



MiBRFS Standard Tables: Genomics Questions 2015 & 2018

Background & Methods

Background: Harmful mutations in the breast cancer genes (*BRCA1* and *BRCA2*) are associated with Hereditary Breast and Ovarian Cancer (HBOC), a syndrome which substantially increases the risk of developing breast, ovarian, pancreatic, prostate and other cancers over the course of a lifetime. Among women younger than 45, breast cancer incidence is higher among Black women than white women.¹ A strong history of breast and/or ovarian cancer in families means a person is more likely to have HBOC. It is important to collect family health history to determine if your risk of breast and/or ovarian cancer is higher than the general public.

Purpose: The Michigan Behavioral Risk Factor Survey (MiBRFS) is composed of annual, state-level telephone surveys of Michigan residents, aged 18 years and older. These annual, state-level surveys act as the only source of state-specific, population-based estimates of the prevalence of various behaviors, medical conditions, and preventive health care practices among Michigan adults. These questions were only asked among female residents in Michigan to determine whether these respondents had a personal or family history of breast or ovarian cancer, and whether themselves or a family member had received genetic counseling for HBOC. This report has aggregated this information to include data obtained in 2015 and 2018.

Data that are collected include topics such as health status indicators, risk behavior indicators, clinical preventive practices, and chronic conditions, in addition to demographics. Survey modules undergoes yearly changes due to the ability to add state-specific questions to the survey.

Methods: The MiBRFS collects data from both landline and cell phone respondents. The sample of landline telephone numbers is selected using a list-assisted, random-digit-dialed methodology with a disproportionate stratification based on phone bank density, and whether or not the phone numbers are directory listed. The sample of cell phone numbers is randomly selected from dedicated cellular telephone banks sorted on the basis of area code and exchange. A weighting methodology known as iterative proportional fitting or raking is used to allow for the incorporation of cell phone data and to improve the accuracy of prevalence estimates based on MiBRFS data. Estimates based on this weighting methodology are weighted to adjust for the probabilities of selection and a raking adjustment factor that adjusted for the distribution of the Michigan adult population by telephone source (landline or cell phone), detailed race/ethnicity, education level, marital status, age by gender, gender by race/ethnicity, age by race/ethnicity, and renter/owner status.

Demographics: 2015 & 2018

| Characteristic | Weighted Frequency | Weighted Percent | 95% Confidence Interval |
|----------------------|--------------------|------------------|-------------------------|
| Age of respondent | | | |
| 18-29 years | 769,031 | 19.5 | 17.6-21.5 |
| 30-39 years | 585,065 | 14.8 | 13.2-16.6 |
| 40-49 years | 599,347 | 15.2 | 13.7-16.8 |
| 50-59 years | 719,096 | 18.2 | 16.7-19.9 |
| 60-69 years | 640,982 | 16.2 | 14.9-17.7 |
| 70+ years | 635,039 | 16.1 | 14.8-17.4 |
| Race/Ethnicity | | | |
| White, NH | 2,961,938 | 76.0 | 74.0-77.9 |
| Black, NH | 539,128 | 13.8 | 12.3-15.5 |
| Asian, NH | 89,820 | 2.3 | 1.6-3.4 |
| Multiracial, NH | 51,248 | 1.3 | 1.0-1.7 |
| Native American, NH | 31,409 | 0.8 | 0.5-1.3 |
| Hispanic | 153,233 | 3.9 | 3.0-5.1 |
| Arab, NH | 70,367 | 1.8 | 1.3-2.5 |
| Education | | | |
| <High School | 378,308 | 9.5 | 7.9-11.3 |
| High School Graduate | 1,162,635 | 29.2 | 27.3-31.2 |
| Some College | 1,431,874 | 36.0 | 33.9-38.1 |
| College Graduate | 1,008,195 | 25.3 | 23.7-27.0 |
| Income | | | |
| <\$20,000 | 598,591 | 19.1 | 17.2-21.2 |
| \$20,000 – \$34,999 | 632,501 | 20.2 | 18.3-22.2 |
| \$35,000 – \$49,999 | 441,937 | 14.1 | 12.6-15.8 |
| \$50,000 – \$ 74,999 | 510,542 | 16.3 | 14.6-18.1 |
| ≥\$75,000 | 946,337 | 30.2 | 28.1-32.5 |
| Insurance | | | |
| Yes | 3,742,791 | 94.1 | 92.9-95.1 |
| No | 235,096 | 5.9 | 4.9-7.1 |

Demographics: 2015 & 2018 Continued

| Characteristic | Weighted Frequency | Weighted Percent | 95% Confidence Interval |
|-----------------------|--------------------|------------------|-------------------------|
| Gender | | | |
| Female | 3,997,770 | 100.0 | - |
| Male | 0 | 0.0 | - |
| Sexual Orientation | | | |
| Heterosexual | 3,535,573 | 95.3 | 94.2-96.3 |
| Homosexual | 48,681 | 1.3 | 0.8-2.0 |
| Bisexual | 99,684 | 2.7 | 2.0-3.6 |
| Transgender | ~ | ~ | ~ |
| Other | ~ | ~ | ~ |
| Prosperity Regions | | | |
| Upper Peninsula | 141,145 | 3.6 | 3.0-4.3 |
| Northwest | 133,023 | 3.4 | 2.8-4.1 |
| Northeast | 102,381 | 2.6 | 2.1-3.3 |
| West Michigan | 635,625 | 16.1 | 14.9-17.5 |
| East Central Michigan | 243,744 | 6.2 | 5.3-7.2 |
| East Michigan | 349,430 | 8.9 | 8.0-9.8 |
| South Central | 191,824 | 4.9 | 4.2-5.7 |
| Southwest | 318,063 | 8.1 | 7.0-9.2 |
| Southeast Michigan | 354,539 | 9.0 | 8.1-10.0 |
| Detroit Metro | 1,470,191 | 37.3 | 35.5-39.2 |

~Data are suppressed when sample frequencies are less than 50 and/or a relative standard error is greater than 30%.

Characteristics of Cancer Diagnoses, 2015 & 2018

| Characteristic | Weighted Frequency | Weighted Percent | 95% Confidence Interval |
|---------------------------------|--------------------|------------------|-------------------------|
| Ever told they have cancer* | | | |
| Yes | 490,628 | 12.3 | 11.1-13.5 |
| No | 3,502,538 | 87.7 | 86.5-88.9 |
| Age at first cancer diagnosis** | | | |
| <20 years | ~ | ~ | ~ |
| 20-29 years | 38,472 | 8.6 | 5.9-12.4 |
| 30-39 years | 50,404 | 11.3 | 8.3-15.1 |
| 40-49 years | 86,685 | 19.4 | 15.5-23.9 |
| 50-59 years | 105,747 | 23.6 | 19.5-28.3 |
| 60-69 years | 79,978 | 17.9 | 14.5-21.8 |
| 70-79 years | 55,368 | 12.4 | 9.4-16.0 |
| 80+ years | 17,512 | 3.9 | 2.5-6.2 |
| Type of cancer*** | | | |
| Breast | 53,278 | 22.2 | 17.1-28.4 |
| Ovarian | 11,946 | 5.0 | 2.8-8.7 |

*Was the respondent ever told that they had cancer?

**Of the respondents who reported being told they had cancer, what was the age of diagnosis?

***Of the respondents who reported being told they had cancer, was it breast or ovarian cancer?

~Data are suppressed when sample frequencies are less than 50 and/or a relative standard error is greater than 30%.

Family History of Cancer, 2015 & 2018

| Characteristic | Weighted Frequency | Weighted Percent | 95% Confidence Interval |
|--|--------------------|------------------|-------------------------|
| Relatives with Breast Cancer ^a | | | |
| None | 2,171,187 | 62.4 | 60.2-64.6 |
| One | 769,794 | 22.1 | 20.3-24.1 |
| Two | 322,814 | 9.3 | 8.0-10.8 |
| Three or more | 214,458 | 6.2 | 5.2-7.3 |
| Relatives with Young* Breast Cancer ^b | | | |
| None | 595,790 | 48.5 | 44.7-52.4 |
| One | 453,904 | 37.0 | 33.2-40.9 |
| Two | 125,184 | 10.2 | 8.1-12.8 |
| Three or more | 53,016 | 4.3 | 3.1-6.1 |
| Relatives with Ovarian Cancer ^c | | | |
| None | 3,001,006 | 86.5 | 84.9-88.0 |
| One | 376,974 | 10.9 | 9.5-12.4 |
| Two | 50,530 | 1.5 | 1.0-2.1 |
| Three or more | 40,162 | 1.2 | 0.8-1.7 |
| Significant Family History ^d | | | |
| Yes | 468,117 | 11.7 | 10.4-13.2 |
| No | 3,529,653 | 88.3 | 86.8-89.6 |

^a Thinking about your biological or “blood” relatives, including your parents, grandparents, siblings, aunts, uncles, children or grandchildren, how many of these relatives have been diagnosed with breast cancer?

^b How many of these relatives were diagnosed with breast cancer at or before the age of 50 years?

^c Now thinking about your female biological relatives, including your mother, sisters, aunts, grandmothers, daughters or granddaughters, how many have been diagnosed with ovarian cancer?

^d Sig Family Hx = yes if they meet any of the following: (1) At least one ovarian cancer in the family or (2) At least two breast cancers in the family with one being diagnosed at age 50 or younger.

* Young breast cancer refers to cancer that is diagnosed at or under the age of 50.

~Data are suppressed when sample frequencies are less than 50 and/or a relative standard error is greater than 30%.

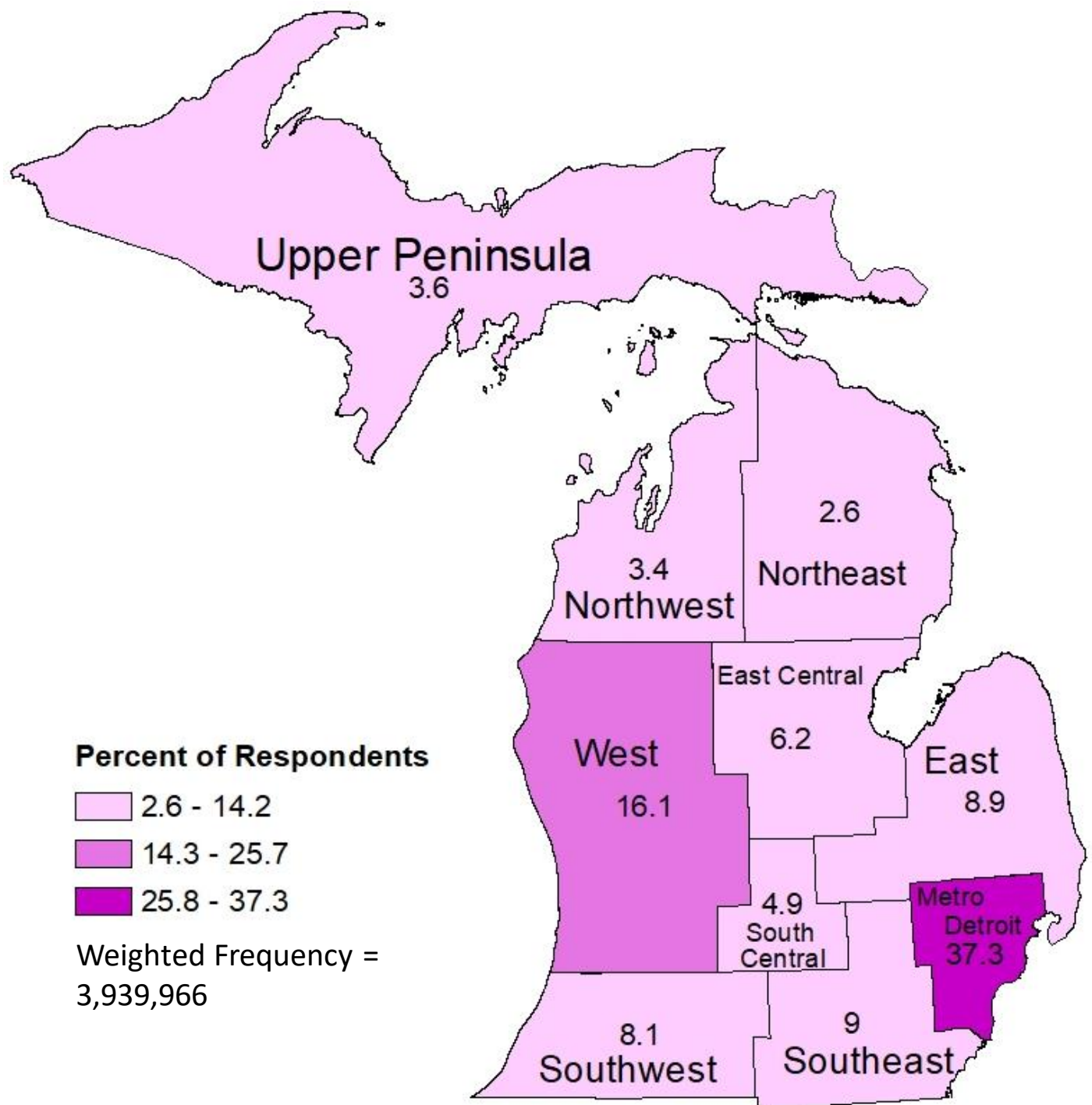
Genetic Counseling and Testing: 2015 & 2018

| Characteristic | Weighted Frequency | Weighted Percent | 95% Confidence Interval |
|--|--------------------|------------------|-------------------------|
| Genetic Counseling for Breast or Ovarian Cancer ^e | | | |
| Yourself only | 53,682 | 1.5 | 1.1-2.2 |
| Yourself and at least one relative | 100,813 | 2.9 | 2.2-3.7 |
| At least one relative but not yourself | 264,587 | 7.6 | 6.5-8.9 |
| No one has received counseling | 3,064,542 | 88.0 | 86.4-89.4 |
| USPSTF Genetic Testing Guidelines Met ^f | | | |
| Yes | 550,112 | 13.8 | 12.4-15.3 |
| No | 3,447,658 | 86.2 | 84.7-87.6 |

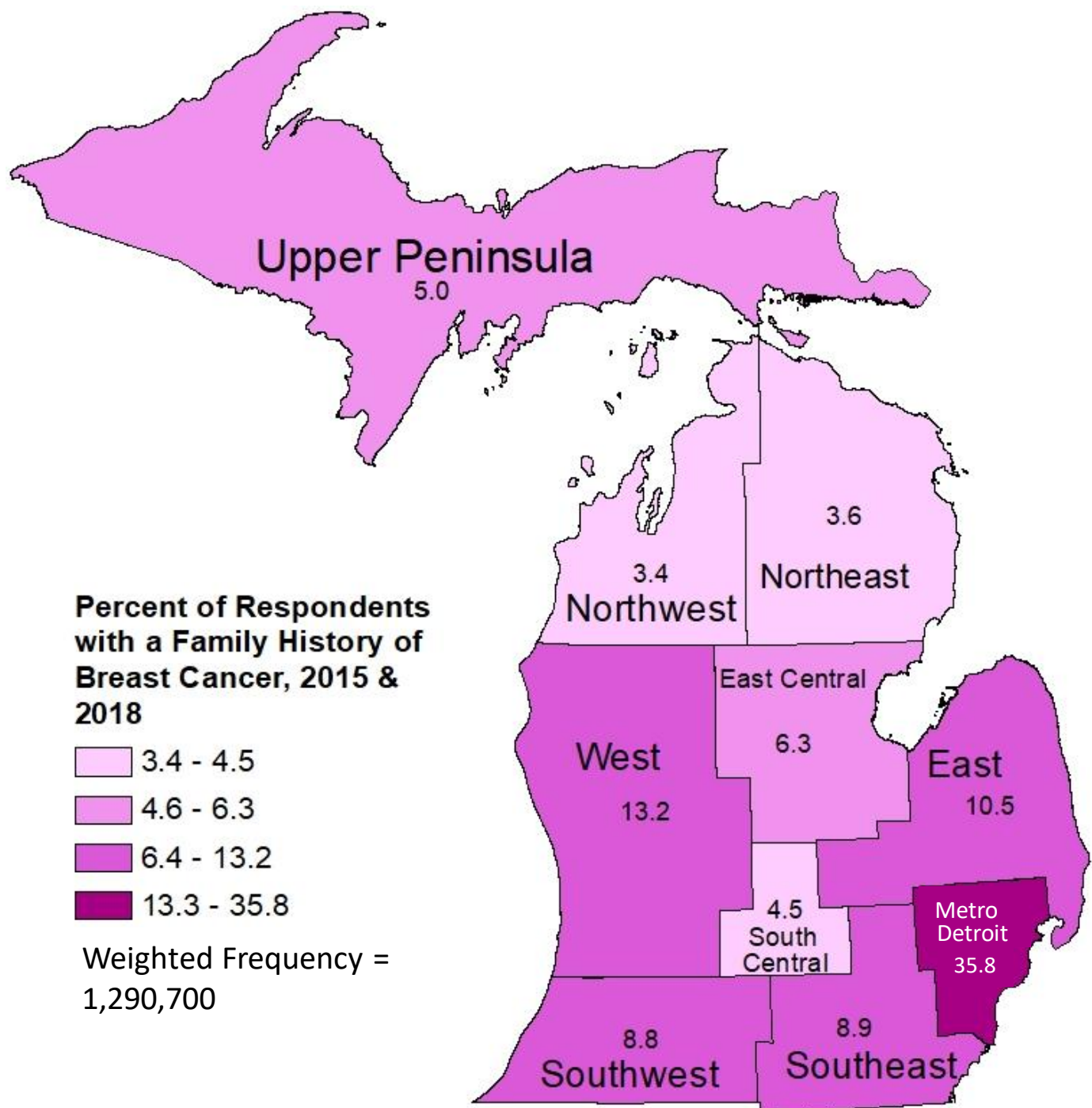
^e Have you or any of your family members received genetic counseling for breast and ovarian cancer?

^f USPSTF = yes if they meet any of the following: (1) Has 3 or more first/second degree relatives with breast cancer, (2) Has 2 first degree relatives with breast cancer, one under age 50, (3) Has combination of breast and ovarian cancer in first/second degree relatives, or (4) Has 2 or more first/second degree relatives with ovarian cancer.

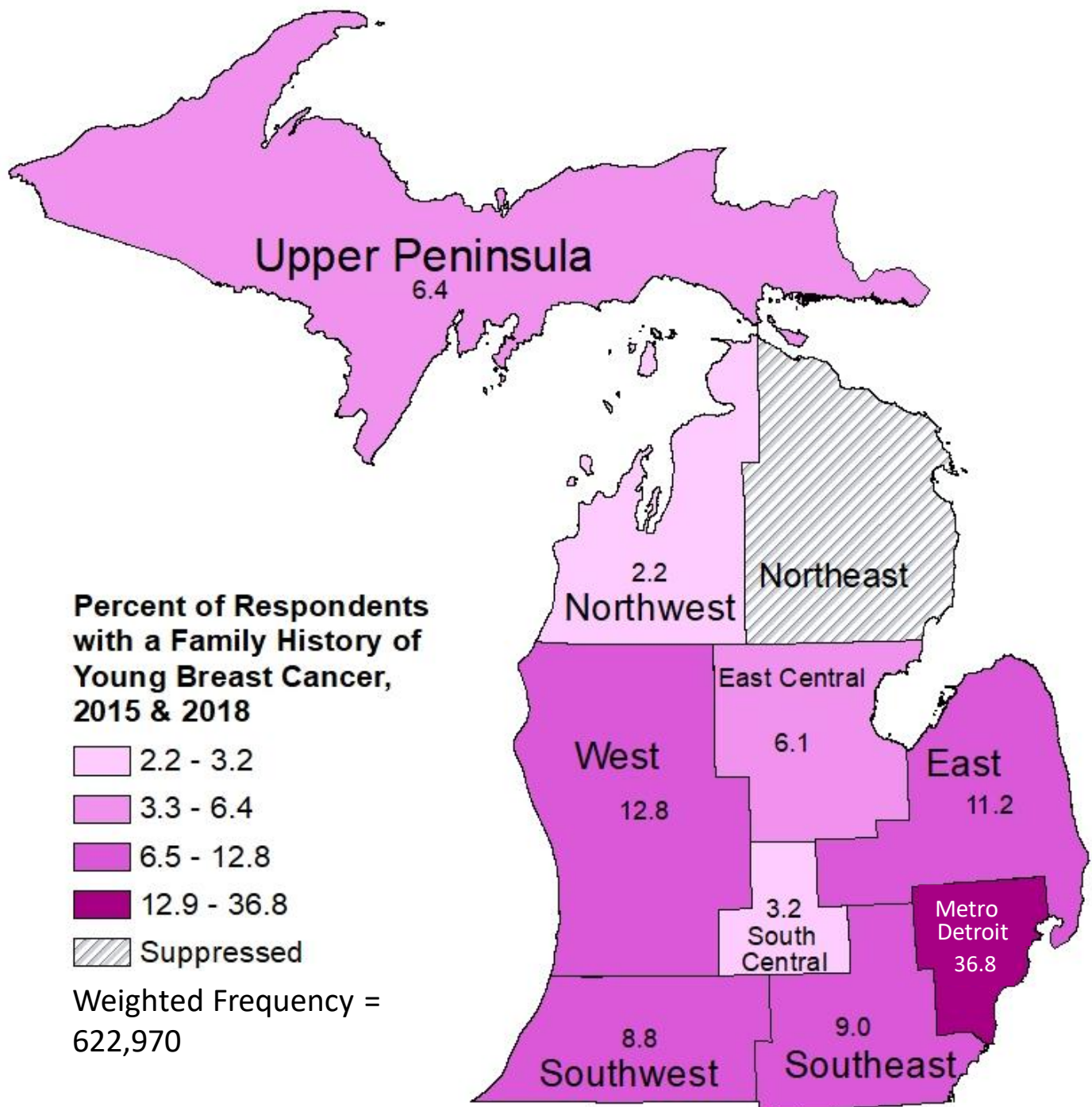
Respondents by Prosperity Region: 2015 & 2018



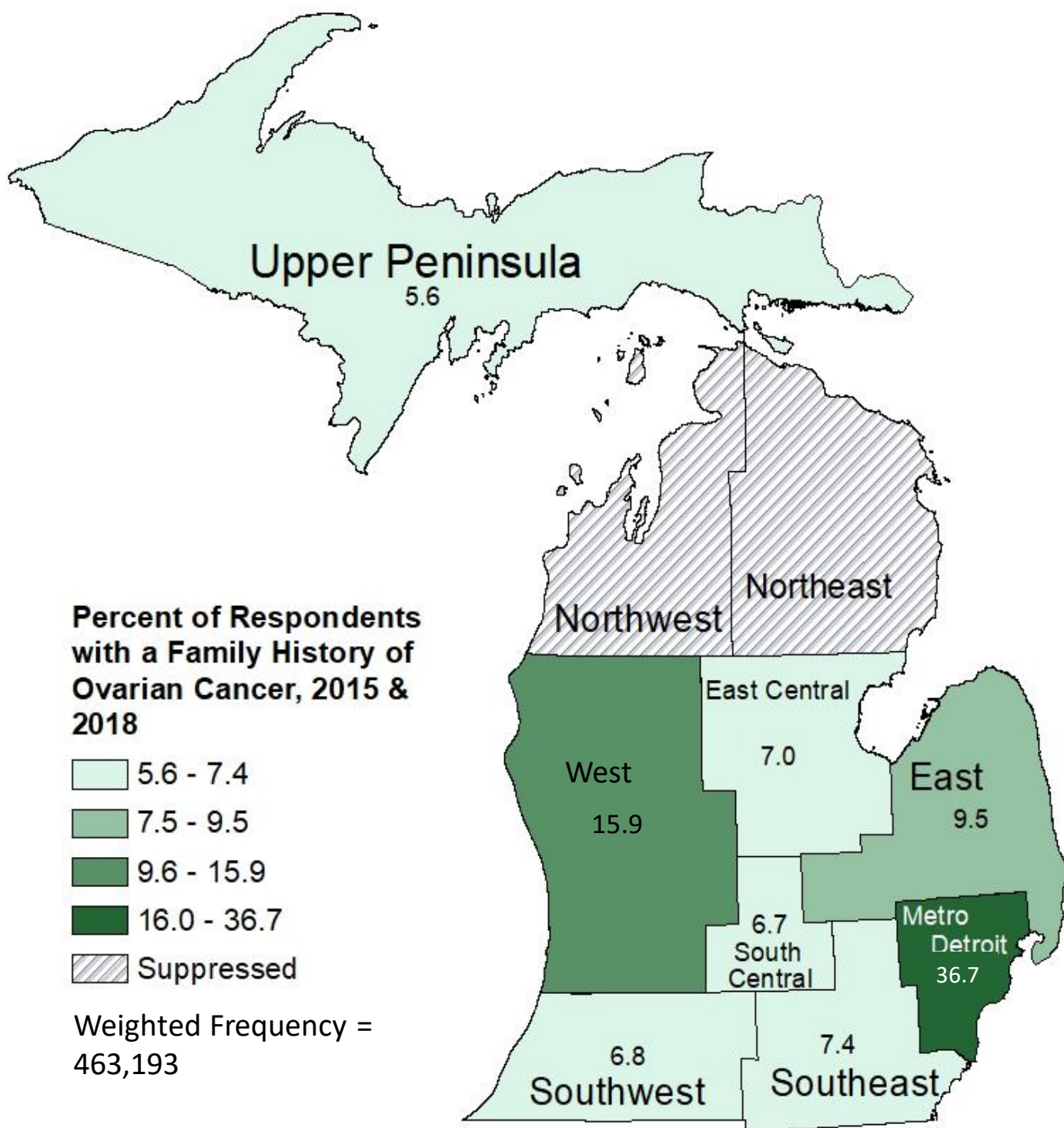
Family History of Breast Cancer by Prosperity Region: 2015 & 2018



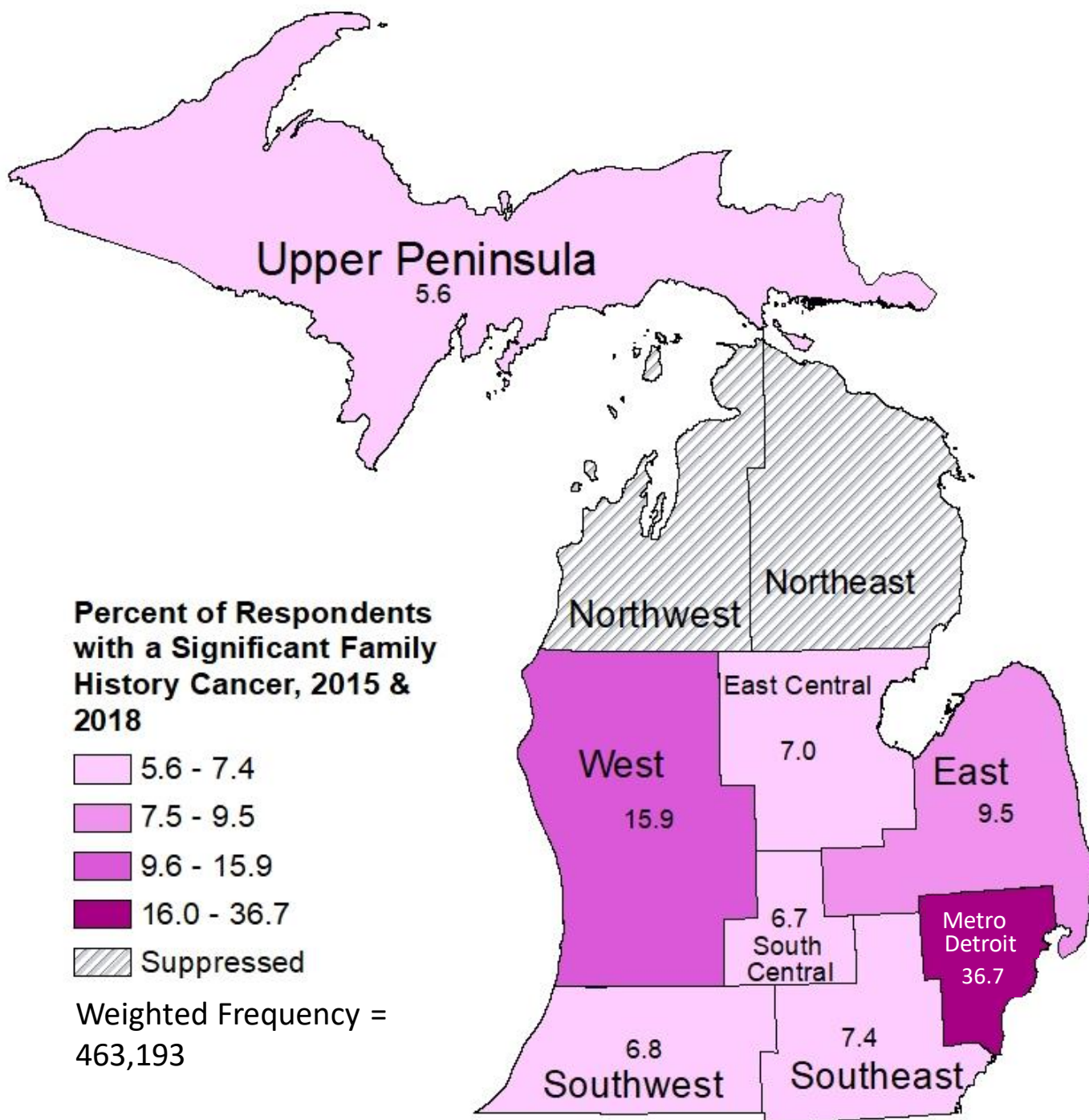
Family History of Young Breast Cancer by Prosperity Region: 2015 & 2018



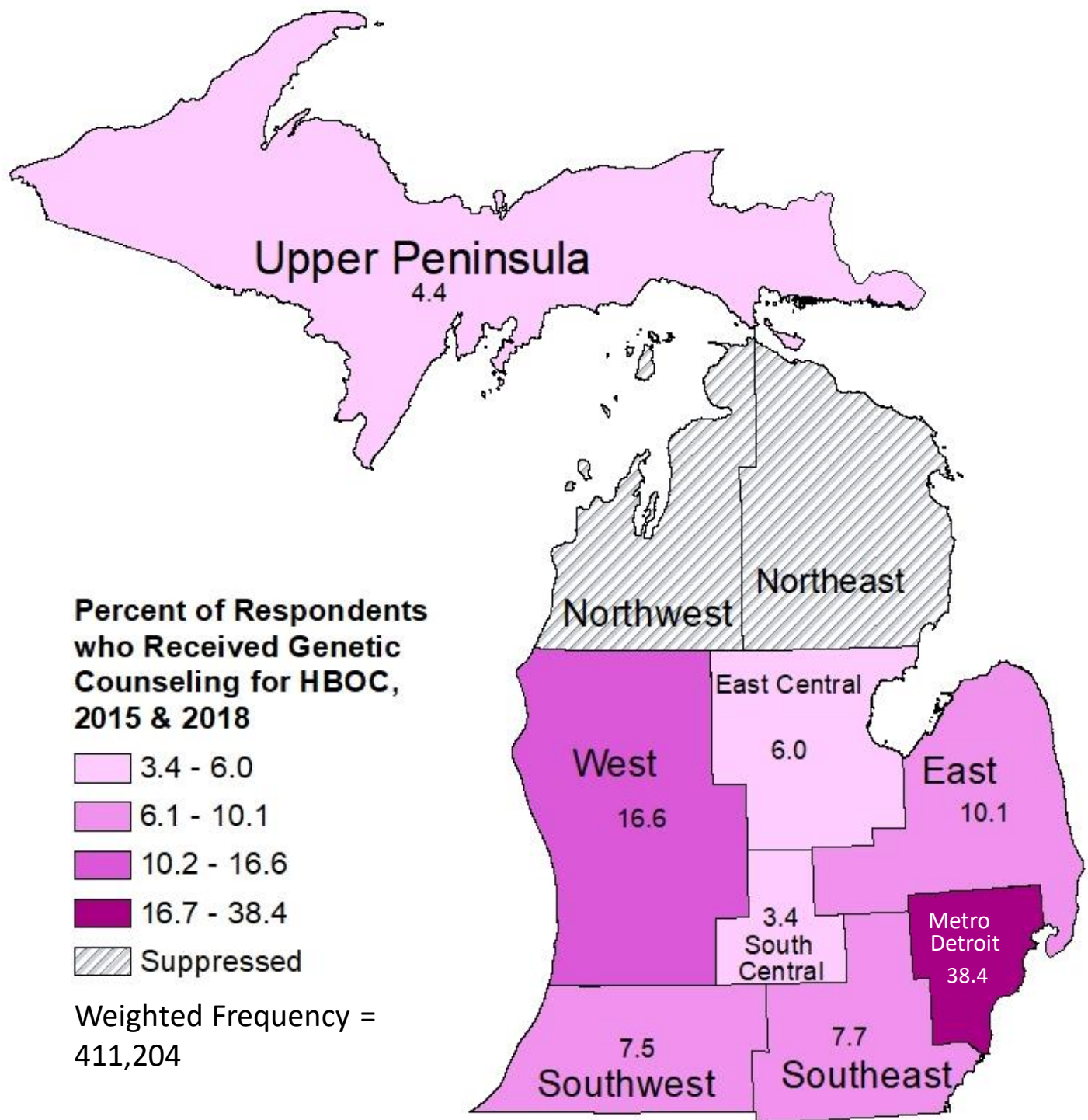
Family History of Ovarian Cancer by Prosperity Region: 2015 & 2018



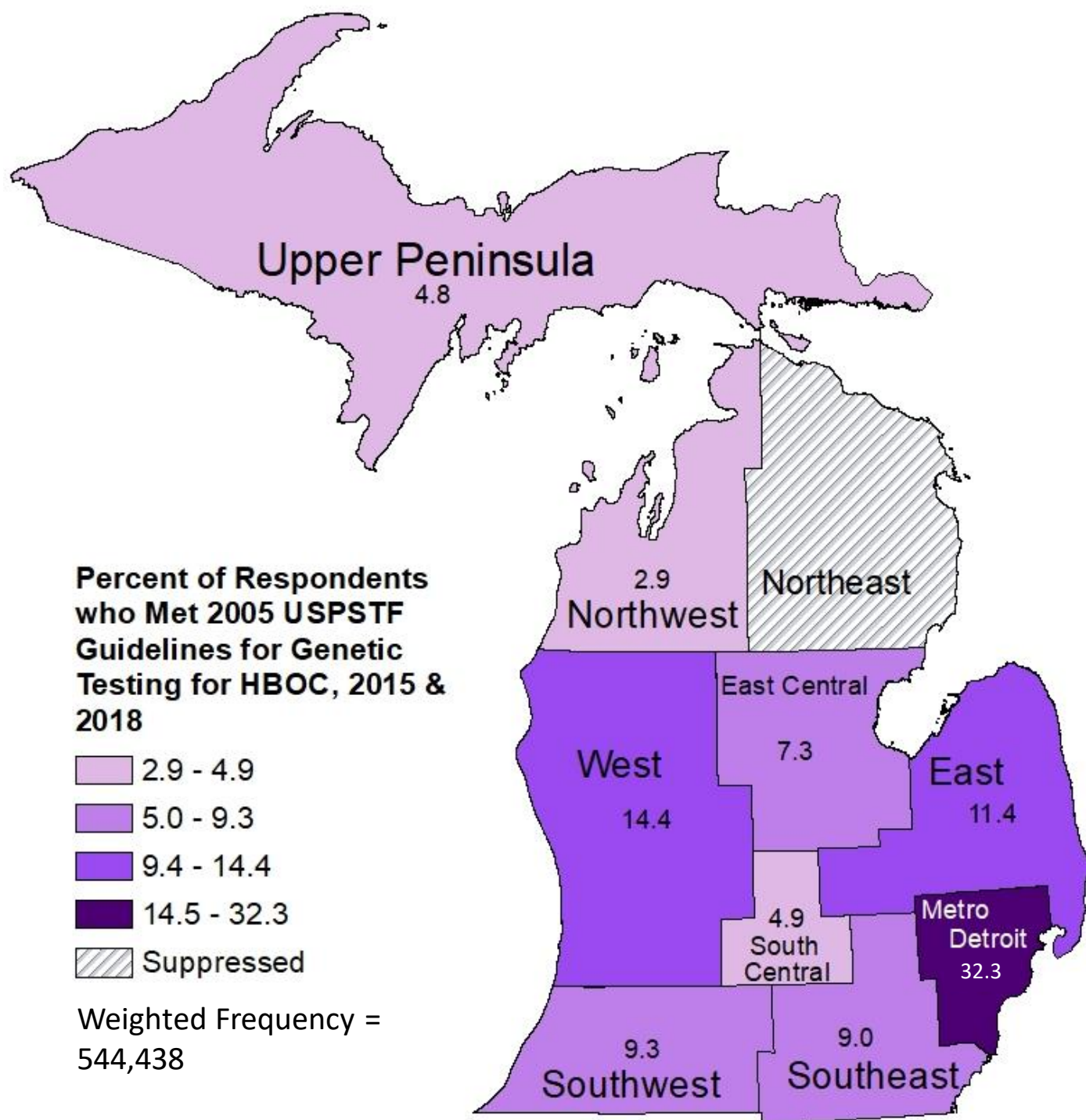
Significant Family History by Prosperity Region: 2015 & 2018



Genetic Counseling for Breast or Ovarian Cancer by Prosperity Region: 2015 & 2018



2005 USPSTF Guidelines Met by Prosperity Region: 2015 & 2018



For More Information

Visit Michigan.gov/HereditaryCancer to learn more about hereditary cancers.

Visit Michigan.gov/BRFS for more information on the Michigan Behavioral Risk Factor Surveillance System.

Cancer Genomics Hotline Phone #: 866-852-1247

Visit Michigan.gov/CGE to view more data on hereditary cancers.

Email: genetics@michigan.gov

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References:

1. Breast Cancer Prevention Partners [BCPP] (2021). African American Women and Breast Cancer. Retrieved September 2021 from: <https://www.bcpp.org/resource/african-american-women-and-breast-cancer/>
2. National Comprehensive Cancer Network (NCCN) Guidelines for Detection, Prevention, & Risk Reduction (2021). Genetic/Familial High-Risk Assessment: Breast, Ovarian, and Pancreatic. September 2021 from: <https://www.nccn.org/guidelines/guidelines-detail?category=2&id=1436>.