ADDRESSING HEALTH INEQUITIES IN NEW MEXICO

THE ROLE OF THE NEW MEXICO PUBLIC HEALTH INSTITUTE

By Renée T. Despres, PhD, MPH

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ACKNOWLEDGMENTS

The New Mexico Public Health Institute (NMPHI) is pleased to present this assessment of structural and systemic priorities for achieving racial and geographic health equity in New Mexico, including recommendations for potential roles and functions of the Institution. The primary intended audience for this document is current advisory board members and partners of the NMPHI.

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EXECUTIVE SUMMARY

INTRODUCTION AND PURPOSE

The New Mexico Public Health Institute (NMPHI) was formed to address health disparities that stem from the deep historical and current inequities that frame the lives of New Mexico residents. As a public health institute, NMPHI is focused on creating the conditions in which the people of New Mexico can experience optimal health. The NMPHI mission is "to challenge the status quo by creating an environment in which social and health conditions allow individuals, families, and communities to thrive." Ultimately, the NMPHI envisions that in New Mexico, "health equity is achieved [and] social and health issues continue to be prioritized through evidence, policy, civic engagement, and social justice."

This document provides a review of current major health inequities in New Mexico, as well as disparities in the social, economic, and environmental factors that influence health. Current efforts to address population health are reviewed broadly. The report concludes with a summary of recommended roles and actions for the New Mexico Public Health Institutes

HEALTH INEQUITIES

New Mexicans fare more poorly on many health indicators than those living in other parts of the United States. There are also wide disparities in the health status of New Mexicans within the state.[9] In addition to disparities in specific conditions, including diabetes, teen pregnancy, opioid use, and suicide, more than one out of five (21%) New Mexicans considers himself or herself to be in "fair or poor health." This average masks wide disparities by county, ethnicity, rurality, gender; age, and income level.9

SOCIAL AND ECONOMIC FACTORS

New Mexico has long ranked among the bottom states for earning potential, high school graduation rates, food insecurity, poverty, child health, and health insurance coverage. Approximately one-third of Native Americans and one-fourth of Hispanics in the state earn less than poverty level, as do more than one-third of residents with less than a high school degree.[7]

Yet statistics such as averages and medians hide deep differences in the everyday lives of New Mexicans. This report uses the work of economist Richard Wilkinson and psychiatrist Kate Pickett to provide a framework for understanding the importance of inequities in wealth to inequities in health.[30] Wilkinson and Pickett argue that the strongest influence on health status is relative, not absolute, lack of material wealth.

ENVIRONMENTAL FACTORS

There are wide disparities in the physical environments in which people live in New Mexico, and the state's infrastructure is badly in need of repair. Many public and private entities in the state address environmental issues; however, they generally work separately from population health efforts. Integration of these efforts is necessary for true change in health inequities to occur.

SUMMARY OF CURRENT POPULATION HEALTH EFFORTS

Multiple programs and policies designed to address health disparities were identified during this review. However, the majority of programs identified address specific conditions and their risk factors in isolation, rather than addressing the underlying causes of the conditions. With a few notable exceptions, there is little coordination between programs. Most fall short of addressing the broad array of socioeconomic and environmental factors that lead to inequities in health. There is a need for better micro-level data about chronic conditions and a need to correlate those data with socioeconomic indicators. Little to no information was found regarding the cost-effectiveness of interventions. Cross-sectoral policy needs, such as transportation, built environment, worker safety, labor rights, and food justice, are rarely considered in these programs. Public health policy efforts have had uneven success.

GAPS THE NEW MEXICO PUBLIC HEALTH CAN FILL

This analysis has revealed significant strategic gaps in the tools and resources needed to address health inequities in New Mexico. Public health often focuses on individual health issues, developing interventions that target a specific disease state or prevention problem (such as diabetes, cardiac disease, substance abuse, or vaccinations). In contrast, a population health approach focuses on socioeconomic and environmental inequities as the underlying causes of health inequities.

Achieving health equity will require creative strategies to address disparities, starting with a close examination of how they are defined. Such an approach will require strategic rethinking of traditional approaches to health improvement. Cross-sector collaboration, community involvement, supportive policies, and information are essential.

Three core gaps emerged during this review. The NMPHI should build its internal and external capacity to address these gaps:

CONVENING

The many resources identified through this research, both formal and informal, need to be integrated and coordinated. NMPHI has the potential to step into this significant gap and address the critical need for neutral convening and coalition building throughout the state. NMPHI could do so as a neutral convener and facilitator for communities as they discuss complex social issues. Some ways in which NMPHI could address this gap:

- Provide technical assistance and training in facilitation, coalition building, and leadership to communities and issue-focused groups around the state
- Host an annual conference to bring sectors and actors together. Include funders, advocacy groups, elected officials, government representatives (e.g. county or city managers, department heads), health-care professionals, and community members.
- Support establishment of cross-sectoral collaborative groups at the local, regional, and statewide levels
- Assist local collaborative groups to develop infrastructure, funding and other resources, and strategic and action plans

DATA

A significant gap in addressing health inequities in New Mexico lies in the availability and accessibility of relevant data and the capacity to gather, analyze, disseminate, and act on it. The NMPHI can be a leader in strengthening data systems and helping New Mexico communities gain access to the information they need to make the policy, funding, and other choice they need to support wellbeing for all residents. Potential actions include:

- Further strengthening the NMPHI partnership with the New Mexico Community Data Collaborative
- Collaborating with ongoing efforts in the state to develop health-care information exchanges to ensure data regarding socioeconomic and environmental factors are integrated and used
- Building internal capacity to provide training and technical assistance in both quantitative and qualitative data collection, analysis, and dissemination techniques.
- Aligning population health data with clinically-based "learning health systems," to ensure that public health practitioners, providers, community members, and policymakers have access to timely, accurate, actionable information in useable formats.
- Collaborate with the New Mexico Department of Health Bureau of Epidemiology and Response to identify strengths and gaps in the state's surveillance activities

POLICY

The state lacks a coordinated, overall approach to developing policies that improve the health and wellness of New Mexico's people. NMPHI has the potential to bring together existing expertise, including constituents active in or affected by policy in the state and link policy, socioeconomic and environmental inequities, and health disparities. A core function for NMPHI is to support priorities in health policy to improve the health of the population. Suggested roles for NMPHI include:

- Provide technical expertise to communities, regions, and the state in developing HiAP models at the local, county, and state levels
- Include data-informed policy discussions in all of its convening work
- Provide and support data-informed policy priorities to decision makers at all levels of government
- Develop the internal expertise to analyze and respond to policy proposals in terms of their impact on health inequities in partnership with the New Mexico Equity and Policy Institute
- Create public-facing tools for policy education and discussions, via social media, traditional media, helping communities to establish face-to-face forums, and other means.
- Provide training to legislators, officials, health-care providers and others in the development of health policy and the principles of health systems with a goal of addressing the spectrum of population health issues.

ADDRESSING HEALTH INEQUITIES IN NEW MEXICO: THE ROLE OF THE NEW MEXICO PUBLIC HEALTH INSTITUTE

"The big idea is that what matters in determining mortality and health in a society is less the overall wealth of that society and more how evenly wealth is distributed. The more equally wealth is distributed the better the health of that society." Editor's Choice, "The Big Idea," BMJ (1996). 312 (7037); 0

1 Introduction

New Mexico is a land of contrasts. Stark mountain ranges rise out of flat deserts; dry, cactus-strewn landscapes, are punctuated by the legendary Rio Grande, the Gila River (the last undammed river in North America), and other streams; springs arise from seemingly nowhere in the midst of sanded. In less than a day, one can travel from White Sands National Monument to the mountains of Taos; from the hum of downtown Albuquerque to sleepy Pie Town. Some residents live in stunning mansions hidden in secluded, pastoral forests or beautiful homes in Santa Fe or Albuquerque; others live in moderate, comfortable housing, while still others live in crowded apartments complexes or barely livable trailers or flimsy structures in the *colonias* that line in the US-Mexico border.

It is the land of the Trinity Site, where the first atomic bomb was tested, with little regard for the wellbeing of the people who lived in that remote region of the state. It is a land where scientists work on the cutting edge of nuclear physics in high-tech laboratories; it is a land where knowledge of herbal remedies and ancient healing traditions are passed from generation to generation.

This is the land of the legendary Apache warrior, Geronimo; and the land of Don Juan Oñate, the first European to settle in North America. Oñate remains a controversial figure today, both celebrated for his exploration and shunned for his cruelty to Native Americans.

This is the land that inspired Georgia O'Keefe and Ansel Adams; it is also a land where children go to bed hungry almost every night. This is a place where you can live for 30 years and still be a newcomer; a place where family roots reach back generations; and a place where immigrants are welcome. In this land immigrants share their

skills, knowledge, and a deep sense of family connectedness and culture; in this land children of all ethnic backgrounds grow up into skilled young adults then out-migrate rapidly, looking for better opportunities in other places.

Rich and poor, verdant and dry, flat and mountainous, fair and unequal, old and new. These contrasts are more than just interesting historical and current facts about New Mexico. Instead, they are the bedrock upon which deep inequities are shaped in the lives of New Mexicans – inequities that are reflected in tremendous disparities in our health and wellness.

To understand and address health disparities in New Mexico, practitioners must learn about the deep history that divides the people of this state into ethnic, socioeconomic, and cultural groups. They must recognize that these contrasts form the framework for a broad and deep narrative sense of who we are, where we live, our purpose in life, our social and family connections. The results are written on the bodies of the people who live in every corner of this state.

2 The New Mexico Public Health Institute: Addressing Health Equity

The New Mexico Public Health Institute (NMPHI) was formed to address health disparities that stem from the deep historical and current inequities that frame the lives of New Mexico residents. As a public health institute, NMPHI is focused on creating the conditions in which the people of New Mexico can experience optimal health. The NMPHI mission is "to challenge the status quo by creating an environment in which social and health conditions allow individuals, families, and communities to thrive." Ultimately, the NMPHI envisions that in New Mexico, "health equity is achieved [and] social and health issues continue to be prioritized through evidence, policy, civic engagement, and social justice."

2.1 The Evolution of Public and Population Health

Achieving the NMPHI vision will require work far beyond health systems, including deep and revisionist social and economic changes. To understand the depth and breadth of the journey to this vision, it is useful to pause for a backward glance into the history and evolution of public health. Public health is said to have begun in the London cholera epidemic of 1854, when physician John Snow scrutinized maps of cholera cases and traced the disease to water from a local pump. He requested that the handle be removed from the pump – a request that was initially met with scorn, as cholera was thought to spread through the air, not water. Eventually, he was able to convince officials to remove the pump handle, stemming the epidemic.

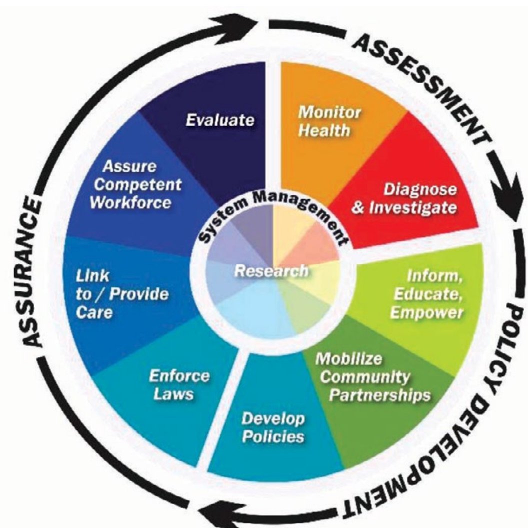
That simple act laid the groundwork for the development of public health as both a practice and a field of study. For most of the nineteenth and twentieth centuries, public health emphasized building systems for food and water safety and delivering preventive interventions such as vaccines and antibiotics. In 1988, however, the Institute of Medicine published *The Future of Public Health*, a document that led to a seismic shift public health.

Institute researchers spent two years systematically examining public health systems in the United States – and found them to be under-resourced, fragmented, and unable to function at full capacity to protect the nation's health. In response, they called for a shift in emphasis from independent project-based approaches to systematic methods of assessment, policy development, and assurance. Out of this framework grew the "10 Essential Public Health Services" (see box), which remain the bedrock of public health functions today.

The 10 Essential Public Health Services

The 10 Essential Public Health Services describe the public health activities that all communities should undertake:

1. Monitor health status to identify and solve 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 and action 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 to needed personal health services and assure the provision of health care when otherwise unavailable
8. Assure competent public 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



Most interventions, however, continued to focus on individuals as solo agents who can change behaviors if they simply have enough knowledge, support, and willpower. Health issues were addressed in silos, with different prevention programs developed to address obesity, diabetes, depression, tobacco use, and other common health problems.

Over the last 30 years, however, there has been growing recognition that health status and health-related behaviors are deeply affected by social, economic, and environmental factors. In 1994, the publication of *Why are Some People Healthy and Others Not? The Determinants of Health of Populations* laid the groundwork for development of a new framework for thinking about health. The volume's editors proposed the then-new idea that "factors in the social environment, external to the health care system, exert a major and potentially modifiable influence on the health of populations through biological channels that are just now beginning to be understood." (p 23)

Thousands of research papers and doctoral dissertations later, this concept has evolved to become the prevailing model for health improvement. According to the World Health Organization, (WHO), the "social determinants of health" (SDoH) are "the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life. These forces and systems include economic policies and systems, development agendas, social norms, social policies and political systems."

The SDoH model reminds us that social and economic inequities form the basis for health inequities. This concept was reinforced by Greg Stoddart and David A. Kindig in 2003, when they defined population health as "the health outcomes of a group of individuals" and added the critical phrase: "*including the distribution of such outcomes within the group*"[1] (emphasis added).

It is this thorny problem that the NMPHI seeks to take on. Fortunately, there are evidence-based frameworks for the work. In 2015, then-Acting Secretary of Health Karen deSalvo led the development of *Public Health 3.0: A Call to Action to Create a 21st Century Public Health Infrastructure*.[2] The report brings together population and public health approaches, calling on public health, clinical providers, businesses, government, and community leaders to work together to create the places where people can thrive:

> *"To truly achieve better health for everyone, we must ensure the conditions in which everyone can be healthy, and this will take more than the health care system. We must address the upstream drivers of health that touch everyone, no matter where they are born, live, learn, work, play, worship, and age. Public health is the essential infrastructure for this work, but it needs to innovate, and in many ways, reinvent itself so that we have what it takes to ensure that the American people are healthy, ready, and competitive in this global economy."*[2]

Understanding of "why are some people healthy and others not" continues to evolve, driven in part by the availability of unprecedented amounts of

data and the computing power to analyze it. Yet the distributions of health outcomes – and the socioeconomic and environmental inequities that foster them – remain difficult to change.

Such an approach asks public and population health specialists to go beyond removing the pump handle to ask hard questions about why some wells remain contaminated – and *who* is drinking out of *which* well.

2.2 Addressing Population Health in New Mexico

New Mexico is a state rich in often overlooked resources that can make people's lives better. For instance, the brilliance of the sun in New Mexico's skies could provide more than enough energy for coming generations to live and enjoy freely, without use of fossil fuels. Solar technologies promise economic development, lower environmental impacts, and more equitable access to useable energy sources.

Low population density also means an abundance of green spaces, natural resources, and clean air. Many New Mexico residents have the space and capacity to plant their own backyard gardens and grow their own food; likewise, many communities are coming together to share the work and fruits of community gardens. In most of rural and frontier New Mexico, people know their neighbors and socialize with them, for their communities are small enough that a trip to the grocery store or a walk down the street inevitably results in an encounter with a friend or acquaintance. In many communities, there's still a strong tradition of neighbors and other adults looking out for all children's wellbeing and development.

Most important, perhaps, is the capacity of New Mexico's people to value different ways of being in the world. The measures of health equity that public health practitioners use are, by definition, inadequate to address the value systems of all cultures and individuals. For instance, in one forum held in the Navajo Nation, participants objected to the concept that grandparents raising grandkids is a measure of disadvantage. In that community, they observed, when grandparents raise grandchildren, it is a good thing in that community, strengthening family ties across the generations and offering wise elders a chance to impart knowledge and traditions to a younger generation. Likewise, participants said, poverty, as measured by income, may not always be the best measure of wealth.

Such rethinking of values is not unique to Native American cultures. New Mexico draws people who are willing to think differently about values and achievements. For many people who chose to live in New Mexico, the state's aesthetic beauty, quiet spaces, mountain ranges, and quiet deserts provide a chance to live fully and happily outside of traditional career and family pathways.

Despite these strengths, it is important not to romanticize the depth of the poverty (economic and other) that affects many New Mexicans, a poverty that extends to the towns and cities where many people live, rendering them unable to provide adequate infrastructure, public safety, and other services to community members. These inequities – and their impacts on health -- are the focus of this paper and of the work of the NMPHI.

3 Demographics

New Mexico is home to nearly 2.1 million people.[3] It comprises 121,298 square miles, making it the fifth largest U.S. state in land mass. About 560,000 of them live in the state's largest urban center, Albuquerque. An additional 83,000 people live in the City of Santa Fe, while the rapidly growing city of Las Cruces is home to 102,000 residents. Various municipalities and developments in the Albuquerque and Santa Fe areas make this region the most populous in the state. The remainder of the state's population lives in cities with populations of less than 50,000, many in the 10,000 or fewer range. Only six out of New Mexico's 33 counties are not considered "frontier" in nature.

3.1 Ethnic Backgrounds and Legal Status of New Mexico Residents

Less than half of the population of New Mexico is non-Hispanic white. Hispanics make up approximately 48 percent of the population, and Native Americans make up 9.5 percent of the state's population, the second largest population for that racial group among the states. Six out of ten New Mexicans are from communities of color. The state has 33 counties, 23 Native American sovereign nations (19 Pueblos, 3 Apache tribes, and the Navajo Nation). In addition, thousands of Native Americans live in urban sites. At least eight Native American languages are spoken in the state. Although New Mexico once had three of the only all-Black townships in the nation, currently the percentage (2.5%) of the population that is African American is small. Approximately four percent of the state's population select as LGBT (lesbian, gay, bisexual, transgender), and 28 percent of this population is raising children.[4]

Data compiled by the American Immigration Council[5] show that about one in 10 New Mexicans is foreign born. In 2015, 196,955 immigrants comprised 9.4 percent of the state's population. These included 92,227 women, 92,273 men, and 12,455 children. About 70 percent of all immigrants were born in Mexico, followed by China (2%), Vietnam (1.9%), and Canada (1.7 percent). In 2016, about one in nine (225,959) native-born New Mexicans had at least one immigrant parent. Albuquerque is home to a significant refugee population, many of whom are from regions of the African continent and the Middle East.

The Council estimates that about 85,000 immigrants to New Mexico were undocumented in 2014, comprising 37 percent of the immigrant population

and 4 percent of the total state population.[5] The Migration Policy Institute offers a slightly lower estimate of 68,000 undocumented immigrants in New Mexico in 2014, 90 percent of whom (61,000) are Mexican nationals. An additional 4,000 people from South and Central America are also undocumented, while 5,000 come from other regions of the globe.[6] One out of five undocumented immigrants has lived in the state for 20 years or longer, and 23,000 (37%) live in the United States with at least one U.S.-citizen child.[6]

3.2 Population Growth

Overall, population growth in New Mexico is the tenth slowest rate in the U.S. and was relatively flat from 2015 to 2016, with most growth in the Central Region.[7] More than one-third of the population is young (age less than 25), while 29 percent are 55 years and older. However, the population aged 65 and older grew 45 percent between 2005 and 2015, a trend that is projected to continue. Con Alma Foundation researchers note that the 2010 Census projects New Mexico will move from sixteenth in the nation to fourth in the percentage of people older than 65 years of age.[8] Reasons include increased life expectancy, out-migration of young people from the state, a depressed economy, and immigration of older retirees.[7,8]

4 Health Disparities in New Mexico

New Mexicans fare more poorly on many health indicators than those living in other parts of the United States. There are also wide disparities in the health status of New Mexicans themselves.[9]

4.1 Overall Health

Data from the Behavioral Risk Factor Surveillance System (BRFSS) show that more than one out of five (21%) New Mexicans considers himself or herself to be in "fair or poor health." This average masks wide disparities by county, with 35% of respondents in Hidalgo County saying that their health was fair or poor, compared to 4% in Los Alamos County. Only two counties – Los Alamos and Santa Fe (16.0%) – reported a rate lower than the national average of 17.2%. Five counties reported rates higher than 30%, including Hidalgo, San Miguel, (32.8%), Rio Arriba (30.8%), Sierra (30.3%) and Chavez (30.2%).

Disparities exist along ethnic lines, with Hispanics almost twice as likely to report fair or poor health as whites; by rurality, with 26.7% of people living in rural communities reporting fair or poor health, compared to 21.5% in metro areas; by gender; and by age, with those 65 years and older most likely to report fair or poor health. Income level was the most definitive factor influencing fair or poor health, with 42% of those with incomes less than $15,000 reporting poor health.[9]

4.2 Cardiac Health

Disparities in cardiac health between populations in the state are striking.[10] While age is an uncontrollable risk factor for heart disease death, people are living longer with heart disease, if they have the resources to care for themselves, including access to medications, health-care, and an environment that supports healthful behaviors such as physical activity and diet.

- In 2016, New Mexican men were almost twice as likely as women to die from heart disease, across age groups.
- Rates of heart disease were highest among African Americans, whites, Hispanics, Native Americans, and least among Asian or Pacific Islanders.
- Adults making $10,000 to $20,000 annually were most likely to be diagnosed with heart disease.
- Rates of heart disease diagnosis were lowest among adults with a college degree.[10]
- The heart disease mortality rate varied by county. In 2016, Sierra County had the highest rate, at 242.8 per 100,000, while Taos County had the lowest rate of 99.1 per 100,000.

4.3 Diabetes

New Mexico has one of the highest rates of diabetes in the United States, and diabetes prevalence continues to increase both in New Mexico and the nation.[11] The age-adjusted prevalence of diagnosed diabetes among adults in New Mexico was 5.8% in 1995 and had risen to 10.7% by 2016. In 2016, the crude (non-age-adjusted) prevalence of diagnosed diabetes among New Mexico adults was 11.5%.

Diabetes hospitalizations vary widely by county, with rates as high as 244 per 10,000 population in Luna County for 2012-2014, compared to 33.9 in Catron County (unstable estimate) during the same time period.

Diabetes was the sixth leading cause of death overall in New Mexico in 2015.[12] Disparities in diabetes mortality were strongly defined by race and ethnicity, as well as geography.

- Diabetes was the fourth leading cause of death among Black/African Americans and Hispanics, the fifth leading cause among Native Americans, and the seventh leading cause among Asian/Pacific Islanders.
- From 2014-2016 counties with the lowest stable mortality rates were Los Alamos, Roosevelt, and Santa Fe. The counties with the highest stable mortality rates were McKinley, Mora, De Baca, Chaves, and Cibola.

4.4 Obesity

In New Mexico, almost one out of three adults is obese (BMI >30), the 33rd highest adult obesity rate in the nation.[13] The adult obesity rate was 28.3 percent in 2017, almost double the 2000 rate of 17.4 percent in 2000 and more than triple the 1990 rate of 8.1 percent. Yet these average rates mask large differences in obesity by ethnicity, with 34.4 percent of Blacks and 31.3 percent of Hispanics classified as obese, compared to 23.9 percent of non-Hispanic whites.

Childhood obesity, likewise, is of concern for New Mexicans. One out of four 10 to 17-year-olds across the state was overweight or obese in 2016. Obesity rates were higher in children living in low-income households. More than 12 percent of 2 to 4 year old WIC participants

were obese in 2014. In terms of racial and ethnic differences, Native American children have the highest obesity rates in New Mexico, followed by Hispanic children.

4.5 Cancers

Cancer death rates in New Mexico have historically been lower than the U.S. average. Still, cancer is the leading cause of death in New Mexico, leading to almost 3,500 deaths annually (about one in every five deaths).[14]

Disparities in health-care access, health literacy, diet, and access to prevention tools (e.g. sunscreens) may make the difference between cancers that are prevented, cured (or in remission), or deadly. If detected early and treated promptly, many cancers can be cured. The detection and treatment of pre-cancerous conditions can prevent some cancers, such as cervical cancer or skin cancer, from developing.[15]

Policies regulating chemical and other environmental exposures, a healthful physical environment, and behavioral choices such as physical activity and eating a diet rich in fruits and vegetables can help prevent some cancers. However, not all New Mexicans have equal access to cancer-preventing environments.

4.6 Maternal-Child Health

Maternal and child health lay the foundations for healthy lives, beginning during the prenatal period. Three common measures are prenatal care, low birthweight, and infant mortality.

4.6.1 Prenatal care

In 2016, 63.4% of pregnant New Mexico women received prenatal care beginning in the first trimester, compared to the U.S average of 77.2%.[16] Disparities occurred by ethnicity, income level, and region. From 2013- 2016, Native American women in the state were the least likely to have access to early prenatal care (54.4% received care), followed by Hispanic women (62.2% received care). Prenatal care rates varied widely by county, as well, with women in rural and mixed rural-urban counties least likely to receive care. Education level was a strong predictor of receiving prenatal care, with college graduates being the most likely to receive care (74.4%), but still below the national average.

4.6.2 Low birth weight (LBW)

Despite the relative lack of prenatal care, birth outcomes for women in New Mexico are quite good.[17] Low birthweight (LBW) infants were born at a rate of 8.8 percent statewide, less than a percentage point higher than the national average of 8.2%. Ethnicity, income, education level, and geographic location strongly influence low birthweight rates. Black/African American women have the highest percentage of LBW infants statewide, 14.4% of all births. American Indian/Alaska Native women have the lowest rates of LBW infants. The geographic areas with the highest rates of LBW babies are in the Northeast and Metro regions.

4.6.3 Infant Mortality

Infant mortality is a significant problem in New Mexico. In New Mexico and across the nation, not all women are equally affected.[10] The New Mexico rate of 6.1 per 1,000 live births is slightly lower than the US rate of 6.3. Black/African American

women in New Mexico have the highest infant mortality rate (11.8 per 1,000 live births in 2013-2015). The next highest rate is among Hispanic women (8.1 per 1,000 live births).[18]

4.6.4 Teen pregnancy

In 2015, the most recent year for which national data are available, the New Mexico rate of 37.8 per 1,000 15-19 year old females was the 4th highest in the nation, a dubious honor the state shared with Texas.[19,20] However, the New Mexico teen birth rate for 15-19 year olds declined by 45 percent from 2010 to 2016, to a rate of 29.4 per 1,000 in 2016. That rate of decline is similar to the national decline of 41 percent.[21]

The female population ages 15 to 19 years in New Mexico is 58 percent Hispanic, and among the teens giving birth, 70 percent were Hispanic.[18] There were also wide variations in the teen birth rate by county, with the highest rate in the border-area Luna County (78.9 per 1,000 girls ages 15-19), followed by Lea (63.4) and Sierra (61.4). Bernalillo County, home of the state's largest population center, reported a rate of 25.2 per 1000 teen girls, while Doña Ana County, the second most populous in the state and, like Luna, in the border region, recorded 34.2 births per 1000 teen girls. Harding reported no teen births.

4.7 Behavioral Health

Many New Mexico residents live with behavioral health problems, including mental illness, substance abuse disorders, and frequent mental distress.[22]

4.7.1 Adult Depression

More than one out of 10 (10.2%) adults in New Mexico experienced depression in 2016. People in the southeast region of the state were most likely to experience depression (11.8%); rates were lowest in the northwest (8.3%) and metro regions (9.9%). Rates of depression were highest among Black and American Indian adults, followed by Hispanics. Whites had the lowest rates of depression in most geographic regions.

4.7.2 Substance Use

Substance use is a critical issue in New Mexico, which has had one of the highest drug overdose death rates in the nation for most of the last twenty years. Since 1990, New Mexico's death rate has more than tripled, mostly due to prescription drugs, particularly opioid pain relievers. From 2011 to 2015, 50 percent of drug overdose deaths were caused by prescription drugs, 35 percent were caused by illicit drugs, and 15 percent involved both drug types.[23]

For all ages combined, Whites and Hispanics have the most deaths due to drug overdose, 24.7 per 100,000 and 26.8 per 100,000, respectively. The highest death rates occur in the 24-64 age groups. Rio Arriba County is one of the areas most affected by drug overdose deaths, with Hispanics dying of drug overdose at a rate of almost 105 per 100,000. Whites also have high drug overdose death rates. Because of the small population sizes of many counties, it is difficult to accurately establish drug overdose death rates in much of the state.[23]

Alcohol poses a serious problem for many New Mexicans:

- Binge drinking is common among youth, with rates varying widely by geographic region, ethnicity, and income status. For instance, in Luna County in 2013, more than 30 percent of youth in grades 9 through 12 reported binge drinking in the previous year, nearly twice the state rate of 17.1 percent.[24]
- Rates for alcohol-related injury deaths have consistently been 1.4 to 1.8 times higher than the national rate for the past three decades.[25] The rate varies widely by geographic region and by race/ethnicity, with rates in Rio Arriba and McKinley counties more than 3 times the U.S. rate[26] and Native Americans dying at more than twice the rate of whites, Hispanics, and Blacks and almost five times the rate of Asian-Americans.[27]
- Alcohol-related chronic disease leads to more deaths in New Mexico than in almost any other state in the nation, about 1.5 to 2 times the national rate. While the national death rate from alcohol-related chronic disease decreased from 1990-2015, New Mexico's rate increased.[28] As for other indicators, mortality rates for alcohol-related chronic disease varied widely by county, ethnicity, gender, and socioeconomic status, with highest rates found in rural counties, Native American populations, and lower income groups.

4.7.3 Smoking

About one in five adults in New Mexico smoke, close to the national rate.[29] The adult smoking rate declined from 21.5 percent in 2011 to 17.5 percent in 2015. Yet higher rates continue to be seen in specific population groups, including people with less education and lower incomes, the uninsured, those living with disabilities, African Americans, and people who identify as lesbian, gay, or bisexual. The increasing popularity of products such as e-cigarettes, hookah, and flavored tobacco products further complicates smoking cessation efforts, as they require different intervention strategies. About 5 percent of New Mexico adults and 24 percent of New Mexico high school youth use e-cigarettes, often combining them with traditional cigarettes.

4.7.4 Suicide

For many years, suicide rates in New Mexico have been at least 50 percent higher than U.S. rates.[22] From 2011 to 2015, suicide rates among Native Americans and Whites were higher than those of other racial/ethnic groups and rural counties, like Catron and Hidalgo, had higher suicide death rates than urban counties. However, the rate has decreased since 2010 and continues a downward trend.

4.8 Oral Health

While Medicaid covers the cost of most routine dental care for low-income children and adults, shortages of dentists, especially those who accept Medicaid, often render care unavailable. Affordability is a significant barrier to receiving dental care, as private-market coverage is separate from medical plans and many people cannot afford to enroll. In addition, lack of knowledge about oral health practices contributes to high rates of dental caries and other problems in the state.

Access to oral health care varies by county.[30] Fewer adults have seen a dentist in the past year in Eddy, Sierra, Lea, Chavez, Luna, Catron, Quay and Roosevelt counties; Native Americans and Hispanics have the highest rates of tooth decay and are least likely to visit the dentist.

5 Socioeconomic Factors that Affect Health

Health inequities do not occur in a vacuum, but in the context of the families, communities, and geopolitical regions in which we live. Socioeconomic and environmental factors are estimated to make up to 80% of health status.31

Poor health status has been strongly associated with poverty, low education levels, exposure to violence, unsafe housing, and other challenging social and economic influences. The community we live in determines whether have access to fresh foods, safe places to walk, bike, and recreate, safe housing, educational opportunities, and social connections.[2,31]

Almost all data indicate that the socioeconomic portrait of New Mexico's population is grim. New Mexico has long ranked among the bottom states for earning potential, high school graduation rates, food insecurity, poverty, child health, and health insurance coverage. Approximately one-third of Native Americans and one-fourth of Hispanics in the state earn less than poverty level, as do more than one-third of residents with less than a high school degree. The median household income in the state is $45,380, less than that of the nation.[7]

Yet statistics such as averages and medians hide deep differences in the everyday lives of New Mexicans. Being a New Mexican is a very different experience for a wealthy white New Mexican living in a million-dollar home in Santa Fe than it is for an immigrant housekeeper living in one of the *colonias* in the border region of the state's southern border. A child raised in poverty in urban Albuquerque faces different challenges than one raised in poverty on a ranch in the Gila Wilderness.

The work of economist Richard Wilkinson and psychiatrist Kate Pickett provides a framework for understanding the importance of inequities in wealth to inequities in health.[32] Wilkinson and Pickett argue that the strongest influence on health status is *relative,* not absolute, lack of material wealth. They propose that health disparities are largely the result of disparities in socioeconomic status and environment: "The problems in rich countries are not caused by the society not being rich enough (or even by being too rich) but by the scale of material differences between people within each society being too big. *What matters is where we stand in relation to others in our own society*" (emphasis added).[32]

"The fundamental conditions and resources for health are: peace, shelter, education, food, income, a stable ecosystem, sustainable resources, social justice, and equity. Improvement in health requires a secure foundation in these basic prerequisites." (Ottawa Charter)

5.1 Income Distribution

Most analyses of socioeconomic factors and health focus on poverty levels, and these studies show strong connections between poverty and poor health. New Mexico fares poorly on all measures related to poverty, usually vying with Mississippi for the dubious honor of the "poorest state in the nation." In 2016, 19.8 percent of the state's population lived below the poverty line, and more children in New Mexico lived in poverty (36.2%) than in any other state. The median household income in New Mexico was $45,382 in 2016, $10,393 lower than the national average.[33]

Yet measures such as median income, even when broken down by geographic region, ethnicity, or other measures, mask the true drivers of poor health within the state. Income *inequality* has grown to almost unprecedented levels in the first decades of the twenty-first century. In 2016, according to the Economic Policy Institute, income disparities both nationally and in New Mexico reached levels not seen since the 1920s.[34]

In New Mexico, the wealthiest 1 percent of the population earns 15.6 percent more than the other 99 percent of people, representing 13.4 percent of all income in the state. The gap in income distribution in New Mexico is greater than in any other state in the US. The spread between the richest 20 percent and the poorest 20 percent is 9.9 percent.

In six of New Mexico's 33 counties, workers' weekly wages average $599 or less, in 15 counties the average wage per week is $600 to $699, in five counties average wages per week range from $700 to $799, and in seven counties, average weekly wages run $800 or more. Counties with higher average wages tend to be near the urban areas of Albuquerque, Carlsbad, Farmington, Hobbs, Los Alamos, and Santa Fe.[35] Santa Fe has the largest discrepancy in wages of any county in New Mexico.[34]

5.1.1 Strengths and Gaps

This scan identified many programs that address increasing income for those living at or near the poverty line, most providing resources and services (e.g. supportive housing) or helping people gain skills and capacity to participate in the workforce (e.g. education). Employment programs tended to operate separately from jobs creation programs, both of which were divorced from public health efforts. No programs were identified that specifically addressed *inequities* in income.

5.2 Housing

Housing is a critical factor in health status, and there are huge differences in the homes where people in New Mexico live. While some own ostentatious properties valued in the millions of dollars, others struggle to afford rent for substandard structures. The majority of New Mexicans live in safe, moderately priced homes, but many live in substandard housing and pay far too much for it.

5.2.1 Affordability

Based on federal standards, households paying more than 30 percent of their income on rent and utilities are considered "housing cost burdened." Families living in this housing situation have less money to spend on other necessities, such as food, health services, child care, gas for transport and utilities. The 2016 New Mexico KIDS COUNT report notes that one-third (31%) of the state's children live in households that have a high housing cost burden, with the rate being even higher among Hispanic children (36%).[36] These families are also more likely to move to substandard housing, which may be located in unsafe neighborhoods or contain health risks, such as asbestos and lead-based paint. As more than half (51%) of New Mexico's housing was built before 1979, substandard housing puts many children at risk of lead-based paint.[4]

New Mexico ranks thirty fifth among the states in terms of rental affordability. One out of every three people in the state rents a living space. The most expensive housing areas in the state are in Santa Fe, Los Alamos, Albuquerque, Lea County, and Lincoln County – notably, these are also the counties with the largest income gaps.[37] The NM Legislative Finance Committee has estimated that, for all New Mexicans to have safe, secure housing, the state needs to spend approximately $2.5 million more to provide 280 households with supportive housing.[4]

5.2.2 Homelessness

The NM Coalition to End Homelessness provided a Balance of State Point-In-Time (PIT) Count for 2017 (with results by county) of those staying in emergency shelters or transitional housing, and of those who are "unsheltered" (sleeping in a place not meant for human habitation).[39]

This "snapshot" count, while not considered a statistically valid survey, indicates that at that moment, approximately 1,186 people in New Mexico were homeless, 222 of them chronically so, in 2017. Of the total homeless population, 160 had children. An estimated 421 of these people were unsheltered, while 562 were found in emergency shelters (p. 3). Counties having the highest number of homeless people were, in order: Doña Ana, McKinley, Santa Fe, Chavez, and San Juan. Bernalillo County, which includes Albuquerque, was surveyed separately due to the size of its population and is thus not included in the survey.[39]

If one adds the count of homeless in Albuquerque to that of the counties, the total number of those considered homeless in the state reaches 2,504 people. Proportions of the homeless in Albuquerque include: 40 percent Hispanic; 22 percent Native American; 8 percent African American; and 60 percent non-Hispanic white. About one percent report as transgender.[38]

5.2.3 Strengths and Gaps

Multiple affordable housing programs are available in New Mexico. The New Mexico Mortgage Finance Authority provides comprehensive information and assistance to homeowners, renters, community developers, and others. Homeless service programs include federal funding for long-term solutions like

supportive housing, rapid re-housing and transitional housing.[39]

Several communities have developed strong programs for the homeless, including supportive housing, health-care, child-care, food, jobs training, employment support, and other necessary services. In rural areas, most services are provided by smaller nonprofit agencies, often faith-based, that provide a place to sleep, food, and other services. Medicaid expansion has made access to health care feasible for many people living in unstable housing situations, in some cases allowing people to address core health issues such as mental illness, drug or alcohol addiction, post-traumatic stress disorder, and physical disabilities, which may have contributed to their homelessness.

However, there appears to be little coordination between programs that address homelessness, and information about programs and the homeless population is scattered and hard to access. Solid data are difficult to find, largely because many people without homes in New Mexico may sleep in open or public spaces.[39] The last comprehensive report on homelessness in New Mexico was published in 2008 by the New Mexico Coalition to End Homelessness. Undoubtedly, there has been dramatic change in the situation of people who are unstably housed in the near decade since.

The link between housing and health is often not explicitly made in policy discussions or data collection and analysis. Housing experts are rarely included in public and population health discussions, despite the centrality of safe, secure, affordable housing to wellbeing.

5.3 Food Security

Food insecure households are defined by the USDA as "households [that] are uncertain of having, or unable to acquire, at some time during the year, enough food to meet the needs of all their members because they had insufficient money or other resources for food."[40]

According to Feeding America's May 2017 Map the Meal Gap report, 16 percent of New Mexicans are food insecure, making it the seventh most food-insecure state in the nation.[41] Food insecurity varied widely by county in New Mexico, with the highest rates in McKinley (27.2%), Luna (20.3%), San Juan (20.3%), and Sierra (20.2%) counties. Rates were lowest in Guadalupe (8.4%) and Mora (9.9%) counties.[42] However, children are proportionally more at risk of hunger in New Mexico than are adults, with 25% or 124,980 of New Mexico's children at risk of hunger. The state is second only to Arkansas in its rate of childhood hunger.[41]

5.3.1 Strengths and Gaps

The federal Supplemental Nutrition Assistance Program (SNAP) supports food security for New Mexicans, with 471,246 individual New Mexicans and 215,877 households participating through the program in 2016.[43] SNAP expenditures in New Mexico were 66,539,4000 $693,426,783 in 2016.[43] The vast majority of this money was spent in local economies.

In addition, many local activities support federal support for food security. The 2015 Farm to School Census shows a strong movement in New Mexico to connect local growers and

schools, with 505 schools participating in farm-to-school programs, serving 263,767 children.[40] The states generally temperate climate and abundant sunshine allow home or community gardens to flourish virtually year round. Strong interest in local agriculture has led to the development of multiple food justice advocacy groups. Ranching and farming is a significant component of the state's economic profile, and the history and knowledge of growing and processing food runs deep in many rural and frontier communities, as well as in Native American and Mexican-American communities. New Mexico State University, the state's agricultural college, hosts the USDA Cooperative Extension Service for the state, which offers strong support for both commercial and individual agricultural practices through.

5.4 Education

Multiple educational opportunities exist in the state, but they are not equally accessible to all New Mexicans. Disparities in access to high-quality education begin in early childhood and extend through post-graduate education. Ethnicity, immigration status, income, geography, and health status all affect education enrollment and completion rates.

While K-12 public school districts cover the entire state, many families in rural and frontier areas may need to travel significant distances to reach school. Increasingly, families in remote areas are choosing online learning opportunities, both for K-12 and higher education, which may be of varying quality and require significant financial investment.

New Mexico has seven four-year public post-secondary institutions, three of which are research universities; ten two-year branch community colleges; seven two-year independent community colleges; and four Tribal post-secondary institutions. These institutions offer a range of degrees and training programs ranging from technical and vocational certifications to graduate education.

Other factors, such as poverty, unstable housing, and exposure to violence, may harm cognitive, emotional and physical development and make it more difficult for children to succeed in school. These factors can also preclude full participation in school activities, especially extra-curricular activities that may require purchase of a uniform or other expensive equipment.

The achievement gap between higher- and lower-income children continues to grow in the state, as can be seen in the National Assessment of Educational Progress (NAEP) reading and math scores. Less than one-quarter (23%) of the state's fourth graders can read proficiently. Children from communities of color fare worse: Only 17 percent of low-income and/or Hispanic fourth graders, and 10 percent of Native American fourth graders, can read proficiently.[44] One determinant of reading skills is whether children had the opportunity to attend high-quality early childhood education or pre-school before entering kindergarten; only 40 percent of New Mexico's toddlers have this opportunity; among Hispanic children, the rate is 36 percent.[36]

5.4.1 Strengths and Gaps

Schools and public health systems have historically worked together to promote health, both through direct services such as school-based health clinics and educational programs such as nutrition and health classes. While these partnerships exist, the policy framework supporting these partnerships varies in strength throughout the state. In many frontier and rural areas, the school "nurse" may not be a licensed practitioner – and she or he may also be acting as receptionist, physical education teacher, and other roles. Or she or he may be responsible for several school in the area, spending only one day a week at each school. Data regarding school performance are collected and analyzed by the New Mexico Public Health Education Department. Yet these data focus almost exclusively on student and teacher academic performance, not wellbeing.

While multiple professional development opportunities exist for teachers and school administrators in the state, only one statewide event focused primarily on schools and health equity was identified in this search, the "Head to Toe Conference." The event takes place in Albuquerque, so people from rural areas of the state must travel to the event to participate. In both Albuquerque and Las Cruces, several schools are experimenting with provision of comprehensive, wrap-around services to students and families. However, such initiatives do not appear to have reached rural areas of the state.

5.5 Access to Health Care

Having access to quality health care is an essential component of wellbeing, accounting for about 10 to 20 percent of overall health. And while health-care coverage is often equated with access, it is only one part of true access.

Penchansky and Thomas (1981) propose that access to care is best understood as five interrelated components: availability, accessibility, affordability, accommodation, and acceptability. Without all of the five "As" people do not have full access to care. Access to care for New Mexico is mediated by the following weaknesses, strengths, and gaps:

Affordability. The Patient Protection and Affordable Care Act of 2010 (ACA) addressed affordability for many New Mexicans. Under the ACA, 89 percent of New Mexicans gained health-care coverage, reducing the uninsured rate to an historic low of 11 percent in 2016.[45] As of November 2017, 864,942 New Mexicans (41% of the population) were enrolled in Medicaid, including 251,805 in the adult Medicaid expansion program and 328,971 children in CHIP.[46] This was a decrease from a high of 905,265 –nearly half the state population – in April, 2017. In addition, 54,653 out of 133,000 eligible people gained coverage on the individual market; the vast majority had incomes 139-200 percent of federal poverty level and were eligible for cost-sharing subsidies and premium tax assistance.[45]

Current federal and state policy debates, including lack of funding for critical programs such as the Children's Health Insurance Program, make

it likely the health-care coverage rate will decrease. In October, 2017, President Donald Trump signed an executive order eliminating federal payments for cost-sharing reductions (CSRs). It is projected that premiums will rise by about 20 percent, on average, across the nation.[47,48] At the state level, proposals to add copays to Medicaid for those earning 100-138 percent of FPL may render care prohibitively expensive for this population, especially for those with complex conditions that require frequent visits to different providers. New Mexico's already sparse provider population is likely to face financial challenges and be forced to reduce services as the insured population – and hence reimbursements from Medicaid, Medicare, and private payers – decreases.

Availability: For people to access care, it must be available. Can patients make an appointment within a reasonably short time, or do they need to wait for weeks or months? More than 60 New Mexico clinics, including community health centers, have become accredited Patient Centered Medical Homes (PCMHs). A core requirement for PCMHs is the ability for patients to have questions answered 24/7.

Accessibility: *Is the care physically (or virtually) accessible?* In New Mexico, with its large rural and frontier areas, physical accessibility can be an overwhelming challenge. There are 258 Health Professional Shortage Areas (HPSAs) in the state, affecting all of New Mexico's 33 counties.[49] Of those counties, 32 have at least one type of HPSA classification. There are 39 primary care HPSA designations in the state (18 entire counties); 31 oral health professional shortage areas (21 entire counties); and 29 counties are designated as mental health HPSA. All 33 counties contain officially designated medically underserved populations (MUPs).

One group of providers "still makes house calls," increasing accessibility to services. More than 3,000 Emergency Medical Technicians (EMTs) serve in the state, the majority as EMT-Basics or EMT-Intermediates. Not every county has paramedics. Some communities are testing mobile integrated health-care and community EMS models. UNM, CNM, and Eastern New Mexico University are working with public health entities to establish a two-semester curriculum on community EMS, while Doña Ana Community College is piloting a program in which EMTs are cross-trained as CHWs.

Distance and time present barriers to accessing care, especially for working families. Lack of transportation may be an overwhelming barrier for rural residents, who may not have access to public transportation options. They may not have a vehicle available, their vehicle may be unreliable, or they may not be able to afford gasoline. Physical and cognitive limitations may decrease driving abilities. By 2030, almost one-third of New Mexico's population will be 60 years or older,[50] an age at which driving abilities start to decline. Disabilities – either chronic or temporary (e.g. a broken leg), may interfere with the capacity to drive oneself to physician visits.

Accessibility may also be linked to affordability. In rural areas of the state, health-care plans may not include local providers and acute-care hospitals in their networks. To avoid out-of-network charges, rural and frontier residents often need to travel to Albuquerque or Las Cruces to access covered care.

Acceptability: Does the provider accept the patient for who she or he is, and vice versa? Can they accept each other across characteristics such as age, sex, social class, and ethnicity, as well as the diagnosis and type of health-care coverage the client has?

Rural primary care residency programs in New Mexico, as well as health-care workforce programs such as Forward New Mexico, work to develop and retain the primary care workforce from within the state. Yet shortages persist, especially of providers who are familiar with the state's cultures, population, and idiosyncratic challenges (distance, lack of broadband, diversity, etc.).

Accommodation: Does the provider accommodate the patient's needs? Does a clinic offer appointments after working hours? Offer translation?

New Mexico boasts a robust network of community health centers, some of which offer full "wraparound services" to address clients' needs holistically. New Mexico was one of the first states to embrace technological innovations such as telemedicine and video conferencing. Project ECHO™, which originated at UNM, connects rural clinicians with specialist mentors at an academic medical center. ECHO enhances access to specialty treatment in rural and underserved areas by providing front-line clinicians with the knowledge and support they need to manage patients with complex conditions to address disparities in access to care, rising costs, and system inadequacies.

Community Health Workers (CHWs) form an important component of the New Mexico healthcare workforce, especially for marginalized communities. The "high talk" approach of CHWs can support people in their communities, helping to address social factors such as housing, paying for utility bills, access to fresh foods, and culturally appropriate health education. CHWs can also address language barriers, which is of critical importance in New Mexico, where almost one out of ten people speaks English "less than very well."[51] This rate varies from a high of 19 percent in Luna County to the lowest reliable estimate of 3.5 percent in Sierra County.

5.6 Economic Development

Ranching and mining have long formed the basis of the New Mexico economy, and natural resources remain an important contributor to that economy. Oil and gas account for more than $2 billion in taxes and other revenue for the state. New Mexico is the nation's leading producer of potash and has significant uranium resources.[52]

Extraction industries (coal, oil, uranium) do provide economic growth and (unpredictable) revenue for the state, but they have also been the cause of environmental contamination, as in the Northwest, that has led to health problems in populations living in those rural areas. In the Southeast and the border area, trade, especially with Mexico, presents many opportunities for economic growth, but can also contribute to health and environmental problems, if not carefully planned and monitored.[4] In the Southeast, farming and ranching

provide an economic foundation, but can pose environmental health risks such as chemical exposures, injury working with heavy equipment, overuse injury (e.g. from repetitive motion of bending and picking), and air quality problems.

Federal and state research funding has provided significant support for New Mexico's economy since the 1940s, when the Manhattan project at Los Alamos began.[52] Sandia National Labs was established in Albuquerque in 1948. Three Air Force Bases are located in the state, including the Air Force Research Laboratory at Kirtland Air Force Base. White Sands, NASA, and The Very Large Array. Currently, about $6 billion in federal research funding is allocated to New Mexico each year, but employment in this sector is declining with federal austerity policies. These higher-paying jobs tend to be available only to people with technical or advanced degrees.

Like the rest of the United States, New Mexico experienced an economic downturn in 2007. Economic recovery has been significant but slow, and per capita real GDP remains significantly below the national per capita real GDP. Per capita real GDP in 2015 was $41,529, 83 percent of the nation's per capita real GDP ($50,054).[52] Mining, health care and social assistance, and real estate and rental and leasing have been the top contributors to economic growth in New Mexico since 2007.

New Mexico shares a 180 mile border with Mexico, which includes three international crossings at Columbus, Antelope Wells, and Santa Teresa.[53] Santa Teresa is one of the ten largest manufacturing hubs in America, and is the port of entry for the North American Borderplex. The border area also contains approximately 150 unincorporated communities designated as colonias by the U.S. Department of Housing and Urban Development (HUD) and U.S. Department of Agriculture (USDA). Colonias are communities that lack basic infrastructure such as potable water, wastewater and sewage services, and often electricity. Most are low-income communities that lack safe housing.

5.6.1 Strengths and Gaps

New Mexico has broad potential for strong, forward-thinking economic development in a changing world.[52,53] The state's natural resources include ample sun and wind, which have the potential to contribute to the rapid development of solar and wind energy in the state. Currently, New Mexico is the 8th largest net energy supplier to the nation and uses multiple energy sources: oil and gas, solar and wind farms, geothermal, and algae and biofuel production.[53]

Public lands comprise nearly 30 percent of the state's land area.[33] Public lands include national forests, parks, monuments, and wilderness areas, state and federal forests and wildlife refuges, and lands managed by the Bureau of Land Management. Public lands substantially impact the New Mexico economy, attracting tourists and outdoor enthusiasts and supporting nearby communities. In addition, New Mexico's public lands attract new businesses and a skilled workforce, which boost economic growth in communities located near public lands.[54]

Economic development in New Mexico is supported by myriad local, regional, state, and national resources. The New Mexico Economic Development Department is responsible for leading economic development strategy in the state, while regional and local economic development efforts are fostered by a variety of local groups. Robust data and information-sharing systems are in place.

Seven Councils of Governments (COGs) work together through the New Mexico Association of Regional Councils. Each council offers support to the communities in its region, working to foster sustainable growth and community improvement through regional planning, technical assistance to local governments, and the support or administration of multiple programs provided by state and federal government. Other resources include Small Business Development Corporation (SBDC) offices located throughout the state, local chambers of commerce, and local and regional economic development corporations. Federal support for economic development is provided by agencies including the U.S. Chamber of Commerce, Housing and Urban Development, and the USDA.

Yet data and expertise regarding economic development are widely available but infrequently used in population health efforts. Economic development professionals are rarely "at the table" with public health professionals, and policymakers who design economic development policies rarely consider the impact those policies will have on population health.

5.7 Employment and Workforce

Unemployment and under-employment are consistent issues in New Mexico. Seasonal employment is common, especially for those working for the state's many national forest areas as firefighters or trail crews, and for migrant farm workers. Retail seasonal employment is also associated with holidays, and a poor holiday shopping season may leave families that depend on this annual boost in income vulnerable.

Data from the *New Mexico 2017 State of the Workforce Report*[7] show the labor force participation rate (the percentage of the civilian population age 16 and older who are either employed or unemployed but actively looking for work) has declined more than the national rate since 2011. In 2015, the New Mexico rate was 58%. This drop was greater among younger workers, ages 16-19 (from 42% to 37%) and those of middle age.

Immigrants form an important component of the New Mexico workforce. The American Immigration Council estimates that 119,556 immigrant workers (both documented and undocumented) comprised 12.7 percent of New Mexico's labor force in 2015.[5] The Migration Policy Institute estimates that, among undocumented immigrants ages 16 and older, 56% were employed, 8% were unemployed, and 36% were not in the labor force in 2014.[6]

Among ethnic groups, Native Americans had the lowest labor force participation rate (56% in 2015). Native Americans also had the highest unemployment rate (16%), compared to

the state's overall unemployment rate of around 6.6 percent. The state's Eastern region, with oil and gas downturns, has seen lower employment growth since 2014, while labor force growth was highest in the Central region, followed by the Southwestern area.[7]

The largest industry sector, health-care and social assistance, made up 16.8 percent of total employment in the state—about 25,000 jobs from 2011 to 2015. The health-care and social assistance industry has had the fourth highest growth rate among all industries. Health-care practitioners report a mean yearly wage of $74,600, higher than the all-occupation average wage of $43,100. Yet in both the health and social assistance sectors, there are many more poorly-paid positions, such as day-care teachers and home caregivers. New Mexico's educational sector had the deepest decline in employment—a loss of 2,300 jobs and negative growth rate of 2.9 percent.[7]

5.7.1 Strengths and Gaps

New Mexico's employment growth is projected to be around 7.7 percent by 2024.[7] Health-care and social assistance fields are expected to drive this growth, reaching up to 28,465 jobs—a 23.2 percent increase. Job growth will stem mostly from expansion of employment in ambulatory health care services (15,233 jobs), social assistance agencies (9,242 jobs), hospitals (3,285 jobs), and nursing and residential care facilities (705 jobs). Rural areas are likely to see lower growth rates, although they are likely to see some growth in manufacturing as well as health care.

While there is substantial evidence that stable employment contributes to good health,[55] public health efforts have focused primarily on development of the health-care workforce. Workforce development professionals are rarely part of population health discussions.

5.8 Violence

Violence is a serious problem in New Mexico. Violence affects not only the victim, but the perpetrator, families, communities, and society in general. It reduces quality of life for all and affects other social and behavioral factors that influence health.

The New Mexico Department of Public Safety is the central repository for the collection, maintenance, analysis and reporting of crime incident activity generated by law enforcement agencies in the state; it collects and reports uniform crime data.

5.8.1 Gang Violence

According to the New Mexico Gang Taskforce, the last two decades have been marked by an escalation of gang violence in New Mexico. Relatively traditional neighborhood gangs have evolved criminal gangs, moving from urban areas to statewide activities. Gangs in New Mexico move more, perpetrate more violence, and engage in more high-level criminal activities than previously.[56]

5.8.1.1 *Strengths and Gaps*

The state has limited resources to effectively address gang prevention and intervention, enforcement and re-entry efforts, and no coordinated, comprehensive efforts exist. The groups that do exist often work in silos; collaboration among public health, health-care providers, and gang prevention and intervention specialists is minimal.

5.8.2 Gun Violence

New Mexico's gun-safety ratings are among the worst in the nation.[57] New Mexico is the 10th-worst state for gun deaths, with 18.6 gun deaths for every 100,000 people in the state in 2015, 68 percent higher than the national average of 11.1 gun deaths for every 100,000 people and the seventh highest rate in the nation. Children in New Mexico ages 0 to 19 years are killed by guns at a rate almost 60 percent higher than the national average and are murdered by guns at almost 40 percent above the national average. In 2010 New Mexico ranked sixth and seventh in these measures, respectively.[57]

The Law Center to Prevent Gun Violence gave New Mexico an "F" in 2016, ranking it 29th out of 50 states for having enacted few gun-violence prevention laws.[58] No permit is required to purchase a handgun, there are no assault weapon laws, and it is legal to open carry a loaded rifle and/or handgun without a permit. Partly as a result of these lax laws, gun trafficking is also a problem in New Mexico. New Mexico had the 17th highest rate of crime gun exports among the states in 2009. In other words, guns originally sold in New Mexico were recovered after being used in crimes in other states at the 17th highest rate among the states.[58]

5.8.2.1 *Strengths and Gaps*

Law enforcement and public agencies including the New Mexico Children Youth and Families Department (CYFD) work to prevent and mitigate the effects of gun violence. Across the state, several community-based organizations advocate for gun safety. Yet these groups are rarely part of population health discussions. Gun violence is seen as a law enforcement issue, not a population health concern.

5.8.3 Intimate partner violence

Intimate partner violence is widespread and deadly in New Mexico. In 2016, law enforcement agencies in New Mexico responded to 19,746 domestic violence incidents, an 11 percent increase from 2015 (17,757).[59] Almost one out of four (37.6%) New Mexico women and one out of three (33.3%) New Mexico men report experiencing violence from their intimate partners during their lifetimes. Both rates are notably higher than the national average.

Children were present during one out of three (29%) domestic violence incidents. A total of 6,779 children were present at the scene of domestic violence incidents as reported by law enforcement, and two-thirds (66%) of the

children who witnessed these incidents were not yet adolescents (12 years and under).

Women and children are at a higher risk of becoming homicide victims in New Mexico than in almost all other states. In 2010 New Mexico had the seventh-highest rate of women being killed by men, the majority of which occurred with a firearm.[57]

Almost three-quarters (70%) of domestic violence victims identified by law enforcement were female, as were 91 percent of the adult victims served by domestic violence service providers.[59] The majority of victims of domestic violence were 19-45 years old (65%). Blacks and Native Americans were proportionally more likely to experience intimate partner violence, although the largest number of victims were Hispanic (50%).

5.8.3.1 Strengths and Gaps

The New Mexico Coalition Against Domestic Violence is the statewide organization coordinating domestic violence response, prevention, and intervention services. At least 35 organizations across the state provide domestic violence services, and most are members of the NMCADV. These programs are spread across in 24 different cities in the state. Almost all programs offer support services, while housing services are offered by 46 percent of organizations, and 38 percent offer children's services. Spanish is spoken at 75 percent of the organizations, while 9 percent offer sign language.[60]

However, data on domestic violence are unreliable, as events often go unreported, and many perpetrators are never brought to trial. Only 38 percent of events reported to law enforcement resulted in a suspect arrest in 2016. Of those cases that were heard by a magistrate court judge during that year, 79 percent resulted in acquittal.[59]

At the federal level, several challenges are emerging. Funding for the Violence Against Women Act (VAWA), the Family Violence Prevention and Services Act (FVPSA), and the Victims of Crime Act (VOCA) is at risk. Both FVPSA and VAWA have been funded at far below the levels authorized by Congress for at least 5 years. Domestic violence agencies are have not historically been part of broader discussions of health inequities and population health.[61]

6 Physical Environment and Infrastructure

There are wide disparities in the physical environments in which people live in New Mexico, and the state's infrastructure is badly in need of repair. Many public and private entities in the state address environmental issues, and several health impact assessments (HIAs) addressing the impact of environment on population health have been performed. However, the majority of environmental advocacy groups work separately from population health efforts. Integration of these efforts is necessary for true change to occur.

6.1 Air

Overall air quality in New Mexico fares better than national averages on most measures; however, the level of particulate matter less than or equal to 2.5 micrometers in diameter (P.M. 2.5) is consistently higher than the national average.[62] Health effects associated with long- and short-term exposure to PM 2.5 include premature mortality, increased hospital admissions and emergency department visits, and development of chronic respiratory disease.[63]

Annual forest fires raise PM levels in general, as do high winds in arid regions, combined with loss of vegetation. PM levels are highest in spring, early summer, and fall, during fire season and when winds are highest and humidity levels lowest. Manufacturing and mining activities also propel particulate matter into the air.

Radon and asbestos are concerns, especially in the north-central part of the state.[62] Radon is a colorless, odorless and radioactive gas found naturally in some soils and rocks. It is formed from the decay of naturally occurring radioactive materials such as uranium and thorium. Radon is the second leading cause of lung cancer (after tobacco smoking) and the leading cause of lung cancer among nonsmokers.

Asbestos, a fibrous rock that has been used in many products is common in New Mexico.[62] For many years, construction materials containing asbestos were used to build homes and buildings. Naturally occurring asbestos has been identified in at least 16 mining districts in New Mexico. Asbestos is not thought to cause problems unless it is disturbed and fibers are released

into the air. Adverse health effects associated with breathing asbestos dust (fibers) and/or ingesting asbestos is a include asbestosis, lung cancer, and mesothelioma. Mitigation standards have been established, including guidelines for contractors during demolition or renovation and identification of specific waste sites.

6.1.1 Strengths and Gaps

The New Mexico Environment Department Air Quality Bureau monitors air quality in eight regions of the state. Real-time data are available for each region and annual reports on air quality are issued. However, with the 2017 repeal of the Clean Air Act, the availability of funding and other resources to continue these resources is unclear. Air (and particulate matter) does not stop at political borders, posing policy and other challenges for New Mexico communities. While the impact of air quality on health is often discussed, air quality scientists are rarely at the table for public and population health discussions, especially in New Mexico's rural and frontier communities.

6.2 Water

New Mexico's water resources are scarce, but most New Mexicans have access to high-quality drinking water. The vast majority (90%) of New Mexicans get their water from a community drinking water system, for which the federal Environmental Protection Agency (EPA) regulates treatment standards. The NMDOH's Biomonitoring Program also examines and monitors arsenic and other contaminants found in drinking water.[64]

Water supply and quality is also relevant for economic growth and health status in the state. In 2016, approximately $66 million of 2014 water appropriations were unexpended, even though local and regional needs for water infrastructure are estimated to be from $1 billion to $3 billion to improve over 600 public water systems that are aging, of limited capacity, fail to comply with certain regulations, or have technical and management problems.[64–66] The American Society of Civil Engineers (ASCE) estimates that another $1.16 billion are needed to provide for drinking water needs in the next 20 years, and $320 million are needed for wastewater needs during that same time period.[67]

Water managers for all 16 regional water planning districts except that of the San Juan Basin in northwestern New Mexico predict shortages in drinking and irrigation supplies.[64,65] Agriculture is the biggest user of water in New Mexico. Almost 90 percent of the Rio Grande water goes to crop irrigation, and more water may be taken from ground and surface water as farmers continue pumping from aquifers that have less time to recover.[64] Projected shortages are due not only to increasing population demand for water, but also changes in rainfall, existing rights, traditional uses, demands from neighboring states, economic trends and community development. The Interstate Stream Commission has adopted two plans to try to ensure enough water to meet demand.[65]

6.2.1 Strengths and Gaps

Water programs are managed by six state agencies, one quasi-state agency, two private organizations, and the U.S. Dept. of Agriculture, with

no centrally-coordinated long-term capital outlay master plan to set priorities. Water infrastructure challenges include handling maintenance that has been deferred in the past, combining different funding programs, and ensuring projects meet community needs.[66]

The state has funded approximately $1 billion since 2002 to improve drinking water, with a focus on removing arsenic and replacing old wastewater and sewage lines. Yet no strong action has been taken toward centralizing water planning programs statewide or for review of funding projects; no single organization has oversight of water projects; and there is no centralized database or system to store all information to assist in making effective policy and budget decisions.

Eighty-eight percent of the revenues from severance tax bonds go to the state's water project fund, but in the state's current poor economy, the monies raised in this way are declining. In addition, *colonias* and tribal infrastructure funds will also gain less revenue from this source.[65,66]

Although many public and private groups are working on water quality issues, and despite recognition of the importance of water quality to health, water quality professionals are rarely included in population health discussions, and vice versa. Data regarding water quality are available, but micro-level data are often too difficult to access and interpret. Local and state policies regarding water continue to treat it as a rare but expendable resource, rather than a resource that can be conserved and used appropriately to drive economic growth and improve health status.

6.3 Transportation and Infrastructure

Much of New Mexico's transportation and other infrastructure systems are in need of investment and repair. Of New Mexico's 69,069 miles of roads, 26 percent are in poor condition.[67] The poor conditions of these roads lead to expense of $534 per motorist per year in New Mexico. Poor road conditions create barriers to accessing schools, places of work, grocery stores, health care, and other essential services. They also contain safety hazards and increase the rate of motor vehicle collisions and unintentional injuries.

Motorists face other hazards on New Mexico's roads, as well. Of New Mexico's bridges, 258 are structurally deficient, despite New Mexico spending $43.6 million on bridge capital projects in 2013.[67]

Lack of a comprehensive public transit system poses additional problems for travelers, with 17,540,050 unlinked passenger trips by bus, transit, and commuter trains in 2013. Despite the large geographic region of the state, New Mexico has only 51 public access airports.[67]

In its 2040 Plan, the New Mexico Department of Transportation identified the following challenges to transit in the state:[50]

- Addressing the transit needs of a steadily increasing elderly population. Nearly one-third the state's population will be 60 years of age or older by 2030
- Addressing the transit needs of the population as it shifts from rural areas and small towns to larger cities in the state

- Communities interested in considering mixed-use approaches to land use with transportation development
- The growing impact of international trade on the state's economy, particularly in the border region, which also means an increase in border area traffic, potentially contributing to negative environmental air and water quality

Additional infrastructure challenges for the state include:

- 512 miles of levees and 167 high hazard-potential dams. Only 30% of New Mexico's regulated dams have an Emergency Action Plan.
- 16 identified hazardous waste sites in the state.
- School infrastructure investment falls an estimated $407 million short
- Investment in public parks falls $239.4 million short

6.3.1.1 Strengths and Gaps

In its 2040 Plan,[50] the NMDOT recognizes the significant impact of transportation on health status. The plan calls for development of "multimodal access and connectivity for community prosperity," using methods such as bringing the transportation system in line with demographic trends, finding "best fit" transportation solutions for local and regional issues to meet community needs and expectations, investing in efficient transportation approaches that improve people's mobility, and helping communities achieve economic and population health.[50]

Innovative solutions to transportation challenges are emerging. For instance, in Doña Ana County, where 24 percent of the population has no vehicle, 27 percent has no driver's license, and 5 percent lacks gas money, the county has considered options such as paratransit (transport for those with disabilities who are unable to use buses) and "Dial-a-Ride" services.[4] Doña Ana and Sierra counties have also started an expanded bus project to connect Las Cruces, Anthony, Alamogordo, Hatch, Truth or Consequences, Sunland Park and Chaparral). Doña Ana's 2012 *One Valley, One Vision 2040* plan highlights an intermodal transportation system with choices and connecting transport planning with community health and economic development.

The NMDOT is examining options to improve community networks such as pretax transit passes, parking "cash out," carpool/vanpool incentives, flextime and telework policies, and state-sponsored programs to support ride-sharing and vanpooling. The NMDOT also works with some local health councils to coordinate the planning and siting of public facilities such as hospitals and health centers. With this notable exception, transportation professionals are too often not included in population health discussions, and vice-versa.

6.4 Communication Technology

New Mexico ranks 40th in the nation in terms of access to broadband, with only 7.5 percent of the population receiving direct fiber access to home or business services.[68] Fiber optics are

only available in parts of Albuquerque. This lack of infrastructure is due primarily to the expense of maintenance and upgrading requirements of the electronic component of fiber optics. State decision-makers have expressed concern that the demand is not high enough, especially in rural areas, to provide a positive return on investment.

Health-care systems in New Mexico are also affected by lack of broadband. Some rural and frontier locations still have no internet connectivity. However, connectivity is not as much of an issue among providers as might be construed.[69] The NM Department of Information Technology has increased connectivity around the state, and up 88 percent of all hospitals and approximately 53 percent of physician practices use an Electronic Health Record (EHR) system to improve collection and sharing of patient data. The adoption rate among rural/frontier area providers is closer to 35 percent, and the adoption rate of EHRs among behavioral health providers in the state is still quite low.

Health information exchanges (HIE) do not currently have the capacity to collect, analyze, and share large amounts of patient data. Multiple challenges to implementing HIEs exist, including questions of how to handle patient data integration from multiple sources, promoting adoption, integrating behavioral and physical health data as well as socioeconomic and environmental indicators, and enhancing analytic capability to handle clinical and population data. Interface costs to connect with local providers are prohibitive.[69]

6.4.1.1 Strengths and Gaps

The NM Legislature has appropriated funding for broadband deployment to public schools (which have state and federal funding resources and are the largest single purchaser of internet in the state), so that at least 92 percent of the schools now are connected by fiber, though they still have slow connection speeds. The state's colleges and universities also use a collaborative broadband network.

New Mexico has long been a leader in developing and using innovative telehealth and tele-behavioral health technology to both train health professionals and to provide patient care, including behavioral health services, to people in rural and underserved areas. The DOH is piloting a program to deliver tele-behavioral and telemedicine in frontier areas of the state through the regional Public Health Offices. New telehealth efforts are being piloted to train CHWs and provide wraparound prevention and patient education services.[69]

Internet connectivity and broadband deployment have been seen largely as drivers of economic development, and their role in population health has been underappreciated. Data tracking, analytics, and management are critical tools in population health improvement. Yet without adequate infrastructure, the capacity to gather and analyze these data remains challenged.

6.5 Open spaces

While low population density and long distances to services provide many challenges for New Mexicans, they also offer the gift of open spaces and public lands. Access to open spaces and the natural world is increasingly recognized as a core contributor to health and overall wellbeing, including physical and mental health. The benefits appear to extend beyond other influences on health such as increased physical activity, leading researchers to conclude that exposure to nature is an important component of wellbeing. For those living in urban areas, the existence of open space within cities and communities appears to have a profoundly positive impact on wellbeing, especially for vulnerable groups such as children and the elderly.[70]

Despite this recognition and the abundance of opportunities for outdoor experiences in New Mexico, children and adults living in urban or even moderately sized cities often spend most of their time indoors, rarely spending time outdoors. As a result, many children and adults are experiencing what Richard Louv, in his book *Last Child in the Woods,* has termed "nature-deficit disorder."[71] It has become the norm for children to be driven to school, rather than walking or biking; in rural communities, distances may be so great that walking is not feasible. In neighborhoods that have been affected by violence, or where vehicular traffic is heavy, children may not be allowed to play outside. Schools have sharply curtailed recess. Adults drive to work, spend the day inside, and come home to open their computers and devices.

This gap is especially deep for rural residents, who are less physically active and less likely to take advantage of access to green spaces than are their urban counterparts. While much is known about promoting use of open spaces in urban settings, knowledge about promoting active living in rural areas is limited.[72] Since much of New Mexico's population lives in rural or frontier settings, this disparity poses a significant health risk for much of the population.

6.5.1.1 Strength and Gaps

Albuquerque and Las Cruces, two urban areas in the state, offer parks, walkways, and other activity-promoting infrastructure; efforts to increase active transportation options are currently underway in both communities. For those who have access to a car or other transportation, it is a relatively short drive to access open spaces either on the city's edge or in national parks close by the cities.

Many local, regional, and statewide organizations are working to address issues in the broader environment. Yet advocacy and research groups working on the built environment are rarely included in population health discussions, and data and policy are rarely informed by health needs.

7 Summary of Current Population Health Efforts

Multiple programs and policies designed to address health disparities were identified during this review. The New Mexico Department of Health (NMDOH) is the largest public agency working to identify and address health priorities in the state; its structure is centralized, with regional and local offices throughout the state. The Dona Ana County Health and Human Services Department, the only county-level health department in the state, provides innovative programming for its region. Most Federally Qualified Health Centers also offer programs that provide patient education, disease management, and other supports. A host of private non-profit organizations, local governments, and some for-profit organizations offer programs designed to support healthful behaviors and/or access to medications and other resources, as well as an array of policy advocacy and other supports. The state's universities provide technical, research, and evaluation support, and, in some cases, have launched their own health initiatives.

The majority of programs identified through this research address specific conditions and their risk factors in isolation, rather than addressing the underlying causes of the conditions. With a few notable exceptions, there is little coordination between programs, even when interventions may overlap – for instance, physical activity may reduce the risk of heart disease, obesity, diabetes, depression, and other conditions, but each program addresses physical activity separately. Few address underlying inequities that increase the risk of the developing conditions such as obesity or diabetes, nor the difficulties of managing the condition. Most fall short of addressing the broad array of socioeconomic and environmental factors that lead to inequities in health.

In addition, there is a need for better micro-level data about chronic conditions, including obesity, diabetes, heart disease, and mood disorder, and a need to correlate those data with socioeconomic indicators. Little to no information was found regarding the cost-effectiveness of interventions (where cost effectiveness is defined as dollars spent per quality life year gained, or $/QALY).

Cross-sectoral policy needs, such as transportation, built environment, worker safety, labor rights, and food justice, are rarely considered in these programs. Public health policy efforts have had uneven success – for instance, a bill proposing a soda tax did not pass the state legislature, while legislation allowing organizations to operate syringe exchange programs and the prescription of naloxone by standing order was enacted in 2017.

Cancer prevention programming is typical of the efforts to address health disparities identified in this review. Most cancer prevention programs operate at the clinical level. Screening programs focus on the important work of improving access to cancer screening and diagnostic services and helping people access resources for treatment when necessary.15 Prevention efforts – such as provider education to increase HPV vaccination rates – also focus on clinical interventions.

Such an approach is necessary, but not sufficient. Few public health efforts address inequities and environmental factors that could lead to cancers, although environmental advocacy groups are well versed in the potential health impacts of proposed environmental policies (e.g. mining, water, air). There is a critical need for robust, community-level data regarding cancers and environmental exposures, the impact of social inequities on access to clinical prevention, treatment, and outcomes, and more. And there is a need to assess and advocate for policies across all of these sectors that will reduce cancer rates.

7.1 Accountable Health Communities

While many programs remain issue-focused, several intersectoral, collaborative programs are emerging. One promising model currently being developed in Bernalillo County is the Accountable Health Communities (AHC) model, which is designed to integrate clinical care with public health and social needs interventions.

The AHC model is a way to bridge the gap between medical care, public health, and social services. The AHC framework promotes clinical-community collaboration by calling on clinics to screen patients for unmet health-related social needs and refer them to appropriate community services. Typical screening questions include inability to pay utility bills, lack of transportation, and difficulty accessing fresh foods. Providers also help high-risk patients navigate access to services. Clinical and community service providers must work together to align services and assure that community services are available and responsive to community members' needs.

The New Mexico Health System Innovation Plan calls for the development of a statewide system of AHCs. The plan envisions regionally-driven and administered, public-private collaboratives structured in response to community needs and input. Existing service entities, such as the DOH Regional Health Promotion Teams, the University of New Mexico Health Extension Rural Offices (HERO) program, local health councils, and Cooperative Extension offices could serve as wellbeing hubs to implement backbone functions for regional AHCs, although other options, such as a local government agency, might be preferred. These backbone hubs could help handle administrative, cooperative, and financial functions to allow the greater AHC membership (key, multi-sector community stakeholders acting in common to address health issues) to undertake strategic health promotion activities.

8 Gaps that NMPHI Can Fill

This analysis has revealed significant strategic gaps in the tools and resources needed to address health inequities in New Mexico. Public health often focuses on individual health issues, developing interventions that target a specific disease state or prevention problem (such as diabetes, cardiac disease, substance abuse, or vaccinations). In contrast, a population health approach focuses on socioeconomic and environmental inequities as the underlying causes of health inequities.

The key socioeconomic and environment indicators described in this report have been linked to population health status and, in Wilkinson and Pickett's model, can be construed as the result of deep inequities in wealth and the perception of it. Achieving health equity will require creative strategies to address disparities, starting with a close examination of how they are defined.

Such an approach will require strategic rethinking of traditional approaches to health improvement. Cross-sector collaboration, community involvement, supportive policies, and information are essential. Through the examination of both health and socio-economic/environmental inequities in this report, three core gaps have emerged:

1. *Convening*: People need to be brought together, across sectors and roles, to address inequities.
2. *Data*: There is a need for neighborhood-level data, the capacity to compare data from disparate sources, the infrastructure to collect them, and the skills and resources to analyze and use them.
3. *Policy*: The lack of a comprehensive, strategic approach to enacting policies that will improve wellbeing for all New Mexicans.

The NMPHI recognizes that it cannot fulfill any of these gaps in a vacuum. Groups throughout New Mexico have begun to address these needs, and the NMPHI has

invited key partners and stakeholders to be a part of the solution since its inception. The NMPHI has worked to identify what is already being done to address the gaps and where it can support these efforts. The NMPHI can be especially effective in bringing together the many local and regional initiatives that have potential to be scaled up to a statewide level. New Mexico is a leader in many areas, such as community health analyses and the use of innovative preventive strategies to address in serious health issues such as the opioid epidemic. The NMPHI will continue to work collaboratively with other initiatives that have similar missions to improve health equity in New Mexico.

The NMPHI will most effectively address its mission of reducing health and other inequities in the state by building its internal and external capacity to address these gaps. An initial assessment of the needs and potential roles for NMPHI follows.

8.1 Convening

The number, breadth, and ingenuity of organizations and individuals working to address health, social, economic, and environmental issues in New Mexico attests to the deep commitment that many New Mexicans feel to their state. Many people recognize that wellbeing for all New Mexicans will improve only when the deep inequities that shape life in New Mexico are addressed. Yet few organizations are working collaboratively toward sustained goals of reducing inequities across social, economic, and health goals; too often, these groups are working alone and see others working on the same issue as competitors, not partners. Competition for limited funding further diminishes the possibility of collaboration.

The many resources identified through this research, both formal and informal, need to be integrated and coordinated. In several instances, coalitions have begun to form but faltered, often because they lack knowledge about coalition building and nonprofit development and leadership, including governance, resource development, and management.

Despite increasing awareness of the importance of socioeconomic and environmental factors on health, programs, practitioners, and funding agencies continue to work in silos. For instance, several agencies are currently funding opioid harm reduction programs that involve community distribution of the opioid reversal drug naloxone. But little, funding or energy is being directed toward prevention, treatment, and recovery programs, especially outside of Bernalillo, Santa Fe, and Doña Ana Counties. Even less energy is being directed toward addressing the broader community and cultural factors that create conditions that facilitate opioid misuse.

Several promising efforts to create collective action have begun but stopped. For example, the state was awarded a State Innovation Model design grant from the Centers for Medicare and Medicaid Services (CMS) in 2014. An extensive information gathering period was conducted, including community forums that involved hundreds of community members, economic modeling, a literature search, and expert input from other states. A comprehensive plan that envisioned a statewide AHC model that integrated clinical and public health systems, based on community-driven priorities and care, was developed and presented. However, federal funding

for statewide implementation of the design became unavailable about halfway through the process. However, many communities have used the work of the Health Systems Innovation report to pursue federal funding for development of local and regional AHC models.

One of the strongest resources in New Mexico for community-driven strategies to address social and health inequities has been the New Mexico Alliance of Health Councils, a statewide network of community health councils developed in 2010. Community health councils perform local and county-wide health assessments, identify priority health issues, and develop plans to address them. However, reduced state funding for the councils has resulted in diminished and uneven capacity statewide; while some councils, such as the relatively well-resourced Bernalillo County council, continue to do innovative work, several councils are now barely active.

Across health issues, the story is often the same. People who are working on the same issue often do not talk to each other about who is giving money to whom, how they can coordinate efforts across the spectrum of prevention, treatment, and recovery, nor how to address the underlying economic inequities that make health inequities virtually inevitable. There is a critical need to bring limited resources together and identify strategies to address the issues that public health practitioners grapple with daily, and to begin the conversations between funders, public health practitioners, clinical providers, government and nonprofit agencies, and the communities affected by those problems.

In a rather circular (and ironic) loop, inequities extend to the very processes often used to address inequities in health. Many communities do not have the infrastructure, including knowledgeable staff, to prepare proposals that meet state funding requirements. As one participant in a forum in Gallup pointed out, marginalized communities may face obstacles to obtaining funding at the level of the request for proposals – such as identifying required evidence-based interventions. Often, there is no such evidence base for many marginalized populations, because few studies have tested interventions in those populations. Further, since very few funders are willing to support development of nonprofit capacity, including basic infrastructure and operations, small organizations, especially those in rural communities, repeatedly find themselves unable to even respond to requests for proposals that could greatly benefit their communities.[73,74]

8.1.1 What Role Could NMPHI Play?

NMPHI has the potential to step into this significant gap and address the critical need for neutral convening and coalition building throughout the state. NMPHI could do so both as a neutral convener and facilitator for communities as they discuss complex social issues and by building the capacity of existing groups to convene and facilitate such discussions. Some ways in which NMPHI could address this gap:

- Provide technical assistance and training in facilitation, coalition building, and leadership to communities and issue-focused groups around the state
- Host an annual conference to bring sectors and actors together. Include funders, advocacy groups, elected officials, government representatives (e.g. county or city managers, department heads), health-care professionals, and community members.

Inequity in access to data – and the ability to use those data to effect community change – deepens the health, socioeconomic, and environmental inequities in our communities.

- Support establishment of cross-sectoral collaborative groups at the local, regional, and statewide levels
- Assist local collaborative groups to develop infrastructure, funding and other resources, and strategic and action plans

8.2 Data

A significant gap in addressing health inequities in New Mexico lies in the availability and accessibility of relevant data and the capacity to gather, analyze, disseminate, and act on it.

The health-care industry relies mainly on patient records and claims data for information, while public health tends to combine quantitative outcomes data with population health data collection methods such as surveys and focus groups. Both methods have gaps, and a population health challenge rests in finding ways to blend both types of data, find common metrics, and use better analytics. Such a system could define population characteristics and health status, track impact of prevention or treatment interventions, and help identify at-risk patient populations and inequities in care.

The New Mexico Indicator Based Information System is the state's most comprehensive source of public health surveillance data. Most data are available at the county level, and some indicators are broken out into small area (e.g. zip code). Yet neighborhood level data are often unavailable or unreliable. For instance, in one county, local ambulance data is being used to inform attempts to support people with diabetes who frequently call EMS for assistance with diabetic emergencies.

Yet the more granular local data required to identify specific community and neighborhood issues is frequently unavailable. Larger communities may have the capacity to develop data systems, but smaller communities may have difficulty finding the resources to establish surveillance or other systems. The one source of micro-level data in the state, the New Mexico Community Data Collaborative, has partnered with the NMPHI and has been an essential contributor to its work thus far.

As more data become available or accessible, public health and health-care practitioners and policymakers at all levels may find themselves overwhelmed. Local providers, policymakers, and community members often lack the ability or time to effectively analyze, synthesize, and interpret findings, and to disseminate that information to specific audiences in a meaningful way. Of equal importance is the lack of ability to convert data into action, and to evaluate the effectiveness of the results of decision-making.

One promising model for translating data to action is the Learning Healthcare System, which is defined by the (Institute of Medicine) (IoM) as a system in which, "science, informatics, incentives, and culture are aligned for continuous improvement and innovation, with best practices seamlessly embedded in the delivery process and new

knowledge captured as an integral by-product of the delivery experience."[75] (2015). The LHS is comprised of three major components[76]:

- Afferent: This is the part that assembles data from multiple sources, analyzes it, and interprets the findings. Think of it as "incoming."
- Efferent: This is the part that feeds the findings back into the system, using various formats. Ultimately, the findings are used to change practice, which requires cultural, procedural, and policy shifts.
- Scale: Learning Healthcare Systems can be of any size. For instance, an emergency department that uses the findings to predict peak busy times for staffing purposes. Or it could be a regional, statewide, or national network of interconnected data retrieval and analysis systems.

Ultimately, Learning Healthcare Systems are a fluid and dynamic way to collect and use data to effect change. The model is exciting because it combines big data with real-time learning, creating an ongoing stream of information that people can use to understand treatment options, address organizational culture, streamline systems, and improve patient care.

In New Mexico, a variety of health plans, public health officials, employers, and practitioners are interested in moving forward with access to dynamic and usable data. NMPHI could play an important role in responding to this need by integrating population health and clinical data. A "Learning Health Equity System" could combine clinical data with socioeconomic and environmental data, creating a responsive, virtually real-time pathway to addressing the many inequities identified in this report.

This system could allow the clinician to identify environmental hazards – for instance, a child with repeated exacerbations of asthma, an address search might reveal high levels of particulate matter in the region. Conversely, a learning health equity system could allow community members to share experiences and information about environmental concerns, economic development, income disparities, and other socioeconomic and environmental factors that influence health. For instance, a community group with access to data could find "hot spots" of substandard housing, joining together across different neighborhoods to strategize and demand action from elected officials.

Even highly sophisticated data collection and analysis methods risk missing some of the issues that matter most, creating a "digitized" version of the self that some scholars have termed "the quantified self." There is an urgent need to develop expertise in qualitative data collection and analysis. Public health professionals' experience with focus groups and interviews should be complemented by interdisciplinary expertise (e.g. social sciences such as medical anthropology, humanities disciplines such as literature), yielding rich sources of qualitative data that could be integrated into data collection and analysis.

8.2.1 What Role Could the NMPHI Play?

The NMPHI can be a leader in strengthening data systems and helping New Mexico communities gain access to the information they need to make the policy, funding, and other choice they need to support wellbeing for all residents. Potential actions include:

- Further strengthening the NMPHI partnership with the New Mexico Community Data Collaborative
- Collaborating with ongoing efforts in the state to develop health-care information exchanges to ensure data regarding socioeconomic and environmental factors are integrated and used
- Building internal capacity to provide training and technical assistance in both quantitative and qualitative data collection, analysis, and dissemination techniques.
- Aligning population health data with clinically-based "learning health systems," to ensure that public health practitioners, providers, community members, and policymakers have access to timely, accurate, actionable information in useable formats.
- Collaborate with the New Mexico Department of Health Bureau of Epidemiology and Response to identify strengths and gaps in the state's surveillance activities

8.3 Policy

Policies can help to shape inequities in society, either reducing or widening the gaps between those who have access to the resources they need to live full and meaningful, healthy lives and those who do not. Across organizational, local, state, and national levels, policies shape our lives. While public health practitioners tend to look at policy only as it pertains to health or health care (e.g. vaccination policies in schools or Medicaid reimbursement rates), every policy, from those regulating payday loans to garbage pickup day, has an impact on health equity.

Policies affect people from different parts of New Mexico differently. For instance, Native American communities face a confusing array of bureaucratic issues as they navigate the differing requirements of Tribal government, the Indian Health Service, state regulations, and the federal government. Boundaries and borders often present issues. For instance, many people from the Navajo Nation live in the Four Corners area, which encompasses Utah, Colorado, Arizona, and New Mexico (the Navajo Nation does not extend to the Four Corners region of Colorado). They often need to navigate an extra complex web to access health-care and other resources. Because Medicaid and other programs are enacted and regulated differently in each state, they may find themselves eligible for some services in one state and different services in another.

One global initiative has great potential for the NMPHI's future work. In recognition that every policy has an impact on health, in 2006, the European Union created a coordinated approach policymaking, which they called Health in All Policies (HiAP). HiAP is defined by the California Public Health Institute as a "collaborative approach to improving the health of all people by incorporating health considerations into decision-making across sectors and policy areas."[77]Several HiAP initiatives have begun in New Mexico – for instance, the Doña Ana Wellness Institute held a luncheon and training in 2016; the New Mexico Public Health Association has offered trainings and shares materials via its website; and staff at the NMDOH has indicated interest in pursuing the HiAP approach – but no HiAP resolutions or active initiatives were found during this review.

The HiAP model can be applied at multiple levels, from organization to neighborhood to city to county to state to federal. However, most participants in HiAP initiatives need training, technical assistance, evaluation assistance, and support acquiring funding and other resources.

8.3.1 Current Policy Efforts in New Mexico

Many organizations in New Mexico work to address policies around health, social justice, food justice, and other sectors. Universities provide training and research opportunities for students interested in regional and national policy. Other organizations focus on educating and informing policymakers and the public about the impact of proposed policies on specific populations (e.g. children, people with disabilities, specific ethnic populations) or issues (e.g. universal health coverage).

It is notable that, among this lengthy list of policy-focused organizations, very few are working to address socioeconomic and environmental inequities. While several organizations in the state do address social justice, food insecurity, economic development, education, and social factors, they often do so outside of the realm of health. Those that do focus on health tend to address health care, rather than population health. Even more troubling, few concerted, mutual efforts were identified between policy think tanks, especially across sectors. Some promising efforts, such as the New Mexico Public Health Association's Health in All Policies initiative, have been stymied for lack of funding.

In other words, there is no coordinated, overall approach to developing policies that improve the health and wellness of New Mexico's people.

8.3.2 What Role Could NMPHI Play?

NMPHI has the potential to bring together existing expertise, including constituents active in or affected by policy in the state and link policy, socioeconomic and environmental inequities, and health disparities. A core function for NMPHI is to support priorities in health policy to improve the health of the population

Suggested roles for NMPHI include:

- Provide technical expertise to communities, regions, and the state in developing HiAP models at the local, county, and state levels
- Include data-informed policy discussions in all of its convening work
- Provide and support data-informed policy priorities to decision makers at all levels of government
- Develop the internal expertise to analyze and respond to policy proposals in terms of their impact on health inequities in partnership with the New Mexico Equity and Policy Institute
- Create public-facing tools for policy education and discussions, via social media, traditional media, helping communities to establish face-to-face forums, and other means.
- Provide training to legislators, officials, health-care providers and others in the development of health policy and the principles of health systems with a goal of addressing the spectrum of population health issues

9 Resources

9.1 General Resources

The Asset Based Community Development (ABCD) Institute https://resources.depaul.edu/abcd-institute/Pages/default.aspx: The ABCD Institute considers local assets as the primary building blocks of sustainable community development. Building on the skills of local residents, the power of local associations, and the supportive functions of local institutions, asset-based community development draws upon existing community strengths to build stronger, more sustainable communities for the future.

The Community Guide https://www.thecommunityguide.org/: The Guide to Community Preventive Services (The Community Guide) is a collection of evidence-based findings of the Community Preventive Services Task Force (CPSTF). It is a resource to help you select interventions to improve health and prevent disease in your state, community, community organization, business, healthcare organization, or school.

County Health Rankings & Roadmaps. http://www.countyhealthrankings.org/ A collaboration between the Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute, County Health Rankings and Roadmaps is an invaluable source of data and evidence that local communities can use to improve health, as well as guidance on how to use those tools.

The Changing Public Health Landscape. http://nacchoprofilestudy.org/wp-content/uploads/2017/10/2017-Forces-of-Change-Main-Report1.pdf Results from the 2017 Forces of Change Survey, conducted annually by the National Association of County and City Health Officials (NACCHO). Since 2008, NACCHO has surveyed local health departments to assess the effects of the Great Recession. This updated version of the survey has been expanded to include more general issues faced by local health departments, including the spread of infectious diseases and increasing recognition of the need for collaboration across sectors.

The Health Inequalities Assessment Toolkit. http://www.clahrc-nwc.nihr.ac.uk/our-work/HealthInequalitiesAssessmentToolkit.php This toolkit provides a mechanism for assessing the potential for specific research projects and programs to reduce health inequalities. While designed specifically for work performed within the Collaboration for Leadership in Applied Health and Care (CLAHRC) at Liverpool University, the concepts and processes in the toolkit are applicable to New Mexico.

9.2 Convening and Collaboration

Collaborating for Equity and Justice. https://nonprofitquarterly.org/2017/01/09/collaborating-equity-justice-moving-beyond-collective-impact/ This document introduces a set of six principles "to facilitate successful cross-sector collaboration for social change in a way that explicitly lifts up equity and justice for all and creates measurable change." The principles were developed by organizers and researchers with decades of experience in a wide range of fields. Instead of proposing a specific model or methodology, they we offer principles linked to web-based tools that can be incorporated into existing and emerging models and methodologies. The accompanying toolkit can be found at: https://www.myctb.org/wst/CEJ/Pages/home.aspx

Community-Wealth.org. https://community-wealth.org/: Community-Wealth.org brings together information about the broad range of community wealth strategies, policies, models, and innovations. The site is built upon the proposition that above all, practitioners, policy makers, academics and the media need solid, cross-cutting information and tools that can help them to understand and support the expansion of these institutions. Across-the-board information, experience, and expertise can also contribute to creating a favorable policy environment in which community wealth approaches are more fully legitimized, recognized, and appreciated as meaningful to the revitalization of our communities.

The Community Tool Box. http://ctb.ku.edu/en A free, online resource for those working to build healthier communities and bring about social change. The tool box offers thousands of pages and more than 300 modules and tools describing the processes of community assessment, planning, intervention, evaluation, advocacy, and other aspects of community practice. Under continuous development since 1994, the Community Tool Box is widely used in teaching, training, and technical support. It is available in English, Spanish, and Arabic.

Using a Population Health Driver Diagram to Support Health Care and Public Health Collaboration. https://nam.edu/perspectives-2015-using-a-population-health-driver-diagram-to-support-health-care-and-public-health-collaboration/ This report, issued by the Institute of Medicine of the National Academies, describes the use of a population health driver diagram framework that can be used to align the work of public health and health care sectors. The framework relies on public health and health care to work collaboratively rather than competitively, offering far-reaching potential for both the sectors and the communities they serve.

Partnership Assessment Tool for Health https://www.chcs.org/resource/partnership-assessment-tool-health/ The Partnership Assessment Tool for Health (PATH), designed for CBOs and health care organizations in existing partnerships, provides a template to: (1) understand progress toward benchmarks characteristic of effective partnerships; (2) identify areas for further development; and (3) guide strategic conversations. The objective of the tool is to help partnering organizations work together more effectively to maximize the impact of the partnership.

9.3 Policy

For the Public's Health: Revitalizing Law and Policy to Meet New Challenges. http://www.nationalacademies.org/hmd/Reports/2011/For-the-Publics-Health-Revitalizing-Law-and-Policy-to-Meet-New-Challenges.aspx This 2011 report from the Institute of Medicine remains the "gold standard" in assessing the impact of policies across sectors on population health. For the report, which was developed at the request of the Robert Wood Johnson Foundation (RWJF), the IOM reviewed statutes and regulations prevent injury and disease, save lives, and improve the health of the population. The IOM examined the legal and regulatory authority for public health activities, identified past efforts to develop model public health legislation, and described the implications of the changing social and policy context for public health laws and regulations.

Health in All Policies. https://www.apha.org/topics-and-issues/health-in-all-policies This page from the American Public Health Association provides an overview of Health in All Policies tools, examples, and other resources.

NACCHO Policy Recommendations. https://www.naccho.org/advocacy/activities An interactive site that provides all position statements from the National Association of County and City Health Officials. Essential for any individual or organization working to influence local, state, or federal health policy.

National Partnership for Action to End Health Disparities: National Stakeholder Strategy for Achieving Health Equity https://minorityhealth.hhs.gov/npa/templates/content.aspx?lvl=1&lvlid=33&ID=286 The National Stakeholder Strategy for Achieving Health Equity provides a common set of goals and objectives for public and private sector initiatives and partnerships to help racial and ethnic minorities -- and other underserved groups -- reach their full health potential. Local groups can use the National Stakeholder Strategy to identify which goals are most important for their communities and adopt the most effective strategies and action steps to help reach them.

9.4 Data

Manual for Citizens Scientists Starting or Participating in Data Collection and Environmental Monitoring Projects. http://environment.law.harvard.edu/wp-content/uploads/2017/09/HLS-Env-Clinic-Citizen-Science-Manual-Sept-2017-FULL.pdf This manual, developed by researchers at the Emmett Environmental Law and Policy Clinic at Harvard University, provides an outline of how citizens can collect, generate, analyze, and distribute information to help protect their own communities and the environment. The Manual also contains an overview of relevant laws and regulations, as well as technical suggestions regarding data collection, analysis, and compliance with relevant scientific and quality standards.

Headwaters Economics: Populations at Risk. https://headwaterseconomics.org/tools/populations-at-risk/about/ A free tool that can be used by anyone to generate information about at-risk populations.

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