MICHIGAN BRFSS SURVEILLANCE BRIEF

A Newsletter from the Lifecourse Epidemiology & Genomics Division, MDHHS Vol. 16 No. 1 April 2025

Firearm Ownership and Storage Practice among Michigan Adults, 2023

Using data from the 2023 Michigan Behavioral Risk Factor Survey (MiBRFS), this surveillance brief examines the prevalence of firearm ownership and firearm storage practice by sociodemographic characteristics among Michigan adults.

Key Findings

- 1 in 3 Michigan adults kept a firearm at home.
- 1 in 7 Michigan adults with a firearm at home stored it unsafely – loaded and unlocked.
- Unsafe firearm storage was more commonly reported among adults who were male, Black non-Hispanic, aged 45-64 years old, veterans and without children in their household.

Background

Firearm-related deaths and injuries are a public health concern and have been associated with household firearm ownership. In 2022, 1,504 deaths were related to a firearm injury in Michigan.[1] Since 2011, the number of firearm mortalities far exceeds the number of deaths from motor vehicle crashes in Michigan.[2] The overall gun death rate increased 25% from 2013 to 2022.[1] In 2021, there were at least 96 domestic violence-related homicides in Michigan and 66% were by firearm.[3] In addition, firearms were the leading cause of death among children and teens aged 1-17 years in 2022.[1]

Unintentional firearm injuries increase due to easy access to a loaded firearm. Safely storing firearms by keeping them unloaded and locked significantly reduces the risk of unintentional firearm injuries, especially among youth.[4] Understanding firearm storage practices among Michiganders can help develop strategies to promote safer storage practices and prevent firearm injuries.

What is the Michigan Behavioral Risk Factor Surveillance System (MiBRFSS)?

The MiBRFSS comprises annual, statewide telephone surveys of Michigan adults aged 18 years and older and is part of the national BRFSS coordinated by the Centers for Disease Control and Prevention (CDC). The MiBRFSS follows the CDC BRFSS protocol and uses the standardized English core questionnaire that focuses on various health behaviors, medical conditions and preventive health care practices related to the leading causes of mortality, morbidity and disability. Landline and cell phone interviews are conducted across each calendar year.
Data are weighted to adjust for the probabilities of selection and a raking weighting factor is used to adjust for the distribution of the Michigan adult population based on eight demographic variables. All analyses are performed using SAS-callable SUDAAN® to account for the complex sampling design.

Methods

The Michigan BRFSS provides cross-sectional data, and a temporal relationship cannot be established. To improve the generalizability of the data, making it possible to draw conclusions about the health of Michiganders, the CDC weighted survey data using iterative proportional fitting, also known as raking, to account for demographic differences between the survey sample and Michigan's population.

In the 2023 Michigan BRFSS survey, the Firearm Safety module consisted of three questions assessing firearm ownership and firearm storage practices, as indicated in Table 1. Firearm ownership was measured as a "yes" response to the first question. Loaded and unlocked firearm storage was measured as a "yes" response to all three questions.

Table 1: Firearm Safety Module Questions, MiBRFS, 2023

The next questions are about safety and firearms. Some people keep guns for recreational purposes such as hunting or sport shooting. People also keep guns in the home for protection. Please include firearms such as pistols, revolvers, shotguns and rifles; but not BB guns or guns that cannot fire. Include those kept in a garage, outdoor storage area or motor vehicle. 1. Are any firearms now kept in or around your home? 2. Are any of these firearms now loaded? 3. Are any of these loaded firearms also unlocked? By "unlocked," we mean you do not need a key or a combination to get the gun or to fire it. We don't count a safety as a lock.

The prevalence of firearm ownership and firearm storage practices among Michigan adults was assessed by age, gender, race/ethnicity, education, household income, health insurance, marital status, veteran status, employment status, LGBTQ+, children in household and residential area. These characteristic variables were self-report survey responses. All analyses accounted for the complex sample design.

Results

Prevalence of Firearm Ownership

Based on 2023 MIBRFSS data, an estimated 37.6% of Michigan adults kept a firearm in their home (95% confidence interval (CI): 36.1% - 39.1%).

Figure 1 compares household firearm ownership by characteristic variables. Firearms in homes were more commonly reported among Michigan adults who were male, white non-Hispanic, aged 45-64 years old, household income $75,000 and more, married, veterans, employed and non-LGBTQ+. The proportion of adults who kept a firearm in their home did not differ significantly by education, health insurance and children in household.

- Almost half of male adults (45%) store firearms in the home, a significant difference from females (30.9%).
- White, non-Hispanic adults are significantly more likely to keep firearms in the home (41.4%) than Black, non-Hispanic adults (31.1%).
- Adults aged between 45 and 64 years old are significantly more likely to keep firearms in the home (41.5%) than younger adults (34%).
- Households with annual incomes of at least $75,000 are more likely to store firearms in the home (45.5%) than those with lower incomes (21.5% for annual incomes <$20,000; 28.1% for 20,000 - $34,999; 35.2% for 35,000 - $49,999; $44.8% for 50,000 - $74,999).
- Non-LGBTQ+ adults are more likely to keep firearms in the home (39%) than LGBTQ+ adults (26.4%).
- Almost half of married adults (46.9%) keep firearms in the home, a significant difference from those who are not married (28.5%).
- Almost three in five veterans (56.7%) keep firearms in the home, a significant difference from non-veterans (35.9%).
- Employed adults are more likely to store firearms in the home than those unemployed or nonworking (40% vs. 35.3%).
- Households located in rural or micropolitan areas are significantly more likely than those in metropolitan areas to keep a firearm in the home (53%, 48.3% vs. 34.6%).

Prevalence of Firearm Storage Practice

Among Michigan adults with a firearm in their home, 13.5% kept a firearm in the least safe manner: loaded and unlocked (95% CI: 11.7% - 15.4%); 12.5% kept a firearm loaded and locked (95% CI: 11.0% - 14.1%); and 74.0% kept a firearm unloaded (95% CI: 71.8% - 76.3%).

Figure 2 compares unsafe firearm storage practices (loaded and unlocked) among adults with a household firearm by characteristic variables. Unsafe firearm storage was more commonly reported among adults who were male, Black non-Hispanic, aged 45-64 years old, veterans and without children in their household. Unsafe firearm storage did not differ significantly by education, household income, health insurance, marital status, employment status, LGBTQ+ and residential area.

- Male adults with firearms in the home are significantly more likely than females to keep their firearm loaded and unlocked (18.1% vs. 7.4%).
- Black, non-Hispanic adults with firearms in the home are significantly more likely than white, non-Hispanic adults to keep their firearm loaded and unlocked (25.3% vs. 12.1%).
- Adults aged between 45 and 64 years old with firearms in the home are significantly more likely to keep their firearm loaded and unlocked (16.5%) than younger adults (9.6%).
- Veterans with firearms in the home are significantly more likely than non-veterans to keep their firearm loaded and unlocked (20.6% vs. 12.4%).
- Households without children with firearms in the home are more likely than those with children to keep their firearm loaded and unlocked (16.3% vs. 6.9%).

Discussion

Based on the 2023 MiBRFS data, 1in 3 Michigan adults reported a firearm in their home, and one in seven adults with a firearm in their home reported that a firearm was stored loaded and unlocked. This brief observed that the proportion of keeping a firearm in the home was higher among Michigan adults who were male, white non-Hispanic, aged 45-64 years old, household income $75,000 and more, married, veterans, employed and non-LGBTQ+. Keeping the firearm loaded and unlocked was more commonly reported among adults who were male, Black non-Hispanic, aged 45-64 years old, veterans and without children in their household.

Males and veterans were more likely to keep a loaded and unlocked firearm in the home and rates of firearm suicides are also greater among males and veterans.[5] Younger adults were less likely to report owning a firearm. Younger adults who owned a firearm were less likely to report storing it loaded and unlocked. The proportion of unsafe firearm storage was lower among adults with children in their household, which is in accordance with recommendations from the American Academy of Pediatrics that if families must own firearms, they should be stored locked, unloaded and separate from locked ammunition.[6] Since February 2024, Michigan firearm owners who are around minors or are likely to be around minors have additional safety storage requirements. For more information, please see: Secure Storage Law, which includes a link to Public Act 17 of 2023 and additional resources.

The Michigan BRFSS firearm safety data used for this brief is an important source of public health surveillance. However, it may underestimate unsafe firearm storage due to the self-report data which are subject to social desirability bias. The firearm safety data from the Michigan BRFSS are also limited because they do not ask the number or types of firearms in the home nor reasons for keeping firearms in the home. Nevertheless, continued surveillance using BRFSS firearm data will be necessary to track the public health risk of unsafe firearm storage.

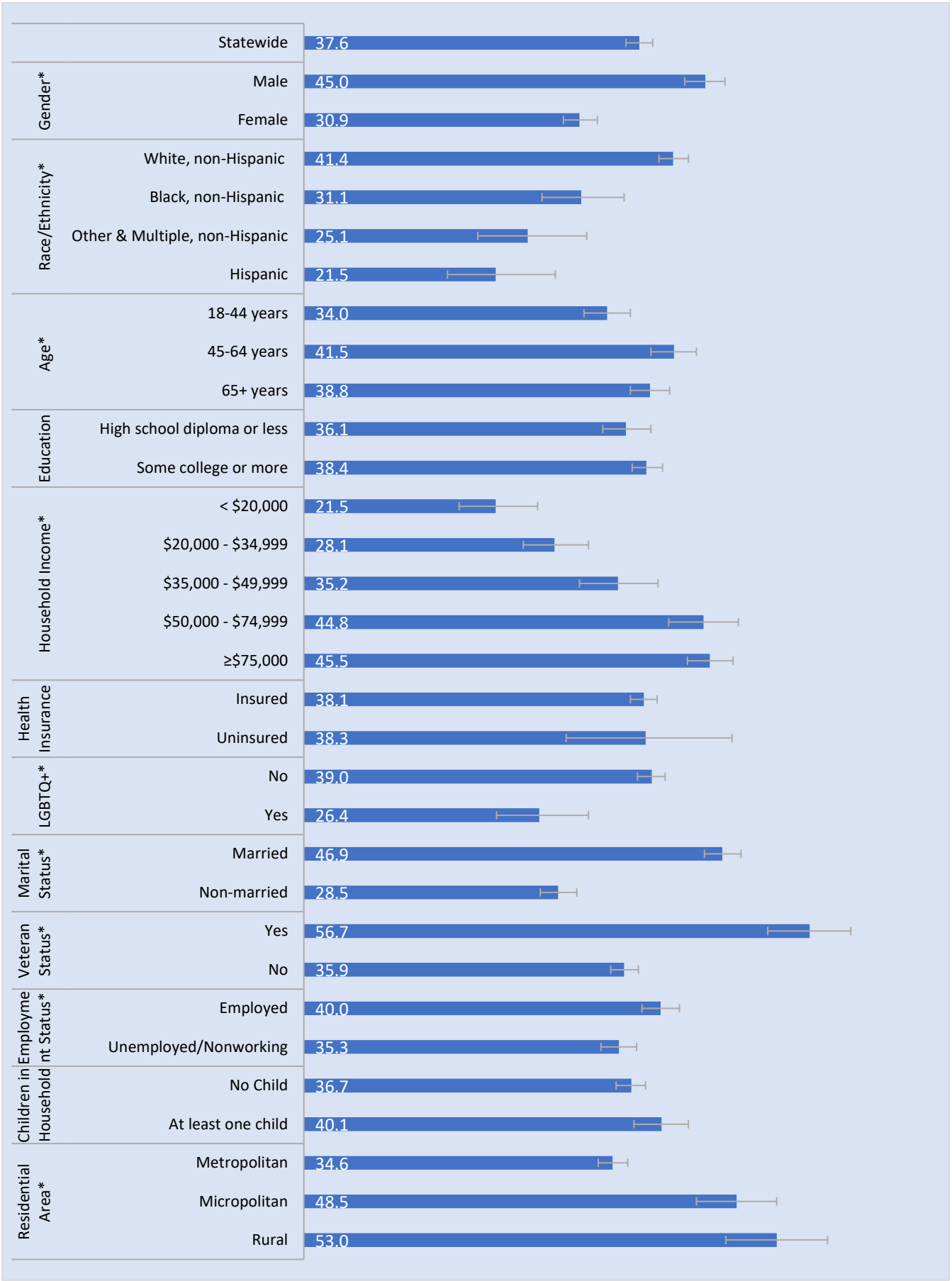

Figure 1: Proportion of Michigan adults with a firearm in the home by characteristic variables, 2023. Statistically significant differences ($p<0.05$) marked with an asterisk. Error bars represent 95% confidence intervals.

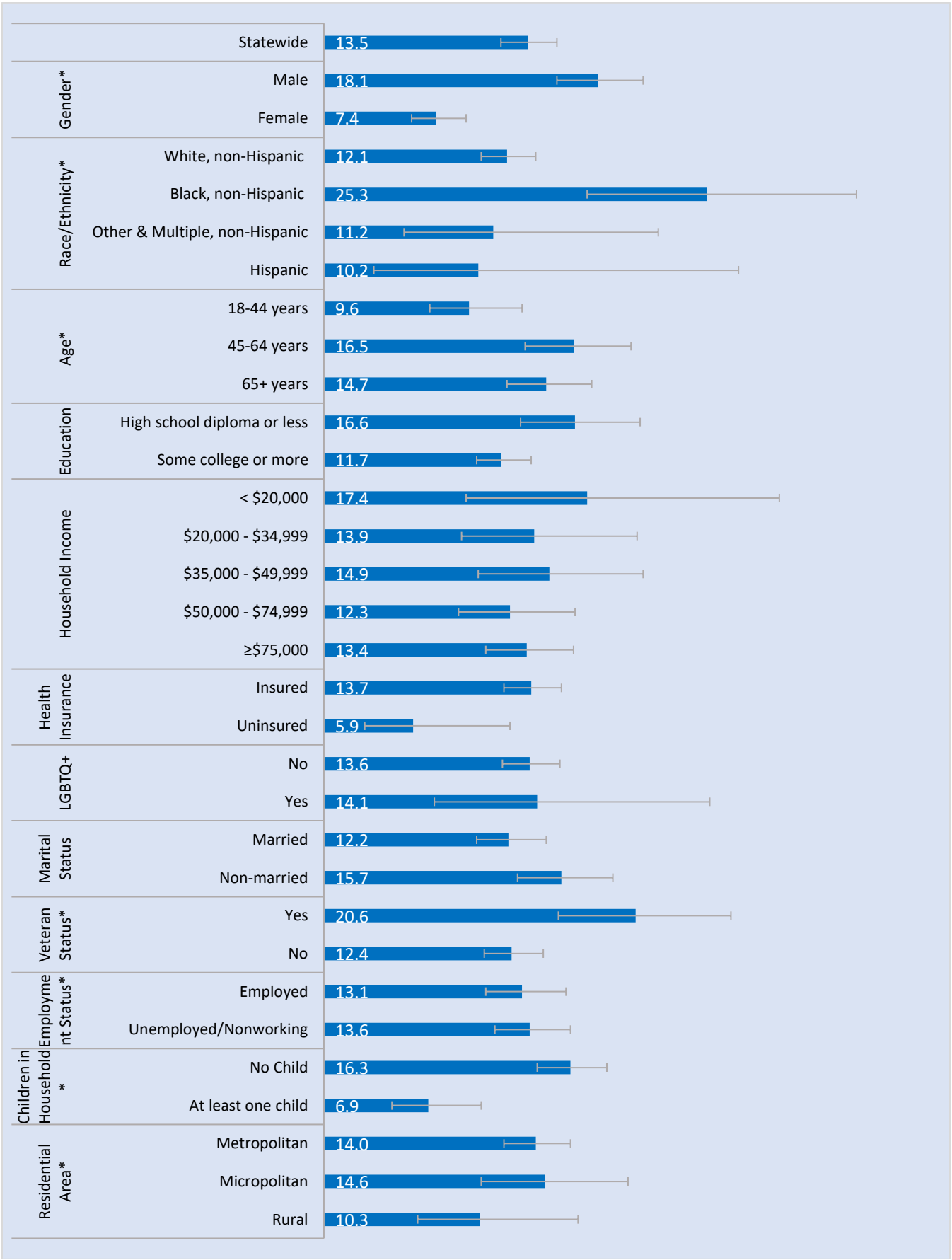

Figure 2: Percent of unsafe firearm storage (i.e., loaded and unlocked) among Michigan adults with a firearm in the home by characteristic variables. Statistically significant differences ($p<0.05$) marked with an asterisk. Error bars represent 95% confidence intervals.

Suggestions

Help promote firearm safety in the community by following these important guidelines for safe storage[7]:

- Unloaded firearms should be stored when not in use in a locked cabinet, safe, gun vault or storage case. The storage location should be inaccessible to children.
- Gun locking devices render firearms inoperable and can be used in addition to locked storage. If firearms are disassembled, parts should be securely stored in separate locations.
- Ammunition should be stored in a locked location separate from firearms.
- Thoroughly double-check firearms to confirm they are unloaded when you remove them from storage.

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Suggested citation: Tian Y, Kleyn M. Firearm Ownership and Storage Practice among Michigan Adults, 2023. Michigan BRFSS Surveillance Brief. Vol. 16, No. 1. Lansing, MI: Michigan Department of Health and Human Services, Lifecourse Epidemiology and Genomics Division, April 2025.