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# Title V Needs Assessment Update 2022-2023

A Review of Emergent Literature Concerning the Public Health Workforce and Broadband Access

Michigan Public Health Institute CENTER FOR HEALTHY COMMUNITIES

## Introduction

Each year states provide an annual update to their Title V Maternal and Child Health (MCH) Block Grant in relation to the Five-Year Needs Assessment. In 2022-2023, the public health workforce and broadband access emerged in Michigan as areas of need and opportunity within the systems serving the MCH population. This report summarizes the findings of Michigan's needs assessment update focusing on these system issues.

The public health workforce plays a critical role in promoting and protecting the health of communities and is responsible for a range of essential services, including disease prevention and control, environmental health, emergency preparedness and response, health education, and health policy development. The workforce includes professionals, such as doctors, nurses, epidemiologists, obstetrician-gynecologists, pediatricians, dentists, health educators, home visitors, community health workers, researchers, and other health specialists. These professionals are essential in delivering services that protect and promote the health of individuals, families, communities, and populations and played a significant role during the COVID-19 pandemic. However, the pandemic placed considerable pressure on workers in the field and highlighted significant gaps in capacity and infrastructure, including gaps in MCH programs and services. The effectiveness of the MCH workforce is critical to achieving the goals of MCH programs, which are essential to community health and wellbeing. MCH programs aim to reduce maternal and infant mortality; increase birth equity; improve access to quality care; promote healthy behaviors among women, infants, and children; support healthy development; reduce injury and violence; increase physical activity; improve care and transitions for children with special health care needs; and promote psychosocial wellness. A well-trained, well-supported workforce is essential to achieving these aims; however, the pandemic placed extraordinary strain on public health professionals and disrupted access to and delivery of essential MCH programs and services.

The pandemic also highlighted the importance of broadband internet access which has altered the way people interact with the world. Given the rise of telehealth and other digital health technologies, broadband access and high-speed internet connection have become critical in enhancing health outcomes and decreasing health disparities. This trend towards home-based services greatly benefits populations that have difficulty traveling to appointments. However, to use telehealth services, one must rely on broadband internet access. Many households lack access to broadband which can lead to further disparities and exacerbate existing health inequities.

This literature review seeks to investigate the status of workers in the public health system and broadband access in Michigan. In particular, the review will focus on the impacts among people of childbearing age, pregnant people, infants, children, adolescents, children and youth with special health care needs, and communities that are under-resourced.

# Public Health Workforce

The public health workforce is essential to protecting and promoting health and wellbeing for Michigan's population of over 10 million people. The COVID-19 pandemic exerted significant pressure on the public health system, including the maternal and child health system, and highlighted gaps that were compounded by the lack of investment into the state's public health infrastructure, which has been understaffed and underfunded for many years (Bridge Michigan, 2023). The Citizens Research Council of Michigan (2018) found that Michigan ranked 37th in state public health funding per capita during FY 2012 (\$17.41 per capita) and in each subsequent fiscal year, Michigan remained among the states investing the least amounts in public health. This underinvestment has hindered the ability of state and local health departments to respond to public health emergencies and provide essential services, such as prenatal care, leaving Michigan behind the rest of the country in terms of per-capita funding for public health and measures of population health.

The strain on Michigan's public health infrastructure is further exacerbated by several other challenges facing the public health workforce. One of the biggest challenges is the shortage of public health professionals in the state. According to a report by the National Public Health Information Coalition (NPHIC), there is a significant nation-wide shortage of public health professionals, especially among nurses (NPHIC, 2021). A study on the registered nurse workforce reported that 37 out of 50 states will experience significant nursing shortages by 2030. Michigan is among the 37 states, ranking 29<sup>th</sup>, and is projected to lose 12,960 registered nurses by 2030 (Zhang et al, 2018). Michigan is also among the top 10 states with the highest number of dental health, mental health, and primary care Health Professional Shortage Area (HPSA) designations. HPSA designations are used to identify areas and population groups within the United States that are experiencing a shortage of health professionals. The primary factor used to determine a HPSA designation is the number of health professionals relative to the population with consideration of high need. Michigan ranked 5<sup>th</sup> in the highest number of mental health HPSAs, after California, Texas, Arkansas, and Missouri. The state ranked 6<sup>th</sup> in the highest number of primary care HPSAs and 7<sup>th</sup> in the highest number of dental health HPAs (HRSA, 2022).



#### Figure 1. Primary Care Health Professional Shortage Areas (HPSAs)

Source: Health Resources and Services Administration (HRSA), U.S. Department of Health & Human Services, 2022

According to 2022 data from the Health Resources and Services Administration (HRSA), 55 of 83 counties in Michigan (66%) were considered whole area dental care shortage areas. As seen in Figure 2 below, the number of full-time equivalent (FTE) dentists at Federally Qualified Health Centers in Michigan decreased from 159 in 2019 to 135 in 2020, according to data from the Uniform Data System (UDS). There was a modest gain in 2021, but the three-year trend was generally downward (2019-2021). Moreover, clinic visits and dental services followed a similar pattern (HRSA, 2019-2021). This drop is likely attributable to the pandemic's effect on the oral health workforce. Due to safety concerns, the pandemic caused the temporary closure of numerous dental clinics and a decline in patient visits. In addition, the economic slowdown induced by the pandemic may have resulted in a decline in demand for dental services, as individuals prioritized critical expenses (Kranz et al, 2021).



Figure 2. Michigan Federally Qualified Health Center (FQHC) Dental Staff Full Time Equivalent (FTE), 2019-2021

A higher percentage of counties (71%) were considered whole area primary care shortage areas, while 86% of counties in Michigan were considered whole area mental health shortage areas. According to a study funded by the Michigan Health Endowment Fund about the accessibility of behavioral health care in Michigan, the prevalence of mental illness in Michigan increased between 2016 and 2019. Given that the study was conducted just prior to the pandemic, the total population of individuals experiencing any mental illness (AMI) likely increased since then. The study also claimed that access to care also improved within the same time frame "as measured by the share of those with any mental illness (AMI) who received outpatient or residential treatment." However, it is not clear if access continued to improve at the same rate post-pandemic. The study also acknowledged that access gaps varied by region within the state.



#### Figure 3. Dental care, primary care, and mental health HPAs, by County, 2022 – Michigan

Source: Health Resources and Services Administration (HRSA), U.S. Department of Health & Human Services, 2022

Although these shortages were observed before the pandemic, they were exacerbated by stressors placed on the workforce during the pandemic. Several factors contribute to the shortage of public health workers in Michigan, including:

- Burnout, Stress, and Trauma: The pandemic prompted widespread observations of healthcare worker burnout, exhaustion, and trauma, resulting in adverse physical and mental health outcomes. Potential contributing factors include but are not limited to long hours and the emotional toll of caring for patients, workplace threats and violence, and systemic factors such as the regulatory and policy environment, payer requirements, and the introduction and use of new technologies. According to the 2021 Public Health Workforce Interests and Needs Survey (PH WINS), nearly 1 in 3 public health employees are considering leaving their organization within the next year (de Beaumont Foundation, 2021).
- Aging Workforce: The public health workforce in Michigan is aging, with a significant number of workers nearing retirement age. This trend is expected to continue, leading to a significant loss of experienced workers in the next decade (Bridge Michigan, 2023). According to the PH WINS, 50 percent of all workers planned to leave their current jobs during the next five years, whether for retirement or other reasons (Hare et al, 2022). In addition, the majority of public health professionals who responded to the PH WINS survey have been in their present position for less than five years, and around a third have been in the field for less than five years. Furthermore, with a high percentage of the workforce indicating a desire to leave their organization, agencies with limited institutional knowledge from the COVID-19 pandemic response may be left unprepared for future emergencies (Hare et al, 2022).
- Lack of Funding: Public health departments in Michigan have faced significant budget cuts in recent years, leading to a reduction in workforce and services. According to the Michigan League for Public Policy (MLPP), between 2006 and 2016, state funding for public health programs declined by 26%, resulting in the loss of 1,000 public health positions (MLPP, 2021). This trend is expected to continue, making it difficult to address emerging public health threats.

The need for additional specialized skills and training is another obstacle facing the public health profession in Michigan. There is a demand for public health professionals with specific skills and training in areas such as epidemiology, biostatistics, and health informatics due to the increasing complexity of

public health concerns. Finally, there is a need for a more diverse public health workforce in Michigan. According to the PH WINS, the public health workforce is not representative of the communities it serves, particularly in terms of race and ethnicity. This lack of diversity can limit the effectiveness of public health programs and services in reaching and engaging communities of color. The report recommends focusing recruitment and retention efforts on increasing diversity, keeping talented workers with public health experience, and reducing stress, burnout, and other negative workplace variables (Hare et al, 2022).

## Maternal and Child Health Workforce

The Maternal and Child Health (MCH) workforce in Michigan is critical to achieving the state's MCH goals. Professionals in fields such as obstetrics, pediatrics, nursing, social work, and public health all support the MCH workforce. The Michigan Department of Health and Human Services (MDHHS) reports that MCH specialists are in limited supply across the state, especially in rural areas (MDHHS, 2020). By 2020, it was estimated that the U.S. will have a shortage of 6,000-8,800 obstetricians and gynecologists (OB-GYNs) with a projected increase in that shortage to 22,000 by 2050. In rural areas, where many counties lack practicing OB-GYNs, the shortage is even more severe. The shortage of MCH providers in rural areas in Michigan has far-reaching consequences for the health and well-being of mothers and their children. A report by the Centers for Medicare and Medicaid Services shows that rural mothers have a higher risk of maternal mortality and morbidity than their urban counterparts due to the lack of access to high quality healthcare services. In addition, children in rural areas face significant barriers to accessing essential health care needs. This, in turn, can lead to poor health outcomes and developmental delays, affecting the long-term health of these children.

#### Pediatric Workforce

According to the American Academy of Pediatrics, Michigan has a similar rate of pediatrics compared to the national rate. As of 2018, Michigan had 1,592 active pediatricians, which represents a rate of 73.9 pediatricians per 100,000 children. This is slightly under the national average of 74.2 pediatricians per 100,000 children. Access to pediatric care can be a challenge in some parts of the nation and within parts of Michigan. An MDHHS report revealed that 33 out of 83 Michigan counties had a shortage of pediatricians or other child health specialists in 2019. The American Academy of Pediatrics shared that 20.7% of children in Michigan have special health care needs, including such varied conditions as cancer, Down Syndrome, asthma, and depression. The shortage among pediatric and subspeciality workforce disproportionately impacts children with special health care needs, as well as children of color and those living in rural areas.

The Children's Special Health Care Services (CSHCS) program within MDHHS wanted to gather feedback from the statewide provider network regarding their experience with CSHCS policies, protocols, and processes. To identify opportunities to maintain or improve the CSHCS program's interface with providers, beneficiaries, and their families, MDHHS implemented a multi-staged approach to collect feedback from providers. The approach included interviews with executives and an electronic survey. The most commonly reported specialty categories for respondents were in the clinical areas of pediatrics, pediatric cardiology, clinical genetics, neonatal-perinatal medicine, pediatric emergency medicine and pediatric endocrinology (Michigan State University Institute for Health Policy, 2022).

The analysis of the Provider Satisfaction Survey shows that the majority of respondents are satisfied with the CSHCS program, with 96% expressing satisfaction. However, only 49% expressed confidence in their knowledge of how to contact CSHCS program staff for assistance and advise patients about CSHCS program benefits and services. The main challenges identified were related to prior authorization for pharmacy and durable medical equipment (DME). Overall, 62% of respondents expressed ease in coordinating care with Local Public Health Departments (LHDs) and 50% expressed ease in coordinating care with Medicaid Health Plans (MHPs). University/health system-based practitioners found it easier to coordinate care with both LHDs and MHPs than those in private practice. Respondents expressed a desire to learn more about CSHCS benefits and services, patient eligibility criteria, denial/appeal, and prior authorization processes. The survey revealed that the majority of practices are offering real-time audio-video (virtual) appointments and are communicating with patients/families via patient portals and secure messaging. Except for remote patient monitoring, the majority of practices plan to continue or begin telehealth services in the next twelve months (Michigan State University Institute for Health Policy, 2022).

In terms of wages, the mean annual wage for pediatricians in Michigan was \$161,680 as of May 2021, which was lower than the mean wage for pediatricians in other Midwest states (Bureau of Labor Statistics, 2021). The mean wage was also below the national mean annual wage for pediatricians, which was \$198,420 in the same year. It is important to note that pediatrician salaries can vary depending on factors such as location, years of experience, and specialty. Additionally, wages for pediatricians may be impacted by factors such as insurance reimbursement rates, which can vary depending on the state. Overall, although pediatricians are among the lowest-paid physicians nationally, and the mean wage for pediatricians in Michigan may be below the national average, pediatricians in Michigan still earn a relatively high salary compared to many other occupations in the state that are essential to children's health and development, such as early childhood workers. Figure 4 displays the annual mean wage of pediatricians by state in 2021.



Figure 4. Annual mean wage of pediatricians, general, by state, May 2021

Blank areas indicate data not available.

Source: Bureau of Labor Statistics, 2022

## Early Childhood Workforce

The early childhood workforce is crucial to ensuring that parents can continue to work while their children receive high-quality care and education. According to a 2022 report from the Michigan League for Public Policy, Kids Count in Michigan, and Think Babies Michigan, Michigan's early childhood workforce issues have reached a crisis level due to inadequate compensation, limited advancement opportunities, a lack of public resources as well as staffing shortages in the childcare industry and Michigan's home visiting and Early On programs.

According to the report, multiple factors contribute to the crisis, but worker compensation is one of the most significant. Eight out of ten childcare centers cited wages as their greatest difficulty in recruiting new employees, and home visiting programs cited staffing shortages as their greatest barrier to serving families. The report recommends that the state improve its data collection on the early childhood workforce, develop a strategy to increase worker compensation, and establish a career pipeline that increases opportunities for training, certification, and career advancement.

#### **Future Directions**

To address workforce issues in the state, Michigan has implemented several initiatives to support the MCH workforce and increase access to care for these populations. For example, the state has

established loan repayment programs and other financial incentives to encourage physicians to practice in underserved areas:

- Michigan State Loan Repayment Program (MSLRP): State program that helps employers recruit and retain primary medical, dental, and mental healthcare providers by providing loan repayment to those entering service obligations.
- J-1 Visa Waiver or Conrad 30 Waiver Program: Under this program, the Michigan Department of Health and Human Services may recommend up to 30 J-1 Visa physicians annually to receive a waiver of the 2-year home residence requirement in exchange for a commitment of 3-years of service in an underserved area.

Additionally, Michigan has implemented telehealth programs to expand access to care in rural areas, and the state has increased funding for school-based health centers to provide primary care services to children in school settings through grants like the Child and Adolescent Health Centers (CAHC) planning grants (Michigan Health and Human Services, 2023).

Other potential solutions have been proposed to address MCH workforce shortages in rural areas of Michigan. One solution is to increase the number of healthcare professionals trained to provide maternal and child healthcare services in rural areas. Additionally, further investment in telehealth technology can help healthcare professionals in rural areas connect with patients and other healthcare providers, providing access to specialized care and reducing the need for travel to urban areas.

Other promising opportunities and recommendations have been raised due to national recognition of the need to strengthen the public health infrastructure. A grant administered by the CDC through the COVID-19 Public Health Workforce Supplemental Fund was created to build up public health in all communities. Michigan was awarded \$59,409,275 through the grant (CDC, 2021). Additionally, the Public Health Workforce Development Action Plan, developed by the National Consortium for Public Health Workforce Development, outlines a comprehensive approach to workforce development that includes improving training and education, strengthening recruitment and retention efforts, and promoting diversity and equity in the public health workforce.

## **Broadband Access**

The internet and technology have become an integral part of everyday life. They have changed the way we work, communicate, access information, connect with others, and interact with healthcare professionals. However, not everyone has equal access to technology and the internet, and this digital divide has significant implications for public health. The term "digital divide" describes the disparity between people who have access to technology and the internet and people who do not. Studies have shown that people without internet access are more likely to have poor health outcomes, including increased rates of chronic diseases, reduced access to health information, and decreased access to healthcare services (Yu J et al., 2022). Additionally, people without internet access are less likely to practice health-promoting behaviors, such as physical activity, healthy eating, and regular healthcare visits (Calcaterra et al., 2021).

Michigan is a state with diverse geography and population, ranging from urban areas like Detroit and Grand Rapids to rural and remote communities in the Upper Peninsula and Northern Lower Peninsula. Although more communities have access to broadband in recent years than in the past, there are

significant disparities in broadband access. According to a report by the Michigan Department of Labor and Economic Opportunity (LEO), which houses the newly established Michigan High-Speed Internet Office (MIHI), an estimated 1.24 million Michigan households (31.5%) do not have a permanent, fixed internet connection at home and an additional 865,000 households face barriers related to cost, adoption, or digital literacy. The lack of access is more severe in rural areas and among low-income families, communities of color, and individuals with disabilities. According to LEO, "Black and Latino Michiganders are nearly half as likely to have a home broadband connection than non-Black or Latino residents" and "nearly 35% of households earning less than \$20,000 annually do not have a broadband connection." These disparities in access have implications for public health, as they can limit access to health information, public health services, telemedicine, and eHealth technologies, particularly for under-resourced communities and populations. The map below shows the availability of broadband service with speeds of at least 25 Mbps download in Michigan.

Figure 5. Broadband Service with Speeds of at Least 25 Mbps Download/3 Mbps Upload-Michigan



Source: Connected Nation Michigan, 2021

The lack of broadband access can have significant public health implications for residents of Michigan. Limited access to telemedicine can limit the ability of residents to receive timely and appropriate medical care. Telehealth emerged as a key tool for delivering healthcare services remotely, and its adoption was expedited by the pandemic. By using videoconferencing and other digital communication technologies, healthcare providers can connect with patients and clients in remote or underserved areas, reducing barriers to care and improving health outcomes. Initial data suggest that employing virtual care to replace some traditional in-person sessions, such as home visiting, may be a positive longterm alternative for some families and types of services. Telemedicine can be particularly important for individuals living in rural areas or those with mobility challenges. Broadband access can enable remote consultations with healthcare providers, which can reduce the need for costly and time-consuming travel to medical facilities. Additionally, interventions using eHealth technologies can support health promotion and disease prevention efforts. For example, eHealth technologies can be used to deliver health education and promotion programs, monitor chronic conditions, and track immunization rates. Limited broadband access can reduce the effectiveness of these programs, particularly for individuals who are unable to access them through traditional means.

## **Pregnant People**

Access to high-speed internet is essential for enhancing the health and well-being of Michigan people of childbearing age and pregnant people. Incorporating telehealth into existing obstetric care models, such as the addition of virtual prenatal care visits when appropriate, has the potential to better serve those who live in maternity care deserts or areas with limited access (Fryer et al, 2020). Utilizing access to telehealth services is proposed as one way to eliminate barriers and reduce disparities in access to early prenatal care. Additional ways include standardizing state Medicaid programs to include obstetric and pregnancy-related care in telehealth reimbursement laws and ensuring all payers provide coverage for evidence-based telehealth services for pregnant and postpartum persons. While adopted telehealth services and other virtual options may help with access, there are still significant systemic barriers to broadband access, including affordability and availability. To address these barriers, solutions such as expanding broadband infrastructure, increasing funding for broadband subsidies, increasing education and awareness, and increasing the availability of public Wi-Fi hotspots have been proposed.

## Children and Adolescents

In Michigan, 27% of households in the state with school-aged children lack access to broadband. Access to broadband can have a significant impact on children's public health. In a study published in the Journal of Medical Internet Research, researchers found that telehealth services could improve access to healthcare for children with chronic conditions. The study found that telehealth services reduced travel time and expenses for families and allowed for more frequent and timely communication between healthcare providers and families.

A partial solution is to promote digital literacy. Digital literacy refers to the ability to use digital technologies effectively and responsibly. Promoting digital literacy could help children and families access online resources related to health and education. Digital literacy can be incorporated into school curricula and promoted through offering training to teachers and families.

## Children With Special Health Care Needs

Children with special health care needs (CSHCN) often face barriers to accessing adequate healthcare services due to the availability and accessibility of specialty providers capable of addressing a wide range of physical, emotional, and developmental conditions. According to a report by the Michigan Public Service Commission (2018), low-income households and households with CSHCN are less likely to have access to broadband, which can result in decreased access to healthcare services. Another barrier to accessing broadband for CSHCN in Michigan is the lack of digital literacy skills among parents and caregivers. Many parents of CSHCN may not have the necessary digital literacy skills to navigate online healthcare services or telehealth appointments, which can result in decreased access to healthcare services to healthcare services for their children. According to a study by the University of Michigan (2019), 24% of households with children with disabilities reported having difficulty using digital technology, compared to 8% of households without children with disabilities.

Access to broadband can have a significant impact on the health outcomes of CSHCN in Michigan. One study found that access to telemedicine services can improve access to healthcare services and decrease

hospitalizations for CSHCN (Knight et al., 2020). Another study found that access to broadband internet can improve the mental health outcomes of CSHCN by providing access to social support networks and mental health resources (Whitney et al., 2019). On the contrary, the lack of access to broadband can also have negative health outcomes for CSHCN. A study by the University of Michigan found that children with disabilities who lacked access to the internet had decreased access to health information and were more likely to have unmet healthcare needs (Whitney et al., 2019).

## **Digital Equity**

Several challenges need to be addressed to improve broadband access, including a greater focus on digital equity. This means ensuring that all individuals, regardless of race, ethnicity, income, or geographic location, have access to affordable, high-speed broadband internet. Digital equity also means ensuring that individuals have the skills and resources necessary to fully participate in the digital world, including access to devices, digital literacy training, and technical support. Finally, there is a need for greater emphasis on data collection and evaluation. Accurate and comprehensive data on broadband access and its impact on public health outcomes can help policymakers and stakeholders identify areas of need and develop effective strategies to improve access. Data can also help to measure the impact of interventions and inform ongoing efforts to improve public health broadband access.

## Strategies to Improve Broadband and Telehealth Access

Strategies have been proposed to address the digital divide and improve public health outcomes in Michigan. These strategies include:

- Increasing broadband infrastructure in rural areas: One of the main barriers to broadband access in rural areas is the lack of infrastructure. To address this issue, Michigan could invest in broadband infrastructure projects, such as expanding fiber-optic networks and installing wireless broadband towers (Michigan Public Service Commission, 2020).
- Providing affordable internet and technology: Low-income families may lack access to the internet and technology due to financial barriers. To address this issue, Michigan could provide subsidies for internet and technology purchases, offer low-cost internet plans, and distribute refurbished devices to families in need.
- 3. Improving digital literacy and accessibility: People with disabilities may face additional barriers to accessing the internet, such as inaccessible websites and digital content. To address this issue, Michigan could provide training and resources to improve digital literacy and ensure that digital content is accessible to people with disabilities.
- 4. Partnering with community organizations: Community organizations can play a critical role in addressing the digital divide and improving public health outcomes. Michigan could partner with community organizations to provide digital literacy training, distribute technology, and offer support services to individuals who lack access to the internet and technology.
- 5. Leveraging telehealth technology: Telehealth technology can improve access to healthcare services for individuals who lack access to healthcare facilities. Michigan could invest in telehealth technology, such as remote patient monitoring and virtual consultations, to improve healthcare access. Michigan could also ensure that state policy facilitates access to telehealth, including granting insurers and regulators exemptions from telemedicine regulations and mandating that private insurance plans cover telemedicine if they cover the same services when they are provided in person.

Michigan has taken several steps to address the digital divide and promote public health broadband access, including the creation of the Michigan Broadband Roadmap, which was developed by the Michigan Department of Labor and Economic Opportunity (LEO) in collaboration with stakeholders from government, industry, and community organizations. The roadmap aims to identify gaps in broadband infrastructure and services, prioritize investment and deployment strategies, and promote public-private partnerships to expand access. The roadmap includes several recommendations, such as:

- Partnering with schools, libraries, and community centers to provide free or low-cost broadband access to low-income families and children with special health care needs.
- Investing in telehealth infrastructure to support remote care delivery and patient engagement for rural and underserved communities.
- Increasing digital literacy and skills training programs for vulnerable populations, including seniors, people with disabilities, and non-English speakers.
- Encouraging broadband providers to offer affordable and flexible pricing plans that meet the needs of low-income and underserved customers.

## Broadband Funding Opportunities and Initiatives

Another important strategy for promoting public health broadband access in Michigan is the use of federal funding programs, such as the Connect America Fund (CAF) and the Rural Digital Opportunity Fund (RDOF). These programs provide subsidies and grants to broadband providers to expand their networks to unserved and underserved areas, including rural and low-income communities. For example, in 2020, Michigan was awarded \$363 million to support the deployment of broadband infrastructure to over 200,000 homes and businesses in rural areas over the next decade.

Furthermore, several initiatives have been implemented in Michigan and other states to improve broadband access. These initiatives provide valuable insights into the strategies and best practices that can be used to improve broadband access. Michigan Moonshot is one such initiative. Launched in 2018, the Michigan Moonshot Initiative is a public-private partnership aimed at bringing high-speed broadband to all Michigan residents, particularly those living in rural areas. The initiative involves a combination of public funding, private sector investment, and collaboration between stakeholders, with the grant intended to subsidize tangible projects in pursuit of community network development, primarily around data collection.

Other state-level programs include Connecting Michigan Communities (CMIC). The Michigan Department of Technology, Management, and Budget (DTMB) is offering a grant to extend broadband service to unserved Michigan areas. The grant funds are available for projects that demonstrate collaboration to achieve the area's community investment and economic development objectives. Statewide funding of \$20 million was allocated to this grant program for the 2019 application year. The initial round of awards has been announced, and next year, approximately \$15 million is anticipated to be allocated to this program.

Another grant called Realizing Opportunity with Broadband Infrastructure Networks (ROBIN) was launched by the Michigan High-Speed Internet Office (MIHI) and will provide \$238 million in federal funding through the Coronavirus Capital Projects Fund to support the deployment of high-speed internet to unserved locations throughout the state. These initiatives and funding opportunities are investments that can potentially bridge the digital divide in Michigan. According to a study by Connected

Nation Michigan, expanding telehealth in just five Michigan counties could mean nearly \$4.7 million in savings per year for the state.

## Conclusion

The public health infrastructure in Michigan plays a critical role in promoting and protecting the health of communities. However, the public health workforce is facing a range of challenges, including an aging workforce, shortages of certain types of professionals, low compensation, stress and trauma, and a need for workforce development and training. To address these challenges, there are opportunities to invest in workforce development and training programs, strengthen partnerships between academia and practice, and leverage technology and data. By addressing these challenges and seizing these opportunities, Michigan can ensure that it has a robust and effective public health workforce that is well-equipped to meet the needs of its communities.

Technology and access to broadband can be leveraged to further strengthen public health infrastructure and access to services. Improving broadband access for people of childbearing age, pregnant people, infants, children, adolescents, and children and youth with special health care needs in Michigan is critical to improving public health outcomes and reducing health disparities for these populations. While Michigan has made efforts to increase broadband access, significant disparities still exist. Addressing the digital divide requires a multi-faceted approach that involves increasing broadband infrastructure, providing affordable internet and technology, improving digital literacy and accessibility, partnering with community organizations, and leveraging telehealth technology.

By implementing these strategies, Michigan can improve public health outcomes for all residents, including those who are currently unserved and marginalized. By continuing to prioritize the public health workforce and broadband access as essential elements of an effective public health system, Michigan can make progress towards improving health outcomes and reducing health disparities for women, pregnant people, infants, children, adolescents, and children with special health care needs.

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