Advancing Health Justice Using Medicaid Data: Key Lessons from Minnesota for the Nation

AcademyHealth in partnership with the Disability Policy Consortium (DPC)

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About Disability Policy Consortium

The Disability Policy Consortium (DPC) is a Massachusetts-based cross-disability advocacy and action research organization whose mission is to advance the civil rights of all people with disabilities.

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About the Cover Photo

Disability is complex. The photo on the cover of this report does not include a person in a wheelchair. This does not mean the picture is absent a person with a physical disability. People cannot be labeled by appearance whether it be a visual impairment, mental health diagnosis or substance use disorder. Each person is unique.

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The Importance of Language

Writing this report on health disparities, our team worked to use language that is in keeping with language emerging in public health practice. In doing so, we took care to: (1) name the specific populations affected by inequities instead of relying entirely on monolithic categories; and (2) use alternatives to common public health euphemisms. State Medicaid programs, other government entities, and policy leaders must be attuned to shifts in language. These shifts can provide insight into the priorities of different populations and potential opportunities for change in research, policy and practice.

EXAMPLES OF EVOLVING LANGUAGE

"RACISM" and other terms such as ableism and homophobia are used when possible. Solely using "race" or "disability" can perpetuate discrimination, implicit bias, and stigma because the locus of the problem becomes the person, not the external determinants that impact the person. It is critical to avoid erasure of race, ethnicity or disability via language. In this work, it is important to keep at the forefront, that these "isms" are the barriers to health, not the person's race, identity or disability status.

"UNDER-RESOURCED" is slowly replacing the term "vulnerable." Under-resourced refers to populations and communities disproportionately impacted by social constructs that increase poverty levels (low-income wages), inadequate access to social services, and educational supports. In contrast to "vulnerable," under-resourced focuses on the causes of poverty and poor health outcomes rather than on the idea that specific populations may be inherently vulnerable.

"BLACK, INDIGENOUS, (AND) PEOPLE OF COLOR" (BIPOC) is a term that is used as an alternative to "people of color." BIPOC is a term recognizing the multiple dimensions of racial and ethnic identity and that not all people of color face equal levels of injustice.

DISABILITY TYPES

"DISABILITY" remains problematic as it perpetuates the idea that a person is lacking and or somehow defective. The word disability is used due to the lack of alternative language in public health practice. When possible, we adhered to person-first language and avoided grouping all persons with a disability into one large group. The term "disability" literally means a loss of ability. This is an inadequate term, because people with disabilities represent a heterogeneous population. The population includes persons with lived experience of mental illness, substance use disorder, and a range of intellectual, cognitive and physical disabilities. People within the disability community experience discrimination and stigma. The degree of discrimination may vary based on factors including the type of disability, a person's race, gender identity, etc. For example, some BIPOC subpopulations are more likely to have disabilities than their white counterparts. In addition, some BIPOC subpopulations with disabilities are more likely to experience higher incidences of health disparities when compared to their white counterparts with disabilities.

DATA NOTE: DATA LIMITATIONS CREATE CHALLENGES IN REPORTING HEALTH DISPARITIES

In reporting our health disparity results for populations covered under Minnesota Medicaid, we were limited to the Medicaid data descriptors for race and ethnicity and disability. (1) Race and ethnicity: We were not able to use current terms such as BIPOC and Latinx. We were limited to American Indian, Black or African American, Hispanic, and Asian. (2) Disability: We were not able to present health disparities by disability type. We deferred to Medicaid eligibility status and claims data to distinguish persons with a mental health diagnosis and/or substance use disorder from populations with any disability.

Executive Summary

In partnership with AcademyHealth, we wrote this report, ***Advancing Health Justice Using Medicaid Data: Key Lessons from Minnesota for the Nation.***

This report was created in response to the disproportionate impact of COVID-19 sickness and deaths on Americans who are Black, African American, Latinx, Native American, Asian, and other people of color; people with disabilities; and people subsisting on poverty-level income. Along with many others, including state Medicaid directors and governors, the authors of this paper believe that state Medicaid programs must address health inequities stemming from racism and discrimination.

THIS REPORT:

Provides information to support state Medicaid programs to measure and address health disparities. Section 1 addresses Medicaid's essential role in providing coverage to populations who have historically experienced racism and discrimination. Section 2 discusses our nation's progress in documenting health disparities and its ongoing challenges in collecting data on the Medicaid population by race and ethnicity and by disability type. Section 3 provides a robust account of health disparities in Minnesota's Medicaid population by income, race and ethnicity, and disability. Section 4 provides a straightforward translation of Minnesota's results into key findings and policy implications for all state Medicaid programs. Section 5 shares seven opportunities for consideration by Medicaid in achieving health equity.

Highlights the essential contribution to the evidence base by one state's Medicaid program. The approach used by Minnesota's Medicaid program to measure health disparities serves as an example of the initial steps that state Medicaid programs could take to identify disparities through data and to address inequities through action. The results from our work with Minnesota highlight the relationship between health disparities and racism, discrimination, bias, and stigma. State Medicaid programs in a nascent stage of health disparity measurement might find the framework especially helpful. Other states with advanced data collection systems may want to build out an intersectional framework, one that incorporates multiple factors to capture the impact of social factors on health outcomes. The approach introduced in this report for Medicaid populations should also be modified for dually eligible populations.

Underscores racial injustice, discrimination, bias, and stigma in our health care system. The authors provide a robust account of health disparity results by income, race, ethnicity, and disability for adults and children covered under Minnesota Medicaid's program. Results by race indicate that adults who are American Indian and adults who are U.S. born Black or African American face greater health disparities than White adults. Adults who are American Indian had poor outcomes in 89 percent of the measures that we examined. Adults who are U.S. born Black or African American had poor outcomes in 68 percent of the measures that we examined. Adults who are White had poor outcomes in 26 percent of the measures that we examined. (See Table 9 in this report.) For example, adults who are American Indian are 150 percent more likely to have diabetes than White adults. Adults who are U.S. born Black or African American are 100 percent more likely to have a disability than White adults. Adults who are American Indian or U.S. born Black or African American were more likely to have preventable emergency department visits and hospitalizations than White adults, a result that is also true for adults with disabilities compared to adults without disabilities.

Emphasizes the importance of using an intersectional approach to disparity measurement. Minnesota Medicaid's program data confirms the intersectional connection between poverty, race, and disability. The intersectional nature of health disparities requires states to develop interventions that address these complex barriers to health. Adults with income at or below 50 percent of the Federal Poverty Level (FPL) are seven times more likely to have a disability than adults with income above the FPL; adults who are U.S. born Black or African American are 100 percent more likely to have a disability than White adults. Health equity cannot be achieved for all racial and ethnic groups without addressing disability, due to the disproportionate level of disability in these populations. This is an ethical imperative.

Urges state Medicaid programs to invest in data and analysis to measure health disparities. An evidence base is needed to establish priorities, tailor interventions, set appropriate goals, measure improvement, and to make a public case to elected officials that resources are required. States and state Medicaid programs need additional federal support to achieve these aims.

The authors wish to emphasize that the analytical work presented in this report, although important, should only be considered an initial step in a long process to prioritize health equity. State Medicaid programs must move beyond measurement and take action to reduce health disparities, which will require significant effort and commitment.

Introduction

In partnership with AcademyHealth, we have written this report, ***Advancing Health Justice Using Medicaid Data: Key Lessons from Minnesota for the Nation***, in response to the disproportionate impact of COVID-19 sickness and deaths on people who are Black, African American, Latinx, Native American, Asian, and other people of color, people with disabilities; and people subsisting on poverty-level income. See **Box 1** to learn more about the impact of COVID-19 on people by race and ethnicity, and disability.

This report is about the importance of investing in data and analysis to measure and reduce health disparities. Health disparities data is essential to identifying differences in health outcomes. However, measuring health disparities is only the initial step in a process that will be long and challenging. Addressing inequities that lead to health disparities requires engagement with communities most impacted by injustices that cause inequities in health care outcomes.

Health disparity, health inequity, and health equity describe the context, the problem, and the opportunity for the nation. Health "disparities" mean differences, such as the prevalence of disease in one group relative to another. Health disparities are closely related to health inequity, which refers to differences related to injustice.

Health equity is what we achieve when everyone reaches their full potential for health and wellness. With health equity, no one is "disadvantaged from achieving this potential because of social position or other socially determined circumstances." Health inequities refer to the underlying systems that disproportionately advantage some populations and disproportionally disadvantage other populations in achieving their full health potential. For a description of key terms used in this report, see **Appendix A.**

The evidence shows that "health disparities, including disparities related to COVID-19, are symptoms of broader underlying social and economic inequities that reflect structural and systemic barriers and biases across sectors." Equity also refers to the goal of advancing public policy to reduce or eliminate systemic injustices.

Finally, equity also refers to the means of achieving the goal. As articulated by the disability rights movement statement, "nothing about us without us." The achievement of equity requires proactive inclusion and the voice of populations for whom systemic racism and ableism lead to health disparities. Reducing health disparities requires a commitment to addressing racism and other forms of discrimination that may lead to health inequalities. See **Box 2** for a definition of racism.

State Medicaid programs play an essential role in addressing social inequities. In the coming years, we can expect this role to increase significantly. In addition to the people already covered under Medicaid, including people directly affected by COVID-19, we anticipate an increase in the number of people who will seek Medicaid coverage due to the secondary effects of COVID-19 on the economy and job market. This report provides information to help state Medicaid programs undertake the initial work to measure health disparities around which they must design and implement strategies to advance health equity. We appreciate that state Medicaid directors are committed to health equity. See **Box 3** to read the statement of commitment from state Medicaid directors.

BOX 1. THE DISPROPORTIONATE IMPACT OF COVID-19 DUE TO STRUCTURAL INEQUITY

In 2020, the coronavirus pandemic in the U.S. magnified pre-existing racial health inequities. As a nation, we are witnessing the disproportionate impact of COVID-19 on Black and African Americans, Native Americans, Latinx, Asians, persons with disabilities, and low-income populations. The coronavirus pandemic impact on African Americans, Black Americans, and Native Americans was in part due to a combination of higher pre-existing conditions, structural racism, and discrimination.[12] Access to medical care and the multiple systematic barriers that under-resourced populations face further impact individuals' ability to achieve optimal health with these conditions. Many pre-existing chronic conditions can be traced to structural racism. Marginal housing, food insecurity, and inadequate or inconsistent employment are examples of social drivers of health that directly add specific health challenges (e.g., lead and mold risk in housing) and increase the overall stress on families. Regarding data collection as noted in Section 2 of this report, health statistics for adults by income and race are available, but significant improvements are needed in the gathering of data around documentation of specific race and ethnic subgroups to create an actionable evidence base.[13]

People with disabilities were also disproportionately impacted by COVID-19 due to underlying chronic conditions, discrimination, and the lesser value that society places on the lives of persons with disabilities.[14] "Reports about COVID-19 trends among people with disabilities are scarce. Although disability status should be considered a piece of important demographic information (given its prevalence and known risk factors for poorer outcomes), data is not systematically collected. To date, disability has not been included in authoritative reports."[15] Persons with disabilities, older adults, and others living in congregate settings have experienced high levels of morbidity and mortality due to COVID-19 for a range of reasons, including inequities in state Medicaid program coverage for home-and-community-based services (HCBS). Historical differences in Medicaid HCBS regulations across states, as well as changes made in response to the pandemic, have led to inequitable access to community-based living opportunities for people with disabilities. As a result, a significant portion of persons with disabilities died. Due to a lack of consistent data collection and reporting on persons with disabilities, the full impact of COVID-19 is unknown.[16]

Finally, we underscore that COVID-19 also had a devastating effect on older people, especially those living in nursing homes. A large proportion of COVID deaths occurred among nursing home residents, including many who had little contact with family before they died. Although nursing home care lies outside the scope of this report, this issue shows again that COVID draws attention to deficits that demand change: the high toll of mortality among elders living in nursing homes calls out for large-scale change in how we provide care for elders.

BOX 2. WHAT IS RACISM?

In the words of Camara Phyllis Jones, MD, MPH, PhD, racism is a "system of structuring opportunity and assigning value based on the social interpretation of how one looks (which is what we call "race"), that unfairly disadvantages some individuals and communities, unfairly advantages other individuals and communities, and saps the strength of the whole society through the waste of human resources."[17]

BOX 3. STATE MEDICAID DIRECTORS EXPRESS COMMITMENT TO HEALTH EQUITY

In June 2020, state Medicaid directors expressed a unified commitment to health equity: “The National Association of Medicaid Directors (NAMD) is committed to health equity and working with our members and partners to improve the health and well-being of the 70 million people served by Medicaid and the Children’s Health Insurance Program (CHIP). Racism and racial injustices are barriers to health and to the ability for Black, Indigenous and People of Color [BIPOC] to access resources that support health, including access to health care services, stable housing, safe communities, nutritious food, and employment. As a non-partisan, consensus-based organization we commit to working with our members, our federal partners, and other health care organizations to pursue policies and programmatic innovations that seek to erase inequity and create meaningful opportunities for good health and well-being for Marginalized Communities and all individuals served by Medicaid and CHIP. We also recognize the need to ensure that Medicaid leadership is more representative of those served by Medicaid, and we will add this focus to NAMD’s leadership development curriculum.”[18]

PURPOSE OF THE REPORT

This report’s primary purpose is to provide state Medicaid programs with a framework to identify, track, and address health disparities impacting their covered members.

The report’s authors created the framework used in partnership with staff of the Minnesota Department of Human Services (DHS). DHS operates the state’s Medicaid program. The framework describes the relationship and impact of a range of social and family health risk factors on health outcome measures to address health disparities among populations covered under Medicaid. As reported to the Minnesota Legislature in 2018, the results of applying this framework in Minnesota expand our understanding of the relationship between social risk factors and health disparities. These results also support state action to reduce disparities.

Based upon our work with Minnesota Medicaid, this report presents health disparities for several populations covered under its Medicaid program. In the adult population, we present health disparities for three categories: (1) adults with very low income such as adults with income at or below 50 percent of the federal poverty level (FPL) and adults experiencing homelessness; (2) adults by race and ethnicity such as adults who are American Indian, U.S. born Black or African American, Hispanic, and White; and, (3) adults with disabilities such as those who qualify for Medicaid based on disability status, adults with serious and persistent mental illness, and adults with a substance use disorder.

In presenting health disparities for children, we also used three categories: (1) children with parents with income at or below 50 percent of the FPL; (2) children by race and ethnicity; and (3) children with parents with a disability of mental illness.

Because of the defined scope of our prior work for the Minnesota DHS, our findings on the intersectionality of income, race, ethnicity, and disability are limited. As data collection and analysis develops, the work must advance an intersectional framework. Having an intersectional data framework will enable states to analyze the impact of crosscutting determinants of health, such as income, race and ethnicity, and disability on health disparities.

STATE MEDICAID PROGRAMS MUST MOVE FROM DATA TO ANALYSIS TO ACTION

State Medicaid programs must collect data, analyze data, and act on data to achieve health justice. Today, Medicaid programs are well-positioned to take the necessary steps to advance health justice, given their role and power as a health care payer. We identify the following three fundamental steps. First, they must invest in improved capacity to collect, analyze, and measure health disparities among covered populations. Second, we recommend state Medicaid programs engage people with lived experience of inequity, racism, and discrimination in developing the data collection strategy, analyzing the data, defining the scope of interventions, and implementing those interventions. Third, we recommend that federal and state policymakers invest in Medicaid program capacity to collect and analyze data and provide resources required to address health and wellness barriers for under-resourced communities. In 2020, the National Governor’s Association demonstrated its support for this point. See **Box 4**.

BOX 4. GOVERNORS SPEAK UP ON NEED FOR LONG-TERM PLANNING

As the National Governor's Association (NGA) outlined in a 2020 memorandum about "the policy approaches to address the disproportionate impact of COVID-19 on communities of color": "The most effective strategies are not limited to the period of the immediate crisis. Long-term planning that addresses equity will allow governors to alleviate the economic and health impacts on the most vulnerable communities as states begin to reopen and recover."[19]

STRUCTURE OF THE REPORT

The report has five major sections and is structured as follows.

Section 1 provides an overview of Medicaid's essential role in providing health care coverage to people who experience health disparities and racism, discrimination, bias and stigma. This section focuses on people with very low income, Black and African Americans, Native Americans, Latinx, and people with disabilities. **Section 2** provides a brief account of the nation's progress in documenting health disparities and ongoing challenges to collect data by race and ethnicity and disability type needed to document health disparities. **Section 3** provides a robust account of health disparities in the Minnesota Medicaid program among Medicaid populations by income, race, ethnicity, and disability. This section contains findings from the research we conducted with and for the Minnesota Department of Human Services (DHS). The purpose of the research was to measure health disparities among Medicaid population groups. This report's findings highlight the relationship between health disparities and racism, discrimination, bias, and stigma. **Section 4** provides a straightforward translation of Minnesota's results into key findings and policy implications for all state Medicaid programs. **Section 5** shares seven opportunities for consideration by Medicaid in achieving health equity.

Section 1. Medicaid's Mission To Address Health Disparities

MEDICAID'S ROLE TO PROVIDE COVERAGE TO POPULATIONS WITH LOW INCOME

In 1965, the U.S. Congress created the Medicaid program under Title XIX of the Social Security Act to provide health care services to "low-income children deprived of parental support, their caretaker relatives, the elderly, the blind, and individuals with disabilities."[20] In 2021, Medicaid is the single largest purchaser of health care in the U.S., providing coverage to about 75.1 million people with low income.[21] This number includes enrollment in the Medicaid program and the Children's Health Insurance Program (CHIP). Together, Medicaid and CHIP cover children, parents, pregnant women, other adults with low income, people with disabilities, and older adults to varying degrees across the states.[22] [23]

MEDICAID'S POSITIVE IMPACT ON HEALTH DISPARITIES

Over the last five decades, Medicaid has more than doubled its role in providing health care coverage as a share of the U.S. population.[24] Between 1978 and 2020, Medicaid enrollment increased from 9 percent to 20 percent of the U.S. population. Medicaid's coverage ratio increased to 1 in 5 people, from 1 in 10 people.[25] Several factors account for Medicaid's enrollment growth. The mandated eligibility expansions in the 1980s for pregnant women and children and the 2010 passage of the Affordable Care Act (ACA) have made significant contributions.[26] The ACA expanded health care options for non-elderly adults with income up to 138 percent of the federal poverty level (FPL).

A credit to the ACA, the Medicaid program has expanded access to comprehensive health care for millions of Americans. It has also significantly narrowed the nation's disparities in coverage and access to health care for many racial and ethnic groups, including African American, Black, Hispanic, and Native American.[27] To date, 39 states, including the District of Columbia, have adopted the ACA's Medicaid coverage expansions. Twelve states have not adopted the ACA's Medicaid coverage expansions as of November 2020. In the 12 states that have not adopted that Medicaid coverage expansion, low-income black Americans' health and wellness have been negatively impacted, with health disparities in this population increased.[28] [29] The correlation between access to Medicaid and health disparities provides clear evidence that states need to take action and build Medicaid programs' capacity to address the social needs of low-income populations, particularly BIPOC populations.

MEDICAID'S HEIGHTENED IMPORTANCE TO PEOPLE WITH LONG-STANDING HEALTH DISPARITIES

As previously stated, the Medicaid program covers about 20 percent of the people in this country, or 1 in 5 people. Medicaid's covered populations include families, children, non-elderly adults, and older adults. Medicaid's role is critical to people with low income as well as African American, Black, Hispanic, and Native American populations, and people with disabilities.

Medicaid's role also lies at the intersection of income, race, ethnicity, and disability.[18] This is a crucial point to emphasize for two reasons. First, Medicaid populations have a long history of health disparities such as higher burdens of illness, disability and mortality than non-Medicaid populations.[30] [31] [32] [33] Second, in this country, poverty and disability rates are higher among many racial and ethnic communities than in White communities.[34] Some researchers suggest that this country has two Americas.[35] Blacks and Native Americans, followed by Hispanics, have the highest poverty rates. High poverty rates in communities result from long-standing government practices and policies that lead to under-investment in these communities, a form of structural racism, and a lack of opportunity.[36] Over 20 percent of the Black population and roughly 20 percent of the Hispanic population have incomes below the poverty level compared to less than 10 percent of the White population.[37] The poverty rate is nearly 25 percent among the American Indian and Alaska Native populations. The disability rate is also higher among communities of color than in White communities. Among adults 18 years of age and older covered under Medicaid, the disability rate is 24 percent.[38] In contrast, about 30 percent of the non-Hispanic Black population, 31 percent among the Hispanic population, and about 40 percent of the American Indian or Alaska Native have "any disability."

MEDICAID'S ESSENTIAL ROLE IN PROVIDING HEALTH CARE COVERAGE BY POPULATION GROUP

Medicaid plays an essential role in providing health care coverage to people with low income, Black, African American, Native American and Hispanic, and people with disabilities. See **Table 1** for a summary of these facts.

Medicaid's Coverage of People with Low Income. Among people with income below 100 percent of the FPL and under the age of 65, Medicaid covers 3 in 5 people or 60 percent of this income group, and an even higher share of people with income at or below 50 percent of the FPL.[41] Eight in 10 children from families with income below 100 percent of the FPL are covered under Medicaid.

In 2020, the FPL was $12,760, or $1,063 per month, for an individual; and $21,720, or $1,810 per month for a family of three.[42]

Medicaid's Coverage of People by Race and Ethnicity. Medicaid provides coverage to more than 1 in 3 people who are Black, 1 in 3 people who are Hispanic, and 1 in 3 people who are Native American. In contrast, only 15 percent of the White population are covered under the Medicaid program.[43] [44] Over the last decade, Medicaid's expansion under the ACA has contributed positively to Black communities' increased coverage. Yet, many people representing our nation's diversity have been left out of this expansion because they reside in states that have not adopted the ACA's Medicaid expansion.

Medicaid's Coverage of People with a Disability. More than 1 in 3 people under age 65 covered under Medicaid have a disability, based upon Medicaid eligibility standards.[45] [46] Medicaid is also critical to children and youth with disabilities. More than 1 in 2 children with special health care needs are covered under Medicaid. Other children with disabilities are offered Medicaid at the option of the state, which means that the share of children with special health care needs covered by Medicaid/CHIP varies by state from 15 percent to 67 percent.[47]

Table 1. Medicaid's Essential Role In Providing Health Care Coverage

Populations	Medicaid Coverage by Income, Race and Ethnicity, and Disability
People with Low Income	*Medicaid covers:* • **60 percent** of non-elderly persons with income below 100 percent of the FPL • **80 percent** of children from families with income below 100 percent of the FPL
People by Race and Ethnicity	*Medicaid covers:* • **15** percent of adults who are White • **15** percent of adults and **30 percent** of children who are White • More than **30 percent** of adults who are Black or African American • More than **30 percent** of adults who are Hispanic • More than **30 percent** of adults who are Native American • More than **50 percent** of children who identify as American Indian or Alaska Native (AI/AN), Black, other or multi-racial, or Latino
People with Disabilities	*Medicaid covers:* • More than **30 percent** of people under 65 years of age with a disability • **42 percent** of non-institutionalized adults 21-64 years of age, with wide variation across the nation ranging from 26 percent in North Dakota to 57 percent in Massachusetts and Rhode Island to 66 percent in D.C.[39] [40] • About **50 percent** of children with special health care needs

Medicaid's critical role in the lives of people with disabilities also extends to the dually eligible population. This population group is covered under Medicaid and Medicare. Persons who are dually eligible experience high morbidity and mortality rates for several reasons including racism, discrimination, bias, and stigma. These reasons include racism, discrimination, bias, and stigma. See **Box 5** for a description of the dually eligible population. Offering a variety of integrated care options to individuals who are dually eligible is essential to advancing health equity in this population.

As we summarize this focus on disability, we must note that disability rates are higher among Black or Native Americans than their White counterparts. These rates underscore the intersectional impact of racism and ethnic bias on persons with disabilities within these populations. We must also note the absence of data by disability type. The Disability and Health Data System (DHDS), created by the Centers for Disease Control and Prevention (CDC), provides national statistics for disability rates and disability types. As classified by DHDS, disability types include cognitive disability, hearing disability, mobility disability, vision disability, self-care disability, and independent living disability, based upon definitions of disability used by the Behavioral Health Risk Factor Surveillance System (BRFSS).

BOX 5. HEALTH EQUITY FOR DUALLY ELIGIBLE POPULATIONS

The Medicare-Medicaid Coordination Office (MMCO) of the Centers for Medicare and Medicaid Services (CMS) reports that 12.2 million people are enrolled in the Medicare and Medicaid programs.[48] These individuals are "dually eligible." The dually eligible population includes persons with a range of disabilities and chronic conditions. Dually eligible persons often have high medical, behavioral health, and social needs. This population group is more racially and ethnically diverse than the overall Medicare population.[49] For example, 20 percent of the dually eligible population is Black or African American, and about 15 percent is Latinx.[50] In total, more than 40 percent of dually eligible individuals are either Black, African American, Latinx, or from another community of color, as compared to 17 percent of the total Medicare-only population.

Under the current Medicaid and Medicare programs, most dually eligible individuals receive health care through a fragmented health care system, from multiple providers in various care settings with little to no care coordination across delivery systems. As a result of barriers to quality, the dually eligible population experiences numerous health disparities. In 2015, the "CMS Equity Plan for Improving Medicare" issued by CMS specifically identified the dually eligible population as "vulnerable" to disparities in access to quality care.[51]

Several states and CMS have partnered to transform the care delivery for dually eligible individuals through integrated programs of care, such as the capitated Financial Alignment Initiative (FAI) demonstration.[52] Yet, as of 2020, only one in ten dually eligible individuals is enrolled in a truly integrated care program.[53] This issue has received much attention nationally. At least five reports were released in 2020 on this topic, pointing to the need for federal and state Medicaid policymakers to create the next generation of integrated programs for dually eligible individuals and to optimize the use of current programs.[54] As federal and state initiatives continue to emerge and take shape around improving the quality of life for dually eligible individuals, we hope that they are grounded in health equity and designed around an intersectional understanding of health disparities. Federal and state partners should work together to create integrated Medicare and Medicaid datasets to identify health inequities and track health equity progress against an accurate and transparent baseline for all population subgroups.

Section 2. National And State Attention To Health Disparities

The United States has a long history of documenting health disparities by race and ethnicity to support sound scientific approaches to reducing health care disparities.[55] Despite this investment into documentation, health inequities continue to exist. The lack of a single, and accurate data source on race and ethnicity in the United States has not helped the cause. All state Medicaid programs must find a way to collect detailed, accurate, and complete data on its population to: (1) establish an evidence base; and (2) inform the development and implementation of interventions. The data must be available at the individual level by race and ethnicity, disability type, and social risk factors and linkable to health care data to advance and respond to our nation's ethical imperative to achieve health equity. See **Box 6** for statements from civil rights leaders.

EFFORTS TO DOCUMENT HEALTH DISPARITIES

More than 30 years ago, in 1985, the U.S. Department of Health and Human Services (HHS) issued its landmark "Report of the Secretary's Task Force on Black and Minority Health."[57] [58] This report details health disparities experienced by "minority groups" as compared with the U.S. population. The Task Force defined minority groups to include "Black, Hispanics, Native Americans including Alaskan Natives and Hawaiian Natives, and Asian Pacific Islanders."[59]

Experts wrote that such disparities had been in existence "for as long as federal health statistics were routinely collected."[60]

The Task Force found that health disparities accounted for 60,000 excess deaths each year. Six causes of death accounted for more than 80 percent of mortality among Blacks and other minority populations.[61] These six conditions (causes of death) became priority issue areas for the Task Force study: cancer; cardiovascular disease and stroke; chemical dependency, as measured by deaths due to cirrhosis; diabetes; homicide and accidents; and infant mortality. This landmark report also led to the creation of the Office of Minority Health (OMH) in 1986 and its reauthorization in 2010 under the ACA.

"The Office of Minority Health is dedicated to improving the health of racial and ethnic minority populations through the development of health policies and programs that will help eliminate health disparities."[62]

BOX 6. CIVIL RIGHTS LEADERS CALL FOR A JUST HEALTH CARE SYSTEM

For more than 50 years, civil rights leaders from the Reverend Dr. Martin Luther King Jr. to Ed Roberts, the father of the disability rights movement, have long advocated for a more just health care system for low-income communities, disability communities, and communities of color. **Reverend Dr. Martin Luther King Jr.** was the civil rights movement leader from 1955 until his assassination in 1968. Citing the discriminatory practices in our health care system, in 1966, Reverend Dr. Martin Luther King Jr. spoke at the Second National Convention of the Medical Committee for Human Rights, Chicago: ***"Of all the forms of inequality, injustice in health is the most shocking and inhuman."*** It has been more than 50 years since Dr. King spoke at this convention, and the nation's civil rights leaders are again calling for the end of racist practices in our health care system.[56] **Ed Roberts** was the first individual with severe disabilities to attend the University of California Berkeley; he became Director of California Vocational Rehabilitation in 1976. In his words: ***"We will not tolerate another generation of young people with disabilities going through segregated education, segregated society, being dependent upon their parents and public aid. We can make a difference in their future. If people with disabilities have a future, then everyone will have a future."***

Within HHS, many agencies have contributed to the evidence base on health disparities spanning decades.[63] These agencies include OMH, the Agency for Healthcare Research and Quality (AHRQ), and the CDC. For nearly two decades, AHRQ has published national health care quality and disparities reports that measure quality by race and ethnicity.[64] [65] In its 2018 National Healthcare Quality and Disparities Report, AHRQ reported that Black Americans, American Indians and Alaska Natives (AI/ANs), and Native Hawaiians/Pacific Islanders (NHPIs) received worse care than White Americans in approximately 40 percent of quality measures. Hispanic Americans received worse care than Whites for about 35 percent of quality measures. Asian Americans received worse care than White Americans for 27 percent of quality measures but better care than White Americans for 28 percent of quality measures.[66] CDC reports on health disparities and inequalities in 2011 and 2013, along with strategies for reducing health disparities in 2014 and 2016, have also demonstrated our nation's concerns about health disparities.[67] [68]

According to the CDC: "reducing health disparities brings us closer to health equity."[69]

EFFORTS TO UNDERSTAND HEALTH DISPARITIES

Among the many efforts to understand health disparities, in 1980, HHS began establishing national public health "Healthy People" goals and objectives.[70] The "Healthy People" goals and objectives help raise the bar on health and wellness nationally and make prevention and health equity a public health priority.[71] These goals and objectives are updated every 10 years and increasingly emphasize reducing health disparities and advancing health equity.

The National Academies of Sciences, Engineering and Medicine (NASEM) has also helped to understand health disparities through the work of the Institute of Medicine (IOM), (now a division within NASEM). The IOM wrote about the role that bias and prejudice play in leading to health disparities and the need for racial and ethnicity data to eliminate these disparities. In "Unequal Treatment: Confronting Racial and Ethnic Disparities in Healthcare," the IOM reported on the existence of health disparities among racial and ethnic population groups in the U.S.[72] In this report, the IOM concluded that "(al)though myriad sources contribute to these disparities, some evidence suggests that bias, prejudice, and stereotyping on the part of health care providers may contribute to differences in care."

Finally, it must also be noted that the Centers for Medicare and Medicaid Services (CMS) has made significant progress in reporting health disparities by race and ethnicity for the Medicare program.[73]

DATA IS CENTRAL TO UNDERSTANDING HEALTH DISPARITIES

Data is considered central to measuring and monitoring progress in eliminating disparities in the Healthy People goals and objectives at the national and state levels.[74]

As the IOM writes in one report: "standardized data collection is also critically important in efforts to understand and eliminate racial and ethnic disparities in health care. Data on patient and provider race and ethnicity would allow researchers to better disentangle factors that are associated with health care disparities, help health plans to monitor performance, ensure accountability to enrolled members and payors, improve patient choice, allow for evaluation of intervention programs, and help identify discriminatory practices."[75]

As required under the ACA, HHS developed an evidence-based set of data-collection standards for five demographic categories: race, ethnicity, sex, primary language, and disability status.[76] The standards are informed by many sources, including the Office of Management and Budget, the American Community Survey, and the International Classification of Functioning, Disability, and Health.[77] The standards apply to national population health surveys.[78] The standards for race, for example, expand the basic OMB categories into 14 categories. These categories enable people to check more than one category.[79]

Disability status is essential to addressing health disparities. The standards for disability status are based upon six questions to collect data on disability type. The six required questions on disability status cover the following domains of functioning: seeing, hearing, mobility, cognition, self-care, and independence. The purpose of the standardized questions about disability is to "help facilitate more accurate and nuanced disability data and better inform federal, tribal, state, and local initiatives."[80]

At the federal and the state population levels, the CDC's DHDS makes available state population-level data on adults with disabilities from the BRFSS. The data from DHDS provides disability estimates and disability types including, cognitive, mobility, vision, self-care, independent living, and hearing, stratified by age, sex, race/ethnicity, and veteran status. DHDS data can easily support an intersectional approach at the population level by allowing users to examine disability and race and ethnicity together. As such, DHDS is an important data source for examining the intersectionality of disability and race at the state level. On the other hand, DHDS data has one major shortcoming. The data does not link to health care data needed to understand the impact of disability status on health utilization or health outcomes.

MEDICAID'S CHALLENGE: INCOMPLETE DATA ON RACE AND ETHNICITY

To the detriment of Medicaid populations, the ACA's goal to improve detailed data on race and ethnicity data has not been achieved.[81] As of 2021, there is no single source of data on race and ethnicity for the Medicaid program. This said, since 2011, CMS has been working with state Medicaid programs to transform its Medicaid Statistical Information System (MSIS) system to improve data collection by implementing the Transformed Medicaid Statistical Information System (T-MSIS). The goal of T-MSIS is to improve the completeness, accuracy and timeliness of Medicaid data. Most importantly, T-MSIS introduces new data elements to previously unavailable race and ethnicity and disability types on people covered under Medicaid. The reports indicate that implementation of T-MSIS has been very slow, however.[82]

National implementation of T-MSIS began in 2013. Despite efforts, more than 10 percent of race and ethnicity data is missing for most states, with some states missing as much as 50 percent of data.[83] [84] [85]

The lack of data on race and ethnicity for persons covered under Medicaid has been an ongoing challenge, according to many researchers and analysts. Back in 2015, for example, the National Committee for Quality Assurance (NCQA) found that race, ethnicity, and language was missing in the Healthcare Effectiveness Data and Information Set (HEDIS). Only half of Medicaid plans reported complete and partially complete data on race. Data on ethnicity and language were also poor. Fewer than half of Medicaid plans reported complete or partially complete data on spoken language, and even fewer reported complete or partially complete written language or other language needs data.[86] See **Box 7** for an overview of the challenges facing state Medicaid programs.

GETTING DATA COLLECTION RIGHT

The disproportionate impact of the coronavirus pandemic on BIPOC persons and protests against racism, many state public health leaders have stepped up their efforts to address disparities in health care access and outcomes by improving data reporting by race and ethnicity.[94] Medicaid's programs' capacity and competency to collect data and reduce disparities impacting BIPOC populations must also improve.[95] Federal and state partners must commit to implementing data integrity, data collection strategies, and data reporting.

State Medicaid programs have been and should continue to work with HHS to create a sustainable data infrastructure with the capacity to collect standardized data and support local and state decision-makers.[96] It is essential that data is collected by race and ethnicity and by disability type. It is equally important that data is collected in a culturally competent way and in an ethical manner to protect privacy. For purposes of interoperability, there should be increased standardization of health risk factors and indicators.

Finally, data on SDOH must be available at the individual and population levels. HHS should invest in linking data sets at the individual and community level to give policymakers a full sense of the impact of disparities on health and well-being. Z codes, for example, are a potentially important and too often overlooked source of data. These codes, a subset of ICD-10-CM codes, are essential to capturing SDOH data. Only by harnessing the linked information can planning, intervention, and monitoring of outcomes be truly effective. See **Box 8** to read more about Z codes.

BOX 7. KEY DATA CHALLENGES FACING MEDICAID PROGRAMS

In 2021, the U.S. lacks a single source of data for race and ethnicity or a systematic method of collecting data reported by individuals or at regular intervals. COVID-19 has made evident the deficiencies and variation in reporting data on race and ethnicity. For example, Louisiana reports ethnicity data as either Hispanic/Latino or non-Hispanic/Latino. In contrast, Connecticut reports Hispanic, non-Hispanic white, non-Hispanic black, non-Hispanic Asian, non-Hispanic other, and non-Hispanic unknown. Many states report data on race and ethnicity as "unknown" or missing.[87]

The lack of disaggregation of the data on race and ethnicity is another important challenge. Addressing the disparate impact of COVID-19 on Latinx, Black, Indigenous, and Southeast Asians (Hmong, Lao, Vietnamese, Cambodian, Karen) refugee populations requires data collection to shift away from an aggregated model to one that is disaggregated by racial, ethnic and other inequalities. Aggregated data masks health disparities in different populations, a problem that has affected the Asian American population. For example, Asian American populations are often excluded from data findings because of a small population size (small N) in comparison to other populations. The result, Asian populations are often underrepresented or not represented in data samples providing information on health disparities. Disaggregated data is needed to understand the nuances in health care access and outcomes experienced by race and income and to create the right interventions.[88]

As reported in the American Journal of Public Health, the "failure to disaggregate health data for individual Asian subgroups disguises disparities and leads to inaccurate conclusions about needs for interventions and research."[89]

Medicaid programs do not have the exact racial and ethnic and disability type necessary to meet HHS data collection standards.[90] Today, state Medicaid programs lack detailed, accurate and, complete data for their members. CMS is making progress but remains limited in its capacity to measure large-scale inequities because the system still lacks racial and ethnic data for a large portion of the Medicaid population.[91]

According to experts, state Medicaid programs do not require people to provide race data during the enrollment process, out of concern for potential discrimination. Race and ethnicity are optional enrollment fields. After the enrollment process, the opportunity to collect this data diminishes. Methods and mechanisms to collect this data after enrollment are inconsistent and/or not implemented. Managed care organizations or care providers sometimes collect data, but this data is underutilized in data analysis. Methods, moreover, to collect data are not necessarily adequate, appropriate, and even sophisticated. Collecting data on race and ethnicity is complex. AHRQ provides information on steps to improve data collection.[92] AHRQ data collection methods also outline considerations important to data collection methods such as how to ask individuals about race, ethnicity, language, and communication needs and how to train staff to elicit this information respectfully and efficiently. AHRQ also outlines the need for increased integration of different entities to reduce redundancy in data collection of race and ethnicity to increase data stratification for comparison purposes.

State Medicaid programs also need data on social risk factors (often called social determinants of health or SDOH). These data must be gathered from multiple sources and linked to health data to be effective. Social risk factor measurement is complex. However, non-Medicaid agencies such as the Supplemental Nutrition Assistance Program (SNAP) or Temporary Assistance for Needy Families (TANF) records risk factors related to economic status. Risk factors related to family functioning, included explicitly in Adverse Childhood Experiences (ACEs) for children (i.e., child welfare involvement, criminal justice involvement, parental mental health status) are also available, but from more diverse sources. State Medicaid programs have many opportunities to improve data on social risk factors to improve consistency across states and state programs by leveraging multiple data sources. For instance, data from Medicaid enrollment applications could be augmented from other data sources to improve the quality of the data.[93]

BOX 8. THE POTENTIAL OF USING Z CODES TO CAPTURE SDOH

In 2014, the National Academies of Medicine (NAM) encouraged the collection of SDOH data in an electronic health record (EHR) to help providers address health disparities and support research into the health effects of SDOH. Z codes are a subset of ICD-10-CM codes, used as reason codes to capture "factors that influence health status and contact with health services."[97] [98] Z codes can and have been used as a health care strategy for making and tracking referrals.[99] Z codes can provide a rich source of data on social determinants that could be used in advancing health equity. The U.S. Department of Health and Human Services requires the use of ICD 10 codes in electronic health record documentation. There are nine Z codes related to SDOH and several sub-codes, comprising a total of 97 granular codes. For example, Z55 is used to capture problems related to education and literacy; Z57 is used to capture occupational exposure to risk factors; Z59 is used to capture problems related to housing and economic circumstances; and Z60 is used to capture problems related to the social environment.[100]

A recent study, the first of its kind by CMS, analyzes Z codes' use in 2017 among Medicare beneficiaries. The study finds that Z code claims in 2017 represented only 1.4 percent of the total FFS population. The authors of this study reported that the five most utilized Z codes are homelessness, problems related to living alone, disappearance and death of a family member, other specified problems related to psychosocial circumstances, and problems in relationship with spouse or partner. Unfortunately, Z codes are not routinely used for coding and billing purposes on SDOH.[101] As a result, important information on nonmedical causal factors is lost. State Medicaid offices should consider developing a standardized approach across provider groups to screen and collect data on SDOH using Z codes. State Medicaid data collection efforts could focus on how to increase the use of Z codes.[102]

Section 3. Minnesota Medicaid's Examination Of Health Disparities

Across the country, states report on health disparities in a variety of ways. Increasingly, state Medicaid programs are documenting health disparities in Medicaid populations and raising awareness to address implicit bias in health care. We consider many state Medicaid programs to be leaders in designing approaches to measure health disparities, from Massachusetts to Michigan to Ohio to Oregon to Pennsylvania to Washington.[103]

Minnesota is a leader in its longstanding public reporting of health disparities for the state and the Medicaid program. It is also a leader in its commitment to health equity. This section highlights how Minnesota's Medicaid program measured health disparities in Medicaid populations and demonstrates how health disparities vary across populations, based upon critical factors such as income, race and ethnicity, and disability. Key results are presented for adults and children by income, race and ethnicity, and disability to demonstrate each factor's importance to health outcomes. Minnesota's measurement of health disparities also included identifying social risk factors (often called social determinants of health) and their disproportionate impact on racial and ethnic communities. Minnesota's work on measuring health disparities in Medicaid populations is comprehensive and informative, offering a roadmap to other states on conducting this work.

At the same time, Minnesota's work on measuring health disparities reveals Medicaid's nascent stage of development. Key results by race distinguish between people who are Black, born and not born in the United States. The results do not capture the diversity of the Black immigrant population, however.[104] Key results by disability do not stratify health disparities by disability type. Data on disability type using HHS categories for disability type was not available for our work. Finally, none of the results fully capture the intersectionality of an individual's race, ethnicity, and disability type, along with economic status and family structure. While Minnesota's work represents an important step in the evolution of state Medicaid programs, it also signals an imperative to report on health disparities that address the needs of multiple stakeholders and high-risk groups.

THE STATE'S COMMITMENT TO HEALTH EQUITY

Minnesota's history and efforts to document, address, and eliminate health disparities have evolved. In 1987, the Minnesota Department of Health (MDH) began documenting and reporting health disparities results by race and ethnicity.[105] More than 25 years later, in 2014, MDH released *Advancing Health Equity in Minnesota,* in response to a 2013 Minnesota law that directed MDH to prepare this report because "disparities in health status outcomes for certain populations continued unabated, including disparities based on race or ethnicity."[106] *Advancing Health Equity in Minnesota* provides an account of the state's health disparities and recommends best practices, policies, processes, data strategies, and other steps to promote health equity for all Minnesotans. The final recommendation identifies the need to "strengthen the collection and analysis of data to advance health equity." This report led to the creation of the Center for Health Equity, established to advance health equity within the Minnesota Department of Health and across the state.

Despite a continuous focus on health equity, Minnesota struggles with reducing racial health disparities. In 2019, the state described these challenges in a report to the legislature on eliminating health disparities: "While Minnesota ranks high in terms of general health status compared to other states, the health disparities that exist in Minnesota are among the worst in the nation. Such disparities have meant that, compared to Whites, Minnesota's populations of color and American Indians experience shorter life spans; higher rates of infant mortality; higher incidences of diabetes, heart disease, cancer, and other diseases and conditions; and poorer general health. When such disparities persist, they have a negative effect on the quality of life, the cost of health care, and the overall health of all Minnesotans."[107]

THE STATE'S REPORTING ON HEALTH DISPARITIES CONTINUES TO EVOLVE

In 2004, Minnesota Community Measurement, an initiative spurred on by commercial health plans, released its first report on provider performance on select quality metrics for every clinic in the state, a first for the nation[108] In 2007, MN Community Measurement (MNCM) began a collaboration with DHS to produce Health Care Disparities Report, in response to a legislative directive[109] These reports provide an evaluation of health plan performance and identify improvement opportunities. Health disparities are displayed by race, ethnicity, language, and country of origin, an advancement over the common federal categories. In 2017, MNCM started to report disparities by race and ethnicity and insurance type, including Medicaid.[110]

In May 2020, MNCM released its latest report for nine quality indicators for people covered through managed care plans under the Minnesota Health Care Programs (MHCP), representing Minnesota's Medicaid program, and other purchasers.[111] Minnesota's reporting on health care disparities provides clear evidence of disparities between Medicaid and non-Medicaid populations across nine performance indicators; six of the measures apply to adults and three apply to children. All rates for adults covered under Medicaid were lower than the rates for other payers across the board.

For example, the breast cancer screening rate for MHCP (Medicaid) was 60 percent. Medicaid's rate was 18 percentage points below the rate for other purchasers. Populations within Medicaid fared even worse when reported by race and ethnicity. The breast cancer screening rate was 48.3 percent for members who are American Indian/Alaskan Native and 52.7 percent for Black/African American. The rate was higher for White members at 62 percent.

LEGISLATIVE DIRECTIVE TO EXAMINE HEALTH DISPARITIES IN THE MEDICAID POPULATION

In 2015, the Minnesota State Legislature added one more component to the state's agenda to understand health disparities by directing the Medicaid program to identify Medicaid populations with the greatest health disparities to advance health equity.[112] In response to this directive, the Department of Human Services (DHS) began its work. DHS is responsible for administering the Medicaid program. See **Appendix B** to read the legislative language. By 2016, DHS submitted its first report to the Minnesota Legislature to update the Legislature on its progress in developing a payment methodology incorporating social risk factors.[113] In this report, DHS named six social risk factors as strongly associated with poor health in children including factors related to economic status and family functioning. The report also explained the association of these factors with poor health and suggested how DHS might identify people with these risk factors. One social factor that was found to be associated with better health was immigration status, or being born outside of the United States.

By 2018, DHS submitted another report to the Legislature: "*Accounting for Social Risk Factors in Minnesota Health Care Program Payments.*"[114] In this report, DHS provides: (1) recommendations to reduce health disparities among Medicaid populations and other DHS program participants; and (2) summarizes progress toward reducing differences in health outcomes among the state's various populations. This report also provides a quantitative answer to the legislature's central question: *Which Medicaid populations within the Medicaid program experience the most significant health disparities and poor health outcomes?* For more than a year, DHS worked with the authors of this report from Health Management Associates and the Disability Policy Consortium. Together, they co-created a conceptual framework for measuring health disparities, prepared an analytic plan, developed analytic files, conducted a comprehensive analysis of health disparities, and prepared findings for the final report.

The final report identifies a strong association between medical and social risk factors and poor health outcomes for several population groups. The populations with the most significant health disparities and poor health outcomes were identified as: (1) adults and children at or below 50 percent of the federal poverty level (FPL); (2) adults with substance use disorder and their children; (3) adults with serious and persistent mental illness (SPMI) and their children; (4) people experiencing homelessness; (5) adults with previous prison incarceration and their children; (6) people who are Native American; and (7) children with child protection involvement (CPI).

The report links parental social risk factors with child health outcomes. It is important to remind readers that population groups – such as people at or below 50 percent of the FPL and people who are Native American – are not mutually exclusive. Many people covered under Medicaid have more than one medical or social risk factor.

All reports with results for adults and children are publicly available.[115] See **Box 9** to learn more about the way in which Minnesota is using the results.

AN ACCOUNT OF HEALTH DISPARITIES IN POPULATIONS COVERED UNDER MEDICAID

We begin our account of health disparities in populations covered under Medicaid by presenting the framework used to examine health disparities in Medicaid populations. We then present the key results for adults covered by Minnesota's Medicaid program, followed by key results for children.

Minnesota Medicaid's account of health disparities in Medicaid populations represents a major contribution towards understanding health disparities and advancing health equity for the 75 million people covered under Medicaid and CHIP in this country. It is our hope that Minnesota's work will lead to improved health outcomes for all Medicaid populations including all persons with very low income, all racial and ethnic populations, and all persons with disabilities.

Through extensive research and analyses including input from the diverse populations served by the program, Minnesota DHS identified several population groups that experience poor health outcomes associated with medical and social risk factors found commonly among Medicaid adults and children. Minnesota DHS is both the Medicaid agency and a primary social service agency (providing benefits such as SNAP and TANF, as well as child welfare services), and has much of the information needed to mobilize efforts to eliminate health disparities.

Other state Medicaid programs have also made contributions to the cause of health equity by measuring health disparities. See **Box 10** for a brief description of Oregon's and Washington's accomplishments.

STEPS TAKEN TO MEASURE HEALTH DISPARITIES IN THE MEDICAID POPULATION

In Minnesota, the researchers from Minnesota DHS, HMA and DPC took several steps to perform the quantitative work. The work was shared across a multi-disciplinary team comprised of experts in data science, epidemiology, public policy, public health and medicine. It is highly likely that this work would benefit from an even more expansive set of disciplines, skills and experiences. To advance health equity, for example, the creation of an analytical dataset not only requires technical skills but also needs input from the lived experience of racism, discrimination, bias and stigma. It is important to note that the quantitative work conducted by the HMA and DPC team was not performed *in equal collaboration with community members*.

Table 2 provides an overview of the steps taken to measure health disparities in Minnesota's Medicaid population. A more detailed description of these steps is also described in **Appendix C**. Finally, a detailed description of the available data (step 1 on **Table 2**) is provided in **Appendix D**.

BOX 9. MINNESOTA DHS USES RESULTS ON HEALTH DISPARITIES TO INFORM VBP MODEL

Minnesota DHS has incorporated the health disparity results in the Medicaid value-based payment model for the Integrated Health Partnership (IHP) initiative. Providers enrolled in this model are paid a per member per month (PMPM) amount based on social and medical risk with the expectation that this funding will be used to address these risks. The details of this model are publicly available.[116] IHPs are required to propose a health equity measure tied to interventions intended to reduce health disparities.[117] Several other states are making health disparities a key part of quality performance measurement among its providers and accountable care organizations.

BOX 10. TWO STATES THAT USE DATA TO ADVANCE HEALTH EQUITY

To measure health disparities, the Minnesota Medicaid program created an analytical dataset for the Medicaid populations by integrating several sources of data. The dataset included Medicaid enrollment application data and Medicaid claims data. In addition to Minnesota, many other state Medicaid programs are using data to support health and wellness. Oregon and Washington have created integrated datasets and dashboards to advance health equity. Interestingly, Oregon is a state Medicaid program that is "free standing," meaning that the program is not part of a larger health and human services administration.[118] Washington's Medicaid program, on the other hand, is more like Minnesota in structure. Washington operates within a larger health and health services administration.[119] Most importantly, both state Medicaid types have created integrated datasets.

OREGON. In October 2020, the Governor launched the "Oregon Child Integrated Dataset (OCID) Project, a vital online resource to provide policymakers with a more complete picture of how state programs interact with Oregon children and families over time. OCID reaches across state data systems to combine data from five agencies to ensure accountability for the well-being of the children who touch state services."[120] The project is led by the Center for Evidence-based Policy at Oregon Health & Science University. From another source: the integrated dataset provides "a powerful cross-program, longitudinal view of the well-being of children in Oregon. OCID serves as an objective, nonpartisan data resource for answering questions, generating ideas, and advancing collective accountability for the well-being of Oregon's children."[121]

WASHINGTON. Since the early 1990s, the Washington State Department of Social and Health Services has been a leader in data analytics to inform policy and better serve the state's clients.[122] The State of Washington uses data to improve outcomes for its members and to make improvements to programs, and has integrated its data from several state agencies. The state uses this linked data to understand health disparities in access to services, quality of care, utilization, and health outcomes.[123] Beyond technology needs, the state's research and data analysis leader would also encourage states to invest in highly-skilled analytical staff to build organizational analytic capacity.[124]

Table 2. Key Steps Taken To Measure Health Disparities In Medicaid Populations

Step	Description of Steps (see Appendix C)
Step 1	Identify the available data (see Appendix D)
Step 2	Establish a framework for examining health disparities
Step 3	Define the population groups
Step 4	Select measures of health disparities
Step 5	Prepare an analytic plan
Step 6	Develop the analytical dataset
Step 7	Conduct the analyses and interpret the results
Step 8	Report results and communicate results

A NEW LENS ON HEALTH DISPARITY RESULTS

In view of the COVID-19 pandemic's disproportionate impact on people who are Black and African American, other racial and ethnic populations, low-income populations, and persons with disabilities, we were motivated to group the health disparity results from our pre-pandemic work with Minnesota Medicaid into three population categories: income, race and ethnicity, and disability. Populations are often categorized by income, race and ethnicity, and disability by policymakers, researchers, and advocates to discuss and address health disparities. In our original work with Minnesota Medicaid, we had many more population categories. For the purpose of this report, however, we focused on Medicaid populations that we could be grouped by income, race and ethnicity, and disability categories. See **Appendix D** for more detail about the three population categories.

ADULTS

Three Categories for Adults

The results from our work in Minnesota Medicaid are presented for the following three adult categories including nine population groups. These nine groups are not distinct. Adults may fall into more than one group. See **Appendix E** for more information about each population group.

Category 1: Very Low Income. This category includes *two* adult population groups that experience poor health outcomes compared to other populations covered under Medicaid. This first category includes adults with very low income, as defined by having income at or below 50 percent of the federal poverty level (Group 1); and, adults experiencing homelessness (Group 2).

Category 2: Race and Ethnicity. This category includes *four* adult populations defined by race or ethnicity. Race and ethnicity are social risk factors associated with health outcomes, related to many factors, including structural racism and discrimination. This second category includes adults who are American Indian (Group 3); adults who are U.S. born Black or African American (Group 4); adults who are Hispanic (Group 5); and adults who are White (Group 6). The terms used to describe populations by race and ethnicity are consistent with the categories used by Minnesota DHS on its enrollment forms. American Indian, instead of Native American, is the term used in Minnesota. Minnesota uses 11 categories altogether, including Asian, and "Other/Unknown." More detailed results for all adults U.S. born are available in documents listed in the front of this report.

Category 3: Disability. This category includes *three* adult populations defined by disability status and type. These three categories are: adults with a disability, because they qualify for disability-based Medicaid (Group 7); adults with a diagnosis of serious and persistent mental illness (SPMI) (Group 8); and adults with a diagnosis of substance use disorder (SUD) (Group 9). It should be noted that Group 7 represents adults with all types of disabilities. While we hope that this grouping brings attention to the level of health care disparities experienced by people with disabilities, we also know that a more refined approach is needed. Analyses of health disparities for people with disabilities should be stratified by disability type based upon the types of disabilities used in the Disability and Health Data System developed by the Centers for Disease Control and Prevention. For more information about how disability was used as a social risk factor in this report, see **Box 11**.

THE RESULTS FROM MINNESOTA PROVIDE USEFUL INSIGHTS TO OTHER STATES

Prior to reviewing the key results on measures of health disparity for Medicaid adults in Minnesota, we wish to note that these results are consistent with the national literature that provides evidence of health disparities. For this reason, Minnesota's results may be helpful to other states in their efforts to better understand the importance of medical and social risk factors to health disparities.

We do wish to add the caveat that while other state Medicaid programs may identify health disparities by income, race and ethnicity, and disability, we expect that there will be much variation across the state Medicaid programs as to the level of health disparities. Health disparities may be worse for Medicaid members residing in some states than in other states.

We appreciate that states and state Medicaid programs differ in ways that impact health disparities. They differ in demographics, health care coverage, health care access, use and costs. Each state Medicaid program would do well to focus on risk factors that may be most relevant to the populations they serve. In Minnesota, for example, American Indians are an important population group experiencing significant health disparities. Outside of Minnesota, other states may have additional groups upon which to focus. In the end, each state must conduct its own analysis of health disparities based upon the available data.

BOX 11. DISABILITY IS A SOCIAL RISK FACTOR IN THE CONTEXT OF OTHER RISK FACTORS

In this report, we have used disability to describe *both* a population group and a health outcome. This makes disability a risk factor (used as an independent variable in the analysis), *and* an outcome measure (used as a dependent variable in the analysis). As a social risk factor, disability, must be placed in the context of discrimination and bias. The extent to which disability has a negative impact on a person is dependent upon factors outside of the person. These factors include racism, homophobia, inadequate access to accessible environments, barriers to education, and more.

As readers will learn, we present health disparity results for people with disabilities as a population group. We also present health disparity results on the rate of disability in population groups with very low income and for racial and ethnic groups. Our understanding of disability as a social risk factor is evolving in public health practice and in delivery of medical services. Fortunately, this is also leading to an increasing understanding of disability. The use of disability as a risk factor has been questioned by some authorities, and supported by others. Important to note that the National Academies of Sciences, Engineering, and Medicine (NASEM), for example, did not include disability as a social risk factor in its conceptual framework to guide its approach to accounting for social risk factors in Medicare payments. A prominent disability researcher involved in NASEM's work, Dr. Lisa Iezzoni, argues strongly for disability as a social risk factor in measuring health disparities.[125] The 2016 HHS "*Report to Congress: Social Risk Factors and Performance Under Medicare's Value-Based Purchasing Programs*" identified disability as an important risk factor in Medicare payment programs but not as a social risk factor. However, it identified disability as closely linked to numerous social risk factors and health outcomes. In 2017, the Board on Population Health and Public Health Practice and the Board on Health Care Services of the NASEM's Health and Medicine Division held an event titled "Dissemination Meeting on the Report Series *Accounting for Social Risk Factors in Medicare Payment*." At the event, Dr. Iezzoni argued for inclusion of disability as a social factor noting that disability shares attributes of other social risk factors identified, namely race and ethnicity, gender, and sexual minority status. "For example, she explained, people with disabilities continue to experience significant discrimination and stress-inducing barriers and challenges on a daily basis."[126] These included high rates of violence, smoking, obesity and stigma associated with disability and access to care and treatment.

To note, the 2017 National Quality Forum final report "Disparities in Healthcare and Health Outcomes in Selected Conditions" included disability as a social risk factor. The Committee also expressed a desire to look beyond social risk factors to include behavioral risk factors, environmental exposures and access to green space, health care access, and cultural considerations.

AN ANALYTICAL APPROACH FOR MEASURING HEALTH DISPARITIES

To produce the analytical results in our work with Minnesota Medicaid, we conducted two common types of analyses to measure health disparities. The results presented in this section are based upon bivariate analysis and regression analysis. See **Appendix C** for more detail on these analyses.

Bivariate results. Bivariate analyses provide a straightforward account of health disparities for a diverse audience. The results of the analysis are easy to interpret. First, we present the results on health disparities for all adults covered under Medicaid. These results establish a baseline picture of health outcomes in the adult Medicaid population. Second, we present the results on health disparities for all nine population groups that constitute the three population categories. Readers may compare the results for the overall adult Medicaid population to the results for nine adult populations across the three categories. Bivariate analysis is used to highlight the relationships between income, race and ethnicity, and disability and health disparities. Using this approach, we can examine the relationship between adults with very low income and mortality, (where income is the social risk factor and mortality is the measure of health disparity). Finally, comparisons among population groups can highlight disparities and create benchmarks for improvements.

Regression results. We also present the results from our regression analyses, summarized for the reader. Regression analysis is used to identify the statistical association between social risk factors and outcomes. The regression analyses' key results provide evidence of the unique contribution of each medical and social risk factor to a range of outcomes. The results can answer a range of questions for Medicaid populations about the association between income, race and ethnicity, disability, and outcomes. For example, regression analysis can help answer such questions as: do adults with very low-income experience higher mortality rates than adults with relatively higher incomes?

BIVARIATE RESULTS FOR ADULTS COVERED UNDER MEDICAID

The bivariate results for 550,341 adults covered under Medicaid for all measures of health disparity examined in Minnesota are presented in this section. This presentation of "all adults" includes all ages 18-64, all genders, all Medicaid-eligible income levels, all races and ethnicities, all disabilities, and those who are U.S. born and non-U.S. born. The data is restricted to persons who are only eligible for Medicaid, which excludes persons with disabilities who are eligible for Medicaid *and* Medicare. **Table 3** provides a list of the tables containing bivariate results for adults.

The key results for adults covered under Medicaid, as shown in **Table 4**, provide a comprehensive account of health outcomes across 20 measures. The 20 measures include mortality, morbidity (burden of illness), disability, and health care use, quality and cost. Excluding the cost measure, the count is 19.

Readers should note that Table 4 serves as the model for presenting the bivariate results for very low income, race and ethnicity, and disability.

Key Results for All Adults Covered Under Medicaid

Table 4 provides a detailed set of results for all adults covered under Medicaid. Results highlighted in **red** font indicate that the outcome for the population under examination is worse than the outcome for the comparison group. For all adults, we compared outcomes for males to females covered under Medicaid. Non-dichotomous data on gender was not available.

The lines are numbered in **Table 4** to assist readers in understanding the results. **Appendix F** provides a detailed "walk through" of the results across all measures shown in **Table 4**. For example, see Table 4, Line 4: The mortality rate for male adults is worse than the rate for female adults. This rate for male adults is highlighted in **red**. The mortality measure refers to the proportion of individuals who died in the 2.5 years that we examined. The results indicate that the mortality rate was 1.1 percent for male adults, 0.6 percent for female adults, and 0.8 percent for all adults in the Medicaid program. Overall, male adults had poorer outcomes than female adults for 11 of 19 measures. For more information on the diseases and conditions, see the list provided by the CDC.[127] For costs, calendar year expenditures were slightly lower for male adults than female adults. On the other hand, the rate of emergency department (ED) visits for female adults was nearly double the male adult rate.

It is important to note that there are many ways to analyze health disparities among Medicaid populations. See **Box 12** for three additional ways to raise the bar for Medicaid populations.

Table 3. Tables With Bivariate Results For Adults

Table	Table Name
Table 4	An Account of Health Disparities for Adults Covered Under Minnesota Medicaid
Table 5	An Account of Health Disparities for Adults in Category 1: Very Low Income
Table 6	An Account of Health Disparities for Adults in Category 2: Race and Ethnicity
Table 7	An Account of Health Disparities for Adults in Category 3: Disability (D)
Table 8	An Account of Health Disparities for Adults in Category 3: D-SPMI and SUD

Table 4. An Account Of Health Disparities For Adults Covered Under Minnesota Medicaid

An Account of Health Disparities for All Adults Covered Under Minnesota's Medicaid Program, 18-64 Years

Line	Description	Male		Female		Total	
		#	%	#	%	#	%
1	**Population**	244,730	44%	305,611	56%	550,341	100%
2	*Average age*	*37.8*		*36.8*		*37.2*	
3	**HEALTH DISPARITY MEASURES**						
4	**Mortality**	2,572	1.1%	1,725	0.6%	4,297	0.8%
5	**Morbidity**						
6	Type 2 diabetes	17,623	7.2%	20,652	6.8%	38,275	7.0%
7	Asthma	16,217	6.6%	35,491	11.6%	51,708	9.4%
8	Human Immunodeficiency Virus (HIV)/Hepatitis C Virus	5,051	2.1%	3,776	1.2%	8,827	1.6%
9	Hypertension	5,238	2.1%	23,028	7.5%	28,266	5.1%
10	Cardiovascular	4,314	1.8%	3,224	1.1%	7,538	1.4%
11	Chronic Obstructive Pulmonary Disease (COPD)	18,961	7.8%	27,987	9.2%	46,948	8.5%
12	Injury	14,200	5.8%	16,561	5.4%	30,761	5.6%
13	Lung/Laryngeal Cancer	644	0.3%	561	0.18%	1,205	0.22%
14	Substance Use Disorder (SUD)	45,474	18.6%	33,875	11.1%	79,349	14.4%
15	Post-Traumatic Stress Disorder (PTSD)	9,492	3.9%	23,001	7.5%	32,493	5.9%
16	Depression	36,993	15.1%	68,774	22.5%	105,767	19.2%
17	Serious and Persistent Mental Illness (SPMI)	11,999	4.9%	18,530	6.1%	30,529	5.6%
18	**Disability**	22,460	9.2%	22,590	7.4%	45,050	8.2%
19	**Health Care Access, Use, Quality**					-	
20	Potentially preventable emergency department visits	18,242	7.5%	39,700	13.0%	57,942	10.5%
21	Potentially preventable hospital admissions	1,539	0.63%	1,790	0.59%	3,329	0.60%
22	HEDIS measures					-	
23	Annual preventive visit	60,908	24.9%	121,971	39.9%	182,879	33.2%
24	Comprehensive diabetes care - A1c test[1]	9,420	92.9%	12,211	91.4%	21,631	92.0%
25	Annual dental visit (ADV) for adults[2]	49,149	43.5%	84,060	51.9%	133,209	48.4%
26	**Health Care Costs**						
27	Total Calendar Year (CY) expenditures per individual		$7,074		$7,128		$7,104

Notes: (1) Denominator: n = 10,145 (M); n = 13,366 (F); n = 23,511 (Total)

(2) Denominator: n = 113,003 (M); n = 162,042 (F); n = 275,045 (Total)

BOX 12. RAISING THE BAR FOR MEDICAID POPULATIONS

State Medicaid programs have many opportunities to raise the bar for all Medicaid populations. Medicaid can compare outcomes across payers. Medicaid can expand the work to dually eligible populations. Medicaid can adopt an intersectional approach. First, state Medicaid programs could raise the bar by comparing outcomes for populations with Medicaid and other insurance coverage types. This suggestion would require Medicaid to integrate data with a commercial database. For adults covered under Medicaid, the prevalence of asthma is 9.4 percent, and the prevalence of chronic obstructive pulmonary disease (COPD) is 8.5 percent. By contrast, for adults across all forms of coverage in Minnesota, the prevalence of asthma is lower at 7.6 percent, and the prevalence of COPD is lower at 3 percent. Medicaid leaders could consider the opportunities to eliminate this disparity across payers. Second, state Medicaid programs could measure health disparities among dually eligible individuals by disability type. It is critical to measure health disparities among dually eligible individuals. This population has a range of complex chronic conditions, disabilities and needs, and often lacks access to coordinated, integrated care models. Medicaid would be required to integrate data for individuals from Medicaid and Medicare. Medicaid leaders could develop a plan to track and measure improvement. Finally, state Medicaid programs could collect more detailed and expansive data to ensure that health disparity analyses are grounded in an intersectional approach.

Key Results for Category 1: Adults by Very Low Income

Key results for adults in category 1 shown in **Table 5** are based upon the bivariate analyses for 20 measures, including mortality rates, burdens of illness, disability rates, and health care use, quality and costs. The results are two adult population groups: those with very low income and those experiencing homelessness. Key results are shown in **Table 5**. This comparative structure helps us to understand the impact of income and homelessness on health across all measures. The **red** font results indicate that the results are worse than the comparison group. Health outcomes for adults with very low income (at or below 50 percent of the FPL) are compared to outcomes for adults with income higher than the FPL. Health outcomes for adults experiencing homelessness are compared to outcomes for adults who are not experiencing homelessness.

Key Results for Category 2: Adults by Race and Ethnicity

Key results for adults in category 2 shown in **Table 6** are based upon the bivariate analyses for 20 measures, including mortality rates, burdens of illness, disability rates, and health care use, quality and costs. The results are for four populations, American Indian, adults who are U.S. born Black or African American, Hispanic, and White adults. The results or average for all adults (n = 550,441) are also shown. This comparative structure helps us to understand the impact of race and ethnicity on health across all measures. Results highlighted in **red** font indicate that the result is worse than the result for the comparison groups. Results highlighted in **purple** font indicate that the result is worse than the results for the two remaining comparison groups.

Key Results for Category 3: Adults by Disability

Category 3 focuses on three population groups: adults with disabilities, adults with serious and persistent mental illness (SPMI), and adults with substance use disorder (SUD). The results for adults in category 3 shown in **Table 7** and **Table 8** are based upon the bivariate analyses for all measures including mortality rates, burdens of illness, disability rates, and health care use, quality and costs. Results highlighted in **red** font reflect that the result is worse than the comparison group. For example, the mortality rate for adults with a disability is worse (higher rate) than the rate for adults without a disability (3.9 percent versus 0.5 percent).

Table 7 includes results for adults with a disability based on eligibility status. It is important to note that this account of health disparities among adults with disabilities does not present results by disability type. Without results by disability type, it is impossible to address health disparities between different disability types or address underlying inequities, which may lead to these disparities.

Table 8 includes results for adults with a diagnosis of SPMI and/or SUD. This comparative structure helps us to understand the impact of disability, SPMI, and SUD on health across all measures.

Table 5. An Account Of Health Disparities For Adults In Category 1: Very Low Income

An Account of Health Disparities for Category 1 (Groups 1, 2)					
Line	**Description**	**Group 1. Income**		**Group 2. Homelessness**	
		Income at or < 50% FPL	**Income > 100% FPL**	**Experiencing Homelessness**	**Not Experiencing Homelessness**
1	**Population**	240,350	116,938	38,721	511,620
2	*Average age*	*37.3*	*38.1*	*35.6*	*37.4*
3	**HEALTH DISPARITY MEASURES**				
4	Mortality	1.3%	0.3%	1.2%	0.8%
5	Morbidity				
6	Type 2 diabetes	8.7%	5.5%	6.9%	7.0%
7	Asthma	11.7%	7.0%	14.6%	9.0%
8	Human Immunodeficiency Virus (HIV)/Hepatitis C Virus	2.6%	0.6%	4.3%	1.4%
9	Hypertension	6.1%	3.5%	7.7%	4.9%
10	Cardiovascular	2.0%	0.8%	1.6%	1.4%
11	Chronic Obstructive Pulmonary Disease (COPD)	11.2%	6.2%	11.5%	8.3%
12	Injury	7.2%	3.4%	13.0%	5.0%
13	Lung/Laryngeal Cancer	0.3%	0.1%	0.24%	0.22%
14	Substance Use Disorder (SUD)	20.3%	6.3%	37.9%	12.6%
15	Post-Traumatic Stress Disorder (PTSD)	8.4%	2.7%	13.0%	5.4%
16	Depression	25.2%	12.8%	32.2%	18.2%
17	Serious and Persistent Mental Illness (SPMI)	8.4%	2.3%	12.1%	5.1%
18	Disability	15.7%	1.1%	10.8%	8.0%
19	Health Care Access, Use, Quality				
20	Potentially preventable emergency department visits	13.5%	6.1%	22.5%	9.6%
21	Potentially preventable hospital admissions	0.84%	0.3%	1.1%	0.6%
22	HEDIS measures				
23	Annual preventive visit	34.8%	31.9%	34.9%	33.1%
24	Comprehensive diabetes care - A1c test	91.4%	94.2%	87.8%	92.3%
25	Annual dental visit (ADV) for adults	48.3%	49.2%	41.9%	48.8%
26	**Health Care Costs**				
27	Total Calendar Year (CY) expenditures per individual	$10,447	$3,694	$9,833	$6,898

Notes: (1) Group 1. Adults with very low income (income at or below 50 percent of the FPL), where measures of health disparities for this population are compared to adults with higher relative income than the FPL. This comparative structure helps us to understand the impact of very low income on disparities. Adults with very low income had poorer outcomes than adults with relative higher income across 18 of 19 measures. Expenditures were also much higher for adults with very low income than for the comparison group.

(2) Group 2. Adults experiencing homelessness, where measures of health disparities for this population are compared to adults who are not experiencing homelessness had poorer outcomes than adults not experience homelessness for 17 of 19 measures, although Type 2 diabetes is nearly the same. Expenditures were also much higher for adults experiencing homelessness than the comparison group.

Table 6. An Account Of Health Disparities For Adults In Category 2: Race And Ethnicity

An Account of Health Disparities for Category 2 (Groups 3, 4, 5, 6)

Line	Description	Group 3.	Group 4.	Group 5.	Group 6.	
		American Indian	Black or African American (U.S. born)	Hispanic (U.S. born)	White (U.S. born)	All Adults
1	**Population**	23,464	66,093	16,907	296,992	550,341
2	*Average age*	*35.1*	*35*	*31.2*	*38.7*	*37.2*
3	**HEALTH DISPARITY MEASURES**	**13**	**4**	**2**		
4	**Mortality**	1.4%	0.8%	0.5%	1.0%	0.8%
5	**Morbidity**					
6	Type 2 diabetes	12.4%	8.3%	7.6%	6.2%	7.0%
7	Asthma	12.5%	16.5%	10.0%	9.6%	9.4%
8	Human Immunodeficiency Virus (HIV)/Hepatitis C Virus	4.5%	2.7%	1.7%	1.5%	1.6%
9	Hypertension	7.7%	9.6%	5.6%	3.9%	5.1%
10	Cardiovascular	2.1%	2.0%	0.7%	1.5%	1.4%
11	Chronic Obstructive Pulmonary Disease (COPD)	11.9%	8.4%	6.7%	10.2%	8.5%
12	Injury	10.5%	7.0%	6.6%	6.0%	5.6%
13	Lung/Laryngeal Cancer	0.3%	0.2%	.07%	0.3%	0.2%
14	Substance Use Disorder (SUD)	35.4%	20.1%	14.1%	15.6%	14.4%
15	Post-Traumatic Stress Disorder (PTSD)	10.5%	8.6%	6.1%	5.6%	5.9%
16	Depression	30.3%	20.6%	19.2%	22.4%	19.2%
17	Serious and Persistent Mental Illness (SPMI)	7.4%	7.1%	4.8%	6.2%	5.6%
18	**Disability**	10.5%	14.8%	6.6%	8.1%	8.2%
19	**Health Care Access, Use, Quality**					
20	Potentially preventable emergency department visits	21.6%	19.3%	12.7%	9.3%	10.5%
21	Potentially preventable hospital admissions	1.1%	1.0%	0.5%	0.6%	0.6%
22	HEDIS measures					
23	Annual preventive visit	35.0%	35.9%	31.4%	33.8%	33.2%
24	Comprehensive diabetes care - A1c test	87.5%	90.8%	90.2%	92.5%	92.0%
25	Annual dental visit (ADV) for adults	47.0%	45.5%	46.8%	48.6%	48.4%
26	**Health Care Costs**					
27	Total Calendar Year (CY) expenditures per individual	$11,578	$8,211	$6,159	$7,597	$7,104

Notes: (1) Group 3. Adults who are American Indian, where measures of health disparities are compared to adults of other races and ethnicities including adults who are U.S. born Black or African American, Hispanic, White, and the average for all 550,441 adults. Adults who designate as American Indian have the worst health outcomes for 13 of 19 measures, and second worst for 4 of 19 measures. Expenditures per individual, as a measure, is excluded from this count.

(2) Group 4. Adults who are Black or African American, where measures of health disparities are compared to other populations. Adults who are U.S. born Black or African American have the worst health outcomes for 4 of 19 measures, and second worst for 9 of 19 measures. Expenditures per individual, as a measure, is excluded from this count.

(3) Group 5. Adults whose ethnicity is Hispanic, where measures of health disparities are compared to other populations. Adults whose ethnicity is Hispanic have the worst health outcomes for 1 of 19 measures, and second worst for 2 of 19 measures. Expenditures per individual, as a measure, is excluded from this count.

(4) Group 6. Adults who are White, where measures of health disparities are compared to other populations. Adults who are White have the worst health outcomes for 1 of 19 measures. Adults who are White have a range of chronic conditions; however, they compare favorably to other comparison groups with one of the lowest rates of disability and lowest rates of ED visits. Expenditures per individual, as a measure, is excluded from this count.

Table 7. An Account Of Health Disparities For Adults In Category 3: Disability

An Account of Health Disparities for Category 3 (Group 7: Disability Status)			
Line	**Description**	**Group 7. Disability**	
		Adults with a Disability	**Adults without a Disability**
1	**Population**	45,050	505,291
2	*Average age*	*43.7*	*36.7*
3	**HEALTH DISPARITY MEASURES**		
4	**Mortality**	3.9%	0.5%
5	**Morbidity**		
6	Type 2 diabetes	20.7%	5.7%
7	Asthma	20.1%	8.4%
8	Human Immunodeficiency Virus (HIV)/Hepatitis C Virus	6.4%	1.2%
9	Hypertension	8.9%	4.8%
10	Cardiovascular	6.3%	0.9%
11	Chronic Obstructive Pulmonary Disease (COPD)	24.0%	7.2%
12	Injury	9.6%	5.2%
13	Lung/Laryngeal Cancer	1.2%	0.1%
14	Substance Use Disorder (SUD)	28.2%	13.2%
15	Post-Traumatic Stress Disorder (PTSD)	17.5%	4.9%
16	Depression	42.8%	17.1%
17	Serious and Persistent Mental Illness (SPMI)	22.8%	4.0%
18	**Disability**	n.a	n.a.
19	**Health Care Access, Use, Quality**		
20	Potentially preventable emergency department visits	16.6%	10.0%
21	Potentially preventable hospital admissions	2.5%	0.44%
22	HEDIS measures		
23	Annual preventive visit	47.6%	32.0%
24	Comprehensive diabetes care - A1c test	92.3%	91.9%
25	Annual dental visit (ADV) for adults	51.9%	47.9%
26	**Health Care Costs**		
27	Total Calendar Year (CY) expenditures per individual	$32,594	$4,832

Notes: (1) Group 7. Adults with a disability, where measures of health disparities are compared to adults without a disability. Adults with a disability have the worst health outcomes for 16 out of 18 measures. Adults with a disability have higher rates across all measures as compared to adults without a disability. (Note that one measure is excluded: disability, which explains why there are 19 measures instead of 20 measures.) Expenditures per individual, as a measure, is excluded from this count.

Table 8. An Account Of Health Disparities For Adults In Category 3: D-SPMI and SUD Population Groups

An Account of Health Disparities for Category 3 (Group 8: SPMI, Group 9: SUD)					
Line	**Description**	**Group 8. SPMI**		**Group 9. SUD**	
		With	**Without**	**With**	**Without**
1	**Population**	30,529	519,812	79,349	470,992
2	*Average age*	*39*	*37.1*	*37.8*	*37.1*
3	**HEALTH DISPARITY MEASURES**				
4	**Mortality**	1.7%	0.7%	2.5%	0.5%
5	**Morbidity**				
6	Type 2 diabetes	14.1%	6.5%	9.3%	6.6%
7	Asthma	22.6%	8.6%	16.5%	8.2%
8	Human Immunodeficiency Virus (HIV)/Hepatitis C Virus	5.1%	1.4%	6.4%	0.8%
9	Hypertension	10.2%	4.8%	8.9%	4.5%
10	Cardiovascular	2.6%	1.3%	3.3%	1.1%
11	Chronic Obstructive Pulmonary Disease (COPD)	19.7%	7.9%	18.2%	6.9%
12	Injury	24.1%	4.5%	17.3%	3.6%
13	Lung/Laryngeal Cancer	0.3%	0.2%	0.5%	0.2%
14	Substance Use Disorder (SUD)	50.4%	12.3%	n.a.	n.a.
15	Post-Traumatic Stress Disorder (PTSD)	39.7%	3.9%	18.0%	3.9%
16	Depression	n.a	n.a.	49.7%	14.1%
17	Serious and Persistent Mental Illness (SPMI)	n.a	n.a.	19.4%	3.2%
18	**Disability**	33.7%	6.7%	16.0%	6.9%
19	**Health Care Access, Use, Quality**				
20	Potentially preventable emergency department visits	21.5%	9.9%	20.8%	8.8%
21	Potentially preventable hospital admissions	1.4%	0.6%	1.8%	0.4%
22	HEDIS measures				
23	Annual preventive visit	49.4%	32.3%	41.0%	31.9%
24	Comprehensive diabetes care - A1c test	91.6%	92.1%	89.0%	92.7%
25	Annual dental visit (ADV) for adults	57.2%	47.7%	49.4%	48.3%
26	**Health Care Costs**				
27	Total Calendar Year (CY) expenditures per individual	$26,816	$5,947	$17,761	$5,309

Notes: (1) Group 8. Adults with SPMI, where measures of health disparities are compared to adults without SPMI. Adults with a diagnosis of SPMI have the worst health outcomes for 15 out of 17 measures. (Note that two measures are excluded: Depression and SPMI.) Expenditures per individual, as a measure, is excluded from this count.

(2) Group 9. Adults with SUD, where measures of health disparities are compared to adults without SUD. Adults with a diagnosis of SUD have the worst health outcomes for 16 out of 18 measures. (Note that one measure is excluded: SUD.) Expenditures per individual, as a measure, is excluded from this count.

TAKING STOCK: A SIMPLE SUMMARY OF THE BIVARIATE RESULTS FOR ADULTS

To take stock of the many bivariate results, we prepared a simple summary of the results in Table 9. The total number of poor health outcomes for each population group is based on the sum of “worst” and “second worst” outcomes for each population group. In this context, worst means highest prevalence.

For example, adults who are American Indian (Group 3): This population group had 13 of the worst outcomes and four of the second-worst outcomes compared to the results for three other adult groups (U.S. born adults who are Black/African American, Hispanic, or White). Adults who are American Indian had a total of 17 poor health outcomes out of a total of 19 outcome measures.

As the data in **Table 9** shows, adults subsisting on a poverty-level income have much poorer health outcomes than adults with more income, adults who are American Indian and adults who are Black or African American have much poorer health outcomes than adults who are White, and adults with a disability have much poorer health outcomes than adults who are not disabled. Readers will want to review all population-specific tables (**Tables 4, 5, 6, 7, and 8)** carefully to appreciate the variation in health disparities among population groups across measures of mortality, morbidity, and disability.

Table 9. A Summary Of Poor Health Outcomes Among Four Adult Population Groups

The Total Number of Poor Health Outcomes for Adults, Based Upon Bivariate Results

		The Number of Poor Outcomes by Group				
Category	**Adult Groups**	**Worst Outcomes**	**Second-Worst Outcomes**	**Poor Outcomes**	**Total Measures**	**Poor as a % of Total**
		A	**B**	**C**	**D**	**E**
Baseline	**All Adults**					
	Male	11	n.a.	11	19	**58%**
	Female	8	n.a.	8	19	**42%**
Category 1	**Adults with Very Low Income**					
Group 1	Income at or below 50% of FPL	18	n.a.	18	19	**95%**
Group 2	Experiencing Homelessness	17	n.a.	17	19	**89%**
Category 2	**Adults by Race and Ethnicity**					
Group 3	American Indian	13	4	17	19	**89%**
Group 4	Black/African American (U.S. born)	4	9	13	19	**68%**
Group 5	Hispanic (U.S. born)	1	2	3	19	**16%**
Group 6	White (U.S. born)	1	4	5	19	**26%**
Category 3	**Adults with Disabilities**					
Group 7	Disability: Eligibility Status	16	n.a.	16	18	**89%**
Group 8	SPMI	15	n.a.	15	17	**88%**
Group 9	SUD	16	n.a.	16	18	**89%**

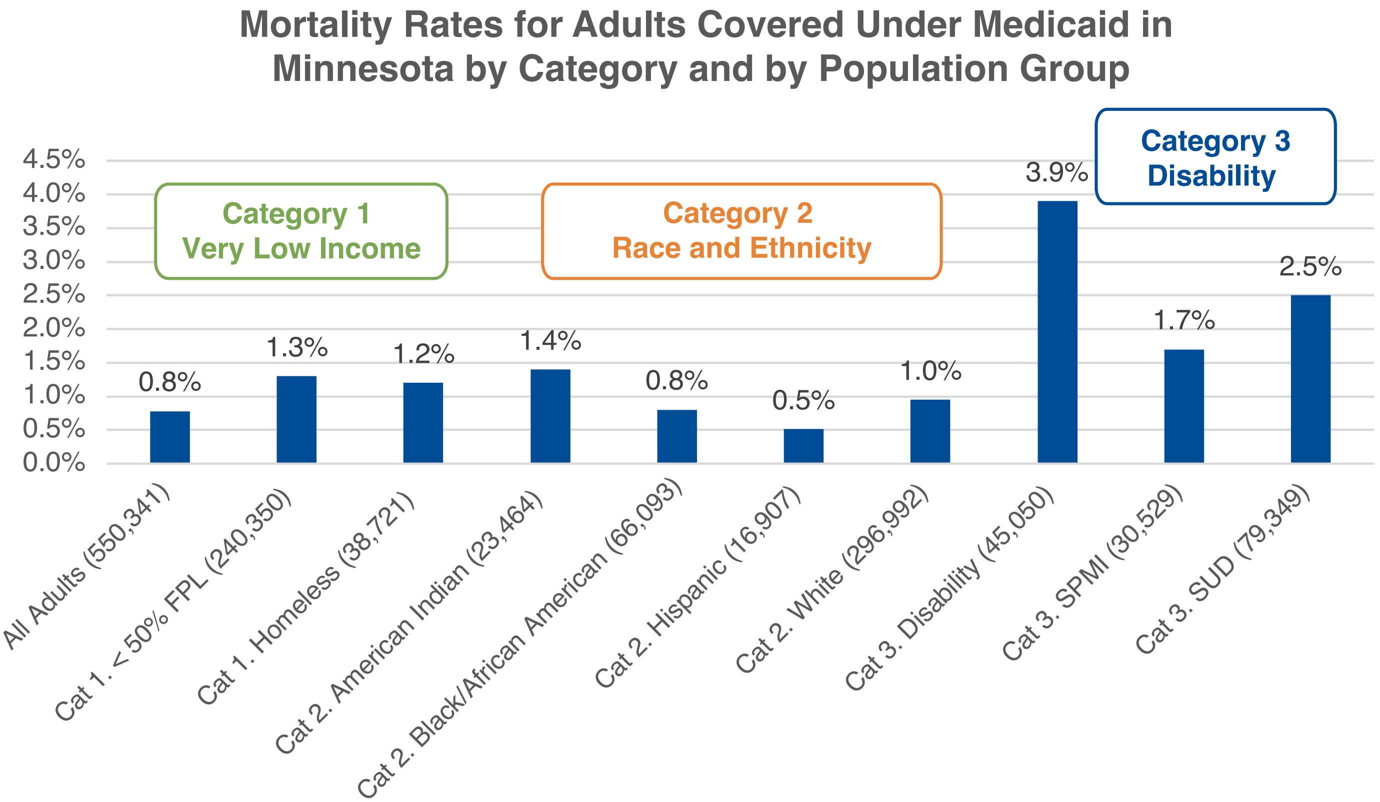
MORTALITY RATES AMONG ADULT POPULATION GROUPS

The mortality rate is one of the most important measures of health disparity. As defined in this analysis, the mortality rate refers to the proportion of people who died within the 2.5 years in our data period. In the 2.5 years that mortality was measured for all adults, the rate was 0.8 percent, or less than 1 percent of all adults in the Medicaid program. This mortality rate reflects the average for all adults covered under the Medicaid program, including adults who are U.S. born and adults who are not U.S. born.

Figure 1 shows mortality rates for all population groups by category. (The size of each Medicaid group is also shown in this figure.) The mortality rates range from a low of 0.5 percent to a high of 3.9 percent. As the figure shows, the mortality rates for both category 1 populations are higher than the average for all Medicaid adults. The mortality rate is 1.3 percent for adults with very low income, and 1.2 percent for adults experiencing homelessness.

Most strikingly, however, are the mortality rates for adults in category 3. Adults with a disability based upon eligibility status had a mortality rate of 3.9 percent, adults with a diagnosis of SPMI had a mortality rate of 1.7 percent, and adults with SUD had a mortality rate of 2.5 percent.

Figure 1. Mortality Rates Among Medicaid Adults



COST DIFFERENCES AMONG ADULT POPULATION GROUPS

Cost differences are essential to consider because they can help us to appreciate the relative variation in costs among groups and they are an important outcome to state Medicaid programs. There is extreme variation in the average annual cost per adult across the nine population groups. Such variation in costs is the subject of significant study among actuaries, researchers, and policymakers interested in understanding the key factors driving costs relating to health risk, social determinants of health, functional status, benefit coverage, prices, service use, and the care delivery approach. This report does not attempt to analyze the cost variation among Medicaid populations.

Readers should not assume that cost differences are attributable to health disparities and that efforts to close these gaps would yield savings. While it is true that today's costs under Medicaid programs reflect poor health outcomes for many populations, we have not attempted to quantify the potential savings from reducing the high use of medical services such as potentially preventable ED visits or institutional services such as nursing homes. A comprehensive analysis of costs and savings focused on policy and practice changes would be a worthwhile pursuit. Such a model should capture assumptions around costs and savings related to interventions, services to address SDOH needs, expanded home and community-based services, and other efforts to close the gaps in health outcomes. A commitment to implementing these changes and a framework for data feedback and iterative modification is essential.

State Medicaid programs could begin this work by building a model focused on children and teens. This would provide policymakers with an understanding of the potential to alter the cost trajectory from investing in younger generations. Investing in children served by Medicaid could lead to higher tax revenue and lower health care use as adults. Studies have shown that Medicaid coverage leads to positive long-term impacts in adulthood.[128]

Figure 2. Cost Ratios Among Medicaid Adults

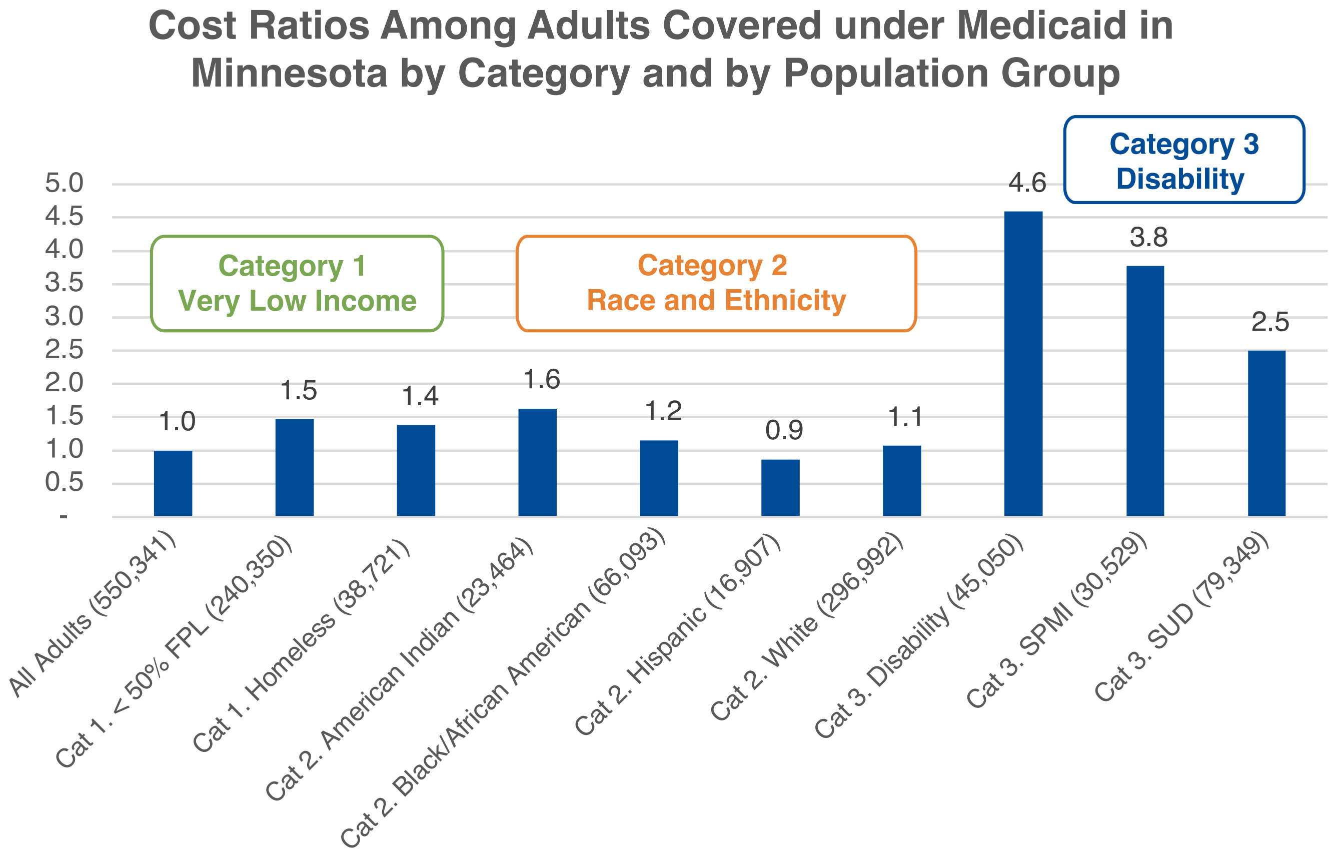


Figure 2 provides a picture of the variation in costs across the three categories and populations by comparing the average annual cost per population group to the average for all adults ($7,104). Cost ratios for each population are presented in **Figure 2**. These cost ratios were calculated by dividing the average cost for each population group by the average cost for Medicaid adults. For example, the average cost per adult for those with very low income is 1.5 times higher, or 50 percent higher, than the average cost for the total adult population group (n = 550,341). The ratios range from 0.9 (i.e. lower than average) for Hispanic adults to 4.6 times higher than average for adults with disabilities.

REGRESSION RESULTS FOR ADULTS COVERED UNDER MEDICAID

Although much of this report focuses on the results from the bivariate analyses, the analytical plan also included multiple regression analyses. Regression analysis helps us to determine the statistical association between risk factors and outcomes. Using regression analysis, for example, we could examine the relationship between income and mortality. It is important to note that all regressions were adjusted for demographics, geography, and other social risk factors.

Table 10 highlights the impact of poverty, structural racism, and disability on health outcomes. From the wealth of regression results, we selected 12 health disparity measures to report in **Table 10**. Only statistically significant results are reported. In many cases, the regression results confirm that specific comparisons among population groups are essential to understanding the intersectional social factors that may lead to health disparities.

From the bivariate results, we identified strikingly high rates of disability among adults with income at or below 50 percent of the FPL (15.7 percent) and for adults who are Black or African American (14.8 percent). The rates of disability for these two population groups are nearly double the overall rate for all adults (8.2 percent).

In the same way that the bivariate results were striking, the regression results were too. The odds of having a disability are much higher for two population groups. As indicated in **Table 10**, adults who are Black or African American are nearly 100 percent more likely to have a disability than White adults. Adults living on an income less than half of the poverty level are 7.2 times more likely to have a disability than adults with income above the FPL. All in all, adults' results underscore a great injustice in our society that state Medicaid programs can begin to address. For more regression results by category, see **Table 10.**

CHILDREN AND TEENS

AN ACCOUNT OF HEALTH DISPARITIES IN CHILDREN COVERED UNDER MEDICAID

Understanding health disparities in younger people including children and teens has lifelong importance. Minnesota's comprehensive study included 303,140 persons under the age of 18. Our analysis included only children who had a parent enrolled in Medicaid. Children who did not have a Medicaid-covered parent were excluded from the dataset, given our goal was to examine the relationship between social risk factors for parents and health outcomes for children.

CHILDREN COVERED UNDER MEDICAID

Table 11 provides a picture of Medicaid-covered children and teenagers under the age of 18 by providing counts of the number of younger people by income, by households that experience homelessness, race and ethnicity, and disability status. **Table 11** provides the numbers of children by risk factor. Types of risk factors include social, medical, and disability. Several of the risk factors include risks for children, which are based upon parental conditions. For example, 12.6 percent of children have a parent with chemical dependency and 6.1 percent have a parent with a mental health diagnosis.

Health disparities among children covered under Minnesota Medicaid were measured using mortality rates and morbidity measures. Morbidity measures included the prevalence of several diagnoses and conditions including asthma, injury, teenage substance use disorder, ADHD, and PTSD. Health care use and quality measures such as well-child visits and annual dental visits were also examined. As **Table 11** indicates, the prevalence of injury among children is 4.8 percent; the prevalence of asthma among children is 11.7 percent.

It is important to note that these data points for children covered under Medicaid can also be compared to data for the state and the nation too. When those comparisons are performed, an 11.7 percent prevalence of asthma is concerning for children covered under Medicaid. The prevalence of asthma is higher for children covered under Medicaid than children in the state of Minnesota and in the nation. In 2016, for example, the Minnesota Department of Health reported the prevalence of asthma to be 7.1 percent for all children in Minnesota.[129] The CDC also reported a child lifetime prevalence of 9 percent in Minnesota in 2018. This is also lower than the prevalence for children covered under Medicaid (11.7 percent).[130]

Table 10. The Odds Of Health Disparities For Medicaid Adults By Income, Race, Disability

#	Health Disparity Measures	Category 1. Very Low Income	Category 2. Race or Ethnicity (As designated by the individual on the Medicaid enrollment application)		Category 3. Disability
		Group 1. Adults with income at or below 50% of the FPL	**Group 3. Adults who are American Indian**	**Group 4. Adults who are Black or African American**	**Group 7. Adults with Disabilities**
	Comparison Group	Adults with income above the FPL	Adults who are White		Adults without disabilities
1	**Type 2 diabetes**	Adults with income at or below 50% of the FPL are **6% more likely** to have Type 2 diabetes than adults with income above the FPL	Adults who are American Indian are **150% or 1.5 times more likely** to have Type 2 diabetes than White adults	Adults who are Black or African American are **56% more likely** to have Type 2 diabetes than White adults	Adults with a disability are **77% more likely** to have Type 2 diabetes than adults without a disability
2	**Asthma**	**4% more** likely to have asthma than the comparison group	*The regression result is not statistically significant*	**39% more likely** to have asthma than the comparison group	**66% more likely** to have asthma than the comparison group
3	**HIV/Hep-C**	**43% more likely** to have HIV or Hep-C than the comparison group	**87% more likely** to have HIV or Hep-C than the comparison group	*The regression result is not statistically significant*	**86% more likely** to have HIV or Hep-C than the comparison group
4	**Hypertension**	**10% more likely** to have hypertension than the comparison group	**37% more likely** to have hypertension than the comparison group	**80% more likely** to have hypertension than the comparison group	**36% more likely** to have hypertension than the comparison group
5	**Cardiovascular**	**32.6% more likely** to have a cardiovascular condition than the comparison group	**33% more likely** to have a cardiovascular condition than the comparison group	**32% more likely** to have a cardiovascular condition than the comparison group	**180% or 1.8 times more likely** to have a cardiovascular condition than the comparison group
6	**COPD**	**12% more likely** to have COPD than the comparison group	*Less likely to have COPD than the comparison group*	*Less likely to have COPD than the comparison group*	**95% more likely** to have COPD than the comparison group
7	**Lung or laryngeal cancer**	**44% more likely** to have lung or laryngeal cancer than the comparison group	*The regression result is not statistically significant*	*Less likely to have lung or laryngeal cancer than the comparison group*	**3.5 times more likely** to have lung or laryngeal cancer than the comparison group
8	**SUD**	**Nearly 100% more likely** to have a SUD than the comparison group	**Nearly 100% more likely** to have a SUD than the comparison group	*Less likely to have SUD than the comparison group*	**27% more likely** to have a SUD than the comparison group
9	**Depression**	**21% more likely** to have depression than the comparison group	*Less likely to have depression than the comparison group*	*Less likely to have depression than the comparison group*	**120% or 1.2 times more likely** to have depression than the comparison group
10	**Disability**	**7.2 times more likely** to have a disability than the comparison group	*The regression result is not statistically significant*	Close to **100% more likely** to have a disability than the comparison group	*Health disparity measure does not apply to adults with disabilities*
11	**Potentially preventable ED visits**	**About 40% more likely** to have a preventable ED visit than the comparison group	**53% more likely** to have a preventable ED visit than the comparison group	**68% more likely** to have a preventable ED visit than the comparison group	Over **32% more likely** to have a preventable ED visit than the comparison group
12	**Preventable hospitalization**	**23% more likely** to have a preventable hospitalization than the comparison group	**26% more likely** to have a preventable hospitalization than the comparison group	**30% more likely** to have a preventable hospitalization than the comparison group	**160% or 1.6 times more likely** to have a preventable hospitalization than the comparison group

Table 11. Children Covered Under Minnesota Medicaid's Program

Younger People Covered Under Minnesota's Medicaid Program			
Under 18 years of age			
Line		#	%
1	**Population**	**303,140**	
2	Age 0-3	81,292	26.8%
3	Age 4-5	38,394	12.7%
4	Age 6-8	56,795	18.7%
5	Age 9-12	62,216	20.5%
6	Age 13-17	64,443	21.3%
7	Very low income: at or below 50 percent of the FPL	155,131	51.2%
8	Income between 50 and 100 percent of the FPL	92,265	30.4%
9	Income above the FPL (100 percent of the FPL or above)	41,456	13.7%
10	Family homelessness	12,866	4.2%
11	American Indian (U.S. born)	15,224	5.0%
12	Black or African American (U.S. born)	48,746	16.1%
13	Hispanic ethnicity (U.S. born)	15,651	5.2%
14	White (U.S. & Non-U.S. born)	118,641	39.1%
15	Total for Lines 11, 12, 13, 14	198,262	65.4%
16	All Other Children	104,878	34.6%
17	**SOCIAL, MEDICAL, AND DISABILITY RISK FACTORS**		
18	Child protection involvement	32,648	10.8%
19	Parental chemical dependency	38,323	12.6%
20	Parental mental illness	18,557	6.1%
21	Parent: disability/medical condition	11,498	3.8%
22	Parents married	117,159	38.6%
23	Child in household with 4+ children	76,377	25.2%
24	Parent: language is English	251,468	83.0%
25	Parent: language is other than English	51,672	17.0%
26	Parent immigrated	82,519	27.2%
27	Likely parental incarceration	6,580	2.2%
28	**HEALTH DISPARITY MEASURES**		
29	**Mortality**	344	0.1%
30	**Morbidity**		
31	Injury	14,601	4.8%
32	Asthma	35,368	11.7%
33	Substance Use Disorder (SUD) (denominator: n = 36,657)	2,041	5.6%
34	Attention Deficit Hyperactivity Disorder (ADHD)	24,830	8.2%
35	Post-Traumatic Stress Order (PTSD)	5,546	1.8%
36	Depression	11,225	3.7%
37	**Disability**	10,243	3.4%
38	**Health Care Measures**		
39	Well-child visits for all children (denominator: n = 131,057)	82,253	62.8%
40	Annual dental visit (denominator = 177,685)	114,183	64.3%

We grouped children into three categories, although the children's categories are somewhat different than those for adults.

Category 1: Very Low income. This category includes all children from families with income at or below 50 percent of the FPL. The data show that many children covered under Medicaid are growing up in poverty. More than 1 of 2 children or 51.2 percent of children come from families with income at or below 50 percent of the FPL.

Category 2: Race. This category includes children by race and ethnicity. The data show that children who are White, based on all children covered under Medicaid, are the largest group within this category. Children who are White represent 39.1 percent of all children in this analysis. Children who are Black or African American are the second largest population group in this category, representing 16.1 percent of all children in this analysis.

Category 3: Parental Disability: Diagnosis of Mental Illness. This category focuses only on children with parents with mental illness, which corresponds to line 20 in **Table 11**. Children with parents with a diagnosis of mental illness represent 6.1 percent of all children.

REGRESSION RESULTS FOR CHILDREN COVERED UNDER MEDICAID

Key results for five measures of health disparities for children are shown in **Table 12**. These results show the statistical associations generated through the regression analysis for category 1 (very low income), category 2 (race), and category 3 (disability). All results shown are statistically significant, unless indicated otherwise. The select results shown in **Table 12** highlight the impact of poverty, race, and disability on health outcomes.

Readers should also note that key results for children with child protection involvement (CPI) from the child protection system are presented in **Appendix F**.[131] Children with CPI, representing 10.8 percent of all children in this study, does not fit neatly into the structure of this report's three categories. However, there is an urgent need to develop data systems to understand the unique barriers to health that children face.

Key Results

Category 1: Very Low Income. One in two children covered under Medicaid in Minnesota is growing up in families where the income is at or below 50 percent of the FPL (see **Table 11**). As we learn from our regression analyses, children from families with income at or below 50 percent of the FPL are two times more likely to die than children from families with income above the FPL, in the 2.5 years it was measured. This group of children is also more likely to have PTSD than the comparison group.

Category 2: Race. About 5 percent of children are American Indian and 16.1 percent of children are Black or African American. The regression results provided evidence that children who are American Indian have worse health outcomes than White children. Children who are American Indian are 1.3 times more likely to have a SUD condition as a teen than White children covered under Medicaid. This group of children is also more likely to have a higher prevalence of PTSD.

Category 3: Parental Disability: Mental Illness. Based on the definition of mental illness used for this study, 6.1 percent of children have a parent with lived experience of mental illness. Children with a parent with a disability of mental illness are more likely to have asthma, SUD, ADHD, and PTSD than children with parents who do not have a mental health diagnosis. Children in this population group are 1.25 times more likely to have PTSD than children with a parent without mental illness.

Table 12. The Odds Of Health Disparities For Medicaid Children

#	Health Disparity Measures	Category 1. Very Low Income	Category 2. Race		Category 3. Parental Disability: Mental Illness
		Children from families with income at or below 50% of the FPL	Children who are American Indian	Children who are Black or African American (U.S. born)	Children with a parent with a diagnosis of mental illness
	Comparison Group	Children from families with income above the FPL	Children who are White		Children with a parent without a mental health diagnosis
1	**Mortality**	Children from families at or below 50% of FPL are more than **2 times more likely** to die in the study period than children from families with income above the FPL	*The regression result is not statistically significant*	*The regression result is not statistically significant*	*This regression result is not statistically significant*
2	**Asthma**	*Less likely to have asthma than the comparison group*	Children who are American Indian are **24% more likely** to have asthma than White children	Children who are Black or African American are **74% more likely** to have asthma than White children	Children with a parent with mental illness are **22% more likely** to have asthma than children with parents who do not have a mental health diagnosis
3	**SUD**	*The regression result is not statistically significant*	Children who are American Indian are **130% or 1.3 times more likely** to have SUD than the comparison group	*The regression result is not statistically significant*	Children with a parent with mental illness are **31% more likely** to have SUD than the comparison group
4	**ADHD**	*The regression result is not statistically significant*	*Less likely to have a diagnosis of ADHD than the comparison group*	*Less likely to have a diagnosis of ADHD than the comparison group*	Children with a parent with mental illness are **84% more likely** to have a diagnosis of ADHD than the comparison group
5	**PTSD**	Children from families at or below 50% of FPL are **10% more likely** to have PTSD than the comparison group	Children who are American Indian are **39% more likely** to have PTSD than the comparison group	*The regression result is not statistically significant*	Children with a parent with mental illness are **125% or 1.25 times more likely** to have PTSD than the comparison group

Section 4. Key Findings & Policy Implications For States

Minnesota's examination of health disparities in Medicaid populations is informative for the nation. Minnesota's account of health disparities by income, race, ethnicity, and disability demonstrates how state Medicaid programs might move from conceptual support for health equity to action.

Medicaid programs can begin by investing in data collection and analytics and move to implementation. Minnesota has also taken steps to act on its analytics. As mentioned in Section 3, DHS required its contracted care delivery entities to launch interventions to address health equity and infused health equity goals into its value-based payment models.

State Medicaid programs have a long and challenging process ahead of them to reduce health disparities. Data collection and analytics are only the starting point. Reducing disparities and achieving measurable improvement in health equity requires a concerted effort across sectors and communities to create a shared vision and sustain programs to achieve health equity. The federal and state governments should be ready to make a significant level of investment.

State Medicaid offices need to collaborate with federal partners, other state departments, and diverse partners to address communities' basic social needs to achieve improved and equitable health outcomes. They must invest in upstream prevention initiatives to address community inequities that drive poor health. These inequities include inadequate housing, food insecurity, limited transportation, other immediate problems, and more underlying inequities in education, employment, and income.

Key findings from this examination of Minnesota's Medicaid program and the policy implications for state Medicaid programs are as follows.

KEY FINDING 1. Health disparities in Medicaid population groups reflect health injustice. In adults, lower-income levels are associated with worse health outcomes across nearly all measures. Most measures show that adults who identify as either American Indian or African American have worse health outcomes than adults who are White. The population of adults who are American Indian also has the highest mortality rate among all adults. Adults who are African American are also impacted by health disparities, with many poor health outcomes. These adults have the highest rate of disability among all race and ethnicity groups. Finally, adults with disabilities (category 3) experienced disparities across all outcomes. Adults with a disability have the highest rate of mortality among all adults.

Policy Implication. Data shows the relationship between health disparities and inequities experienced by adults covered by Medicaid in Minnesota. The data also establishes an important baseline against which the state's Medicaid program can monitor progress in reducing these health disparities. The results confirm that every state Medicaid program can advance health equity by creating a state-specific baseline to catalyze action. State Medicaid programs must take the lead in addressing inequities that lead to health disparities. These efforts require robust data systems that advance the capacity of Medicaid programs, health care providers, and community-based organizations to address the intersection of race, ethnicity, disability, poverty, and factors not analyzed in the making of this report (e.g., sexual orientation and gender identity).[132]

KEY FINDING 2. High rates of disability intersect with poverty and race. Over 15 percent of adults with very low income have a disability, and nearly 15 percent of Black adults have a disability. When controlling for all factors, including age, gender, and income, adults who are Black or African American are 100 percent more likely to have a disability than White adults. Adults with income at or below the FPL are 7.2 times more likely to have a disability than adults with income above the FPL.

Policy Implication. Poverty, race, and disability appear to go hand in hand, a relationship that must end. The results underscore the strong relationship between income, exposure to structural racism, disability, and poor health outcomes among Medicaid populations. The data suggest that disability is a social risk factor disproportionately impacting Black and African Americans with income at or below 50 percent of the FPL. Taking this approach would advance our understanding of disability as a social risk factor alongside other risk factors and inequities, including structural racism, reduced educational and economic opportunity, lower-income and wealth, and toxic stress.

KEY FINDING 3. Adults with very low income have poorer health outcomes than adults with higher incomes. Many adults covered under Medicaid have very low income, as defined by an income at or below 50 percent of the FPL. Health disparities are worse for adults with very low income than adults with relatively higher income across all measures. Those who are poorest have higher mortality rates, burdens of illness, disability, and ED use. Adults with very low income are 33 percent more likely to have a cardiovascular condition and 100 percent more likely to have a substance use disorder than the comparison group. Costs to Medicaid are higher for adults with incomes at or below 50 percent of the FPL. The cost to Medicaid was $10,447 (2014), or 2.5 times higher than the cost for adults with relatively higher incomes. The cost to Medicaid for adults with income above the FPL was $3,694 (2014). Adults experiencing homelessness have higher rates of health disparities than adults who are not experiencing homelessness.

Policy Implication. The results highlight the strong link between the social conditions of poverty and illness and mortality rates. Adults with the lowest level of income have the worst health disparities. These results reinforce the influence that social drivers related to poverty have on health and well-being. Low-income adults need increased access to broader social supports. The results also provide evidence for increased investment in data-driven policies that address social supports, most often, housing.

KEY FINDING 4. Adults who are American Indian experience more significant health disparities than other races. Adults who are American Indian experience a disproportionate degree of health disparities compared with other populations. These disparities include higher mortality rates than other races. The mortality rate is 1.4 percent for adults who are American Indian, compared to the lower rates for adults who are White, Black or African American, and Hispanic. Adults who are American Indian experienced poor health outcomes for 17 of the 19 interest measures (see Table 4). Adults who are American Indian had a higher prevalence of many conditions such as Type 2 diabetes (12.4 percent), COPD (11.9 percent), SUD (35.4 percent), depression (30.3 percent) than other adults. Finally, adults who are American Indian had a higher rate of potentially preventable ED visits and higher costs than any other race or ethnicity examined in this study.

Policy Implication. The results for adults who are American Indian are consistent with the findings on a national level. Reducing disparities among adults who are American Indian requires innovative models to promote better health equity and outcomes by engaging communities and empowering them to lead in finding solutions. Generations of structural racism and inequity have led to American Indians dying at higher rates than other Americans in many categories. According to the Indian Health Services of the U.S. Department of Health and Human Services, "lower life expectancy and the disproportionate disease burden exist perhaps because of inadequate education, disproportionate poverty, discrimination in health services delivery, and cultural differences. These are broad quality of life issues rooted in economic adversity and poor social conditions."[133]

KEY FINDING 5. Adults with a disability have the highest mortality rates of all population groups. Adults eligible for Medicaid based on disability status, adults with a diagnosis of SPMI, and adults with a SUD had higher mortality rates than any other population group examined in the analysis. From lowest to the highest rate, the mortality rate was 1.7 percent for adults with SPMI, 2.5 percent for adults with SUD, and 3.9 percent for adults with a disability, in the 2.5 years it was measured for adults.

Policy Implication. The adults' results underscore the need to advance comprehensive disability health initiatives, informed by much-improved data collection efforts. State Medicaid programs must implement HHS data collection standards to collect disability types. The data should be used in conjunction with the CDC's Disability and Health Data System source-level data on adults with disabilities.

Reducing health disparities impacting persons with disabilities requires Medicaid programs to address the anti-disability bias that leads to policies that disadvantage persons with disabilities compared with the general population, as evident from state efforts to put in place policies rationing care to persons with disabilities amidst the 2020 COVID-19 pandemic.[134] The results also underscore the need for increased commitment to the following: compliance with the Americans with Disabilities Act; implementation of Olmstead plans; investment in home and community-based services; and reduced percentage of persons residing in skilled nursing facilities through funding available through federal programs such as Money Follows the Person. For persons living with SUD and/or a mental health diagnosis, states must invest in care integration and peer-driven resources endorsed by the Substance Abuse and Mental Health Services Administration (SAMHSA).

KEY FINDING 6. Children covered under Medicaid experience health disparities. Children's results provide evidence that children who are American Indian and Black or African American have worse health outcomes than White children for certain measures. Children who are Black or African American are 74 percent more likely to have asthma than White children; and children who are American Indian are 24 percent more likely to have asthma than White children.

Policy Implication. Minnesota results underscore the impact of race and income on health outcomes, where American Indian and Black or African American children are worse off than White children. Most importantly, children covered under Minnesota's Medicaid program included in this analysis are growing up in families where the income is at or below 50 percent of the FPL. Eight in 10 children are from families where the income is under 100 percent of the FPL.

To be reminded, in 2020, the FPL was $21,720, or $1,810 per month for a family of three.[135] An income of 50 percent of the FPL is 50% of $21,720. This provides a family of three only $10,860 annually.

According to the American Academy of Pediatrics, "poverty is an important social determinant of health and contributes to child health disparities," with implications for "adverse health outcomes in childhood and across the life course."[136] Poor health outcomes represent only one aspect of the disparities that come from poverty, however. Children who experience poverty "are less successful than their never-poor counterparts in their educational achievement and employment, and they are more likely to have a nonmarital teenage birth and some involvement with the criminal justice system."[137] Unless addressed, these poor outcomes will continue to disproportionately affect Black and African American children. Black and African American children are more likely to live in poverty than White children. According to the Children's Defense Fund, "73 percent of children living in poverty are children of color." Nearly 1 in 3 children who are Black or African American and Native American/Alaska Native are poor. Among Hispanic children, 25 percent live in poverty. These statistics stand in stark contrast to children who are White. Less than 10 percent White children are living in poverty.[138] The results reinforce the need for Medicaid programs to end inequities that lead to extreme poverty among children who identify as BIPOC.

In the national context, 80 percent of this nation's children from families with income below 100 percent of the FPL have Medicaid coverage.[139] Children covered under Medicaid are more diverse than adults covered under Medicaid. The results strengthen the argument that state Medicaid programs invest in interventions that address children's health disparities to achieve the long-term goal of health and wellness. We must build healthy communities for children, which includes robust educational systems and high graduation rates. In the long run, we all benefit by eliminating health disparities. Children gain a higher quality of life, while the country and the health care system benefit from lower health care costs.[140] We must redesign how care is delivered and improve the conditions in communities.

Section 5. Medicaid's Opportunity To Achieve Health Equity

KEY MESSAGES

This report emphasizes state Medicaid programs' critical importance to millions of people who experience structural racism, discrimination, implicit bias, and stigma. These millions include American Indian, Black, African American, Latinx, Asian, other racial and ethnic populations, and people with disabilities.[141] Historically, our federal and state laws and their implementation have perpetuated system racism and discrimination. Despite changes in laws to address systems-level discrimination, bias still exists, resulting in health and wellness barriers for these populations. There are many examples of discriminatory policies that exist. A recent change in federal law in 2020, for example, reduced food assistance benefits for people struggling to find or sustain work. This type of policy disproportionately hurts people who identify as BIPOC, given their higher unemployment rates. The lack of equitable access to education, housing, food security, etc., also disproportionately impacts populations that have experienced discrimination. These social supports are endemic drivers of poor health outcomes that are well documented and supported by health disparity data.

This report highlights the essential contribution to the evidence base by one state's Medicaid program and strengthens the case for action. Minnesota's Medicaid program identifies people who have very low income, people who are American Indian, people who are Black and African American, and people with disabilities with poorer health outcomes.

The real benefit of measurement is to provide an evidence base against which state Medicaid programs can establish priorities, tailor interventions, set appropriate goals, measure improvement, and make a public case to elected officials that resources are required.

As a publicly funded program, Medicaid should advance health equity through partnerships with Medicare, public health, housing, economic development, income assistance, and multiple sectors of our society.[142] Many state Medicaid programs have been leaning into efforts to advance health equity by addressing the adverse health outcomes and associated economic costs resulting from systemic racism and discrimination.[143] Some state Medicaid programs have launched initiatives to target health disparities through quality measurement and value-based payment models.[144] Other states have added health equity as a goal to their transformation efforts and funded health-related services.[145] Several other state Medicaid programs have created opportunities to address long-standing health disparities among people with disabilities through Financial Alignment Initiative demonstrations for dually eligible populations.[146]

We are firm in our belief that we cannot achieve health equity without making racial and health justice the cornerstone of all efforts.[147] We must also be ready to address the disproportionately high disability rate among Black, Indigenous and People of Color (BIPOC), Latinx, Asian, other racial and ethnic populations. It is an ethical imperative.

COVID-19: A CALL TO ACTION

As we endure the second wave of the COVID-19 pandemic, we must take direct action to prevent the level of harm experienced by racial and ethnic populations during the first wave of COVID-19 during the winter and spring of 2020. COVID-19 continues to shine a spotlight on inequities in our health care delivery system. These inequities result from federal and state failure to invest in a robust public health infrastructure and to address social structural inequities stemming from racism and discrimination against populations, including people with disabilities.[148] During the first wave, nursing homes were epicenters of COVID-19 infections and residents suffered a disproportionate number of deaths.[149] Many people were infected by COVID-19 and will experience on-going medical adverse effects of COVID-19 in the coming years.[150] In this second wave of COVID-19, federal and state policymakers' inaction has caused hospitals, health care workers, and other frontline workers such as home health workers and personal care assistants to be stretched thin and put at increased risk. During this time, we can only project a disproportionate morbidity and mortality rate among African Americans and other historically under-resourced populations.[151]

THE IMPERATIVE

COVID-19 has made clear that federal and state policymakers have not taken the necessary steps to reduce health disparities or advance health equity among ethnic minority populations, older adults and persons with disabilities. Policymakers should now confront the moral, ethical and financial need to address COVID-19's disproportionate impact on these populations. States must take immediate steps to address disparities and advance health equity. See **Box 13** for Braveman's discussion on health disparities and justice.

This report argues that states begin this process by developing robust data systems in collaboration with other state public health offices, state agencies that provide services to Medicaid populations, and community-based organizations (CBOs). State Medicaid programs in partnership with public health – with support from the federal government – must rebalance health care priorities to address structural racism, inequity, and upstream health drivers. At the same time, we also must shift our understanding of health drivers by holding the health care system responsible for taking active steps to address direct and indirect bias in their policies, practices, and procedures. Data systems must have the capacity to track bias at the individual as well as the systems-level.

States in partnership with the federal government need to invest in comprehensive data collection and data analytic systems to track health disparities across populations at the local, state and regional levels. This approach promises to improve the trajectory of health outcomes across the country. Significant data improvements are needed to collect race, ethnicity and disability status. Efforts should embrace a system of authentic co-creation with the communities served to bring shared knowledge, accountability, and experiences to the table and power-sharing with CBOs.

States should strengthen their data analytic capacities to address high morbidity and mortality rates among racial and ethnic groups of people and among people with disabilities covered by Medicaid. Two sets of strategies can be used, corresponding to two distinctive risk groups. The most immediate results could come from focusing on people with serious chronic illness, where changes to help them could be made by extending and intensifying existing models within the health care system.

BOX 13. BRAVEMAN ON HEALTH DISPARITIES AND JUSTICE

In 2011, Paula Braveman wrote a seminal article on the intersection of health disparities and justice, *Health Disparities and Health Equity: The Issue Is Justice.*[152] In this article, Braveman proposed a causal relationship between health disparities resulting from social disadvantage "need not be established." Instead, attention needs to be on establishing public policies with clear definitions that are contextually relevant and grounded in human rights principles. The elimination of health disparities is achievable only when rooted in health equity and the principle of human dignity. Dignity includes the opportunity to participate in society fully. Almost 10 years since that article was written, policymakers continue to struggle with ways to address health disparities, too often seeking to do so, absent efforts to address injustice and human rights. It is not surprising that the populations most negatively impacted by COVID 19 include African Americans, other racial and ethnic populations, and people with disabilities. The Supreme Court recognizes these populations as being subject to structural and systemic level discrimination that has led to their being under-resourced and lacking the opportunity to participate in American society fully. This full participation includes the right to achieve health and wellness. It is specifically because of Supreme Court rulings such as the 1964 Civil Rights Act and the 1990 Americans with Disabilities Act that policymakers must increase investment in data analytics and create policies that can directly impact disparities resulting from historical and ongoing injustices.

More broadly, however, states will need to invest in data-driven initiatives to advance health equity for adults and children living in poverty. The solutions are much more likely to focus on housing, economic support, and safety rather than traditional medical interventions. Improved outcomes and government savings are much more likely to be realized by these efforts.

We recognize that not all states have the same capacity or understanding of options available to them to improve populations' health and wellness. We also understand that states still have not seen or may not yet recognize the direct connection between addressing the needs of high-cost populations and improving the overall health of the residents of their states.

Recognizing variations in state capacity and the need for immediate action, we have outlined several opportunities for states to consider as they develop their strategies to reduce health disparities and advance health equity actively. The options provided are examples of what policymakers can do to advance health and wellness in Medicaid populations.

SEVEN OPPORTUNITIES FOR STATE MEDICAID POLICYMAKERS

Opportunity 1. Commit to a Multi-State Effort to Measure Health Disparities. State Medicaid programs can support each other to advance health equity, while appreciating the differences in state Medicaid programs' capacity to perform data analytics. This requires developing a standardized and comprehensive data collection process for race and ethnicity, disability types, and social determinants of health.[153]

Opportunity 2. Launch State-Level Interagency and Cross-Sector Collaboration to Collect Data. State Medicaid programs can support enhanced data collection across state agencies. A successful effort would increase uniformity in data collection methods and refinement of intersectional analyses to understand health disparities in smaller populations.

Opportunity 3. Partner with Communities and Community Based Organizations (CBOs). States can partner with CBOs to shape data collection strategies to identify populations. States can work with CBOs to better understand and clarify the needs of the communities they serve. Data collection efforts in these communities must commit to implementing effective programming based on the data. A collaborative approach like this would help bolster and equalize the role of CBOs in health care delivery and advance data-driven service delivery and care.

More broadly, addressing poverty requires a commitment to developing alternatives to building services within the health care sector. This can include advocacy by health care providers with CBOs to propose both evidence-based and evidence-informed solutions. These organizations can be instrumental in developing new approaches. In the end, states have an opportunity to partner with CBOs or align incentives to encourage CBOs to address health disparities and advance equity.

Opportunity 4. Rebalance Long-Term Services and Supports (LTSS) to Advance Health Equity. State Medicaid programs have an opportunity to expand long-term services and supports (LTSS) in the community. For persons with disabilities, access to LTSS in the community and health equity go hand in hand. See **Box 14** for more information about the identified barriers facing people with disabilities that impede health equity.

In 2020, Health Affairs reported, "People living in nursing homes make up less than 1 percent of the U.S. population yet account for approximately 40 percent of all COVID-19 deaths to date."[154] In recognition of these disparities and the associated costs, state contracting requirements and data collection must partner with health care to rebalance away from institutional care to community-focused settings, in compliance with Olmstead and other provisions of the Americans with Disabilities Act.

Opportunity 5. Invest in Person-Centered Care. States have many other types of opportunities, including those that support person-centered care for high-cost populations in the community. States can invest in the Community Health Worker (CHW) workforce to address SDOH in a culturally competent manner. States can increase flexibility in spending on services to enable people to live in the community, support consumer-controlled personal care attendant services, assistive technology (AT), and nonmedical transportation. Finally, states can expand the use of certified peer specialists and certified recovery coaches, and other innovative peer-led interventions to support overall health and wellbeing.

Opportunity 6. Invest in Prevention Strategies for Ongoing Sustainability. State Medicaid programs can invest in the future. Medicaid has already made a positive and long-term difference in the lives of millions of children.[155] [156] States need to develop systems that can advance ongoing opportunities to prevent the long-term consequences of poverty, racism and discrimination on health and well-being. Strategies must also consider Medicaid's role in assisting states and U.S. territories in

BOX 14. HEALTHY PEOPLE'S DISABILITY HEALTH GOALS AND IDENTIFIED BARRIERS

The ACA requires HHS to "report on barriers to health care or public health programs, accessible facilities, and the number of trained providers."[74] A Healthy People 2020 report identified barriers to health and wellness for people with disabilities that include: economic barriers to Long-Term Service and Supports (LTSS) and accommodations that enable persons with disabilities to more fully participate in the community. LTSS includes home modifications, equipment (wheelchairs, hearing aids, grab bars) and personal assistant services (PAS).[159] High rates of morbidity and mortality among nursing home residents resulting from COVID-19 has increased the urgency of state investment in programs such as Money Follows the Person (MFP). MFP incentivizes state investment in community-based options for persons in nursing home settings. Other programs in which states should invest include those that support tribal communities with federal matching dollars to assist people with disabilities to live in their choice of settings.

In addition to addressing barriers to health and wellness for persons with disabilities in general, states need to do more to address disparities in access to community-based services between ethnic minority populations and Whites. There is plenty of evidence: (1) A recent study of Home and Community Based Services (HCBS) used by persons with Multiple Sclerosis (MS) found extensive disparities in utilization of key services needed for persons with disabilities to reside in the community. (2) A comparison of HCBS use between Blacks and Whites revealed that Blacks were less likely to "use case management, equipment, technology, and modifications and nursing services."[160] White men had the highest HCBS expenditures, while Black men had the lowest Medicaid HCBS expenditures. (3) The self-management of health by people with intellectual and developmental disabilities: The definition of self-management includes the person playing a central role in their health management and collaboration with health care professionals. Many other studies might be cited in this context, including studies that show significant disparities in support needed by Blacks, Asians and Pacific Islanders with developmental disabilities to self-manage their health compared to Whites.

providing timely medical care for populations impacted by emergencies or disasters as possible.[157] Data systems must be used to understand these strategies.

Opportunity 7. Secure Federal Investment and Incentivize Value. Finally, state Medicaid programs and public health must have the resources to address health disparities. Federal investments are needed to effectively address inequity in access to housing, food, and economic assistance. State Medicaid programs can also focus on other types of actions such as implementing Medicaid payment reforms to advance value-based models that promote health equity. For example, Minnesota's Medicaid program has implemented Integrated Health Partnerships (IHP), a value-based payment system. Some IHP systems have interacted with alternative care delivery systems intending to improve the Medicaid population and individual members' health.[158] Small investments in data should be made as a part of this effort, to measure and track results and demonstrate long-term health outcomes, reductions in inequity, and return on investment.

CONCLUDING REMARKS

The devastation wrought on historically under-resourced communities by the coronavirus pandemic has severely struck the nation.[161] The morbidity and mortality rates are highest among African Americans. As a nation, we must accept our call to action and advance a national agenda to achieve health equity and to prevent another such disaster from taking a similar toll. Counting the number of deaths by race or ethnicity is not enough. Federal and state policymakers must invest in activities that will reduce barriers to health and wellness in populations disproportionately harmed by COVID-19.

The authors of this document and our collaborators believe that change can only come about if policymakers address racism and other social and civil rights injustices that are a significant underlying cause of health disparities. Only by addressing the social and civil inequities that harm BIPOC and persons with disabilities will change come about.

As set forth in this report, data is essential to any effort to address health disparities. This data must be intersectional and its elements determined based upon a dialogue with stakeholders across the care delivery system. We must break down the silos between policy and populations with direct experience of racism, xenophobia, ableism and other social determinants that have reduced their opportunity to achieve health and wellness.

Appendices

APPENDIX A: KEY TERMS USED IN THIS REPORT

Health Equity and Health Disparities

Health Equity. According to the Centers for Disease Control and Prevention (CDC), "Health equity is achieved when every person has the opportunity to "attain his or her full health potential" and no one is "disadvantaged from achieving this potential, because of social position or other socially determined circumstances." Health inequities are reflected in differences in length of life; quality of life; rates of disease, disability, and death; severity of disease; and access to treatment."

Health Disparities. "Health disparities refer to a higher burden of illness, injury, disability, or mortality experienced by one group relative to another. Health care disparities typically refer to differences between groups in health insurance coverage, access to and use of care, and quality of care."[162] A health disparity is "a particular type of health difference that is closely linked with economic, social, or environmental disadvantage. Put another way, health disparities adversely affect groups of people who have systematically experienced greater social or economic obstacles to health based on their racial or ethnic group, religion, socioeconomic status, gender, age, or mental health; cognitive, sensory, or physical disability; sexual orientation or gender identity; geographic location; or other characteristics historically linked to discrimination or exclusion."[163]

Excess Deaths. "Excess deaths" were defined as the difference between the number of deaths observed in the minority populations and the number that would have been expected if the minority population had the same age- and sex-specific death rates as the non-minority population. This method quantified the number of deaths that would not have occurred had mortality rates for minorities equaled those of non-minorities." [164]

Social Risk Factor. Efforts to understand how circumstances beyond health care can affect health outcomes have considered a very wide array of factors, sometimes referred to as *social determinants of health and sometimes as social risk factors*. Social factors such as income, education and community conditions greatly affect how much health and how much life each American enjoys. Important effects on health and mortality are also found for race and ethnicity. In this report, we use the term "social risk factors" and selected factors for which Minnesota was able to provide individual data and for which strong argument or evidence suggests a role in affecting health status. Key social risk factors for adults include economic factors such as very low income and homelessness, race and ethnicity, having a disability, having serious mental illness, and having a substance use disorder. The use of economic factors and of race and ethnicity is very common in research on social risk factors. The use of disability status, serious mental illness and substance use disorder as social risk factors is less common, in part because they can also be seen as health outcomes rather than factors affecting health. For people covered under Medicaid, however, disability status, serious mental illness and substance use disorder are key characteristics and may affect their access to care and are associated with significantly elevated rates of mortality and prevalence of morbidities.

Intersectionality. The term intersectionality is used to describe a framework for capturing two or more social risk factors such as income, race, and disability.[165] Taking an intersectional approach requires the researcher to ground the examination of health disparities in an intersectional approach to take into account the whole person in recognition of the heterogeneous nature of the population in the context of society and its systemic racism and discriminatory practices.[166] An intersectional approach offers great value. A social risk factor does not act in isolation to affect a person's health status but joins with other social risk factors and social circumstances. One way to describe the way in which multiple factors can act together is "intersectionality," a term that has been used to describe, for example, how race and gender together create particular challenges for Black women.[163] Similar thinking has led those who study disability to consider the joint effects of disability, race and ethnicity.[167] Among people covered under Medicaid, many experience the compound challenges of low income, poor neighborhoods, mental illness, chronic physical illness and physical disability. Being homeless, leaving incarceration, or experiencing domestic violence or neglect can combine with illness to form other compound challenges with poverty or racial discrimination. Their short-term risks of illness, injury and mortality are often high due to such combinations of challenges.

APPENDIX B. LAWS OF MINNESOTA 2015, CHAPTER 71, ARTICLE 11, SECTION 63

This section of Chapter 71 led to the examination of health disparities in Medicaid populations.

Health Disparities Payment Enhancement: “(a) The commissioner of human services shall develop a methodology to pay a higher payment rate for health care providers and services that takes into consideration the higher cost, complexity, and resources needed to serve patients and populations who experience the **greatest health disparities** in order to achieve the same health and quality outcomes that are achieved for other patients and populations …”

APPENDIX C. STEPS TAKEN TO MEASURE HEALTH DISPARITIES IN MEDICAID POPULATIONS

Step 1. Identify the available data. Minnesota identified several data sources for this project, including Medicaid enrollment data, medical claims, and other DHS administrative data. This data was integrated with DHS data at the individual level. Data from calendar years 2013 and 2014 for children and adults covered under Minnesota’s Medicaid program (called Medical Assistance) and the MinnesotaCare program, referred to as “Medicaid.” The data files included individuals age 0-64 who had at least one month of enrollment in 2014. Our research included children if they had at least one parent enrolled in the Medicaid program. (People with Medicaid and Medicare were excluded due to limited access to Medicare data.)

The total number of Medicaid enrollees included in the data set was 853,000. Of this number, 550,341 were adults and 303,140, children. We had access to cost, utilization, and medical diagnosis at the individual level as well as geographic and demographic data. Importantly, the data also included social risk factors.

Step 2. Establish a framework for examining health disparities. The framework relied heavily upon the conceptual model developed by the National Academies of Sciences, Engineering, and Medicine (NASEM) to account for social risk factors in Medicare payments. NASEM’s conceptual framework expresses relationships between social risk factors and health outcomes, health care use, and costs. The development of the framework also included analysis of qualitative interviews conducted by the Disability Policy Consortium.

Step 3. Define the population groups. Based on the research conducted by DHS and known associations between risk factors and health outcomes, several population groups were defined based on the social and medical risk factors found in the Medicaid data or created from the data.[168] These medical and social factors define and compare population groups. For example, data on income, a social risk factor, was used to stratify the Medicaid population by income categories. Serious and persistent mental illness (SPMI) is a medical risk factor and disability. Health outcomes for persons with SPMI were compared to persons without SPMI. To note, in an analysis that examines health disparities for adults and children, medical and social risk factors will vary by age group. Certain medical and social risk factors such as SPMI or prior history of incarceration would only apply to adults. These factors for adult population groups were used to define social risk factors for children. For children, the relevant factor translates into parental risk factors, such as a child having a parent with SPMI or a parent with a prior history of incarceration.

Step 4. Select measures of health disparities. Informed by NASEM’s conceptual framework and data availability, we developed health disparity measures for adults and children. Adult measures included mortality rates, the prevalence of selected illnesses, rates of disability, health care access, and health equity. Because of the project’s limited scope, we had to limit the number of age-appropriate measures for children’s health disparities. The average annual calendar year cost per individual was also used as an outcome measure.

Step 5. Prepare an analytical plan. An analytical plan must be grounded in the project’s goals and detailed to support the development of datasets. The plan must also include clear analytical specifications and limits around the number and range of analyses to perform. The plan must include algorithms for defining all Medicaid populations and all health disparity measures. In brief, the plan:

(1) defined several Medicaid populations around a range of medical or social risk factors. People with a diagnosis of serious and persistent mental illness (SPMI), were defined based upon a combination of diagnoses and utilization measures from the claims data. By contrast, certain population groups such as persons experiencing very low income were defined based upon social risk factors including income data from the enrollment form plus the value of the Supplemental Nutrition Assistance Program (SNAP) benefit. (2) defined health disparity measures. For example, the mortality rate was defined based the number of deaths occurring over a 2.5-year period. The prevalence

of a health condition was defined based on the numbers of people with that condition recorded in medical claims data. (3) outlined the role of two important methods of analysis: bivariate analysis to examine the relationship between two variables, e.g. between having very low income and prevalence of chronic illness, and regression analysis for examining the relationships among many variables. A bivariate analysis shows directly how the rates and prevalence indicators vary across population groups, without any statistical adjustment for other risk factors. This approach provides easily understood results and is also helpful for the design of the regression analysis.

Regression analysis is useful in assessing the relative importance of population characteristics and outcomes. We used a set of regressions inclusive of age, gender, diagnostic risk score and social risk factors to predict outcomes of interest (e.g. mortality, morbidity, disability, health care access and quality measures).[169] These analyses help us show each risk factor's contribution to a person's health while controlling other social risk factors.

Step 6. Develop an analytical dataset. Skilled staff are needed to extract and integrate data, read analytical plans, and build datasets. **Appendix D** provides a description of the data sources and algorithms used to develop the population groups.

Step 7. Conduct the analyses and interpret the results. Given the number of medical and social risk factors and measures of health disparities selected and the two types of analyses performed (bivariate and regression), the analytical plan's execution generated a substantial volume of results.

Results from the bivariate analyses provide a simple way to identify disparities within and across population groups. Bivariate analyses are also more familiarly known as cross-tabulations. For example, for adults, health disparity measures are not only examined for those adults experiencing homelessness, but they are also compared to other adults who are not experiencing homelessness and to all adults. This work included an examination for all measures from mortality rates to health care use measures such as potentially preventable emergency department visits. Results from multivariate regression analyses identify which relationships between social and medical risk factors and outcomes are statistically significant. (The output from these regressions including coefficients, odds ratios, and p-values or probability values are not presented in this report.) Again, fewer health disparity measures were used for children, than for adults.

While the results generated from the data's bivariate analysis are not adjusted for differences in demographic or other medical or social risk factors, they remain valid indicators of health disparities. It is important to note that the regression analyses' results are adjusted (or controlled) for demographic, geographic, and other social risk factors. (Cost regression results, not included in this report, were also adjusted for diagnostic conditions.)[165 170] Regression analysis isolates the unique contribution of a specific demographic or social risk factor. These findings, while significant, must be interpreted in a clinical and social service context. Control factors for adults, for example, include age, gender, diagnostic risk, race and ethnicity, geographic area, income relative to the FPL, education, homelessness, SMI, SUD, development or intellectual disability, and disability status.

Step 8. Report results and communicate results. Finally, Minnesota reported its results to the legislature, discussed the implications of the results with state agencies, and made the results available to the public to facilitate consideration and action towards the development of targeted interventions to reduce health disparities.

APPENDIX D. DATA SOURCES TO MEASURE HEALTH DISPARITIES IN MEDICAID POPULATIONS

Category 1: Very Low Income	
Group 1. Persons at or below 50 percent of the FPL	**Data Source**: Medicaid enrollment application. **Description:** Raw income data was collected from the Medicaid enrollment forms. Supplemental Nutrition Assistance Program (SNAP) benefits were also considered as income. Income was then measured relative to the federal poverty level (FPL), to calculate income below and above the FPL. Many researchers consider SNAP like income. Households receive an Electronic Benefit Transfer (EBT) card. SNAP provides nutrition benefits to supplement the food budget of households based on the income of the household.[171] The benefit amount is based on income, expenses and the number of people in the household. SNAP benefits are a significant proportion of income for persons covered under Medicaid.
Group 2. Homelessness	**Data Source:** Medicaid enrollment application. **Description:** Homelessness was identified based on person as coded as being homeless sometime during 2014, if person: (1) checked the “check if homeless” box on an enrollment application in 2014; and (2) gave a known homeless shelter as their address; (unfortunately, this method is likely to underestimate the rate of homelessness).
Category 2: Race and Ethnicity	
Group 3. American Indian ***Group 4. Black or African American*** ***Group 5. Hispanic*** ***Group 6. White***	**Data Source**: Medicaid enrollment application. **Description**: Race and ethnicity data were collected from the Medicaid enrollment forms. Persons have several options including “Other” on the enrollment form. The data on race and ethnicity is considered complete for the data year used for the health disparity analysis. This is not always the case for states; and furthermore, there are some reports that data on race has declined since 2014 because people are not required to complete the question on race on enrollment forms.[172] The 11 categories used by Minnesota DHS are as follows: (1) those who are born in the U.S. and that includes American Indian, Black/African American, White, Hispanic, Asian, Other/Unknown; and, (2) those who immigrated to the U.S. and that includes: Black/African American, White, Hispanic, Asian, Other/Unknown. Note: American Indian is the term that Minnesota DHS uses, as designated by the individual on the enrollment form.[173]
Category 3: Disability	
Group 7: Disability	**Data Source**: Medicaid eligibility status. **Description**: Disability status was based on their eligibility for Medicaid, if the person qualified for disability-based Medical Assistance.[174] This only includes persons who have been able to navigate the disability determination process; and, would therefore exclude persons who have not been able to navigate this process. This category also includes a range of disabilities. Health disparities were measured combining all persons with disabilities into one group. As a result, health disparities by disability type could not be measured.
Group 8: SPMI	**Data Source**: Medicaid claims data. **Description**: Persons with a diagnosis of SPMI were identified in the claims data based on certain diagnoses, and a high level of service use, using Medicaid claim forms for the 18 months ending in 2014. Persons identified as SPMI based on Medicaid claims and meeting criteria of having Schizoaffective Disorder, Borderline Personality Disorder, Major Depression Disorder or Bipolar disorder; and had to have received a high level of mental health care, often inpatient or residential treatment. Given that studies consistently show a delay in diagnosis, the use of this algorithm may produce an underestimate of the prevalence of this condition.
Group 9. SUD	**Data Source**: Medicaid claims data. **Description**: Persons with a diagnosis of SUD were identified by using the Medicaid claims and having certain diagnoses.

APPENDIX E. ADULTS COVERED UNDER MINNESOTA MEDICAID BY CATEGORY

Adult Population Covered under Minnesota Medicaid by Category and Group

		Adult Population		All Other Adults		All Adults
Category	**Group**	**#**	**% of All**	**#**	**% of All**	**#**
Category 1	**Adults with Very Low Income**					
	Group 1. At or below 50% FPL	240,350	43.7%	309,991	56.3%	550,341
	Group 2. Homelessness	38,721	7.0%	511,620	93.0%	550,341
Category 2	**Adults by Race and Ethnicity**					
	Group 3. American Indian (U.S. born)	23,464	4.3%	526,877	95.7%	550,341
	Group 4. Black/African American (U.S. born)	66,093	12.0%	484,248	88.0%	550,341
	Group 5. Hispanic (U.S. born)	16,907	3.1%	533,434	96.9%	550,341
	Group 6. White (U.S. born)	296,992	54.0%	253,349	46.0%	550,341
Category 3	**Adults with Disabilities**					
	Group 7. Disability	45,050	8.2%	505,291	91.8%	550,341
	Group 8. SPMI	30,529	5.5%	519,812	94.5%	550,341
	Group 9. SUD	79,349	14.4%	470,992	85.6%	550,341

Note: There are 550,341 adults in the total dataset. Category 2 also includes certain population groups such as adults who are Asian American and all adults who were not born in the United States for whom population-specific data is not shown in this table and in this report.

APPENDIX F. GUIDE TO READING HEALTH DISPARITY RESULTS SHOWN IN TABLE 4 OF THE REPORT

Line # on T.4	Measure	Guide for Adults to Accompany the Report's Table 4 (T.4)
1	Population	For this analysis, the Medicaid population included **550,341 adults**. This number reflects all adults who are U.S. born and not U.S. born, across all income levels, all races and ethnicities, and all types of disabilities.
4	Mortality	This measure refers to the proportion of deaths in the 2.5 years it was measured. The mortality rate was **0.8 percent in the 2.5 years** it was measured for all adults. The mortality rate is less than 1 percent of all adults in this Medicaid study population.
6	Type 2 Diabetes	This measure refers to the proportion of adults with Type 2 Diabetes. For all adults, the prevalence is **7 percent**.
7	Asthma	This measure refers to the proportion of adults with Asthma. For all adults, the prevalence is **9.4 percent**.
8	Human Immunodeficiency Virus (HIV)/Hepatitis C Virus	This measure refers to the proportion of adults with either the HIV or the hepatitis C virus. For all adults, the prevalence is **1.6 percent**.
9	Hypertension	This measure refers to the proportion of adults with hypertension. For all adults, the prevalence is **5.1 percent**.
10	Cardiovascular (Heart condition)	This measure refers to the proportion of adults with heart failure, or a heart attack/heart disease which requires hospitalization. For all adults, the prevalence is **1.4 percent**.
11	Chronic Obstructive Pulmonary Disease (COPD)	This measure refers to the proportion of adults with COPD. For all adults, the prevalence is **8.5 percent**.
12	Injury	This measure refers to the proportion of adults with an injury, due to accident or violence. For all adults, the prevalence is **5.6 percent**.
13	Lung or Laryngeal Cancer	This measure refers to the proportion of adults with cancer of this type. For all adults, the prevalence is **0.22 percent**.
14	Substance Use Disorder (SUD)	This measure refers to the proportion of adults with a diagnosis of SUD. For all adults, the prevalence is **14.4 percent**.
15	Post-Traumatic Stress Disorder (PTSD)	This measure refers to the proportion of adults with PTSD. For all adults, the prevalence is **5.9 percent**.
16	Depression	This measure refers to the proportion of adults with depression. For all adults, the prevalence is **19.2 percent**.
17	Serious and Persistent Mental Illness (SPMI)	This measure refers to the proportion of adults with a diagnosis of SPMI. For all adults, the prevalence is **5.6 percent**.
18	Disability Status	This measure refers to the proportion of adults with a disability, based upon eligibility requirements. For all adults, the rate of disability is **8.2 percent**.
20	Potentially Preventable Emergency Department (ED) Visits	This measure refers to the proportion of adults that have a potentially preventable ED visit: **10.5 percent** of all adults covered under the Medicaid program had at least one ED visit.
21	Potentially Preventable Hospital Admissions	This measure refers to the proportion of adults that have a potentially preventable hospital admission: **0.6 percent** of all adults covered under the Medicaid program had at least one admission.
23	Annual Preventive Visit	This measure refers to the proportion of adults that had an annual preventive visit: **33.2 percent** of all adults covered under the Medicaid program had this visit. Note: Higher rate is a better outcome.
24	Comprehensive Diabetes Care - A1c Test	This measure refers to the proportion of adults that had a hemoglobin A1c test: **92 percent** of all adults covered under Medicaid had this test. (This calculation was made using a denominator that was smaller than the total population.) Note: Higher rate is a better outcome.
25	Annual Dental Visit (ADV) for Adults	This measure refers to the proportion of adults that had an ADV: **48.4 percent** of all adults covered under Medicaid had an ADV. (This calculation was made using a denominator that was smaller than the total population.) Note: Higher rate is a better outcome.
27	Health Care Costs	The average cost per adult per calendar year was **$7,104**.

APPENDIX G. THE ODDS OF HEALTH DISPARITIES FOR CHILDREN WITH CPI

In Minnesota's Medicaid program, we examine children's data with child protection involvement (CPI). There were 32,648 children in the data, representing about 10.8 percent of the children in the analytic data files. Through our analytical work, we found that CPI proved to be a strong predictor of poor health outcomes among children.[167] The following table provides regression results for children with CPI. Children with CPI are compared with children without CPI.

The Odds Of Health Disparities For Medicaid Children with Child Protection Involvement

#		
1	**Comparison Group**	**Children who do not have child protection involvement (CPI)**
2	**Mortality**	Children with CPI are 100% more likely to die in the study period than children who do not have CPI
3	**Morbidity**	
4	Asthma	Children with CPI are 5% more likely to have asthma than the comparison group
5	Injury	Children with CPI are 62% more likely to have an injury than the comparison group
6	Substance Use Disorder (SUD)	Children with CPI are 1.6 x more likely to have a SUD condition than the comparison group
7	Attention Deficit Hyperactivity Disorder (ADHD)	Children with CPI are 85% more likely to have a diagnosis of ADHD than the comparison group
8	Post-Traumatic Stress Order (PTSD)	Children with CPI are 2 x more likely to have PTSD than the comparison group
9	**Disability**	Children with CPI are 47% more likely to have a disability than the comparison group

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