of Women's and Men's Health	December 2013	Local health departments (LHDs), Office of Women's and Men's Health, Community and Rural Health, Heart Disease and Stroke Program, Diabetes Program, Federally Qualified Health Centers (FQHCs); Nebraska Medical Association; BCBS; CIMRO; Wide River; American Cancer Society; College of Public Health (CoPH) and other academic institutions	Evaluation report; presentation of results at community of practice or meeting
Increase coordination of existing efforts by meeting quarterly with pilot project partners • Seek new partners	Division of Public Health (DPH), Health Center Association of Nebraska (HCAN)	Quarterly beginning January 2013		Documented meeting minutes and attendance lists; Memorandum of Understanding (MOU) for the partnership group
Develop a standard guidance template for the needs assessment and identify potential tools and methods. • Test template and tools with pilot health hubs	DPH collaborative team	September 2013 Year 2		Written framework Evaluation results summary
Establish a method for sharing best practices for community health hubs • Outline method and implement	DPH, HCAN, NALHD	July 2013		Written framework

Develop protocols for all health care providers to share screening results with patients to encourage more effective communication regarding healthy living (e.g., BMI, blood pressure, and cholesterol) that follows clinical guidelines • Provide training to pilot hub providers	DPH, HCAN	December 2013		Written protocols; Evaluation of pilot providers adherence to protocols
Develop a coordinated statewide education campaign for health screenings • Provide a toolkit to local agencies for implementation	DPH Collaborative Team, Nebraska Cancer Coalition (NC2)	December 2013	DPH, HCAN	
Begin to document best practices from health hub pilot projects on DPH website	NALHD, DPH, HCAN	December 2013		Web documentation

Objective 2: By December 2016, public health partners will increase professional lactation support across Nebraska through the use of International Board Certified Lactation Consultants (IBCLCs). (Baseline to be determined during Year 1)

Background: One of the recommendations made in the Surgeon General's Call to Action to Support Breastfeeding is to ensure access for breastfeeding mothers to services provided by IBCLCs.[21] IBCLCs are health care professionals who specialize in the clinical management of breastfeeding; they are the only health care professionals with this type of certification and so far the only ones potentially reimbursable by insurers. They work with mothers to solve breastfeeding problems and educate families and health care professionals about the benefits of breastfeeding. One of the main barriers to increasing lactation support in this manner is the lack of reimbursement by private and public insurers. Rates of exclusive breastfeeding and of any breastfeeding are higher among women who have had babies in hospitals with IBCLCs on staff. Nebraska does not currently have an estimate of the number of IBCLCs in the state.

A statewide Breastfeeding Coalition was established in 2008 and is supported by a part-time director and a leadership team. The Coalition provides breastfeeding education for health professionals including a biennial breastfeeding conference. Recently, a new partnership was formed to educate businesses about the requirements of the Fair Labor Standard Act with regard to nursing mothers. This partnership created educational materials for businesses, provided a training event for business representatives, and launched the Nebraska Breastfeeding Business Recognition Program.

Key Strategies and Activities	Lead Role	Timeline	Partners	Expected Outcomes
Identify the current number and reach of IBCLCs	NE Breastfeeding Coalition	October 2013	DPH, CoPH and other academic institutions, Nebraska Medical Association, Nebraska Hospital Association, Nebraska Chapter of the American Academy of Pediatrics, Nebraska Academy of Family Physicians, local breastfeeding coalitions, Women, Infant, and Children Programs, Live Well Omaha, La Leche League, Gretchen Swanson Center for Nutrition	Written assessment results
Develop a plan for increasing lactation support across Nebraska (e.g., leadership resources, how many IBCLCs are needed, and where are the major gaps, and how can these gaps be reduced) • Provide training opportunities to increase the number of IBCLCs (provide continuing education credits)	NE Breastfeeding Coalition	October 2013 December 2014		Written vision/plan Training numbers; evaluation results
Add a module to the Community Health Worker curriculum for lactation support	Offices of Women's and Men's Health and Health Disparities and Health Equity	December 2013		Module added; training provided

[21] U.S. Department of Health and Human Services. *Executive Summary: The Surgeon General's Call to Action to Support Breastfeeding*. Washington, DC: U.S. Department of Health and Human Services, Office of the Surgeon General; January 20, 2011.

Community Setting

Objective 3: By December 2016, increase the capacity of community organizations, including local public health departments and coalitions, to implement evidence-based strategies in community settings.

Background: "Healthy and Safe Community Environments" is one of the strategic directions in the National Prevention Strategy.[22] The focus of this priority is to create, sustain, and recognize communities that promote health and wellness through prevention. Many structures and practices in our communities affect health directly and also influence health choices of community members. A healthy community environment can help make the healthy choice the easy choice. Individuals make choices based on a number of factors including the availability of resources to meet daily needs (e.g., job opportunities and healthy foods), community structures (e.g., parks and transportation), and the natural environment (e.g., absence of air pollution). Communities and local public health organizations can implement evidence-based strategies to promote good health. In 2013, Nebraska partners began to offer an evidence-based public health course.

Key Strategies and Activities	Lead Role	Timeline	Partners	Expected Outcomes
Assess the current capacity of community organizations to implement evidence-based strategies • Provide an inventory of strategies that are being implemented or have been proposed (e.g., "approved but not funded" grant applications) • Identify technical assistance, resource, and capacity needs • Investigate the use of social media for implementation • Document success stories	Great Plains Public Health Training Center (GPPHTC)	October 2013 December 2013	DPH, LHDs, local coalitions, other academic institutions, Local Boards of Health, Nebraska Department of Education (NDE)	Assessment report
Connect organizations that are implementing evidence-based strategies to Community Health Hub pilot projects and other community planning efforts (e.g., local health departments and economic development). Potential evidence-based strategies: • Obesity coalitions • Chronic disease self-management and diabetes prevention • Community Health Workers (capacity and reach) • Clinical/Community Linkages	Health Promotion Unit, Lifespan Health Unit, Community Health Planning and Protection Unit	December 2014, ongoing	LHDs, local coalitions, academic institutions, planners, Local Boards of Health	Success stories documenting use of evidence-based strategies
Expand the use of pooled funding models to implement evidence-based strategies statewide	DPH, LHDs	Beginning January 2014, ongoing		Models implemented and evaluated

[22] National Prevention Council, *National Prevention Strategy*, Washington, DC: U.S. Department of Health and Human Services, Office of the Surgeon General, 2011.

Worksite Setting

Objective 4: By December 2016, increase the number of worksites that are implementing and evaluating the effectiveness of comprehensive worksite wellness programs to improve employee health.

Background: This objective builds on current successful worksite wellness efforts. The worksite wellness movement began and has evolved in Nebraska. For over thirty years, businesses in Nebraska have been engaging in this evidence-based strategy to establish comprehensive worksite wellness efforts that help to enhance the healthy behaviors and reduce the burden of diseases, including cardiovascular disease, cancer, and associated risk factors of all employees. The increasing cost of health insurance has reduced the profitability of businesses. To reduce the burden of higher costs and improve the health and productivity of their workers, many businesses have implemented employee wellness programs. Worksite wellness focuses on creating an organizational culture of wellness that improves productivity, changes health behaviors, and reduces absenteeism. It also focuses on the implementation of policy and environmental changes that have broad impact across the worksite. Nebraska businesses have been the leaders in worksite wellness for years and have received national awards. Many businesses have been recognized by Governor Dave Heineman with his Wellness Award.

Key Strategies and Activities	Lead Role	Timeline	Partners	Expected Outcomes
Representatives from worksite wellness councils, businesses, local health departments, Division of Public Health, and others will develop a statewide strategic approach to expand worksite wellness programs across the state	Worksite Wellness Councils, LHDs, DPH, academic institutions	October 2013	LHDs, Worksite Wellness Councils (WorkWell, WELCOM, Panhandle Worksite Wellness Council), Nebraska Safety Council and other Safety Councils, CoPH and other academic institutions, local businesses and associations (e.g., Chamber of Commerce), Agribusiness	Documentation of meetings and participants; meeting minutes; Written recommendations
Expand worksite wellness council coverage statewide and coordinate technical assistance and resources		December 2016		Statewide coverage available for businesses
Complete the Worksite Wellness Toolkit and complementary website		December 2013		Completed toolkit; dissemination
Promote participation statewide in Governor's Wellness Award program	All partners	Ongoing		Number of awards increased
Conduct more return on investment (ROI) studies of worksite wellness programs to demonstrate their effectiveness	Worksite Wellness Councils, LHDs, DPH, academic institutions	December 2016		ROI reports completed

Long-term recommendations:
The long-term goal is that all Nebraska counties should be covered by regional worksite wellness councils that can provide information and resources to businesses on how to create worksite wellness programs.

School Setting

Objective 5: By December 2016, increase the number of schools that implement a Coordinated School Health approach to improve the health of students by focusing on healthy eating, physical activity, obesity, and tobacco prevention. (Baseline to be determined during Year 1)

Background: Coordinated School Health is an evidence-based strategy that aims to improve the health of children and enhance academic success through sustainable changes within schools. The Coordinated School Health framework has eight components: 1) health education, 2) physical education, 3) health services, 4) nutrition services, 5) counseling, psychological, and social services, 6) healthy and safe school environment, 7) health promotion for staff, and 8) family/community involvement. Schools, communities, and health departments should work together to address the whole health of the child. The CDC has promoted the Coordinated School Health framework for the past twenty years. In Nebraska, it was recently implemented with success through the Nebraska Department of Education's Coordinated School Health Program. Although there are a multitude of partners engaging in school-based health efforts, these partners need to improve their coordination efforts to better to support the schools and communities with improved health as the main focus.

Key Strategies and Activities	Lead Role	Timeline	Partners	Expected Outcomes
Re-establish a formal Coordinated School Health (CSH) Leadership Team • State Leadership: Nebraska Department of Education (NDE) and Division of Public Health (DPH) • Advisory Group: NDE, DPH, LHDs, ESUs, schools	NDE, DPH, LHDs	October 2013	NDE, LHDs, Educational Service Units (ESU), CoPH and other academic institutions, Nebraska Action for Healthy Kids, Alliance for a Healthier Generation, Nebraska Children and Families Foundation, UNL Extension, Behavioral Health Regions, School District representatives including school boards, Nebraska Medical Association, American Cancer Society, American Heart Association—Nebraska	List of team members
Identify current CSH efforts (e.g., the components of CSH that schools have implemented) • Conduct focus groups to determine future needs, resources, attitudes, etc.	Leadership Team	December 2013		Assessment report
Create a strategic plan for expanding CSH in Nebraska that includes: • Recommendations on leadership roles, resources, technical assistance needs, etc.; • Building relationships with schools between LHDs, ESUs, DPH; and • Identifying sustainable resources for implementation	Leadership Team	June 2014		Written strategic plan
Implement recommendations in the strategic plan	Leadership Team	Beginning July 2014, ongoing		Expanded CSH implementation

Priority 3
Expand Health Promotion Capacity to Deliver Public Health Prevention Programs and Policies across the Life Span

Current Situation

One of the main keys to success in preventing the unhealthy behaviors that are associated with heart disease, cancer, and the other leading causes of death is the ability of the public health system and its partners to deliver effective health promotion programs and policies across the life span. In the past, most of the capacity to deliver health promotion programs was concentrated within the Division of Public Health and the larger local health departments. In the late 2000s, many of the smaller, regional health departments began to build capacity when several health promotion programs at the state level (e.g., Tobacco Free Nebraska, Heart Disease and Stroke, and Nutrition and Activity for Health) began to pool their resources to fund activities to address high priority problems such as childhood obesity, tobacco use, and poor nutrition practices. There are also many other highly successful health promotion programs that have been implemented across the state. For example, many large and small Nebraska employers offer worksite wellness programs and several schools are implementing a Coordinated School Health approach. These new projects have achieved positive results because of the collaborative partnerships that have been developed between local and state public health agencies and employers and schools. Many other effective health promotion programs have been aimed at increasing physical activity, improving nutrition practices, reducing tobacco and alcohol use, and preventing unintentional injuries. While health promotion capacity (i.e., organizational structure and culture, workforce skills, new resources, and non-traditional partners) has clearly been strengthened in the past five years, accelerating and expanding these efforts will enable Nebraska to be even more successful in addressing risk factors that prevent optimal health and well-being.

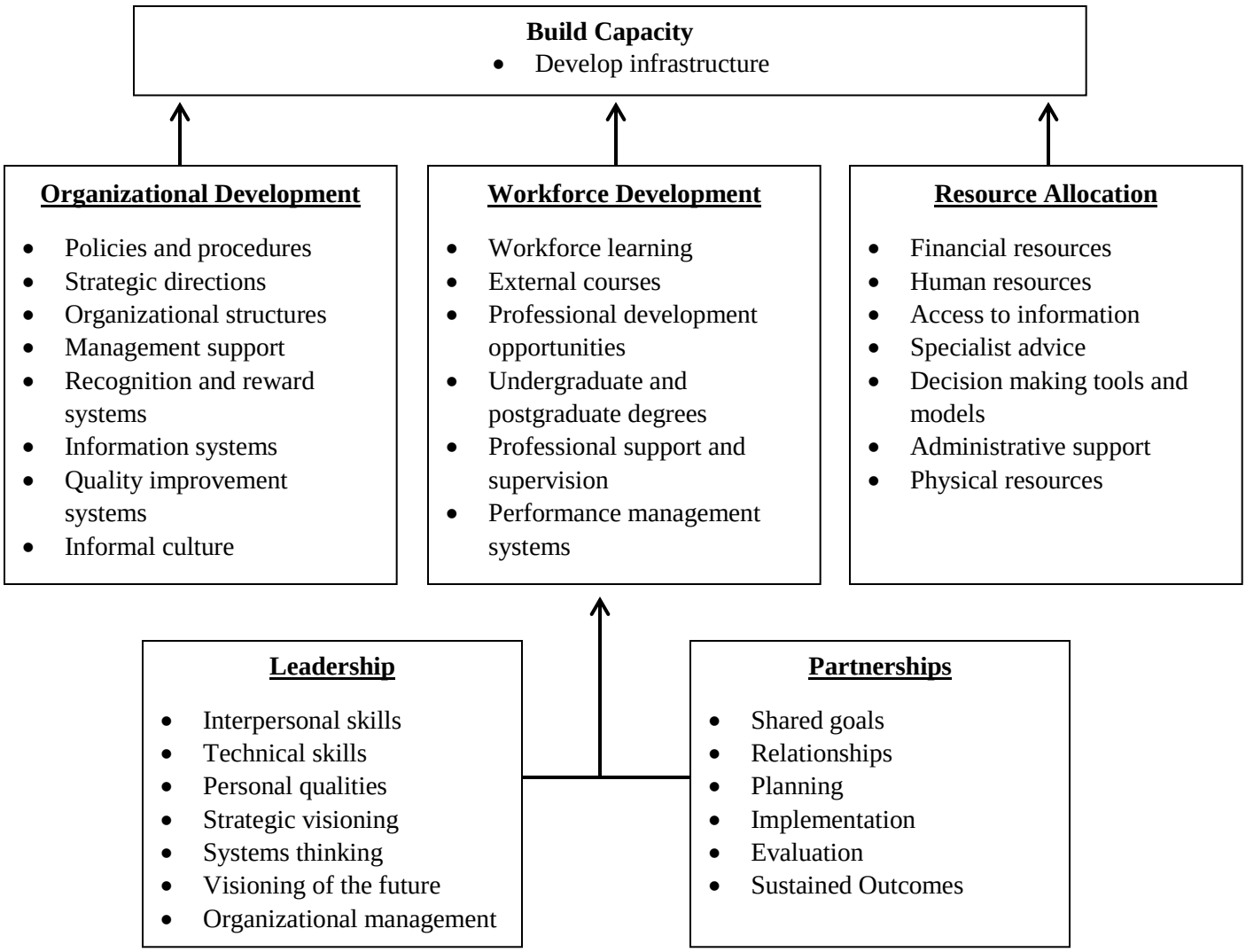
Health promotion is an elusive term that has several different definitions. In this plan, health promotion is defined as the art and science of helping individuals, groups, and communities understand the influences of health, become motivated to strive for optimal health, and change lifestyle, policies, and systems to move toward a state of optimal health.[23,24] This definition implies that there are many factors that influence good health. These factors involve not only individual behaviors but also environments that provide desirable economic and social conditions that make healthy lifestyles possible.

Many of these factors were discussed in Chapter 1 as part of the National Prevention Council Model, the Life Course Model, and the Health Impact Pyramid. Another way of depicting the multiple factors that influence health behaviors is the social ecological model that is described in Figure 2 on page 53. In this model, there are four areas that impact health behaviors and conditions, including 1) individual, 2) relationship, 3) community, and 4) societal. Because the factors that influence health behaviors are complex and often interrelated, building health

[23] O'Donnell M.P. (2009). Definition of health promotion 2.0: embracing passion, enhancing motivation, recognizing dynamic balance, and creating opportunities. *Am J Health Promotion*, 24 (1):iv.
[24] Association of Maternal and Child Health Programs. (2012, July). *Forging a comprehensive initiative to improve birth outcomes and reduce infant mortality: Policy and program options for state planning.* Washington, DC.

promotion capacity must focus on five major elements: organizational development, workforce development, resource allocation, leadership, and partnerships (see Figure 1). Under organizational development, it is essential to create a "culture of wellness," provide strong management support to develop effective policies and procedures, and design quality improvement systems.

Figure 1. Key action areas of health promotion capacity building framework.
(Source: New South Wales Health Department—A Framework for Building Capacity to Improve Health downloaded from the NSW Health website [www.health.nsw.gov.au])



In the workforce development area, it is important to provide formal and informal learning opportunities to improve core competencies, peer support systems and mentoring programs, and incorporate into performance reviews. According to the Trust for America's Health, these competencies should include understanding and developing policies to communicate with the

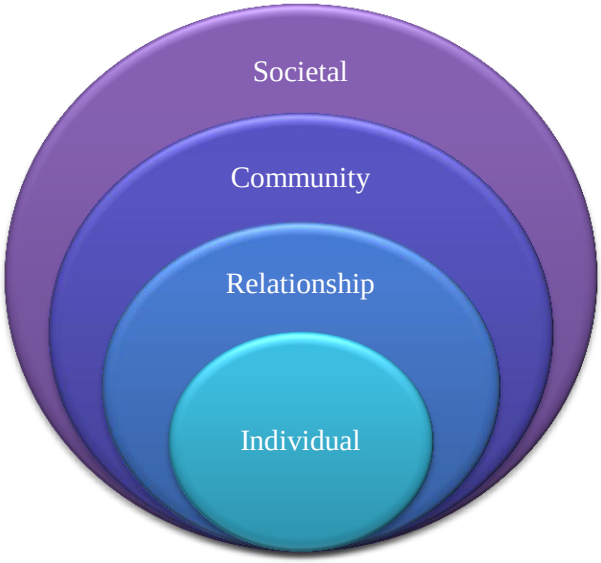
public and other audiences, mobilize the community, and forge partnerships.[25]

The allocation of resources includes ongoing support for people, physical space, administrative support, planning tools, and financial support (e.g., pooling or leveraging of funds). It may involve establishing "core" health promotion positions, developing opportunities for other partners to become engaged in health promotion, ensuring the availability of data and information, increasing access to expertise (e.g., research and evaluation), and assuring the use of best practice models.

Leadership skills are an essential element of capacity building. Leaders are system thinkers who search out opportunities for change. They form and use partnerships and build visions through consultation and collaboration. Finally, it is critical to develop collaborative partnerships because many health problems are complex (e.g., obesity) and may be outside the perceived scope of public health. It is important to build partnerships based on a shared vision, common goals, and strong lines of open communication.

[25] Trust for America's Health. (January 2013). *A healthier America 2013: Strategies to move from sick care to health care in four years*. Washington, DC.

Figure 2. Social Ecological Model



- **Individual level**: This level encompasses the knowledge, attitudes, and skills of the individuals within the target population. This level can be influenced by individual-level interventions (such as educational and skill-building programs) as well as community-wide media and social marketing campaigns. An example of an individual level intervention would be a 6-week program targeted at high-risk students to improve their self-confidence and teach them the skills needed for resisting alcohol and drug use.

- **Relationship level**: This level includes the family, friends, and peers of the individuals within the target population. These persons have the ability to shape the behaviors of the individuals in the target population. This level can be influenced by enhancing social supports and social networks as well as changing group norms and rules. An example of a relationship level intervention would be an educational program targeted at parents of 12-14 year olds to teach them how to better communicate with their children and establish rules around tobacco use.

- **Community level**: This level includes the unique environments in which the individuals in the target population live and spend much of their time, such as schools, places of employment and worship, neighborhoods, sports teams, and volunteer groups. This level can be influenced by changes to rules, regulations, and policies within the different community organizations and structures. An example of a community level intervention would be the adoption of a worksite wellness program by a local company to reimburse their workers for health club memberships or to offer smoking cessation classes.

- **Societal level**: This level includes the larger, macro-level factors that influence the behaviors of the individuals in the target population, such as laws, policies, and social norms. This level can be influenced by changing state and local laws, policies, and practices as well as other initiatives designed to change social norms among the target population as a whole, such as a media campaign. An example of a societal level intervention would be to regulate cigarette advertising or to provide funding for farmers markets.

Current Status in Nebraska

Given the complexity and breadth of health promotion activities, a committee was formed to identify the main causes or barriers to expanding health promotion capacity and suggest key strategies for improvement. The major challenges fall into the following four major areas:

- Coordination among disease-specific programs and activities;
- Workforce supply and expansion of the skills and competencies of the current workforce;
- Understanding of public health and health promotion by the general public and non-public health professionals; and
- Evaluation of health promotion programs and activities to help show their value.

One of the major reasons that an uncoordinated single disease-specific approach exists is siloed federal funding streams. The vast majority of health promotion programs are based on federal funding for a single disease or risk factor (e.g., heart disease or tobacco). Many health promotion programs in Nebraska are unfunded (e.g., arthritis) or are underfunded (e.g., nutrition and physical activity). Other programs have funding streams that are complicated which impacts the willingness and ability of public health partners to collaborate and share resources.

In terms of workforce capacity, there is an inadequate supply of workers with health promotion knowledge and experience, particularly at the local level. Although the existing workforce is highly motivated, there is considerable variation in the amount and level of formal training and many health promotion practitioners have been generally limited to "on-the-job" training. Because the health promotion workforce is defined broadly and includes many types of workers, there is a need to better understand the existing workforce competencies so that training and workforce development opportunities can be more effective. The inadequate supply is magnified by the complicated nature of public health and the challenge to help the general public and non-public health professionals understand what it is and does.

Finally, minimal investment in evaluating health promotion programs was a major concern because these efforts show the value of public health and identify successes and areas for improvement. Several factors contribute to this problem. First, evaluation is often an afterthought instead of being incorporated during the planning phases of a program. Second, the health promotion workforce needs to increase their ability to complete evaluation activities. Although there are a few highly skilled evaluators and many practitioners who are seeking to improve their skills, there are not always sufficient funds available to complete a comprehensive evaluation.

Work Plan

The work plan is based on four major objectives. These objectives focus on building health promotion capacity at the state and local levels, improve the competencies and leadership skills of the public health workforce, and implement at least two health promotion programs across the state. Also, to increase the evaluation skills of the public health workforce, evaluation training programs should be designed and implemented. Under each objective, key strategies are identified that will move this priority forward in the next four years. In the development of these objectives and strategies, the recommendations contained in the following related plans were taken into consideration: Nebraska Coordinated Chronic Disease State Plan, National Prevention Strategy, and Healthy People 2020 Goals and Objectives.

Objective 1: By December 2016, public health partners will develop an organizational framework and an implementation plan for building health promotion capacity throughout Nebraska.

Background: In the two previous state health improvement plans for Nebraska, the planning groups have identified health promotion capacity building as priorities. Recommendations for improvement were made in both of these plans. The new plan should continue to enhance coordination of efforts. This objective focuses on the development of an organizational framework for health promotion efforts in Nebraska using the health promotion capacity building framework (Figure 1 on page 51) as a guide.

Key Strategies and Activities	Lead Role	Timeline	Partners	Expected Outcomes
Assess the effectiveness of collaborative health promotion throughout Nebraska including questions about 1) improved communication and tools, 2) more efficient organizational structures, 3) adapting future resources, 4) information systems, and 5) quality improvement systems	Administrator (DPH, Health Promotion Unit) and a LHD representative (form a task force)	November 2013	Division of Public Health (DPH), local health departments (LHDs), College of Public Health (CoPH) and other academic institutions, Public Health Association of Nebraska (PHAN), Nebraska Association of Local Health Directors (NALHD), local coalitions and organizations (such as Live Well Nebraska, Live Well Omaha, Community Action Agencies, etc.), Nebraska State Association of Local Boards of Health (NE-SALBOH), Division of Behavioral Health, Behavioral Health Regions, Health Literacy Nebraska, Area Agencies on Aging, NACO, NDE	Task Force created and meeting (minutes); Completed assessment; Complete Wilder Collaboration Factors Survey annually
Identify and link appropriate partners to implement strategies effectively and to carry out mutual goals for maximum impact	Task Force	Beginning January 2014, ongoing		Collaborative implementation of strategies
Develop and implement a 3-year implementation plan based on assessment results that outlines the organizational framework	Task Force	March 2014		Completed plan; dissemination
Initiate a pilot project to improve coordination based on assessment results	Task Force	March 2014		Pilot project completed by December 2016

Objective 2: By December 2016, public health partners will identify and implement health promotion workforce competencies and leadership skills. (links to National Prevention Strategy and Healthy People 2020)

Background: Nebraska (state and local health departments or other organizations) does not currently have a set of competencies for agencies to use for their health promotion workforce. To enhance the skills of the workforce, health promotion competencies will be adopted and trainings will be coordinated around these competencies. The health promotion subgroup identified evaluation and use of evidence-based approaches as particularly important competencies to include. The group focused on growing our health promotion workforce and engaging our stakeholders in a coordinated manner.				
Key Strategies and Activities	**Lead Role**	**Timeline**	**Partners**	**Expected Outcomes**
Review existing model competencies for health promotion (e.g., NACDD, Directors of Health Promotion, Healthy People 2020, PHAB, NACCHO) and determine those that are most applicable (link to accreditation)	Task Force	October 2013	DPH, LHDs, CoPH, PHAN, NALHD, local coalitions and organizations	Competencies identified and disseminated
Develop health promotion workforce competencies • Promote the incorporation of these resources into public health agencies as a quality improvement opportunity	DPH; LHDs; CoPH; PHAN; NALHD	December 2014		Competencies selected and approved; disseminated
Assess the adequacy of current training opportunities to meet these competencies and workforce skills and identify a training plan for health promotion workers in Nebraska	Task Force; DPH; LHDs; CoPH; PHAN; NALHD	December 2014		Assessment completed; report Training plan established; evaluation of trainings provided; satisfaction surveys
Develop a recruitment and retention plan to attract and keep a competent workforce at state and local health departments (e.g., mentor new employees, provide practicum opportunities to students, and link graduates to job opportunities)	Task Force; DPH; LHDs; CoPH; PHAN; NALHD	July 2015		Recruitment plan established and evidence of implementation

Objective 3: By December 2016, implement two to three high priority evidence-based health promotion programs or practices. (links to Healthy People 2020)

Background: To increase impact, evidence-based programs should be implemented. These programs should address the needs of high priority target populations particularly those experiencing health disparities.				
Key Strategies and Activities	**Lead Role**	**Timeline**	**Partners**	**Expected Outcomes**
Identify evidence-based health promotion programs or practices that target high priority population groups especially those experiencing health disparities	Task Force	December 2013	DPH, LHDs, CoPH, NALHD, local coalitions and organizations	Programs or practices identified
Through a coordinated approach, implement and evaluate identified programs or practices	Task Force and partners	December 2016		Evidence-based programs implemented and evaluated
Complete up to two return-on-investment (ROI) studies on public health programs and disseminate the results widely	PBRN, CoPH	December 2016	DPH, LHDs, PHAN, NALHD, academic institutions, NACO	Completed ROI studies; reports

Objective 4: By December 2016, provide at least four trainings on evaluating health promotion programs and policies.

Background: The health promotion subgroup discussed a need to help show the value of public health to the public, stakeholders, and funders. The group focused on a need to increase our ability and follow through on evaluation of programs and projects.				
Key Strategies and Activities	**Lead Role**	**Timeline**	**Partners**	**Expected Outcomes**
Determine the evaluation needs of the public health workforce	CoPH, Great Plains Public Health Training Center	November 2013	LHDs, DPH, local coalitions and organizations	Needs assessment completed; report
Identify and offer training programs to meet these needs	CoPH	June 2014, ongoing		Trainings completed; training evaluations
Provide guidelines and technical assistance to local health departments on evaluation methods and measures while they are developing grant applications	DPH	Ongoing	LHDs, CoPH, and other academic institutions	Number of technical assistance encounters

Priority 4
Improve the Integration of Public Health, Behavioral Health, and Health Care Services

Current Situation

There are several factors that contribute to the health and quality of life for individuals, families, and communities. Some of these factors include healthy and safe community environments (e.g., affordable housing, affordable foods, and absence of toxic substances), the provision of clinical preventive services such as timely immunizations and cancer screening programs, community-based prevention programs that address tobacco and excessive alcohol use, and access to affordable high quality physical and behavioral health services. Unfortunately, these services are usually not well integrated or provided within a collaborative framework. However, major changes in the health care delivery system are creating new opportunities to build a framework for integration that could lead to a greater focus on population health. Although many factors are driving these changes, the shift from volume-based to value-based reimbursement and the implementation of cost-effective prevention programs are the most critical factors.

Major Challenges

In order to move toward a more integrated system between public health, behavioral health, and physical health care services, it is important to define the concept of integration from a public health perspective and understand why integration has not become more widespread. In this plan, the definition is based on the one used in a recent Institute of Medicine (IOM) report where **integration** is defined as "the linkage of programs and activities to promote overall efficiency and effectiveness and achieve gains in population health."[26]

If integration leads to better health outcomes at the patient and population levels, it is important to understand the factors that have contributed to the lack of integration. To address this issue, a diverse team was established to conduct a root cause analysis. The following major challenges were identified: workforce, funding, and perception/understanding. Some of the sub-causes under each issue included:

- Workforce shortages for public health, mental health and substance abuse, and primary care.
- Few opportunities for interdisciplinary training and interaction after training is completed.
- Separate funding streams.
- Siloed funding for public health.
- A funding bias toward medical treatment relative to prevention.
- Limited resources to test new models.
- Distinct disciplines with different perspectives, goals, and skills.

[26] IOM (Institute of Medicine), 2012. *Primary Care and Public Health: Exploring Integration to Improve Population Health.* Washington, DC: The National Academies Press, p. 3.

The Institute of Medicine's report elaborated on the different perspectives between medicine and public health (see Table 1). Although there are several factors which influence each perspective, three of these factors are very important. First, the primary focus of medicine is the individual whereas the major focus of public health is the population as a whole. Second, medicine emphasizes diagnosis and treatment and care for the whole patient. In contrast, the emphasis for public health is on prevention and health promotion for the whole community. Finally, medicine is rooted mainly in the private sector, but the roots of public health are in the public sector.[27]

Table 1
Perspectives of Medicine and Public Health

Medicine	Public Health
Primary focus on individual	Primary focus on population
Personal service ethic, conditioned by awareness of social responsibilities	Public service ethic, tempered by concerns for the individual
Emphasis on diagnosis and treatment, care for the whole patient	Emphasis on prevention, health promotion for the whole community
Medical paradigm places predominant emphasis on medical care	Public health paradigm employs a spectrum of interventions aimed at the environment, human behavior and lifestyle, and medical care
Well-established profession with sharp public image	Multiple professional identities with diffuse public image
Biologic sciences central, stimulated by needs of patients; move between laboratory and bedside	Biologic sciences central, stimulated by major threats to health of populations; move between laboratory and field
Clinical sciences an essential part of professional training	Clinical sciences peripheral to professional training
Rooted mainly in the private sector	Rooted mainly in the public sector

Based on: H.V. Fineberg, 2011. "Public Health and Medicine," *American Journal of Preventive Medicine*. 41(4): 5149-5151

Principles of Integration

The IOM report identified a set of principles that are essential for the successful integration of primary care and public health:

- A shared goal of population health improvement.

[27] Ibid, p. 31.

- Community engagement in defining and addressing population health needs.
- Aligned leadership that
    - Bridges disciplines programs, and jurisdictions to reduce fragmentation and foster continuity,
    - Clarifies roles and ensures accountability,
    - Develops and supports appropriate incentives, and
    - Creates the capacity to manage change.
- The key to sustainability is establishing a shared infrastructure and building for enduring value and impact.
- The sharing and collaborative use of data and analysis.[28]

Moving Toward Integration

To overcome the barriers and challenges of integration, it is important to consider the major connections and assets that primary care[29] and public health bring to the table. For example, primary care practitioners see the vast majority of individual patients, including those with mental health and substance abuse conditions. They also provide a large percentage of the clinical preventive services such as immunizations, breast cancer screening, and individual counseling for tobacco use and weight loss. In addition, primary care has direct connections to hospitals, mental health services, dentists, and other physician specialists.

On the other hand, public health has expertise in epidemiology and surveillance, environmental health conditions, health education and health promotion, community and state needs assessment, and the provision of some clinical preventive services (e.g., immunizations). In public health, strong collaborative partnerships exist between local and state health agencies, and employers (worksite wellness programs), Area Agencies on Aging, schools, the faith community, community action agencies, and many nonprofit agencies such as the Nebraska Heart Association.

The key is to use the strengths of both primary care and public health to improve the health of the population. Improving population health will require stronger care coordination, more advanced data analysis, more targeted incentives related to value-based reimbursement, and greater funding opportunities to test new health care delivery models.

Programs and Models of Integration

Currently, there is not a magic formula to move toward the integration of primary care, which includes mental health and substance abuse services, and public health, which includes environmental health, mental health, and substance abuse prevention programs. However, there are programs and activities already being implemented that are moving the system toward integration. Although these programs and activities do not yet provide a clear pathway toward

[28] Ibid, pp. 5 and 6.
[29] Primary care practitioners include physicians specializing in Family Practice, Internal Medicine, and Pediatrics as well as nurse practitioners and physician assistants.

integration, they do provide several opportunities to focus on the health of the population and provide new opportunities for partnerships between primary care and public health.

- **Hospital Community Health Needs Assessment**

  One of the opportunities for building this integrated model is a new federal requirement that all nonprofit hospitals must conduct a community health needs assessment (CHNA) and an implementation plan to address the high priority health problems. This requirement provides an opportunity for local health departments to partner with the nonprofit hospitals in their area to develop the CHNA and the implementation plan. Currently, several local health departments in Nebraska are working with their local hospitals to conduct the CHNA using a comprehensive planning model called Mobilizing for Action through Planning and Partnerships (MAPP) to assess the needs of the population, set priorities, and determine the most appropriate evidence-based strategies. The CHNA must be completed by the end of the hospital's fiscal year in 2013 and every three years after this date. Although all nonprofit hospitals are required to conduct the CHNA, several government-owned facilities are also participating in the process. As a result, this process provides a unique opportunity to establish a strong partnership between local public health agencies and both urban and rural hospitals. Once the priorities are established, the hospitals must demonstrate that they are working to address the high priorities that are included in their implementation plans. Although hospitals are likely to finance some of the key strategies directly, it is also an opportunity to leverage additional resources from both hospitals and other partners to implement key strategies. This collaborative partnership between hospitals and public health is directly focused on assessing needs and implementing programs and policies to improve the health of the population. It also has the potential to build a long-term partnership between these two entities and engage several additional partners.

- **Health Care Home Model**

  The health care home model (also referred to as the medical home model) has the potential to improve health care delivery at the patient level by redesigning and improving the linkage between primary care clinics and public health agencies.[30] The Health Care Home Model (HCHM) was first implemented in the 1960s, but it has gained considerable momentum in the 2000s. Although not all HCHMs are successful, several research studies have found that these models can improve the quality of health care services, reduce costs, and improve the health of the population.

  In Nebraska, the model is rapidly spreading across the state. In 2011, Blue Cross Blue Shield of Nebraska initiated a medical home model in nine cities by focusing on management of diabetes, using test results for the patient's blood sugar, blood pressure, and cholesterol levels. In 2012, this model was expanded to 33 clinics and about 42,000 Blue Cross subscribers.

[30] Roy Grant and Danielle Greene, "The Health Care Home Model: Primary Care Meeting Public Health Goals," *American Journal of Public Health,* Vol. 102, No. 6, June, 2012, p. 1096.

In 2010, the State Legislature appropriated funds for two medical home pilot projects for Medicaid patients. In 2011, two pilot projects were launched in clinics located in Lexington and Kearney. Also, as part of the Medicaid managed care contract, Coventry and Arbor Health are expected to develop medical home models in twelve new communities over a three-year period.

Blue Cross Blue Shield of Nebraska has experienced early success with this model and the Medicaid program is rigorously evaluating the results of the pilot projects.

Characteristics and Elements of the HCHM

This model has some very unique characteristics and places patients at the center of the health care system and includes the following:

- A physician-led, team-based coordination of care process that focuses on the patient and his/her family.
- A care model that is holistic – including the patient's physical, mental, and socioeconomic health status.
- A care model where each patient is assigned a provider and care team that oversees and implements continuity of care that is delivered through access to a spectrum of health care delivery services, including home health, hospital inpatient care, specialists, rehabilitation facilities, and long-term care facilities.
- A focus on providing high-quality care, especially to patients with chronic disease/conditions, including a documented monitoring process using patient registries.
- 24/7 access to care.[31]

There are several elements of the health care home model. These elements are displayed in Table 2 and include 1) patient tracking and registry, 2) access to care, 3) care management, 4) patient self-management support, 5) test tracking, 6) referral tracking, 7) performance reporting improvement, and 8) advanced electronic communication.

[31] Gina Koebke, "What to Expect on Your Path to Becoming a Patient-Centered Medical Home," WIPFLi LLP, June, 2012, p. 1.

Table 2

Elements of a Patient-Centered Medical Home

Patient Tracking and Registry	Access to Care	Care Management	Patient Self-Management Support	Test Tracking	Referral Tracking	Performance Reporting and Improvement	Advanced Electronic Communication
Preventative care is tracked by the primary care team and patients notified when services are due: - Annual exams - Age-appropriate cancer screenings - Pediatric immunizations	Same day appointments are available to patients for acute care	Community resources are made available to patients to support needs outside of PCP office resources	Primary care team works with patient during appointment to self-manage goals	Lab, imaging and other tests tracked and monitored until results received	All referrals by PCP are tracked	Clinic has an improvement plan with measurable outcomes and is regularly monitored over time	Providers can communicate electronically with patients—if patients prefer
Patients with chronic conditions are tracked and monitored to ensure they receive appropriate care: - Diabetes - Hypertension - Hyperlipidemia	Clinical advice from a qualified clinician is provided by phone or electronically in a timely manner	Education resources are provided for specific health conditions	Patient is given materials to support them in successfully reaching their goals	Patient is immediately informed of critical results	All pertinent medical record information is provided to referred physician	Performance reporting and improvement measures are reported publically	Variety of communications can be used: - Secured messaging - Text message
Current medication list is updated at every visit in EHR to guard against adverse drug reactions	After hours care is routinely available	Evidence-based guidelines used for specific medical conditions	Staff provides patient with community resources to assist in achieving set goals	All results – normal and abnormal – are communicated to patient in timely manner	Follow-up on patient status with hospitals, specialists or other facilities is completed	Results from patient satisfaction surveys are integrated into improvement opportunities	
		Appropriate testing is completed prior to appointment in order to discuss results during visit	Primary care team engages in regular follow-up with patient to assess progress toward goals				
		Patients are monitored to ensure they attend important scheduled appointments	Primary care team provides patients guidance when goals aren't reached				

Source: Gina Koebke, "What to Expect on your Path to Becoming a Patient-Centered Medical Home," WIPFLi LLP, June 2012.

Improving Population Health

The HCHM has the potential to improve the health of the population by improving access to care (e.g., after hours care and electronic communication), and reducing health disparities. For example, racial and ethnic minority populations tend to have a higher incidence of chronic conditions, which could be treated more effectively through more timely clinical preventive services (e.g., culturally and linguistically relevant diabetes health education). Other disparities can be prevented through cancer screening programs and immunizations.

The Role of Public Health

Public health agencies and their community partners can play a vital role in the success of the HCHM. In the area of patient tracking and registry, public health staff with their data analytic expertise and understanding of disease patterns can assist staff from smaller primary care clinics

in interpreting the data to obtain more meaningful results. Currently, staff from the Division of Public Health are working with three rural primary care clinics to help them better understand the registry data and answer questions about the best practices for controlling cholesterol and hypertension.

Using data from the state, regional, or national health information exchanges, public health staff will eventually be able to conduct population-based studies based on the analysis of aggregated patient registry data. For example, they will be able to assess if the treatments of patients with diabetes and hypertension have been effective.

Under access to care, public health can assist HCHs in facilitating enrollment in health insurance, developing transportation options, and providing some direct clinical preventive services such as immunizations and home visits for new mothers.

In care management, health education and health promotion programs are already being implemented to address several high risk behaviors and problem areas (e.g., physical inactivity, poor nutrition, tobacco and alcohol use, timely prenatal care, and domestic violence) associated with cardiovascular disease, cancer, and mental health. These programs can reinforce the messages that are provided by clinic staff. For example, many local health departments are using media campaigns and other programmatic activities to encourage all adults over 50 to get screened for colon cancer or to stop smoking.

In addition, local public health agencies in Nebraska are working with the state Medicaid agency to contact Medicaid patients who miss scheduled appointments. This activity could also be extended to privately insured patients.

Public health and its community partners are also playing a vital role in patient self-management care. There are many community resources that are available to assist patients in achieving their goals. For example, the Heart Disease and Stroke Program in the Division of Public Health is working with the Area Agencies on Aging and some local health departments to implement the Living Well Program. This low cost evidence-based program empowers patients with chronic conditions to change their behaviors, maintain and improve their health status, and reduce their hospitalizations. It consists of a two-hour workshop that is held in the community once a week for six weeks. They are facilitated by two trained volunteer leaders, one or both of whom are non-health professionals who also have a chronic disease. As of April 2012, a total of 499 participants have completed at least 4 out of the 6 workshops.

Although this program is not currently offered statewide, it has the potential to help patients achieve their goals and improve their health. However, for the program to have a greater impact it needs to expand into more communities and the referral process must be streamlined. This expansion could be fueled by direct referrals from physicians in HCHs and working more closely with local partners such as Area Agencies on Aging and local health departments.

In terms of the test tracking and referral tracking elements, public health would probably have only minimal involvement. However, public health agencies should be involved in performance reporting and improvement. Public health staff has the expertise to work with primary care

clinics in setting performance measures and developing a plan of action to meet these measures. In addition, public health agencies should be examining publicly reported outcome measures and patient satisfaction survey results. By analyzing the data from all of the HCHs, more specific population health strategies can be implemented to support and complement the work being done in the clinics.

Finally, some public health agencies have the knowledge and expertise to assist providers in communicating electronically. Public health staff could help clinics design messages to encourage a healthier lifestyle (e.g., eat more nutritious foods) and it could be a good opportunity to encourage patients to participate in community-based wellness programs such as the Living Well program.

In summary, there are many opportunities for HCHs to work together with public health agencies and their community partners. In fact, improving the individual health of patients will depend to a great degree on what improvements are made in the health of the population. When HCHs and public health agencies work together, both goals can be achieved.

Although the role of public health agencies will certainly evolve over time, they are in an ideal position to directly assist HCHs and to engage a wide array of community-based partners. For example, the Two Rivers Public Health Department is working with both Medicaid Medical Home pilot projects in Lexington and Kearney. They have assisted these clinics in helping them with patients who do not keep their appointments, providing education to clinic staff about how to change a specific high-risk behavior, reporting cases to Child Protective Services or law enforcement, assisting the clinic in educating a particular client or family regarding a diagnosis, conducting a home visit to educate a patient about a particular condition, and conducting a joint home visit with the HCH's nurse coordinator to assess the knowledge base of a family about a specific condition. Two Rivers staff also has provided information about the other resources that are available in the community or region.

The Two Rivers Public Health Department also works with many partners to promote population health in its district. For example, staff works with employers on worksite wellness programs and with schools and other community organizations to reduce tobacco and alcohol use. They also provide health education programs about West Nile Virus and obesity.

In essence, public health agencies can provide direct support to HCHs and they can improve the health of the population by working collaboratively with employers, schools, the faith community, and nonprofit agencies. They also provide a variety of programs and activities that are designed to reach the entire population.

The Special Case of Mental Health and Substance Abuse

One of the important features of the HCH is the integration of primary care and mental health services. This feature has become an important part of the model because the diagnosis of mental disorders and substance abuse problems has shifted to primary care practitioners due to the shortage of mental health providers and limited insurance coverage.

In the HCHs, it should be possible to address mental health and substance abuse problems in a more timely manner. Individuals with severe mental disorders will continue to be referred to mental health physician specialists, but all of the referrals will be tracked and monitored. Individuals with less severe mental disorders or substance abuse problems should be able to receive more timely counseling, medications, or other treatments either on-site or in most instances at a nearby location.

Role of Public Health

While HCHs are focused on the diagnosis and treatment end of the spectrum, some public health agencies have begun to document some of the factors that cause mental health and substance abuse problems. For example, a recent study using data from the National Health Interview Survey found that the top 5 disabilities affecting U.S. children are mental health problems rather than physical problems. The study also found adults who had mental, behavioral, or developmental problems as children had fewer educational opportunities, worked fewer weeks per year, and had a 37 percent decline in family income as compared to children with physical disabilities.[32]

Several studies have also linked children's mental conditions with environmental exposures. For example, black carbon (an airborne byproduct of fossil fuel combustion) has been linked to reduced verbal and non-verbal intelligence and poor memory. An association has been found between low lead exposure and lower IQ scores and prenatal exposure to bisphenol A and depressive symptoms, anxiety, and hyperactivity in young girls.[33]

In a recent Substance Abuse and Mental Health Services Administration webinar, Robin Kinnard and Melissa Boeke discussed how adverse childhood experiences (ACEs) lead to multiple mental health, physical health, and substance abuse problems. ACEs were defined as child verbal and physical abuse, sexual abuse, neglect, incarceration of the parent or family member, family history of mental illness, family history of substance abuse disorders, witnessing domestic violence, and parental divorce/separation during childhood. They concluded that over 25 percent of women and 18 percent of men had 3 or 4 ACEs. The net result of these adverse childhood experiences was a 59 percent higher risk for HIV, 21 percent for heavy drinking, 25 percent for cardiovascular disease, 24 percent for cancer, and over 61 percent for mental health conditions.[34]

A recent study by Safranek, Buss, and Yeoman examined the prevalence of ACEs in Nebraska using survey data from the 2010 and 2011 Behavioral Risk Factor Surveillance System. They found that 35 percent of the population in 2010 and 31 percent of the population in 2011 had at least one ACE. In both 2010 and 2011, the most prevalent ACEs were verbal abuse, household substance abuse, and divorce. The findings from this study clearly demonstrate that ACEs are common in Nebraska and they are associated with increased risk of multiple adverse behaviors and health outcomes. More specifically, they reported that:

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[32] Anita Slomski, "Chronic Mental Health Issues in Children Now Loom Larger Than Physical Problems," JAMA, Vol. 38, No. 3, July 18, 2012, p. 224.
[33] Anita Slomski, op. cit., p.224
[34] Robin Kinnard and Melissa Boeke, "Using Adverse Childhood Experiences (ACEs) Data for Prevention Planning," SAMHSA CAPT Webinar, July 12, 2012.

> Persons with any direct ACE (physical abuse, sexual abuse, or verbal abuse) were significantly more likely to report the following outcomes: current tobacco use, obesity, poor health, arthritis, COPD, depression, diabetes, and disability. Persons with any environmental ACE (household mental illness, household substance abuse, divorce, witnessing abuse, or household incarceration) were significantly more likely to report the same outcomes as direct ACEs; in addition, cardiovascular disease, lack of physical activity, and alcohol misuse were associated with exposure to environmental ACEs but not direct ACEs. Cancer and hypertension were not associated with exposures to either direct or environmental ACEs.

The results from the 2011 Nebraska Behavioral Health Surveillance System Survey continue to reveal a strong relationship between individuals who currently have depression or have ever been diagnosed with a depressive disorder. Table 3 shows that individuals who have been diagnosed with depression are more likely to have a chronic condition and be a current smoker, less physically active, and obese. They are also more likely to be heavy drinkers although there was not a statistically significant difference for this indicator.

Table 3. Prevalence of Selected Chronic Conditions and Unhealthy Behaviors By Current Depression Status or Lifetime Diagnosis of Depression 2011 Nebraska BRFSS with 95% Confidence Intervals (SUDAAN)

	CURRENT DEPRESSION			LIFETIME DIAGNOSIS OF DEPRESSION		
	Have Current Depression	Do NOT Have Current Depression	Statistically Significant Difference?	Have Ever Been Diagnosed w/ Depressive Disorder	Have NOT Been Diagnosed w/ Depressive Disorder	Statistically Significant Difference?
CHRONIC CONDITIONS						
Coronary Heart Disease	9.0%	4.6%	Yes	6.4%	3.4%	Yes
Stroke	6.2%	2.6%	Yes	4.6%	2.2%	Yes
Diabetes	20.2%	9.4%	Yes	12.2%	7.6%	Yes
Asthma	17.5%	6.6%	Yes	13.2%	6.2%	Yes
UNHEALTHY BEHAVIORS						
Current Smoker	41.0%	15.0%	Yes	32.1%	17.5%	Yes
No Leisure-Time Physical Activity	39.6%	25.2%	Yes	30.8%	25.3%	Yes
Obesity	43.1%	28.9%	Yes	38.5%	26.3%	Yes
Binge Drinking	17.8%	17.4%	No	21.8%	23.0%	No
Heavy Drinking	7.9%	5.9%	No	8.1%	7.4%	No

Definitions:

"Current Depression" is based on questions taken from the Patient Health Questionnaire (PHQ-8) developed at Columbia University. Respondents are asked to state the number of days within the past two weeks that they have been affected by a particular mood. Using an algorithm developed by CDC, reconfigured scores of 10 or greater indicate the respondent currently has depression.

"Lifetime Diagnosis of Depression" is based on responses to the question: "Has a doctor or other health care provider EVER told you that you have a depressive disorder (including depression, major depression, dysthymia, or minor depression)?"

Source: Nebraska Behavioral Risk Factor Surveillance System, 2011 data.

Public health agencies, working in conjunction with the six Behavioral Health Regions, have organized community-based coalitions to address many of these problems. Recently, youth tobacco and alcohol coalitions have implemented evidence-based programs and policies that have significantly reduced the use of these substances. These coalitions could expand their agendas to address the problems caused by the ACEs and the negative environmental exposures.

There are also other examples where public health has focused on building supportive systems to promote mental health or "wellness" at the community level. For example, in the area of early childhood social emotional development, Together for Kids and Families, an initiative administered by the Division of Public Health, has a well-established mental health work group that has completed the following work products:

- Community Early Childhood System of Care Self-Assessment, a community tool that rates prevention and intervention services and supports using a rubric in order to capture strengths and gaps related to early childhood mental health and healthy social emotional development; and
- Nebraska's Early Childhood Integrated Skills and Competencies for Professionals – Service Principles for Early Childhood Mental Health, Education and Home Visiting, a document which addresses the three disciplines of early childhood mental health, education, and home visiting.

Additional examples of public health initiatives related to mental health include:

- Nebraska Perinatal Depression Project (http://dhhs.ne.gov/publichealth/Pages/perinataldepression.aspx)
- Suicide prevention carried out through a collaboration between the Injury Prevention and Control Program and Behavioral Health, as well as numerous external partners, for over 10 years

All of these activities suggest that public health has and continues to play a role in assessing mental health needs, developing coalitions to address these needs at the state and community levels, and designing programs and tools for early intervention activities related to preventing mental illnesses. Although these activities are not always well-coordinated with one another, the potential exists for public health to play a strong role in preventing mental illness.

On the treatment side, there appears to be a more limited role for public health. However public health agencies can continue to identify and highlight the shortages of mental health and substance abuse treatment professionals. They can also investigate and promote promising new models, such as the use of telehealth in providing mental health services and the strong partnerships that have been formed between some primary care clinics, Federally Qualified Health Centers (FQHCs), and community mental health centers.

The Role of Community Health Workers

Community Health Workers (CHWs) are becoming an integral part of the health care system. CHWs, also known as outreach workers, promotores, patient navigators, and lay health

ambassadors, were recognized by the U.S. Department of Labor in 2009 and they were included in several sections of the Patient Protection and Affordable Care Act passed in 2010. Currently, there are more than 120,000 CHWs working in the U.S. and at least 100 practicing in Nebraska.

CHWs have several roles and responsibilities. They can move fluidly between the community and health care settings, bridging gaps in care, providing culturally appropriate education and services, and connecting families to needed clinical and social resources. Because CHWs develop peer-to-peer relationships with patients, rather than provider-client relationships, they can communicate more openly with patients on health issues.

CHWs have made important contributions to improving access to care and in changing the health knowledge, behaviors, and outcomes of people in the community. For example, improvements have been observed in conditions such as hypertension, diabetes, HIV/AIDS, cancer screening, immunizations, and maternal and child health in general. A recent study in New York City found that many CHWs are valued for their cultural competence and mediation skills between providers and members of diverse communities. CHWs provided families with comprehensive asthma education, a home environmental assessment to identify and address household triggers, strategies to help families set goals, and referrals for clinical and social services.[35]

In Nebraska, CHWs have been used by local health departments, FQHCs, and several nonprofit agencies. For example, the Northeast Nebraska Public Health Department uses a CHW to assist its public health nurse on home visits to non-English speaking patients. The One World Community Health Center has used bilingual workers to provide assistance in enrolling over 7,000 children in Medicaid.

In addition, the Nebraska Breast and Cervical Cancer Program in DHHS has received grant funds to work with Nebraska's six FQHCs and five local health departments on using CHWs to promote and increase breast and cervical cancer screening in their communities. In a separate program, the Office of Health Disparities and Health Equity provides funds to train CHWs to work in underserved communities. These workers attempt to link individuals living in underserved communities with health care providers. They also provide culturally appropriate and accessible health education.

Challenges

CHWs are already providing valuable services in some parts of Nebraska. However, there is still not a standard scope of services or a standard training curriculum. These standards should be determined based on input from organizations that are currently using CHWs and the CHWs who are working in the field.

Linkages with Primary Care and Mental Health

CHWs have the potential to work closely with the care coordinators in health care homes to change patient behaviors and improve outcomes. Their peer-to-peer relationships can improve

[35] Patricia Peretz, et al, "Community Health Workers as Drivers of a Successful Community-Based Disease Management Initiative," *American Journal of Public Health*, Vol. 102, No. 8, August 2012, pp. 1443 – 1446.

compliance with medications to control hypertension, encourage cancer screening and timely immunizations, and educate patients about the importance of physical activity and eating more nutritious foods. They can target hard to reach individuals, help these individuals navigate our complex medical and social systems, and provide health education services in a culturally appropriate manner.

Conclusion

In the past, public health, mental health and substance abuse, and primary care services have generally been provided in isolation with minimal alignment. However, as the health care environment changes from volume-based to value-based reimbursement, there is potential to integrate these services and move the focus from individual care to population health.

The changes in the Nebraska landscape have created several new opportunities for integration. Some of these opportunities include the partnerships between nonprofit hospitals and local health departments in developing a community health needs assessment and implementation plan, and the development and implementation of the health care home model with its emphasis on improving the physical and behavioral health outcomes of patients. Once this model becomes the standard in most primary care clinics across the state, a logical next step is to address broader population health issues. Finally, CHWs offer a tremendous opportunity to integrate public health, behavioral health, and primary care services and building trust between individuals living in underserved communities and health care providers. All partners will need to work together to identify the necessary resources to implement these strategies. Although major challenges still remain, the integration of these critical services is within our reach. Improving health outcomes can only be achieved through a variety of collaborative partnerships and a focus on patients, families, and the community.

Work Plan

Moving the concept of integration forward is a complicated task that will involve several activities. As a result, a work plan has been developed to achieve the following goal: Improve the integration of public health, behavioral health, and health care services. This work plan contains five objectives and several strategies under each objective. The objectives include a pilot project that compares selective risk factor data (e.g., cholesterol levels) among patients in health care home clinics to identify best practices and the most appropriate community health promotion programs. A second objective encourages a partnership between local health departments and all nonprofit hospitals to complete the required community health needs assessment and the associated implementation plan. The third objective involves expanding and using community health workers more effectively by identifying core competencies and educational curriculum components. The fourth objective calls for the development of a strategy to connect all of the appropriate behavioral health and public health community programs with clinics that have a health care home model. The final objective involves a detailed study that identifies the role of local and state public health agencies in the prevention of mental health and substance abuse problems.

Objective 1: By December 2014, complete a pilot project that compares selected risk factor data such as Hemoglobin A1c, cholesterol levels, blood pressure levels, and cancer screening rates in clinics that are health care homes to determine best practices and to develop the most appropriate health promotion programs.

Background: Several clinics are already operating health care home clinics and tracking various health indicators such as Hemoglobin A1c and cholesterol levels. These clinics receive additional funding from BlueCross BlueShield of Nebraska, Medicaid, and Federally Qualified Health Centers (FQHCs). By developing a pilot project and collecting comparable data among selected clinics, it will be possible to identify best practices and to identify the roles of local and state health departments in tracking the data and connecting patients with appropriate community health promotion programs.

Key Strategies and Activities	Lead Role	Timeline	Partners	Expected Outcomes
Form a coalition to provide oversight	Division of Public Health (DPH); Health Promotion, Lifespan Health, and Community Planning and Protection Units	September 2013	FQHCs, Health Center Association of Nebraska (HCAN), Private Insurance Companies, Nebraska Medical Association	Coalition formed
Select physician clinics, including FQHCs	Coalition	Octobert 2013		Clinics selected
Identify common indicators to be collected	Coalition	December 2013		Indicators selected
Identify a mechanism for collecting the data	Coalition	February 2014		Mechanism developed
Analyze the data and determine best practices among the clinics	DPH	June 2014		Data analyzed
Share and communicate the best practices across the state	Coalition, DPH	December 2014		Best practices shared across the State of Nebraska
Develop public health education and health promotion programs to complement the clinic services	Coalition, DPH	March 2015		Programs implemented

Objective 2: By December 2013, local health departments should partner with hospitals to complete the Community Health Needs Assessments (CHNA).

Background: The Affordable Care Act requires all nonprofit hospitals to complete a population-based community health needs assessment and an implementation plan based on the priorities in the CHNA. Currently, many hospitals are working with local health departments to develop the CHNA and the implementation plan. Since these plans must be developed every three years beginning in 2013, it is a great opportunity to expand the resources for population health activities.				
Key Strategies and Activities	**Lead Role**	**Timeline**	**Partners**	**Expected Outcomes**
Complete the CHNA	All nonprofit hospitals and local health departments (LHDs)	September 2013	DPH, Nebraska Hospital Association, academic institutions	CHNA completed
Prepare implementation plan based on CHNA priorities	Nonprofit hospitals and LHDs	December 2013		Implementation plan completed
Submit plans to IRS and place on the hospital's website	Nonprofit hospitals	December 2013		Plans submitted
Evaluate the priorities, resource allocations, and partnerships to determine impact on population health	Office of Community and Rural Health, DPH	December 2015		Evaluation completed

Objective 3: By December 2016, identify and implement the core competencies, essential educational curriculum components, key roles and responsibilities, and a system of support for community health workers.

Background: In Nebraska and many other states, community health workers (CHWs) have worked with patients to reduce unhealthy behaviors, better comply with medication schedules, and help them through the maze of health care and social services. In Nebraska, CHWs have already demonstrated their value, but to maximize their effectiveness, core competencies need to be identified and a standard educational curriculum needs to be developed.				
Key Strategies and Activities	**Lead Role**	**Timeline**	**Partners**	**Expected Outcomes**
Form a coalition	DPH, Office of Health Disparities and Health Equity (OHDHE)	March 2013	Division of Behavioral Health, Behavioral Health Regions, Local Boards of Health, FQHCs, LHDs, academic institutions	Coalition formed
Prepare a report that identifies core competencies, education curriculum, roles and responsibilities, and support system	DPH, OHDHE	December 2013		Report completed
Implement the recommendations in the report	DPH, OHDHE, local health departments (LHDs)	December 2014		Recommendations implemented
Investigate the feasibility of creating some type of registration/certification process	DPH, OHDHE, LHDs	December 2014		Registration/certification process established
Evaluate the impact of community health workers and their involvement in integration activities	DPH, OHDHE, LHDs	December 2016		Evaluation completed

Objective 4: By June 2016, develop a strategy to connect all appropriate behavioral health and public health community programs (e.g., Living Well, Million Hearts Campaign) with clinics that have a health care home model.

Background: To improve the health of individual patients and the population of the community as a whole, it is essential to connect community-based population health programs with health care home clinics. The first step is to identify evidence-based programs and connect them with patients who receive care in health care homes. In many areas, these programs will need to expand their reach across the state.				
Key Strategies and Activities	**Lead Role**	**Timeline**	**Partners**	**Expected Outcomes**
Identify community public health programs (e.g., Living Well, Million Hearts Campaign) that could be used to connect with health care home models	DPH, Health Promotion, Lifespan Health, and Community Health Planning and Protection Units	October 2013	Behavioral Health Regions, Division of Behavioral Health, LHDs, Area Agencies on Aging, Community Action Agencies, FQHCs, Nebraska Medical Association, Nebraska Hospital Association, Nebraska Pharmacists Association, Project Extra Mile	Programs identified
Identify strategies to connect these programs with clinics with a health care home	DPH	February 2014		Resources identified
Implement or expand the implementation of these programs	DPH, LHDs, other partners	June 2014		Programs expanded
Evaluate the impact of these programs in terms of integration with the delivery of primary care and/or mental health and substance abuse programs	DPH	June 2016		Evaluation completed

Objective 5: By June 2014, complete a study of the role of the state and local public health agencies in the prevention of mental health and substance abuse problems and the coordination of these services.

Background: There is sufficient evidence to indicate that both children and adults who suffer from mental health and substance abuse problems are also more likely to have a great prevalence of unhealthy behaviors. Although state and local public health agencies have implemented mental health and substance abuse programs, the future role of these agencies is unclear. This study will clarify these roles and responsibilities as well as the collaborative relationships (e.g., Behavioral Health Regions) that need to be developed.				
Key Strategies and Activities	**Lead Role**	**Timeline**	**Partners**	**Expected Outcomes**
Form a coalition to oversee the study	DPH, Health Promotion, Lifespan Health, and Community Health Planning and Protection Units	September 2013	Behavioral Health Regions, LHDs, BEACON, Nebraska Medical Association, Local Boards of Health, FQHCs, Nebraska Hospital Association, community alcohol and tobacco prevention coalitions, Nebraska Pharmacy Association, Nebraska Children and Families Foundation	Coalition formed
Prepare a report that identifies these roles and responsibilities, essential collaborative partnerships, and recommendations that cover the life span and include high risk groups (e.g., individuals with depression and/or adverse childhood experiences)	DPH, Division of Behavioral Health (DBH)	June 2014		Report completed
Implement the recommendations	DPH, LHDs	June 2015		Strategies implemented
Evaluate the outcomes of the plan	DPH	June 2016		Evaluation completed

Priority 5
Expand the Capacity to Collect, Analyze, and Report Health Data

Current Situation

A 1988 report by the Institute of Medicine (IOM) on *The Future of Public Health* identified assessment as one of the three core functions of public health. This report defined assessment as the regular and systematic collection, assembly, analysis, and dissemination of health information.[36] Assessment was considered a core function of public health agencies because measuring the health of the population is a key element in improving health outcomes. The collection, analysis, and dissemination of data allow public health practitioners to identify patterns and trends in public health events (diseases, conditions, or injuries) and health determinants (behavioral and biological risk factors, exposures, and medical care).

Effective assessment activities have been greatly expanded in the past few years. For example, new data have been collected through various surveys (e.g., Behavioral Risk Factor Surveillance System surveys by local health departments) and the development of new information technology (e.g., electronic medical records). As a result of new federal meaningful use requirements, health care providers are sharing information electronically through an immunization registry and submitting more timely laboratory reports for infectious diseases. In addition, the state public health agency now has the capability to collect inpatient syndromic surveillance data from hospitals. Although this is still a pilot project, cardiovascular disease and associated risk factor data (e.g., cholesterol and hypertension levels) are being collected in near real time from a few selected hospitals. As the program expands to other hospitals, it will be possible to develop more effective clinical and public health interventions.

The development of electronic medical records in physician clinics will provide a new source of data that will allow public health practitioners to examine the risk factors associated with the leading causes of death. For example, practitioners will be able to determine the number of people that are seen in physician clinics that have been diagnosed with hypertension and the number that have it under control. Also, they will be able to examine the percentage of patients that have acceptable Hemoglobin A1c levels and the number of men and women over age 50 that have been screened for colon cancer. These data can then be used by public health officials to target population groups and design programs and policies that should be more effective in addressing health risks.

Although an array of new data is now available, many data collection challenges still remain. For example, data are not routinely collected on many important health indicators such as the availability of transportation, healthy food outlets, or the density of stores selling alcohol. Also, there still is not an agreement at the national, state, or local level on a common set of indicators to measure population health. There are also many other major gaps including the development of life course metrics, the social determinants of health, and data to measure more accurately health disparities for racial and ethnic minority populations and people with disabilities. Finally, the availability of clinical data through electronic medical records can greatly contribute to a

[36] National Research Council. *The Future of Public Health*. Washington, DC: The National Academies Press, 1988.

public health agency's knowledge and understanding of population health, but there are still many obstacles and barriers to sharing this information. Some of these barriers include concerns related to privacy, right of access, and intended use of personal data. Some providers may also be reluctant to share data because they consider the information proprietary.

New data analysis techniques and information technology have enabled public health practitioners to integrate databases. One example of integration involves the National Electronic Disease Surveillance System (NEDSS). This system has helped to electronically integrate several data collection and reporting activities, including those related to HIV/AIDS, tuberculosis, and infectious diseases. In Nebraska, NEDSS has greatly improved the ability of state and local public health agencies to respond to infectious disease outbreaks. More recently, integration efforts have focused on linking cancer registry data with the Every Woman Matters breast cancer screening program for women with low incomes. The purpose of this analysis is to allow a more detailed examination of the effectiveness of the program. For example, if more women are diagnosed at an early stage, it is more likely that they will survive and have lower treatment costs.

The state agency and local health departments are also conducting comprehensive needs assessments. These assessments are used to set priorities and provide the foundation for developing appropriate intervention strategies, including public health policies. In addition to conducting a needs assessment, both qualitative and quantitative data can be used to evaluate the effectiveness of the intervention strategies and to conduct new research on promising public health practices.

While the analysis of public health data continues to expand and become more complex, more sophisticated data modeling techniques are still needed. For example, CDC has encouraged the use of systems-based modeling to develop more targeted community-based interventions and strategies. This type of analysis can identify common causes of coexisting and synergistic conditions such as substance abuse, violence, and sexually transmitted diseases that impact the health of the population in the community.[37] Given the complexity of some of these new analytic techniques, public health agencies need to seek out and use their partners in the academic community and other organizations who employ highly skilled data analysts.

New dissemination techniques have also emerged in the past few years. For example, the vast majority of states, including Nebraska, now have web-based data query systems that cover at least one database. In Nebraska, data from the Behavioral Risk Factor Surveillance System (BRFSS) is available on the DHHS website. In a query system, it is possible for the user to adjust the data variables based on geographic area, age, gender, and year.

Other devices such as the Early Notification of Community Epidemics, a software tool that will help data users better analyze data, as well as fact sheets and briefs can be used to improve the communication between data analysts and program staff. Also, many states, including Nebraska, have developed or are considering selecting a core list of indicators and placing them on a data

[37] National Research Council. For the Public's Health: The Role of Measurement in Action and Accountability. Washington, DC: The National Academies Press, 2011.

dashboard. A dashboard will improve accountability by allowing the general public to become more aware of health problems and to track the changes over time.

Major Challenges

Despite the successes and improvements that have been made in the collection, analysis, and dissemination of data, many challenges still exist. In Nebraska, those challenges can be separated into four major areas: access, utilization, timely reporting, and data standardization/consistency. Under the "access" category, an increase in knowledge about the existence of databases and communication about data resources is necessary. Access can be limited by inconsistencies in health data laws concerning the release of information. Also, many databases do not include race/ethnicity information. Another challenge is limited "utilization" of data sets and reports. To improve this situation, communication should be increased between health data and program staff. Consistent data release policies across data sources and increased knowledge about available data will also help increase utilization of data sets and reports. Another solution is to increase the amount of local level data that are available.

Another challenge is "timely reporting" which is the result of limited staff and in some cases, insufficient staff training. While Nebraska has many well trained epidemiology, biostatistics, and health informatics practitioners, there is a need for a workforce development plan that leads to standardized competencies. The final challenge is "consistency in data standardization." Data collection and reporting are always evolving, making consistency a challenge. Consistency in data standardization can be improved by creating standard data collection protocols (e.g., using one definition of race and ethnicity, having data dictionaries, and applying continuous quality improvement techniques). Some of these challenges are difficult to resolve such as the existence of different standardization protocols for the Centers for Disease Control and Prevention and Nebraska. Others, such as missing definitions will be easier to address over time.

It is important to note that the major challenges are interrelated. For example, access to data resources impacts the utilization of data sets and reports. Inconsistency in data standardization and limited access to data resources lead to untimely reporting. Also, most of the main causes identified relate to the following four overarching issues:

- Communication and collaboration;
- A sufficient and skilled workforce;
- A need for more education and training; and
- Resource availability.

Work Plan

In order to expand the capacity to collect, analyze, and report health data, it is essential to address these challenges to continue to build a strong public health data infrastructure. Strengthening the data infrastructure will require implementing several strategies under three major objectives. These objectives are focused on enhancing the data competencies and leadership skills of the public health workforce, increasing the timely reporting of public health data, and increasing the integration and utilization of health data by data users and researchers.

Goal: Build a sustainable core data infrastructure across Nebraska

Objective 1: By December 2016, public health partners will identify and incorporate into practice workforce competencies and leadership skills for the epidemiology and data workforce.

Background: While the existing epidemiology and data workforces in Nebraska are skilled and knowledgeable, there is a need to expand their competencies in several key areas. Although Nebraska does not currently have a formal set of epidemiology-related competencies which it strives to achieve, some competency assessment work has been completed. For example, in 2008 and 2012, the Office of Epidemiology at the Division of Public Health completed an assessment of epidemiologists based on the epidemiology competencies established by the Council of State and Territorial Epidemiologists (CSTE). The College of Public Health (CoPH) at the University of Nebraska Medical Center has also recently completed a survey related to public health competencies.				
Key Strategies and Activities	**Lead Role**	**Timeline**	**Partners**	**Expected Outcomes**
Establish a work group with representatives from the CoPH, LHDs, the DPH, and other stakeholder groups to review existing model competencies for epidemiology, biostatistics, and data informatics (e.g., CSTE, CoPH) and determine those that are most applicable	CoPH	October 2013	Division of Public Health (DPH), local health departments (LHDs), College of Public Health (CoPH), Public Health Association of Nebraska (PHAN), Nebraska Association of Local Health Directors (NALHD), local coalitions; nonprofit organizations	Work Group created; meeting minutes; competencies identified and disseminated
Identify the most pressing workforce competency gaps and develop a training program to eliminate these gaps • Expand capacity to collect and analyze life course metrics for planning purposes	CoPH; Work Group	February 2014		Review existing assessment results/reports; collection of additional data if needed; training opportunities documented; number of participants; evaluation of trainings provided
Promote the incorporation of these competencies into public health agencies as a quality improvement tool	DPH; LHDs; CoPH; PHAN	December 2016		Documentation of revised job descriptions
Develop and implement a recruitment and retention plan to attract and retain a competent workforce at state and local health departments (e.g., mentor new employees, provide practicum opportunities to students, link graduates to job opportunities)	DPH; LHDs; NALHD; PHAN	December 2014		Plan established and evidence of implementation

Objective 2: By December 2016, public health partners led by the Division of Public Health will increase the timely reporting of quality (e.g., accurate and relevant) public health data to help identify public health problems and best practices.

Background: Numerous health-related data are available in Nebraska. This objective focused on increasing the timely reporting of accurate and relevant public health data. This can be accomplished through the development of interactive web-based tools, prioritization, and improved communication.				
Key Strategies and Activities	**Lead Role**	**Timeline**	**Partners**	**Expected Outcomes**

Expand the availability of public health data through the development of interactive web-based tools
• Use the Early Notification of Community-based Epidemics (ESSENCE) tool to share data
• Make statewide data more available on websites
• Assist local health departments to make local data more available
  ○ Add new data sources
  ○ Update existing data annually
  ○ Provide training as necessary
	Educational institutions, DPH, LHDs
	
	PHAN / LHDs / NALHD / DPH
		August 2013
		July 2015
		Ongoing annually through December 2016
			Division of Public Health (DPH), local health departments (LHDs), College of Public Health (CoPH), Public Health Association of Nebraska (PHAN), Nebraska Association of Local Health Directors (NALHD), local coalitions, nonprofit organizations, NDE	System in place; data exchange; usage tracked
				System in place; usage tracked
				System in place; usage tracked

Increase the number of accurate, relevant, and timely data fact sheets and reports that are available to the public	DPH, LHDs, educational institutions	July 2014		Fact sheets and reports
Develop a communication process so that key partners (e.g., LHDs, educational institutions, and other organizations) are aware of the release of important public health information and reports in advance	DPH, LHDs, educational institutions	December 2013		Process documented and advance notifications made

Objective 3: By December 2016, increase the integration and utilization of health data by public health data users and researchers to improve public health practice.

Background: The integration and utilization of health data by data users (e.g., health educators) can be improved with a better understanding about what data are available and how to use them. Efforts to better inform data users and link data users with epidemiologists, analysts, and researchers would likely result in better health planning and evaluation efforts and subsequently more effective public health practice and outcomes. Advancements in the use and exchange of health information through electronic health records will eventually provide an opportunity to better inform public health practice.				
Key Strategies and Activities	**Lead Role**	**Timeline**	**Partners**	**Expected Outcomes**
Make available annually on the DHHS website a list of the core public health data sets in Nebraska, including: • A description of each data set • How to access the data • Approximate time frame when the data will become available (e.g., approximate time when reports are released)	Public Health Support Unit	December 2013	Division of Public Health (DPH), local health departments (LHDs), College of Public Health (CoPH), Public Health Association of Nebraska (PHAN), Nebraska Association of Local Health Directors (NALHD), local coalitions, nonprofit organizations	Made available on the web; usage tracked
Increase the number of collaborative studies between public health practitioners and academic researchers • Develop a system or process for keeping the public health research community connected through networking and information sharing (e.g., meetings or newsletter)	DPH, NE Public Health Practice-Based Research Network, educational institutions	December 2016		Complete at least 3 projects
Conduct pilot studies using electronic health record (EHR) data from Nebraska hospitals and clinics (e.g., compare heart disease and stroke risk factors between rural and urban areas and the medication compliance for hypertension between different population groups) • Document barriers, quality of data, limitations, etc. • Share results of the reports (Studies should include life course metrics, the social determinants of health, and health disparities)	Public Health Support Unit	December 2016		Complete at least 4 projects; disseminate reports
Provide educational opportunities to stakeholders on meaningful use and its impact	DPH	December 2016	Wide River, Nebraska Hospital Association, LHDs, CoPH	Complete at least one educational opportunity each year

Chapter 4
The Implementation Phase and the Performance Monitoring Process

During the implementation phase of the MAPP model, the Office of Community and Rural Health in the Division of Public Health will be responsible for coordinating the implementation activities. However, it is anticipated and expected that many other entities within the Division and organizations outside the Division will assume the lead role in the implementation of these strategies.

The Office of Community and Rural Health will also be responsible for developing performance measures that can be used to monitor and track the progress of the plan. These performance measures will be identified shortly after the plan has been approved.

The Advisory Coalition will continue to play a critical role in the process. The Coalition will continue to meet on a regular basis to approve the performance measures and to monitor the progress based on these measures. It will also discuss the challenges or barriers to implementation and provide recommendations for change. For example, it may be necessary to discontinue the implementation of an ineffective strategy or modify an existing strategy to take advantage of new technologies or innovative evidence-based programs and policies. In the current highly dynamic environment, it is critical to be flexible and take advantage of new opportunities.

Financial Resources

Although many of the proposed activities can be implemented at a very modest cost, accomplishing these high priority strategic initiatives will require some additional resources in the short-term. For example, some of the new training programs and data collection activities will require some additional funding resources. In those areas where significant new resources are needed, public-private partnerships must be created to find ways of leveraging new and existing resources. Also, as the integration of health care services evolves and new partnerships are established with physician clinics and other health care organizations, there may be some reimbursement opportunities through a shared savings model or direct reimbursement from third party payers for cost saving or high cost effective preventive programs.

Although some new short term investments are needed, implementing these strategic initiatives will help achieve the triple aim goals of better health, better quality of care, and lower per capita health care costs. Costs can be reduced by implementing the health care home model and integrating public health, mental health, and primary care. Long-term costs for the health care system can also be lowered by implementing intervention programs with a high return on investment and improving data collection and analysis to document the value of public health programs.

In addition to changing aggregate system costs, the plan calls for better integration of programs within DHHS. For example, the Divisions of Public Health, Behavioral Health, and Children and Family Services can work together to prevent adverse childhood experiences which lead to more

children being placed in the foster care system. In the long term, more of these children have serious mental disorders and more chronic illnesses, resulting in higher health care costs.

In conclusion, most of the activities in the plan can be implemented at a very modest cost. In those cases where major new resources are needed, new and existing public-private partnerships must be formed to identify new resources. In the long term, however, implementing these new strategic initiatives will result in lower health system costs, better quality of care, and improved health outcomes.

Appendices

Appendix A. Strategic priority work group members

Priority 1: Reduce heart disease and stroke morbidity, mortality, and associated risk factors

Brenda Thompson
Health Center Association of Nebraska

Brian Coyle
Physical Activity Coordinator, Nutrition and Activity for Health
DHHS, Division of Public Health

Cathy Dillon
Office of Women's and Men's Health
DHHS, Division of Public Health

Charlotte Burke
Manager, Health Promotion and Outreach
Lincoln-Lancaster County Health Department

Cherie Boxberger
American Heart Association

David DeVries
Heart Disease and Stroke Program
DHHS, Division of Public Health

Denise Gorski
Nebraska Stroke Advisory Council
UNMC

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Jamie Hahn
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Jeff Soukup
Manager, Tobacco Free Nebraska
DHHS, Division of Public Health

Kathy Goddard
Manager, Diabetes Prevention and Control
DHHS, Division of Public Health

Maria Hines
Office of Health Disparities and Health Equity
DHHS, Division of Public Health

Rita Parris
Executive Director
Public Health Association of Nebraska

Priority 2: Reduce cancer morbidity, mortality, and associated risk factors

Ann Jones
Nebraska Cancer Coalition

Mary Trauernicht
St. Elizabeth Regional Medical Center

Jill Weyers
Nebraska Breast Cancer Coalition

Kathy Burklund
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David Humm
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Sue Medinger
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Dave Holmquist
Director of Government Relations—Nebraska
American Cancer Society

Priority 3: Expand health promotion capacity to deliver public health prevention programs and policies across the life span

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Priority 4: Improve the integration of public health, behavioral health (mental health and substance abuse), environmental health, and primary health care services

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Priority 5: Expand capacity to collect, analyze, and report health data

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Appendix B. Acronyms

ACEs	Adverse Childhood Experiences
BRFSS	Behavioral Risk Factor Surveillance System
CDC	Centers for Disease Control and Prevention
CHNA	Community Health Needs Assessment
CHW	Community Health Worker
CIMRO	Medicare Quality Improvement Organization for Nebraska
CoPH	College of Public Health
CSH	Coordinated School Health
CSTE	Council of State and Territorial Epidemiologists
DBH	Division of Behavioral Health
DHHS	Department of Health and Human Services
DPH	Division of Public Health
EHR	Electronic Health Record
EMS	Emergency Medical Services
ESSENCE	Early Notification of Community-Based Epidemics
ESU	Educational Service Unit
FQHCs	Federally Qualified Health Centers
GPPHLI	Great Plains Public Health Leadership Institute
GPPHTC	Great Plains Public Health Training Center
HCAN	Health Center Association of Nebraska
HCHM	Health Care Home Model
IBCLCs	International Board Certified Lactation Consultants
IOM	Institute of Medicine
LHDs	Local Health Departments
MAPP	Mobilizing for Action for Planning and Partnerships
MOU	Memorandum of Understanding
MPH	Master of Public Health
NACCHO	National Association of County and City Health Officials
NACDD	National Association of Chronic Disease Directors
NACO	National Association of County Officials - Nebraska
NALHD	Nebraska Association of Local Health Directors
NC2	Nebraska Cancer Coalition
NDE	Nebraska Department of Education
NEDSS	National Electronic Disease Surveillance System
NE-SALBOH	Nebraska State Association of Local Boards of Health
OHDHE	Office of Health Disparities and Health Equity
PHAB	Public Health Accreditation Board
PHAN	Public Health Association of Nebraska
ROI	Return on Investment
UNL	University of Nebraska - Lincoln
UNMC	University of Nebraska Medical Center