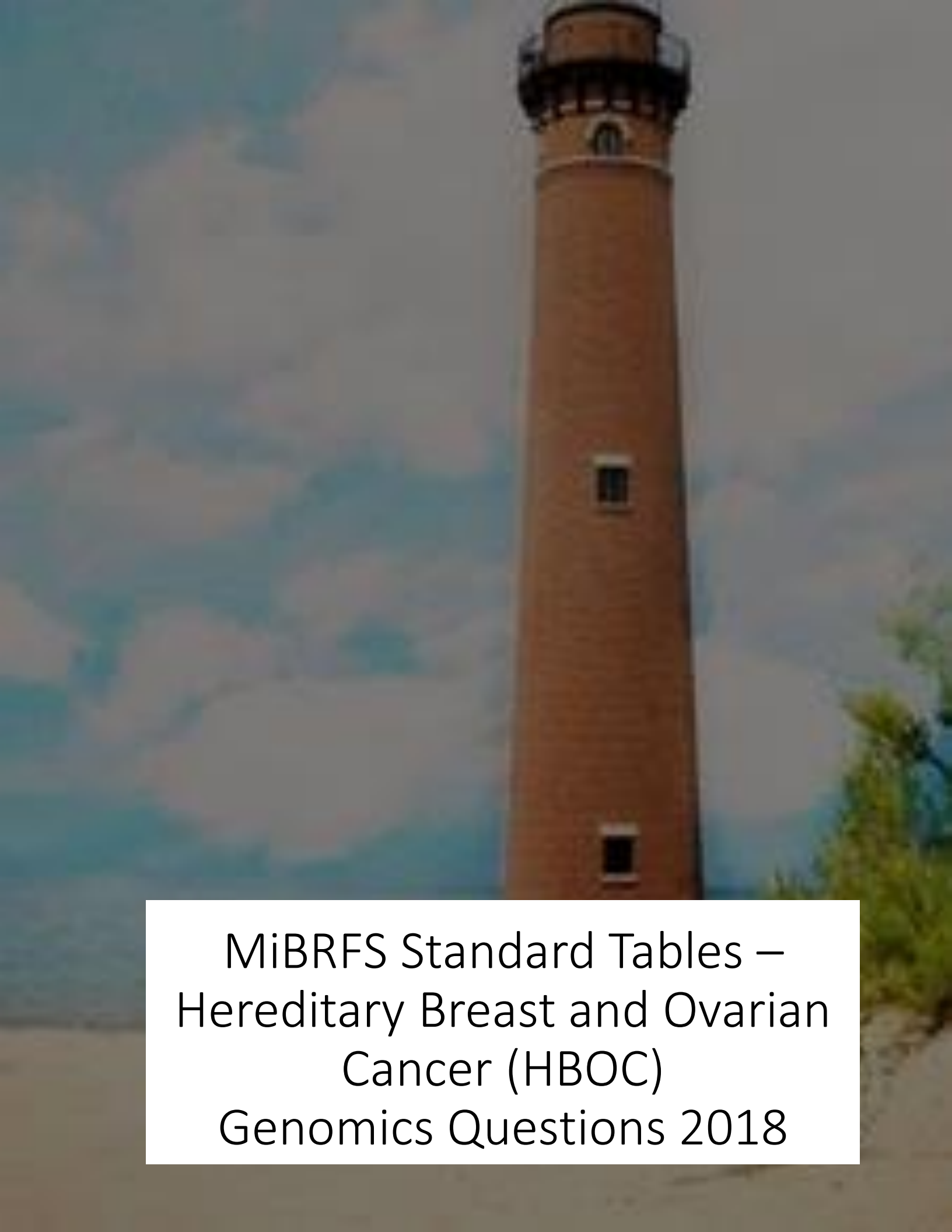


MiBRFS Standard Tables – Hereditary Breast and Ovarian Cancer (HBOC) Genomics Questions 2018

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 women residents in 2018 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.

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 undergo 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, 2018

Characteristic	Weighted Frequency	Weighted Percent	95% Confidence Interval
Age of respondent			
18-29 years	770,698	19.5	17.0-22.2
30-39 years	597,525	15.1	12.9-17.6
40-49 years	603,986	15.3	13.2-17.5
50-59 years	680,423	17.2	15.1-19.5
60-69 years	664,469	16.8	14.9-18.9
70+ years	641,353	16.2	14.4-18.2
Race/Ethnicity			
White, NH	2,975,803	76.3	73.5-78.9
Black, NH	541,632	13.9	11.9-16.2
Asian, NH	87,056	2.2	1.3-3.8
Multiracial, NH	51,795	1.3	0.9-1.9
Native American, NH	~	~	~
Hispanic	143,502	3.7	2.5-5.4
Arab, NH	72,154	1.8	1.2-2.9
Education			
<High School	362,474	9.0	7.0-11.5
High School Graduate	1,136,472	28.3	25.7-31.1
Some College	1,461,920	36.4	33.6-39.3
College Graduate	1,042,464	25.9	23.7-28.3
Income			
<$20,000	538,265	17.1	14.7-19.7
$20,000 – $34,999	678,304	21.5	18.9-24.4
$35,000 – $49,999	427,557	13.6	11.4-16.0
$50,000 – $ 74,999	509,040	16.2	13.9-18.7
≥$75,000	998,071	31.7	28.7-34.8
Insurance			
Yes	3,788,273	94.5	92.8-95.8
No	220,289	5.5	4.2-7.2

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

Demographics, 2018 Continued

Characteristic	Weighted Frequency	Weighted Percent	95% Confidence Interval
Gender			
Female	4,018,697	100.0	-
Male	0	0.0	-
Prosperity Regions			
Upper Peninsula	123,980	3.1	2.4-4.1
Northwest	114,399	2.9	2.3-3.7
Northeast	119,110	3.0	2.2-4.1
West Michigan	625,146	15.8	14.1-17.6
East Central Michigan	257,397	6.5	5.1-8.2
East Michigan	376,282	9.5	8.3-10.9
South Central	199,146	5.0	4.1-6.2
Southwest	325,773	8.2	6.8-9.9
Southeast Michigan	340,276	8.6	7.5-9.9
Detroit Metro	1,475,337	37.3	34.8-39.8

Characteristics of Cancer Diagnoses, 2018

Characteristic	Weighted Frequency	Weighted Percent	95% Confidence Interval
Ever told they have cancer*			
Yes	512,526	12.8	11.1-14.6
No	3,501,818	87.2	85.4-88.9
Age at first cancer diagnosis**			
<50 years	181,683	39.5	32.7-46.7
50+ years	278,401	60.5	53.3-67.3
Type of cancer***			
Breast	106,556	22.2	17.1-28.4
Ovarian	~	~	~
Endometrial	23,892	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, which cancer type was it?
~Data are suppressed when sample frequencies are less than 50 and/or a relative standard error is greater than 30%

Family History of Cancer, 2018

Characteristic	Weighted Frequency	Weighted Percent	95% Confidence Interval
Relatives with Breast Cancer[a]			
None	2,277,430	64.3	61.3-67.2
One	774,937	21.0	18.7-23.6
Two	295,663	8.3	6.8-10.3
Three or more	223,461	6.3	4.9-8.1
Relatives with Young* Breast Cancer[b]			
None	574,138	48.2	43.0-53.4
One	440,3248	36.9	31.6-42.3
Two	124,584	10.5	7.6-14.1
Three or more	52,968	4.4	2.7-7.2
Relatives with Ovarian Cancer[c]			
None	3,046,152	86.6	84.3-88.7
One	406,218	11.6	9.6-13.8
Two	~	~	~
Three or more	34,269	1.0	0.5-1.7
Significant Family History[d]			
Yes	469,996	11.7	9.9-13.8
No	3,548,701	88.3	86.2-90.1

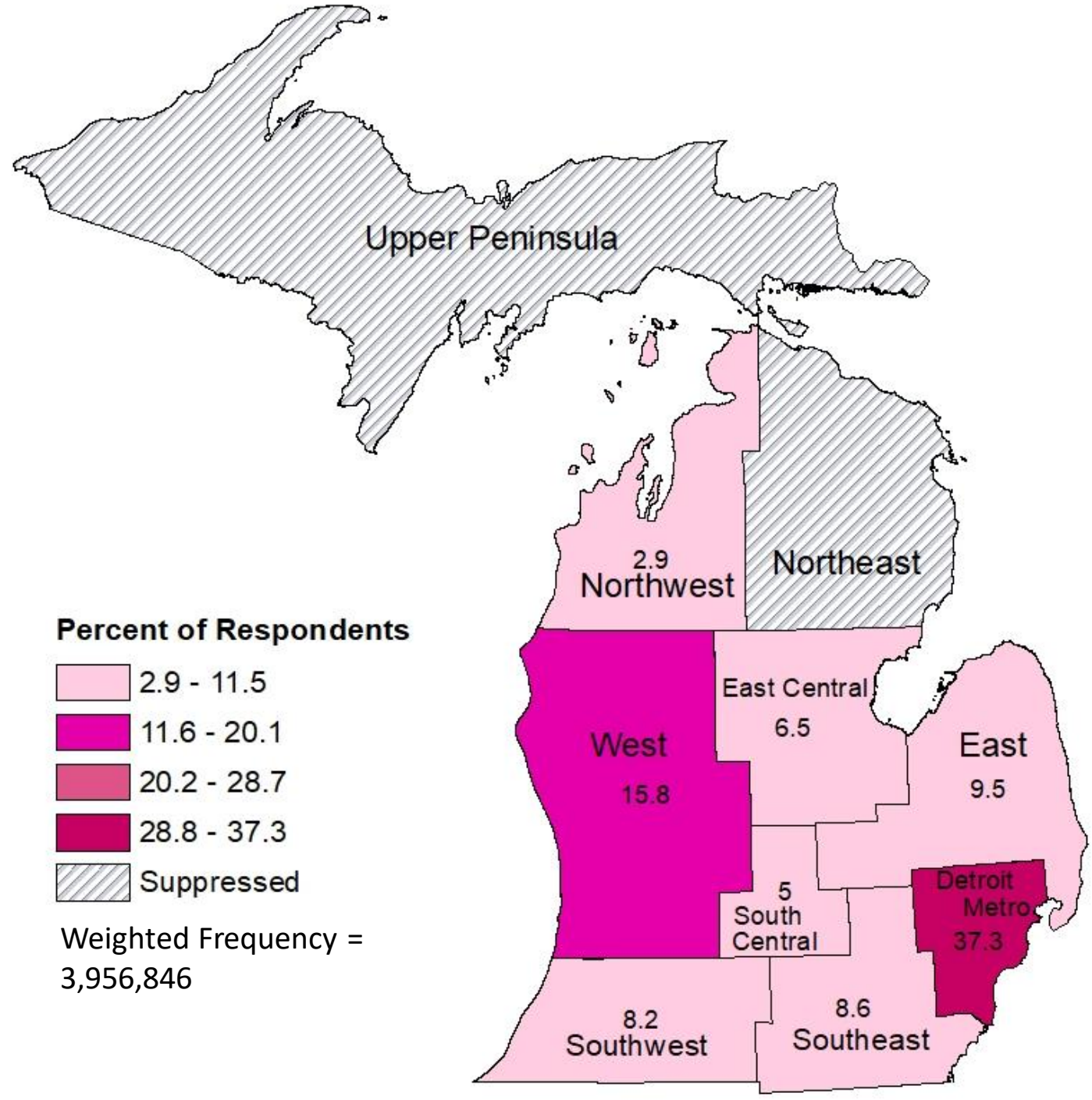
[a] Thinking about your biological or "blood" relatives, including your parents, grandparents, siblings, aunts, uncles, children or grandchildren, how many of these relatives have been diagnosed with breast cancer?
[b] How many of these relatives were diagnosed with breast cancer at or before the age 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, 2018

Characteristic	Weighted Frequency	Weighted Percent	95% Confidence Interval
Genetic Counseling for Breast or Ovarian Cancer[e]			
Yourself only	45,600	1.3	0.8-2.1
Yourself and at least one relative	89,302	2.5	1.8-3.6
At least one relative but not yourself	229,181	6.5	5.1-8.2
No one has received counseling	3,180,142	89.7	87.7-91.4
USPSTF Genetic Testing Guidelines Met[f]			
Yes	558,081	13.9	11.9-16.1
No	3,460,616	86.1	83.9-88.1

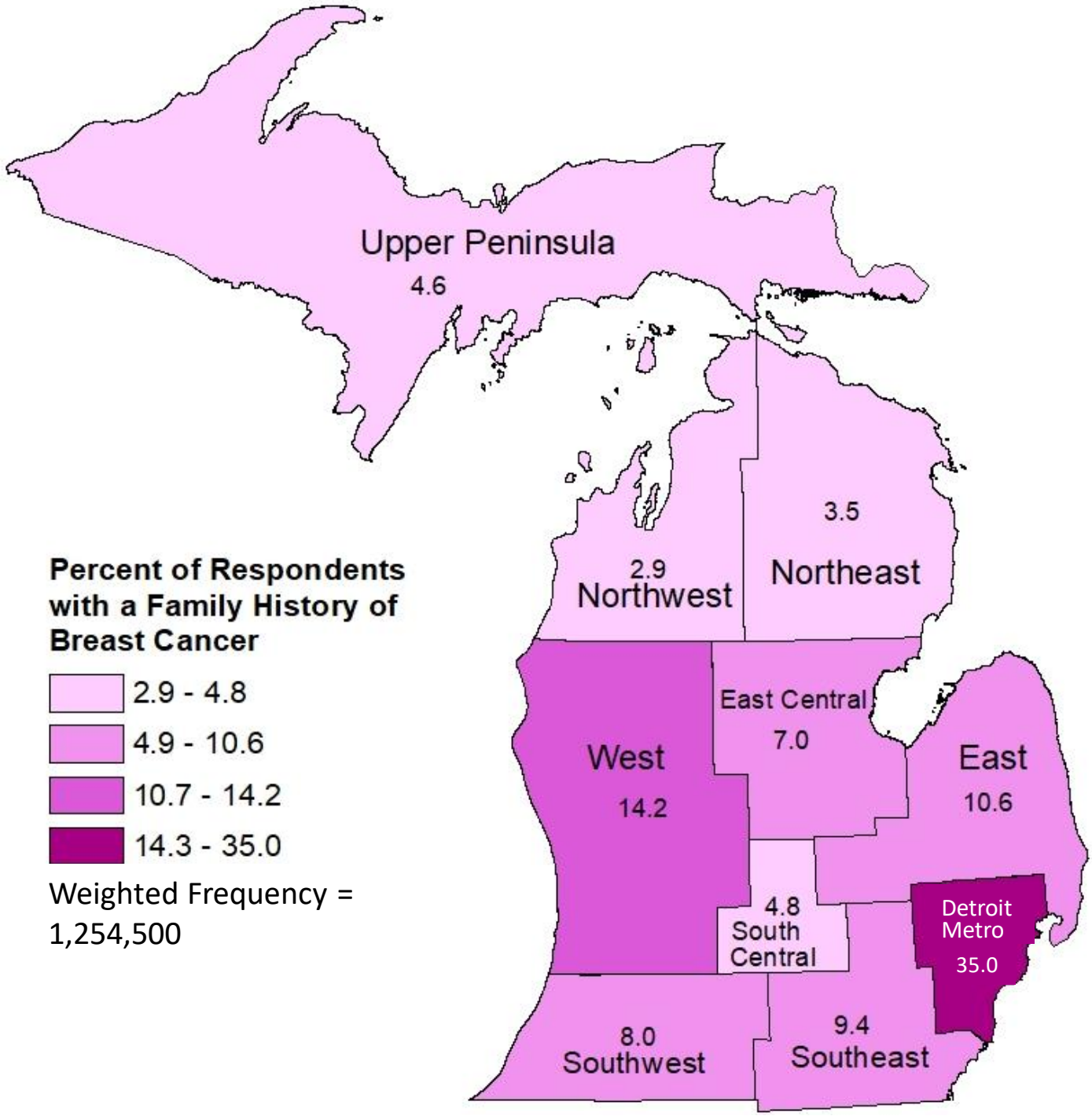
[e] Have you or any of your family members received genetic counseling for breast and ovarian cancer? [f] USPSTF = yes if they meet any of the following: (1) Has 3 or more first/second degree relatives with breast cancer?, (2) Has 2 first degree relatives with breast cancer, one under age 50, (3) Has 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, 2018

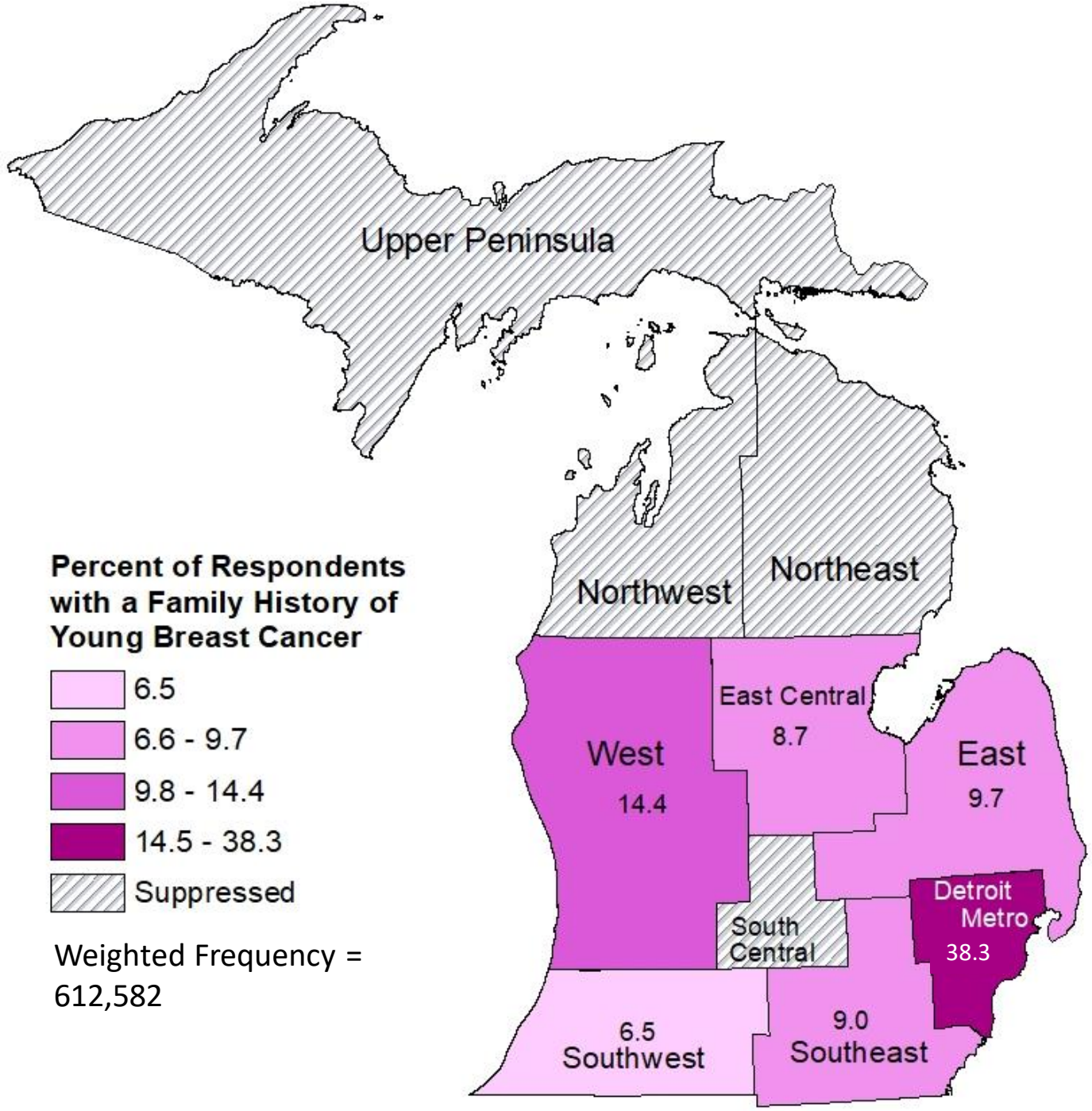


Weighted Frequency = 3,956,846

Family History of Breast Cancer by Prosperity Region, 2018

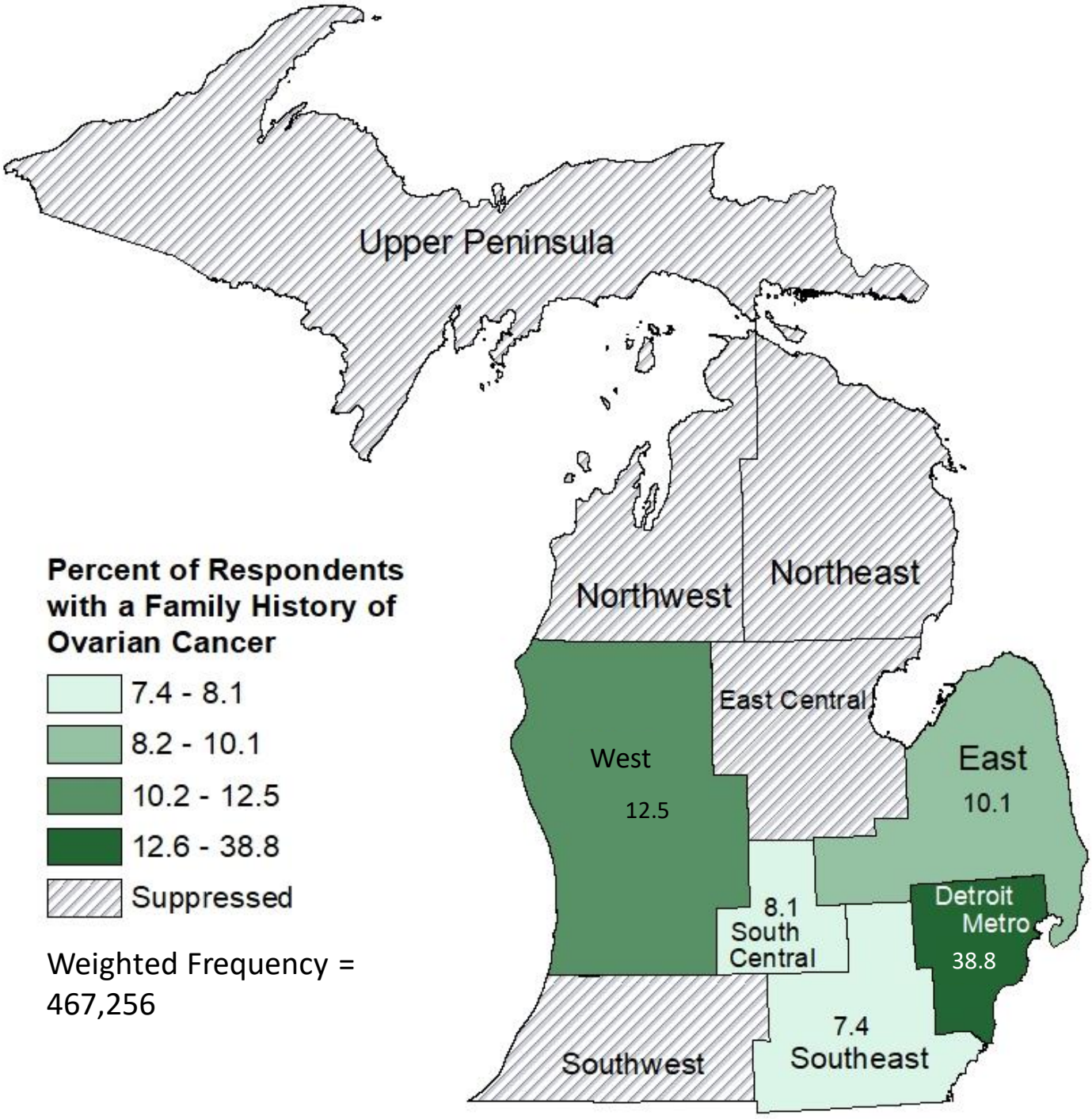


Family History of Young Breast Cancer by Prosperity Region, 2018



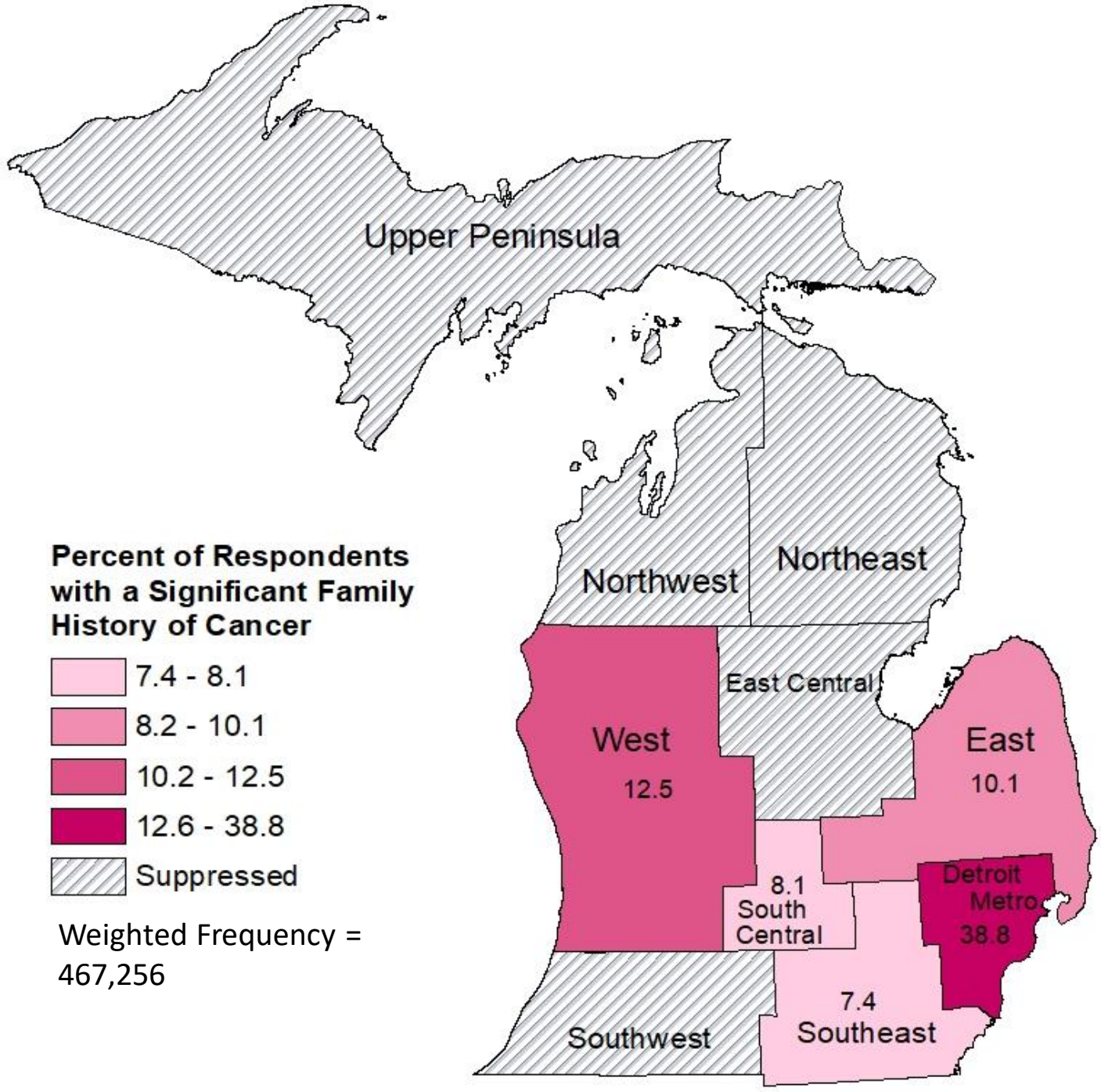
Weighted Frequency = 612,582

Family History of Ovarian Cancer by Prosperity Region, 2018



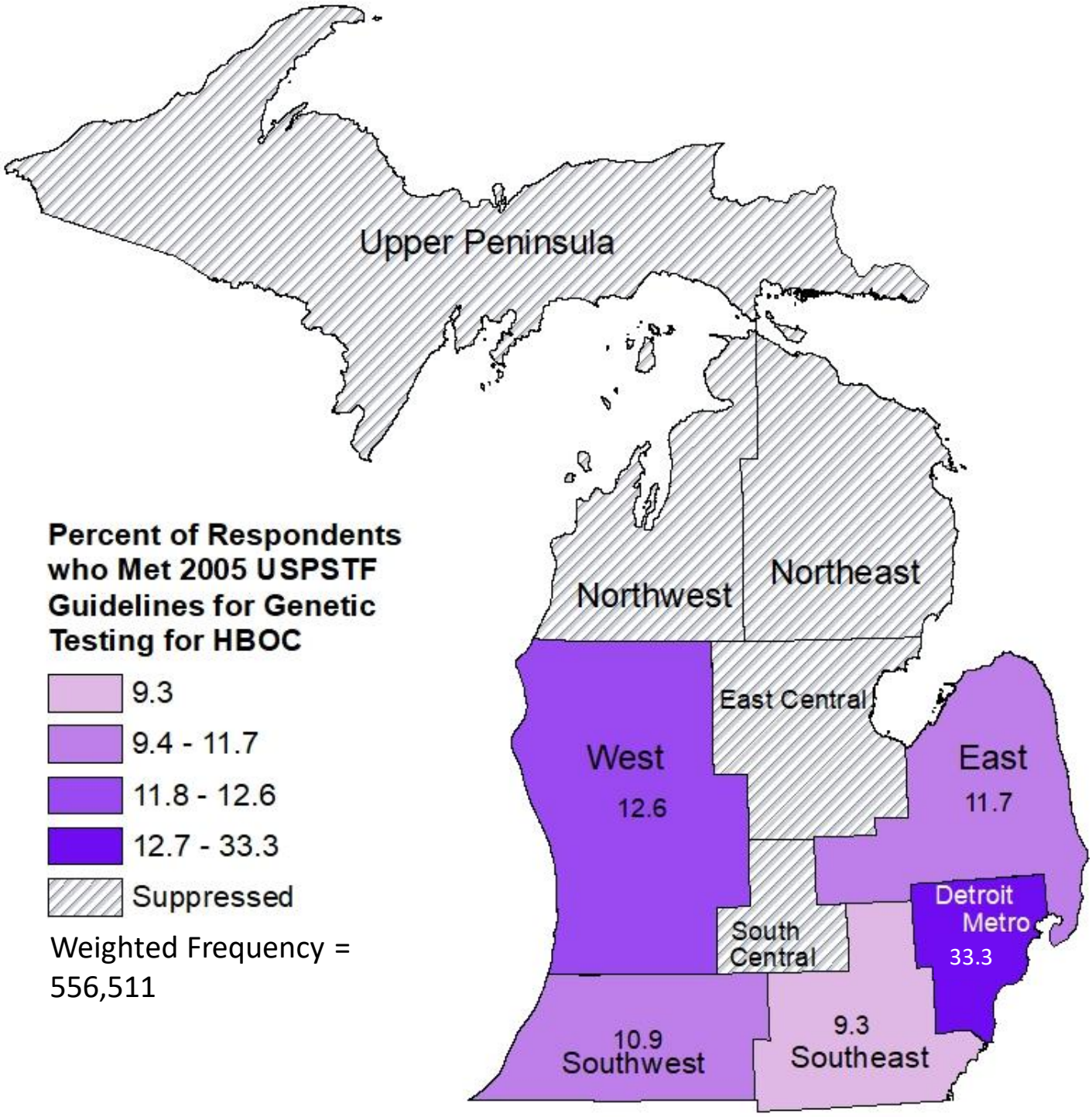
Weighted Frequency = 467,256

Significant Family History by Prosperity Region, 2018



Weighted Frequency = 467,256

2005 USPSTF Guidelines Met for HBOC Genetic Testing by Prosperity Region, 2018



Weighted Frequency = 556,511

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

Suggested Citation:
Fritzler J, Tian Y, and Anderson B. MiBRFS Standard Tables – Hereditary Breast and Ovarian Cancer (HBOC) Genomics Module, 2018. Bureau of Epidemiology and Population Health, Michigan Department of Health and Human Services, February 2022.

MDHHS
Michigan Department of Health & Human Services

This publication was supported by the Cooperative Agreement Number 6 NU58DP006702-02-01, funded by the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention or the Department of Health and Human Services.

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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.