

A photograph of a red lighthouse on a rocky island. The lighthouse is a tall, tapered cylinder with a white base and a lantern room at the top. It is situated on a small, rocky island in the middle of the ocean. The sky is a mix of blue and orange, suggesting a sunset or sunrise. The water is dark blue, and the rocks are grey and jagged.

MiBRFS Standard Tables –
Genomics Questions
2015, 2016 & 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 this information may indicate HBOC in their family. This report has aggregated this information to include data obtained in 2015, 2016 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, 2016 & 2018

Characteristic	Weighted Frequency	Weighted Percent	95% Confidence Interval
Age of respondent			
18-29 years	779,301	19.7	18.4-21.2
30-39 years	579,339	14.7	13.5-15.9
40-49 years	604,760	15.3	14.2-16.5
50-59 years	713,876	18.1	17.0-19.2
60-69 years	641,013	16.2	15.3-17.2
70+ years	628,181	15.9	15.0-16.9
Race/Ethnicity			
White, NH	2,970,750	76.0	74.6-77.4
Black, NH	540,476	13.8	12.7-15.0
Asian, NH	95,551	2.4	1.9-3.2
Multiracial, NH	52,908	1.4	1.1-1.6
Native American, NH	28,513	0.7	0.5-1.0
Hispanic	158,700	4.0	3.4-4.9
Arab, NH	61,161	1.6	1.2-2.1
Education			
<High School	378,287	9.5	8.4-10.8
High School Graduate	1,166,297	29.3	27.9-30.7
Some College	1,438,209	36.1	34.7-37.6
College Graduate	999,198	25.1	24.0-26.3
Income			
<\$20,000	623,991	19.7	18.3-21.1
\$20,000 – \$34,999	663,023	20.9	19.6-22.3
\$35,000 – \$49,999	442,436	14.0	12.9-15.1
\$50,000 – \$ 74,999	514,609	16.2	15.0-17.5
≥\$75,000	925,051	29.2	27.7-30.7
Insurance			
Yes	3,727,167	93.8	92.9-94.5
No	248,440	6.2	5.5-7.1

Demographics: 2015, 2016 & 2018 Continued

Characteristic	Weighted Frequency	Weighted Percent	95% Confidence Interval
Gender			
Female	3,995,603	100.0	-
Male	0	0.0	-
Sexual orientation			
Heterosexual	3,519,806	95.5	94.7-96.2
Homosexual	49,017	1.3	1.0-1.8
Bisexual	90,611	2.5	1.9-3.1
Transgender	~	~	~
Other	21,751	0.6	0.4-0.9
Prosperity regions			
Upper Peninsula	132,118	3.4	3.0-3.9
Northwest	129,033	3.3	2.9-3.8
Northeast	93,651	2.4	2.0-2.9
West Michigan	622,243	15.9	15.0-16.9
East Central Michigan	236,111	6.1	5.4-6.7
East Michigan	344,647	8.8	8.2-9.5
South Central	190,816	4.9	4.4-5.4
Southwest	307,245	7.9	7.1-8.7
Southeast Michigan	362,779	9.3	8.6-10.0
Detroit Metro	1,482,993	38.0	36.7-39.3

~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, 2016 & 2018

Characteristic	Weighted Frequency	Weighted Percent	95% Confidence Interval
Ever told they have cancer*			
Yes	509,310	12.8	11.9-13.7
No	3,478,350	87.2	86.3-88.1
Age at first cancer diagnosis**			
<20 years	18,404	4.0	2.6-6.1
20-29 years	40,764	8.8	6.9-11.3
30-39 years	53,278	11.6	9.4-14.1
40-49 years	87,794	19.0	16.3-22.1
50-59 years	106,040	23.0	20.1-26.2
60-69 years	84,731	18.4	15.9-21.1
70-79 years	54,474	11.8	9.7-14.3
80+ years	15,644	3.4	2.4-4.8
Type of cancer***			
Breast	77,388	23.9	20.8-27.3
Endometrial	15,491	4.8	3.4-6.6
Ovarian	7,636	2.4	1.5-3.7
Colon	9,841	3.0	1.9-4.8
Denied insurance due to diagnosis ^a			
Yes	18,577	5.3	3.8-7.1
No	335,114	94.7	92.9-96.2

*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, which type of cancer was it?

^a Were you ever denied health insurance or life insurance because of cancer?

Family History of Cancer: 2015, 2016 & 2018

Characteristic	Weighted Frequency	Weighted Percent	95% Confidence Interval
Relatives with breast cancer ^b			
None	1,918,160	62.0	60.3-63.7
One	692,212	22.4	21.0-23.9
Two	283,304	9.2	8.1-10.3
Three or more	197,783	6.4	5.6-10.3
Relatives with Young* breast cancer ^c			
None	543,743	49.3	46.4-52.3
One	393,631	35.7	32.8-38.7
Two	110,904	10.1	8.4-12.0
Three or more	54,683	5.0	3.9-6.3
Relatives with ovarian cancer ^d			
None	2,663,202	86.5	85.2-87.6
One	332,094	10.8	9.7-12.0
Two	49,676	1.6	1.2-2.1
Three or more	34,862	1.1	0.8-1.6
Significant family history ^e			
Yes	312,078	11.7	10.4-13.2
No	2,353,102	88.3	86.8-89.6
USPSTF genetic testing guidelines met ^f			
Yes	366,741	13.8	12.4-15.3
No	2,298,439	86.2	84.7-87.6

^b 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? ^c How many of these relatives were diagnosed with breast cancer at or before the age of 50 years? ^d Now thinking about your female biological relatives, including your mother, sisters, aunts, grandmothers, daughters or granddaughters, how many have been diagnosed with ovarian cancer? ^e 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. ^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; female patients only. * Young breast cancer refers to cancer that is diagnosed at or under the age of 50.

Genetic Counseling and Testing, 2015, 2016 & 2018

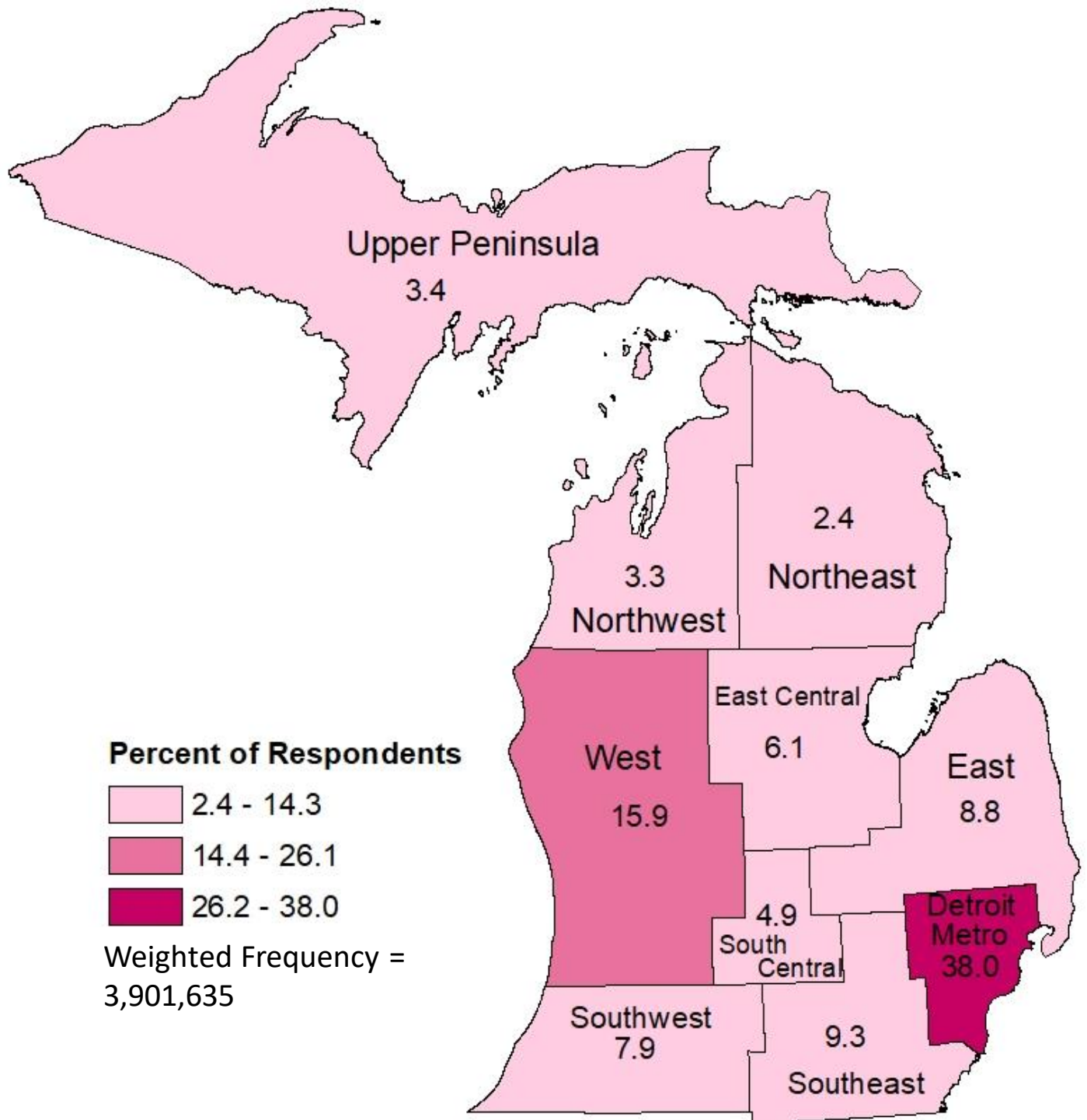
Characteristic	Weighted Frequency	Weighted Percent	95% Confidence Interval
USPSTF Genetic Testing Guidelines Met ^f			
Yes	366,741	13.8	12.4-15.3
No	2,298,439	86.2	84.7-87.6

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

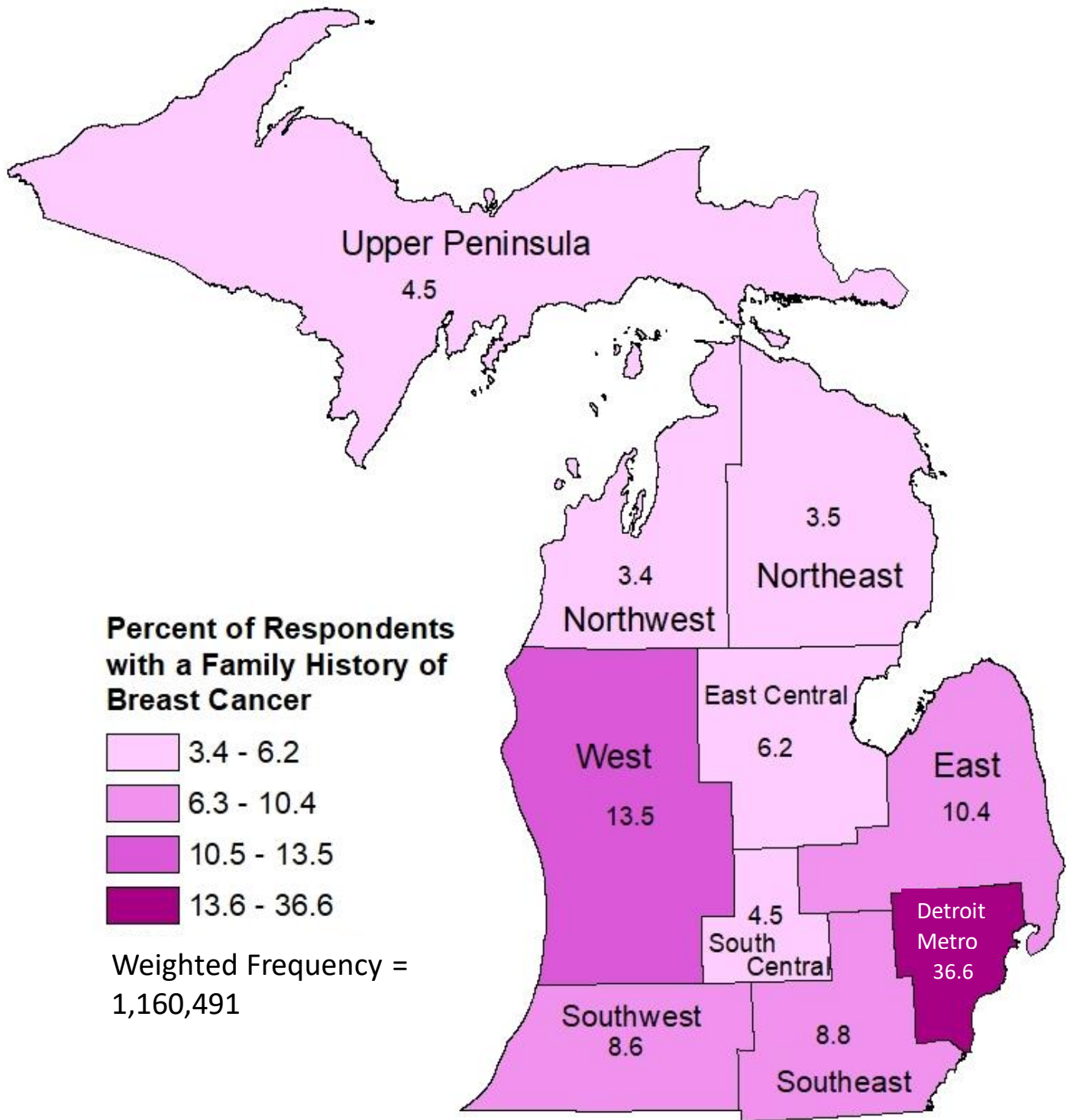
^f USPSTF = yes if they meet any of the following: (1) Has 3 or more first/second degree relatives with breast cancer?, (2) Has 2 first degree relatives with breast cancer, one under age 50, (3) Has combination of breast and ovarian cancer in first/second degree relatives, or (4) Has 2 or more first/second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

Bolded frequencies indicate that there was a significant increase compared to the other groups

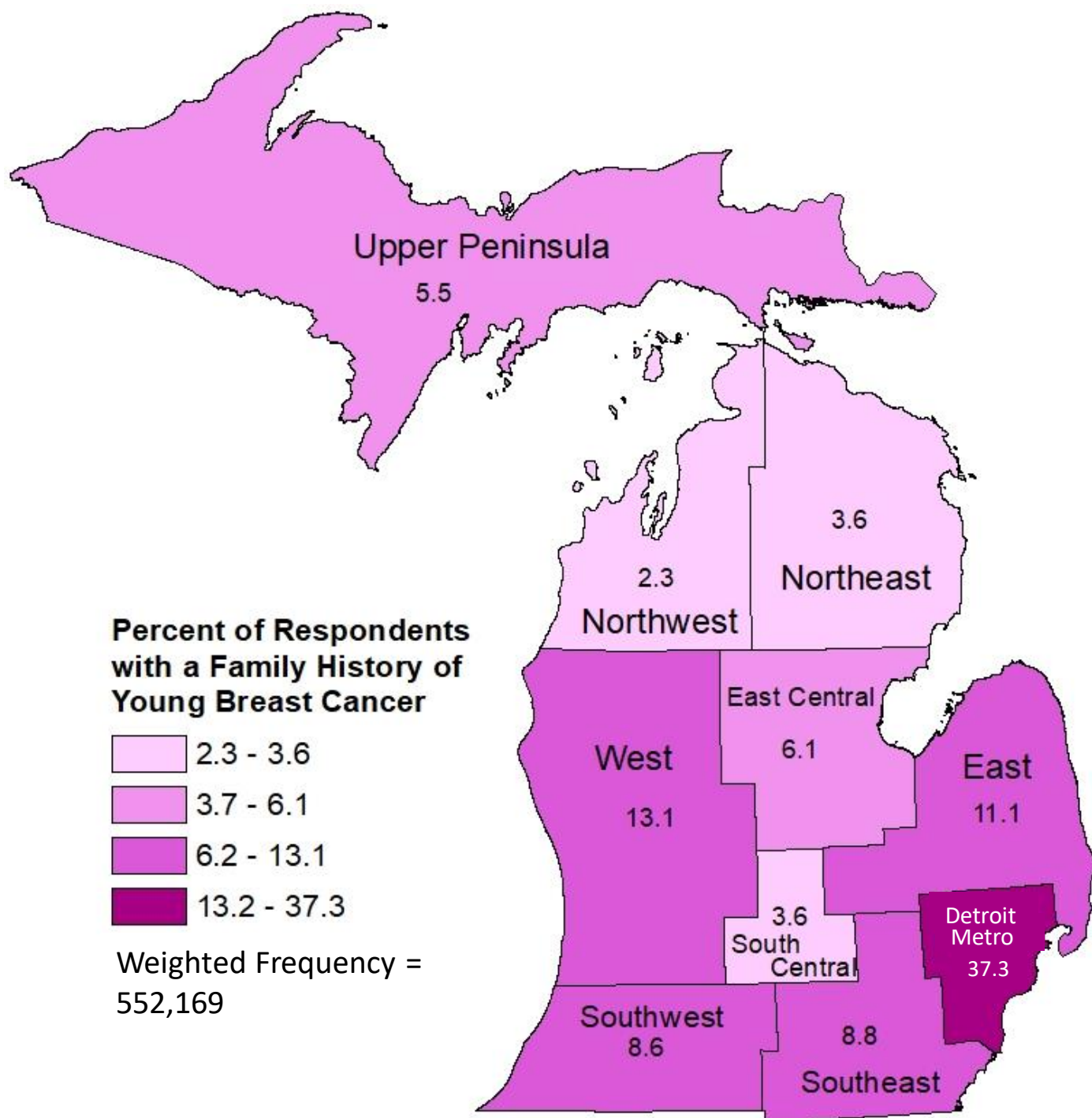
Respondents by Prosperity Region: 2015, 2016 & 2018



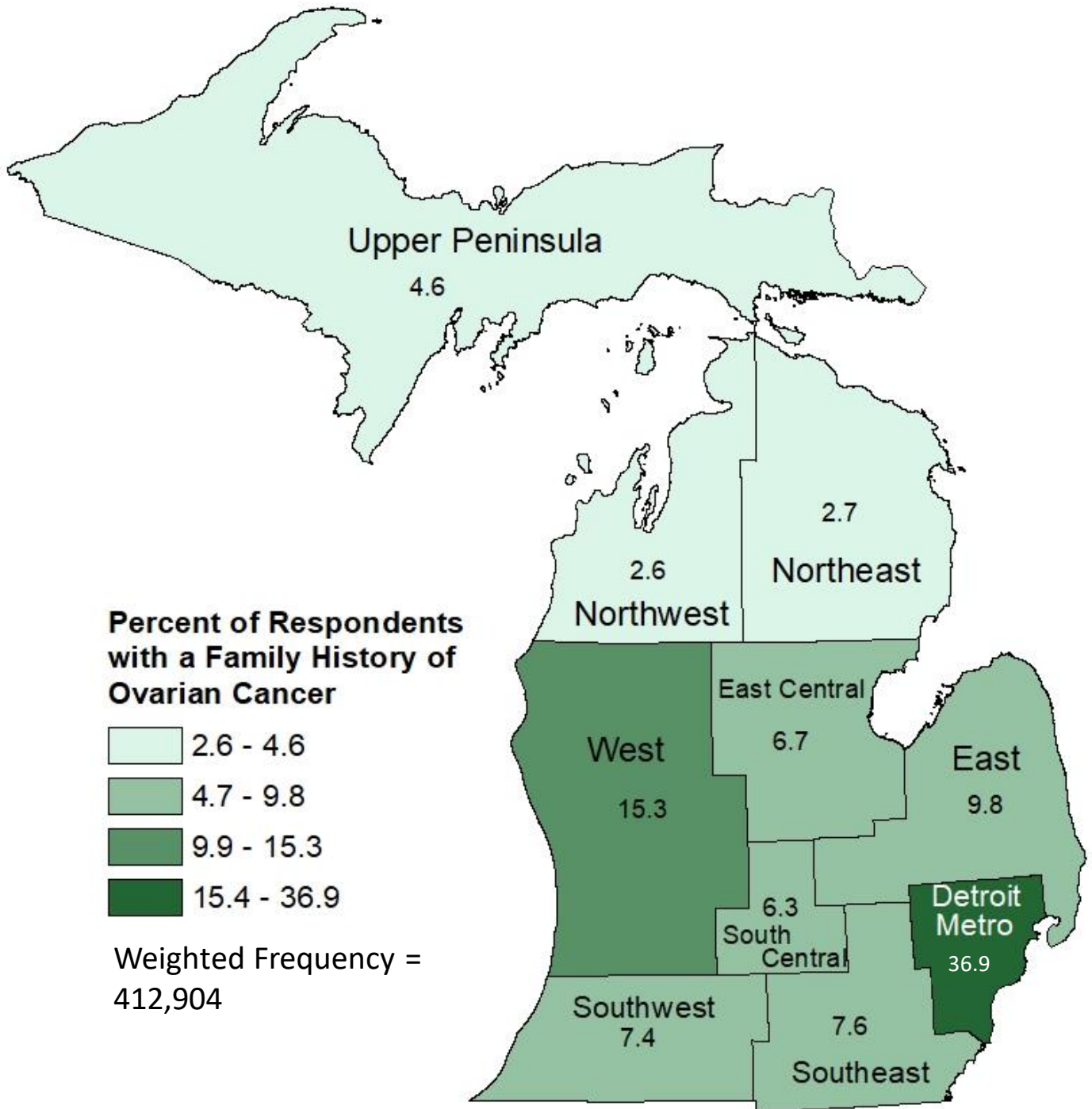
Family History of Breast Cancer by Prosperity Region: 2015, 2016 & 2018



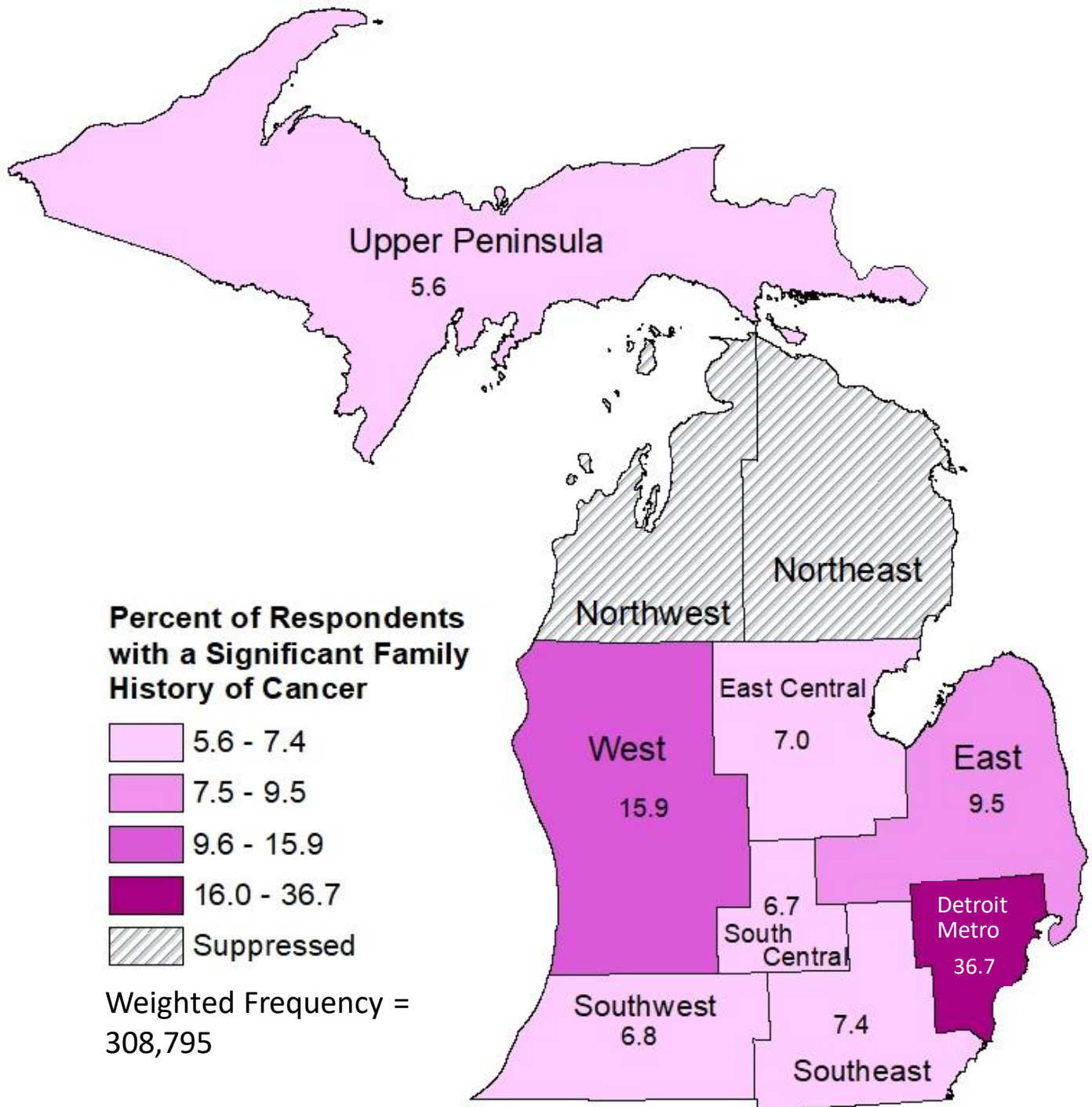
Family History of Young Breast Cancer by Prosperity Region: 2015, 2016 & 2018



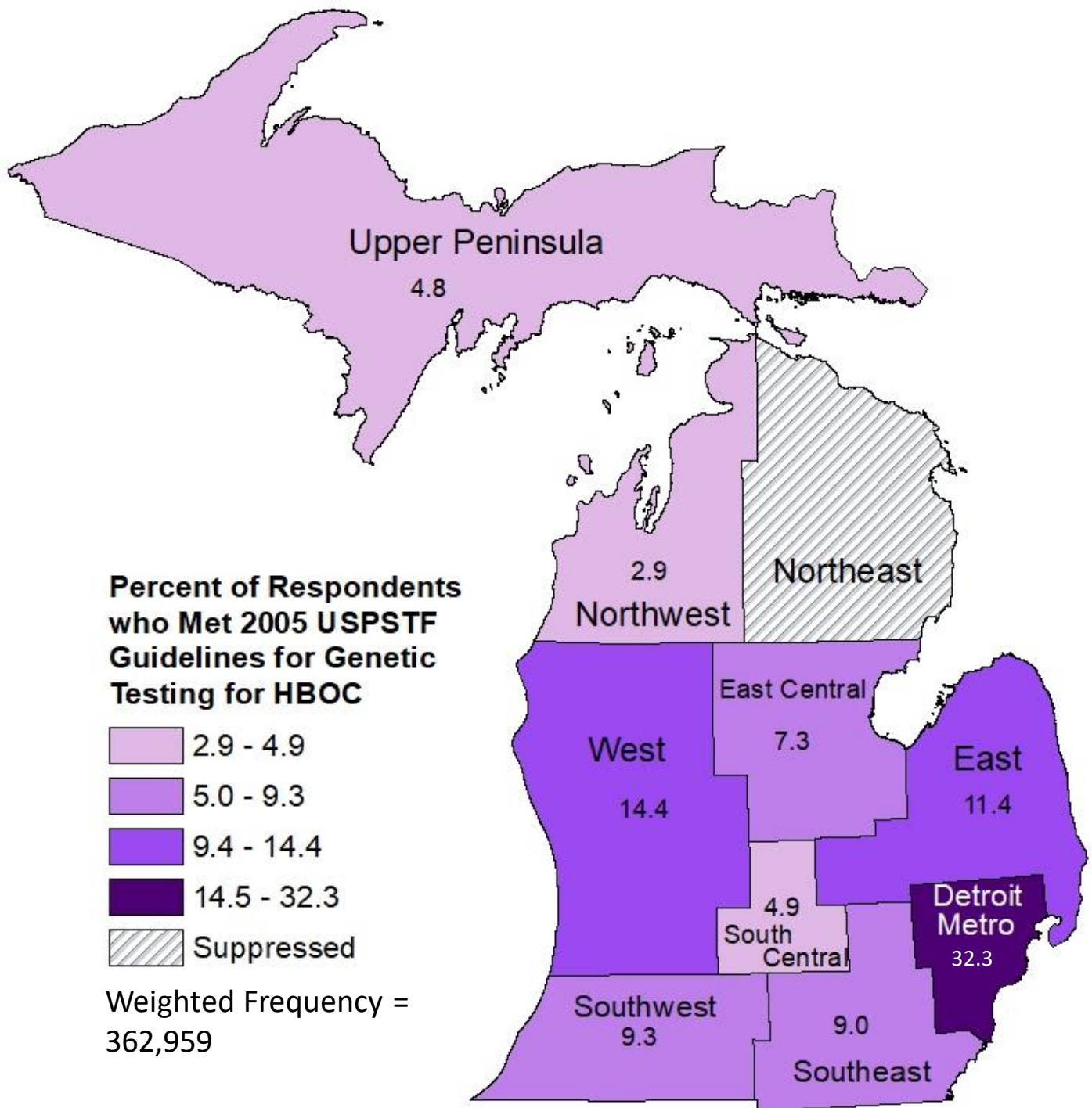
Family History of Ovarian Cancer by Prosperity Region: 2015, 2016 & 2018



Significant Family History by Prosperity Region: 2015, 2016 & 2018



2005 USPSTF Guidelines Met by Prosperity Region: 2015, 2016 & 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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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>.