

Digging Deeper: Mapping Maternal Health

By PolicyMap Team | January 21, 2025



TABLE OF CONTENTS

Introduction

Combining Surgo's gMVI with PolicyMap Datasets for Deeper Insights

Why This Matters

The Six gMVI Themes

Physical Health

Mental Health and Substance Abuse

General Healthcare

Socioeconomic Determinants of Health

Physical Environment

Reproductive Healthcare

Conclusion

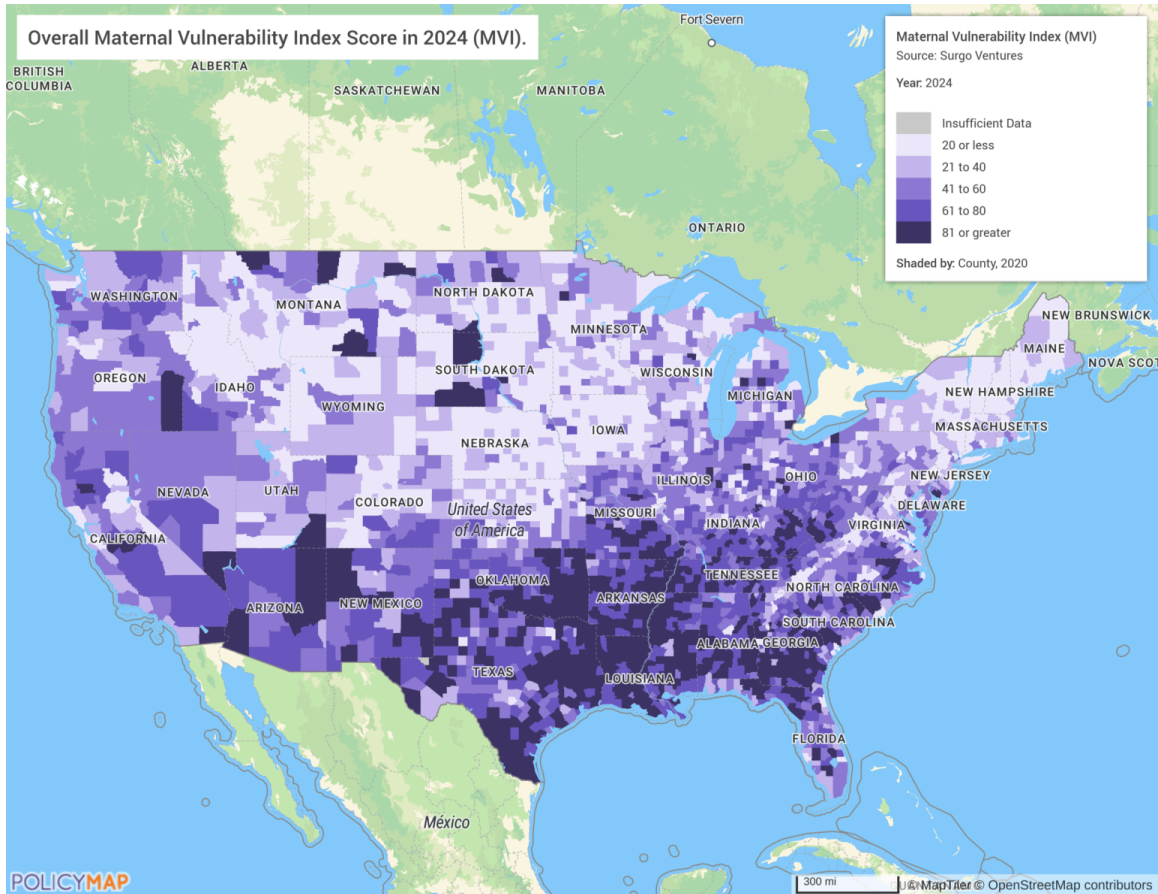
Connecting the Dots: Maternal Outcomes and Social Determinants of Health

Combining Surgo's gMVI with PolicyMap Datasets for Deeper Insights

We recently announced the integration of Surgo Health's Granular Maternal Vulnerability Index (gMVI) into PolicyMap (available to non-commercial subscribers). Surgo's gMVI ranks geographies on overall vulnerability to poor pregnancy outcomes and vulnerability across six themes: reproductive health, physical health, mental health and substance abuse, general healthcare, socioeconomic determinants, and physical environment. The gMVI index is an essential tool for identifying and addressing maternal health vulnerabilities, providing detailed insights into the factors contributing to disparities across communities. With scores ranging from 1 to 100 – where 100 represents the highest vulnerability and 1 the lowest – the index offers a clear, relative measure to guide targeted interventions and resource allocation.

Why This Matters

Maternal health is a pressing issue in the United States, highlighted by decreases in obstetric services and increasing maternal morbidity. Every year, between 50,000 and 60,000 women suffer from severe maternal morbidity — unexpected outcomes of labor and delivery that result in significant short- or long-term consequences to a woman's health. Furthermore, the U.S. sees stark racial disparities in maternal outcomes, with non-Hispanic Black women being three to four times more likely to die from pregnancy-related causes than non-Hispanic white women.



Overall Maternal Vulnerability Index Score in 2024

In today's healthcare landscape, precise data is crucial for improving patient outcomes and addressing health inequities. PolicyMap's offerings empower health systems to enhance care delivery. By integrating datasets like area demographics, chronic health conditions, deprivation indexes, and poverty rates with the gMVI, PolicyMap enables a nuanced understanding of maternal health challenges and effective intervention design.

So let's dig deeper, and explore ways to leverage each theme and other PolicyMap data for more holistic maternal health insights.

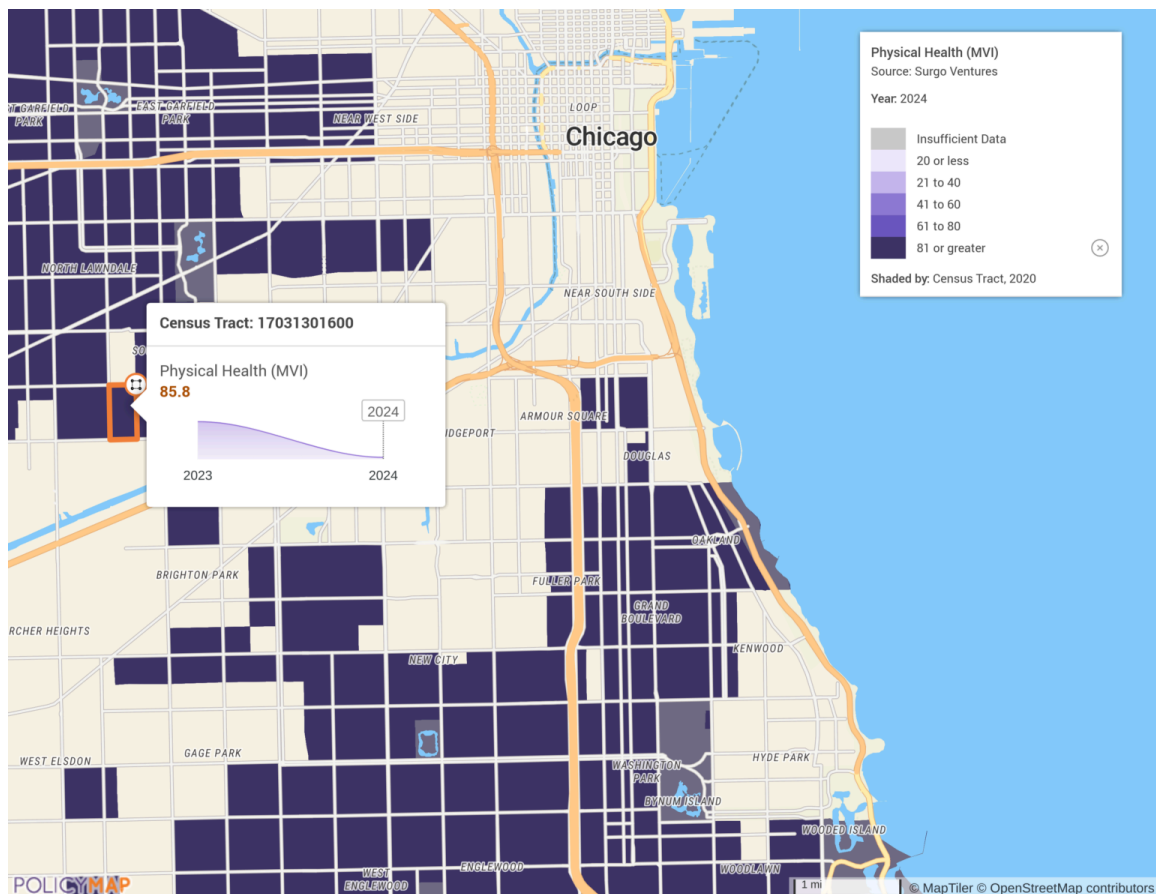
The Six gMVI Themes

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Physical Health

About the Physical Health Theme

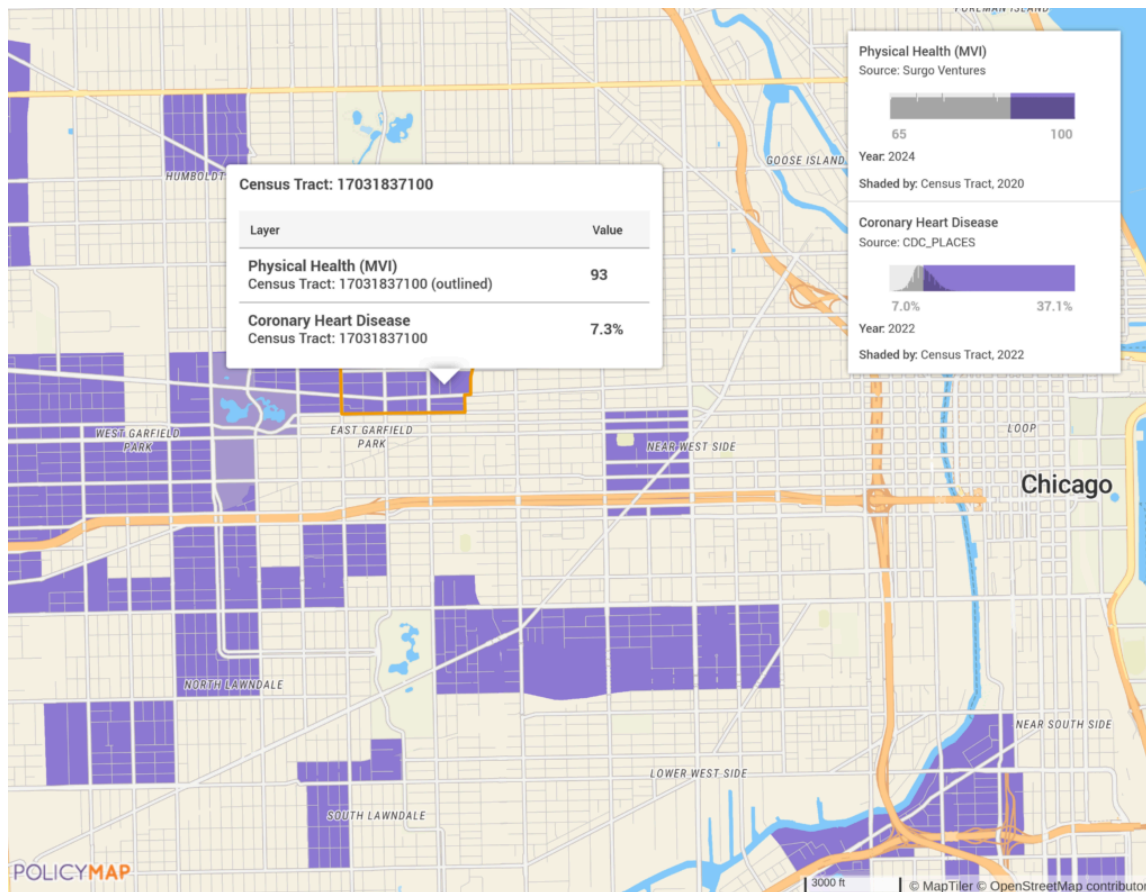
Physical health status – encompassing the prevalence of non-communicable diseases and sexually transmitted infections – is a key metric for assessing maternal vulnerability. In certain areas of Chicago, some communities experience disproportionately high rates of these health challenges. Surgo’s gMVI Physical Health layer provides a powerful tool to visualize and analyze census tracts with elevated rates of chronic diseases and other critical health factors. The map below highlights areas in Chicago where census tracts score 81 or higher on the gMVI Physical Health index, indicating significant levels of chronic disease and related health conditions.



Linking Coronary Heart Disease and Maternal Health

From 1990 to 2017, cardiometabolic diseases like CHD accounted for over 4.8 million deaths among working-age adults, with rising obesity rates and widening health disparities fueling this trend. Women are especially at risk, as heart disease is a leading cause of death and heightened challenges during pregnancy.

Social determinants play a critical role in shaping maternal health risks, particularly vulnerabilities linked to coronary heart disease (CHD). Factors such as poverty, single-parent households, limited access to transportation, and minority status further amplify maternal vulnerability. These adversities contribute to increased cardiovascular risks, including obesity, pre-pregnancy Type 2 diabetes, and high blood pressure.



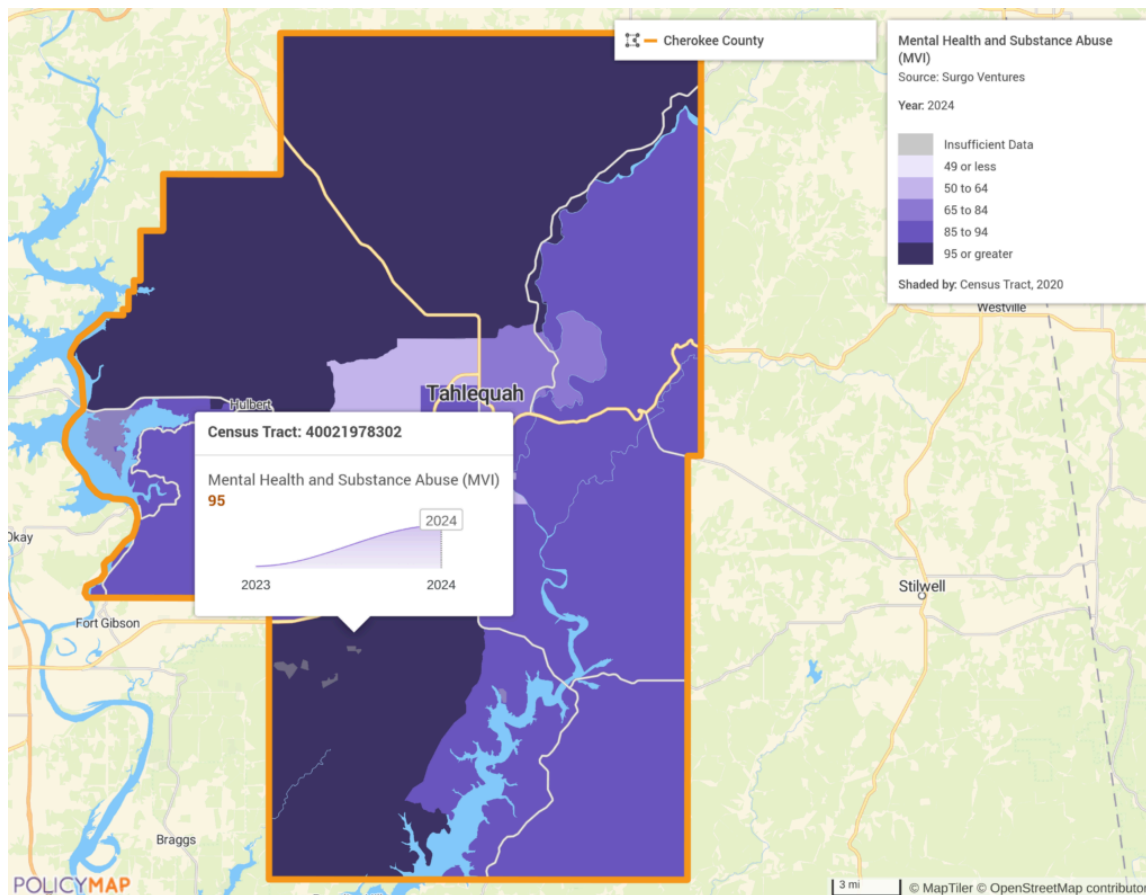
Areas in Chicago with high index scores and significant CHD prevalence

Recognizing and addressing these interconnected risks is critical for improving maternal health outcomes. Health providers and researchers seeking to address these challenges can leverage PolicyMap’s multi-layer functionality to identify uniquely vulnerable areas for women. In the map below, the Centers for Disease Control and Prevention’s (CDC) CHD data is layered with the gMVI’s Physical Health indicators, highlighting overlapping vulnerabilities.

Mental Health and Substance Abuse

About the Mental Health and Substance Abuse Theme

Incorporating mental health and substance abuse factors into assessments of social determinants of health also proves to be essential to understanding community well-being. The gMVI index integrates updated data related to stress, mental illness, and addiction in communities around the United States.



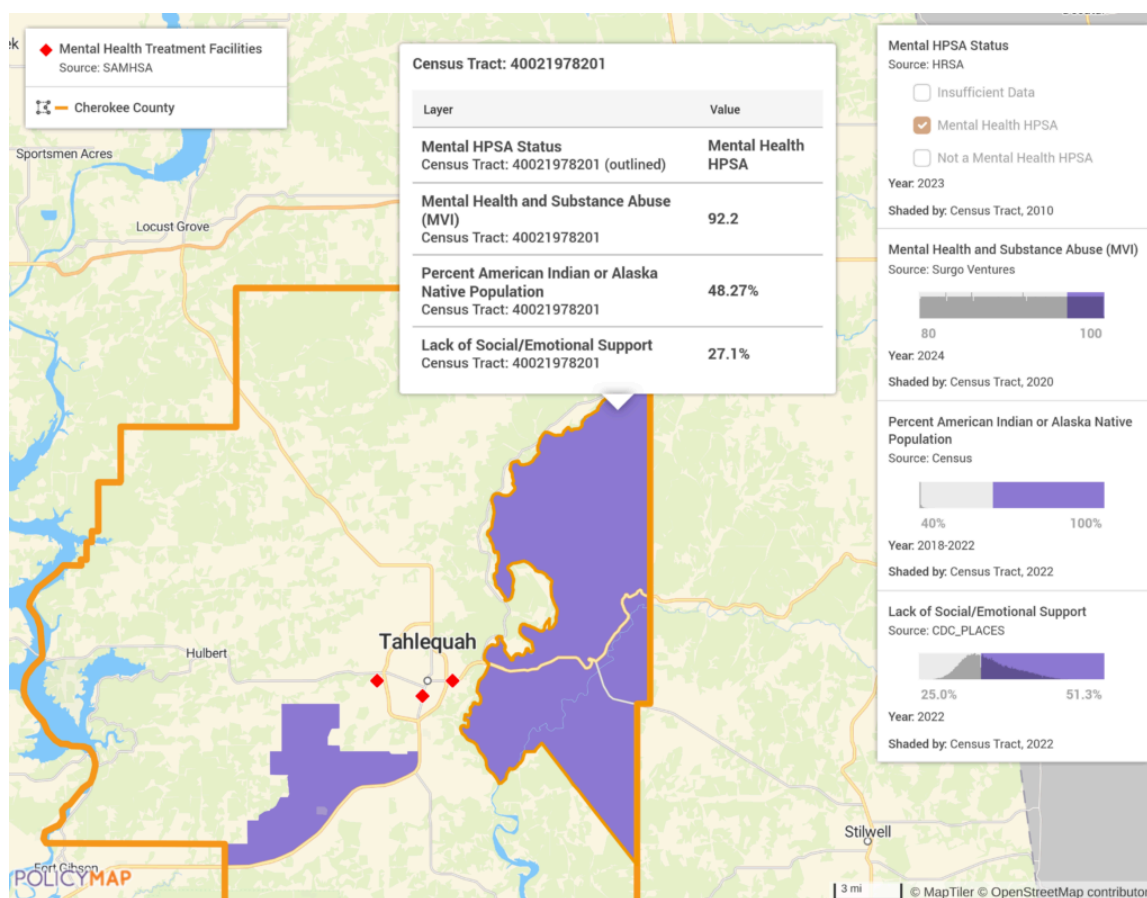
The map above visualizes Cherokee County, Oklahoma, where vast portions of the county are highly vulnerable on the Mental Health and Substance Abuse index. The deep purple census tract on the bottom left indicates a rise in mental health and substance abuse adversities from 2023 to 2024. Therefore, this community is likely vulnerable to externalities associated with stress, mental health concerns, and high rates of addiction.

Linking Mental Health, Race, Access to Care, & Maternal Health

Mental health and substance abuse present significant challenges for mothers, with 1 in 5 women in the U.S. experiencing a mental health or substance use disorder

during the perinatal period – spanning pregnancy and the first year after birth. Perinatal mental health conditions are one of the leading causes of maternal mortality in the United States, accounting for 23% of maternal deaths, a rate that is even higher among Black and Native American patients. Alarming, 75% of individuals with perinatal mental health conditions do not receive treatment, due to factors such as inadequate screening, a lack of access in maternity care deserts, and the pervasive stigma that discourages mothers from seeking help.

Cherokee County is one of 14 counties within the Cherokee Nation Reservation, with 36.7% of its population identifying as Native American. Research shows that Native Americans and Alaska Natives experience disproportionately high rates of chronic mental health conditions. Further, these communities continue to have a reduced life expectancy compared to other racial and ethnic groups and are more severely impacted by chronic diseases.



By integrating indicators, including the Human Resources and Services Administration’s Mental Health Professional Shortage data, the CDC’s Lack of Social/Emotional Support data, and the U.S. Census Bureau’s demographic data, users can gain deeper visual insights into compelling health disparity indicators. The map above highlights a census tract within Cherokee County that scores 92.2 on

the Mental Health and Substance Abuse index, is considered a mental health professional shortage area, indicates 27% of the population as lacking social and emotional support, in addition to having a population where over 48% identify as Native American.

Further, the Substance Abuse and Mental Health Services Administration's Mental Health Treatment Facilities data indicates that resources for these adversities may be limited, as there are only a few facilities available in the county, all of which happen to be outside of the targeted census tracts. This example underscores the need for targeted investments in mental health infrastructure in underserved areas. All of this information provides a clearer picture of the intersectional challenges facing this community, informing efforts to design equitable public health strategies.

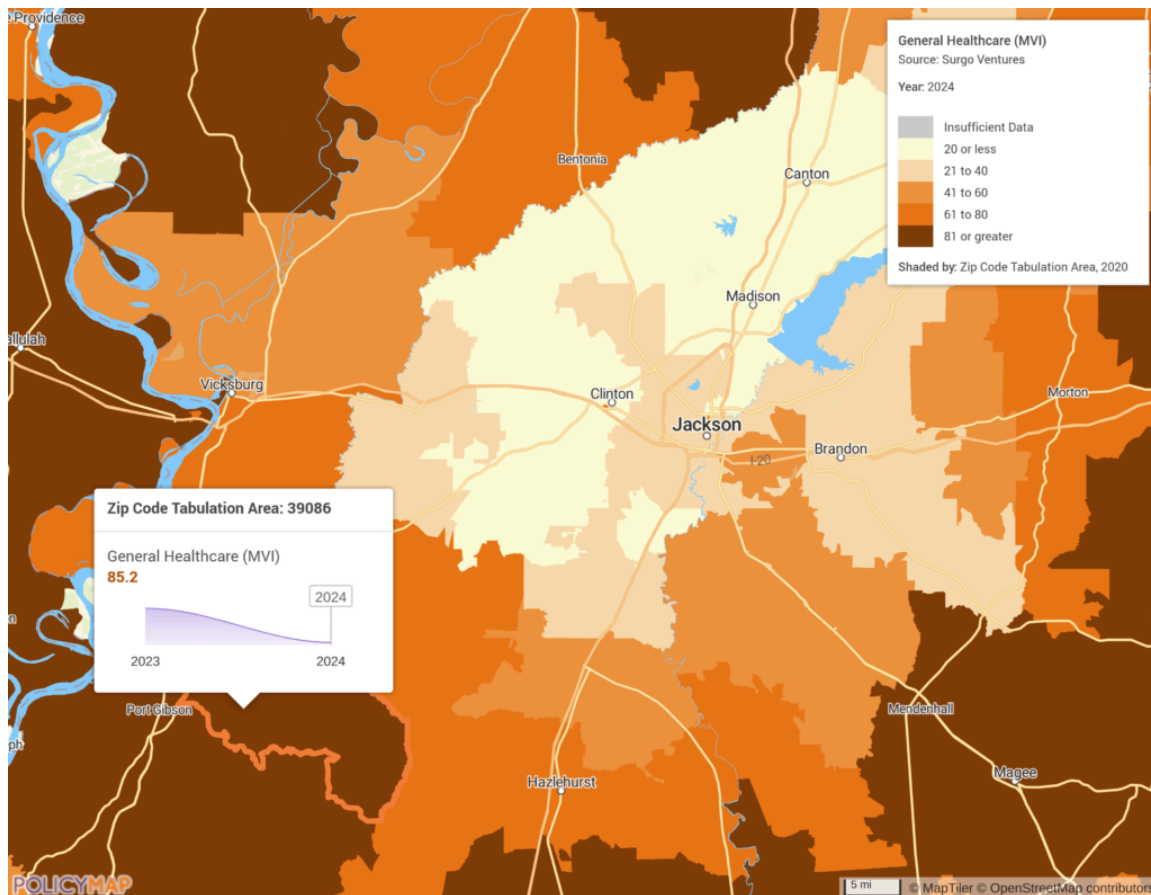
These disparities have significant implications for maternal vulnerability. High rates of chronic health conditions, coupled with limited access to resources in areas with elevated deprivation and mental health challenges, can exacerbate risks during pregnancy and postpartum. Addressing these challenges requires a multifaceted approach that considers the intersection of mental well-being and social determinants to improve outcomes for mothers and their children.

General Healthcare

About the General Healthcare Theme

Surgo’s gMVI General Healthcare theme highlights key indicators such as healthcare accessibility, affordability, utilization, insurance coverage, and Medicaid expansion status. Addressing disparities in these areas is essential to developing equitable and effective interventions that improve access to basic medical care, particularly for vulnerable populations, including mothers and infants.

Jackson, Mississippi and the surrounding area, mapped below, illustrate the intersection of economic and public health disadvantage. Rural communities in this region face significant barriers to accessing quality healthcare for chronic illnesses and maternal care, exacerbating health inequities. While Jackson and its suburbs rank within the 20 to 40 range of gMVI General Healthcare index, indicating relatively low vulnerability, the surrounding rural areas tell a different story. A ring of dark orange on the map highlights smaller towns in peripheral counties and those west of the Mississippi River that fall in the range of 81 or higher. The data show that these communities face significant barriers to healthcare accessibility and quality.

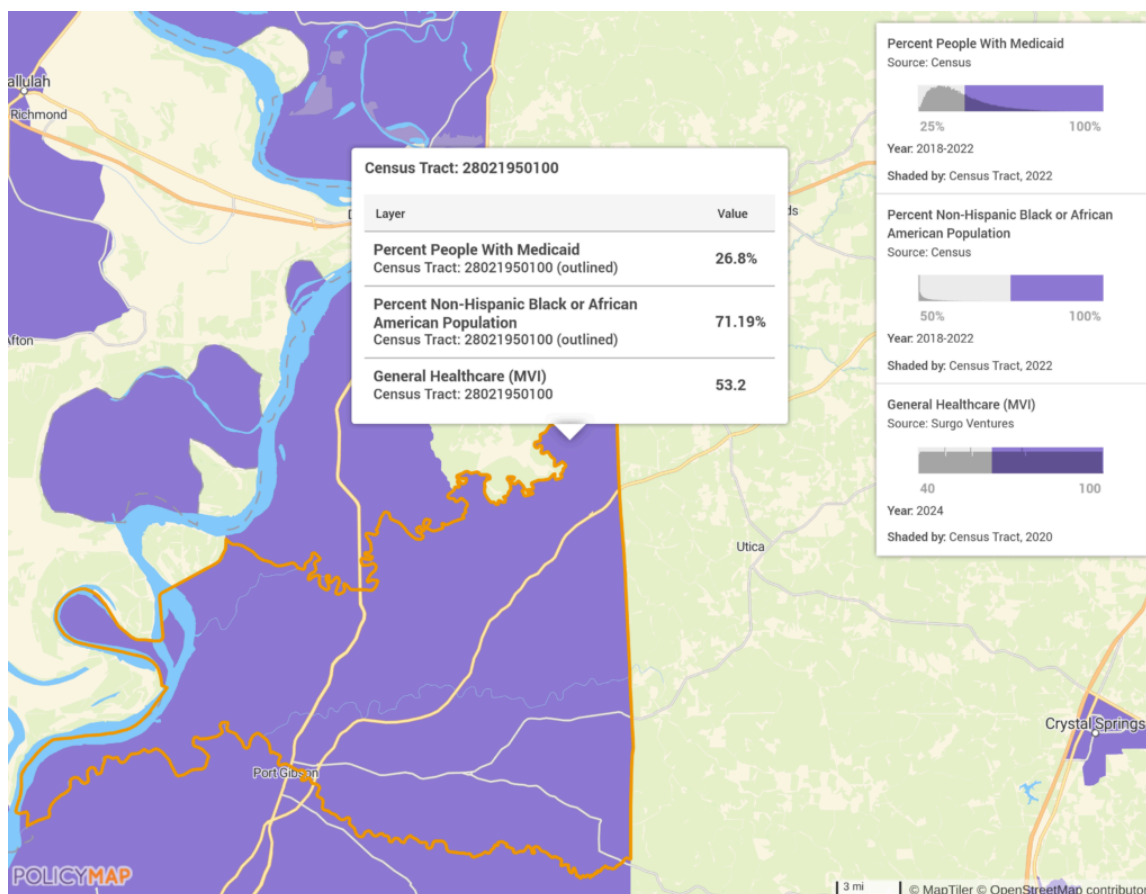


PolicyMap’s visualization of Greater Jackson underscores the urban-rural healthcare divide, shedding light on the unique challenges geographically isolated communities face, including limited proximity to health centers, primary care practitioners, and hospitals.

For maternal health specifically, these barriers can lead to reduced access to prenatal and postnatal care, increasing risks for complications and adverse outcomes. A 2021 [report from Surgo Health](#) noted that rural counties are more than twice as likely as urban counties to face difficulties related to healthcare accessibility, affordability, and quality.

Linking Demographics, Medicaid, and General Healthcare

Demographic and public insurance enrollment indicators provide a critical context for understanding health determinants and improving interventions. In regions where high levels of Medicaid participation, healthcare barriers, and racial disparities intersect, pregnant women are at increased risk for complications. By targeting these vulnerable areas, public health initiatives can be tailored to improve maternal care access, reduce health inequities, and support healthier prenatal and postnatal care.



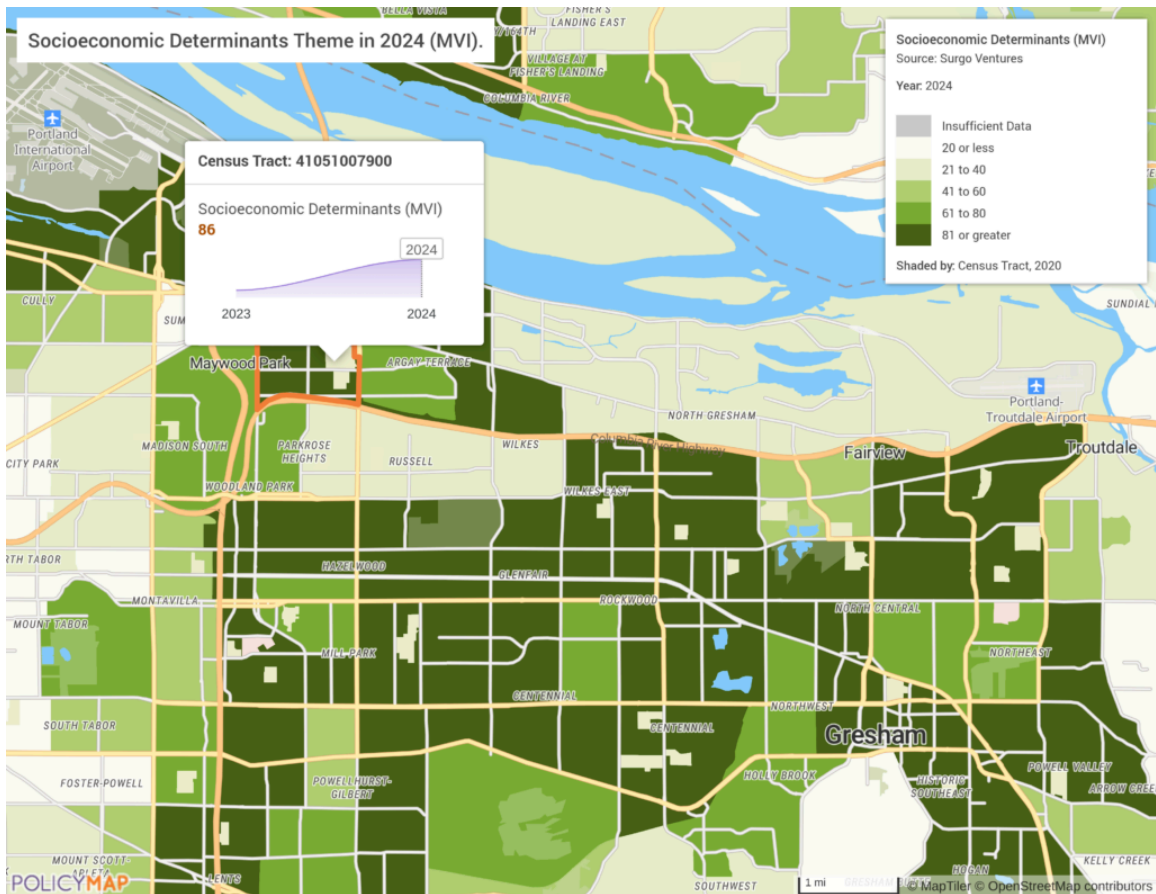
The highlighted tracts above represent a composite analysis of the General Healthcare theme, U.S. Census Bureau data on Percent of People with Medicaid, as well as demographic data on the percentage of Black residents. To focus on the most at-risk areas, adjustments have been made to isolate especially vulnerable tracts, specifically by setting the gMVI index to 40 and selecting zip code tabulations where the majority of the population identifies as Black.

This examination of Greater Jackson reveals areas where systemic challenges intersect, including limited access to healthcare, persistent poverty, and racial health disparities. By identifying these vulnerable tracts, healthcare providers and public health agencies can develop strategies tailored to address the unique needs of these communities, ultimately fostering more equitable maternal health outcomes.

Socioeconomic Determinants of Health

About the Socioeconomic Determinants of Health Theme

The gMVI's Socioeconomic Determinants of Health theme incorporates key indicators such as educational attainment, poverty, food insecurity, and housing affordability, providing a comprehensive view of socioeconomic disparities and their impact on health.

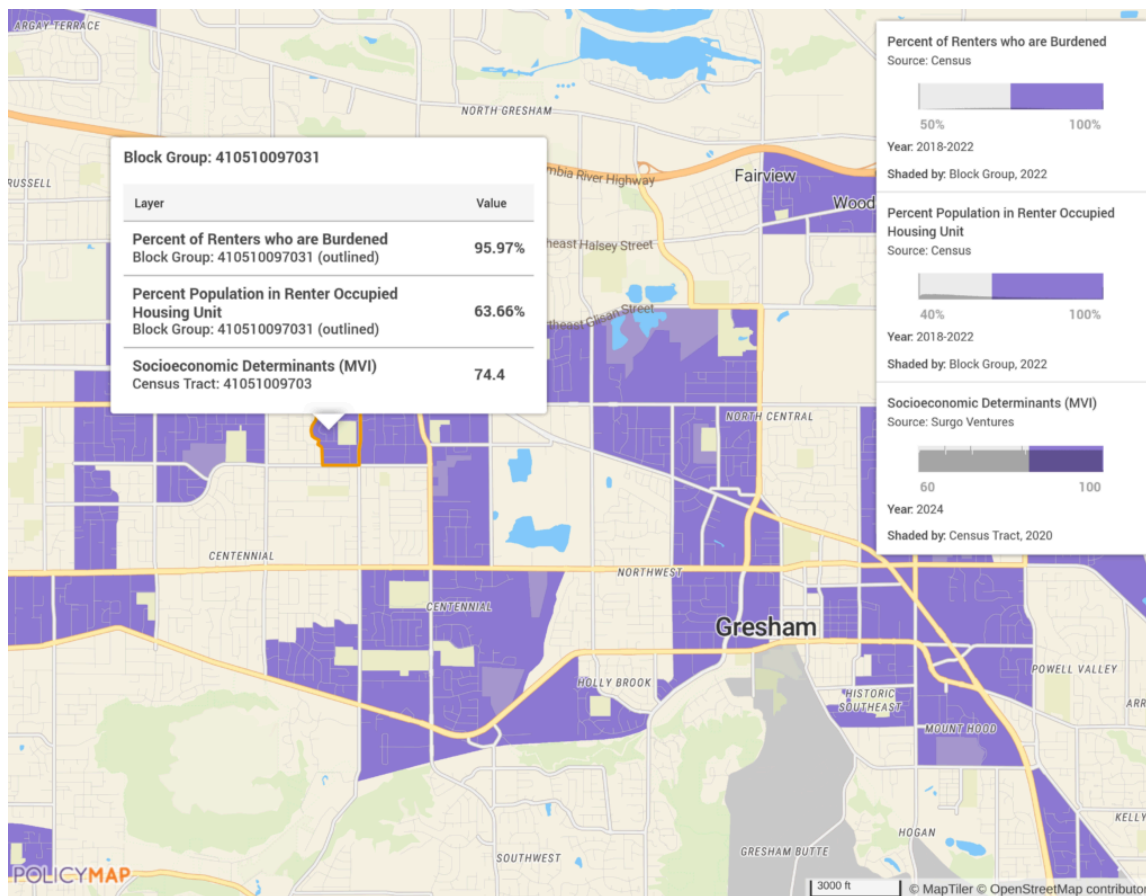


Gresham, Oregon, a mid-sized city east of Portland pictured below, serves as a case study for assessing socioeconomic disparities and their correlations with maternal vulnerability. According to PolicyMap's Community Profile Report on Gresham, informed by the U.S. Census Bureau, 22.5% of the city's households earn less than \$35,000 annually, and 44% of households include children, potentially indicating a high prevalence of economic strain among families. Additionally, 21% of the city's population identifies as Latino, a demographic often affected by systemic barriers to healthcare access and social resources.

Overlaying Gresham with the gMVI Socioeconomic Determinants theme highlights numerous census tracts within the highest range of vulnerability (a score of 81 or higher). This analysis underscores the interconnectedness of economic challenges and maternal health risks, providing valuable insights for designing targeted interventions to support vulnerable populations.

Linking Cost-Burdened Renters and Maternal Outcomes

The number of renter households struggling with housing costs has hit an all-time high, intensifying the affordability crisis that worsened during the pandemic. Lower-income renters are especially impacted, with less disposable income remaining after covering housing expenses, leading to tough choices that affect their overall health and well-being. For expectant mothers, higher municipal rental housing costs were significantly associated with greater odds of severe maternal morbidity (SMM).



Layering the socioeconomic gMVI index with U.S. Census data on Percent Population in Renter Occupied Housing Units and Percent of Renters who are

Burdened reveals areas of Gresham potentially experiencing significant financial strain. This analysis incorporates the estimated percentage of people in a renter-occupied housing unit along with the percentage of renter households spending more than 30% or more of their household income on rent. These census tracts highlight where the financial strain of homeownership intersects with maternal vulnerability, further compounding the challenges faced by these communities.

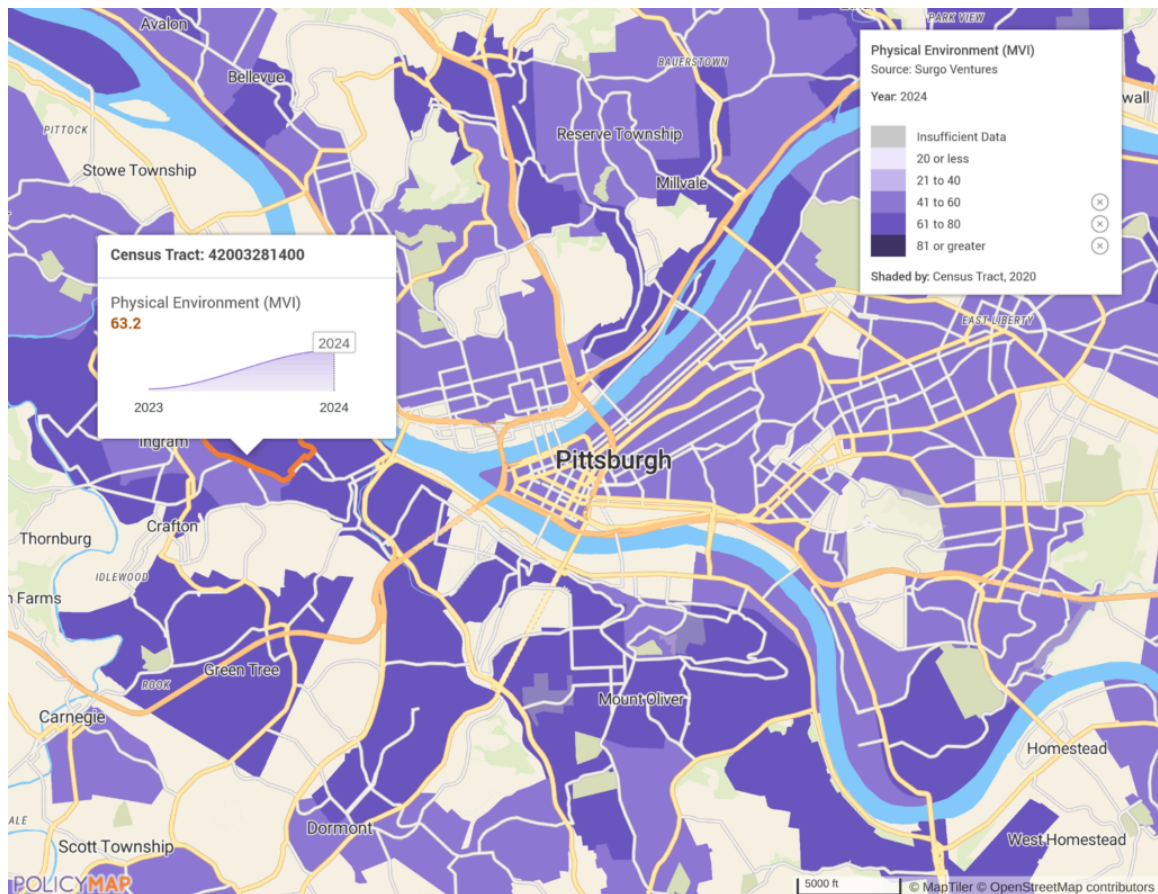
By identifying tracts where maternal vulnerability is likely exacerbated by housing costs, stakeholders can better focus interventions and allocate resources. Initiatives such as affordable housing development and Medicaid expansion programs could reduce costs for women experiencing both rental affordability burdens and health vulnerability. Coupled with wraparound services like childcare support or financial counseling, these strategies can help alleviate the compounded stressors affecting maternal health outcomes in these areas.

Physical Environment

About the Physical Environment Theme

Surgo’s gMVI Physical Environment theme enables the analysis of key factors such as violent crime rates, housing conditions, pollution, and access to transportation. Research consistently highlights housing as a fundamental social determinant, emphasizing the importance of targeted interventions to address health disparities. For maternal and child health, physical safety, clean air, and reliable transportation are essential components that ensure access to prenatal and postnatal care and promote long-term well-being.

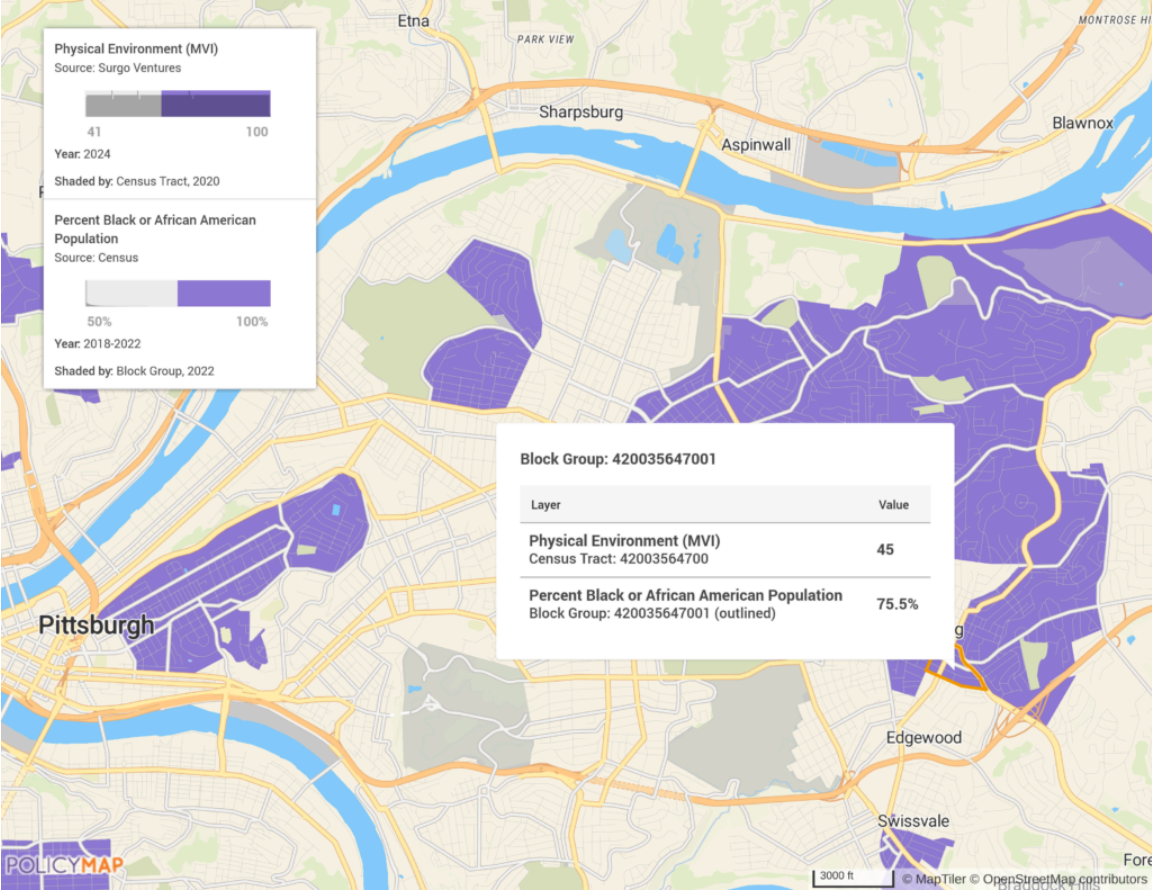
The map of Pittsburgh, Pennsylvania below visualizes the gMVI Physical Environment index, with the darkest purple areas indicating census tracts facing the highest levels of vulnerability. The selected census tract demonstrates a marked increase in vulnerability since 2023, underscoring the potential need for focused interventions.



Linking Systemic Racial Injustice and Physical Environment

A refined map of Pittsburgh below highlights a select group of census tracts with a majority Black population and relatively high rankings on the gMVI Physical Environment index. These tracts underscore how systemic inequities in housing conditions, transportation access, and environmental safety disproportionately affect certain demographic groups, shaping maternal health outcomes in profound ways.

Poor housing conditions and exposure to pollution may exacerbate pre-existing health risks, while inadequate transportation can impede access to prenatal and postnatal care. The demographic composition of these neighborhoods further emphasizes the role of structural inequities, such as historical disinvestment and discriminatory policies, in perpetuating these challenges.

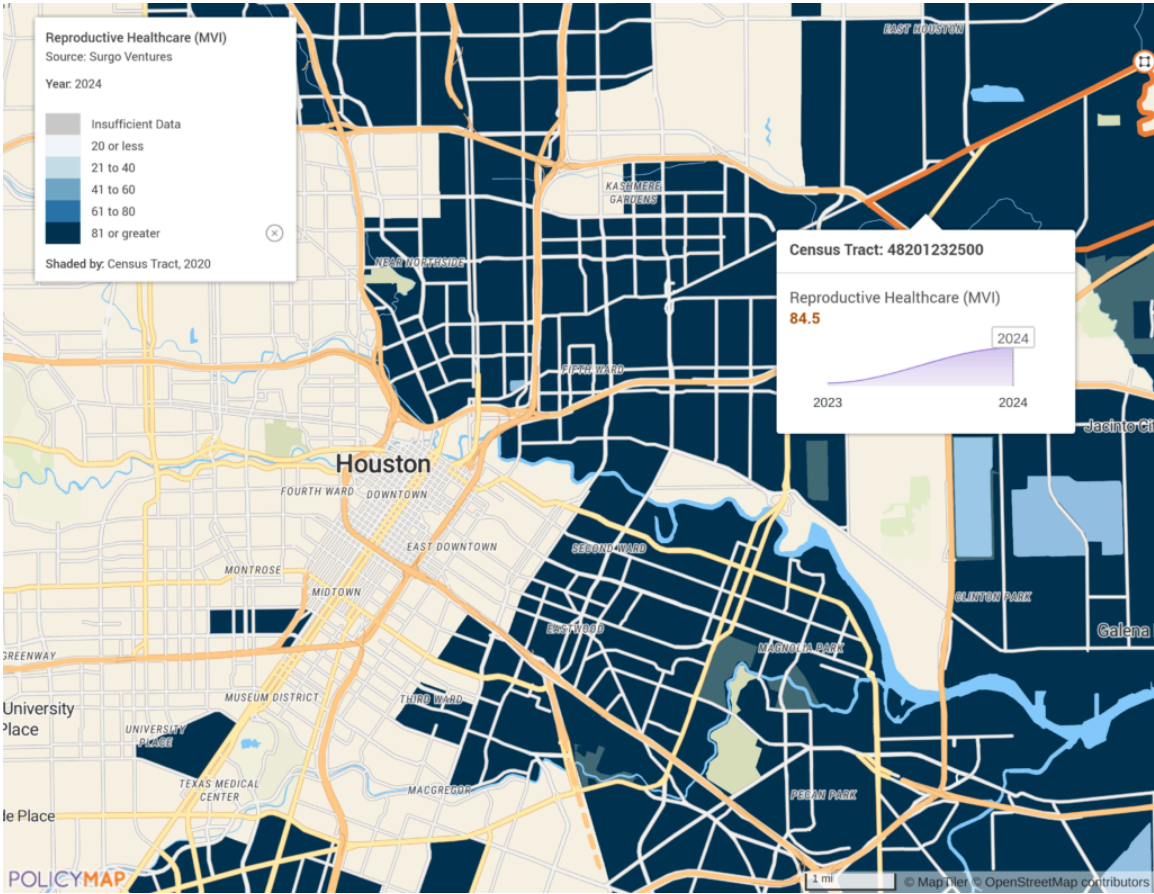


Reproductive Healthcare

About the Reproductive Healthcare Theme

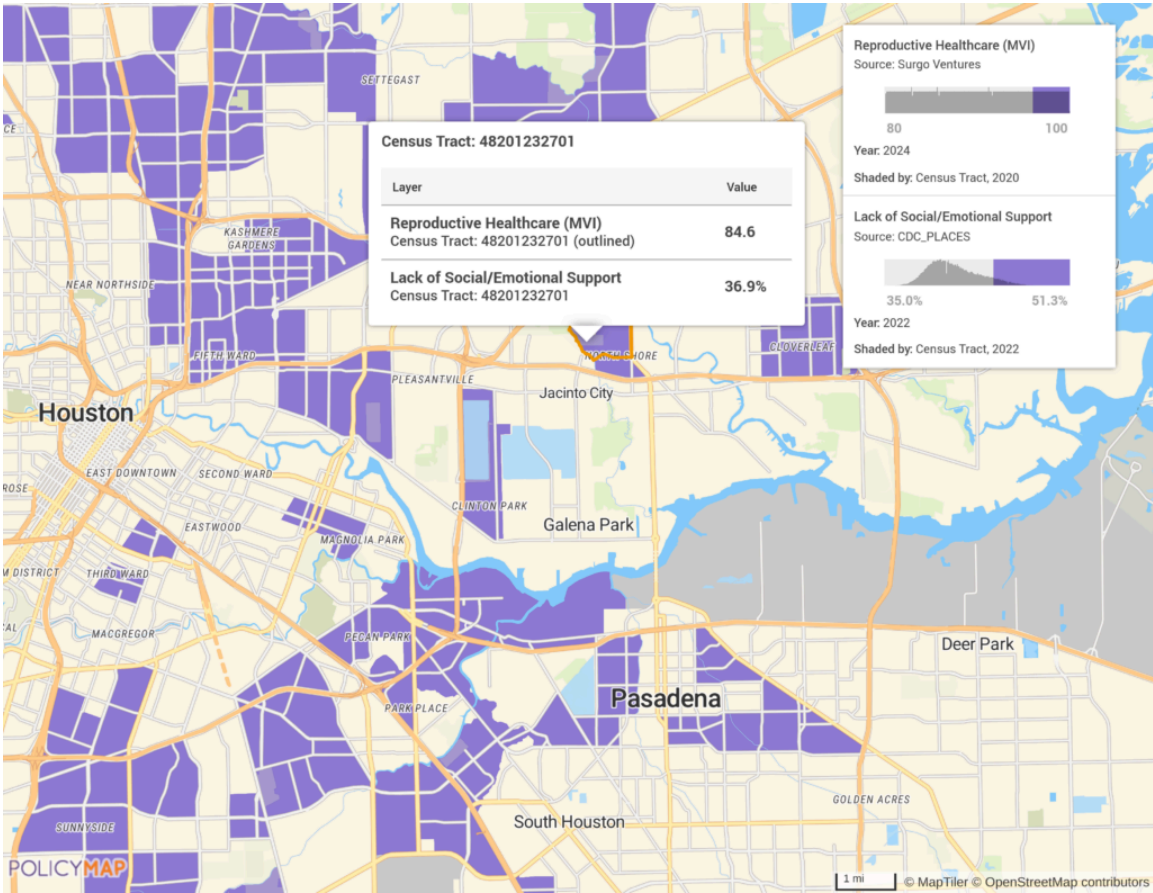
The Reproductive Healthcare theme includes access to family planning and reproductive services including abortion, as well as the availability of skilled attendance. Evaluating access to reproductive healthcare is essential for identifying areas of maternal vulnerability, particularly in regions like Greater Houston where geographical and socioeconomic disparities may affect the availability of essential services.

As visualized, a significant portion of metropolitan Houston faces vulnerability in reproductive healthcare, as abortion is highly restricted. There is significant variation in risk levels across different neighborhoods and towns, with some areas recording a low-risk level of 56 and others peaking at 95.



Linking Access Mental Healthcare and Family Planning and Reproductive Services

Utilizing the gMVI’s Reproductive Healthcare Theme in conjunction with other data from PolicyMap offers deeper insights into these variations. Highlighting specific census tracts in Greater Houston that register on the higher end of the index for Lack of Social/Emotional Support, provided by the CDC, in addition to the Reproductive Healthcare Theme data, is vital for a nuanced understanding of community needs. This more granular geographical analysis represents areas where residents may be experiencing compounded vulnerabilities that affect their overall well-being.



Targeted analysis of the gMVI’s Reproductive Healthcare Theme allows for the strategic deployment of resources, ensuring that interventions such as mobile health clinics, education programs, and enhanced service offerings are directed where they are most needed. For healthcare providers, this means the ability to tailor services to community-specific needs, ultimately improving healthcare outcomes by ensuring that all individuals have access to critical services. This

focused approach not only optimizes resource allocation but also supports the broader goal of reducing disparities in maternal healthcare access.

Connecting the Dots: Maternal Outcomes and Social Determinants of Health

Maternal vulnerability extends beyond the immediate sphere of healthcare, deeply intertwined with various socioeconomic factors that significantly influence health outcomes. Research consistently shows that elements such as income level, educational attainment, housing stability, and access to transportation play pivotal roles in shaping maternal health. For instance, lower socioeconomic status is often linked with limited access to quality healthcare services, poorer nutritional options, and higher stress levels—all of which can contribute to increased risks during pregnancy and childbirth.

The six themes above use a range of indicators to assess the risk factors contributing to maternal health issues, including socioeconomic status, access to prenatal care, and health insurance coverage. A comprehensive approach to maternal health can consider these broader social determinants to effectively address and mitigate the risks faced by expectant mothers. We hope you take the time to dig deeper into each theme.

Interested in learning more? Contact us at sales@policymap.com to request more information.