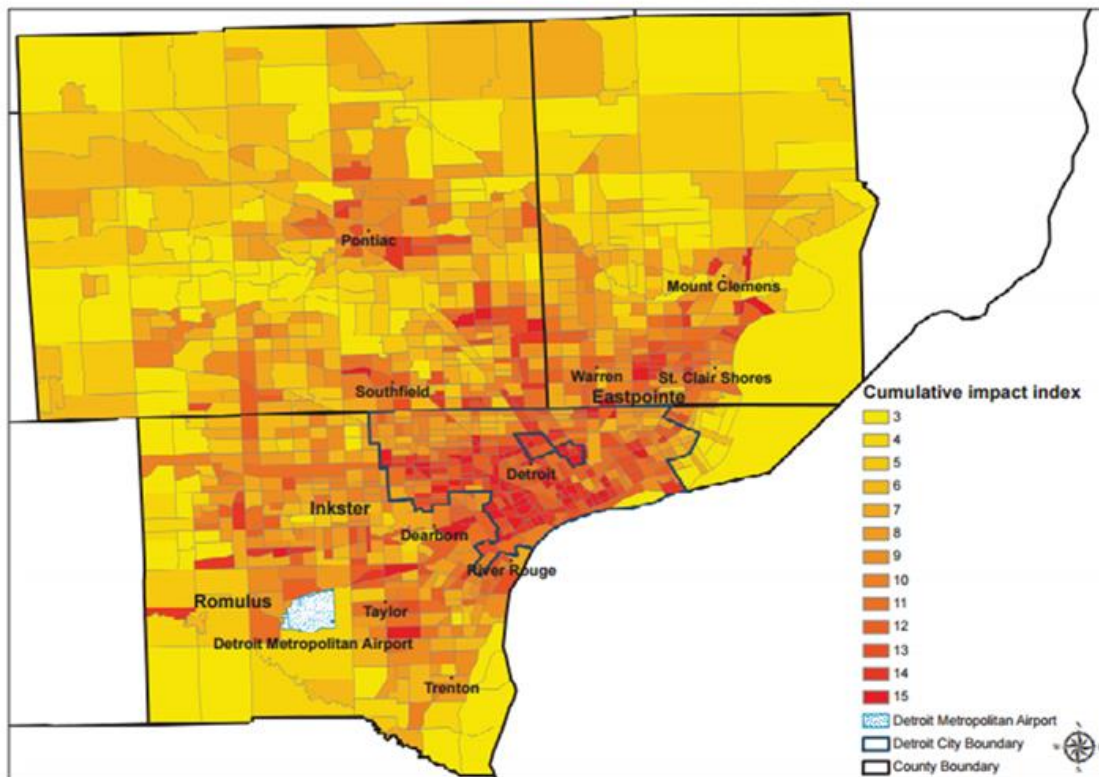


Name: Adrienne Jordan, MPH candidate
Organization: Georgia Street Community Collective
Preceptors: Reverend Sharon Buttry and Diane Weckerle
Date: August 22, 2021

Cumulative Risk in the Detroit Tri-County Area



Cumulative impact polygons (CI) include: residential areas, child care facilities, health care facilities, schools and playgrounds.
Total Cumulative Impact includes: Hazardous Facilities and Land Uses, Exposure and Health Risk and Vulnerabilities

This shows cumulative impact index across Detroit which represents air pollution hazardous land uses and population vulnerabilities across the area. Places with denser populations of people of color are more likely to experience increase exposures to air pollutants and associated health risks and have populations that are susceptible to adverse health effects for example young children and older adults (CAPHE, 2021)

NUMBER OF ASTHMA HOSPITALIZATIONS BY COUNTY, 2017-2019

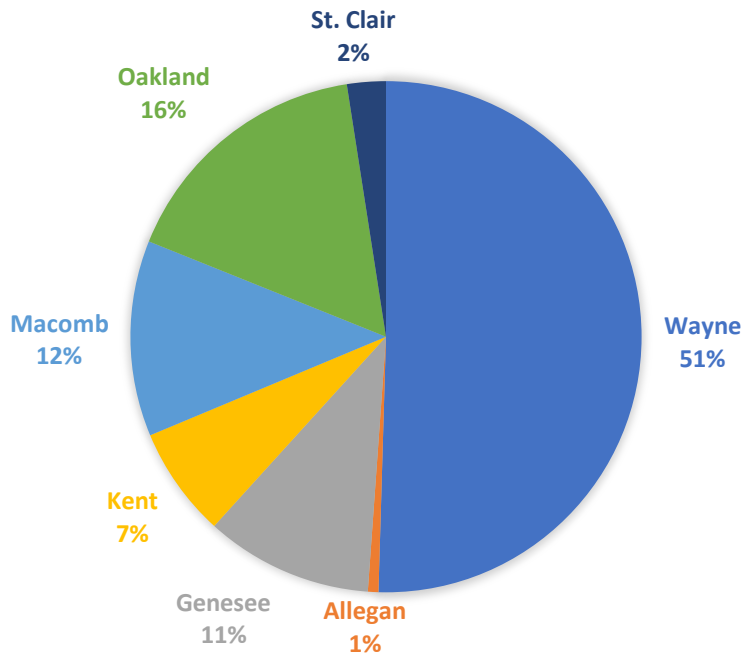


Figure 1: Number of asthma hospitalizations among Michigan counties from 2017-2019. (created by A. Jordan)

INVASIVE CANCER BY ZIP CODE INCIDENCE RATE PER 100,000 PEOPLE

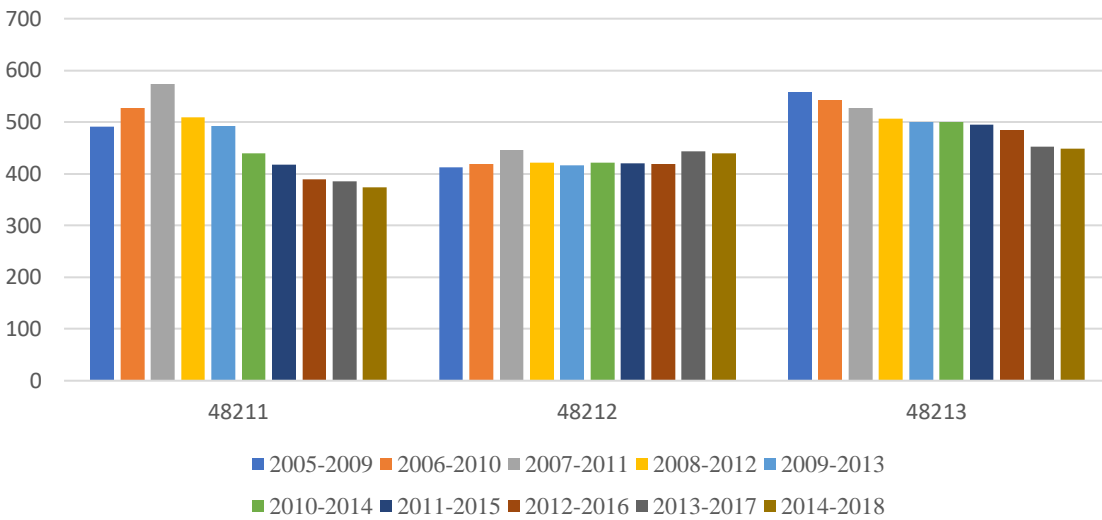


Figure 2: Invasive cancer incidence rate per 100,000 people by Michigan ZIP codes from 2005-2018. (created by A. Jordan)

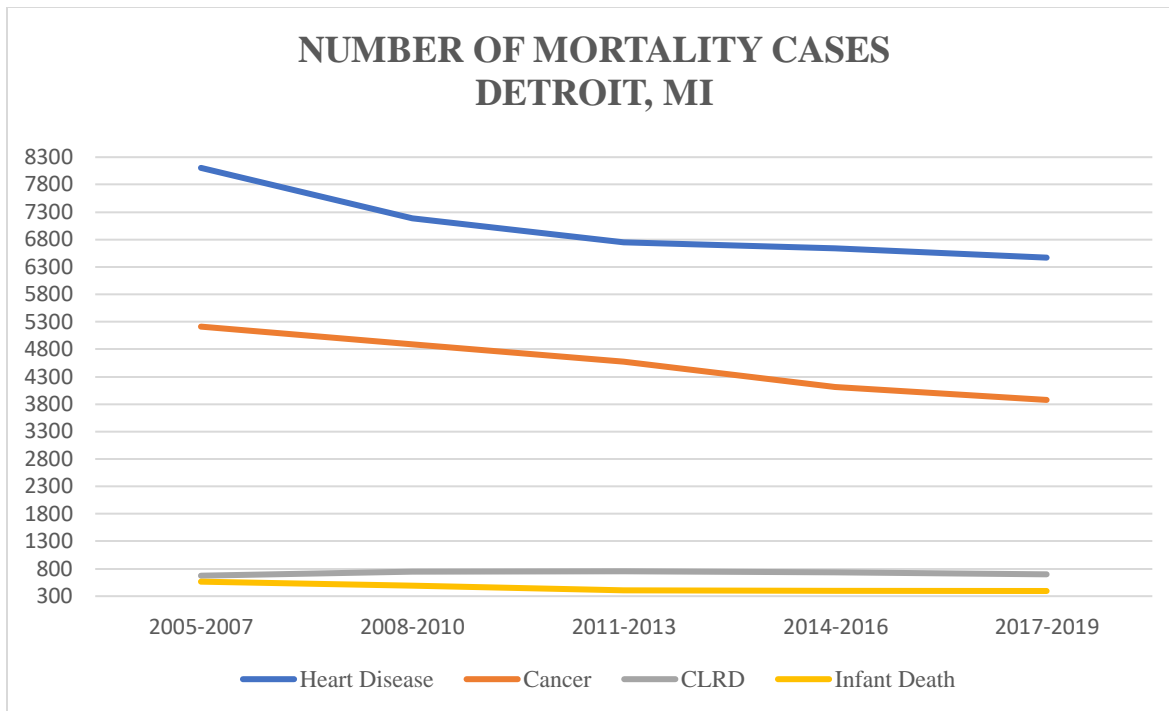


Figure 3: Number of mortality cases among heart disease, cancer, CLRD and infant death in Detroit, Michigan from 2005-2019. Abbreviations: CLRD: chronic lower respiratory disease. (created by A. Jordan)

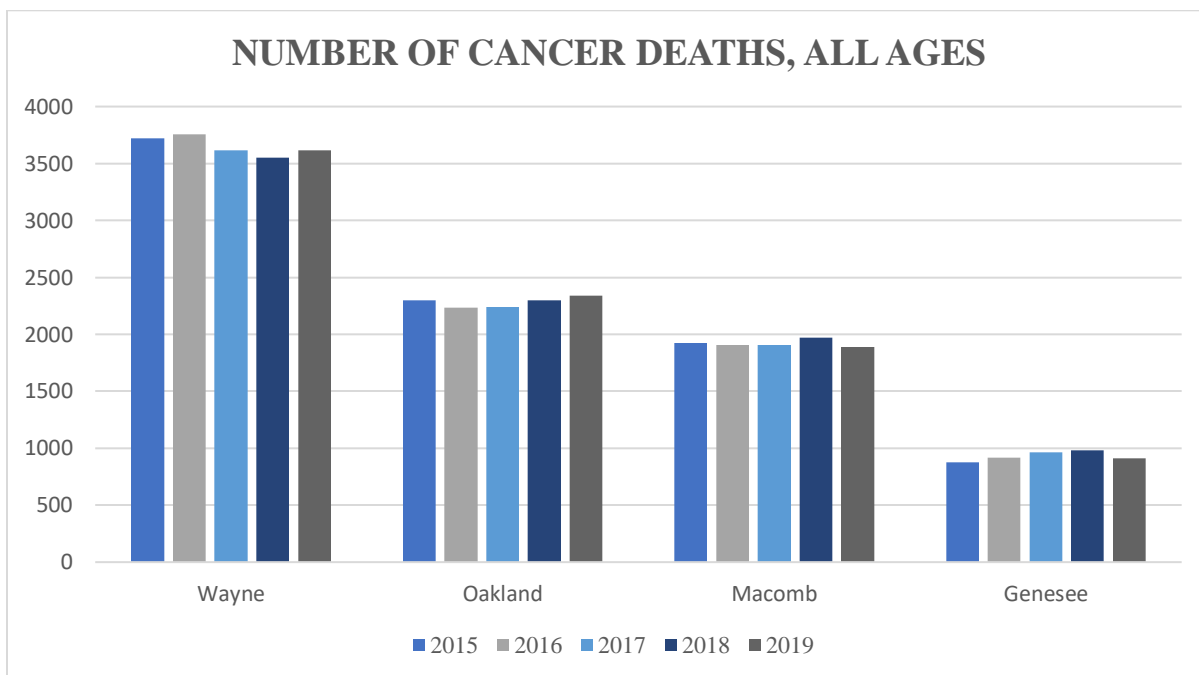


Figure 4: Number of cancer deaths including all ages among Michigan counties from 2015-2019. (created by A. Jordan)

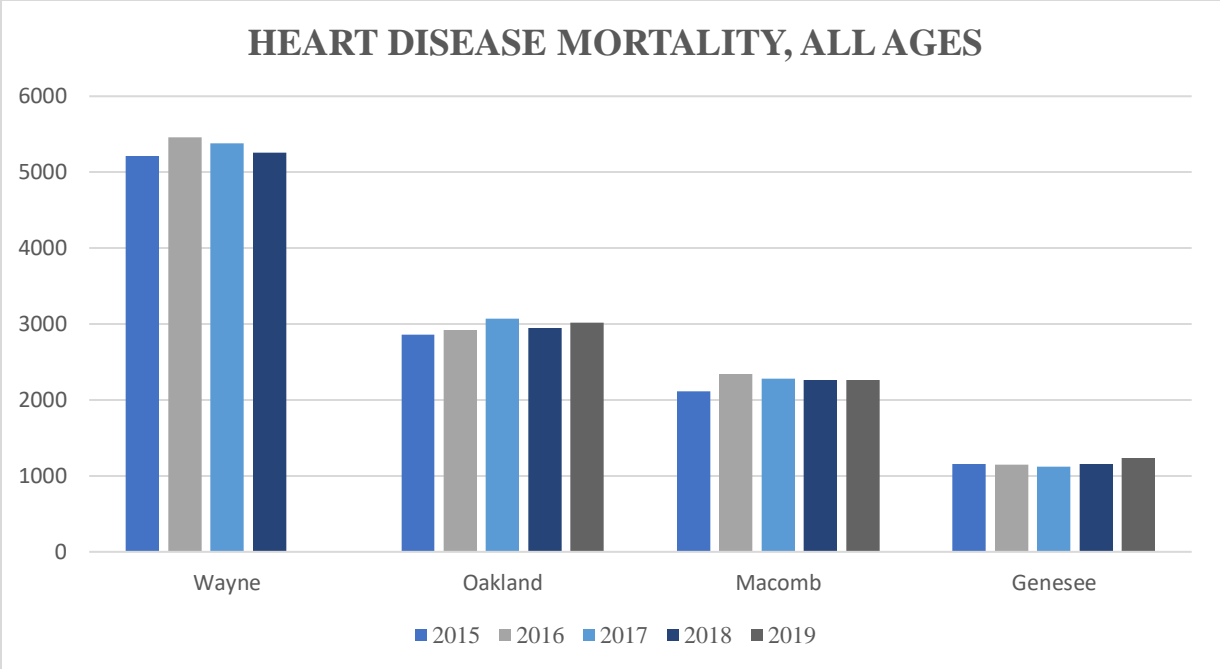


Figure 5: Heart disease mortality cases among Michigan counties from 2015-2019. (created by A. Jordan)

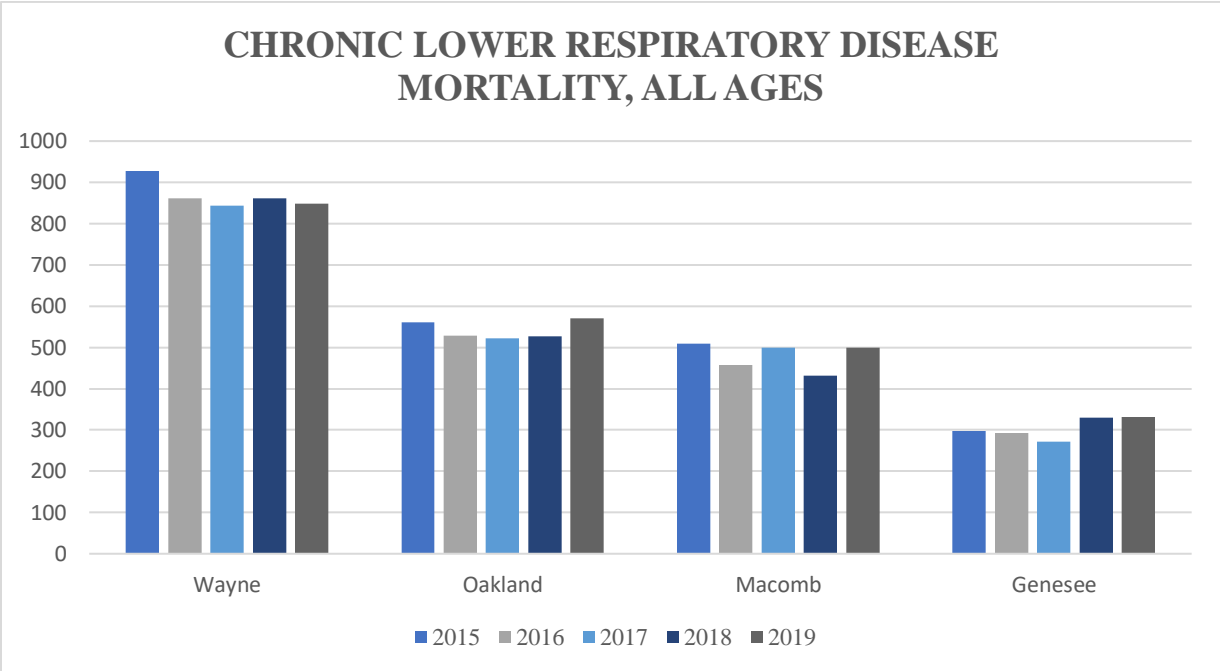


Figure 6: Chronic lower respiratory disease mortality cases including all ages among Michigan counties from 2015-2019. (created by A. Jordan)

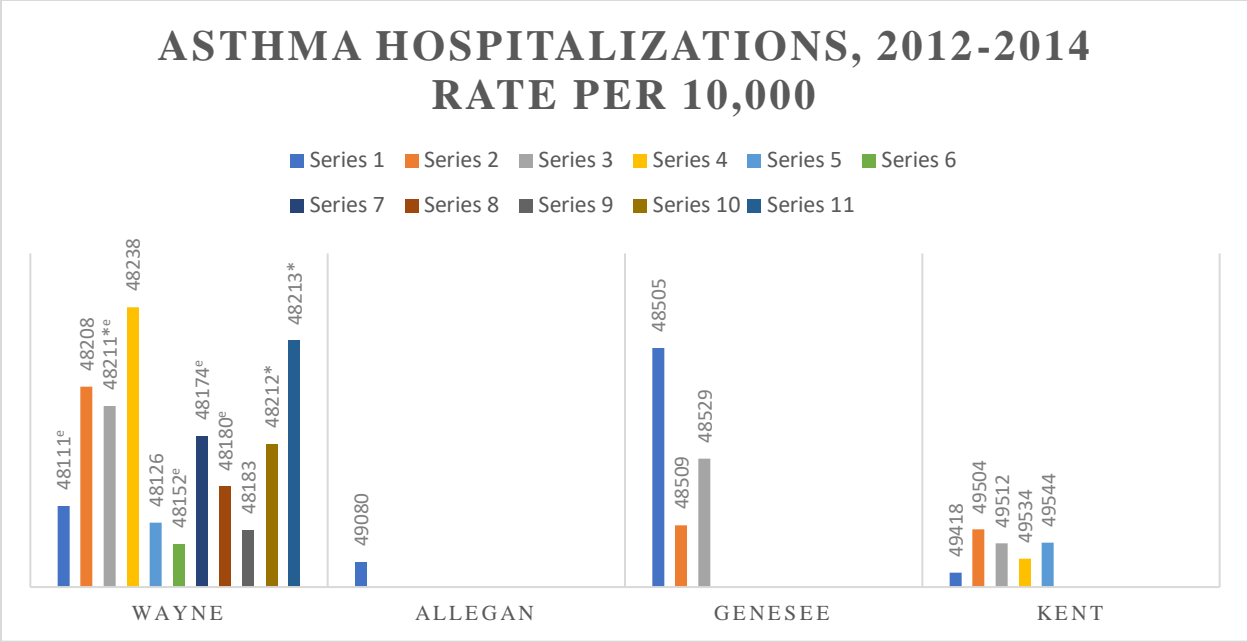


Figure 7: Asthma hospitalizations rate per 10,000 from 2012-2014 among Michigan counties and ZIP codes. (created by A. Jordan)

County	Year	AACM/100T	Lung & Bronchus Cancer AACM/100T	No. of cases	AAR/100T
Wayne	2013-2017	182	50.0		
Allegan	2013-2017	163.4	45.6		
	2017-2019				
Genesee	2013-2017	180.6	51.3		
	2017-2019				
Kent	2013-2017	150.3	38.5		
	2017-2019				
Macomb	2013-2017	173.0	49.7		
	2017-2019				
Monroe	2013-2017	176.7	50.7		
	2017-2019				
Oakland	2013-2017	147.4	36.2		
	2017-2019				
St. Clair	2013-2017	174.9	52.3		
	2017-2019				
Overall	2015			7,839	62.6
Lung	2016			5,548	43.8
Bronchus					

Table 1: Cancer mortality among Michigan counties from 2013-2019. Abbreviations: AACM: Age-Adjusted Cancer Mortality; T: Thousand; AAR: Age-adjusted Rate. (created by A. Jordan)

Mortality	Year & # of cases				
Condition	2005-2007	2008-2010	2011-2013	2014-2016	2017-2019
Heart Disease	8,105	7183	6750	6641	6469
Chronic Lower Respiratory Disease	673	742	753	735	692
Cancer	5212	4890	4575	4117	3876
Infant Death	564	487	410	397	398

Table 2: Mortality among residents in Detroit, Michigan with heart disease, chronic lower respiratory disease, cancer, and infant death during 2005-2019. (created by A. Jordan)

Condition	Year	Number	IR/100T	Rate/10T	ROH/10T	County	Percent/1H	Rate/1T
48211 Zip code^e								
Invasive Cancer	2005-2009	180	490.6					
	2006-2010	180	527.8					
	2007-2011	181	574.0					
	2008-2012	161	509.6					
	2009-2013	156	492.4					
	2010-2014	139	439.3					
	2011-2015	135	417.9					
	2012-2016	126	388.8					
	2013-2017	126	385.2					
	2014-2018	122	373.5					
Asthma	2000-2002			37.7—47.3				
	2007-2009				39.58-86.20*			
	2009-2013				30-37			
Preterm Birth ^d	2009-2011	46						
	2014-2018						0.1-10%	
Low Birthweight ^w	2009-2011	39						
	2014-2018						0.1-8.6%	
Infant Mortality	2009-2011	1						
	2014-2018							6.6-14.2%
48212 Zip code^e								
Invasive Cancer	2005-2009	724	412.3					
	2006-2010	699	418.4					
	2007-2011	704	445.8					
	2008-2012	670	421.6					
	2009-2013	662	416.9					
	2010-2014	669	421.8					
	2011-2015	667	420.8					
	2012-2016	662	418.5					
	2013-2017	699	444.1					

	2014-2018	687	439.5	
Asthma	2000-2002		22.1-37.6	
	2007-2009			24.90-39.58
	2009-2013			21-29
Preterm Birth ^d	2009-2011	286		
	2014-2018			0.1-10%
Low Birthweight ^w	2009-2011	246		
	2014-2018			8.6-12.8%
Infant Mortality	2009-2011	21		
	2014-2018			6.6-14.2%
48213 Zip code^e				
Invasive Cancer	2005-2009	862	558.1	
	2006-2010	810	542.6	
	2007-2011	759	526.7	
	2008-2012	734	507.2	
	2009-2013	727	500.0	
	2010-2014	729	500.7	
	2011-2015	723	495.5	
	2012-2016	710	484.8	
	2013-2017	659	452.8	
	2014-2018	651	449.2	
Asthma	2000-2002		59.6-70.0	
	2007-2009			39.58-86.20*
	2009-2013			57-71
Preterm Birth ^d	2009-2011	249		
	2014-2018			14-60%
Low Birthweight ^w	2009-2011	217		
	2014-2018			12.8-60%
Infant Mortality	2009-2011	18		
	2014-2018			6.6-14.2%
48180 Zip code^e				
Asthma	2007-2009			10.22-24.90
Preterm Birth ^d	2009-2011	338		
Low Birthweight ^w	2009-2011	262		
Infant Mortality	2009-2011	26		
48111 Zip code^e				
Asthma	2007-2009			24.90-39.58
Preterm Birth ^d	2009-2011	217		
Low	2009-2011	148		

Birthweight ^w		
Infant Mortality	2009-2011	13
48220 Zip code		
Asthma	2007-2009	10.22-24.90
Preterm Birth ^d	2009-2011	137
Low Birthweight ^w	2009-2011	83
Infant Mortality	2009-2011	7

Table 3: Rates of invasive cancer, asthma, preterm birth, low birthweight, and infant mortality by ZIP code in Michigan. Abbreviations: IR: incidence rate; ROH: rate of hospitalization; 1H: 1 hundred; 1T: 1 thousand; 10T: 10 thousand; d: delivered before 37 weeks; w: weight less than 5.5lbs; *: Zip codes with the highest rates; e: locations of US Ecology sites; 48211 and 48212: Hamtramck, Michigan; 48213: Detroit, Michigan; 48180: Taylor, Michigan; 48111: Belleville, Michigan; and 48220: Ferndale, Michigan. (created by A. Jordan)

Sources:

https://www.michigan.gov/documents/mdhhs/map_atlas_ADA_x_661747_7.pdf;
https://www.michigan.gov/documents/mdhhs/Burden_Report_4.29.19_with_new_author_page_657430_7.pdf;
https://vitalstats.michigan.gov/osr/chi/FullTableList.asp?REGIONtype=2®ioncode=09&Submit_LHD=Tables;
https://www.michigan.gov/documents/mdch/14_Ch12_Detroit_Epicenter_of_Asthma_276687_7.pdf.
https://www.michigan.gov/documents/mdhhs/Detroit-AsthmaBurden_516668_7.pdf;
<https://statecancerprofiles.cancer.gov/incidencerates/index.php?stateFIPS=26&areatype=county&cancer=001&race=00&sex=0&age=001&type=incd#results>