



WESTERN MICHIGAN UNIVERSITY

— Homer Stryker M.D. —

SCHOOL OF MEDICINE

Infant mortality in Kalamazoo:
Some good news and some bad news...

Catherine Kothari, PhD

Assistant Professor,

Director of Community Research, Division of Epidemiology & Biostats

Biomedical Sciences, WMU School of Medicine

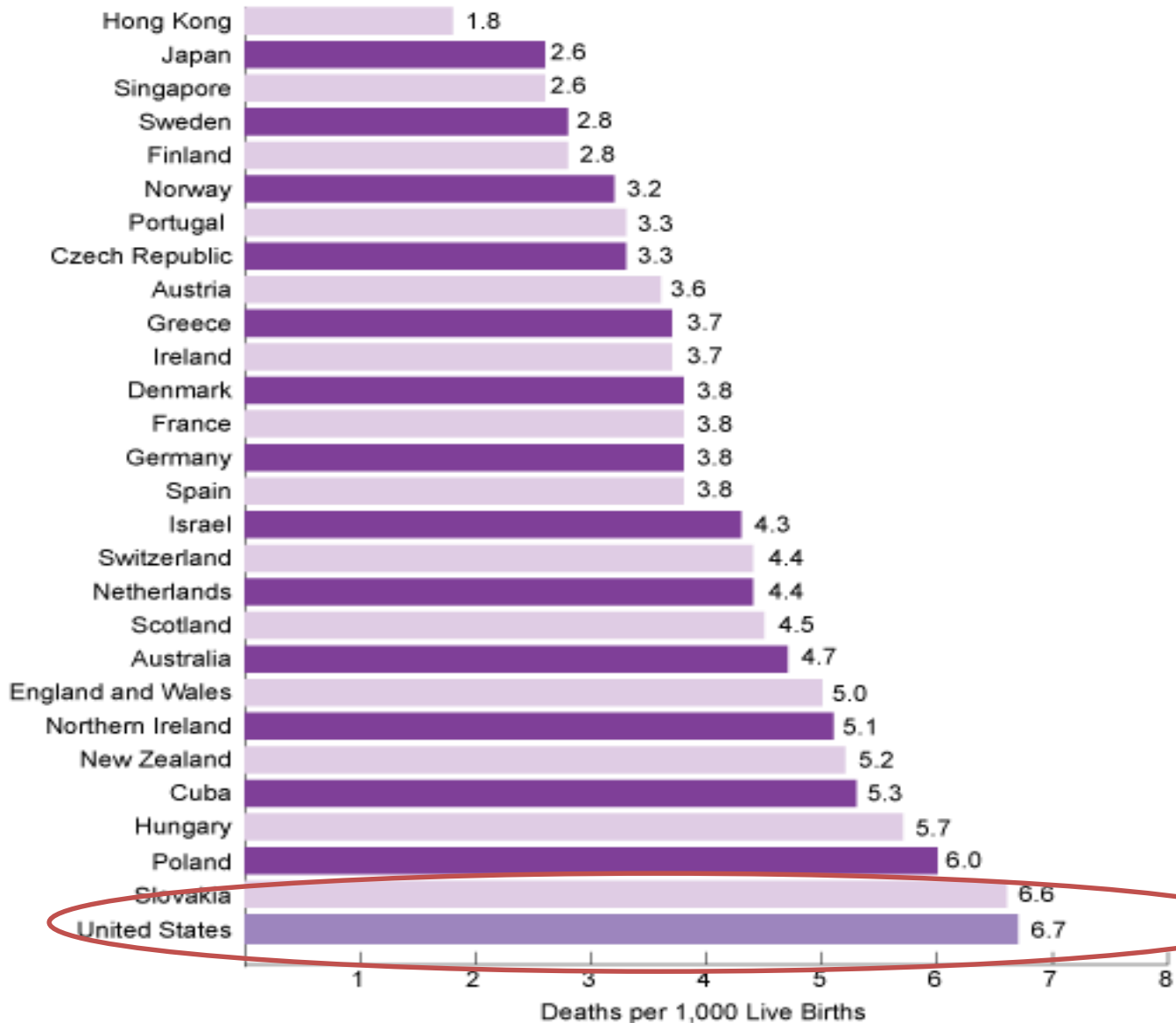
catherine.kothari@med.wmich.edu

(269) 501-4149

BAD NEWS: US ranks near the bottom on IMR

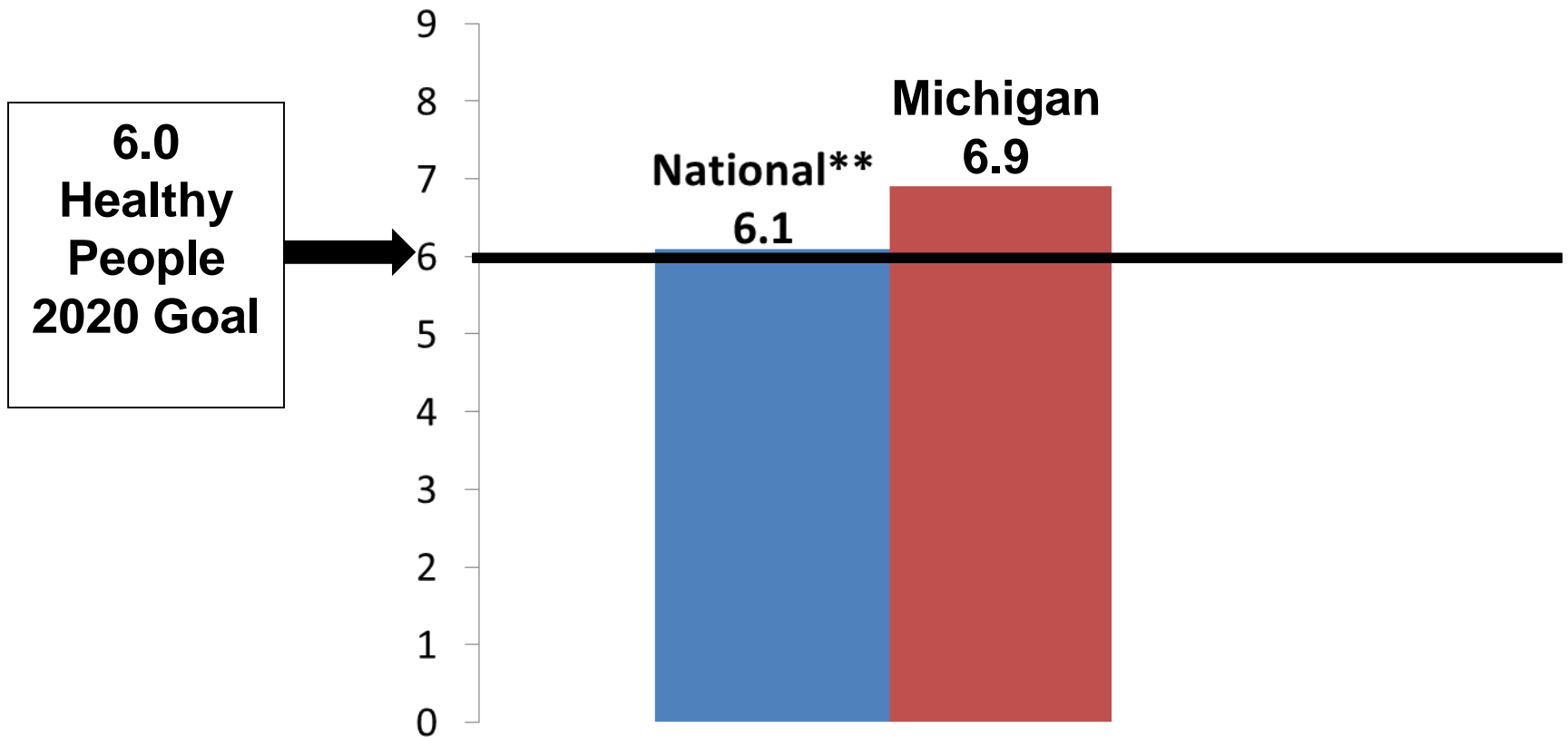
International Infant Mortality Rates, Selected Countries, 2006

Source (II.3): Centers for Disease Control and Prevention, National Center for Health Statistics



Infant Mortality Rates, 2010-2012

Infant Mortality Rates per 1,000 Live Births, Three-year moving Averages*

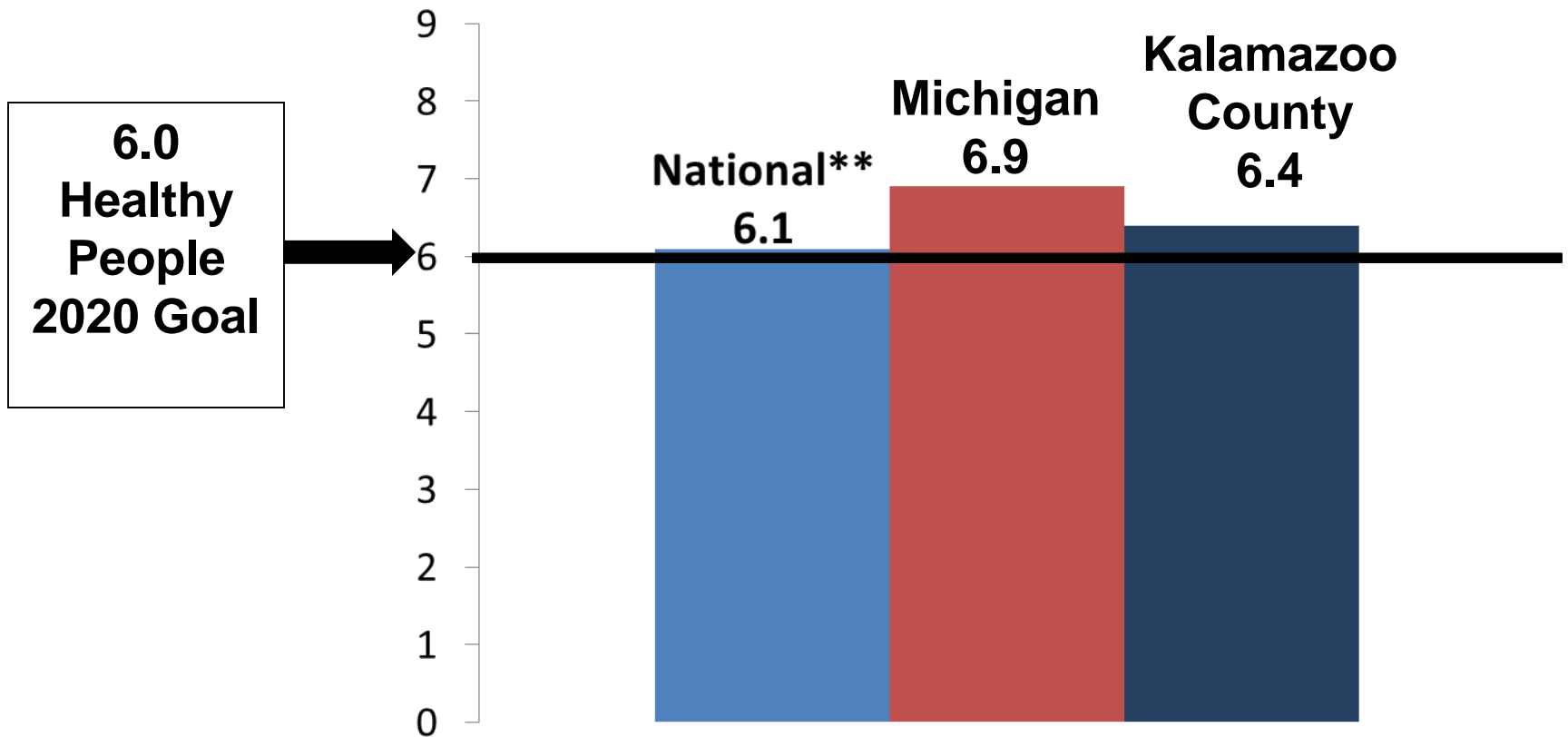


Source: Michigan Department of Community Health, Division for Vital Records and Health Data Development. *Michigan Infant Death Statistics*. March, 2014.

** Year 2010

GOOD NEWS: Kalamazoo better than the State

Infant Mortality Rates per 1,000 Live Births, Three-year moving Averages*

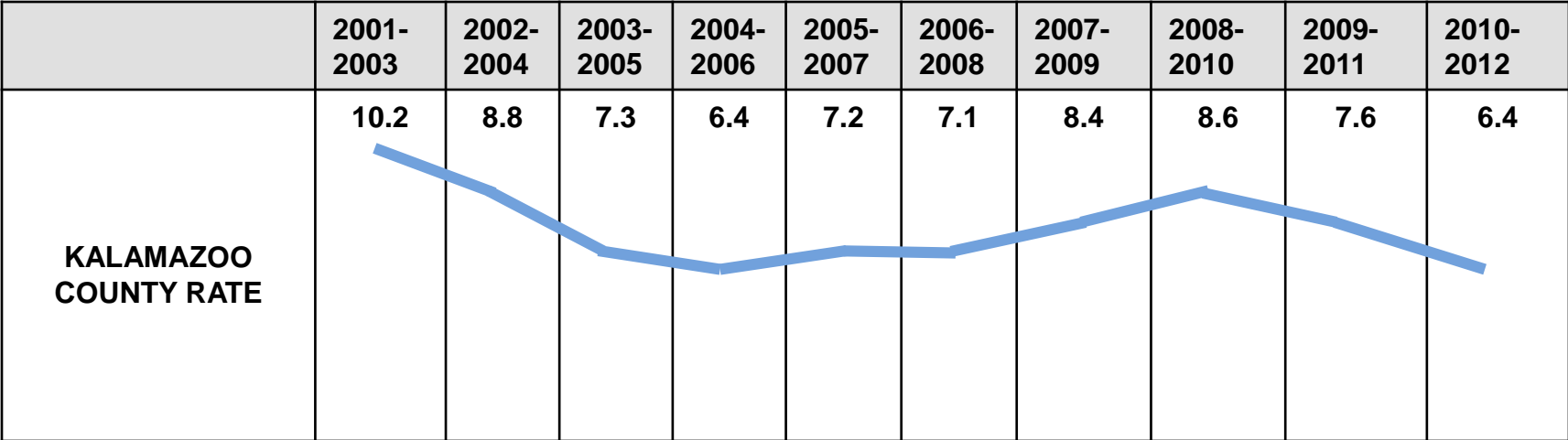


Source: Michigan Department of Community Health, Division for Vital Records and Health Data Development. *Michigan Infant Death Statistics*. March, 2014.

** Year 2010

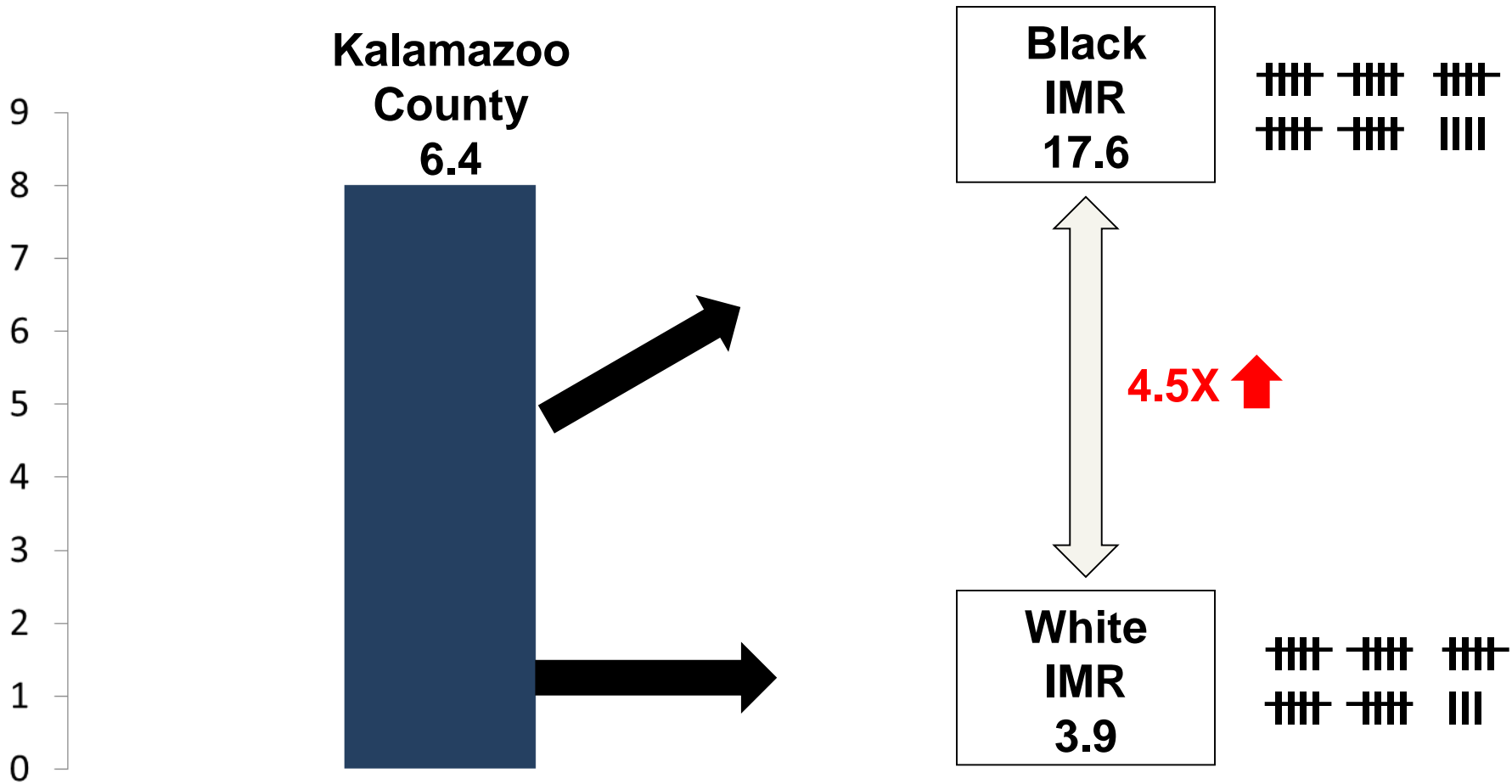
GOOD NEWS: Marked improvements over last decade

Infant Mortality Rates per 1,000 Live Births, Three-year moving Averages

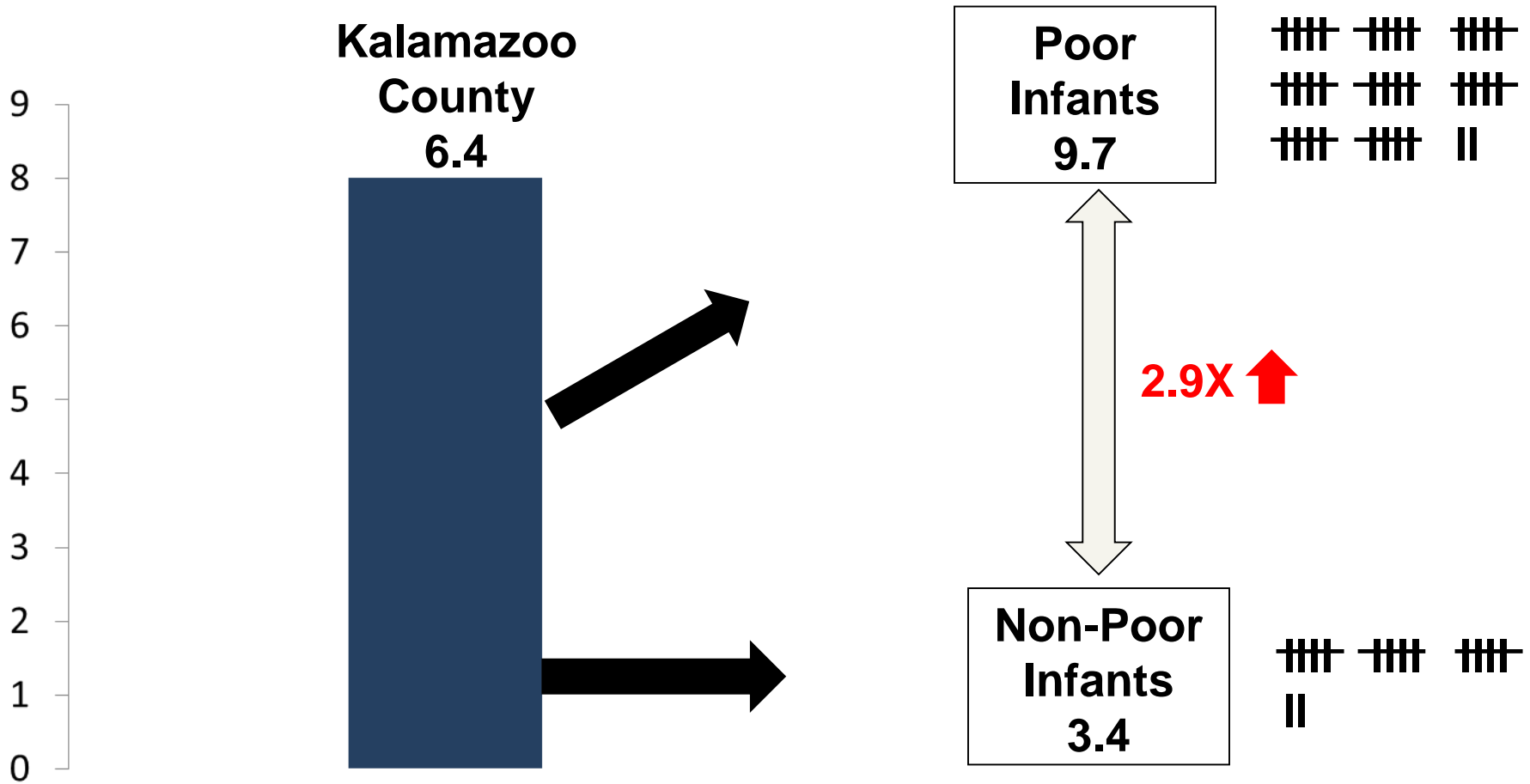


Source: Michigan Department of Community Health, Division for Vital Records and Health Data Development. *Michigan Infant Death Statistics*. March, 2014.

BAD NEWS: Kalamazoo has a substantial racial gap



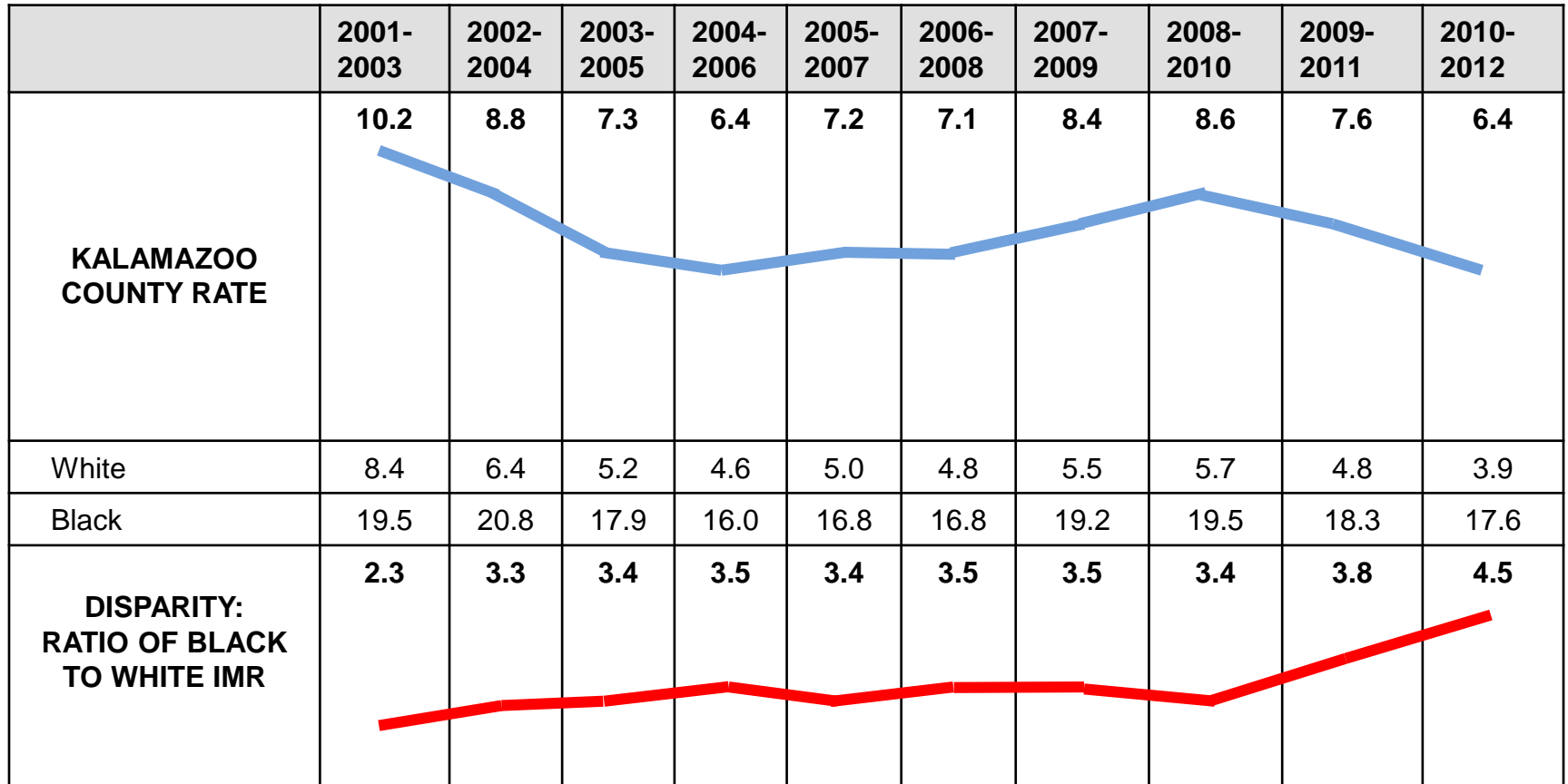
Poverty gap exists; Not as wide as racial gap



*Poverty = Medicaid-paid birth

BAD NEWS: And this gap is widening

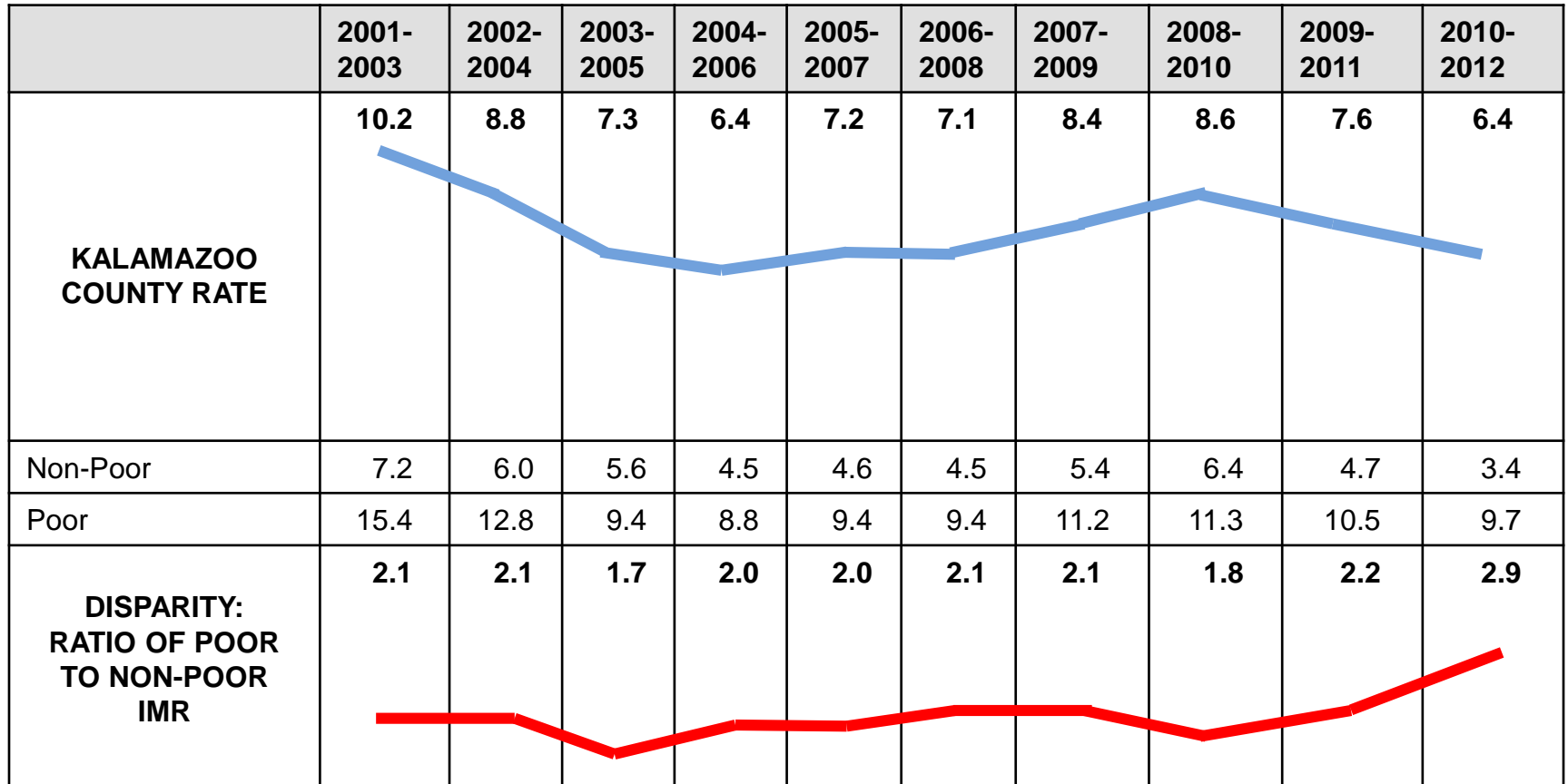
Infant Mortality Rates per 1,000 Live Births, Three-year moving Averages



Source: Michigan Department of Community Health, Division for Vital Records and Health Data Development. *Michigan Infant Death Statistics*. March, 2014.

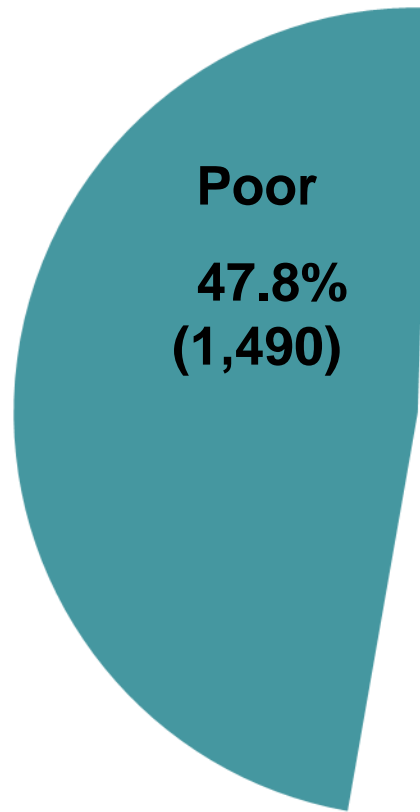
BAD NEWS: Poverty gap is widening too

Infant Mortality Rates per 1,000 Live Births, Three-year moving Averages



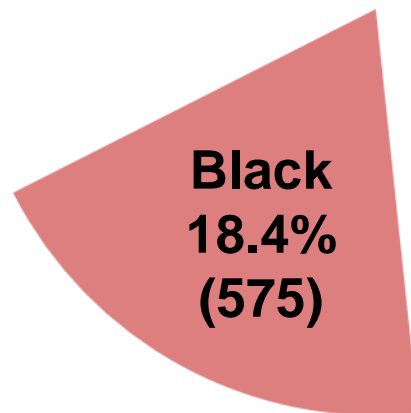
Source: Michigan Department of Community Health, Division for Vital Records and Health Data Development. Live Birth File and Death File, 2012. Courtesy of Kalamazoo County Healthy Babies-Healthy Start project.

Maternal Poverty (Kalamazoo County births in 2010, N=3,119)



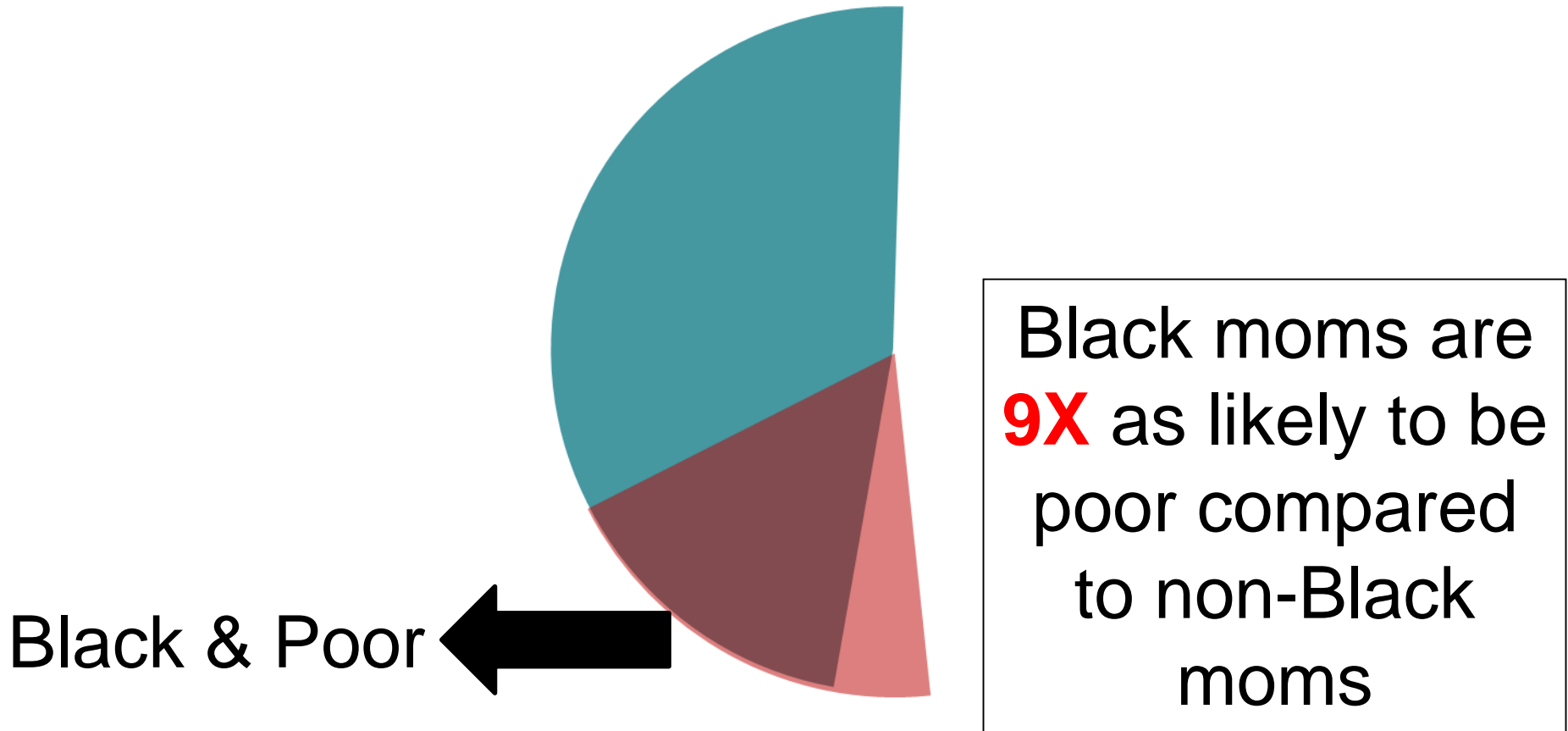
Maternal Race

(Kalamazoo County births in 2010, N=3,119)



BAD NEWS:

Being Black & being poor go together in Kalamazoo




Poverty & Race BOTH Contribute to Risk

Poverty
2.0X ↑



Black Race
1.7X ↑

Low Birth Weight



		(exp) B, Conf Intv
LBW	Maternal Poverty	2.0 OR (1.2, 3.0)
	Maternal Black Race	1.7 OR (1.2, 2.3)

Source: Kothari, C.L., Paul, R., Wiley, J., Hanneken, J., Baker, K., Lenz, D., Dormitorio, B., James, A., Curtis, A. *The relationship of socioeconomic and racial factors, both individual and community level, to infant birth weight.* American Public Health Association Annual Conference, 2014. New Orleans, Louisiana.

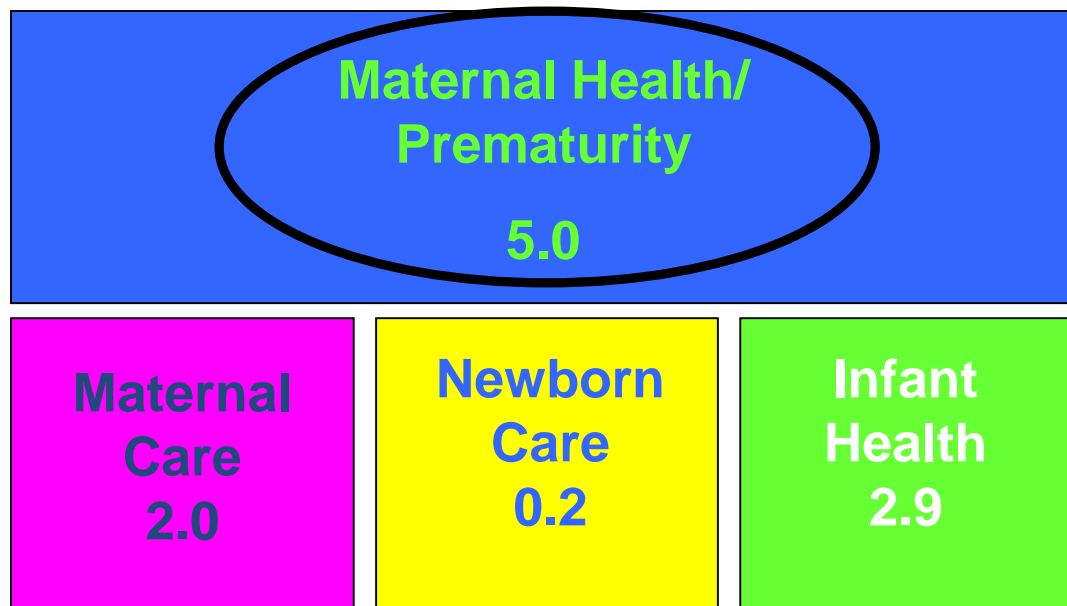
Causes of Infant Death

	Michigan (2010-2012) (2,349 deaths)	Kalamazoo County (2010-2011)			
		Total (41)	White (19)	Black (20)	Other (2)
Prematurity / LBW	24.4% (574)	31.7% (13)	21.1% (4)	45.0% (9)	
Congenital anomalies	18.6% (436)	19.5% (8)	26.3% (5)	10.0% (2)	50.0% (1)
Infection or disease	11.6% (272)	4.9% (2)		5.0% (1)	50.0% (1)
Accidents & adverse effects	10.3% (242)	4.9% (2)	5.3% (1)	5.0% (1)	
Complications of pregnancy	9.7% (229)	2.4% (1)		5.0% (1)	
Sudden Infant Death Syndrome	3.9% (92)	14.6% (6)	21.1% (4)	10.0% (2)	
Complications of delivery	1.8% (42)	2.4% (1)	5.3% (1)		
Homicide	1.6% (38)	2.4% (1)	5.3% (1)		
All other causes	17.2% (405)	17.1% (7)	15.8% (3)	20.0% (4)	

Source: Michigan Department of Community Health, Division for Vital Records and Health Data Development. Live Birth File and Death File, 2012. Courtesy of Kalamazoo County Healthy Babies-Healthy Start project.

Perinatal Periods of Risk Assessment (1997-2006)

Excess Mortality: Black Women



Reference Group: Kalamazoo County, non-Hispanic White women, aged 20+ years, 13+ yrs of education]

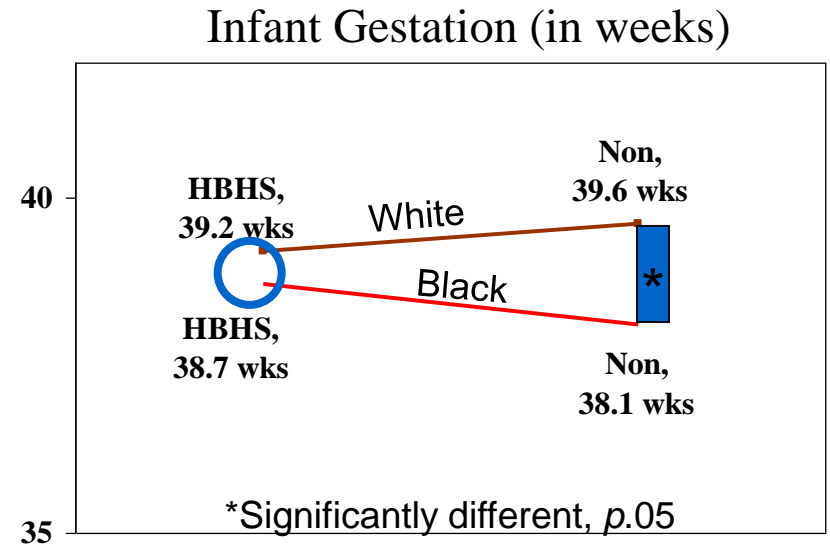
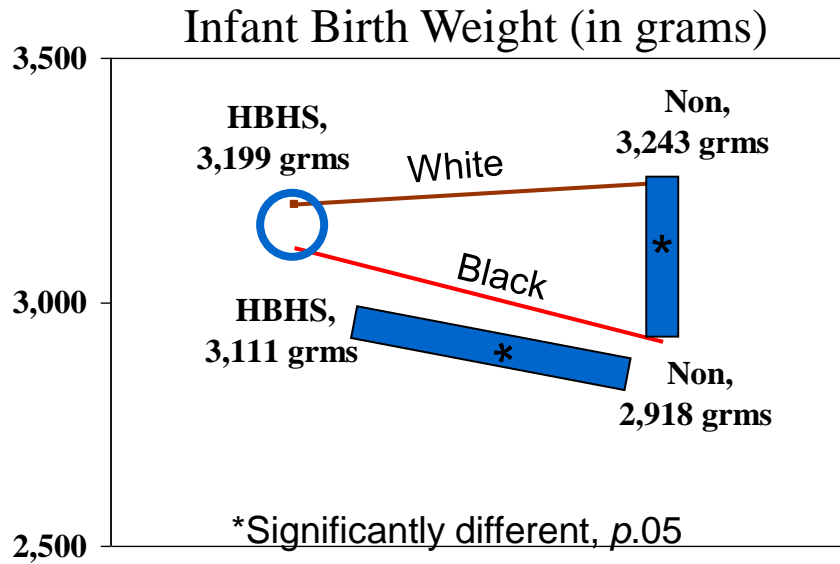
MIECHV Assessment, 2012

- Home visiting programs successfully enroll high-risk women (minority, poor, adolescent, single, multiparous, pre-pregnancy diabetes/hypertension)
- Need to target women with previous poor birth outcomes (low birth weight, intrauterine growth retardation, perinatal death)
 -Currently under-enrolled, even though it is the leading predictor of prematurity and low birth weight
- Home visiting programs increase prenatal care
- But this has not been sufficient to improve participants' birth outcomes
- Well-developed maternal-infant & early childhood resources
- But fragmentation within the system
 - ...with medical providers, between the maternal-infant and the early-childhood networks, between maternal-infant programs
- Build neighborhood capacity. Learn from neighborhoods with good birth outcomes and no disparities
 - Both vary widely from neighborhood to neighborhood within Kalamazoo.

Sources: (1) Kalamazoo Maternal, Infant & Early Childhood Home Visiting (MIECHV) Program Exploration and Planning Tool. Prepared by the Kalamazoo Health and Community Services Department, Maternal & Child Health Division, Deb Lenz. Submitted December, 2012.

(2) Kalamazoo County Needs Assessment: Maternal/Infant Health & Home Visiting Programs. Prepared by Catherine Kothari for Kalamazoo MIECHV Committee and for Kalamazoo Health and Community Services Department, Maternal & Child Health Division, Deb Lenz. Submitted August, 2013.

GOOD NEWS: Kalamazoo HBHS one of first programs to provide evidence of race-specific gains



*Kothari, C.L., Zielinski, R., James, A., Charoth, R., Sweezy, L.C. (2014). Improved birth weight for Black infants: outcomes of a Healthy Start program. *American Journal of Public Health*, 104:1, S96

GOOD NEWS: Kalamazoo's expanding network of maternal-infant-early childhood home visitation & case management services

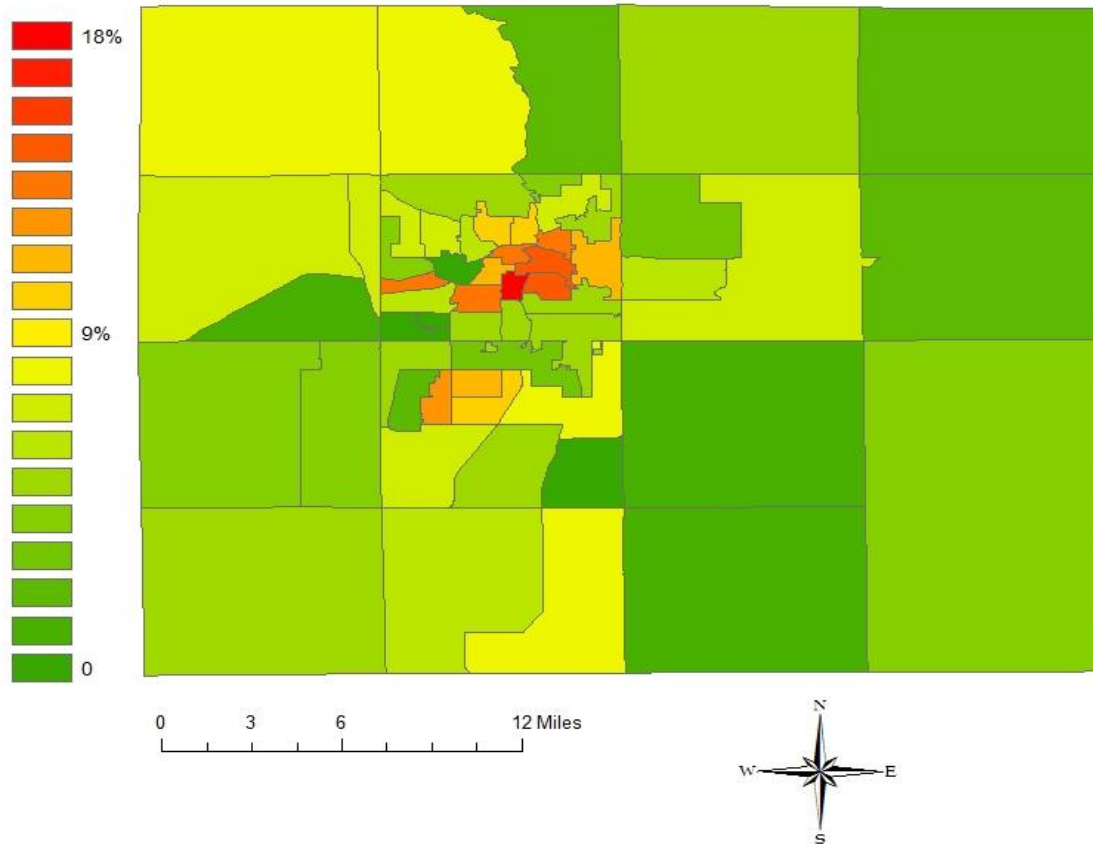
Table 2. Home Visiting Evidence Dimensions

	High or Moderate Quality Impact Study?	Number of Favorable Impacts on Primary Outcome Measures ^a	Number of Favorable Impacts on Secondary Outcome Measures ^a	Sustained? ^b	Lasting? ^c	Replicated? ^d	Favorable Impacts Limited to Subgroups?	Number of Unfavorable or Ambiguous Impacts ^e
Child FIRST	Yes*	16*	12*	Yes*	No	No	No*	0
Early Head Start-Home Visiting	Yes*	4*	24*	Yes*	Yes*	No	No*	2**
EIP	Yes*	8*	2*	Yes*	Yes*	No	No*	1**
Early Start (New Zealand)	Yes*	9*	2*	Yes*	No	No	No*	0
Family Check-Up	Yes*	5*	1*	Yes*	No	Yes*	No*	0
Healthy Families America	Yes*	14*	29*	Yes*	No	Yes*	No*	4**
Healthy Steps	Yes*	2*	3*	Yes*	No	No	No*	0
HIPPY	Yes*	4*	4*	Yes*	Yes*	Yes*	No*	0
Nurse Family Partnership	Yes*	28*	57*	Yes*	Yes*	Yes*	No*	9**
Oklahoma CBFRS	Yes*	1*	4*	Yes*	No	No	No*	0
Parents as Teachers	Yes*	5*	0	Yes*	No	Yes*	No*	7**
PALS Infant	Yes*	12*	0	Yes*	Yes*	No	No*	1**
SafeCare Augmented	Yes*	2*	1*	Yes*	Yes*	No	No*	1**

*Avellar, S., Paulsell, D., Sama-Miller, E., Del Grosso, P. (2012). *Home Visiting Effectiveness Review: Executive Summary*. Office of Planning, Research and Evaluation, Administration for Children & Families. U.S. Department of Health and Human Services, Washington, DC.

LBW Hot Spots

that are LBW
(<2500 grams)



Datum
North American Datum, 1983
Geographic Coord. System
GCS North American, 1983

Sources:
Michigan Center for Geographic Information
Michigan Dept. of Community Health, Vital Records

Source: Kothari, C.L., Paul, R., Wiley, J., Hanneken, J., Baker, K., Lenz, D., Dormitorio, B., James, A., Curtis, A. *The relationship of socioeconomic and racial factors, both individual and community level, to infant birth weight.* American Public Health Association Annual Conference, 2014. New Orleans, Louisiana.

Concentrated Poverty & Black Race

Percent of Births
that are LBW
(<2500 grams)



20% + Poverty 20% + Black



0 3 6 12 Miles



Datum

North American Datum, 1983

Geographic Coord. System

GCS North American, 1983

Sources:

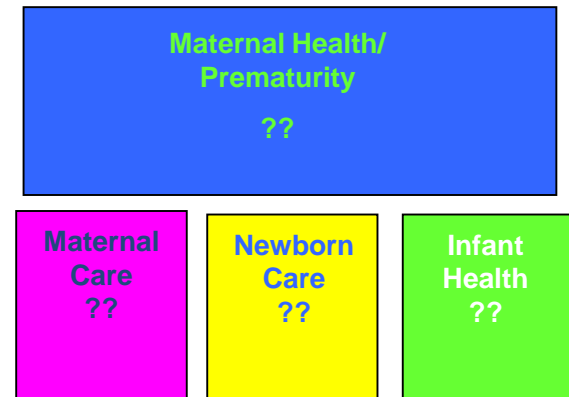
Michigan Center for Geographic Information
Michigan Dept. of Community Health, Vital Records
U.S. Census Bureau, 2010

Source: Kothari, C.L., Paul, R., Wiley, J., Hanneken, J., Baker, K., Lenz, D., Dormitorio, B., James, A., Curtis, A. *The relationship of socioeconomic and racial factors, both individual and community level, to infant birth weight.* American Public Health Association Annual Conference, 2014. New Orleans, Louisiana.

What else do we need to know????



Healthy Babies
Healthy Start
In Kalamazoo, Michigan





INFORMING ACTION...

