

INTRODUCTION

This brief uses data from the 2015 Ohio Medicaid Assessment Survey (OMAS) to examine the relationship between social determinants of health (SDOH) and self-reported health status and predictors of health insurance coverage for Ohioans, ages 19 to 64. It includes a focus on those with incomes at or below 138% of the Federal Poverty Level ($\leq 138\%$ FPL), the income threshold for Medicaid expansion eligibility. It also includes a comparison of individuals who gained coverage through Medicaid expansion (newly eligible), those eligible under pre-Medicaid expansion eligibility rules (oldly eligible) and those who are not covered, but could be covered if they applied (potential newly and potentially oldly eligible).

BACKGROUND

The World Health Organization defines SDOH as “the circumstances in which people are born, grow up, live, work and age, and the systems put in place to deal with illness.”¹ A social determinants of health perspective expands attention from risk “factors” at the level of the individual to risk “conditions,” and recognizes the importance of the environment on health.²

The model employed in this research is Dahlgren and Whitehead’s “Determinants of Health” policy rainbow (Figure 1).³ This model identifies the innermost layer as the level of the individual and expands to the outermost layer, which represents cultural, macroeconomic and environmental conditions. For purposes of this model, factors at the innermost layer are treated primarily as fixed, but each level thereafter may be amenable to policy intervention.³ There is recognition that decisions made at the individual level are affected by macro-factors and that interactions among different layers of the model may impact the health of the individual.⁴

OBJECTIVES

This brief focuses on Ohioans with incomes $\leq 138\%$ FPL who reported fair or poor health (fair/poor) and those who reported a mental health-related impairment (MHI), defined as an impairment in work or other usual activities due to mental health for 14 or more days. The OMAS question defined mental health as “stress, depression, and problems with emotions or substance abuse,” and was quantified by counting the number of days during the past 30 days that mental health prevented work or other usual activities. Models will identify predictors of health and Medicaid status in 2015. This analysis uses data aggregated at the zip-code level to analyze the geospatial distribution of these outcomes and the impact of certain geospatial variables on the outcomes. A second objective is to examine the geographic concentration of Medicaid enrolled and Medicaid eligible Ohioans and to identify predictors of their Medicaid status.

Figure 1: Social Determinants of Health: Dahlgren and Whitehead (1993)³



HIGHLIGHT The likelihood of having poor health outcomes for Ohioans with incomes $\leq 138\%$ FPL is associated with social and economic factors, such as education, work status and race and ethnicity. Geographic data can dramatically enhance understanding of SDOH and development of better targeted policy for health outcomes and Medicaid eligibility and enrollment.

METHODS

This research utilized the adult section of the 2015 OMAS, a population-based survey that examines access to the health system, health status and health determinant characteristics of Ohio’s Medicaid, Medicaid eligible, and non-Medicaid child and adult populations. It also utilized contextual data from multiple external sources, including the American Community Survey. Where OMAS sample sizes were below 50 respondents per zip code, zip codes were grouped into zip clusters that ensured at least 50 OMAS respondents in each. Both the contextual data and OMAS data

were aggregated into these zip groups. The analysis employed two complementary modeling strategies to examine predictors of health status. The first, spatial regression modeling, allowed for geographic analysis of outcomes by zip group and is based on geographically aggregated data. The proportion of OMAS respondents in each zip group reporting each outcome was modeled as a function of area-level contextual factors. It is important to note that the geographical analyses discussed in this brief are at the individual zip code and zip code-aggregated level and, thus, the results speak only to that level. To account for the sample survey design, the second strategy used individual level modeling to estimate the adjusted prevalence of self-reported fair or poor health and MHI. Prevalence estimates were adjusted for age, race/ethnicity, gender, marital status, smoking status, binge drinking, body mass index, education, region, chronic disease, insurance status and employment.

RESULTS

Map 1 depicts the geographic concentration of Ohioans with incomes $\leq 138\%$ FPL in 2015. Lighter colors indicate areas in which a lower percent of residents reported incomes $\leq 138\%$ FPL and darker purple indicates areas with a higher percent. The southern region of Ohio shows the highest concentrations of residents living in this income category. Among Ohioans with incomes $\leq 138\%$ FPL:

- 21.4% were Black, 5.6% Hispanic
- 21.7% had not completed high school, 58.3% had a high school diploma or some college and 20.0% any college degree (2 year, 4 year or advanced).

Map 1: Percent of Ohioans $\leq 138\%$ FPL

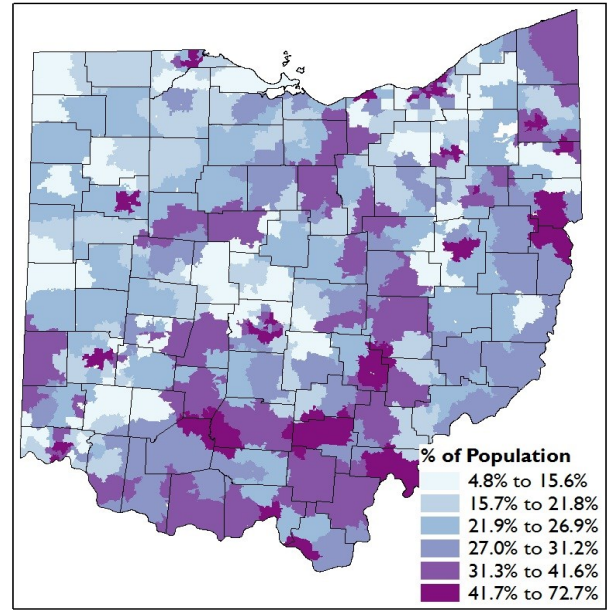
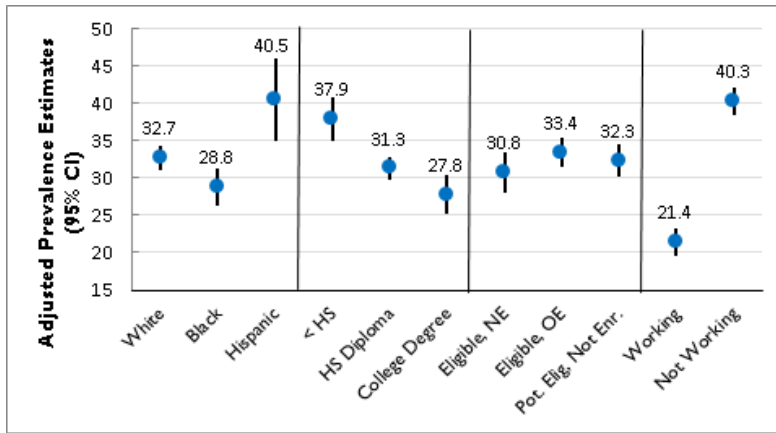


Figure 2: Estimated Prevalence of Predictors of Fair/Poor Health for Ohioans $\leq 138\%$ FPL

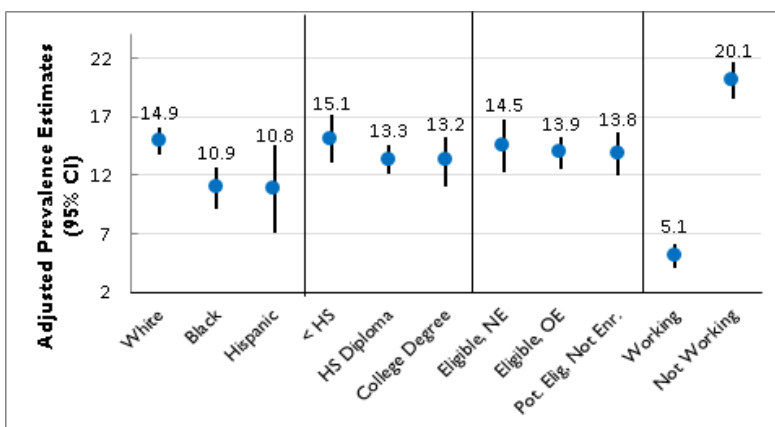


- 48% reported working during the past week
- more than one-half (52.7%) had Medicaid, of which 8.2% were dually eligible, 16.7% had job-based coverage.
- 32% reported fair/poor health and 13.4% reported MHI, compared to 16.9% and 6.1% of all 19 to 64 year old Ohioans during 2015, respectively.

Models Figures 2 and 3 suggest the following for Ohioans with incomes $\leq 138\%$ FPL:

- Hispanics reported a much higher prevalence of fair/poor health than Whites and Blacks. Whites reported a much higher prevalence of MHI than Blacks.
- The association between education level and health was more pronounced for those who reported fair/poor health than for those with MHI.
- There was little difference among the three Medicaid eligibility groups for either health status measure.
- Low income Ohioans who are working report much better health status than those who report not working. Those not working have 1.88 times higher prevalence of having poor/fair health and 3.94 times higher prevalence for MHI. The population of Ohioans not working includes those who have both Medicaid and Medicare due to a disability.

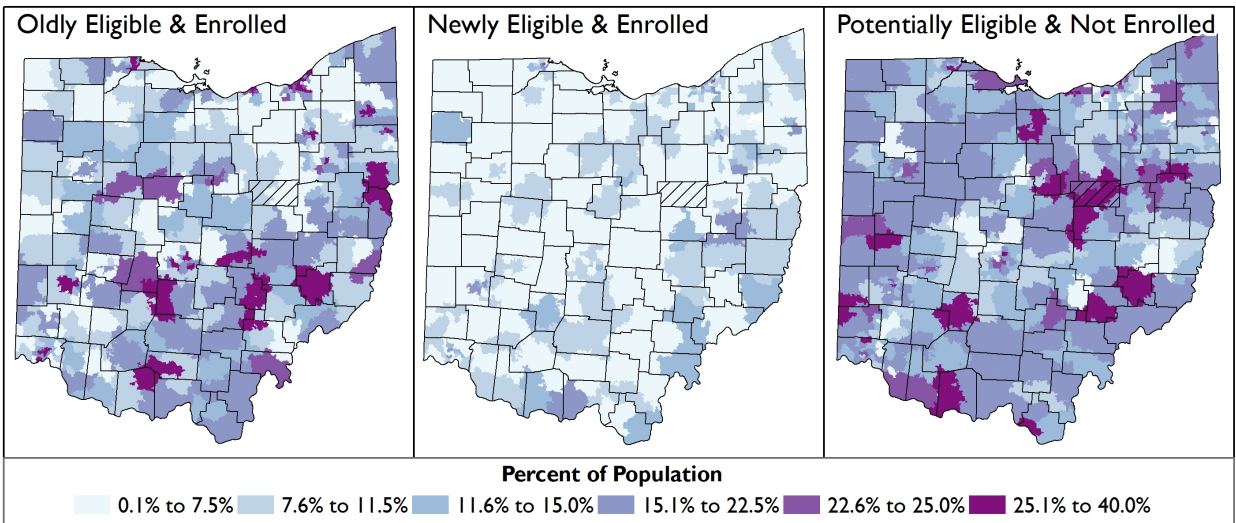
Figure 3: Estimated Prevalence of Predictors of MHI for Ohioans $\leq 138\%$ FPL



Geospatial Analysis

Maps 2, 3, 4: Medicaid Eligibility Status of Ohioans, Ages 19-64, with Incomes $\leq 138\%$ FPL in 2015

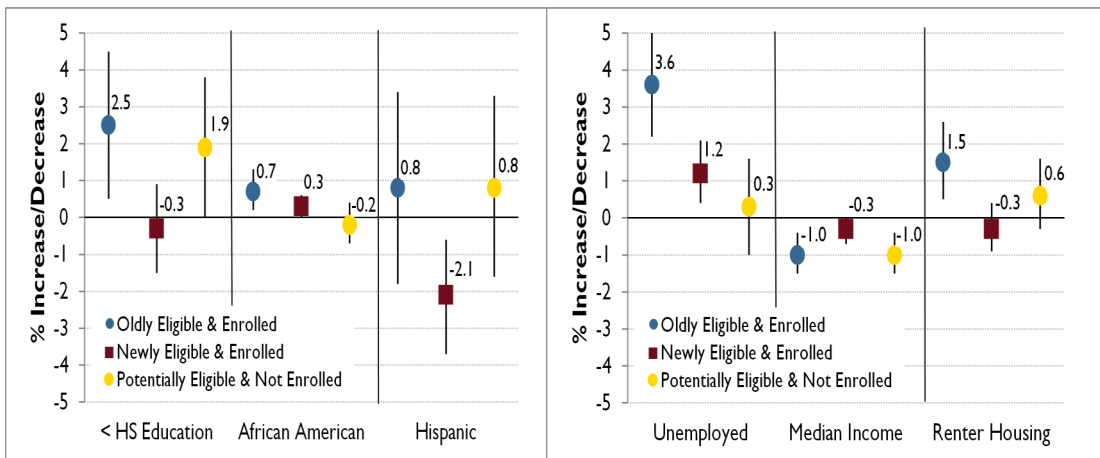
Maps 2, 3 and 4 present the geographic concentration of Ohioans, ages 19-64, with incomes $\leq 138\%$ FPL who are oldly eligible and enrolled in Medicaid (OE&E), newly eligible and enrolled in Medicaid (NE&E) and those potentially eligible but not enrolled (PE&NE). Map 4 underscores



opportunities for outreach to areas with darker shades of purple that reflect higher concentrations of those PE&NE. However, caution should be used when making assumptions about the insurance status of the PE&NE group. As noted previously, 57.1% of Ohioans $\leq 138\%$ FPL had Medicaid, while 14.1% reported being uninsured. The remaining 28.8% had some form of coverage. Some Ohioans meet financial eligibility criteria for Medicaid but may elect to forego seeking coverage, such as members of the Amish community (e.g. Holmes county is designated with diagonal lines on maps 2, 3, 4).

Figures 4 & 5 identify area-level demographic and economic predictors associate with a higher or lower proportion of the population that is NE&E, OE&E or PE&NE. A predictor is statistically significant if the confidence interval does not cross 0. Significant predictors include:

Figures 4, 5: Estimated Change in Area Level Medicaid Eligibility of Ohioans $\leq 138\%$ FPL



- **Area education level less than high school.** A 10.0% increase in people with less than high school education is associated with a 2.5% increase in OE&E and a 1.9% increase in PE&NE.
- **Area level percent of Hispanic residents.** A 10.0% increase in area percent of Hispanic residents is associated with a 2.1% decrease in NE&E.
- **Area level unemployment** A 10.0% increase in area unemployment is associated with a

3.6% increase in OE&E and a 1.2% increase in NE&E.

- **Area median household income for all eligibility groups.** A 10.0% increase in area median income is associated with a 1.0% decrease in area eligibility for OE&E and PE&NE and a 0.3% decrease for NE&E.

POLICY CONSIDERATIONS

While the health status of Ohioans varies at the state and individual levels, these models identify indicators that may inform decisions regarding the investment of resources for Ohioans with Medicaid and those potentially Medicaid eligible ($\leq 138\%$ FPL). These indicators further identify opportunities where actions could help either reduce the need for Medicaid coverage or diminish the impact of social determinants of health. Specific policy considerations for this population include:

- **Income really matters.** The impact of social determinants of health, such as education level, are much smaller for Ohioans with incomes \leq 138% FPL compared to the total population, underscoring the importance of income (see the companion SDOH Chartbook for further details). Therefore, the ability to increase income opportunities is important. Also, efforts that mitigate the impact of different symptoms of poverty, such as providing Medicaid coverage or reducing costs associated with housing can offset the challenges of a low income. Anything that increases these costs would likely further negatively impact health outcomes, such as poor health status. Finally, area level (median) income is significantly related to Medicaid eligibility status.
- **Completing high school matters.** People without a high school diploma have worse health outcomes than those who have completed high school. In 2015, more than 400,000 Ohioans age 19-64 with incomes \leq 138% FPL did not have a high school diploma. The importance of area level education is underscored through Medicaid eligibility status.
- **Improving mental health matters.** Low income Ohioans with any college degree report similar levels of MHI as those who have completed high school and levels not very different from those without a high school diploma.
- **Race and Ethnicity matter.** Hispanic Ohioans have a much higher prevalence of fair/poor health than do Black and White Ohioans. Areas with higher percents of Hispanic residents have lower levels of NE&E. White Ohioans have a much higher prevalence of MHI than Black Ohioans.
- **Work matters.** Work is associated with much better health outcomes, although this research cannot determine the direction of the relationship. Additionally, area level unemployment significantly predicts Medicaid eligibility status. Almost 48% of Ohioans (more than 900,000) with incomes \leq 138% FPL work, but do not earn sufficient income to live above the Medicaid expansion income threshold. More than 950,000 Ohioans with incomes \leq 138% FPL are not working, some of whom may have a disability that impacts their ability to work.
- **The use of geographically referenced data (e.g. zip codes, census tract) works.** This brief demonstrates that Medicaid, other state agencies and policy makers can use geographic data to improve understanding of spatial inequalities and facilitate the targeting of program activities and public policy initiatives
- **Better geographic level data are needed.** Medicaid, other state agencies and policymakers need better data to understand the full impact of SDOH. Identifying spatial inequalities using geospatial analysis requires the ability to study small geographic areas (e.g. census tracts) to draw robust and meaningful conclusions. In addition, the OMAS should incorporate questions specific to SDOH, including issues such as food security, housing, transportation and social support as well as income, health insurance status, education and employment status.

FOR MORE INFORMATION

To view more information about OMAS and the findings in this policy brief, please visit the OMAS website at the Ohio Colleges of Medicine Government Resource Center www.grc.osu.edu/OMAS.

References:

- 1.WHO. (nd). http://www.who.int/social_determinants/thecommission/finalreport/key_concepts/en/
- 2.Mitchell, F.M. (2012). Reframing Diabetes in American Indian Communities: A Social Determinants of Health Perspective. *Health & Social Work*, 37(2), 71-79.
3. Dahlgren, G. & Whitehead, M. (2006). Levelling up (part 2): a discussion paper on European strategies for tackling social inequities in health http://www.who.int/social_determinants/resources/leveling_up_part2.pdf
- 4.Diez-Roux, A.V. (1998). Bringing Context Back into Epidemiology: Variables and Fallacies in Multilevel Analysis. *American Journal of Public Health*, 88(2), 216-222.

