

# IV. Maternal and Child Measures

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Measures that assess the health status and risk behaviors during pregnancy, birth, and that of infants

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*Key findings from this chapter:*

## **Positive/Neutral Trends**

- Ottawa County's [teen pregnancy rate](#) was 47% lower than the State in 2009 (27.0 pregnancies per 1,000 teen females compared to 51.5 statewide). Furthermore, the teen pregnancy rate in Ottawa County has been lower than the adjacent counties and the State throughout the last two decades
- During the last 10 years, pregnant women in Ottawa County who received an *Adequate* [level of prenatal care](#) increased by 10% (70.6% of all live births up to 77.7%). *Adequate* is defined as the highest level of prenatal care. Statewide, there was an 8% decrease in pregnant women who received an *Adequate* level of prenatal care during the same time period (74.5% of all live births down to 68.0%)
- Ottawa County has a lower percentage of [low birth weight babies](#) (under 5.5 pounds) when compared to the State throughout the last two decades. In 2009, Ottawa County had 23% fewer low birth weight babies when compared to the State (6.5% of all live births compared to 8.5% statewide)
- Ottawa County's [birth rate](#) declined by nearly 19% during the last 10 years (15.3 live births per 1,000 residents down to 12.4). Statewide, there was a 14% decline during the same time period (13.7 live births per 1,000 residents down to 11.8)
- Births by [Cesarean delivery](#) increased by 50% in Ottawa County during the last 10 years (20.4% of all live births up to 30.8%). Statewide, there was a 46% increase (21.9% of all live births up to 32.0%)

- [Birth defects](#) declined by 45% in Ottawa County during the last 10 years (644.6 cases per 10,000 live births down to 354.8). Statewide, there was a 29% decrease (959.9 cases per 10,000 live births down to 679.1)
- [Heart & circulatory system birth defects](#) in Ottawa County decreased by 23% during the last 10 years (144.2 cases per 10,000 live births down to 110.3). During this same time period, heart & circulatory system birth defects increased by nearly 2% statewide (183.4 cases per 10,000 live births up to 186.5)
- [Integument \(skin, hair, nails\) system birth defects](#) in Ottawa County decreased 33% during the last 10 years (16.4 cases per 10,000 live births down to 10.9). Statewide, integument system birth defects increased by 311% (22.8 cases per 10,000 live births up to 93.8)

## **Negative Trends**

- [Musculoskeletal system birth defects](#) in Ottawa County increased nearly 12% during the last 10 years (66.6 cases per 10,000 live births up to 74.5). Statewide, there was a decrease of nearly 18% (154.2 cases per 10,000 live births down to 126.5)
- [Genital & urinary system birth defects](#) increased by 6% in Ottawa County during the last 10 years (106.8 cases per 10,000 live births up to 113.3). There was a 28% decrease statewide in genital & urinary system birth defects (140.8 cases per 10,000 live births down to 100.1)

## Live Birth Rate (1998-2009)

**By Year** (Ottawa County, Adjacent Counties, State)

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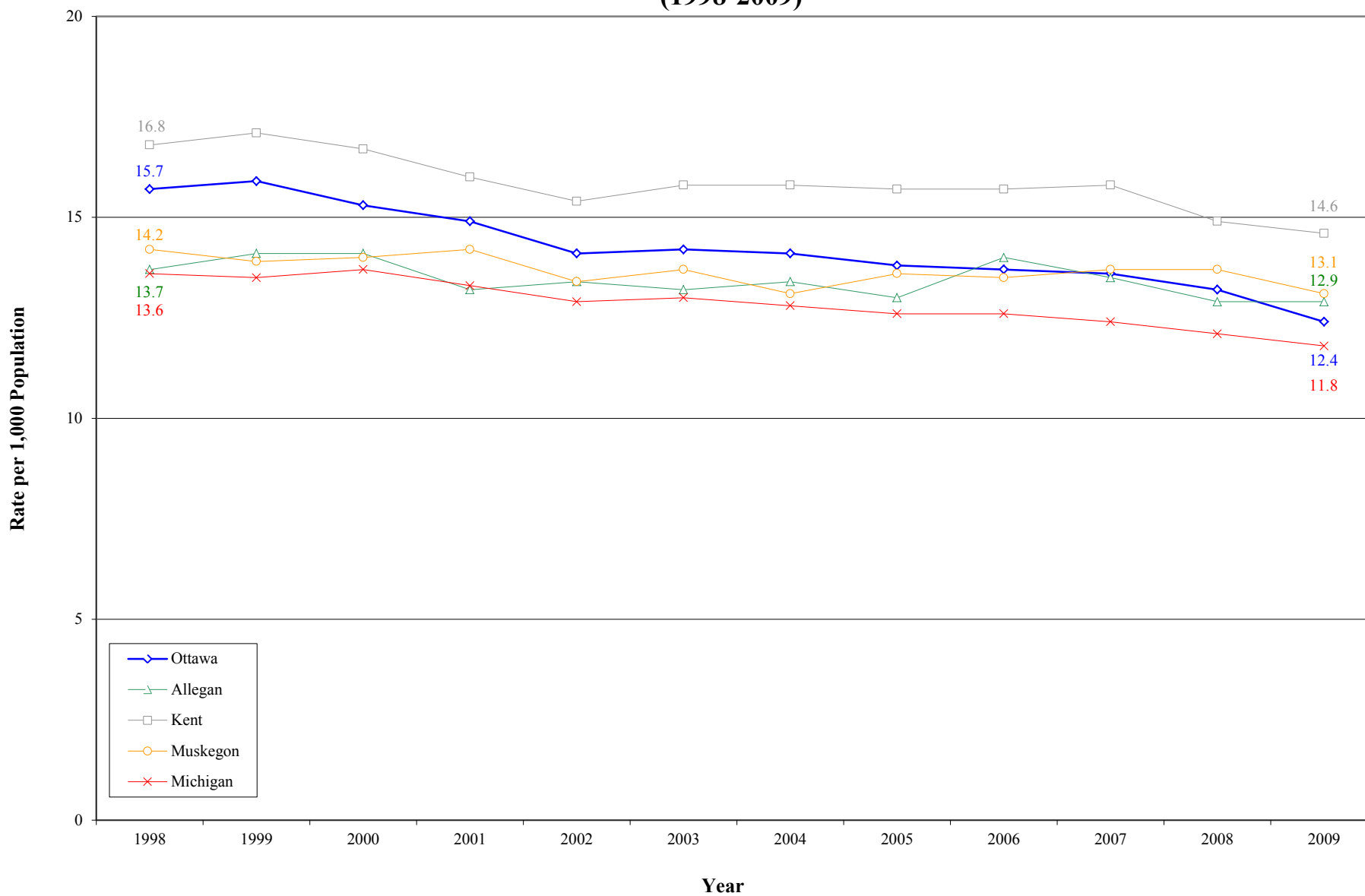
Live Births per 1,000 Population					
Year	Ottawa	Allegan	Kent	Muskegon	Michigan
1998	15.7	13.7	16.8	14.2	13.6
1999	15.9	14.1	17.1	13.9	13.5
2000	15.3	14.1	16.7	14.0	13.7
2001	14.9	13.2	16.0	14.2	13.3
2002	14.1	13.4	15.4	13.4	12.9
2003	14.2	13.2	15.8	13.7	13.0
2004	14.1	13.4	15.8	13.1	12.8
2005	13.8	13.0	15.7	13.6	12.6
2006	13.7	14.0	15.7	13.5	12.6
2007	13.6	13.5	15.8	13.7	12.4
2008	13.2	12.9	14.9	13.7	12.1
2009	12.4	12.9	14.6	13.1	11.8

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Source: Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

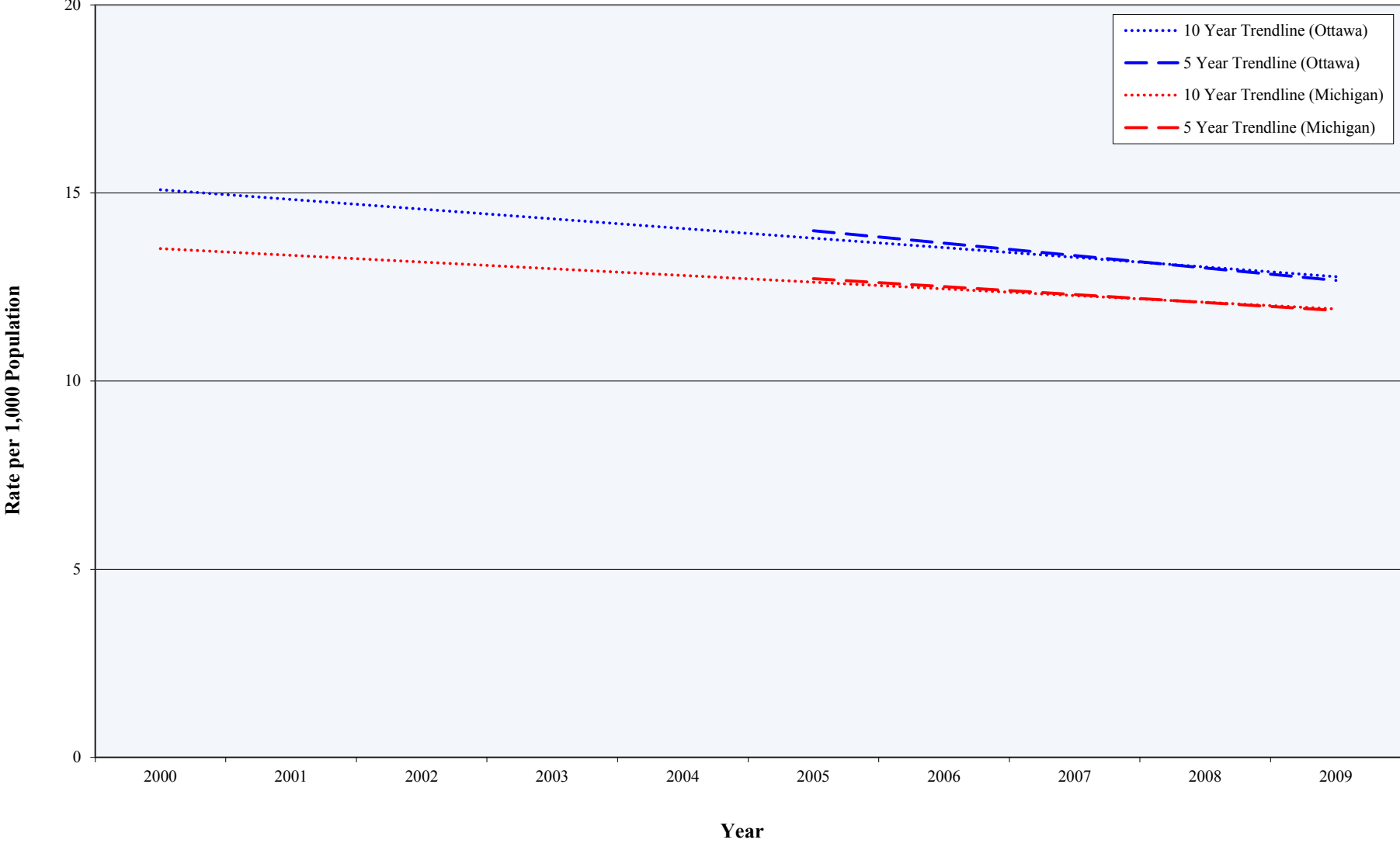
## Live Birth Rate (1998-2009)



Source: Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

# Live Birth Rate

## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

## Fertility Rate (1998-2009)

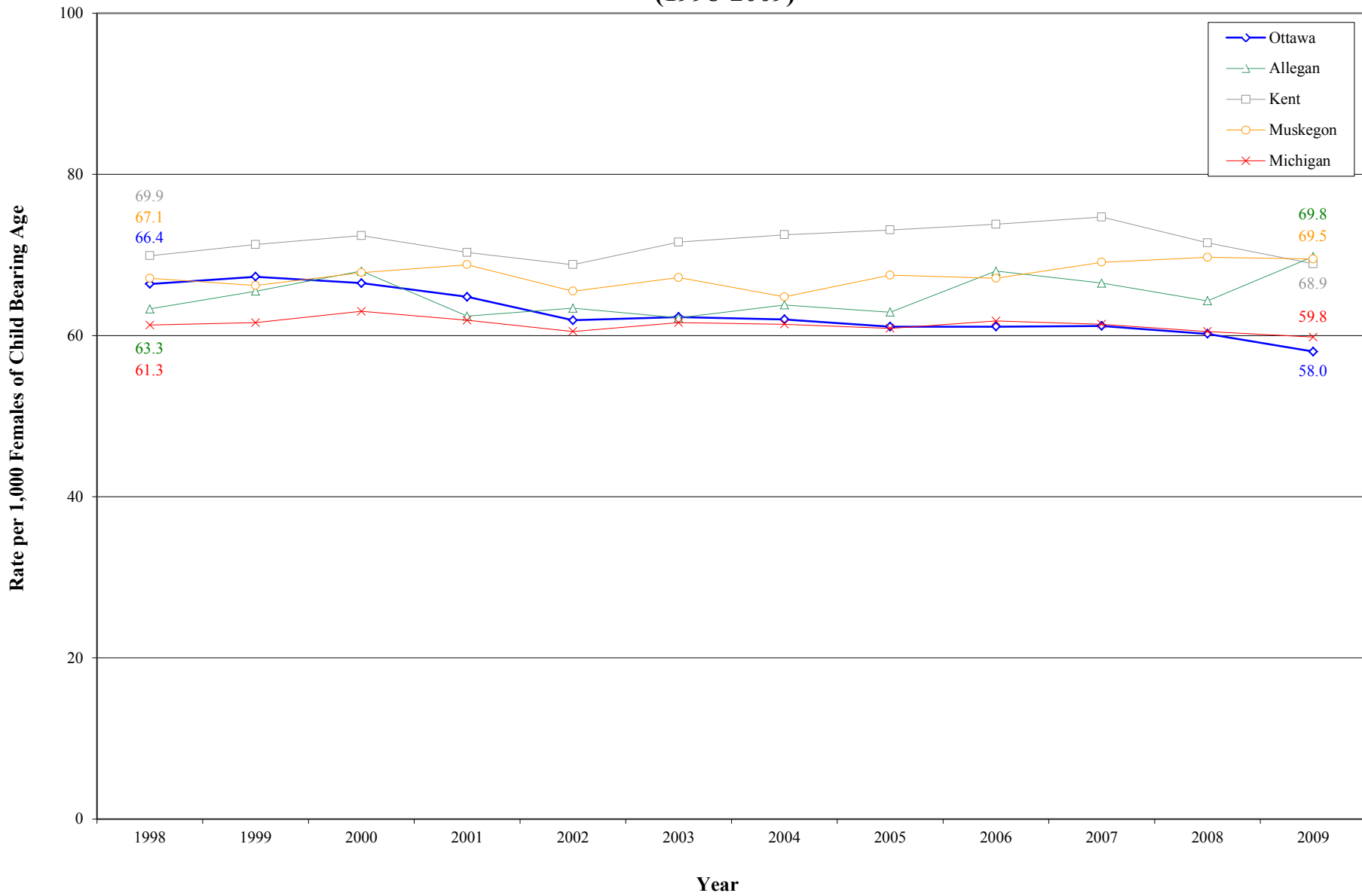
**By Year** (Ottawa County, Adjacent Counties, State)

Live Births per 1,000 Females of Child Bearing Age*					
Year	Ottawa	Allegan	Kent	Muskegon	Michigan
1998	66.4	63.3	69.9	67.1	61.3
1999	67.3	65.5	71.3	66.2	61.6
2000	66.5	68.0	72.4	67.8	63.0
2001	64.8	62.4	70.3	68.8	61.9
2002	61.9	63.4	68.8	65.5	60.5
2003	62.3	62.2	71.6	67.2	61.6
2004	62.0	63.8	72.5	64.8	61.4
2005	61.1	62.9	73.1	67.5	60.9
2006	61.1	68.0	73.8	67.1	61.8
2007	61.2	66.5	74.7	69.1	61.4
2008	60.2	64.3	71.5	69.7	60.5
2009	58.0	69.8	68.9	69.5	59.8

Source: Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

\* Includes females who are age 15 to 44

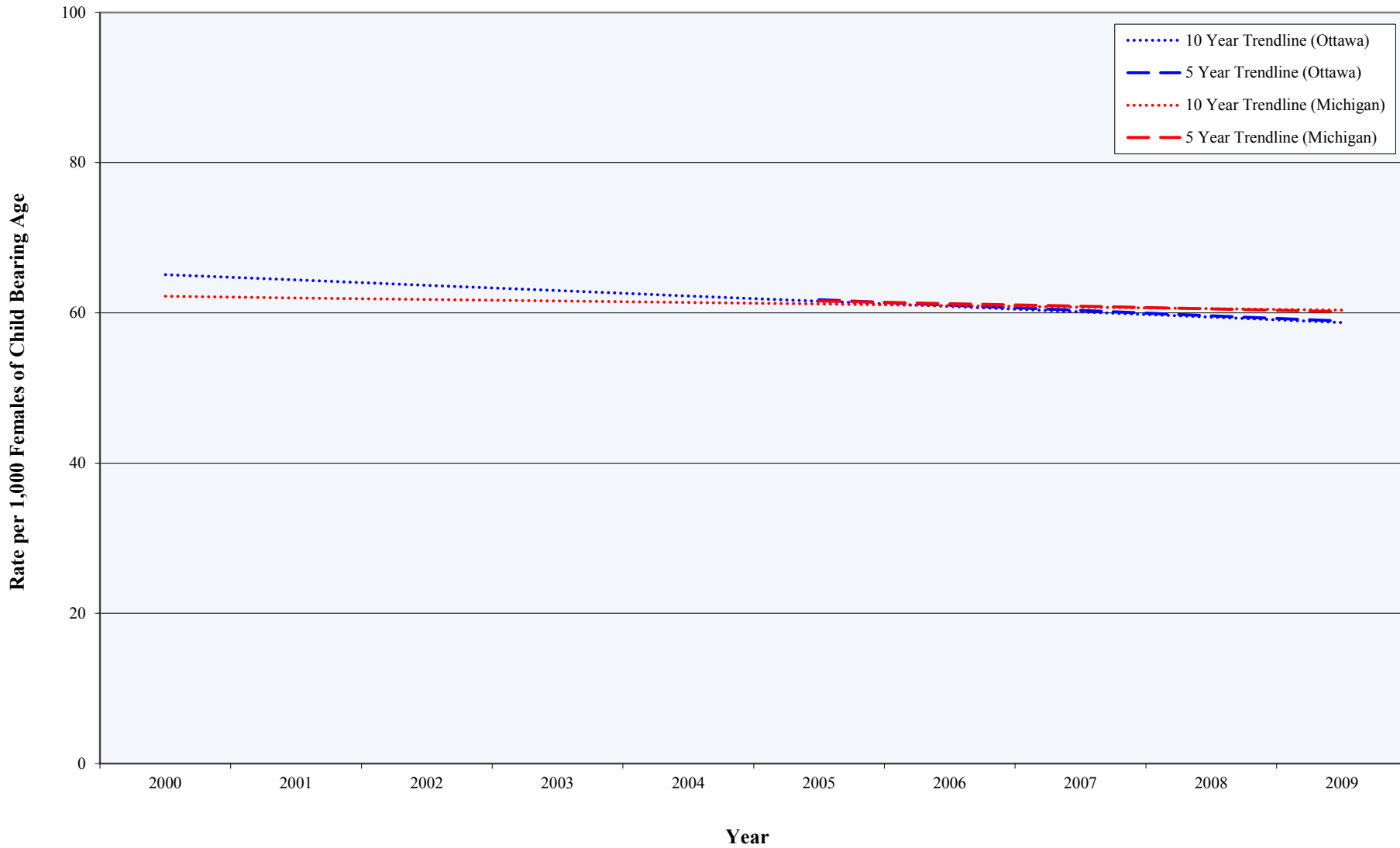
## Fertility Rate (1998-2009)



Source: Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

# Fertility Rate

## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

## Teen Pregnancy Rate\* (1989-2009)

**By Year** (Ottawa County, Adjacent Counties, State)

Year	Pregnancies per 1,000 Females**				
	Ottawa	Allegan	Kent	Muskegon	Michigan
1989	49.7	81.4	91.1	108.8	94.3
1990	49.3	89.6	95.4	126.0	98.4
1991	51.6	83.9	90.5	114.9	95.6
1992	52.1	77.5	88.5	123.5	93.3
1993	47.3	83.8	84.5	121.6	89.0
1994	50.2	82.5	84.4	116.7	86.8
1995	47.5	66.5	83.5	113.4	82.2
1996	44.0	71.2	80.9	106.4	76.7
1997	50.3	67.5	77.0	110.1	73.1
1998	49.6	62.8	85.4	108.3	71.1
1999	47.2	73.0	82.6	105.8	66.6
2000	42.9	66.9	69.6	95.6	63.5
2001	36.8	56.0	65.7	93.7	61.3
2002	36.5	53.9	61.2	79.8	56.4
2003	32.2	48.8	61.2	73.8	56.4
2004	33.3	48.9	62.3	74.3	54.6
2005	30.0	51.2	60.7	73.9	52.2
2006	31.9	46.6	61.4	72.7	54.0
2007	34.5	48.3	65.6	78.0	54.0
2008	32.4	48.3	58.1	70.6	54.1
2009	27.0	43.2	59.4	74.1	51.5

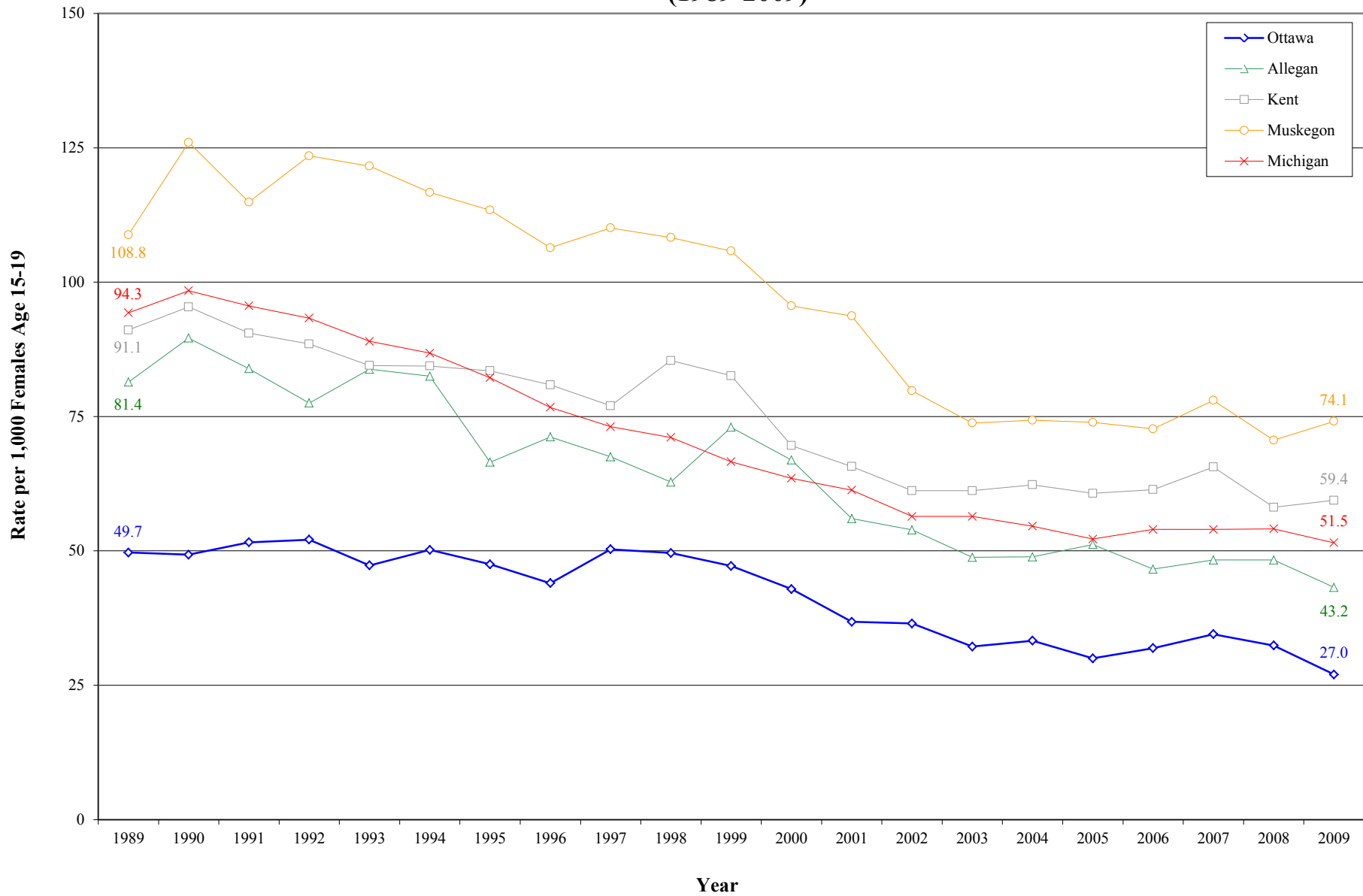
Source: Michigan Department of Community Health, Division for Vital Records & Health Statistics

\* Teen pregnancies include live births, abortions, and estimated miscarriages among females age 15 to 19

\*\* Rates are age-specific and refer to the population of females in a specific age group



## Teen Pregnancy\* Rate (1989-2009)

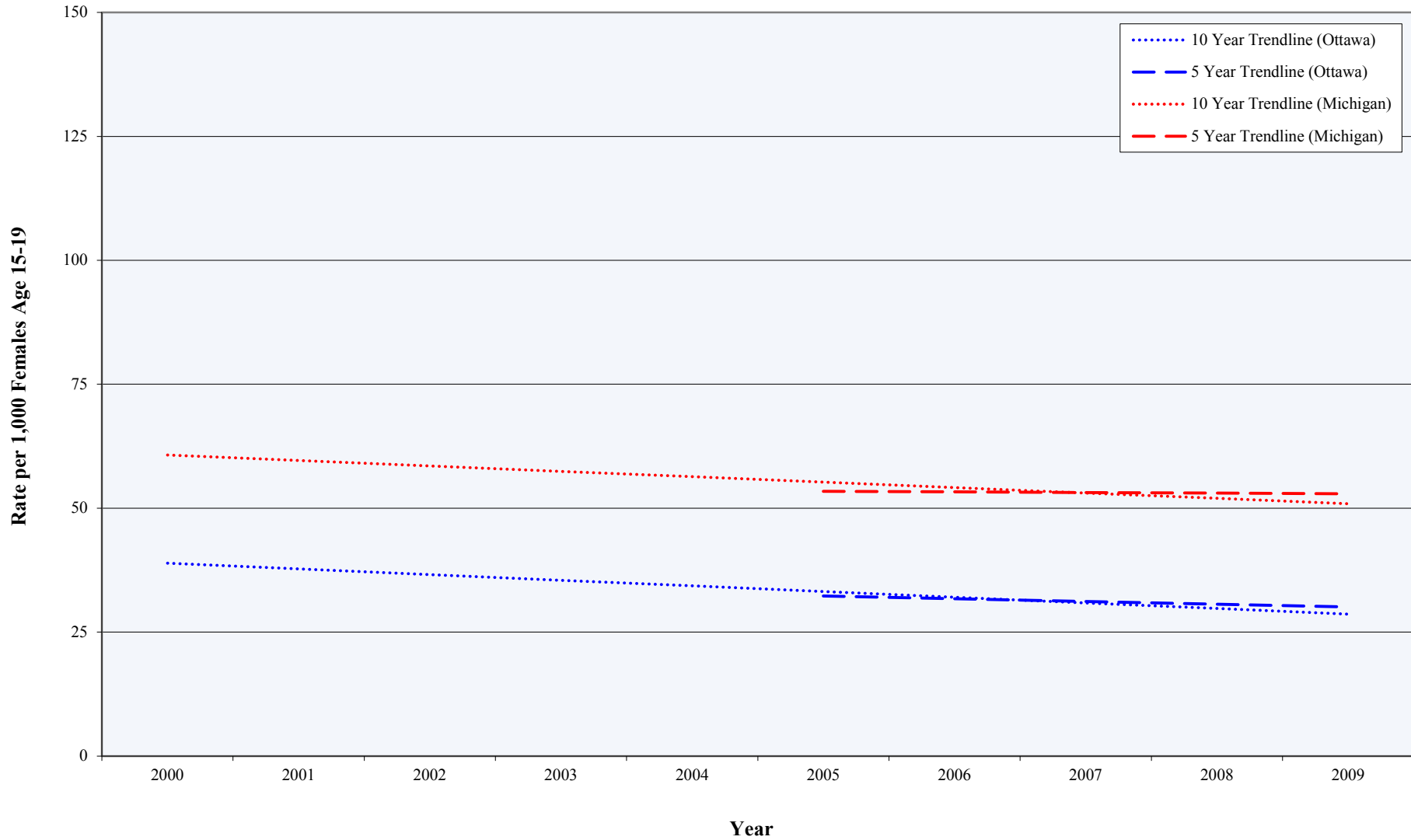


Source: Michigan Department of Community Health, Division for Vital Records & Health Statistics

\* Teen pregnancies include live births, abortions, and estimated miscarriages among females age 15 to 19

# Teen Pregnancy\* Rate

## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Division for Vital Records & Health Statistics

\* Teen pregnancies include live births, abortions, and estimated miscarriages among females age 15 to 19

## Live Births (1998-2009)

### By Age of Mother (Ottawa County, Adjacent Counties, State)

#### Live Births per 1,000 Female Population\*

Year	Age 20-24					Age 25-29				
	Ottawa	Allegan	Kent	Muskegon	Michigan	Ottawa	Allegan	Kent	Muskegon	Michigan
1998	84.0	134.4	102.1	152.5	98.6	154.8	140.0	126.1	126.0	116.4
1999	80.9	133.8	108.0	145.7	100.2	160.3	142.2	126.9	125.2	116.3
2000	82.5	141.7	109.9	154.8	102.5	153.8	145.5	132.3	126.3	119.8
2001	78.7	122.0	107.0	141.6	97.0	157.2	145.8	129.7	130.8	118.6
2002	71.8	116.5	105.5	120.9	92.8	150.8	137.4	126.9	131.6	117.5
2003	66.9	107.7	107.7	126.5	91.8	153.0	146.0	136.5	137.0	119.8
2004	70.2	100.3	112.2	118.5	90.2	138.6	150.9	135.9	128.4	118.5
2005	67.4	120.8	109.6	139.4	90.1	134.7	109.5	140.0	115.3	116.6
2006	67.8	125.0	113.8	136.3	91.4	133.8	124.1	139.2	107.7	117.1
2007	67.8	121.4	111.8	137.7	89.8	128.8	113.5	141.1	110.6	113.4
2008	67.3	121.4	102.6	140.7	87.2	126.5	98.5	139.5	111.4	110.7
2009	69.5	120.2	97.2	139.5	83.4	127.2	159.0	114.2	121.0	112.6

Source: Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

\* Rates are age-specific and refer to the population of females in a specific age group

## Live Births (1998-2009)

### By Age of Mother (Ottawa County, Adjacent Counties, State)

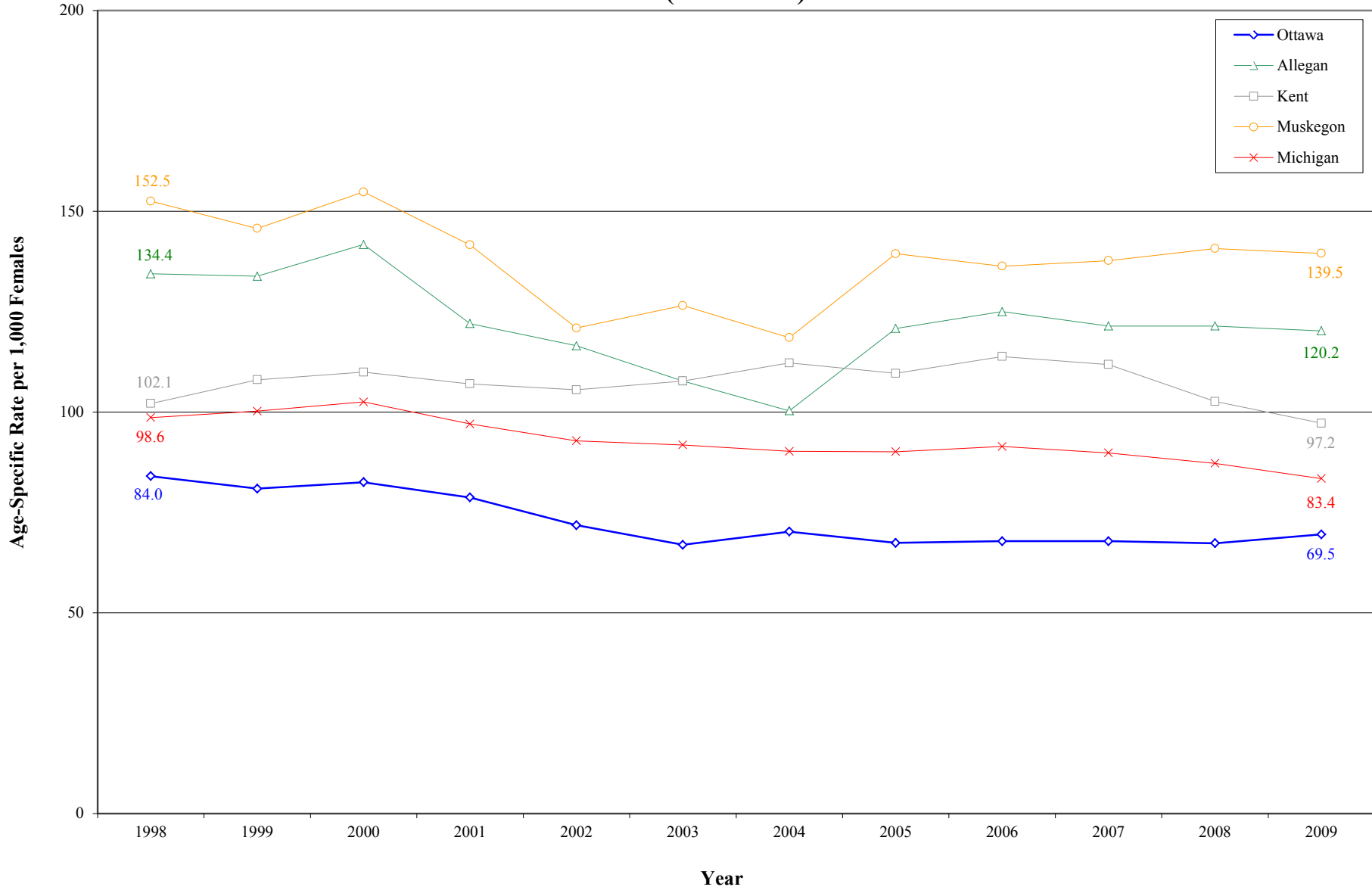
#### Live Births per 1,000 Female Population\*

Year	Age 30-34					Age 35-39					Age 40-44				
	Ottawa	Allegan	Kent	Muskegon	Michigan	Ottawa	Allegan	Kent	Muskegon	Michigan	Ottawa	Allegan	Kent	Muskegon	Michigan
1998	113.2	80.2	100.9	67.0	86.8	32.3	28.8	38.0	22.5	32.7	5.0	6.5	7.2	3.7	6.0
1999	122.4	83.0	106.7	68.3	89.6	34.7	30.7	39.9	22.7	34.2	4.5	6.3	6.7	4.3	6.0
2000	113.2	95.8	105.6	69.6	91.7	40.9	26.7	40.5	21.6	36.5	5.9	5.9	7.4	4.2	6.3
2001	115.6	88.2	106.2	79.9	92.7	36.7	25.6	38.7	25.0	36.9	5.6	3.2	7.3	3.6	6.6
2002	115.1	97.6	101.1	78.1	92.4	34.3	28.8	39.1	26.4	36.7	5.1	4.6	8.0	4.5	6.5
2003	119.9	86.7	107.0	80.6	94.4	36.4	28.6	40.9	28.6	38.9	6.6	5.8	7.2	3.8	7.0
2004	115.5	95.0	103.1	75.7	94.3	39.3	31.3	42.6	27.9	39.7	7.7	4.7	8.4	4.3	7.3
2005	124.6	91.7	105.5	75.3	93.8	37.7	34.4	43.2	30.3	39.7	7.3	5.0	8.7	5.2	7.5
2006	118.0	97.5	107.3	76.5	96.0	39.1	33.8	43.4	29.9	40.1	4.3	4.5	8.2	3.2	7.2
2007	115.1	99.7	107.1	74.2	96.4	40.3	35.6	43.1	27.3	40.0	5.4	7.2	7.2	4.6	7.3
2008	105.2	93.0	101.3	73.0	95.4	40.4	41.1	43.2	30.2	39.4	6.6	5.5	7.6	4.3	7.9
2009	95.2	101.5	97.6	75.3	95.9	37.7	35.6	41.7	24.7	37.5	5.7	6.8	7.9	3.7	7.6

Source: Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

\* Rates are age-specific and refer to the population of females in a specific age group

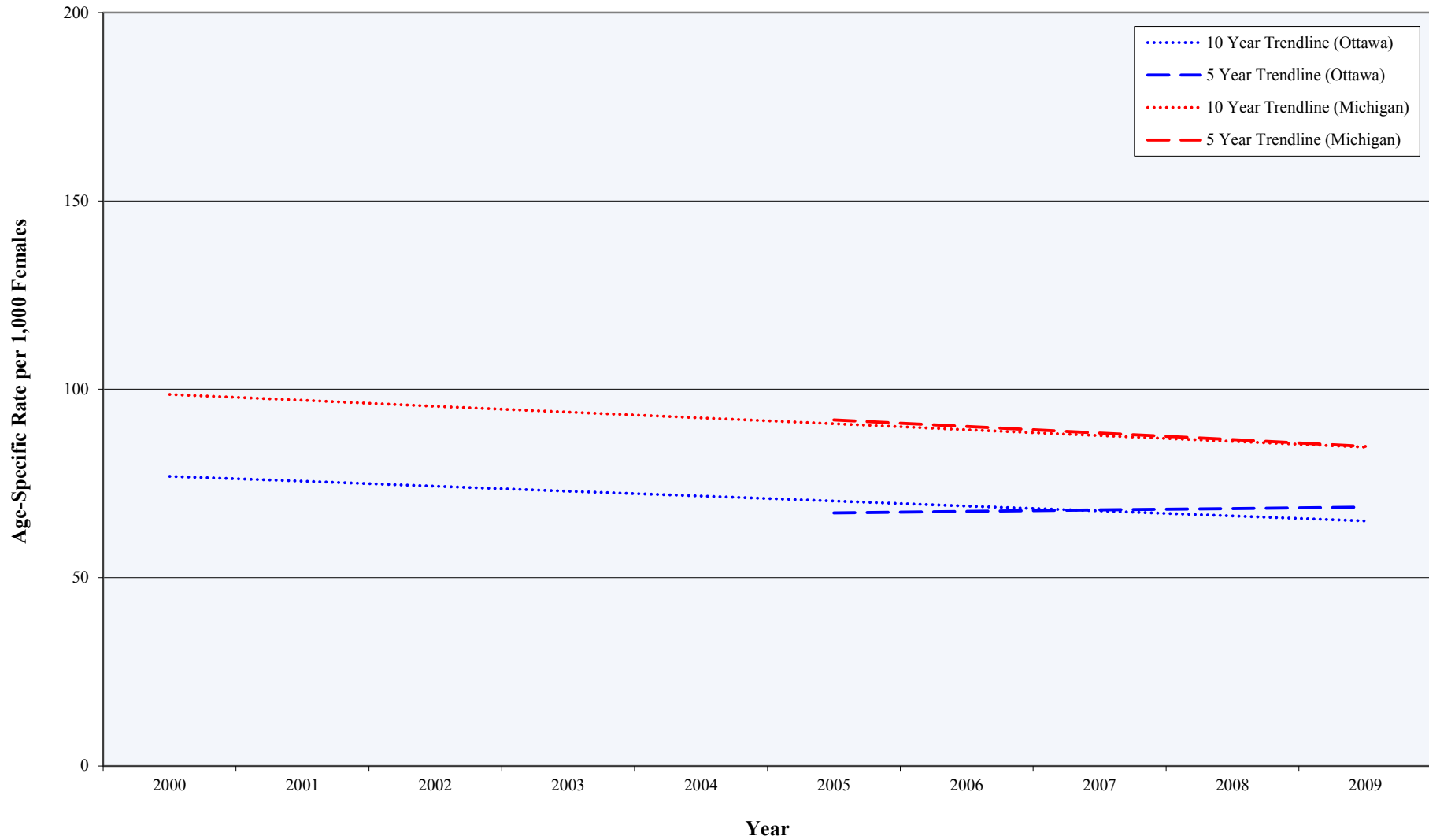
## Live Births Among Females Age 20-24 (1998-2009)



Source: Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

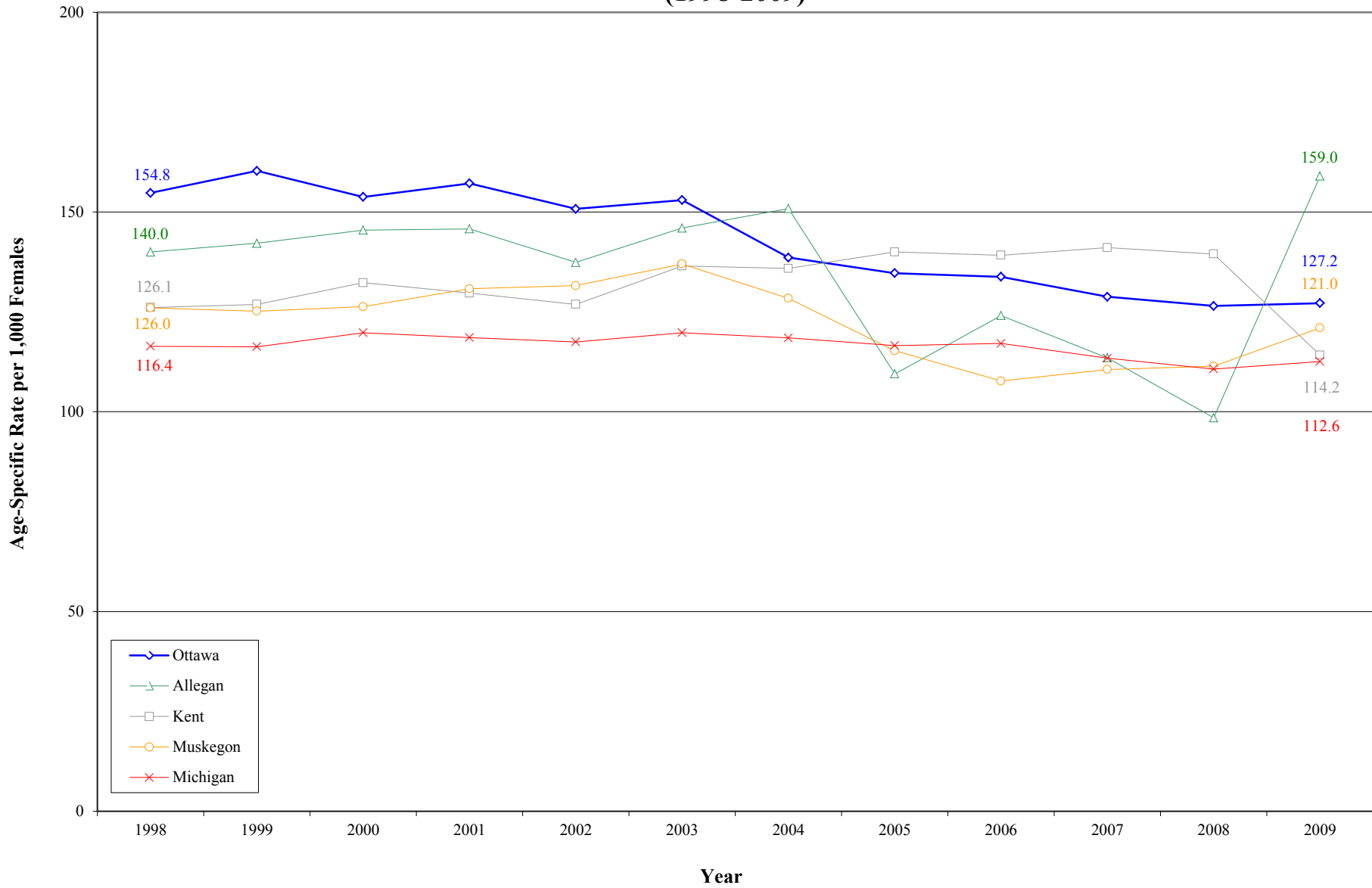
# Live Births Among Females Age 20-24

## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

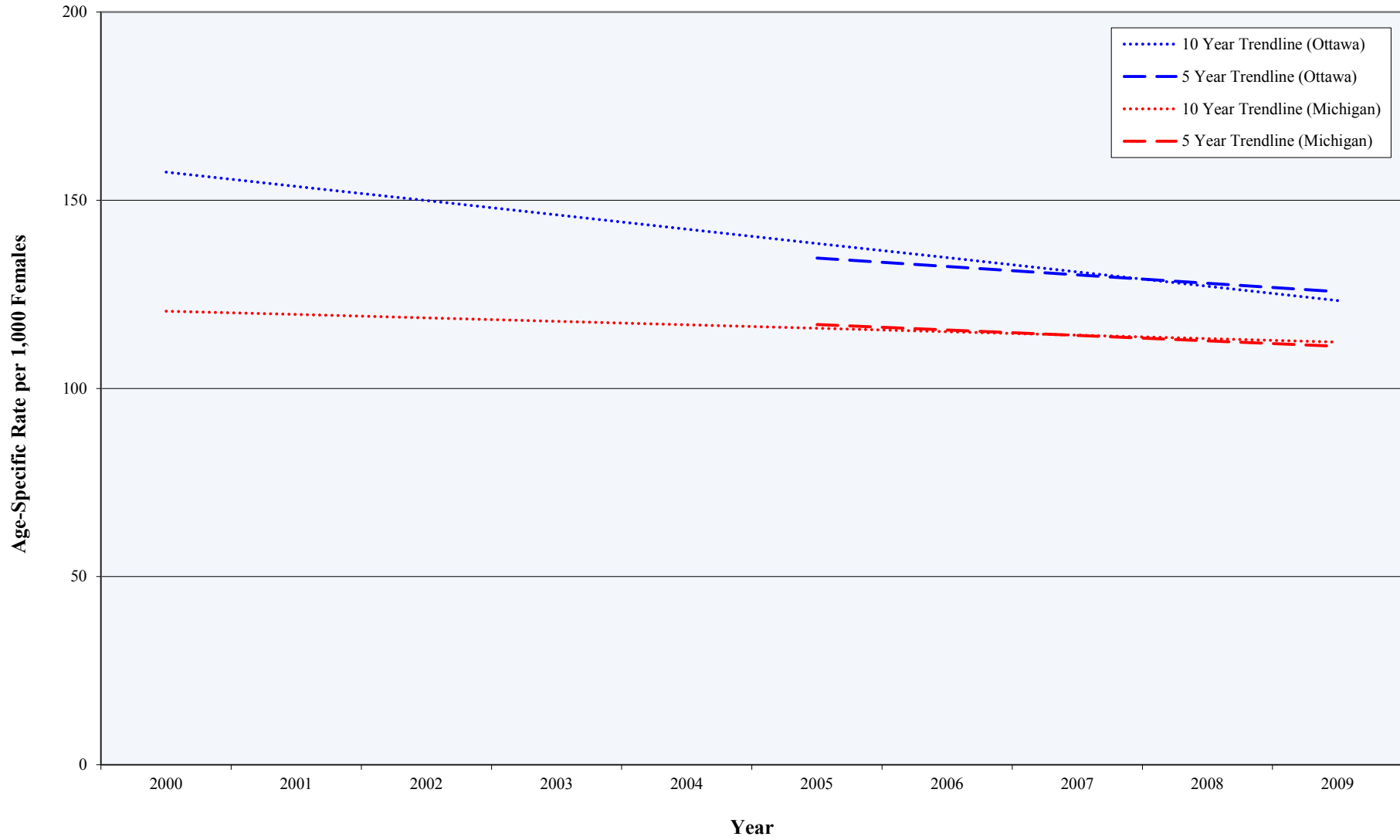
## Live Births Among Females Age 25-29 (1998-2009)



Source: Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

# Live Births Among Females Age 25-29

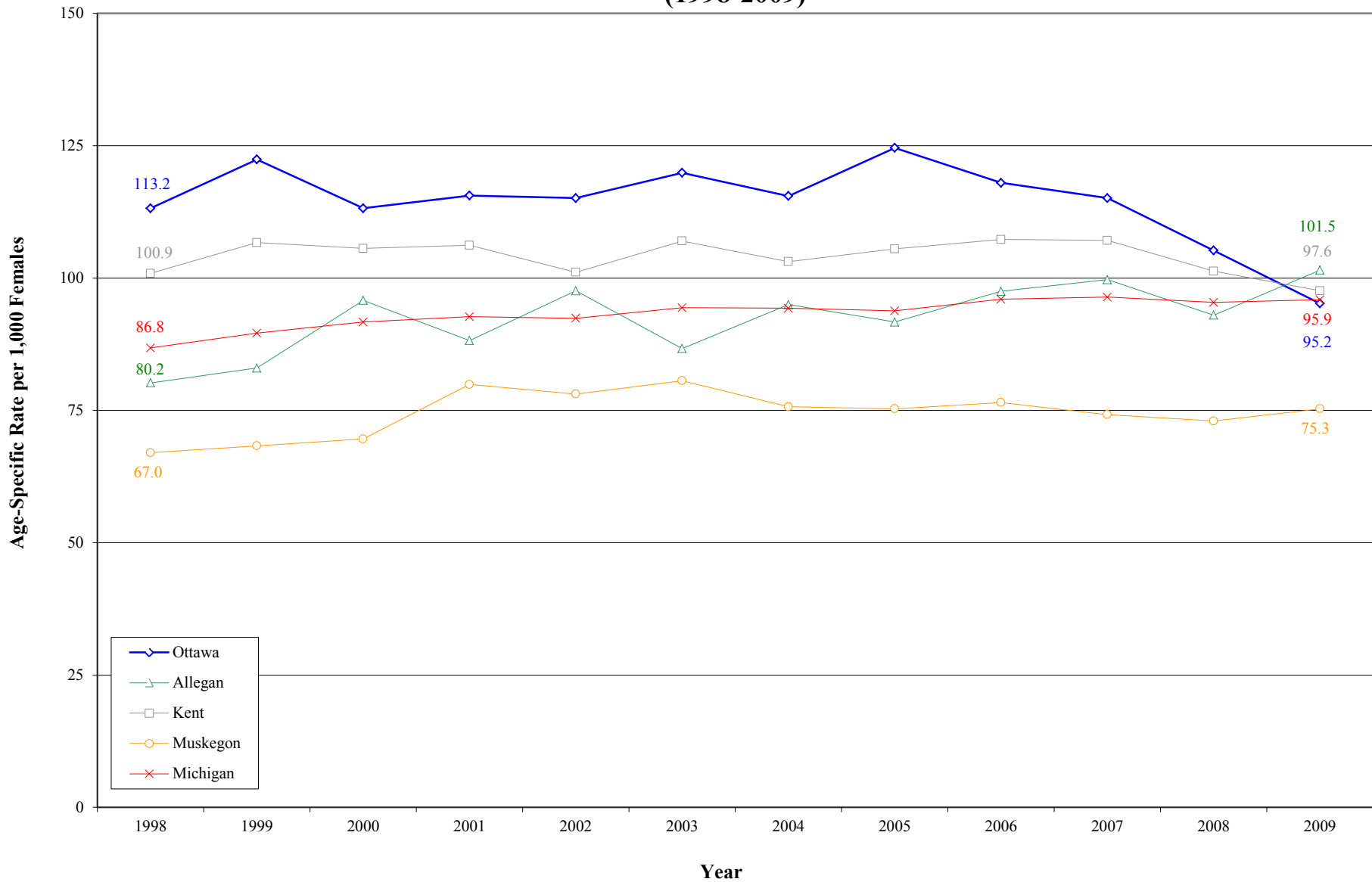
## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics



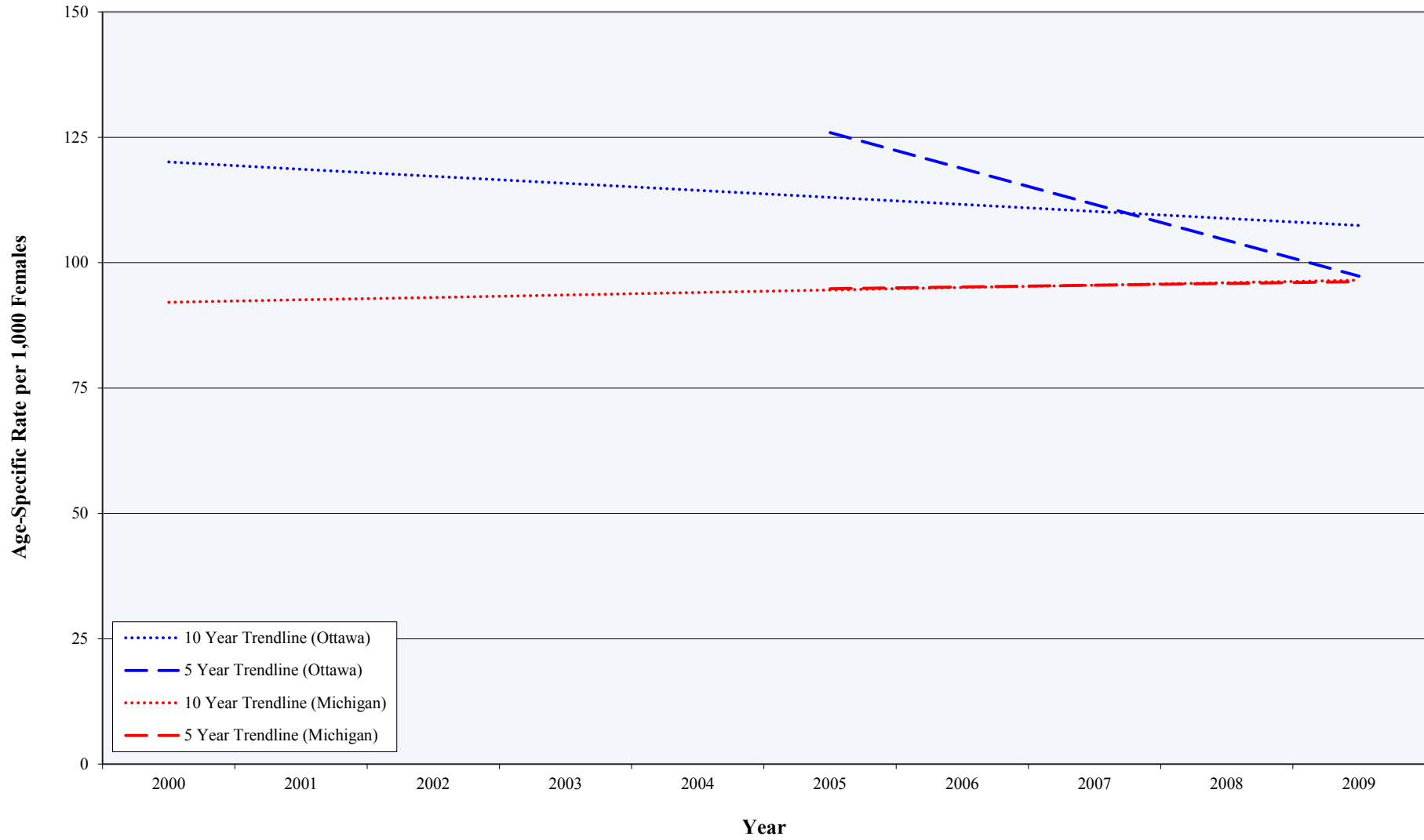
## Live Births Among Females Age 30-34 (1998-2009)



Source: Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

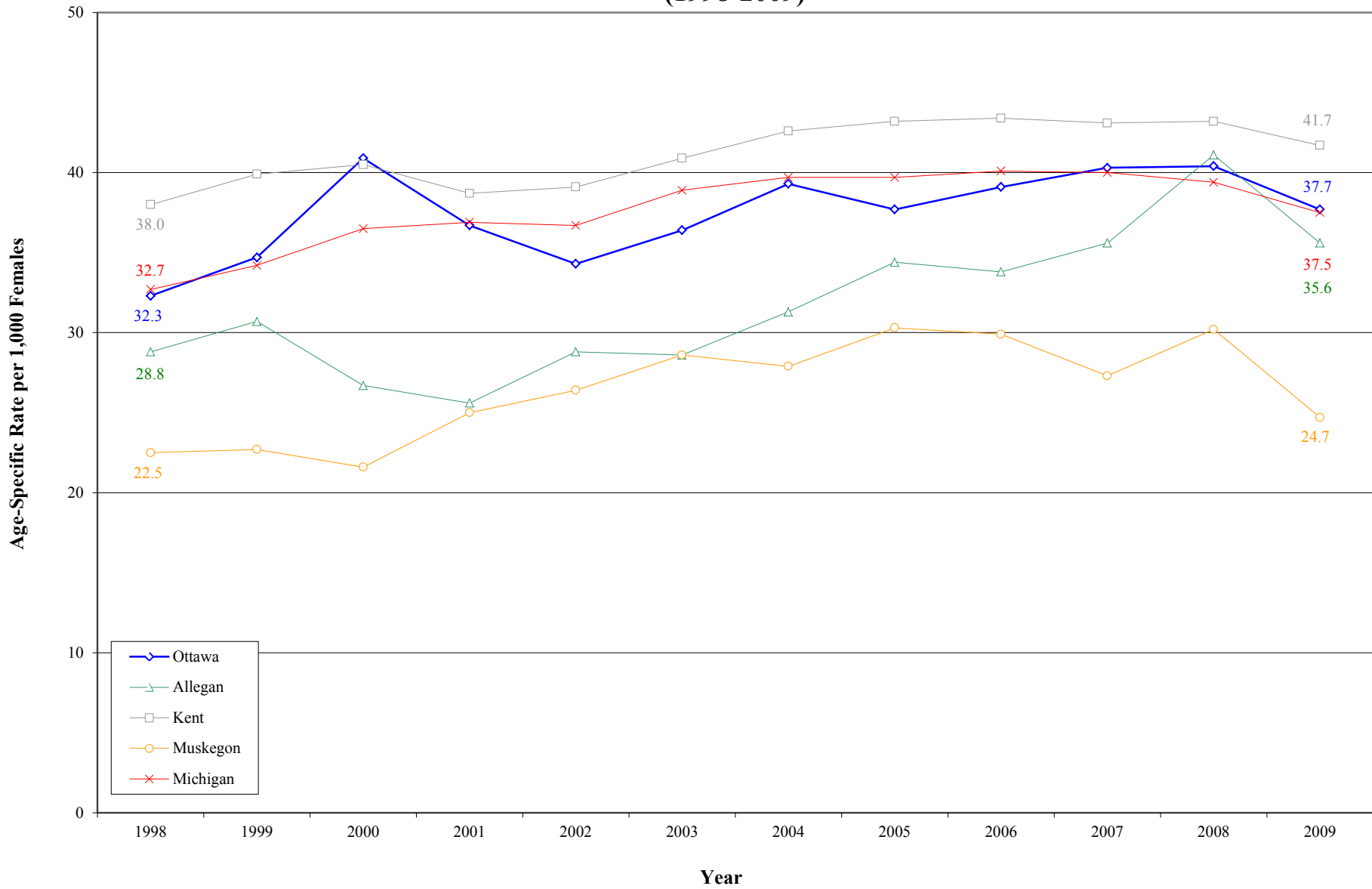
# Live Births Among Females Age 30-34

## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

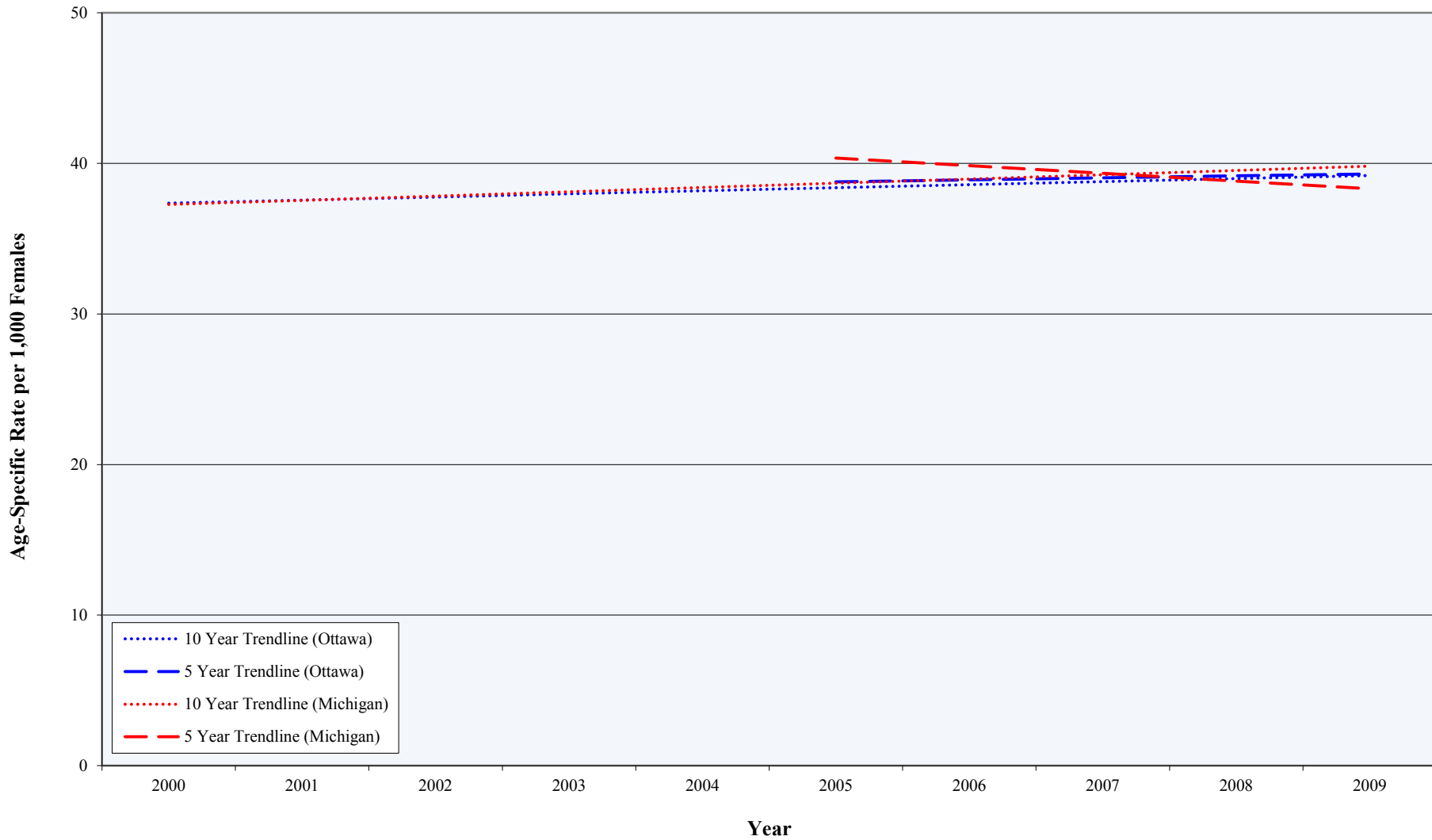
## Live Births Among Females Age 35-39 (1998-2009)



Source: Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

# Live Births Among Females Age 35-39

## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

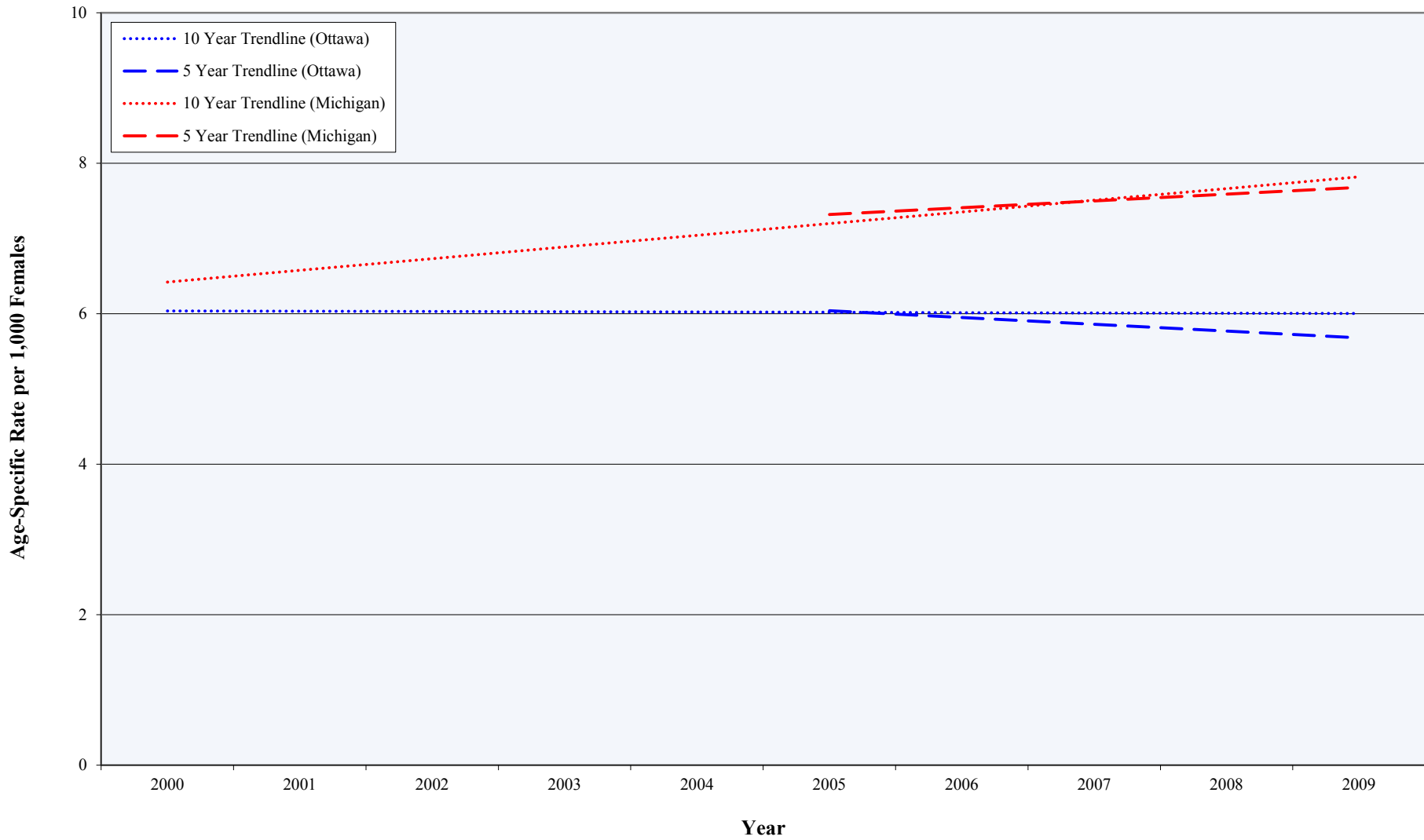
## Live Births Among Females Age 40-44 (1998-2009)



Source: Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

# Live Births Among Females Age 40-44

## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

## Live Births (1998-2009) By Level of Prenatal Care<sup>1</sup> (Ottawa County, Allegan Counties, State)

### Percent of All Live Births

Year	Adequate <sup>2</sup>					Intermediate <sup>3</sup>					Inadequate <sup>4</sup>				
	Ottawa	Allegan	Kent	Muskegon	Michigan	Ottawa	Allegan	Kent	Muskegon	Michigan	Ottawa	Allegan	Kent	Muskegon	Michigan
1998	65.4%	68.4%	65.0%	67.4%	74.8%	24.7%	23.0%	26.0%	23.7%	15.1%	8.8%	7.5%	7.1%	8.4%	9.6%
1999	70.3%	71.6%	64.6%	68.0%	74.3%	22.7%	21.8%	24.1%	25.1%	14.8%	5.4%	5.1%	7.9%	6.2%	10.1%
2000	70.6%	74.9%	61.1%	79.5%	74.5%	20.5%	16.8%	24.9%	16.9%	14.5%	7.7%	6.7%	10.8%	3.3%	10.4%
2001	76.1%	77.5%	73.3%	80.6%	77.4%	20.6%	18.9%	20.1%	16.0%	15.0%	3.1%	3.4%	6.0%	3.3%	7.3%
2002	83.4%	80.4%	77.1%	79.2%	78.2%	14.5%	15.3%	18.1%	16.9%	14.3%	1.9%	4.1%	4.5%	3.9%	7.2%
2003	85.4%	81.6%	78.2%	80.5%	78.4%	12.2%	14.3%	16.9%	15.2%	13.8%	2.2%	3.7%	4.8%	4.2%	7.4%
2004	82.5%	77.2%	73.6%	75.8%	76.9%	14.0%	17.2%	20.6%	18.3%	14.0%	3.2%	5.0%	5.3%	5.8%	8.6%
2005	81.0%	74.9%	76.6%	69.6%	77.8%	14.4%	16.7%	19.1%	26.5%	14.6%	3.3%	7.3%	4.1%	3.9%	7.1%
2006	84.0%	80.5%	77.4%	69.6%	77.7%	12.7%	14.6%	18.6%	24.2%	14.9%	2.6%	3.8%	3.7%	6.2%	6.4%
2007	77.5%	75.2%	72.8%	66.5%	75.0%	17.2%	19.9%	22.0%	27.7%	16.8%	4.2%	4.0%	4.8%	5.7%	7.7%
2008	78.1%	74.3%	69.2%	68.7%	67.4%	17.4%	19.0%	24.2%	25.6%	21.4%	3.9%	6.0%	5.9%	4.2%	8.3%
2009	77.7%	70.6%	69.1%	69.4%	68.0%	17.2%	22.5%	23.7%	25.2%	21.4%	4.6%	6.3%	6.6%	4.1%	8.0%

Source: Michigan Department of Community Health, Live Birth Files, Division for Vital Records & Health Data Development Section

<sup>1</sup> The Kessner Index is utilized to measure the Level of Prenatal Care; it is based on the month of pregnancy in which prenatal care began, the number of prenatal visits, and the length of pregnancy (i.e. gestation)

<sup>2</sup> Adequate is prenatal care that began within the first trimester and included one or two additional prenatal visits per month of gestation

<sup>3</sup> Intermediate is prenatal care that began during the second trimester of pregnancy, or began during the first trimester but with fewer visits than recommended for the length of gestation

<sup>4</sup> Inadequate is when no prenatal care was received or if care began during the third trimester. It also includes care that began during the first or second trimester where less than five visits occurred during gestation

## Live Births with an Adequate\* Level of Prenatal Care (1998-2009)



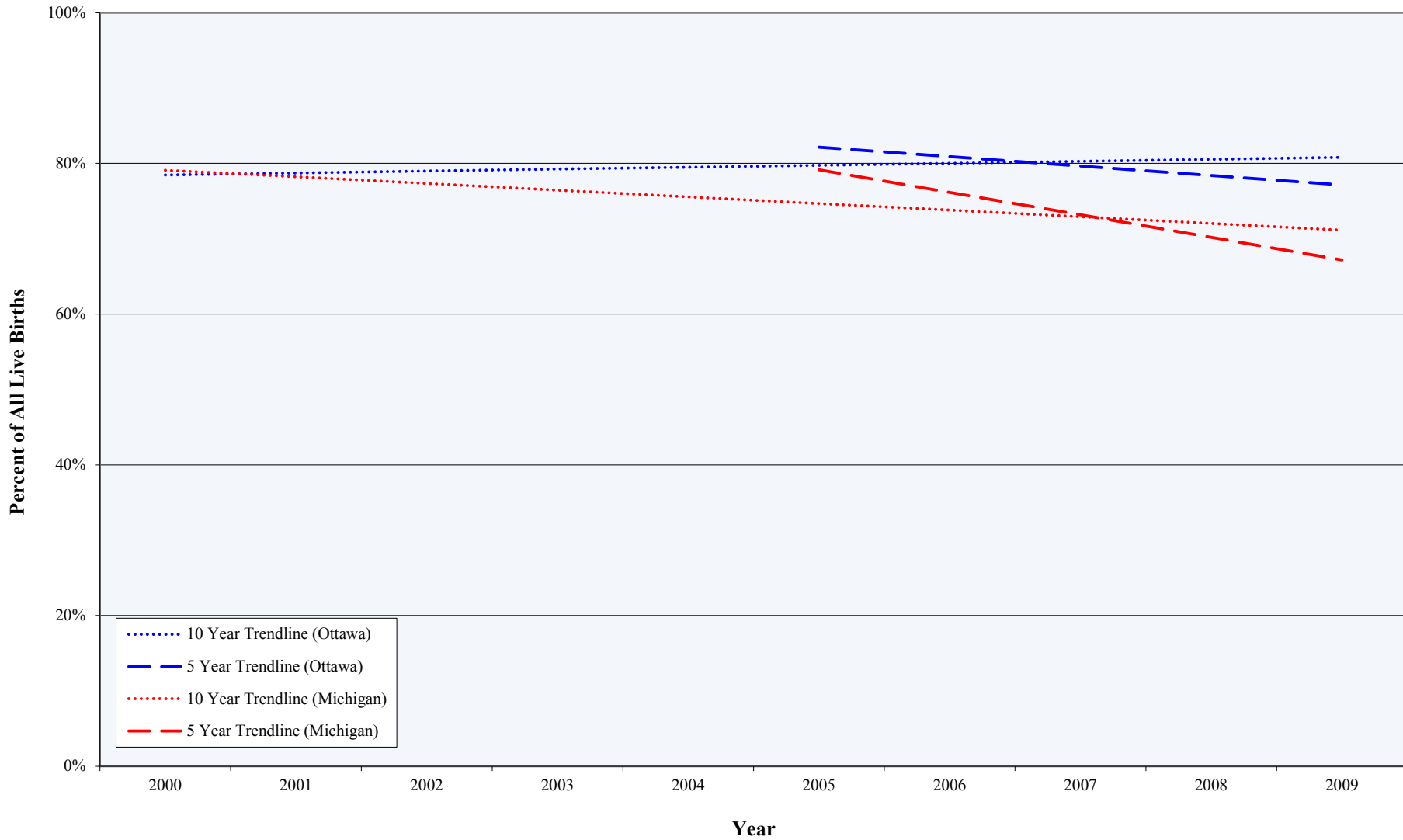
Source: Michigan Department of Community Health, Live Birth Files, Division for Vital Records & Health Data Development Section

\* Adequate is prenatal care that began within the first trimester and included one or two additional prenatal visits per month of gestation



# Live Births with an Adequate\* Level of Prenatal Care

## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Live Birth Files, Division for Vital Records & Health Data Development Section

\* Adequate is prenatal care that began within the first trimester and included one or two additional prenatal visits per month of gestation

## Live Births with an Intermediate\* Level of Prenatal Care (1998-2009)

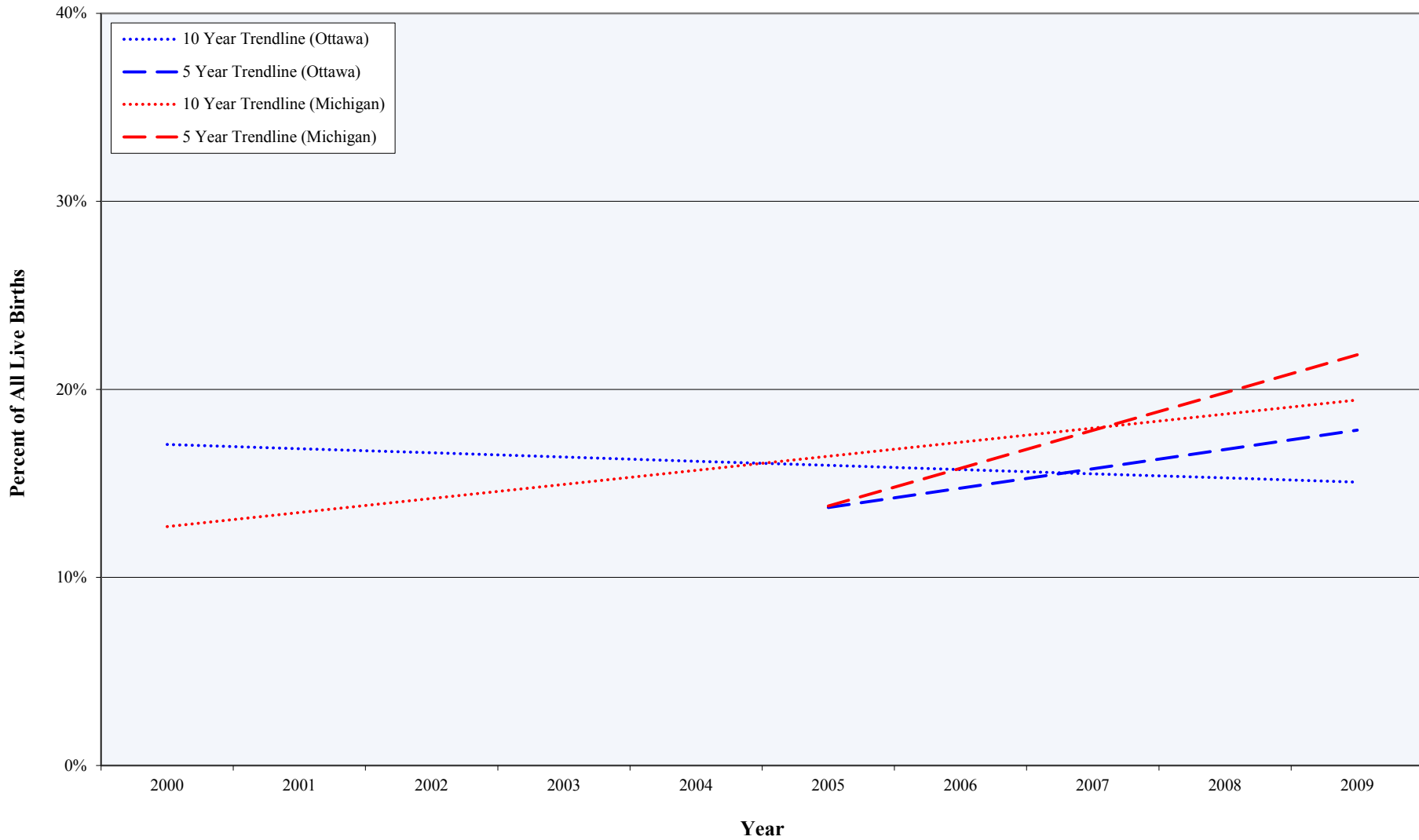


Source: Michigan Department of Community Health, Live Birth Files, Division for Vital Records & Health Data Development Section

\* Intermediate is prenatal care that began during the second trimester of pregnancy, or began during the first trimester but with fewer visits than recommended for the length of gestation

# Live Births with an Intermediate\* Level of Prenatal Care

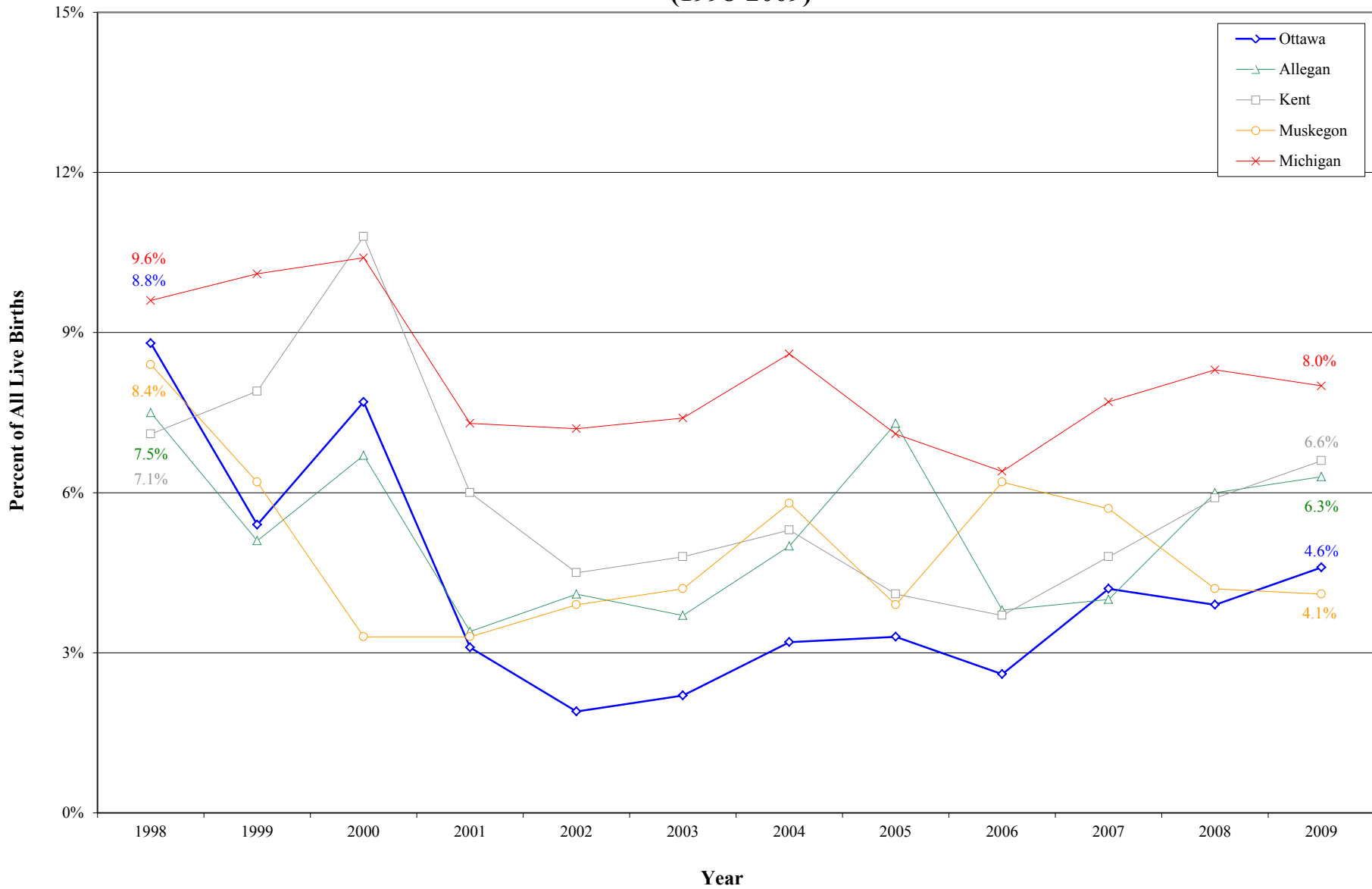
## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Live Birth Files, Division for Vital Records & Health Data Development Section

\* Intermediate is prenatal care that began during the second trimester of pregnancy, or began during the first trimester but with fewer visits than recommended for the length of gestation

## Live Births with an Inadequate\* Level of Prenatal Care (1998-2009)

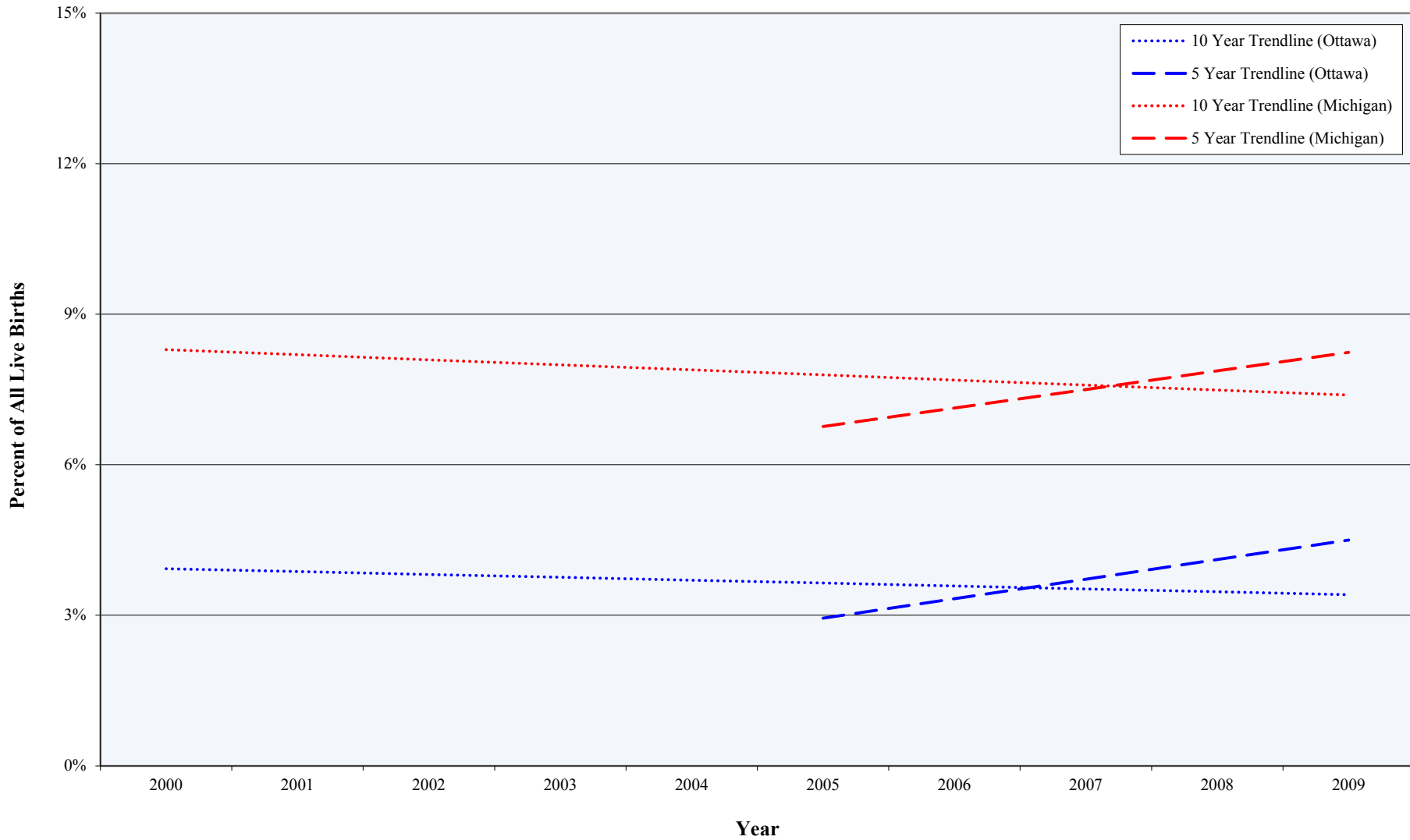


Source: Michigan Department of Community Health, Live Birth Files, Division for Vital Records & Health Data Development Section

\* Inadequate is when no prenatal care was received or if care began during the third trimester. It also includes care that began during the first or second trimester where less than five visits occurred during gestation

# Live Births with an Inadequate\* Level of Prenatal Care

## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Live Birth Files, Division for Vital Records & Health Data Development Section

\* Inadequate is when no prenatal care was received or if care began during the third trimester. It also includes care that began during the first or second trimester where less than five visits occurred during gestation

# Live Births (1989-2009)

## By Birth Weight (Ottawa County, Adjacent Counties, State)

### Percent of All Live Births

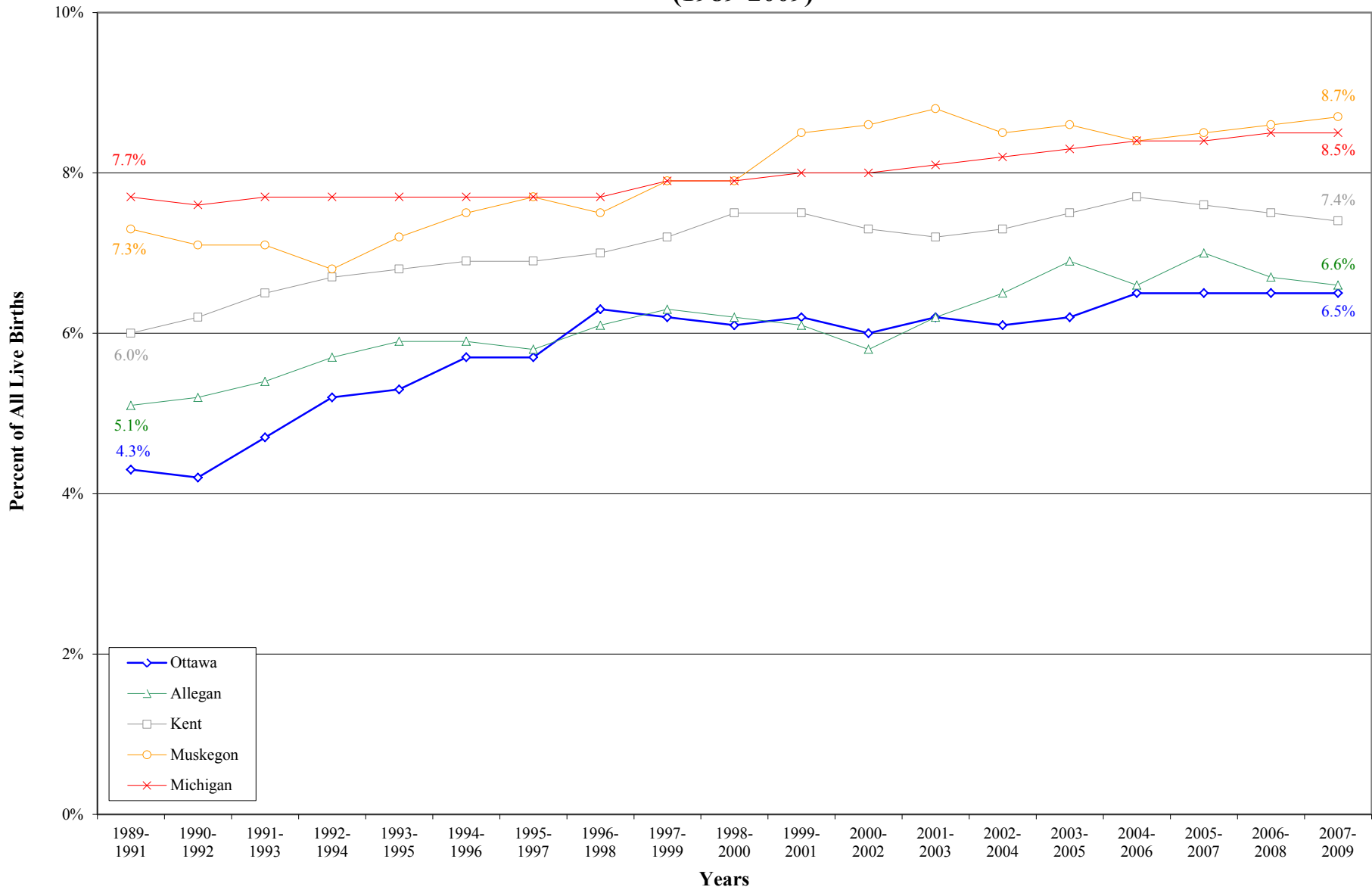
Year	Low Birth Weight*					Very Low Birth Weight**				
	Ottawa	Allegan	Kent	Muskegon	Michigan	Ottawa	Allegan	Kent	Muskegon	Michigan
1989-1991	4.3%	5.1%	6.0%	7.3%	7.7%	0.9%	0.9%	1.1%	1.4%	1.5%
1990-1992	4.2%	5.2%	6.2%	7.1%	7.6%	0.8%	0.9%	1.1%	1.3%	1.5%
1991-1993	4.7%	5.4%	6.5%	7.1%	7.7%	0.8%	0.9%	1.2%	1.2%	1.5%
1992-1994	5.2%	5.7%	6.7%	6.8%	7.7%	1.0%	0.9%	1.4%	1.3%	1.5%
1993-1995	5.3%	5.9%	6.8%	7.2%	7.7%	1.0%	1.1%	1.4%	1.6%	1.5%
1994-1996	5.7%	5.9%	6.9%	7.5%	7.7%	1.1%	1.3%	1.5%	1.6%	1.5%
1995-1997	5.7%	5.8%	6.9%	7.7%	7.7%	1.0%	1.2%	1.5%	1.5%	1.5%
1996-1998	6.3%	6.1%	7.0%	7.5%	7.7%	1.1%	1.3%	1.4%	1.4%	1.6%
1997-1999	6.2%	6.3%	7.2%	7.9%	7.9%	1.3%	1.2%	1.4%	1.6%	1.6%
1998-2000	6.1%	6.2%	7.5%	7.9%	7.9%	1.3%	1.2%	1.4%	1.5%	1.6%
1999-2001	6.2%	6.1%	7.5%	8.5%	8.0%	1.3%	1.2%	1.5%	1.6%	1.6%
2000-2002	6.0%	5.8%	7.3%	8.6%	8.0%	1.1%	1.3%	1.5%	1.4%	1.6%
2001-2003	6.2%	6.2%	7.2%	8.8%	8.1%	1.2%	1.5%	1.6%	1.6%	1.7%
2002-2004	6.1%	6.5%	7.3%	8.5%	8.2%	1.3%	1.4%	1.6%	1.5%	1.7%
2003-2005	6.2%	6.9%	7.5%	8.6%	8.3%	1.2%	1.4%	1.6%	1.6%	1.7%
2004-2006	6.5%	6.6%	7.7%	8.4%	8.4%	1.2%	1.2%	1.5%	1.4%	1.7%
2005-2007	6.5%	7.0%	7.6%	8.5%	8.4%	1.2%	1.4%	1.4%	1.4%	1.7%
2006-2008	6.5%	6.7%	7.5%	8.6%	8.5%	1.4%	1.3%	1.4%	1.4%	1.7%
2007-2009	6.5%	6.6%	7.4%	8.7%	8.5%	1.3%	1.1%	1.4%	1.5%	1.7%

Source: Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

\* Low birth weight is less than 2,500 grams, or approximately 5.5 pounds

\*\*Very low birth weight is less than 1,500 grams, or approximately 3.3 pounds

## Low Birth Weight Births\* (1989-2009)

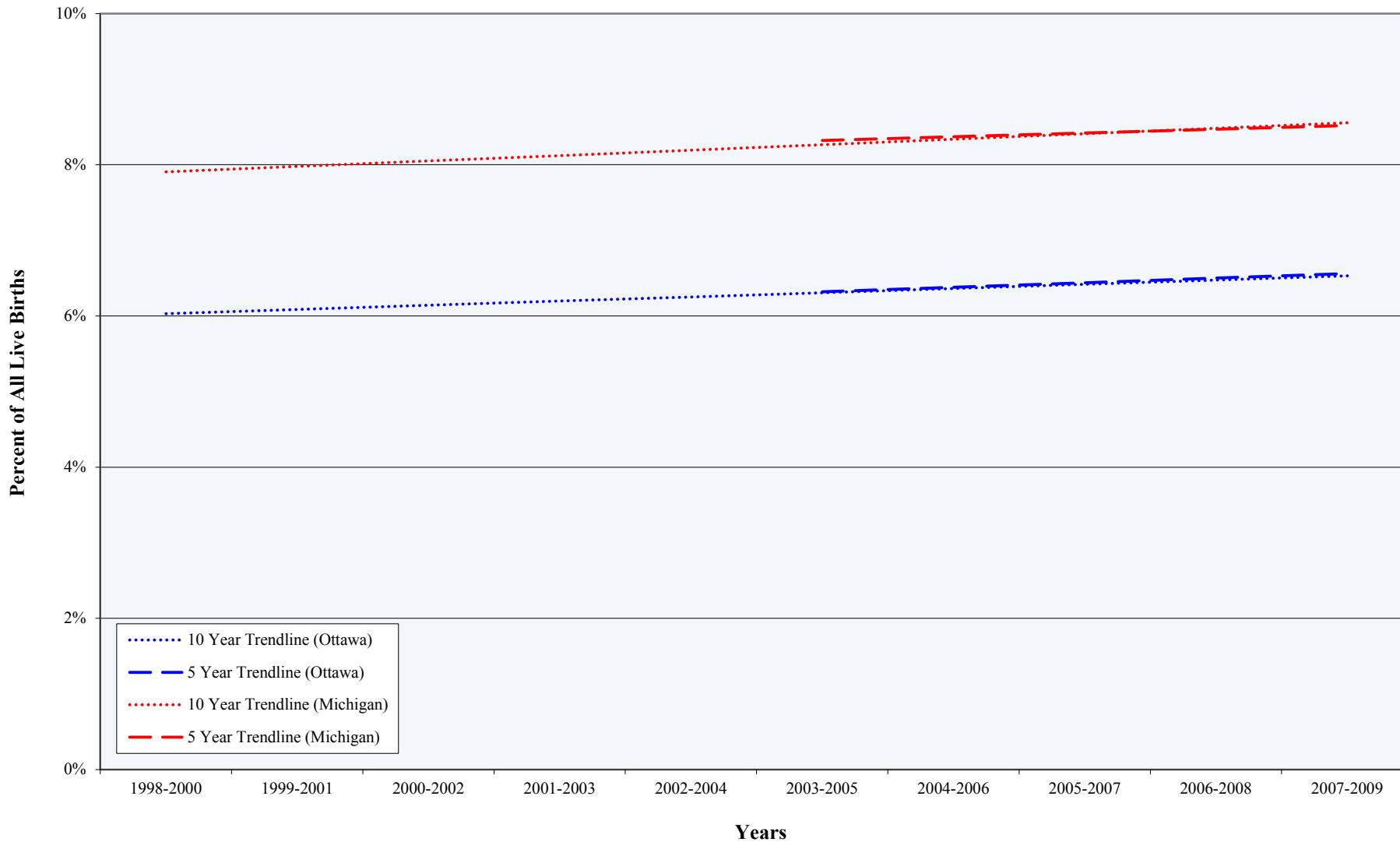


Source: Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

\* Low birth weight is less than 2,500 grams, or approximately 5.5 pounds

# Low Birth Weight Births\*

## 5 and 10 Year Trends

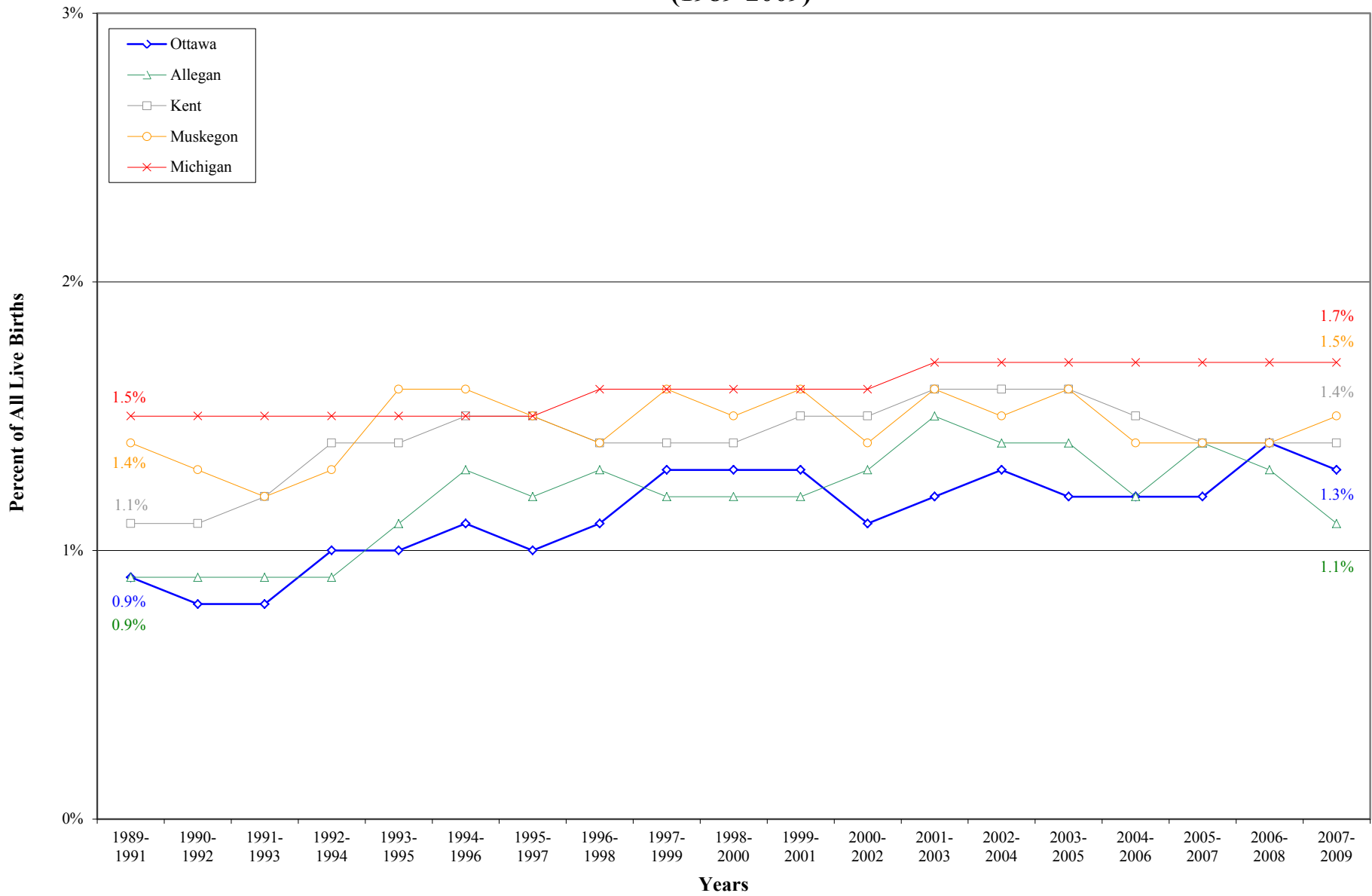


Source: Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

\* Low birth weight is less than 2,500 grams, or approximately 5.5 pounds



## Very Low Birth Weight Births\* (1989-2009)

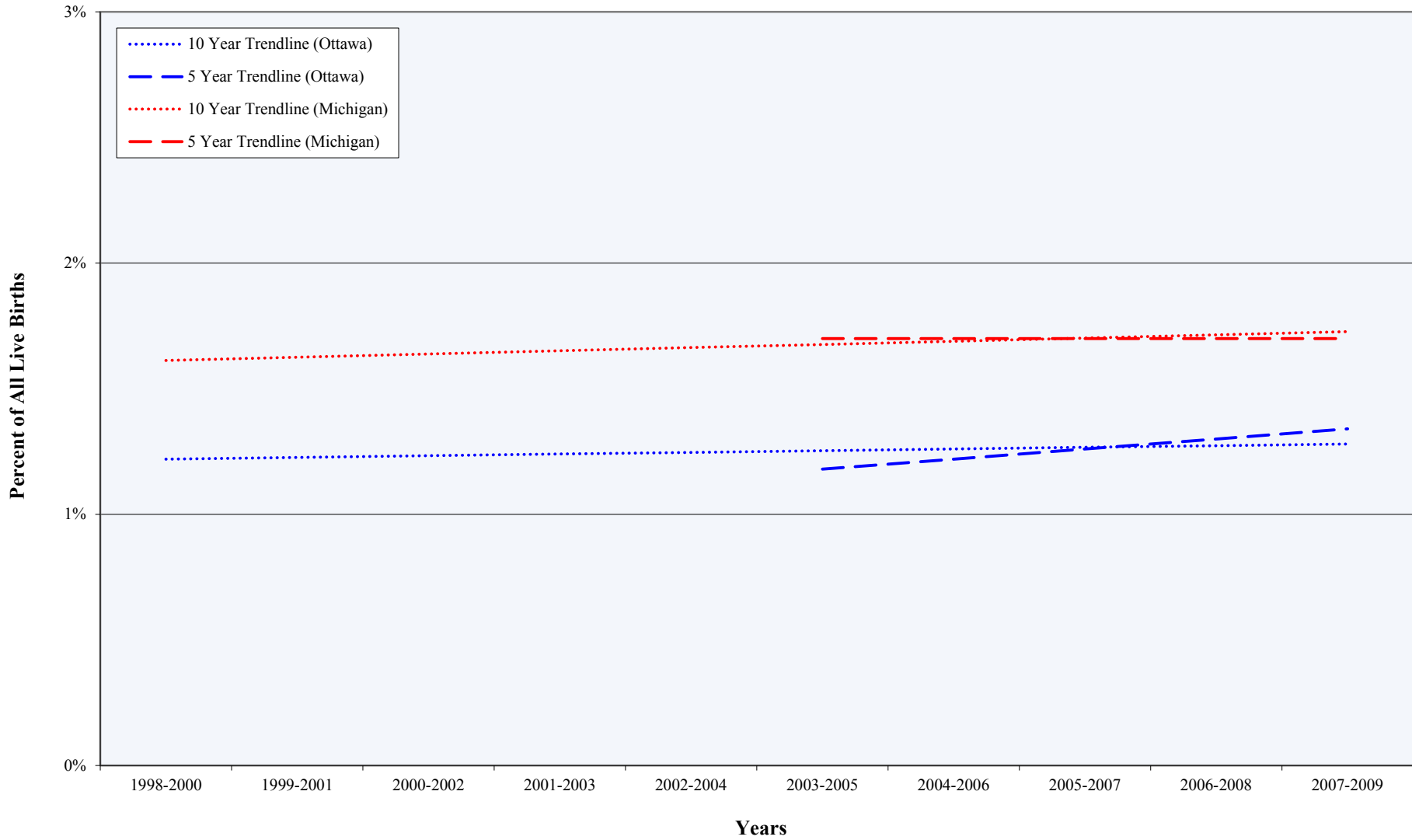


Source: Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

\*\*Very low birth weight is less than 1,500 grams, or approximately 3.3 pounds

# Very Low Birth Weight Births\*

## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

\*\*Very low birth weight is less than 1,500 grams, or approximately 3.3 pounds

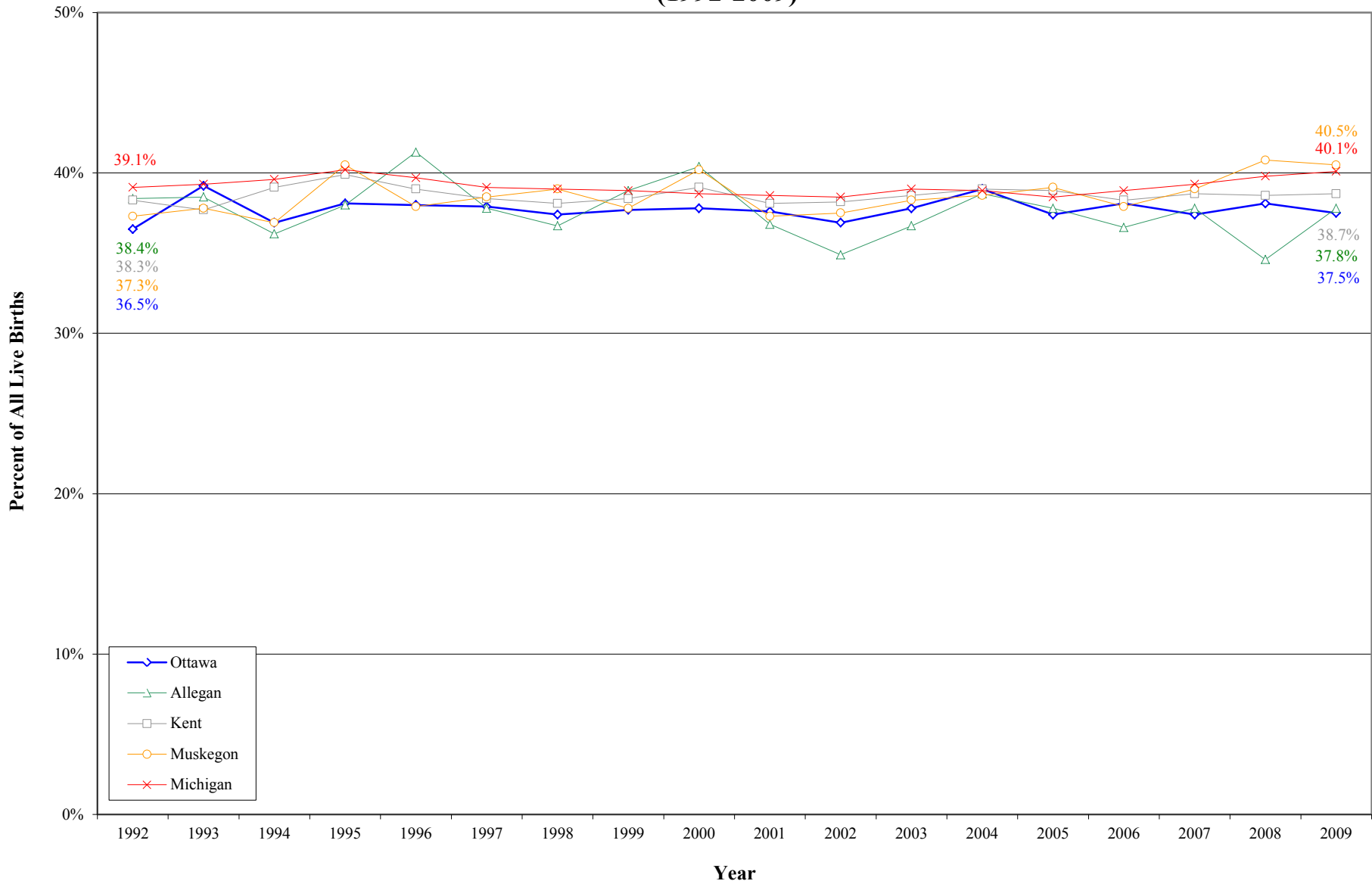
## Selected Characteristics of Birth (1992-2009)

### Mother's First Birth (Ottawa County, Adjacent Counties, State)

Year	Percent of All Live Births				
	Ottawa	Allegan	Kent	Muskegon	Michigan
1992	36.5%	38.4%	38.3%	37.3%	39.1%
1993	39.2%	38.5%	37.7%	37.8%	39.3%
1994	36.9%	36.2%	39.1%	36.9%	39.6%
1995	38.1%	38.0%	39.9%	40.5%	40.2%
1996	38.0%	41.3%	39.0%	37.9%	39.7%
1997	37.9%	37.8%	38.4%	38.5%	39.1%
1998	37.4%	36.7%	38.1%	39.0%	39.0%
1999	37.7%	38.9%	38.4%	37.8%	38.9%
2000	37.8%	40.4%	39.1%	40.2%	38.7%
2001	37.6%	36.8%	38.1%	37.3%	38.6%
2002	36.9%	34.9%	38.2%	37.5%	38.5%
2003	37.8%	36.7%	38.6%	38.3%	39.0%
2004	39.0%	38.7%	39.0%	38.6%	38.9%
2005	37.4%	37.8%	38.9%	39.1%	38.5%
2006	38.1%	36.6%	38.3%	37.9%	38.9%
2007	37.4%	37.8%	38.7%	39.0%	39.3%
2008	38.1%	34.6%	38.6%	40.8%	39.8%
2009	37.5%	37.8%	38.7%	40.5%	40.1%

Source: Michigan Department of Community Health, Live Birth Files; Division for Vital Records & Health Statistics

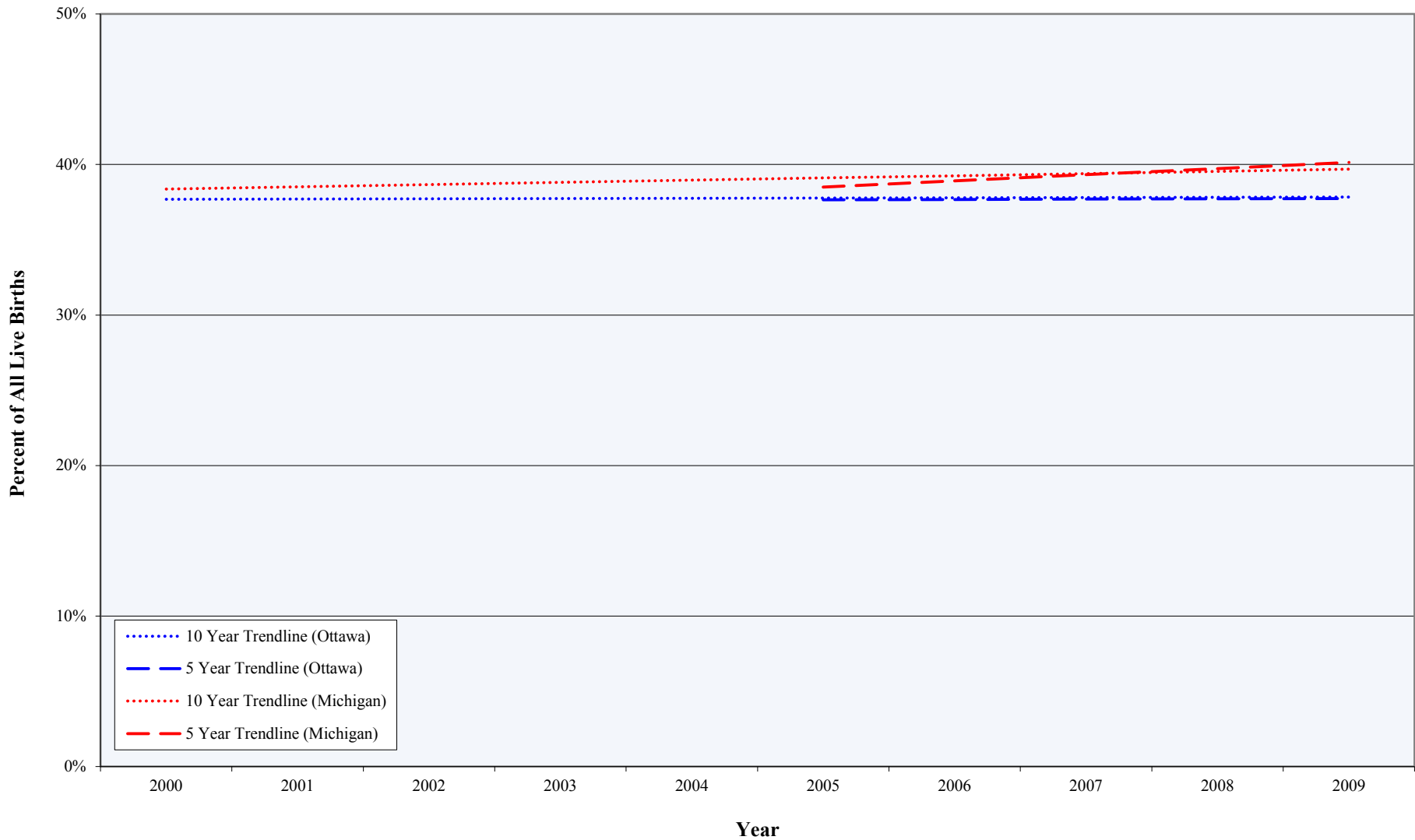
## Mother's First Birth (1992-2009)



Source: Michigan Department of Community Health, Live Birth Files; Division for Vital Records & Health Statistics

# Mother's First Birth

## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Live Birth Files; Division for Vital Records & Health Statistics

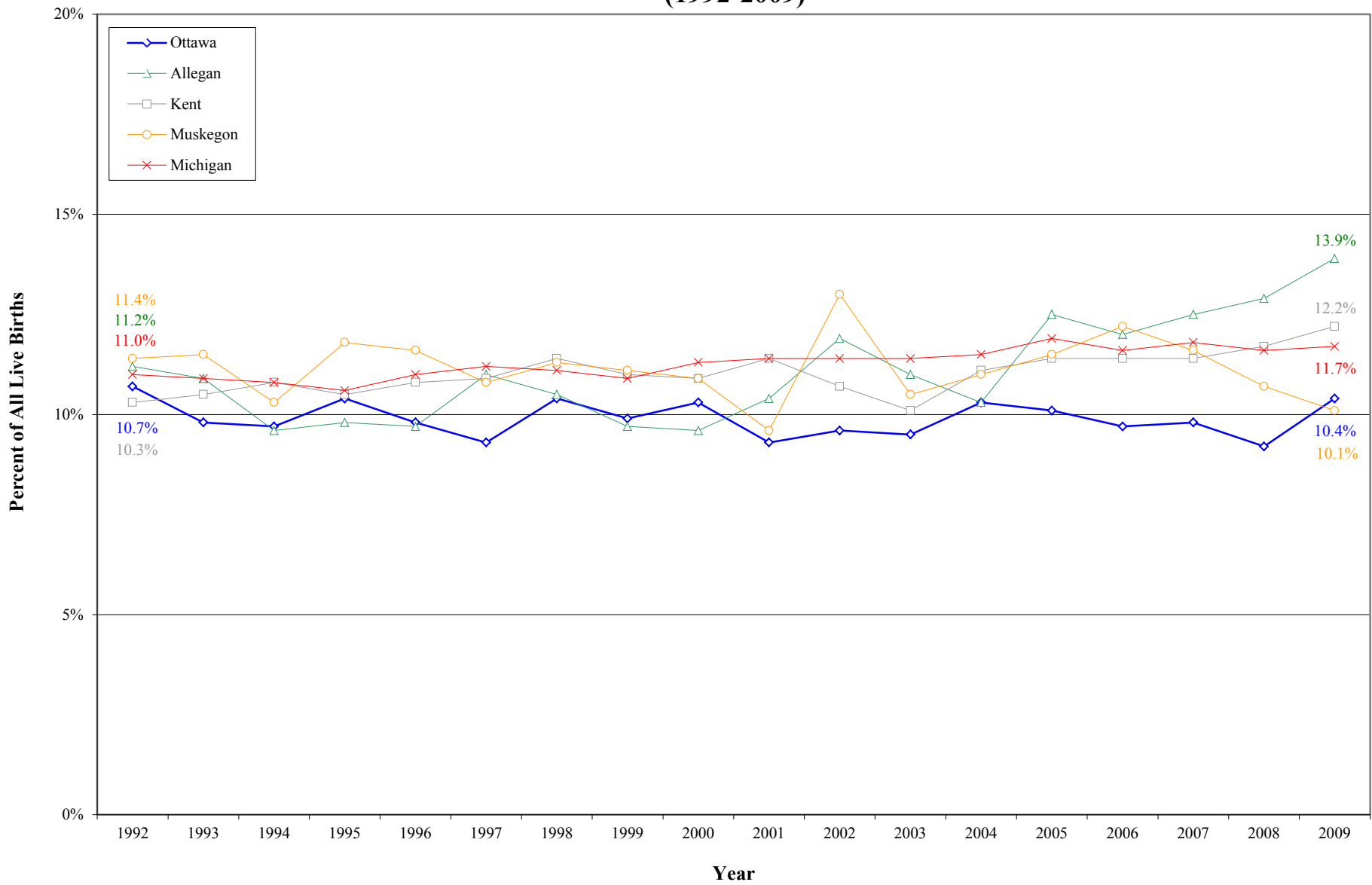
## Selected Characteristics of Birth (1992-2009)

### Mother's Fourth & Higher Birth (Ottawa County, Adjacent Counties, State)

Year	Percent of All Live Births				
	Ottawa	Allegan	Kent	Muskegon	Michigan
1992	10.7%	11.2%	10.3%	11.4%	11.0%
1993	9.8%	10.9%	10.5%	11.5%	10.9%
1994	9.7%	9.6%	10.8%	10.3%	10.8%
1995	10.4%	9.8%	10.5%	11.8%	10.6%
1996	9.8%	9.7%	10.8%	11.6%	11.0%
1997	9.3%	11.0%	10.9%	10.8%	11.2%
1998	10.4%	10.5%	11.4%	11.3%	11.1%
1999	9.9%	9.7%	11.0%	11.1%	10.9%
2000	10.3%	9.6%	10.9%	10.9%	11.3%
2001	9.3%	10.4%	11.4%	9.6%	11.4%
2002	9.6%	11.9%	10.7%	13.0%	11.4%
2003	9.5%	11.0%	10.1%	10.5%	11.4%
2004	10.3%	10.3%	11.1%	11.0%	11.5%
2005	10.1%	12.5%	11.4%	11.5%	11.9%
2006	9.7%	12.0%	11.4%	12.2%	11.6%
2007	9.8%	12.5%	11.4%	11.6%	11.8%
2008	9.2%	12.9%	11.7%	10.7%	11.6%
2009	10.4%	13.9%	12.2%	10.1%	11.7%

Source: Michigan Department of Community Health, Live Birth Files; Division for Vital Records & Health Statistics

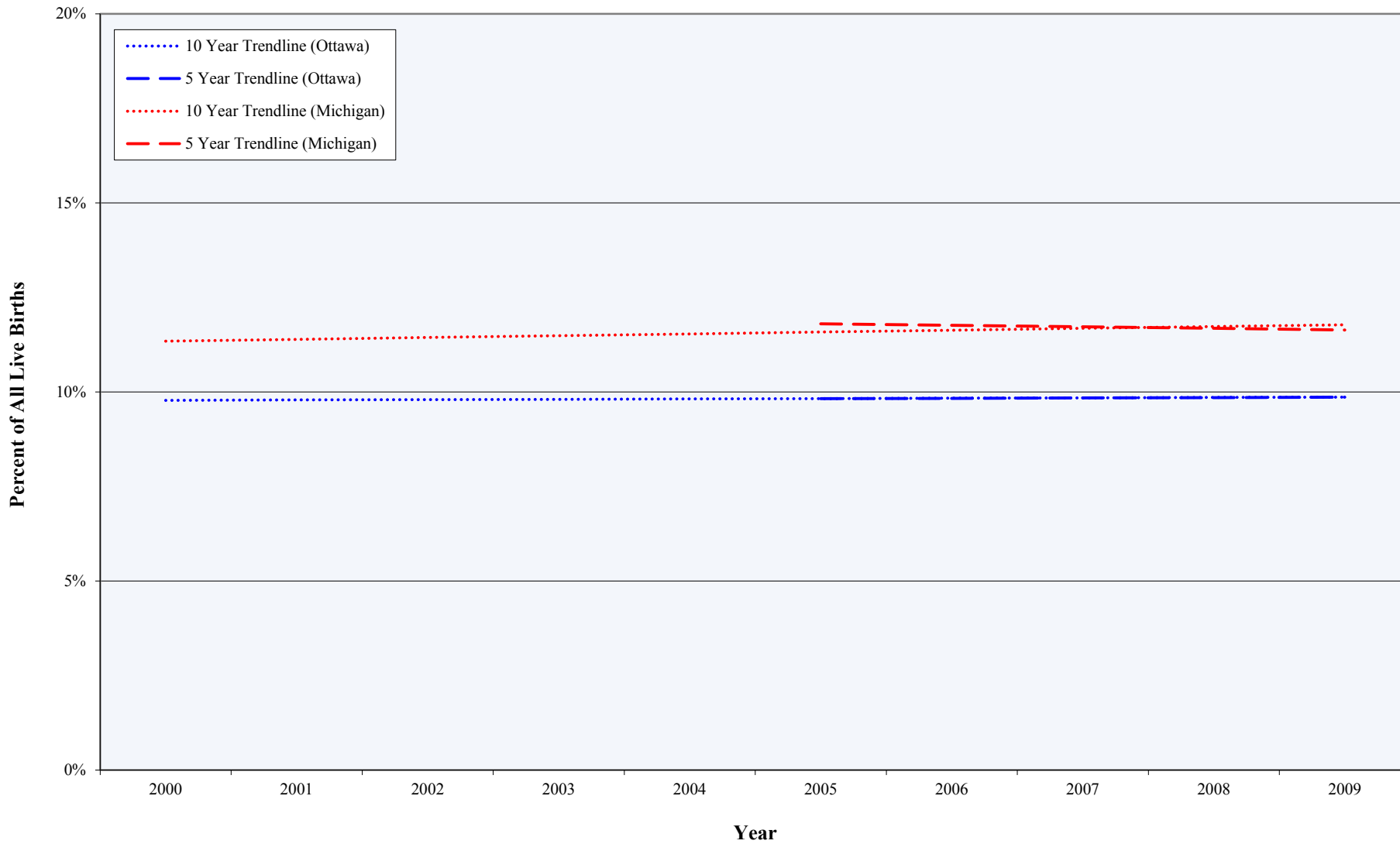
## Mother's Fourth & Higher Birth (1992-2009)



Source: Michigan Department of Community Health, Live Birth Files; Division for Vital Records & Health Statistics

# Mother's Fourth & Higher Birth

## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Live Birth Files; Division for Vital Records & Health Statistics



## Selected Characteristics of Birth (1992-2009)

### Cesarean Delivery (Ottawa County, Adjacent Counties, State)

Year	Percent of All Live Births				
	Ottawa	Allegan	Kent	Muskegon	Michigan
1992	18.5%	20.6%	16.7%	21.6%	21.3%
1993	16.8%	20.2%	17.1%	21.0%	20.8%
1994	17.3%	19.6%	16.3%	20.5%	20.5%
1995	17.8%	21.3%	17.2%	16.9%	20.1%
1996	19.2%	22.6%	16.6%	16.4%	20.0%
1997	17.6%	18.7%	17.3%	17.2%	20.0%
1998	20.0%	21.3%	17.5%	15.9%	20.4%
1999	20.4%	22.9%	18.0%	17.2%	20.8%
2000	20.4%	20.8%	19.0%	18.4%	21.9%
2001	23.8%	21.0%	20.4%	19.2%	23.3%
2002	23.0%	22.4%	22.3%	20.4%	24.8%
2003	26.7%	25.8%	23.2%	22.7%	26.3%
2004	27.9%	27.2%	24.7%	20.2%	27.6%
2005	27.9%	24.7%	25.1%	22.7%	28.6%
2006	29.5%	27.4%	26.5%	24.4%	29.4%
2007	30.2%	30.7%	27.3%	24.9%	30.6%
2008	29.0%	29.0%	28.9%	29.2%	31.4%
2009	30.8%	30.0%	29.5%	28.5%	32.0%

Source: Michigan Department of Community Health, Live Birth Files; Division for Vital Records & Health Statistics

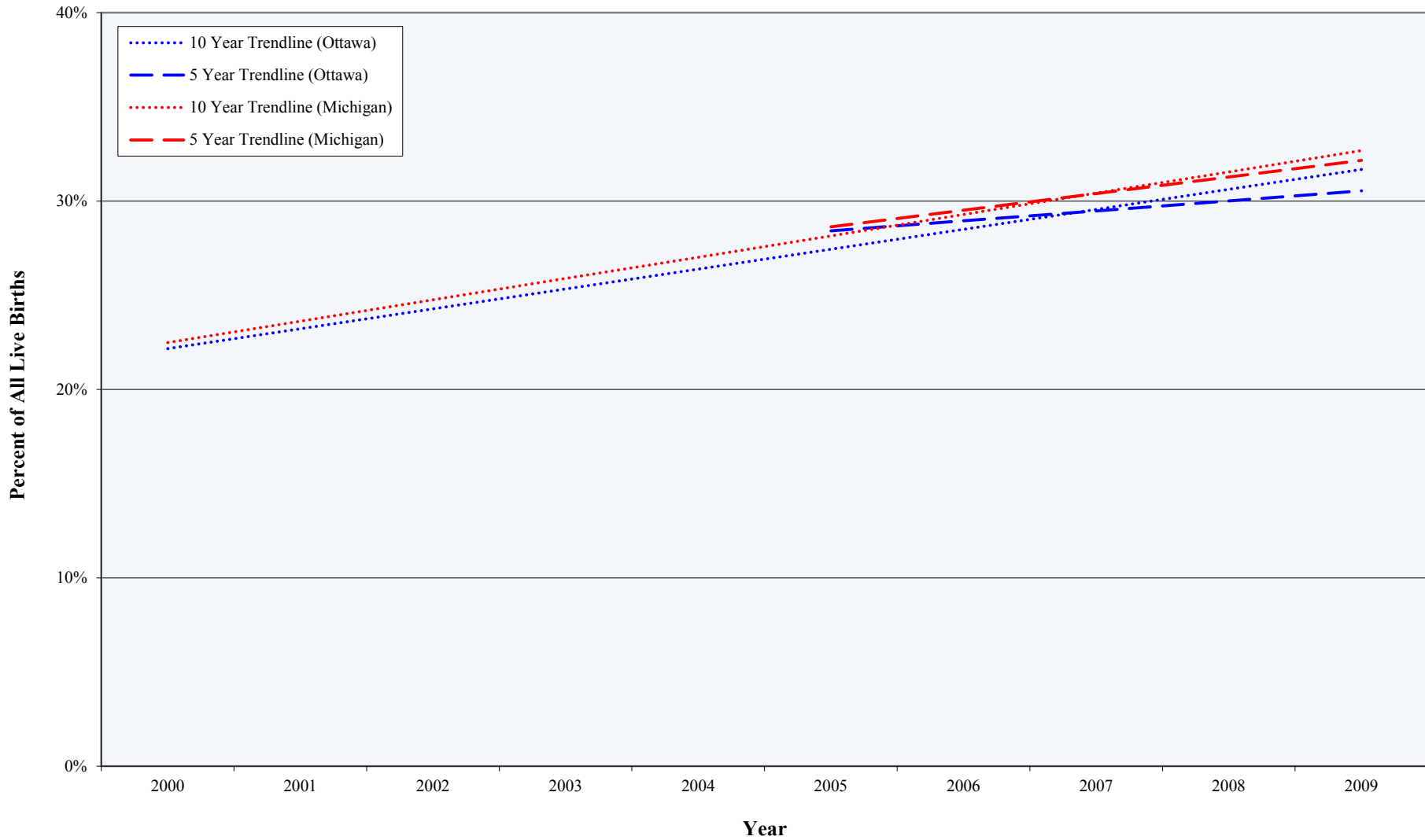
## Births by Cesarean Delivery (1992-2009)



Source: Michigan Department of Community Health, Live Birth Files; Division for Vital Records & Health Statistics

# Births by Cesarean Delivery

## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Live Birth Files; Division for Vital Records & Health Statistics

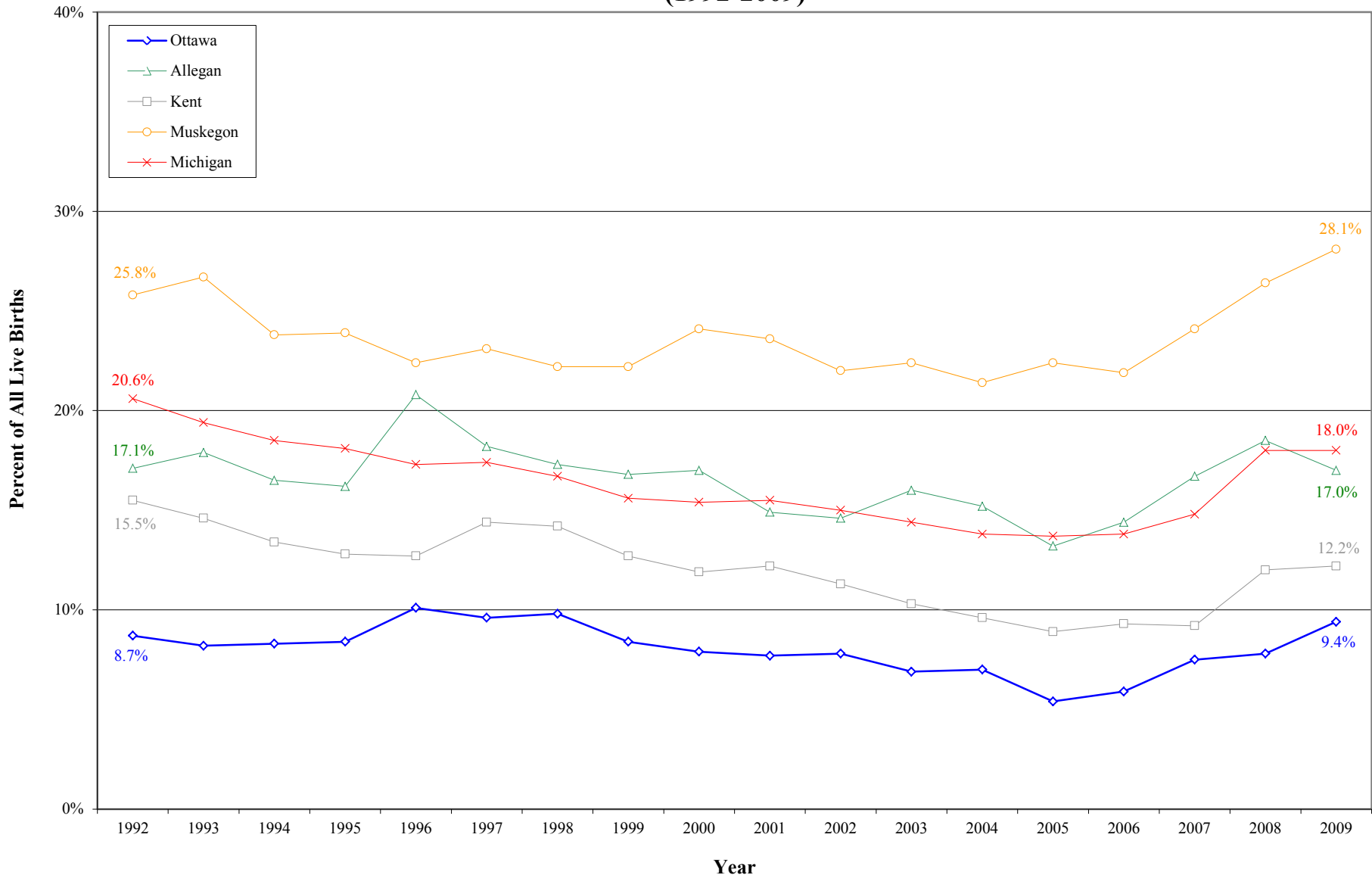
## Selected Characteristics of Birth (1992-2009)

### Mothers Who Smoked During Pregnancy (Ottawa County, Adjacent Counties, State)

Year	Percent of All Live Births				
	Ottawa	Allegan	Kent	Muskegon	Michigan
1992	8.7%	17.1%	15.5%	25.8%	20.6%
1993	8.2%	17.9%	14.6%	26.7%	19.4%
1994	8.3%	16.5%	13.4%	23.8%	18.5%
1995	8.4%	16.2%	12.8%	23.9%	18.1%
1996	10.1%	20.8%	12.7%	22.4%	17.3%
1997	9.6%	18.2%	14.4%	23.1%	17.4%
1998	9.8%	17.3%	14.2%	22.2%	16.7%
1999	8.4%	16.8%	12.7%	22.2%	15.6%
2000	7.9%	17.0%	11.9%	24.1%	15.4%
2001	7.7%	14.9%	12.2%	23.6%	15.5%
2002	7.8%	14.6%	11.3%	22.0%	15.0%
2003	6.9%	16.0%	10.3%	22.4%	14.4%
2004	7.0%	15.2%	9.6%	21.4%	13.8%
2005	5.4%	13.2%	8.9%	22.4%	13.7%
2006	5.9%	14.4%	9.3%	21.9%	13.8%
2007	7.5%	16.7%	9.2%	24.1%	14.8%
2008	7.8%	18.5%	12.0%	26.4%	18.0%
2009	9.4%	17.0%	12.2%	28.1%	18.0%

Source: Michigan Department of Community Health, Live Birth Files; Division for Vital Records & Health Statistics

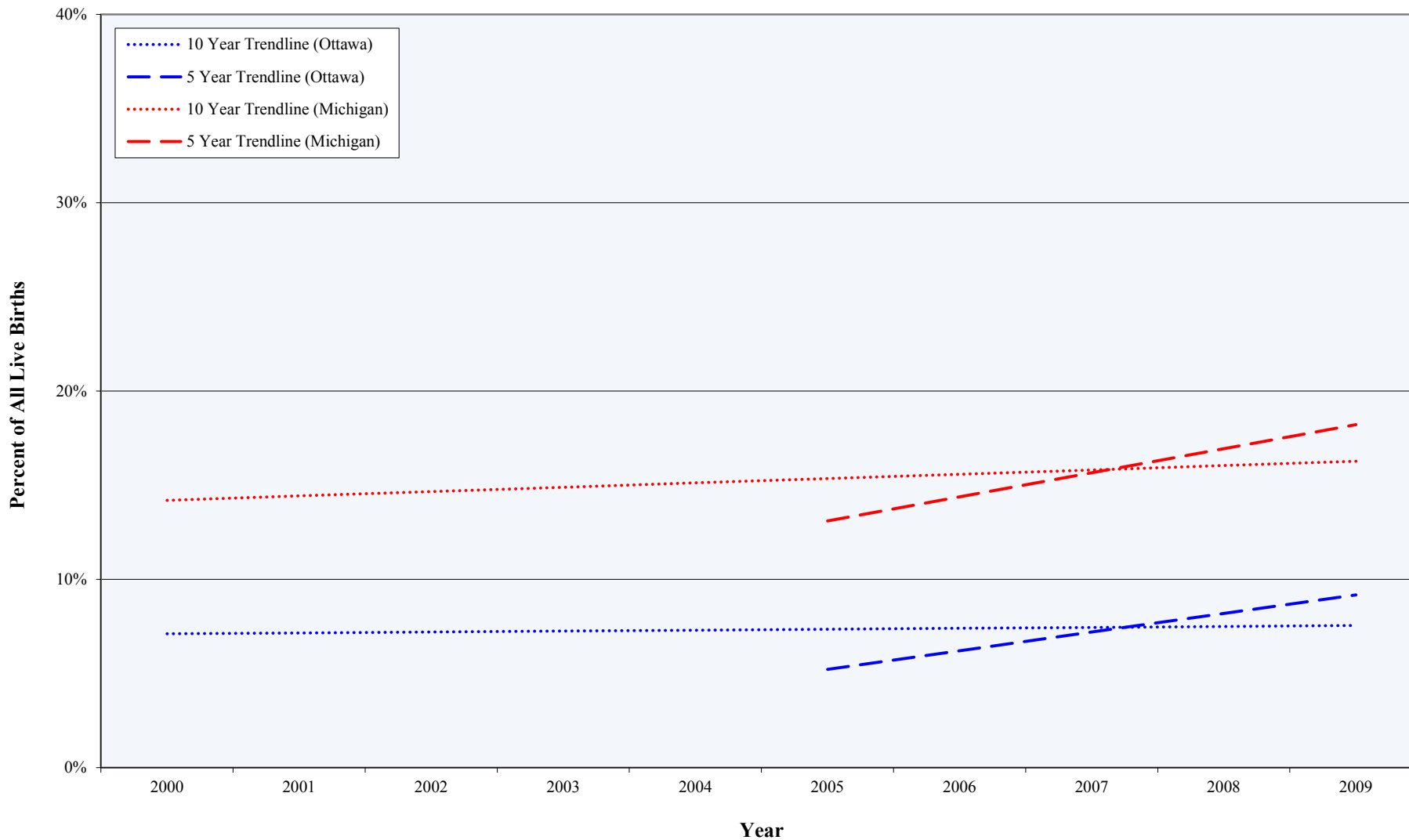
## Births to Mothers Who Smoked During Pregnancy (1992-2009)



Source: Michigan Department of Community Health, Live Birth Files; Division for Vital Records & Health Statistics

# Births to Mothers Who Smoked During Pregnancy

## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Live Birth Files; Division for Vital Records & Health Statistics

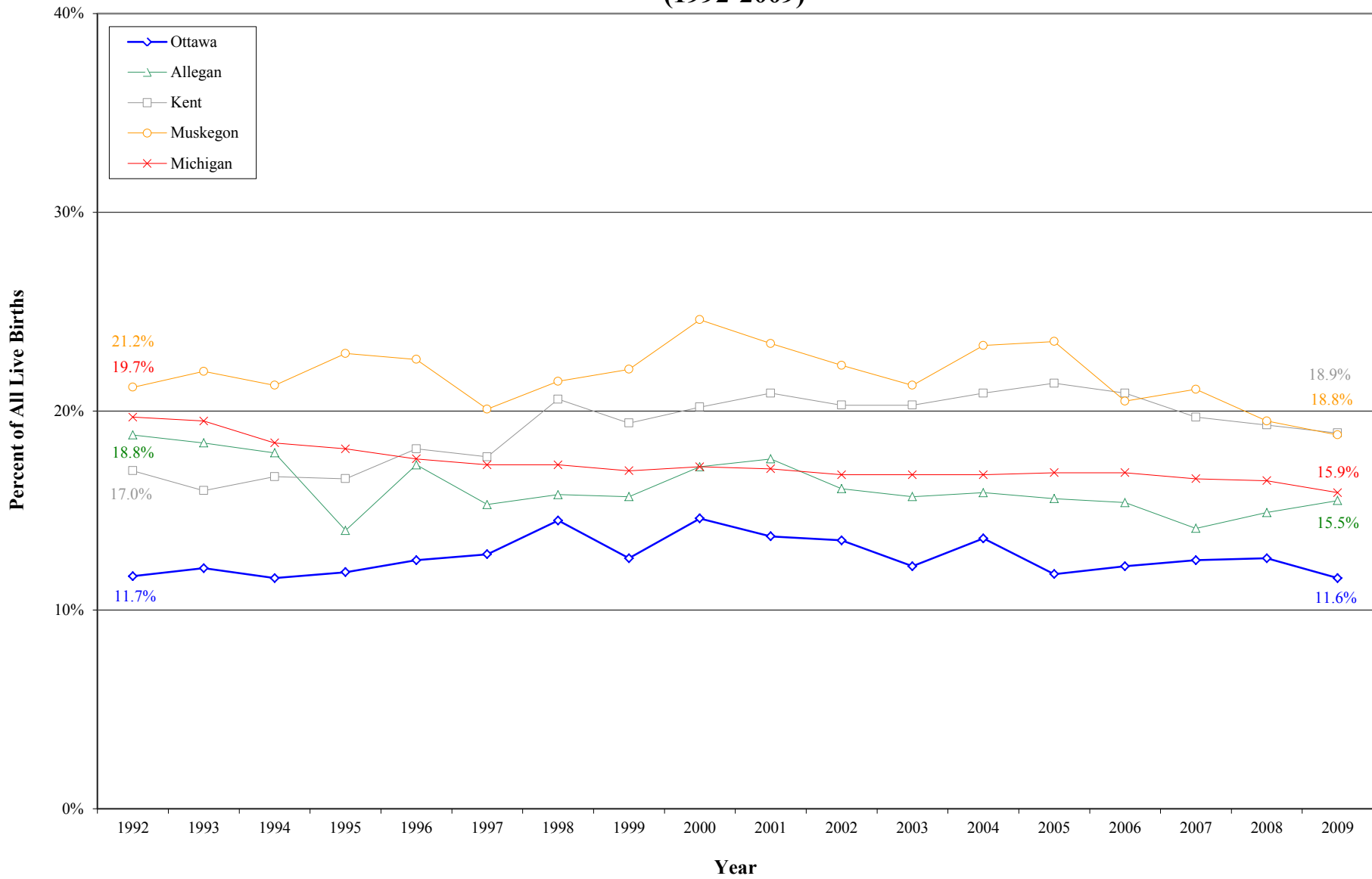
## Selected Characteristics of Birth (1992-2009)

### Mothers with Less than a High School Diploma (Ottawa County, Adjacent Counties, State)

Year	Percent of All Live Births				
	Ottawa	Allegan	Kent	Muskegon	Michigan
1992	11.7%	18.8%	17.0%	21.2%	19.7%
1993	12.1%	18.4%	16.0%	22.0%	19.5%
1994	11.6%	17.9%	16.7%	21.3%	18.4%
1995	11.9%	14.0%	16.6%	22.9%	18.1%
1996	12.5%	17.3%	18.1%	22.6%	17.6%
1997	12.8%	15.3%	17.7%	20.1%	17.3%
1998	14.5%	15.8%	20.6%	21.5%	17.3%
1999	12.6%	15.7%	19.4%	22.1%	17.0%
2000	14.6%	17.2%	20.2%	24.6%	17.2%
2001	13.7%	17.6%	20.9%	23.4%	17.1%
2002	13.5%	16.1%	20.3%	22.3%	16.8%
2003	12.2%	15.7%	20.3%	21.3%	16.8%
2004	13.6%	15.9%	20.9%	23.3%	16.8%
2005	11.8%	15.6%	21.4%	23.5%	16.9%
2006	12.2%	15.4%	20.9%	20.5%	16.9%
2007	12.5%	14.1%	19.7%	21.1%	16.6%
2008	12.6%	14.9%	19.3%	19.5%	16.5%
2009	11.6%	15.5%	18.9%	18.8%	15.9%

Source: Michigan Department of Community Health, Live Birth Files; Division for Vital Records & Health Statistics

## Births to Mothers with Less than a High School Diploma (1992-2009)

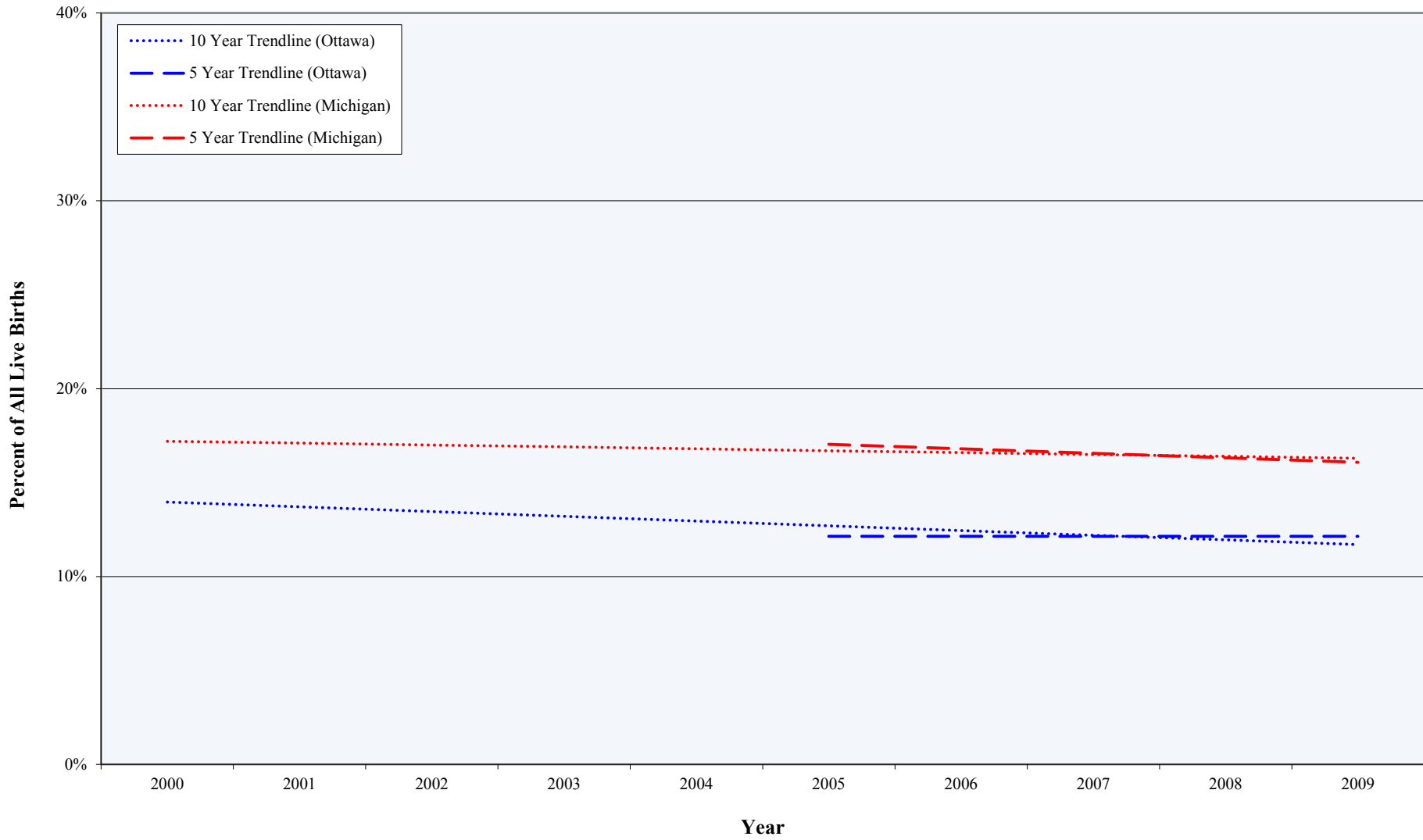


Source: Michigan Department of Community Health, Live Birth Files; Division for Vital Records & Health Statistics



# Births to Mothers with Less than a High School Diploma

## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Live Birth Files; Division for Vital Records & Health Statistics

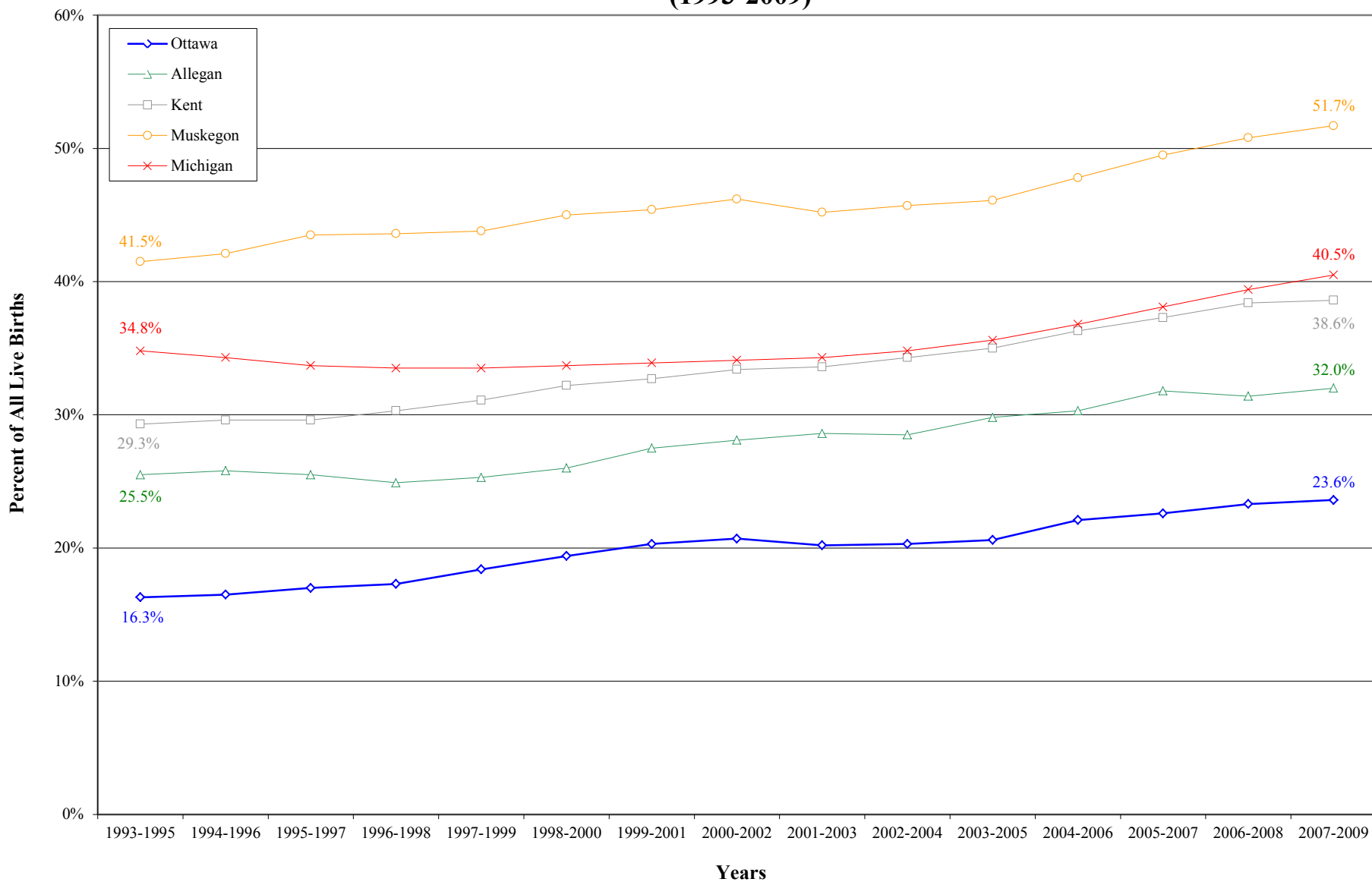
## Selected Characteristics of Birth (1993-2009)

### Unmarried Mother (Ottawa County, Adjacent Counties, State)

Year	Percent of All Live Births				
	Ottawa	Allegan	Kent	Muskegon	Michigan
1993-1995	16.3%	25.5%	29.3%	41.5%	34.8%
1994-1996	16.5%	25.8%	29.6%	42.1%	34.3%
1995-1997	17.0%	25.5%	29.6%	43.5%	33.7%
1996-1998	17.3%	24.9%	30.3%	43.6%	33.5%
1997-1999	18.4%	25.3%	31.1%	43.8%	33.5%
1998-2000	19.4%	26.0%	32.2%	45.0%	33.7%
1999-2001	20.3%	27.5%	32.7%	45.4%	33.9%
2000-2002	20.7%	28.1%	33.4%	46.2%	34.1%
2001-2003	20.2%	28.6%	33.6%	45.2%	34.3%
2002-2004	20.3%	28.5%	34.3%	45.7%	34.8%
2003-2005	20.6%	29.8%	35.0%	46.1%	35.6%
2004-2006	22.1%	30.3%	36.3%	47.8%	36.8%
2005-2007	22.6%	31.8%	37.3%	49.5%	38.1%
2006-2008	23.3%	31.4%	38.4%	50.8%	39.4%
2007-2009	23.6%	32.0%	38.6%	51.7%	40.5%

Source: The Annie E. Casey Foundation, KIDS COUNT Data Center

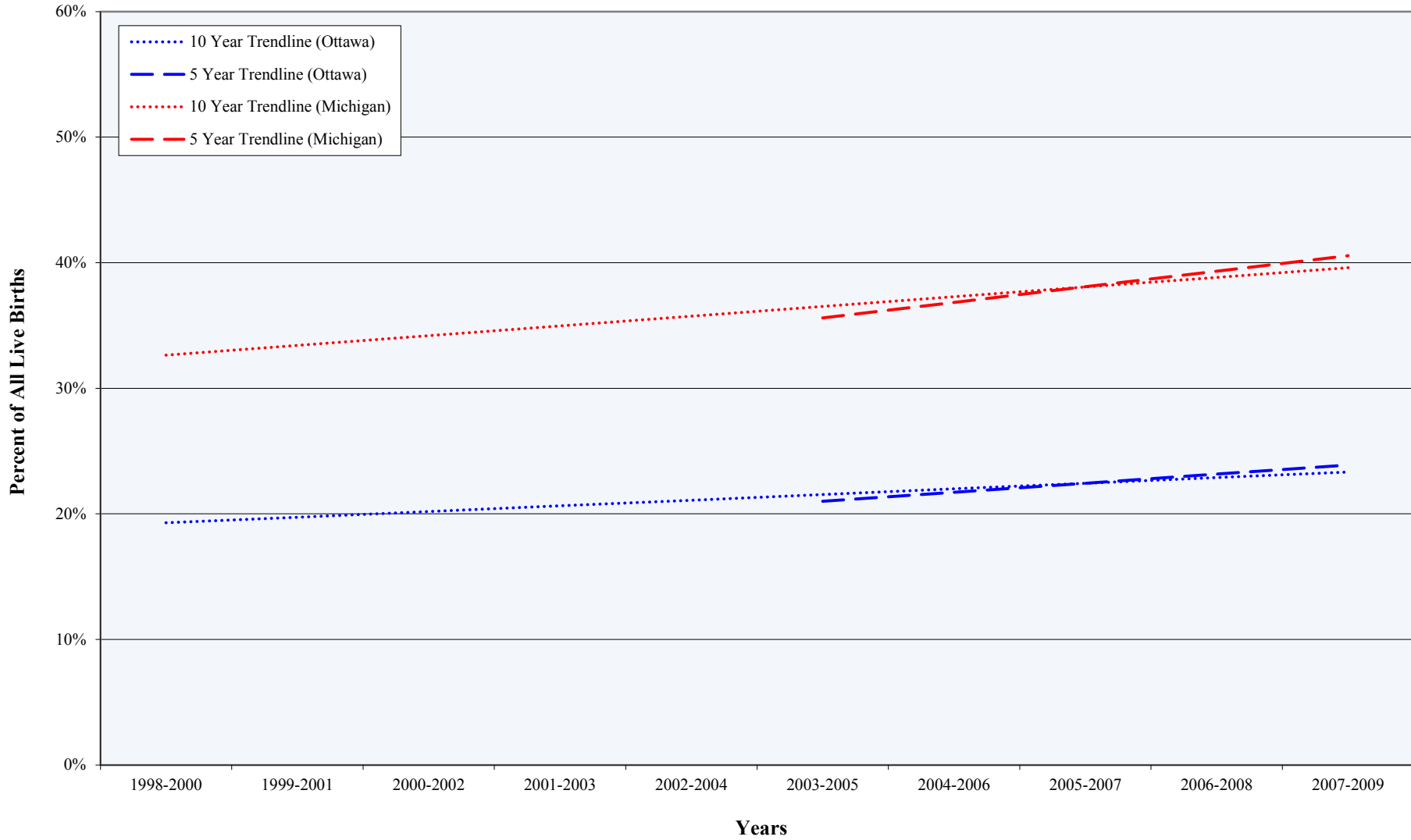
## Births to Unmarried Mothers (1993-2009)



Source: The Annie E. Casey Foundation, KIDS COUNT Data Center

# Births to Unmarried Mothers

## 5 and 10 Year Trends



Source: The Annie E. Casey Foundation, KIDS COUNT Data Center

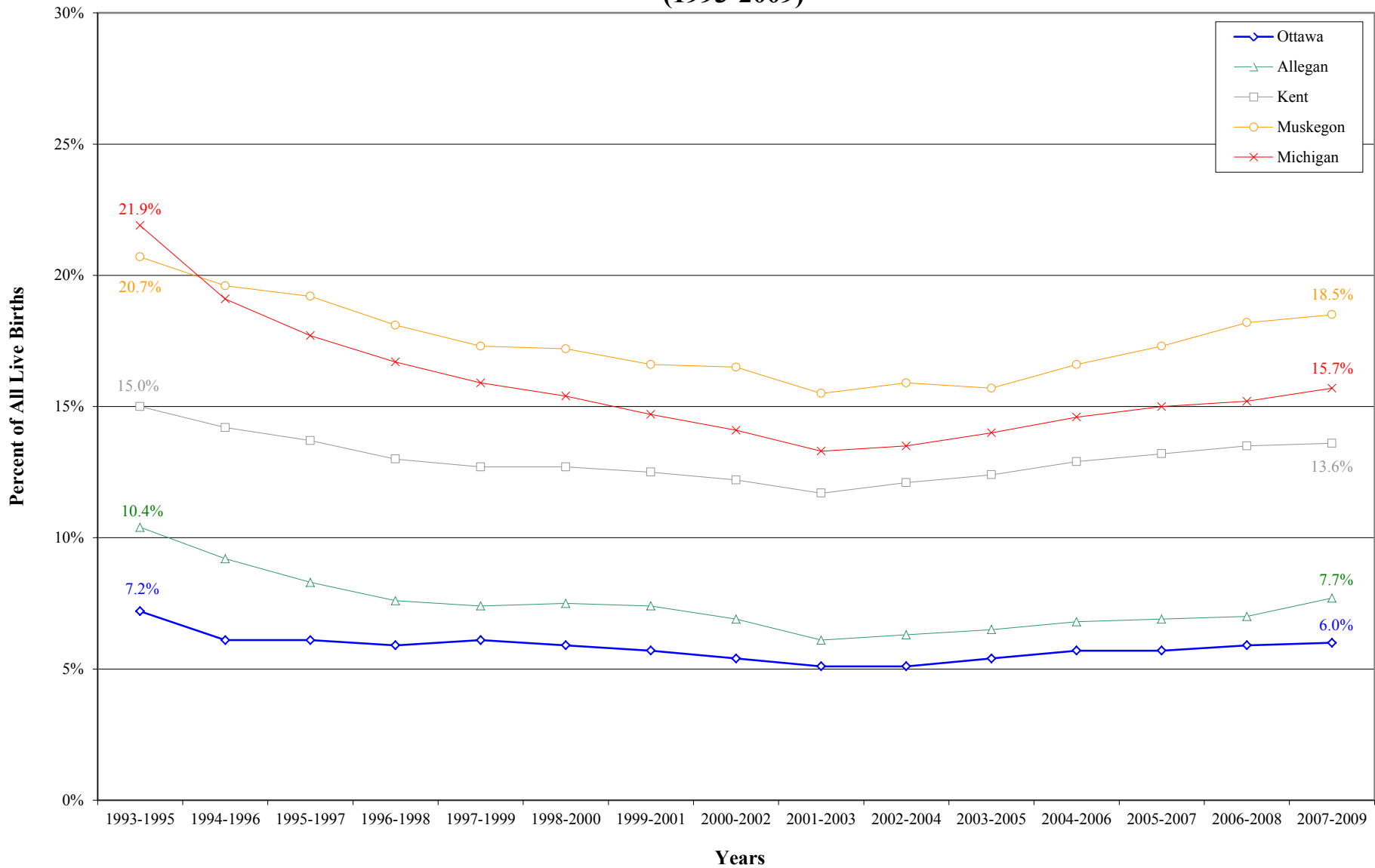
## Selected Characteristics of Birth (1993-2009)

### No Father Established (Ottawa County, Adjacent Counties, State)

Year	Percent of All Live Births				
	Ottawa	Allegan	Kent	Muskegon	Michigan
1993-1995	7.2%	10.4%	15.0%	20.7%	21.9%
1994-1996	6.1%	9.2%	14.2%	19.6%	19.1%
1995-1997	6.1%	8.3%	13.7%	19.2%	17.7%
1996-1998	5.9%	7.6%	13.0%	18.1%	16.7%
1997-1999	6.1%	7.4%	12.7%	17.3%	15.9%
1998-2000	5.9%	7.5%	12.7%	17.2%	15.4%
1999-2001	5.7%	7.4%	12.5%	16.6%	14.7%
2000-2002	5.4%	6.9%	12.2%	16.5%	14.1%
2001-2003	5.1%	6.1%	11.7%	15.5%	13.3%
2002-2004	5.1%	6.3%	12.1%	15.9%	13.5%
2003-2005	5.4%	6.5%	12.4%	15.7%	14.0%
2004-2006	5.7%	6.8%	12.9%	16.6%	14.6%
2005-2007	5.7%	6.9%	13.2%	17.3%	15.0%
2006-2008	5.9%	7.0%	13.5%	18.2%	15.2%
2007-2009	6.0%	7.7%	13.6%	18.5%	15.7%

Source: The Annie E. Casey Foundation, KIDS COUNT Data Center

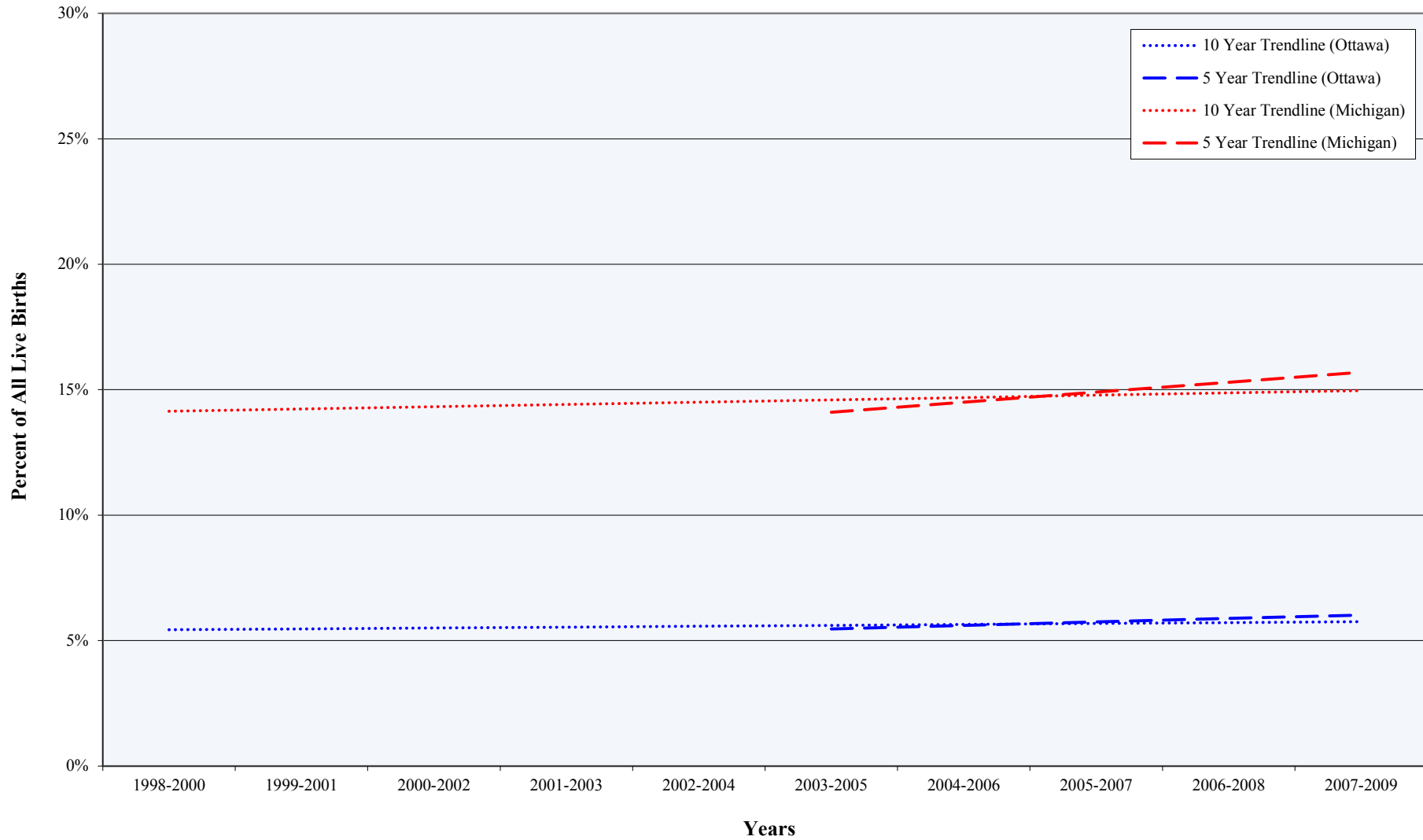
## Births with No Father Established (1993-2009)



Source: The Annie E. Casey Foundation, KIDS COUNT Data Center

# Births with No Father Established

## 5 and 10 Year Trends



Source: The Annie E. Casey Foundation, KIDS COUNT Data Center

## Infant Deaths (1989-2009)

(Ottawa County, Adjacent Counties, State)

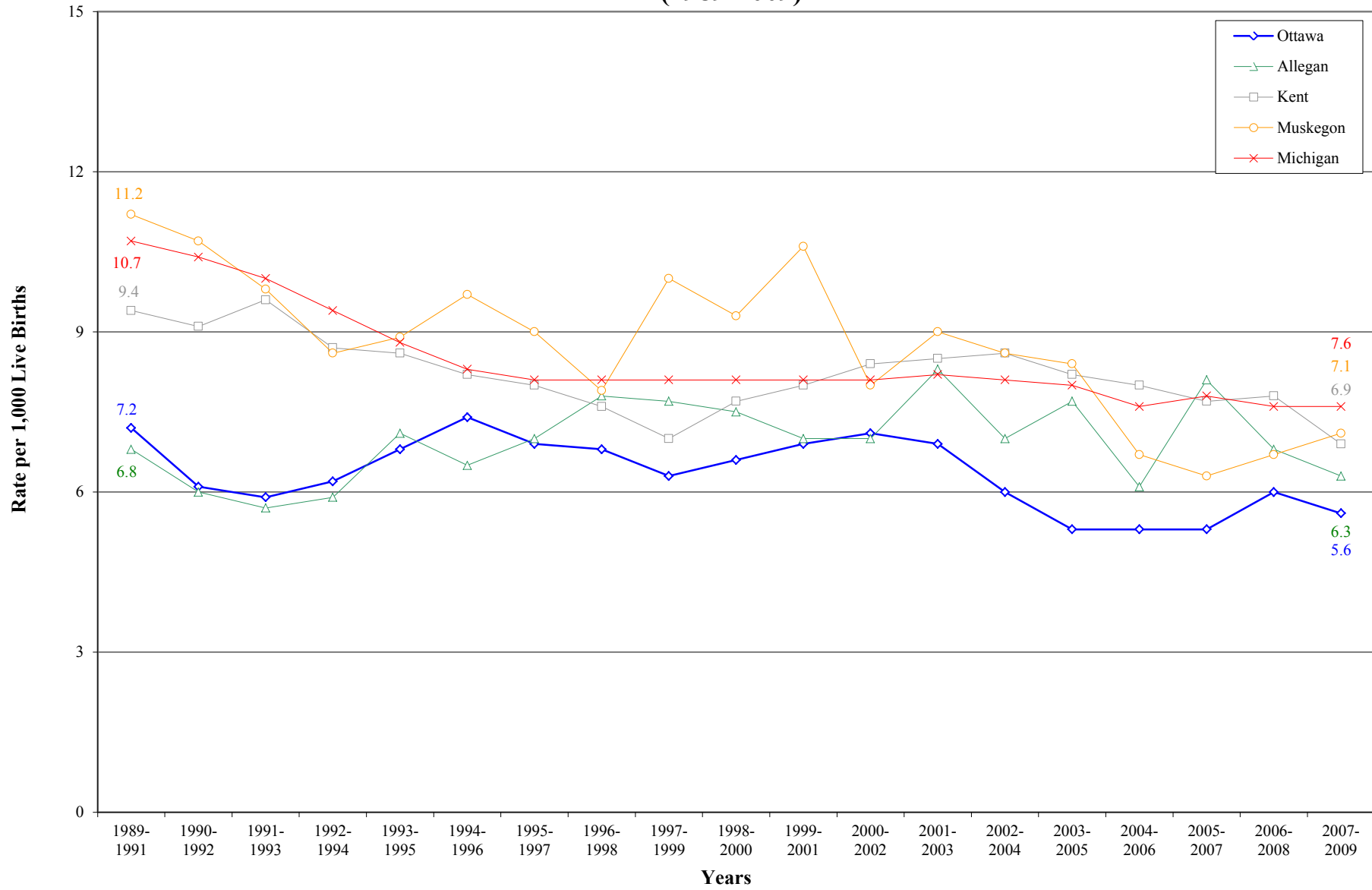
Year	Infant Deaths per 1,000 Live Births*				
	Ottawa	Allegan	Kent	Muskegon	Michigan
1989-1991	7.2	6.8	9.4	11.2	10.7
1990-1992	6.1	6.0	9.1	10.7	10.4
1991-1993	5.9	5.7	9.6	9.8	10.0
1992-1994	6.2	5.9	8.7	8.6	9.4
1993-1995	6.8	7.1	8.6	8.9	8.8
1994-1996	7.4	6.5	8.2	9.7	8.3
1995-1997	6.9	7.0	8.0	9.0	8.1
1996-1998	6.8	7.8	7.6	7.9	8.1
1997-1999	6.3	7.7	7.0	10.0	8.1
1998-2000	6.6	7.5	7.7	9.3	8.1
1999-2001	6.9	7.0	8.0	10.6	8.1
2000-2002	7.1	7.0	8.4	8.0	8.1
2001-2003	6.9	8.3	8.5	9.0	8.2
2002-2004	6.0	7.0	8.6	8.6	8.1
2003-2005	5.3	7.7	8.2	8.4	8.0
2004-2006	5.3	6.1	8.0	6.7	7.6
2005-2007	5.3	8.1	7.7	6.3	7.8
2006-2008	6.0	6.8	7.8	6.7	7.6
2007-2009	5.6	6.3	6.9	7.1	7.6

Source: Michigan Department of Community Health, Michigan Resident Birth Files, Michigan Resident Death Files, Division for Vital Records & Health Statistics

\* Includes deaths occurring to children who are less than 1 year of age



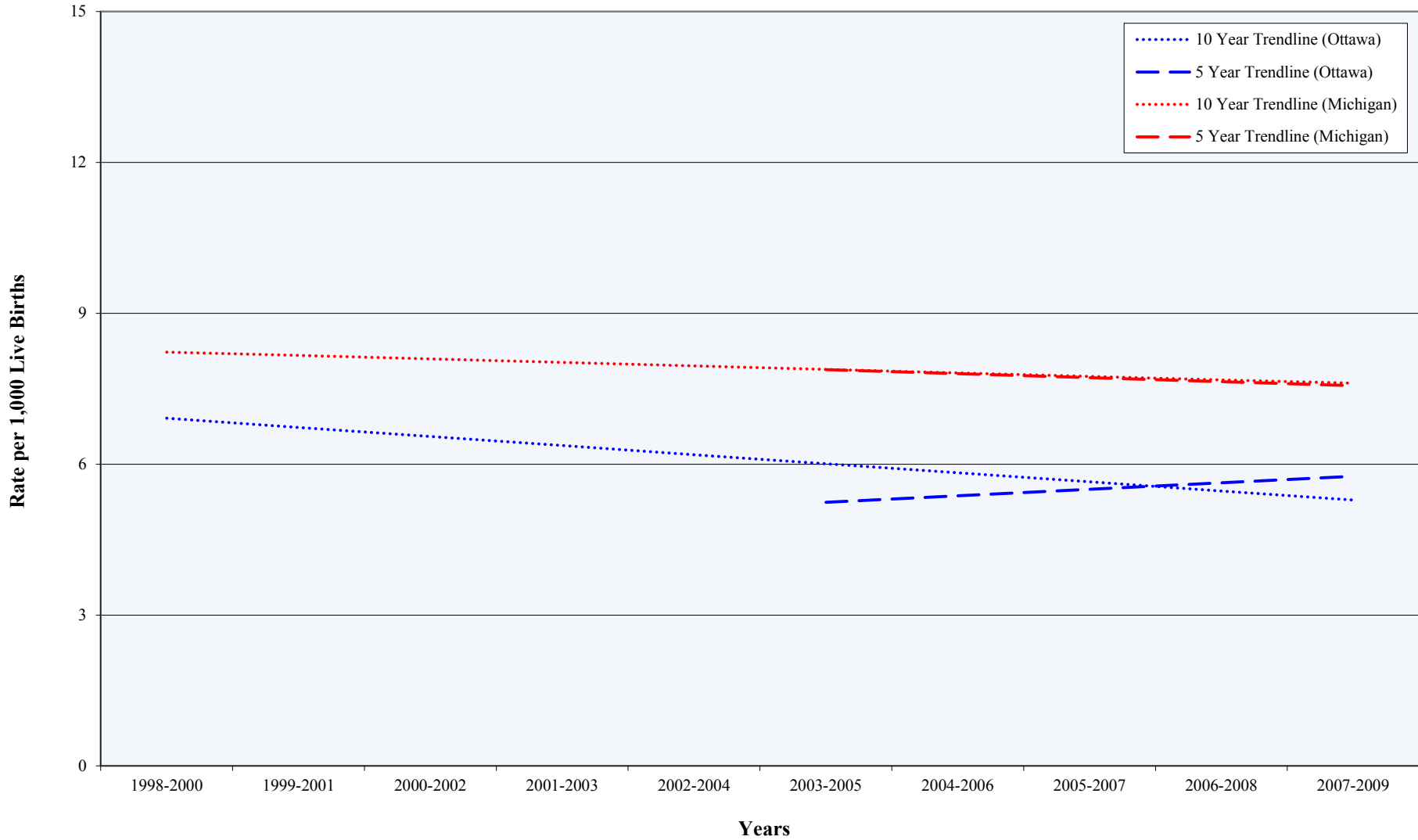
## Infant Deaths (1989-2009)



Source: Michigan Department of Community Health, Michigan Resident Birth Files, Michigan Resident Death Files, Division for Vital Records & Health Statistics

# Infant Deaths

## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Michigan Resident Birth Files, Michigan Resident Death Files, Division for Vital Records & Health Statistics

## Abortions (1991-2010)

**By Year** (Ottawa County, Adjacent Counties, State)

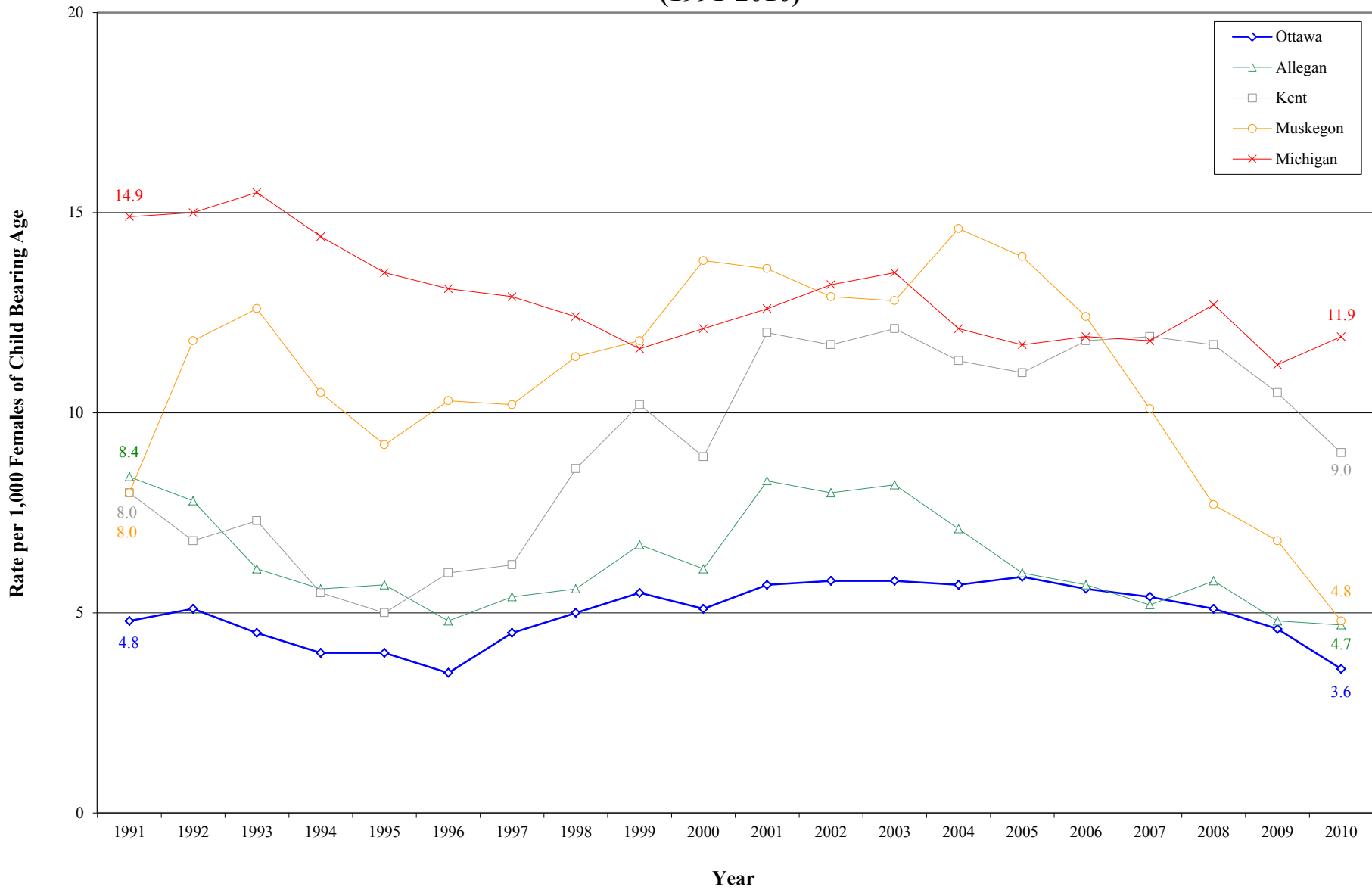
### Abortions per 1,000 Females of Child Bearing Age\*

Year	Ottawa	Allegan	Kent	Muskegon	Michigan
1991	4.8	8.4	8.0	8.0	14.9
1992	5.1	7.8	6.8	11.8	15.0
1993	4.5	6.1	7.3	12.6	15.5
1994	4.0	5.6	5.5	10.5	14.4
1995	4.0	5.7	5.0	9.2	13.5
1996	3.5	4.8	6.0	10.3	13.1
1997	4.5	5.4	6.2	10.2	12.9
1998	5.0	5.6	8.6	11.4	12.4
1999	5.5	6.7	10.2	11.8	11.6
2000	5.1	6.1	8.9	13.8	12.1
2001	5.7	8.3	12.0	13.6	12.6
2002	5.8	8.0	11.7	12.9	13.2
2003	5.8	8.2	12.1	12.8	13.5
2004	5.7	7.1	11.3	14.6	12.1
2005	5.9	6.0	11.0	13.9	11.7
2006	5.6	5.7	11.8	12.4	11.9
2007	5.4	5.2	11.9	10.1	11.8
2008	5.1	5.8	11.7	7.7	12.7
2009	4.6	4.8	10.5	6.8	11.2
2010	3.6	4.7	9.0	4.8	11.9

Source: Michigan Department of Community Health, Division for Vital Records & Health Statistics

\* Includes females who are age 15 to 44

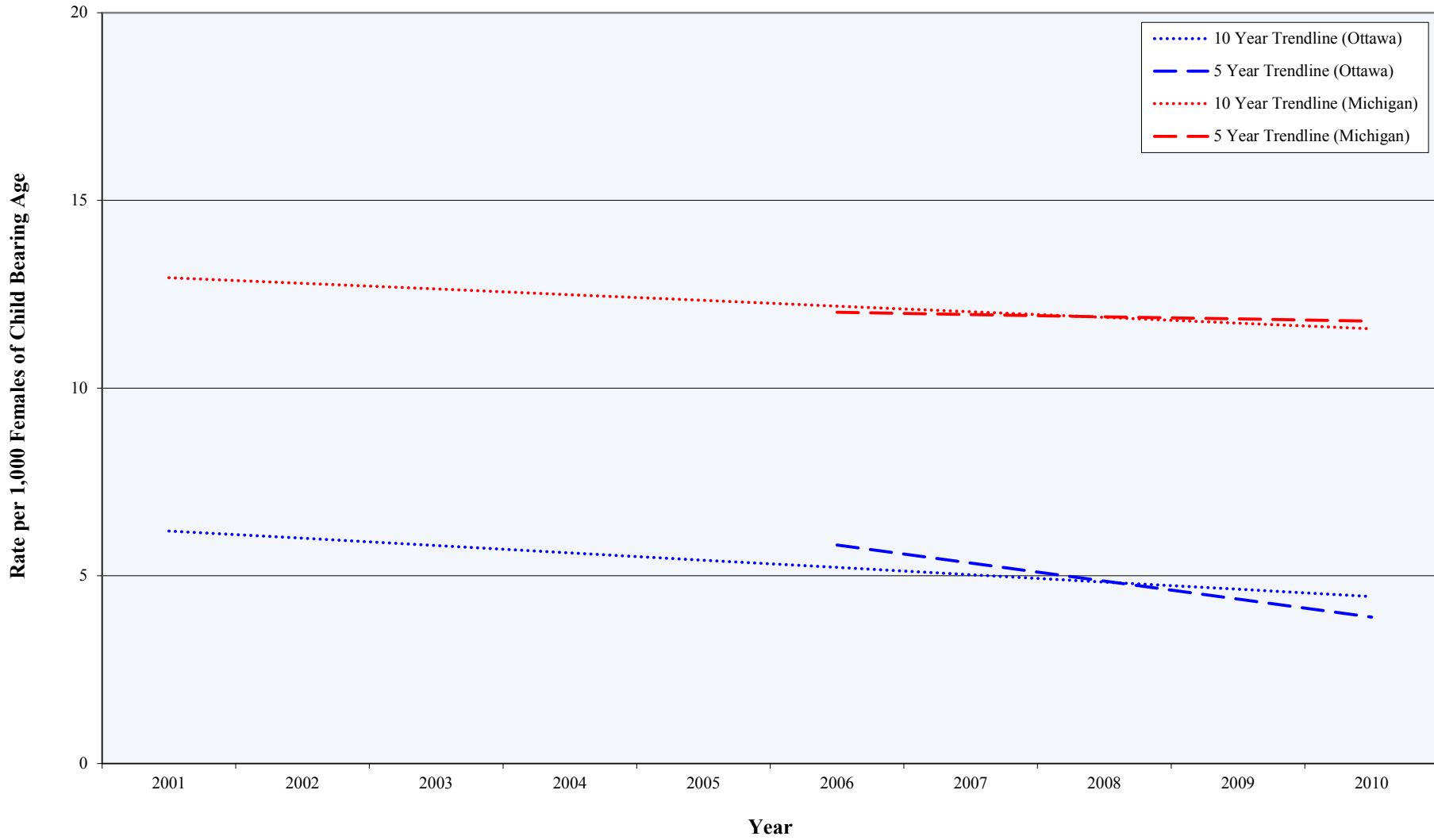
## Abortions (1991-2010)



Source: Michigan Department of Community Health, Division for Vital Records & Health Statistics

# Abortions

## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Division for Vital Records & Health Statistics

## Abortions (2000-2010)

### By Age of Female (Ottawa County, Adjacent Counties, State)

#### Abortions per 1,000 Female Population\*

Year	Under Age 20					Age 20-24					Age 25-29				
	Ottawa	Allegan	Kent	Muskegon	Michigan	Ottawa	Allegan	Kent	Muskegon	Michigan	Ottawa	Allegan	Kent	Muskegon	Michigan
2000	6.4	8.5	10.6	16.7	14.2	9.7	10.9	17.2	32.4	25.7	6.1	10.3	13.6	21.3	18.8
2001	7.1	11.5	13.2	16.8	14.3	10.1	16.6	26.7	34.4	27.2	7.0	13.6	17.5	18.5	19.8
2002	6.7	11.5	11.4	12.8	14.0	11.4	15.0	27.7	30.4	27.6	7.8	10.2	17.1	20.9	21.1
2003	6.1	8.6	12.7	14.5	14.2	9.6	16.3	25.8	28.3	27.0	8.9	13.2	17.5	20.5	21.5
2004	5.9	7.6	12.1	15.8	12.9	10.4	9.4	22.1	28.3	23.3	7.0	12.4	18.0	25.6	18.7
2005	6.5	6.6	11.4	13.9	12.6	10.2	11.4	23.5	31.0	23.2	7.5	7.3	17.6	19.6	17.4
2006	6.2	5.0	12.1	12.2	12.6	10.6	10.6	27.0	26.8	23.7	4.8	6.8	17.3	15.6	18.0
2007	5.6	6.3	11.9	8.5	12.1	10.8	9.5	25.8	23.2	23.3	5.8	4.1	18.7	12.5	17.0
2008	5.3	7.5	11.4	8.1	13.2	9.3	13.5	26.0	18.2	24.6	6.5	2.9	17.4	8.2	17.8
2009	4.7	6.2	11.0	7.5	11.5	9.4	9.5	22.7	15.6	21.3	5.8	7.5	11.9	8.5	16.1
2010	4.3	5.1	8.4	4.8	11.0	6.1	11.5	16.8	11.7	23.0	3.5	5.5	12.6	5.7	17.5

Source: Michigan Department of Community Health, Division for Vital Records & Health Statistics; U.S. Census Bureau, 2010 Census

\* Rates are age-specific and refer to the population of females in a specific age group

## Abortions (2000-2010)

### By Age of Female (Ottawa County, Adjacent Counties, State)

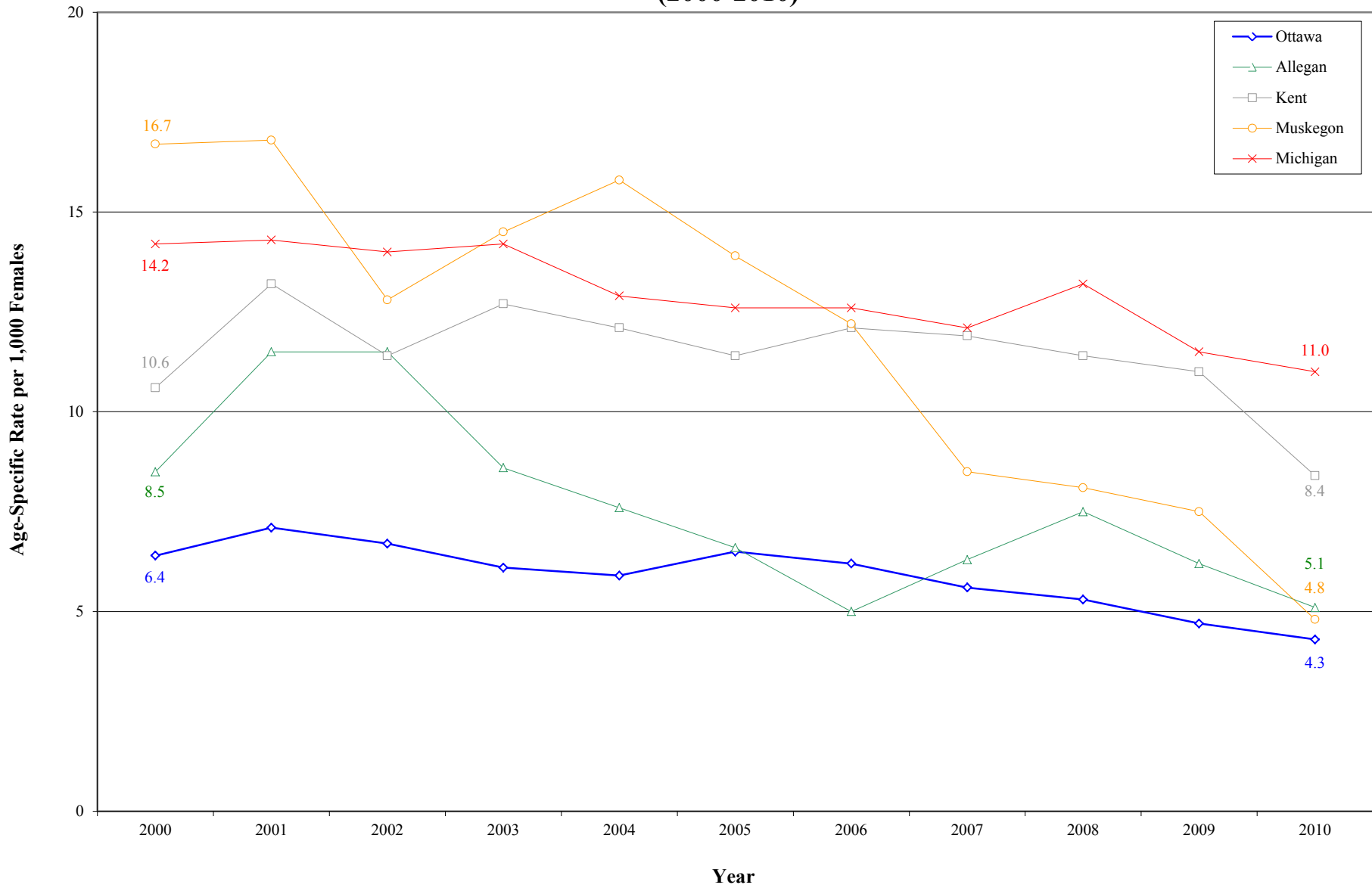
#### Abortions per 1,000 Female Population\*

Year	Age 30-34					Age 35-39					Age 40 and Older				
	Ottawa	Allegan	Kent	Muskegon	Michigan	Ottawa	Allegan	Kent	Muskegon	Michigan	Ottawa	Allegan	Kent	Muskegon	Michigan
2000	4.2	5.8	7.4	12.3	10.3	2.4	3.8	4.0	5.2	5.3	1.2	0.4	1.5	0.9	1.7
2001	5.4	7.2	9.9	10.2	11.1	2.9	3.3	5.0	5.1	5.4	1.3	1.5	1.6	1.0	1.7
2002	4.2	9.6	8.2	10.4	12.0	2.7	2.3	5.7	4.3	5.9	1.4	0.7	1.8	1.9	1.9
2003	5.0	6.7	11.3	10.2	12.8	3.1	3.6	5.7	3.4	6.0	1.3	1.3	1.5	1.6	2.0
2004	5.8	6.9	9.8	11.7	11.8	3.1	3.8	5.9	4.8	5.9	1.0	2.1	1.3	0.9	1.9
2005	5.1	5.2	8.1	11.1	11.1	3.9	3.2	6.0	5.2	6.0	0.9	1.1	1.6	1.8	1.8
2006	4.4	5.1	10.2	10.9	11.6	4.1	3.7	5.3	5.7	6.3	1.3	1.2	1.8	1.1	1.9
2007	4.8	5.6	9.7	8.5	11.3	3.0	3.9	5.1	4.1	6.2	0.7	1.0	2.2	2.2	1.9
2008	4.0	6.3	9.0	6.3	12.3	2.3	2.5	6.1	3.3	6.5	1.4	1.5	1.6	0.5	1.8
2009	4.1	3.6	7.9	4.6	10.4	2.2	1.9	5.7	3.5	5.6	0.5	0.7	2.2	0.7	1.8
2010	3.9	4.5	7.8	3.1	11.4	1.9	2.0	5.1	2.2	6.5	0.5	1.3	1.5	1.5	2.1

Source: Michigan Department of Community Health, Division for Vital Records & Health Statistics; U.S. Census Bureau, 2010 Census

\* Rates are age-specific and refer to the population of females in a specific age group

## Abortions Among Females Under Age 20 (2000-2010)

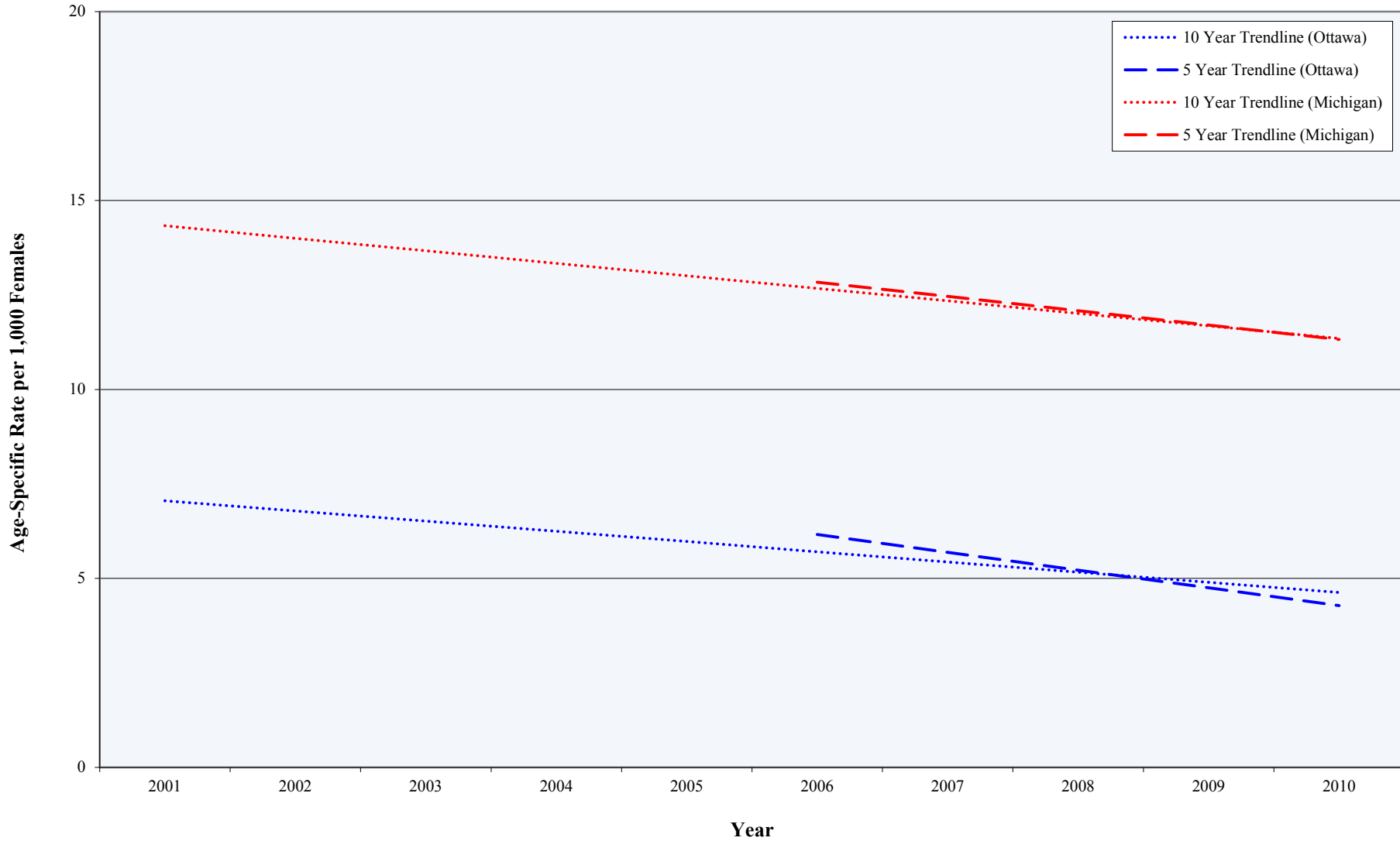


Source: Michigan Department of Community Health, Division for Vital Records & Health Statistics; U.S. Census Bureau, 2010 Census



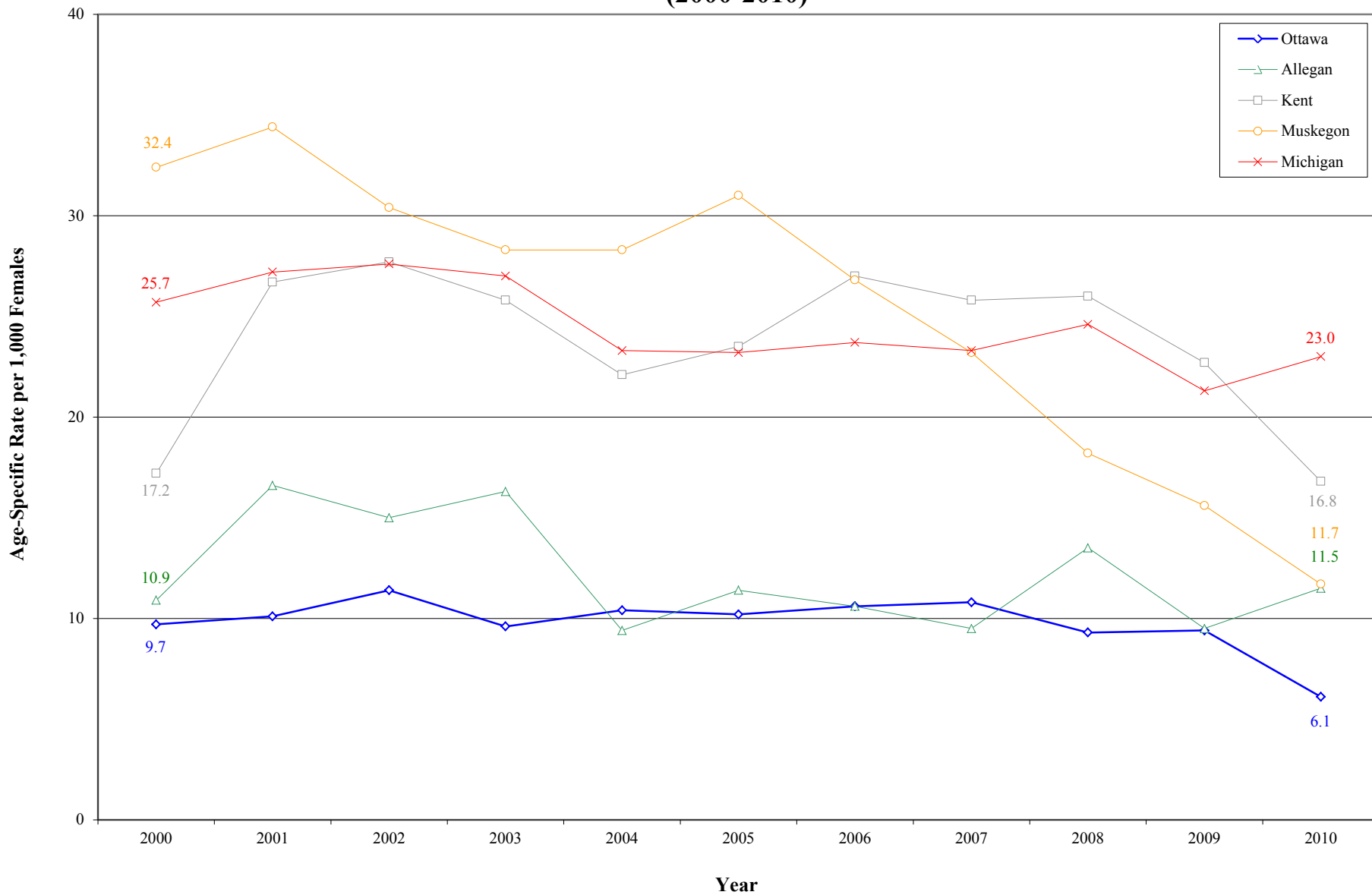
# Abortions Among Females Under Age 20

## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Division for Vital Records & Health Statistics; U.S. Census Bureau, 2010 Census

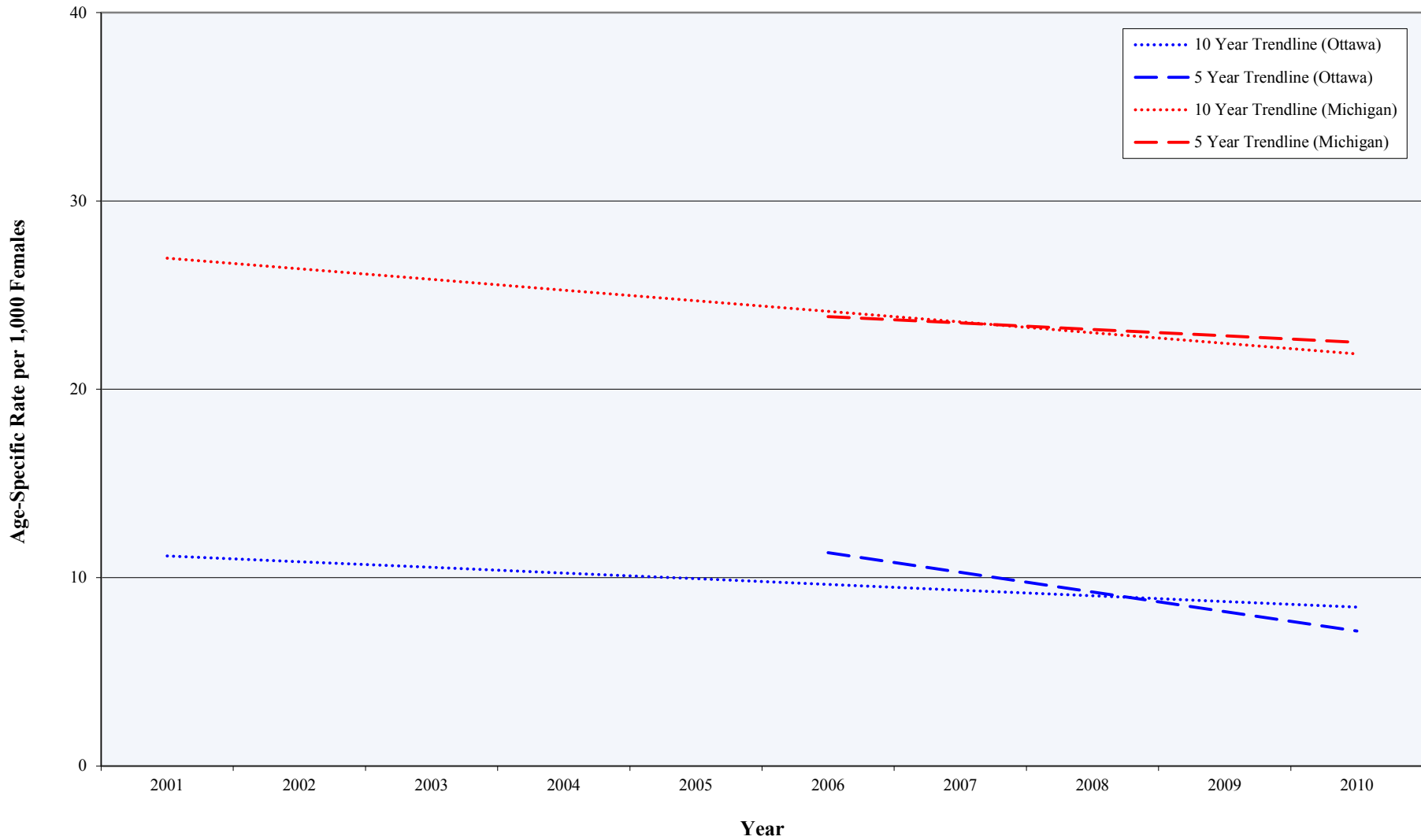
## Abortions Among Females Age 20-24 (2000-2010)



Source: Michigan Department of Community Health, Division for Vital Records & Health Statistics; U.S. Census Bureau, 2010 Census

# Abortions Among Females Age 20-24

## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Division for Vital Records & Health Statistics; U.S. Census Bureau, 2010 Census

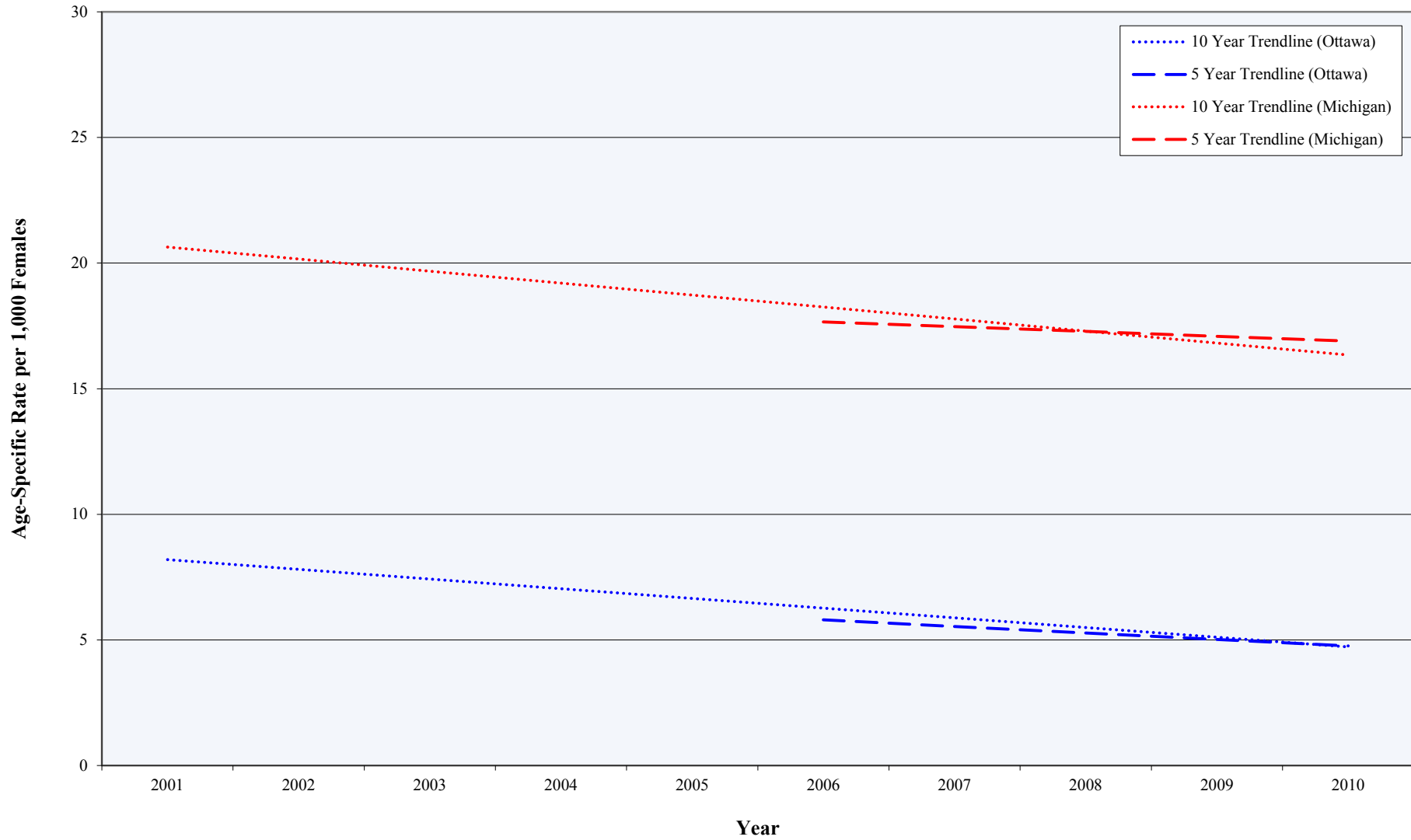
## Abortions Among Females Age 25-29 (2000-2010)



Source: Michigan Department of Community Health, Division for Vital Records & Health Statistics; U.S. Census Bureau, 2010 Census

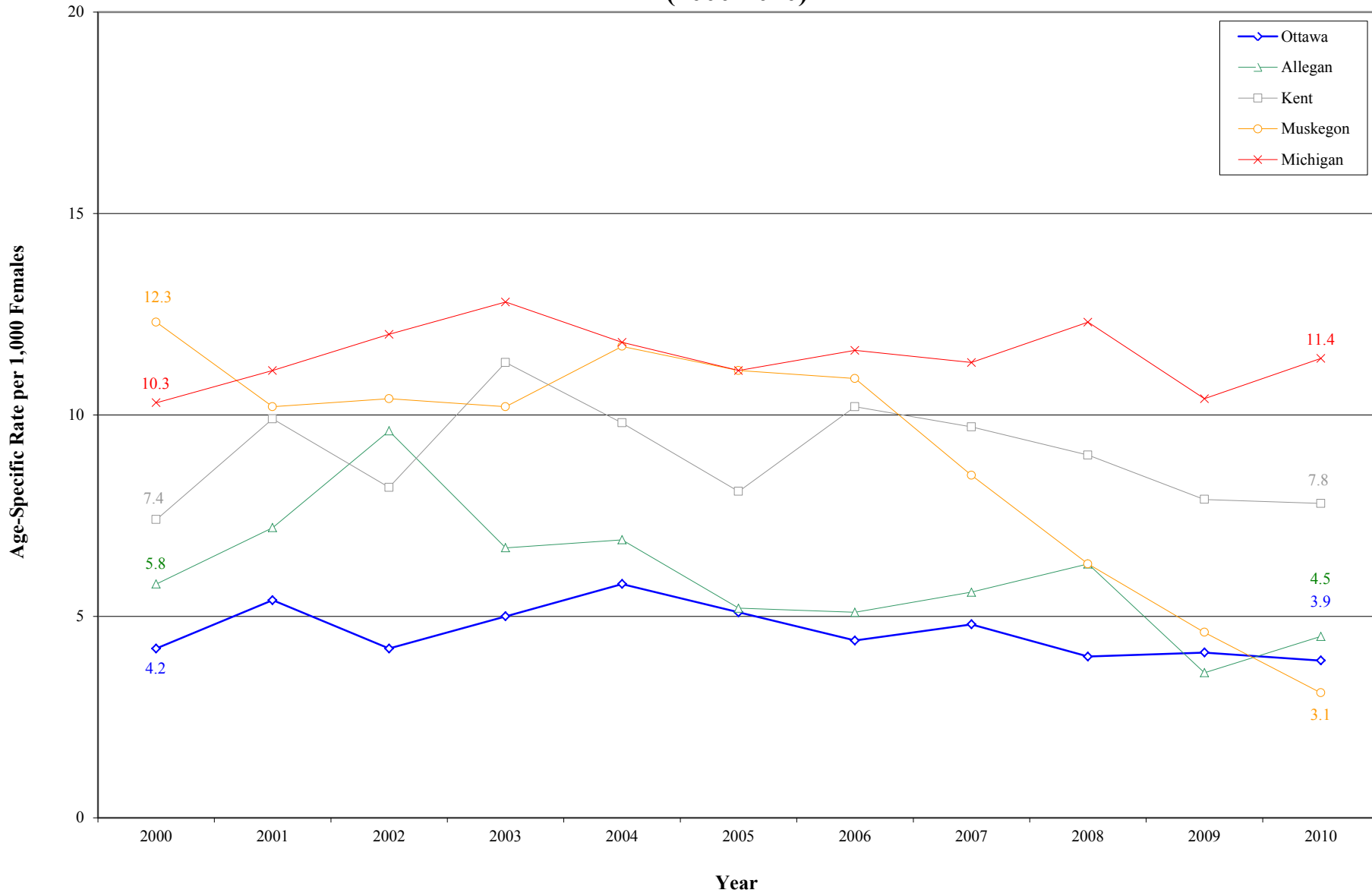
# Abortions Among Females Age 25-29

## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Division for Vital Records & Health Statistics; U.S. Census Bureau, 2010 Census

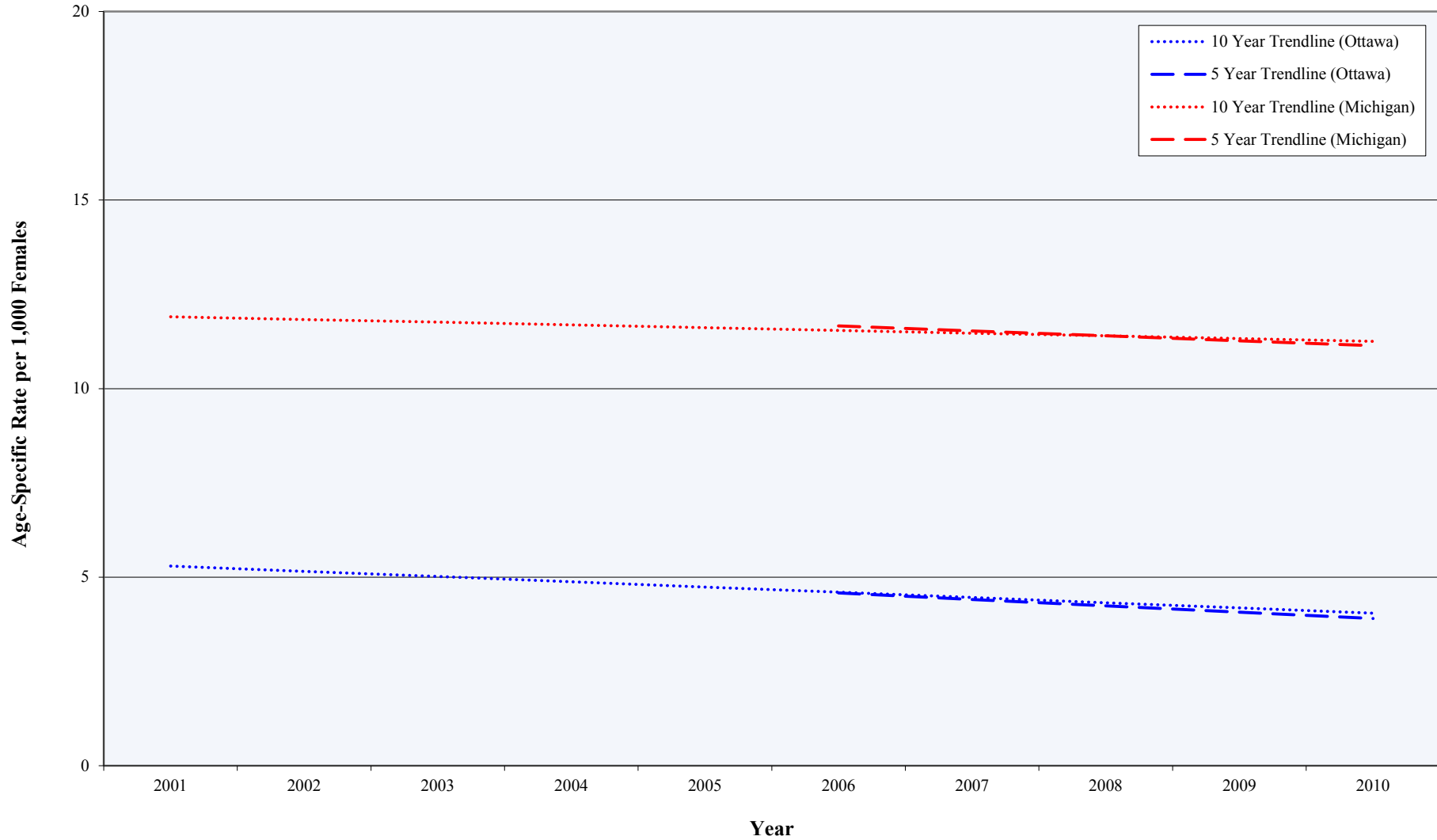
## Abortions Among Females Age 30-34 (2000-2010)



Source: Michigan Department of Community Health, Division for Vital Records & Health Statistics; U.S. Census Bureau, 2010 Census

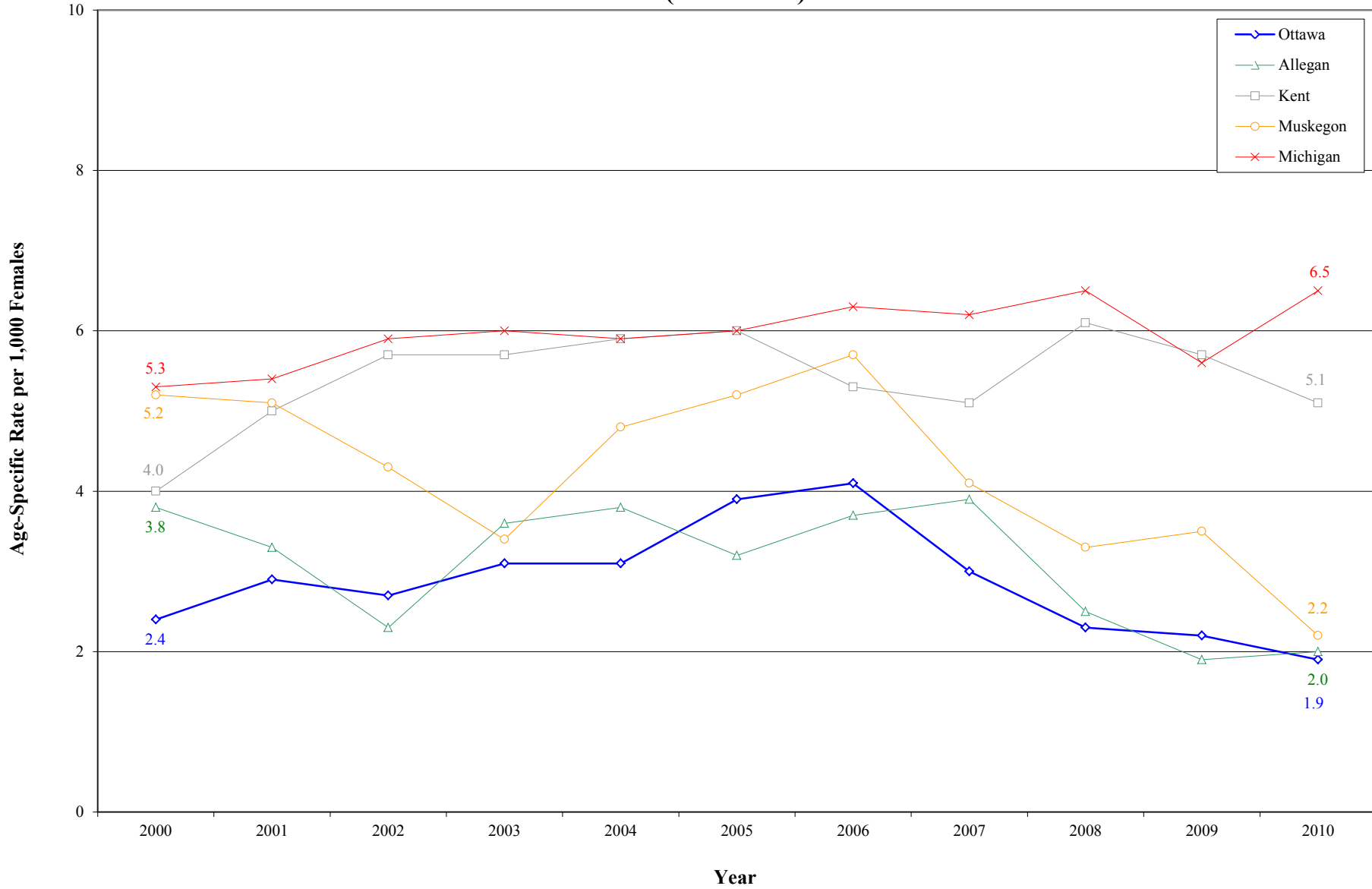
# Abortions Among Females Age 30-34

## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Division for Vital Records & Health Statistics; U.S. Census Bureau, 2010 Census

## Abortions Among Females Age 35-39 (2000-2010)

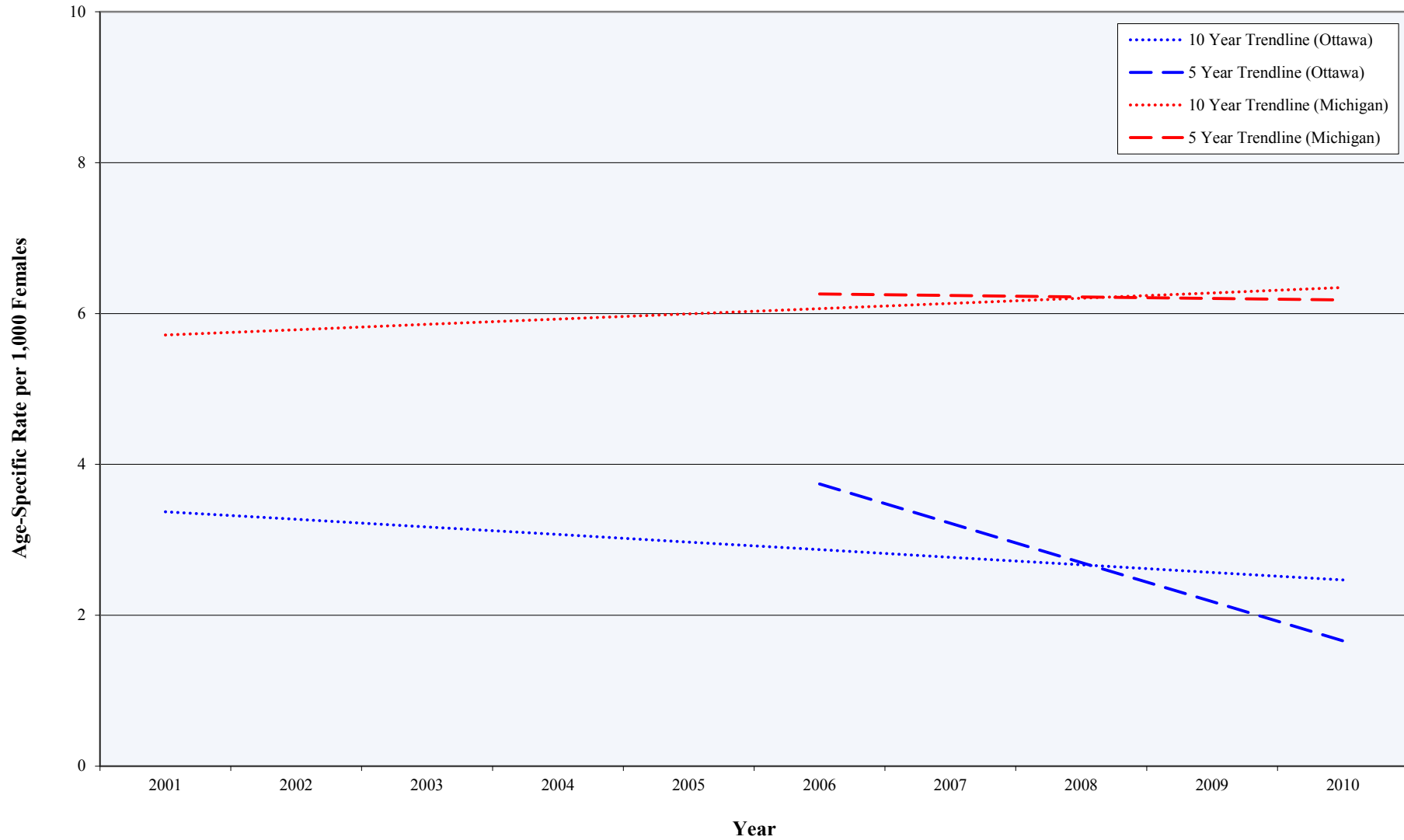


Source: Michigan Department of Community Health, Division for Vital Records & Health Statistics; U.S. Census Bureau, 2010 Census



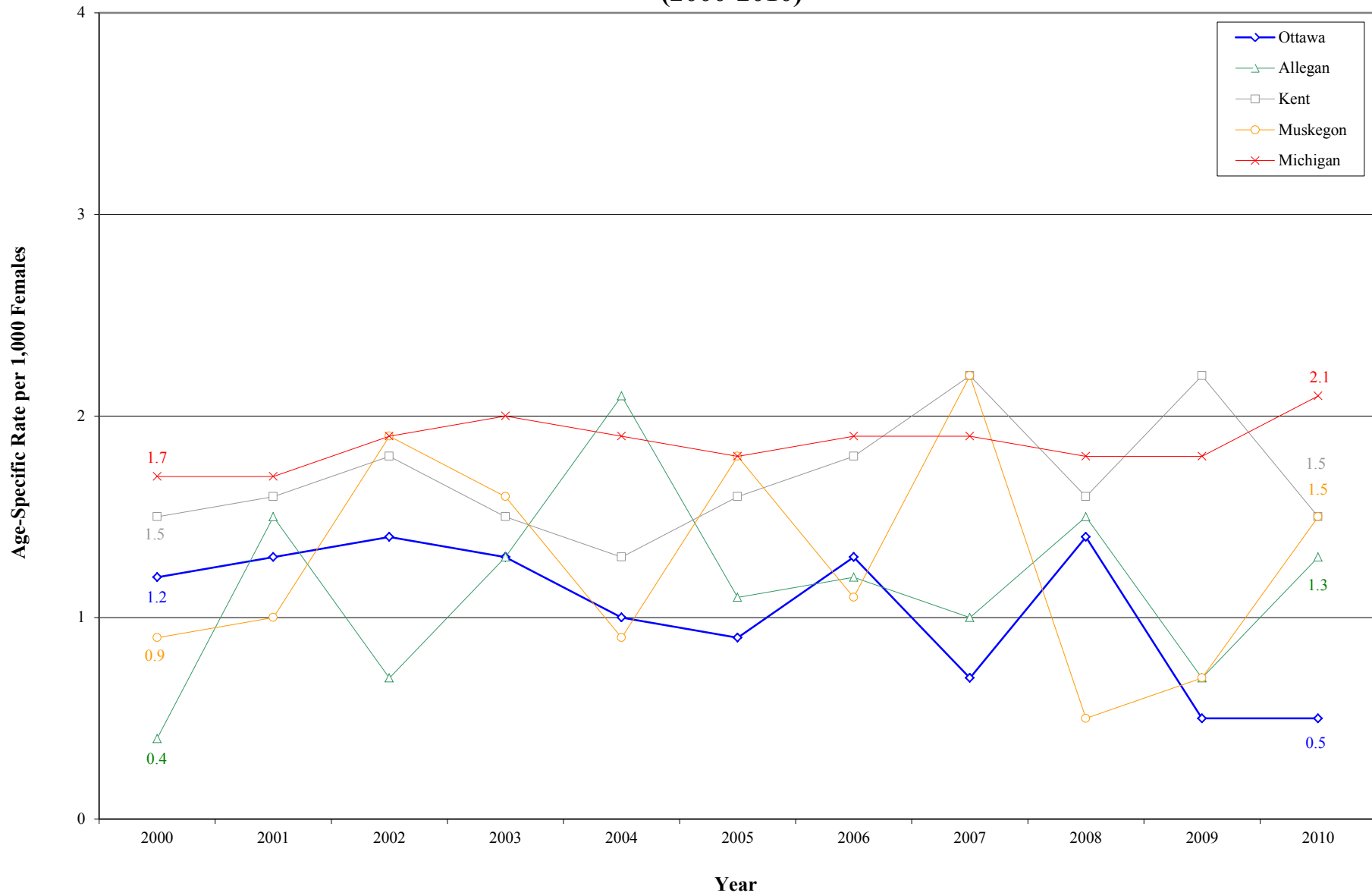
# Abortions Among Females Age 35-39

## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Division for Vital Records & Health Statistics; U.S. Census Bureau, 2010 Census

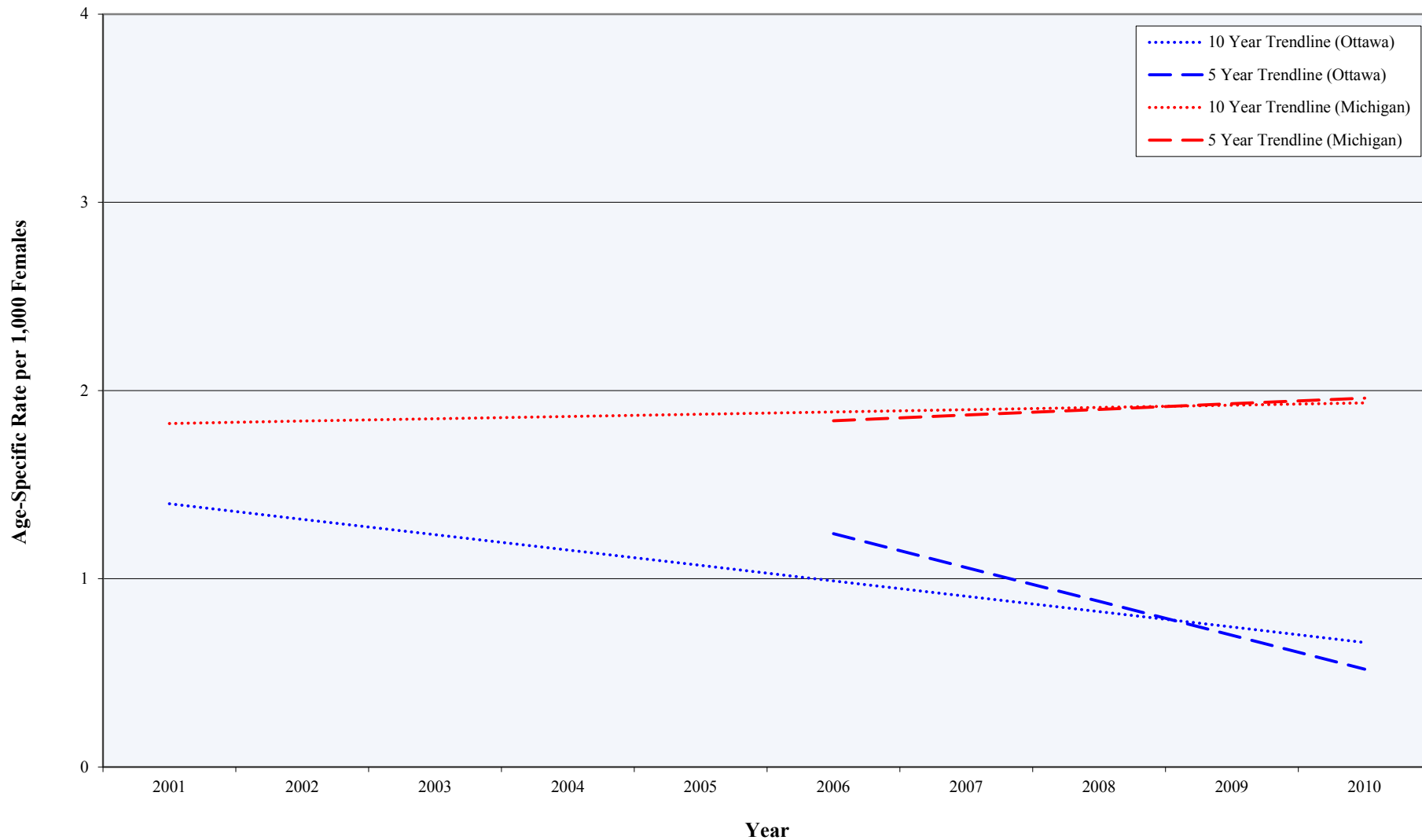
## Abortions Among Females Age 40 and Older (2000-2010)



Source: Michigan Department of Community Health, Division for Vital Records & Health Statistics; U.S. Census Bureau, 2010 Census

# Abortions Among Females Age 40 and Older

## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Division for Vital Records & Health Statistics; U.S. Census Bureau, 2010 Census

## Birth Defects (1992-2010)

**By Year** (Ottawa County, Adjacent Counties, State)

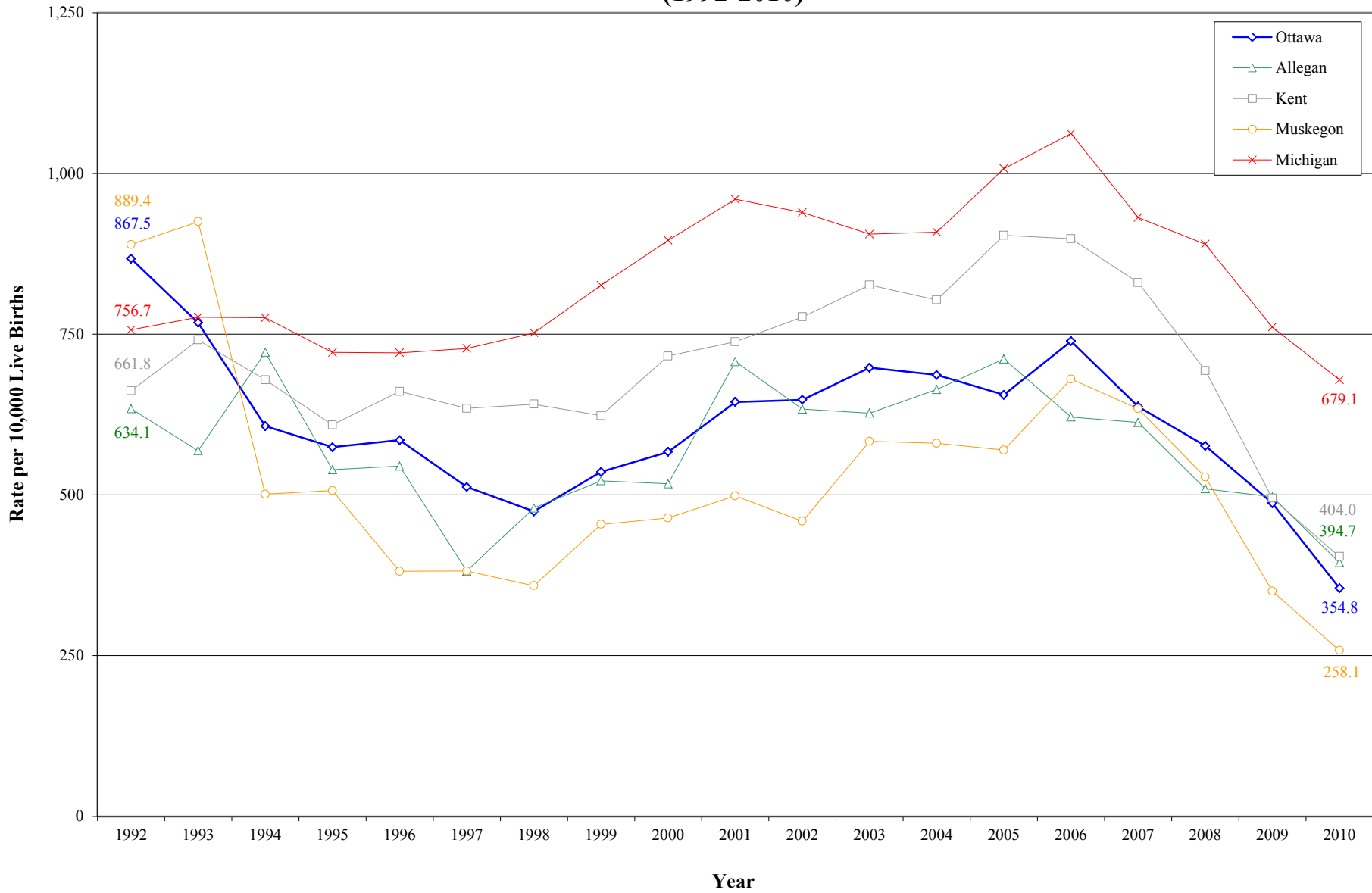
### Birth Defect Cases\* per 10,000 Live Births

Birth Year	Ottawa	Allegan	Kent	Muskegon	Michigan
1992	867.5	634.1	661.8	889.4	756.7
1993	767.8	568.8	741.1	925.1	776.4
1994	607.0	721.9	679.0	501.1	775.5
1995	574.3	539.1	609.0	506.7	721.6
1996	585.1	544.9	660.9	381.2	721.0
1997	512.5	381.6	634.6	381.6	727.8
1998	474.4	479.6	641.2	358.8	752.0
1999	535.8	522.0	623.3	454.2	826.1
2000	566.9	517.4	715.9	464.2	895.9
2001	644.6	707.3	738.2	498.4	959.9
2002	648.0	633.5	776.9	459.1	939.3
2003	697.9	627.2	826.5	583.3	905.6
2004	686.6	664.0	803.2	580.3	908.8
2005	655.7	711.4	903.7	569.8	1,007.6
2006	739.2	621.1	898.5	680.2	1,062.0
2007	637.3	612.6	830.2	633.9	931.5
2008	576.1	509.6	693.4	527.6	890.0
2009	487.2	496.9	494.8	350.4	761.0
2010	354.8	394.7	404.0	258.1	679.1

Source: Michigan Department of Community Health, Michigan Birth Defects Registry, Division for Vital Records & Health Statistics; Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

\* Birth defect cases include all diagnoses within the first two years of a child's life

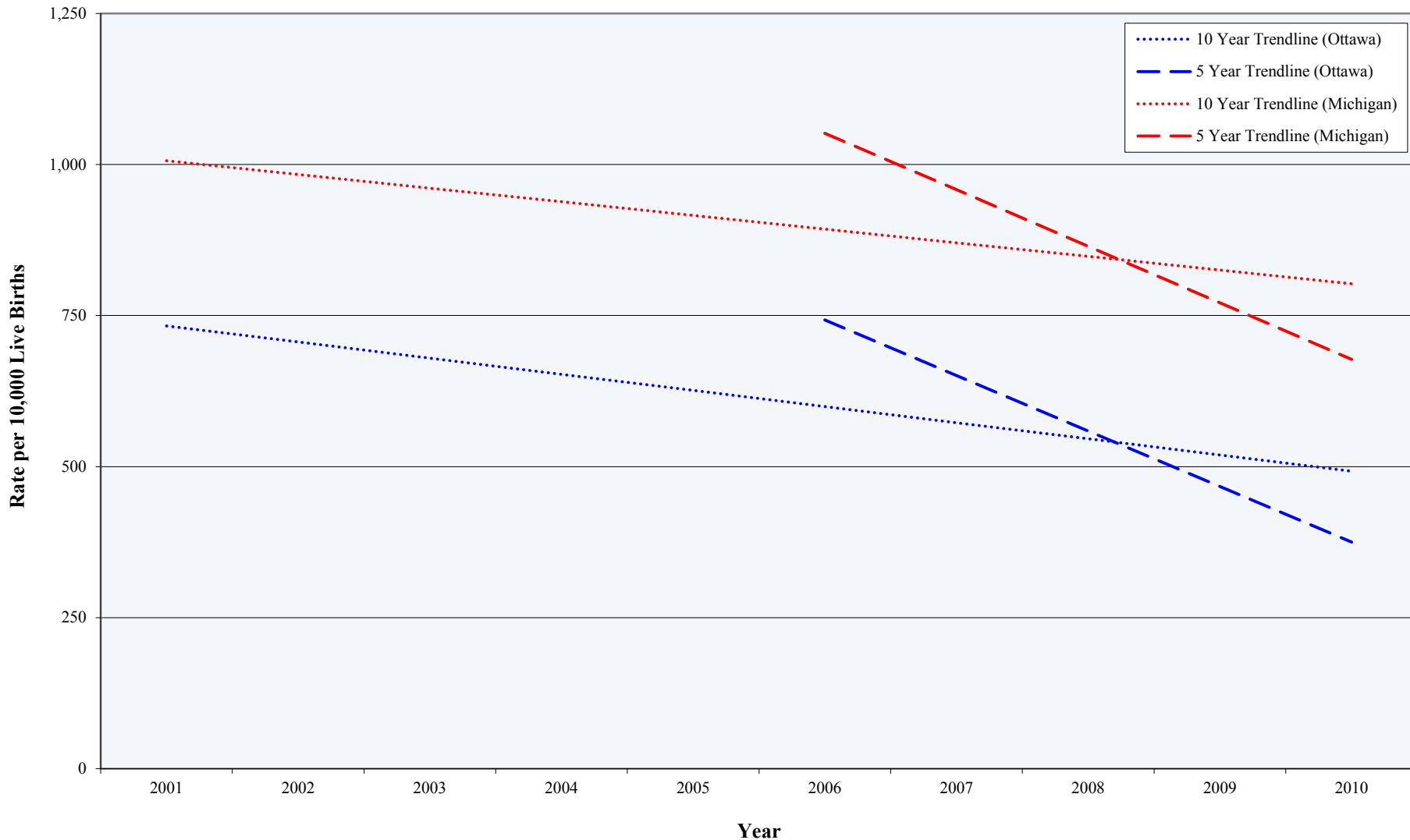
## Birth Defects (1992-2010)



Source: Michigan Department of Community Health, Michigan Birth Defects Registry, Division for Vital Records & Health Statistics; Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

# Birth Defects

## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Michigan Birth Defects Registry, Division for Vital Records & Health Statistics; Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

## Birth Defects by Diagnostic Group (1997-2010)

### Heart & Circulatory System (Ottawa County, Adjacent Counties, State)

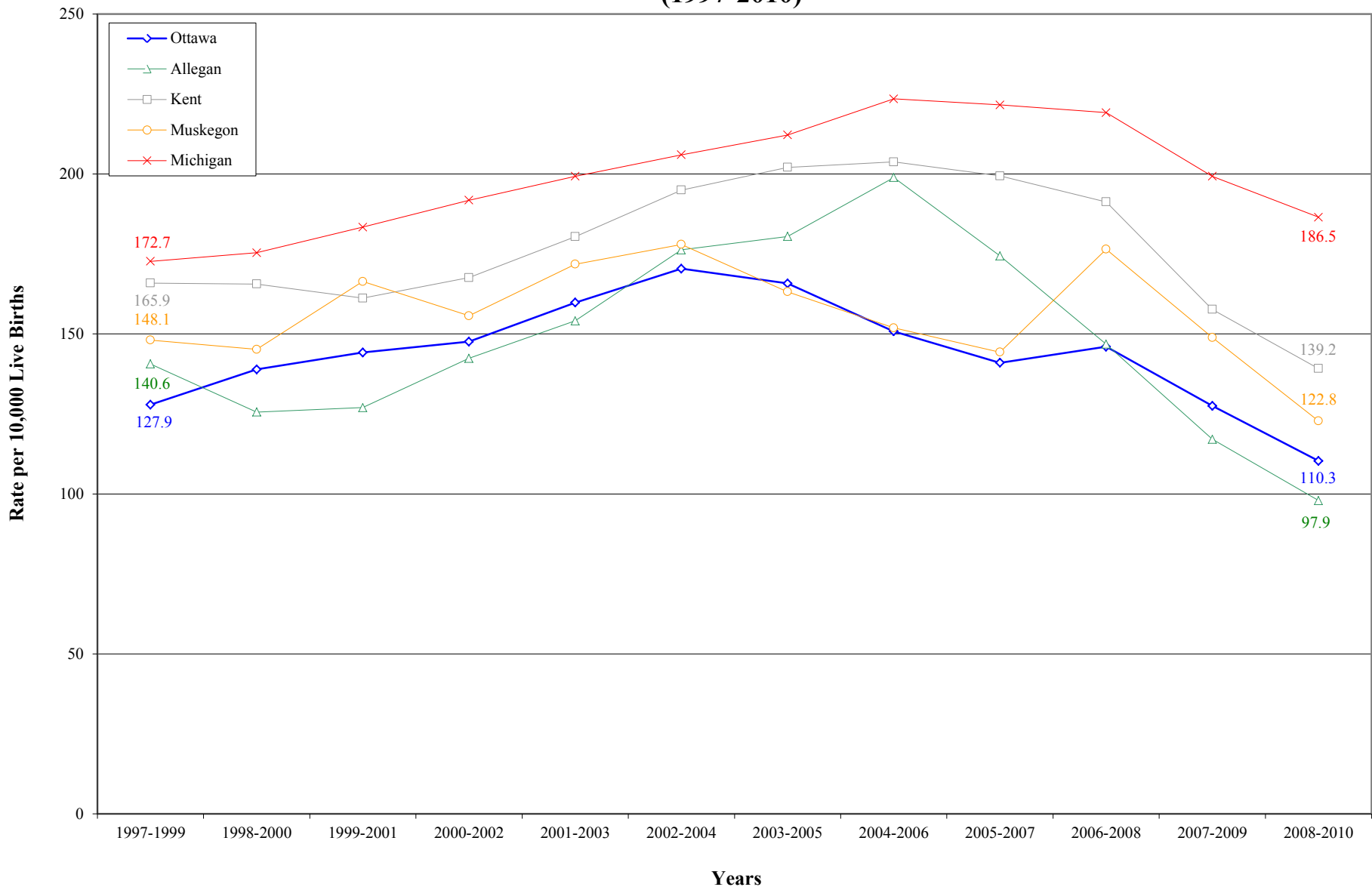
#### Birth Defect Cases\* per 10,000 Live Births

Birth Year	Ottawa	Allegan	Kent	Muskegon	Michigan
1997-1999	127.9	140.6	165.9	148.1	172.7
1998-2000	138.9	125.6	165.6	145.2	175.4
1999-2001	144.2	127.0	161.2	166.4	183.4
2000-2002	147.6	142.4	167.6	155.7	191.8
2001-2003	159.8	154.1	180.4	171.8	199.3
2002-2004	170.4	176.3	195.0	178.0	206.0
2003-2005	165.8	180.5	202.1	163.2	212.2
2004-2006	150.8	198.9	203.8	151.9	223.5
2005-2007	141.0	174.4	199.4	144.3	221.6
2006-2008	146.0	146.8	191.3	176.5	219.2
2007-2009	127.5	117.1	157.7	148.9	199.3
2008-2010	110.3	97.9	139.2	122.8	186.5

Source: Michigan Department of Community Health, Michigan Birth Defects Registry, Division for Vital Records & Health Statistics; Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

\* Birth defect cases include all diagnoses within the first two years of a child's life

## Heart & Circulatory System Birth Defects (1997-2010)

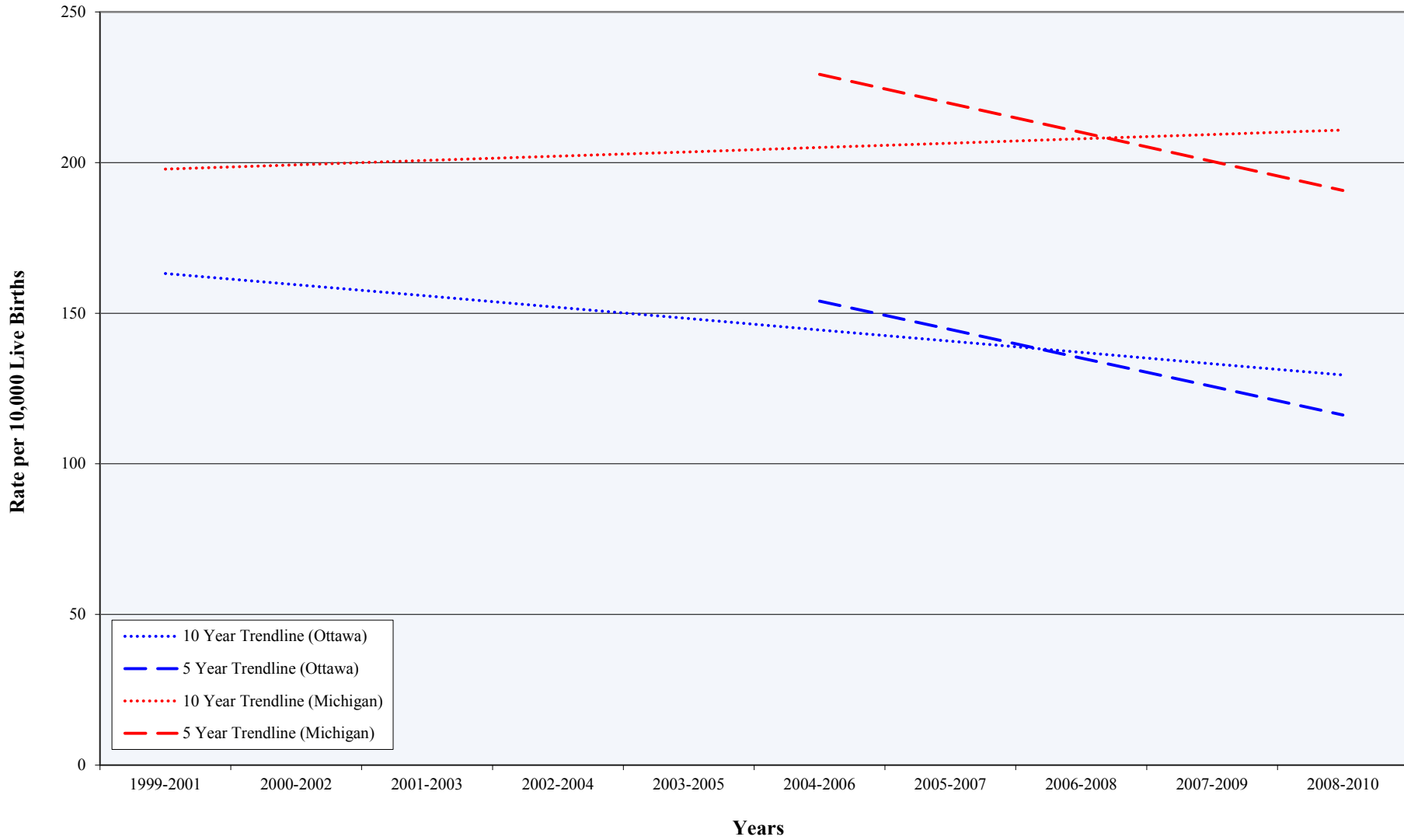


Source: Michigan Department of Community Health, Michigan Birth Defects Registry, Division for Vital Records & Health Statistics; Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics



# Heart & Circulatory System Birth Defects

## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Michigan Birth Defects Registry, Division for Vital Records & Health Statistics; Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

**Birth Defects by Diagnostic Group (1997-2010)**  
**Musculoskeletal System** (Ottawa County, Adjacent Counties, State)

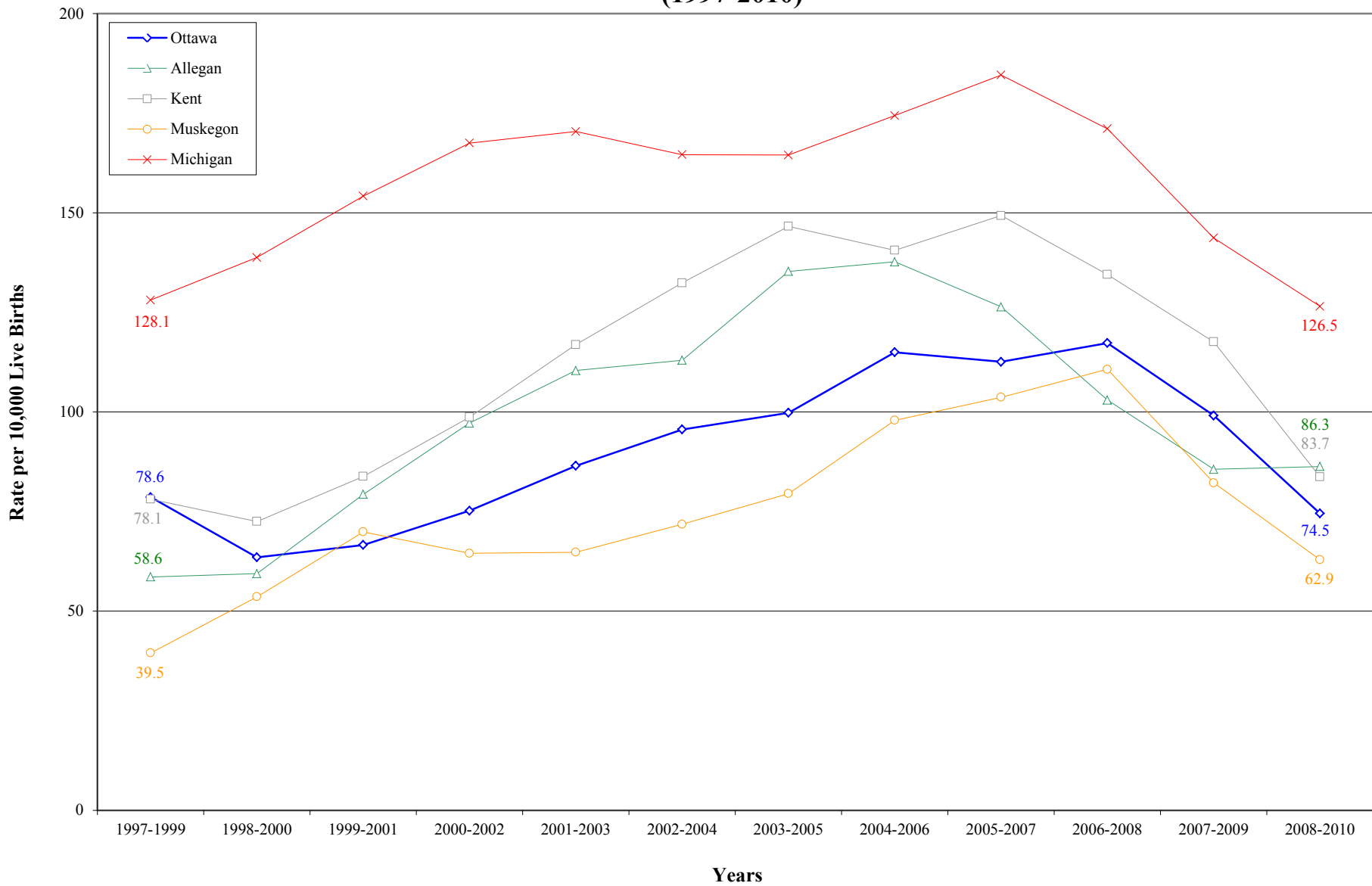
**Birth Defect Cases\* per 10,000 Live Births**

<b>Birth Year</b>	<b>Ottawa</b>	<b>Allegan</b>	<b>Kent</b>	<b>Muskegon</b>	<b>Michigan</b>
1997-1999	78.6	58.6	78.1	39.5	128.1
1998-2000	63.5	59.4	72.5	53.6	138.8
1999-2001	66.6	79.3	83.8	69.9	154.2
2000-2002	75.2	97.2	98.7	64.5	167.5
2001-2003	86.5	110.4	116.9	64.8	170.4
2002-2004	95.6	113.0	132.4	71.8	164.6
2003-2005	99.8	135.3	146.6	79.5	164.5
2004-2006	115.0	137.7	140.6	97.9	174.4
2005-2007	112.6	126.4	149.3	103.7	184.6
2006-2008	117.3	103.0	134.5	110.7	171.1
2007-2009	99.1	85.6	117.6	82.2	143.7
2008-2010	74.5	86.3	83.7	62.9	126.5

Source: Michigan Department of Community Health, Michigan Birth Defects Registry, Division for Vital Records & Health Statistics; Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

\* Birth defect cases include all diagnoses within the first two years of a child's life

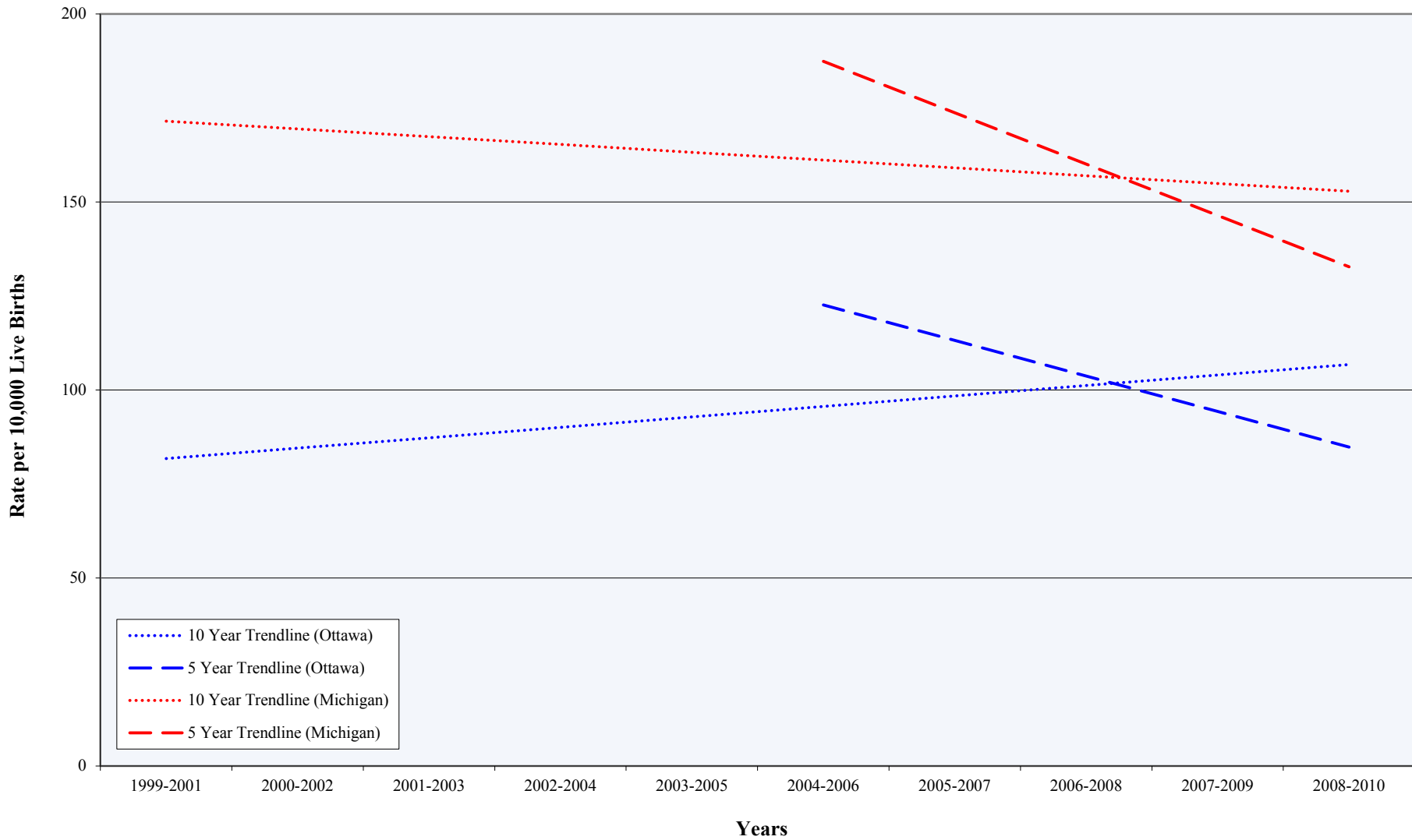
## Musculoskeletal System Birth Defects (1997-2010)



Source: Michigan Department of Community Health, Michigan Birth Defects Registry, Division for Vital Records & Health Statistics; Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

# Musculoskeletal System Birth Defects

## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Michigan Birth Defects Registry, Division for Vital Records & Health Statistics; Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

**Birth Defects by Diagnostic Group (1997-2010)**  
**Genital & Urinary Systems** (Ottawa County, Adjacent Counties, State)

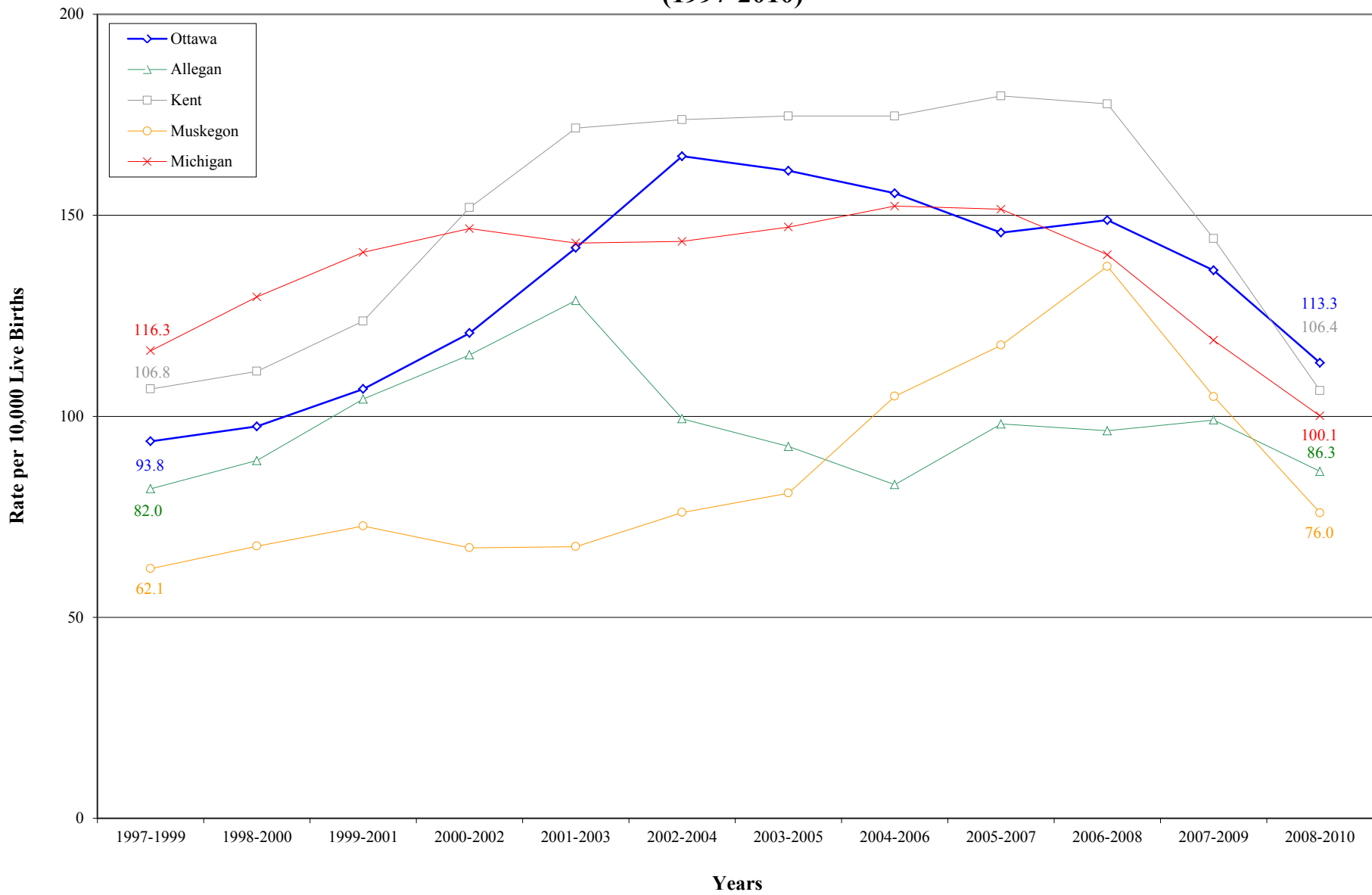
**Birth Defect Cases\* per 10,000 Live Births**

<b>Birth Year</b>	<b>Ottawa</b>	<b>Allegan</b>	<b>Kent</b>	<b>Muskegon</b>	<b>Michigan</b>
1997-1999	93.8	82.0	106.8	62.1	116.3
1998-2000	97.5	89.0	111.2	67.7	129.7
1999-2001	106.8	104.3	123.7	72.7	140.8
2000-2002	120.7	115.3	151.9	67.3	146.7
2001-2003	141.9	128.8	171.7	67.6	143.1
2002-2004	164.7	99.4	173.8	76.1	143.5
2003-2005	161.1	92.5	174.7	80.9	147.1
2004-2006	155.5	83.0	174.7	105.0	152.3
2005-2007	145.7	98.1	179.7	117.7	151.5
2006-2008	148.8	96.4	177.7	137.3	140.2
2007-2009	136.3	99.1	144.2	104.9	118.9
2008-2010	113.3	86.3	106.4	76.0	100.1

Source: Michigan Department of Community Health, Michigan Birth Defects Registry, Division for Vital Records & Health Statistics; Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

\* Birth defect cases include all diagnoses within the first two years of a child's life

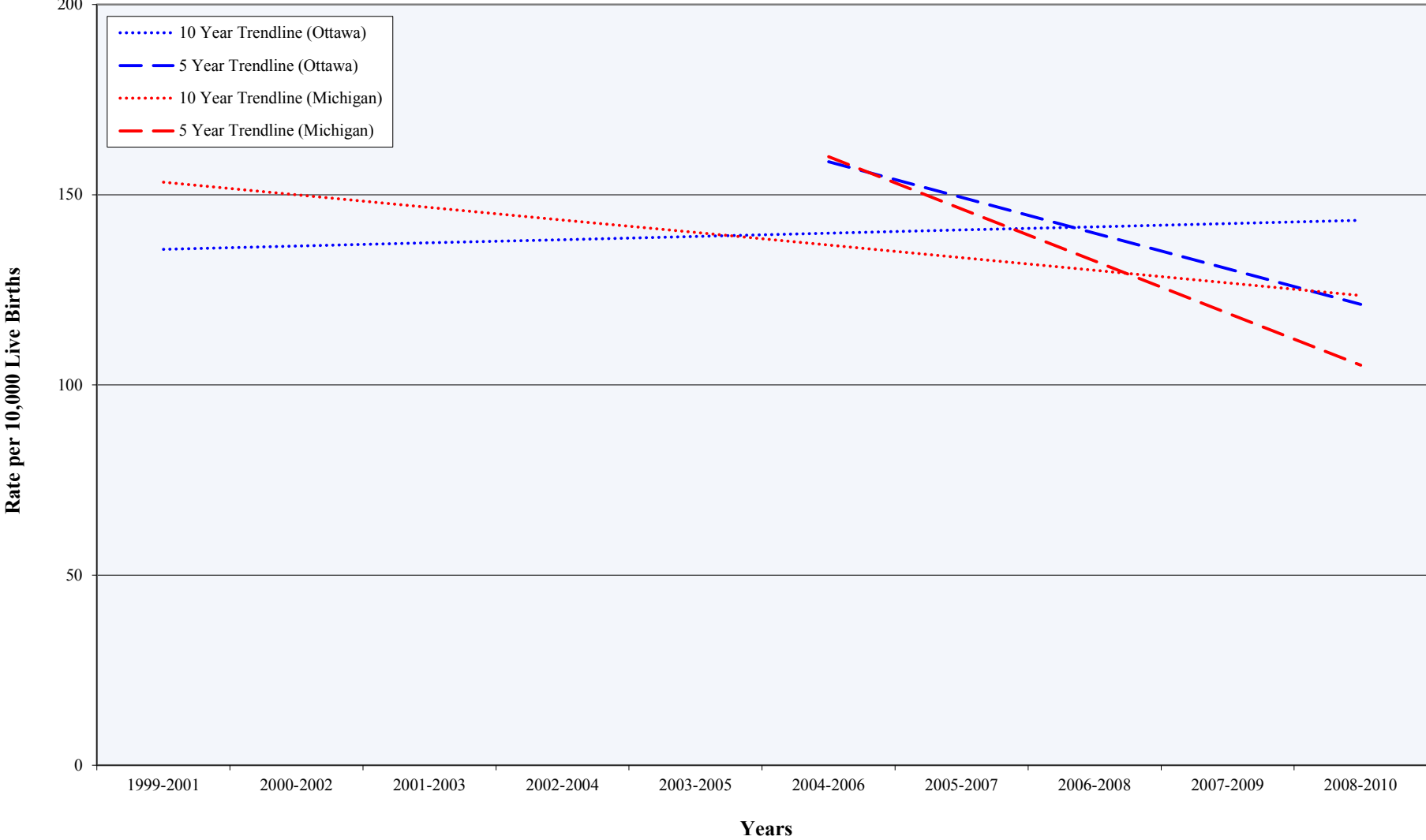
## Genital & Urinary System Birth Defects (1997-2010)



Source: Michigan Department of Community Health, Michigan Birth Defects Registry, Division for Vital Records & Health Statistics; Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

# Genital & Urinary System Birth Defects

## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Michigan Birth Defects Registry, Division for Vital Records & Health Statistics; Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

**Birth Defects by Diagnostic Group (1997-2010)**  
**Gastrointestinal System** (Ottawa County, Adjacent Counties, State)

**Birth Defect Cases\* per 10,000 Live Births**

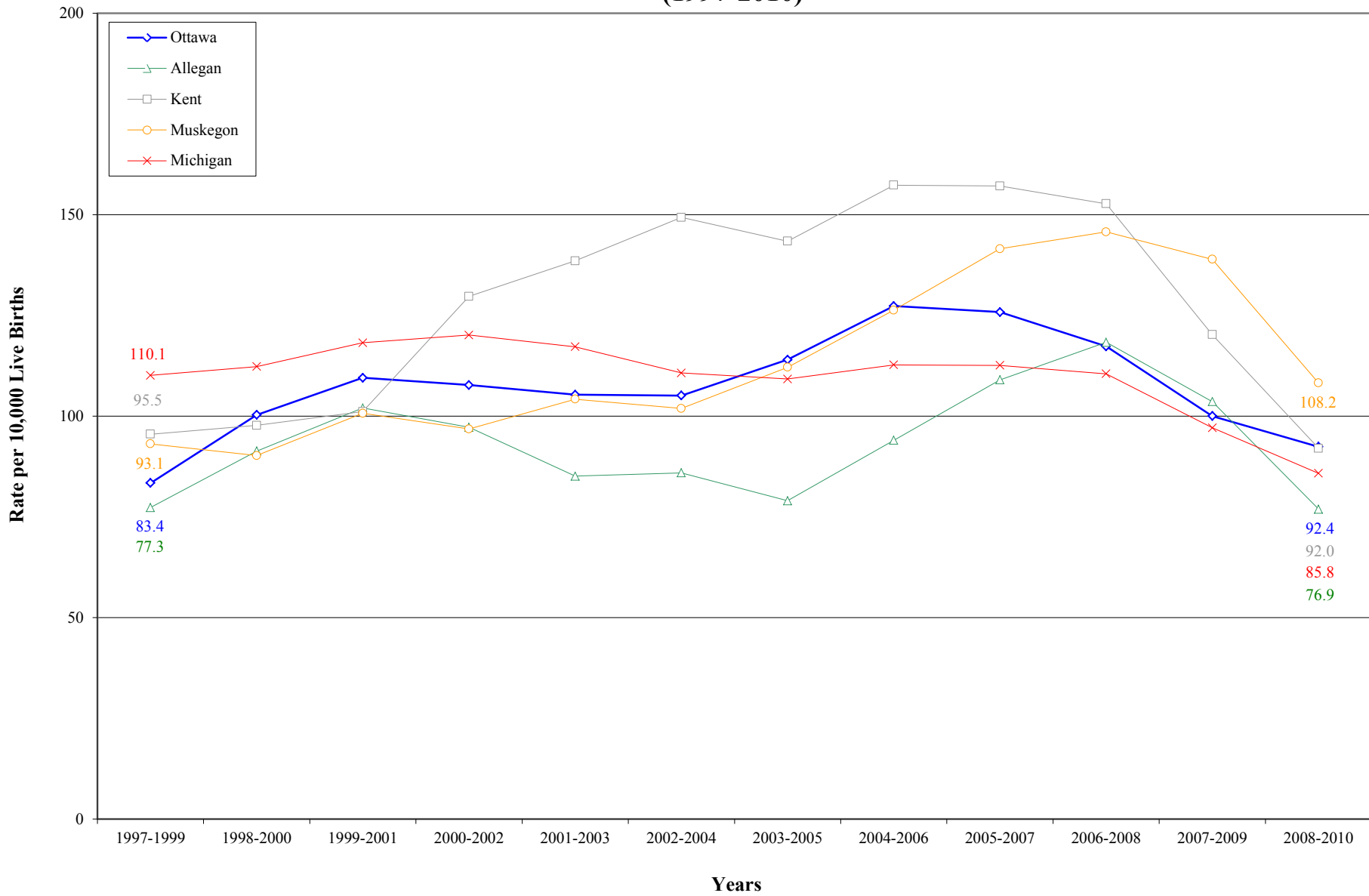
<b>Birth Year</b>	<b>Ottawa</b>	<b>Allegan</b>	<b>Kent</b>	<b>Muskegon</b>	<b>Michigan</b>
1997-1999	83.4	77.3	95.5	93.1	110.1
1998-2000	100.3	91.3	97.7	90.2	112.3
1999-2001	109.5	102.0	101.1	100.7	118.2
2000-2002	107.7	97.2	129.7	96.8	120.1
2001-2003	105.3	85.1	138.5	104.2	117.2
2002-2004	105.1	85.9	149.3	101.9	110.7
2003-2005	114.0	79.0	143.4	112.1	109.2
2004-2006	127.3	94.0	157.3	126.3	112.7
2005-2007	125.8	109.0	157.1	141.5	112.6
2006-2008	117.3	118.3	152.7	145.7	110.5
2007-2009	100.0	103.6	120.2	138.9	97.1
2008-2010	92.4	76.9	92.0	108.2	85.8

Source: Michigan Department of Community Health, Michigan Birth Defects Registry, Division for Vital Records & Health Statistics; Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

\* Birth defect cases include all diagnoses within the first two years of a child's life



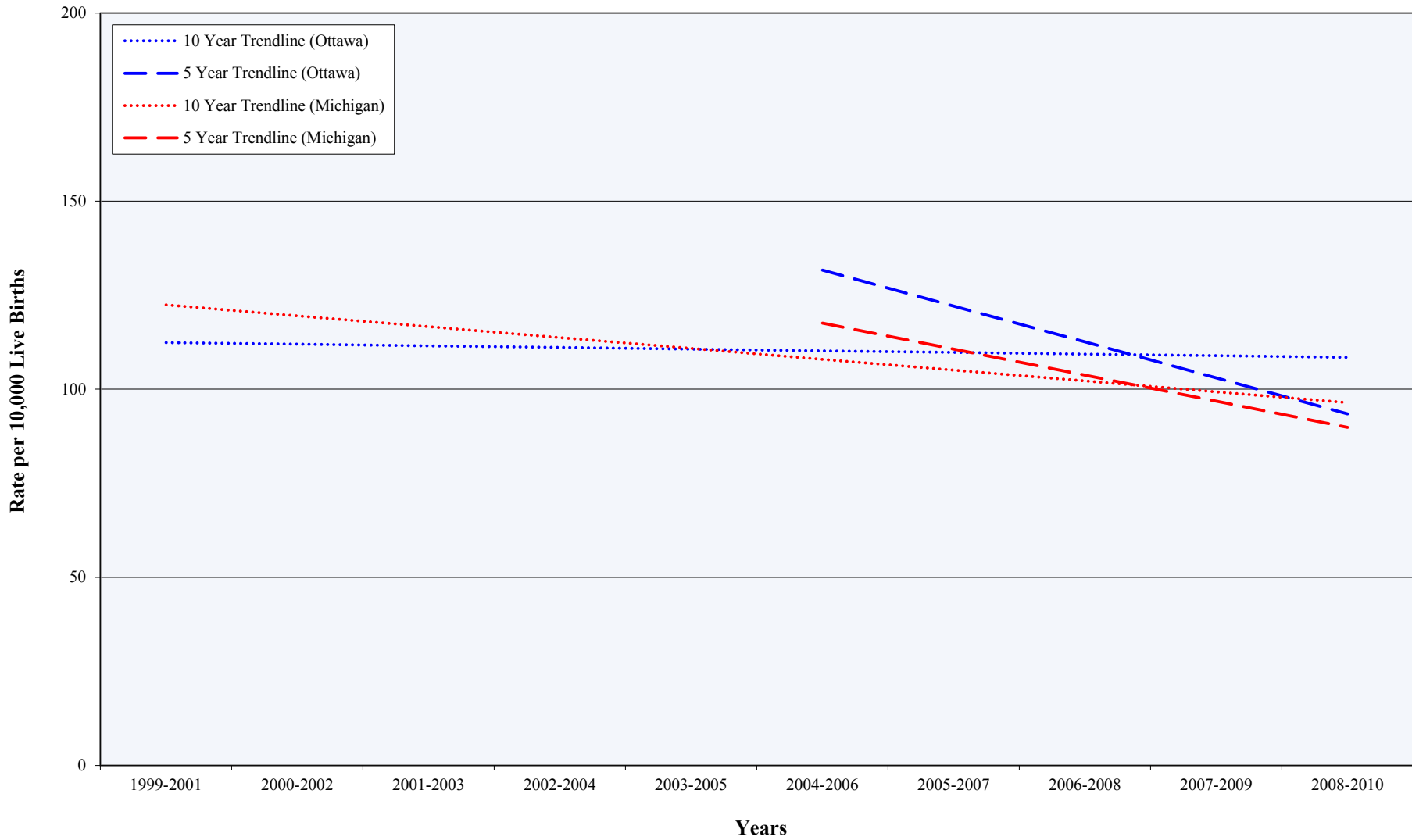
## Gastrointestinal System Birth Defects (1997-2010)



Source: Michigan Department of Community Health, Michigan Birth Defects Registry, Division for Vital Records & Health Statistics; Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

# Gastrointestinal System Birth Defects

## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Michigan Birth Defects Registry, Division for Vital Records & Health Statistics; Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

## Birth Defects by Diagnostic Group (1997-2010)

### Respiratory System (Ottawa County, Adjacent Counties, State)

#### Birth Defect Cases\* per 10,000 Live Births

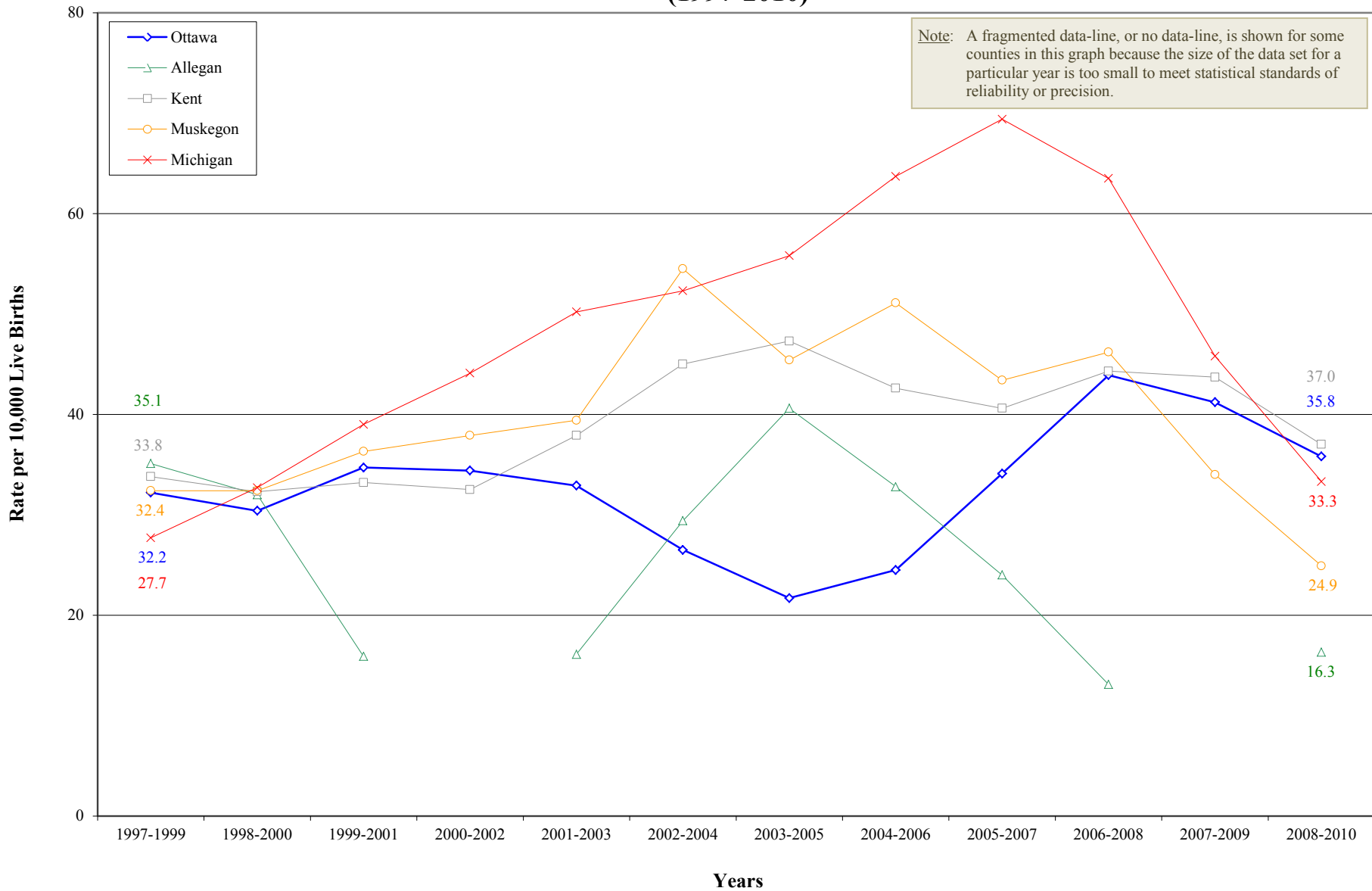
Birth Year	Ottawa	Allegan	Kent	Muskegon	Michigan
1997-1999	32.2	35.1	33.8	32.4	27.7
1998-2000	30.4	32.0	32.3	32.4	32.7
1999-2001	34.7	15.9	33.2	36.3	39.0
2000-2002	34.4	**	32.5	37.9	44.1
2001-2003	32.9	16.1	37.9	39.4	50.2
2002-2004	26.5	29.4	45.0	54.5	52.3
2003-2005	21.7	40.6	47.3	45.4	55.8
2004-2006	24.5	32.8	42.6	51.1	63.7
2005-2007	34.1	24.0	40.6	43.4	69.4
2006-2008	43.9	13.1	44.3	46.2	63.5
2007-2009	41.2	**	43.7	34.0	45.8
2008-2010	35.8	16.3	37.0	24.9	33.3

Source: Michigan Department of Community Health, Michigan Birth Defects Registry, Division for Vital Records & Health Statistics; Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

\* Birth defect cases include all diagnoses within the first two years of a child's life

\*\* A rate was not calculated because the size of the data set (i.e. number of birth defect cases) was too small to meet statistical standards of reliability or precision

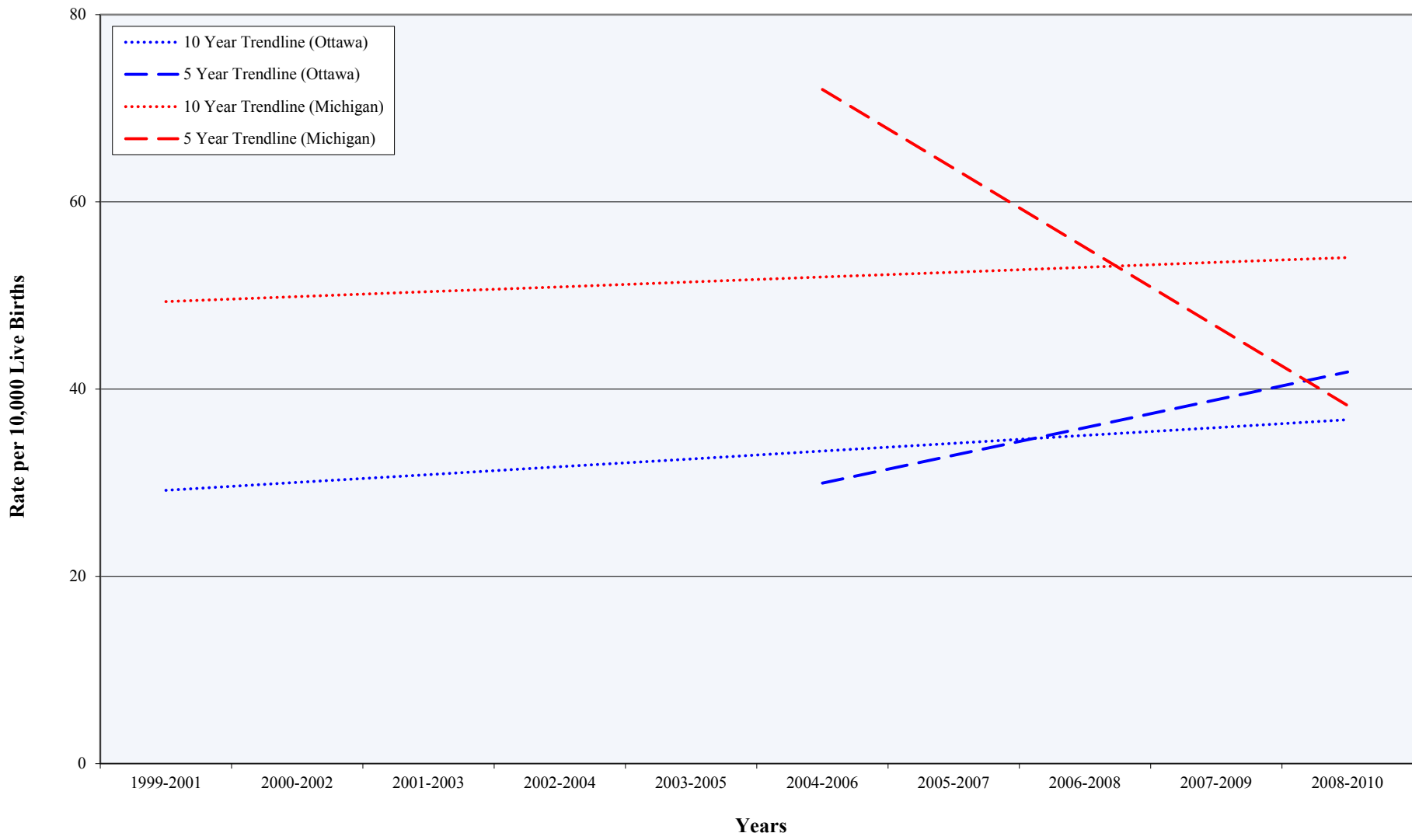
## Respiratory System Birth Defects (1997-2010)



Source: Michigan Department of Community Health, Michigan Birth Defects Registry, Division for Vital Records & Health Statistics; Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

# Respiratory System Birth Defects

## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Michigan Birth Defects Registry, Division for Vital Records & Health Statistics; Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

## Birth Defects by Diagnostic Group (1997-2010)

### Central Nervous System (Ottawa County, Adjacent Counties, State)

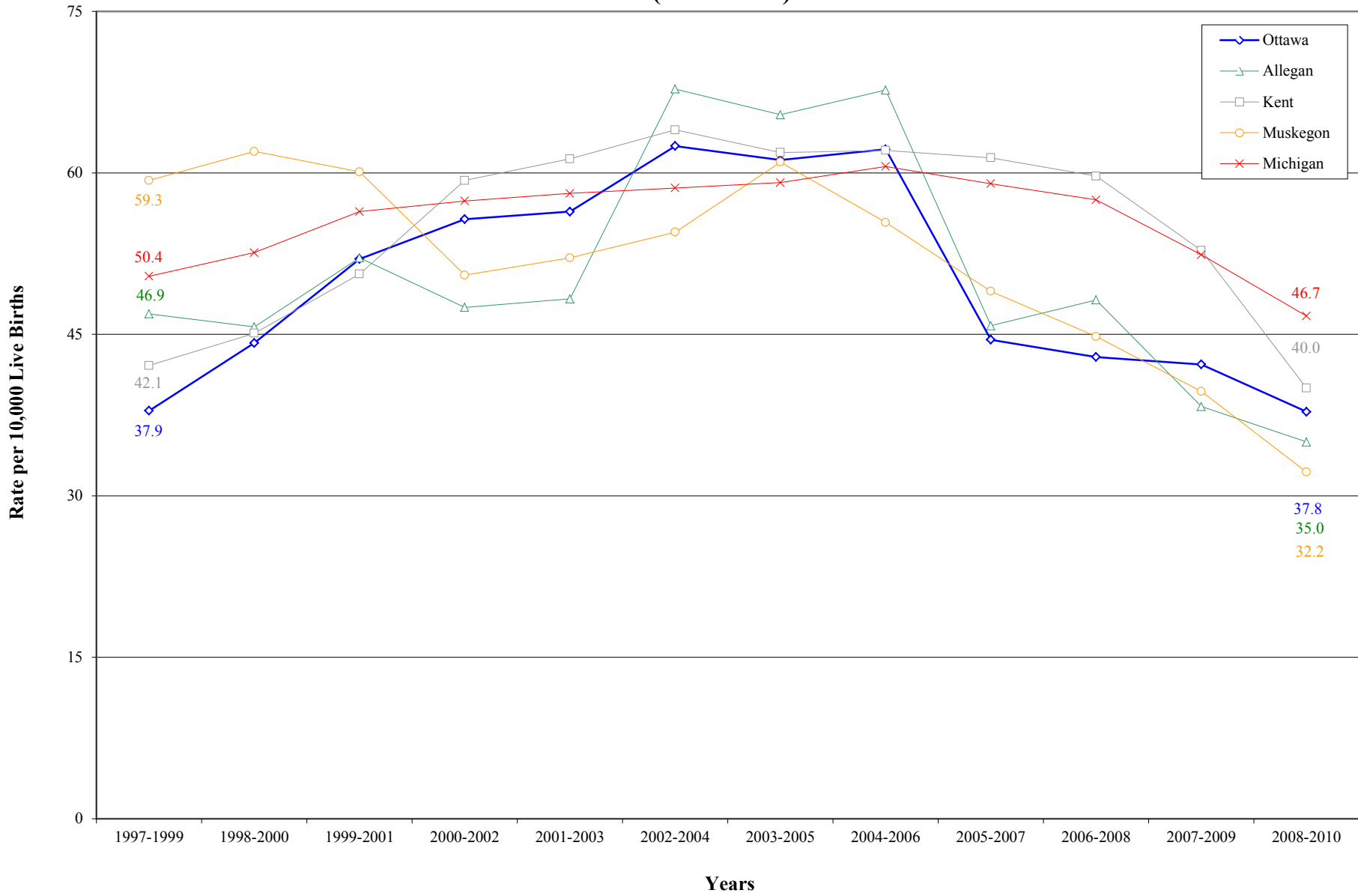
#### Birth Defect Cases\* per 10,000 Live Births

Birth Year	Ottawa	Allegan	Kent	Muskegon	Michigan
1997-1999	37.9	46.9	42.1	59.3	50.4
1998-2000	44.2	45.7	45.1	62.0	52.6
1999-2001	52.0	52.1	50.6	60.1	56.4
2000-2002	55.7	47.5	59.3	50.5	57.4
2001-2003	56.4	48.3	61.3	52.1	58.1
2002-2004	62.5	67.8	64.0	54.5	58.6
2003-2005	61.2	65.4	61.9	61.0	59.1
2004-2006	62.2	67.7	62.1	55.4	60.6
2005-2007	44.5	45.8	61.4	49.0	59.0
2006-2008	42.9	48.2	59.7	44.8	57.5
2007-2009	42.2	38.3	52.8	39.7	52.4
2008-2010	37.8	35.0	40.0	32.2	46.7

Source: Michigan Department of Community Health, Michigan Birth Defects Registry, Division for Vital Records & Health Statistics; Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

\* Birth defect cases include all diagnoses within the first two years of a child's life

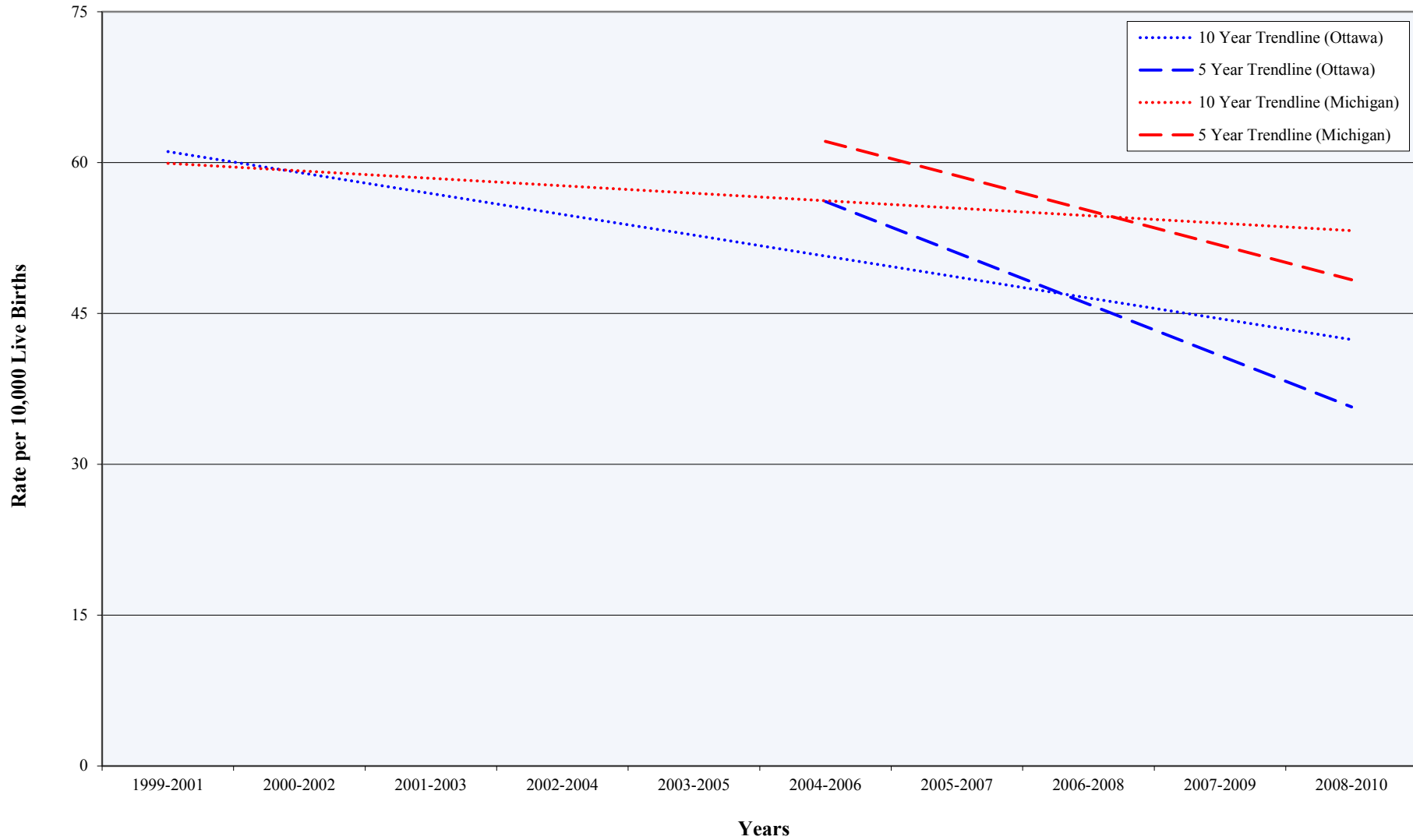
## Central Nervous System Birth Defects (1997-2010)



Source: Michigan Department of Community Health, Michigan Birth Defects Registry, Division for Vital Records & Health Statistics; Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

# Central Nervous System Birth Defects

## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Michigan Birth Defects Registry, Division for Vital Records & Health Statistics; Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics



## Birth Defects by Diagnostic Group (1997-2010)

### Integument System\* (Ottawa County, Adjacent Counties, State)

#### Birth Defect Cases\*\* per 10,000 Live Births

Birth Year	Ottawa	Allegan	Kent	Muskegon	Michigan
1997-1999	14.2	***	60.6	***	21.8
1998-2000	14.7	13.7	59.0	***	21.4
1999-2001	16.4	13.6	62.2	***	22.8
2000-2002	19.5	***	51.5	***	23.2
2001-2003	15.0	***	42.2	***	23.2
2002-2004	13.3	***	34.9	***	26.9
2003-2005	7.5	18.0	42.3	***	34.0
2004-2006	9.4	26.2	47.2	***	60.5
2005-2007	9.5	26.2	56.1	8.4	62.0
2006-2008	11.4	17.5	52.9	9.8	82.6
2007-2009	11.8	***	54.6	9.9	81.8
2008-2010	10.9	***	42.2	***	93.8

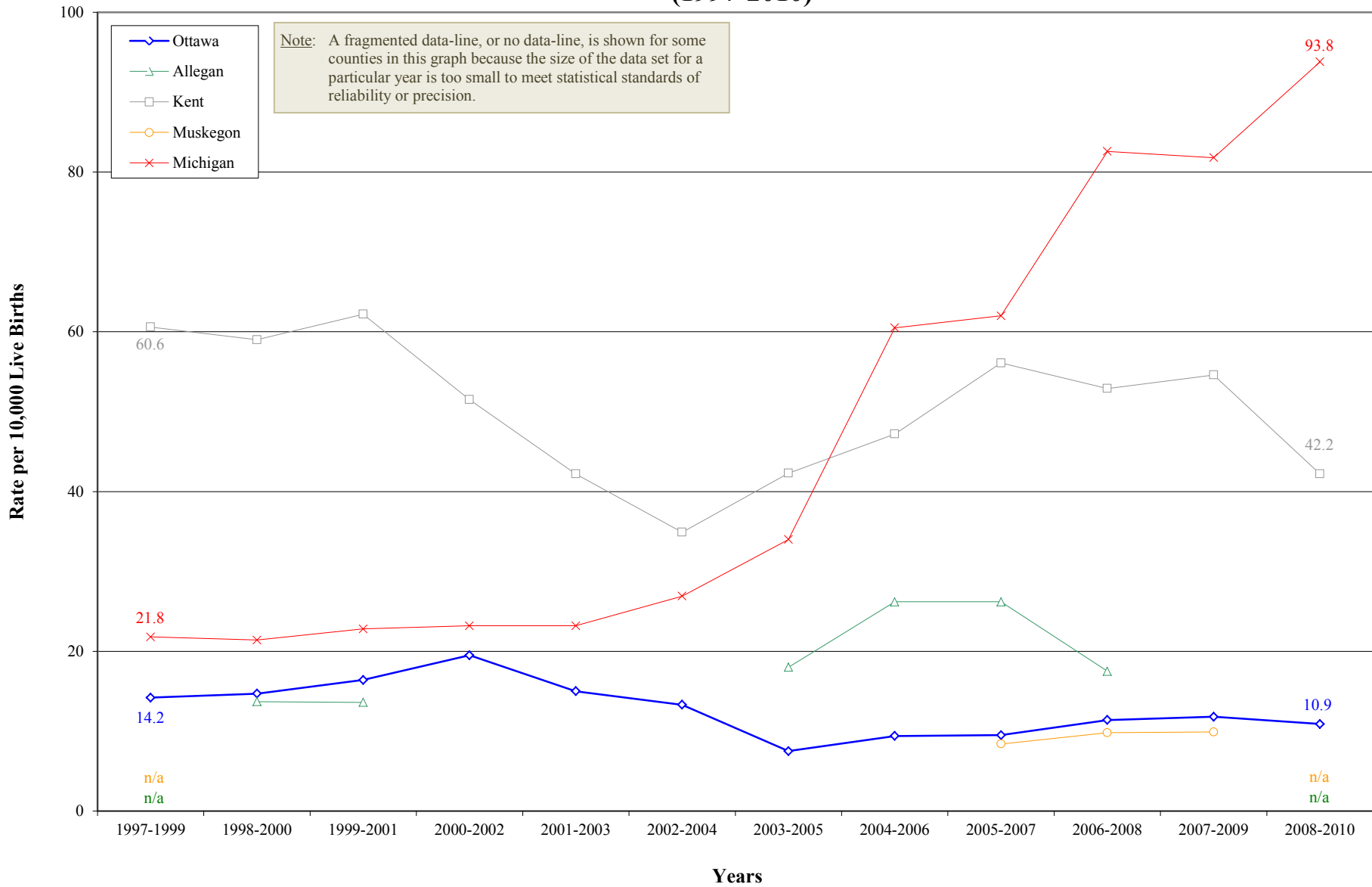
Source: Michigan Department of Community Health, Michigan Birth Defects Registry, Division for Vital Records & Health Statistics; Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

\* The Integument System consists of the skin and its appendages (e.g. glands, hair, nails)

\*\* Birth defect cases include all diagnoses within the first two years of a child's life

\*\*\*A rate was not calculated because the size of the data set (i.e. number of birth defect cases) was too small to meet statistical standards of reliability or precision

## Integument System\* Birth Defects (1997-2010)

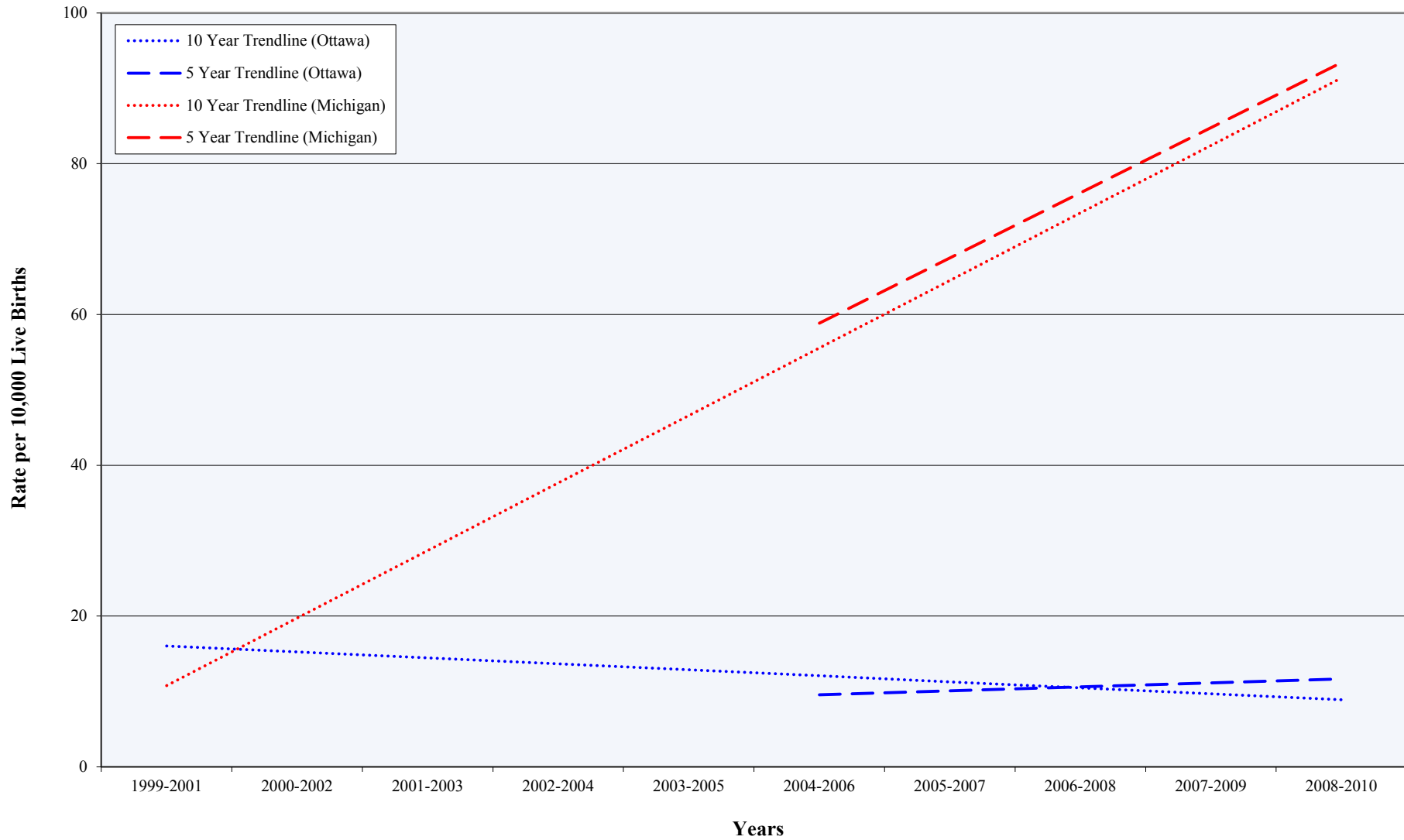


Source: Michigan Department of Community Health, Michigan Birth Defects Registry, Division for Vital Records & Health Statistics; Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

\* The Integument System consists of the skin and its appendages (e.g. glands, hair, nails)

# Integument System\* Birth Defects

## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Michigan Birth Defects Registry, Division for Vital Records & Health Statistics; Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

\* The Integument System consists of the skin and its appendages (e.g. glands, hair, nails)

## Birth Defects by Diagnostic Group (1997-2010)

**Vision** (Ottawa County, Adjacent Counties, State)

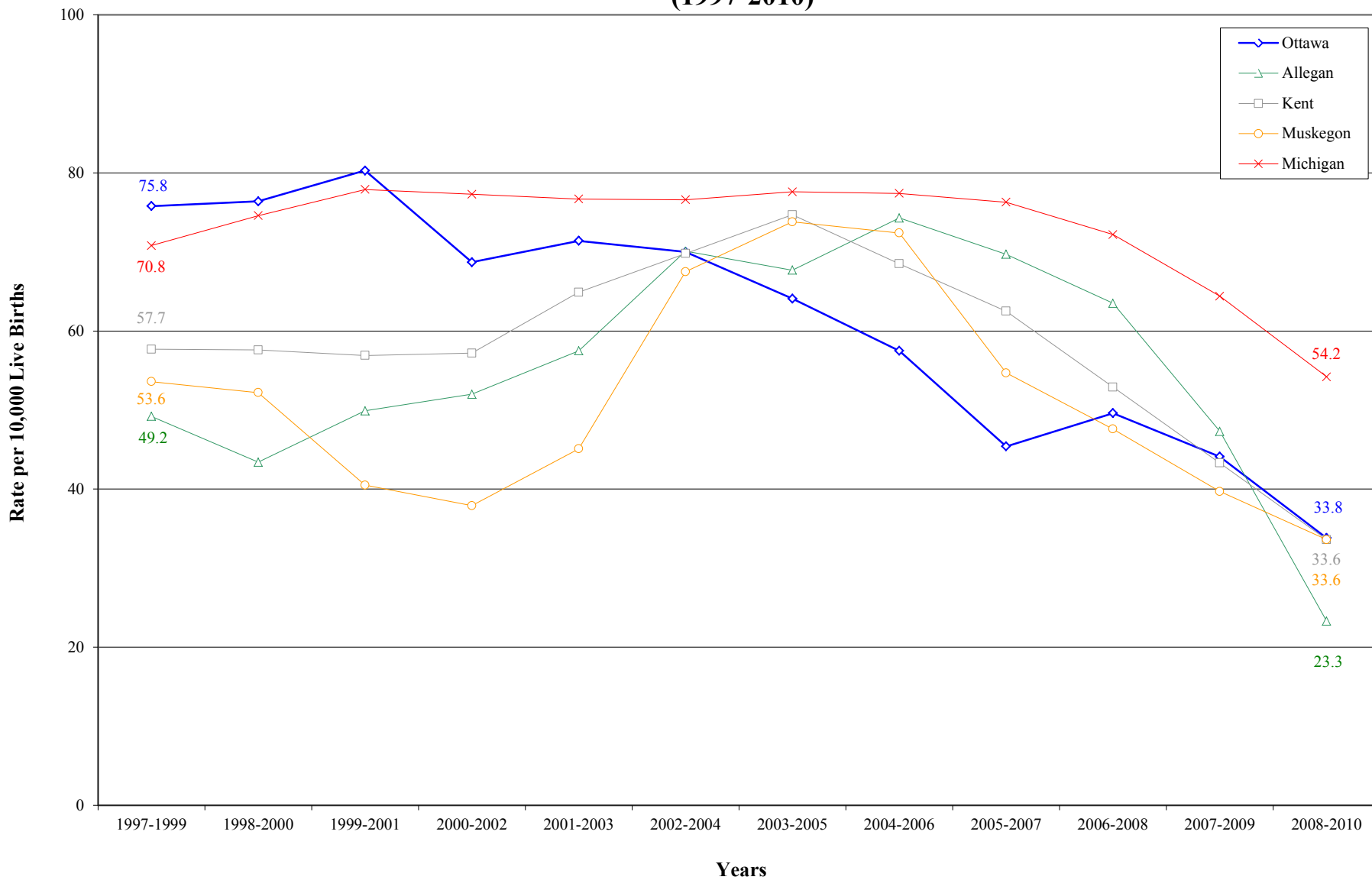
### Birth Defect Cases\* per 10,000 Live Births

Birth Year	Ottawa	Allegan	Kent	Muskegon	Michigan
1997-1999	75.8	49.2	57.7	53.6	70.8
1998-2000	76.4	43.4	57.6	52.2	74.6
1999-2001	80.3	49.9	56.9	40.5	77.9
2000-2002	68.7	52.0	57.2	37.9	77.3
2001-2003	71.4	57.5	64.9	45.1	76.7
2002-2004	70.0	70.1	69.8	67.5	76.6
2003-2005	64.1	67.7	74.7	73.8	77.6
2004-2006	57.5	74.3	68.5	72.4	77.4
2005-2007	45.4	69.7	62.5	54.7	76.3
2006-2008	49.6	63.5	52.9	47.6	72.2
2007-2009	44.1	47.3	43.3	39.7	64.4
2008-2010	33.8	23.3	33.6	33.6	54.2

Source: Michigan Department of Community Health, Michigan Birth Defects Registry, Division for Vital Records & Health Statistics; Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

\* Birth defect cases include all diagnoses within the first two years of a child's life

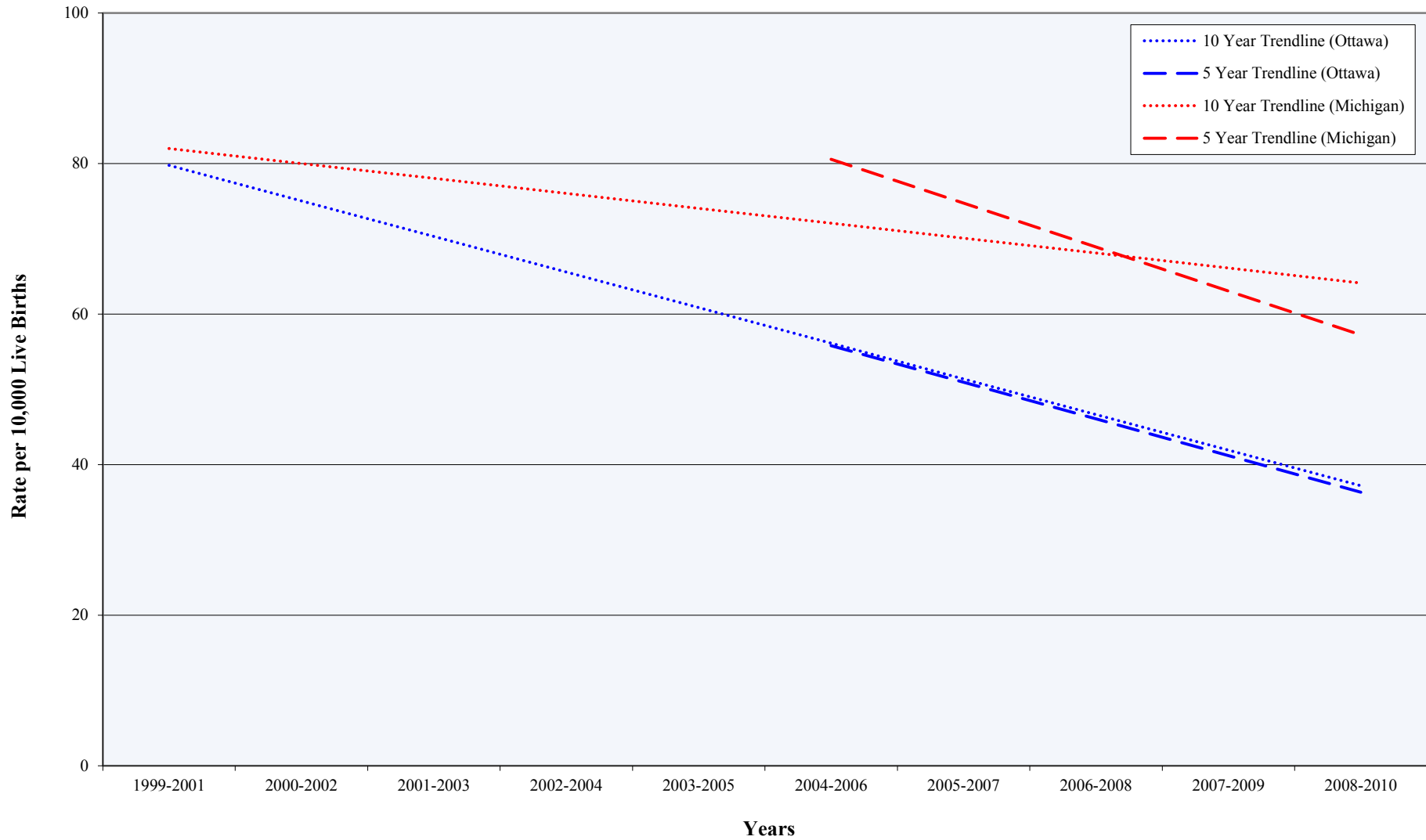
## Vision Birth Defects (1997-2010)



Source: Michigan Department of Community Health, Michigan Birth Defects Registry, Division for Vital Records & Health Statistics; Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

# Vision Birth Defects

## 5 and 10 Year Trends



Source: Michigan Department of Community Health, Michigan Birth Defects Registry, Division for Vital Records & Health Statistics; Michigan Department of Community Health, Michigan Resident Birth Files, Division for Vital Records & Health Statistics

## Immunizations (2005-2010)

### Toddlers Age 19-35 Months (Ottawa County, Adjacent Counties, State)

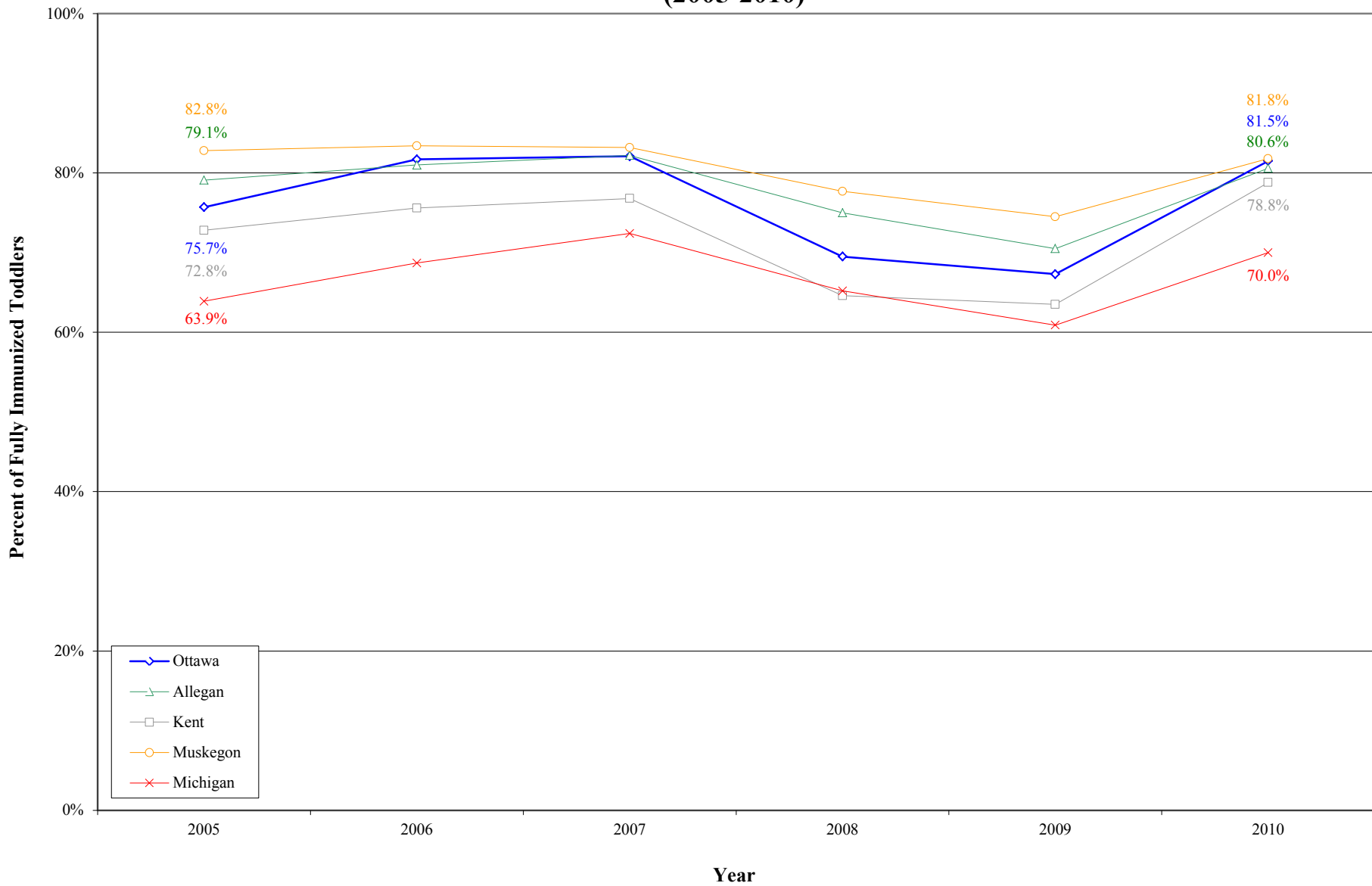
#### Percent of Fully Immunized Toddlers\*

Year	Ottawa	Allegan	Kent	Muskegon	Michigan
2005	75.7%	79.1%	72.8%	82.8%	63.9%
2006	81.7%	81.0%	75.6%	83.4%	68.7%
2007	82.1%	82.2%	76.8%	83.2%	72.4%
2008	69.5%	75.0%	64.6%	77.7%	65.2%
2009	67.3%	70.5%	63.5%	74.5%	60.9%
2010	81.5%	80.6%	78.8%	81.8%	70.0%

Source: The Annie E. Casey Foundation, KIDS COUNT Data Center

\* Toddlers are considered to be fully immunized if they complete the vaccination 4:3:1:3:3:1 series that includes: four injections of DTap (diphtheria, tetanus, and pertussis) vaccines; three poliovirus vaccines; one measles-containing vaccine; three influenza vaccines; three Hepatitis B vaccines; and one varicella (i.e. chickpox) vaccine. The series of vaccinations is scheduled to be completed by the age of 19 months

## Immunizations Among Toddlers Age 19-35 Months (2005-2010)

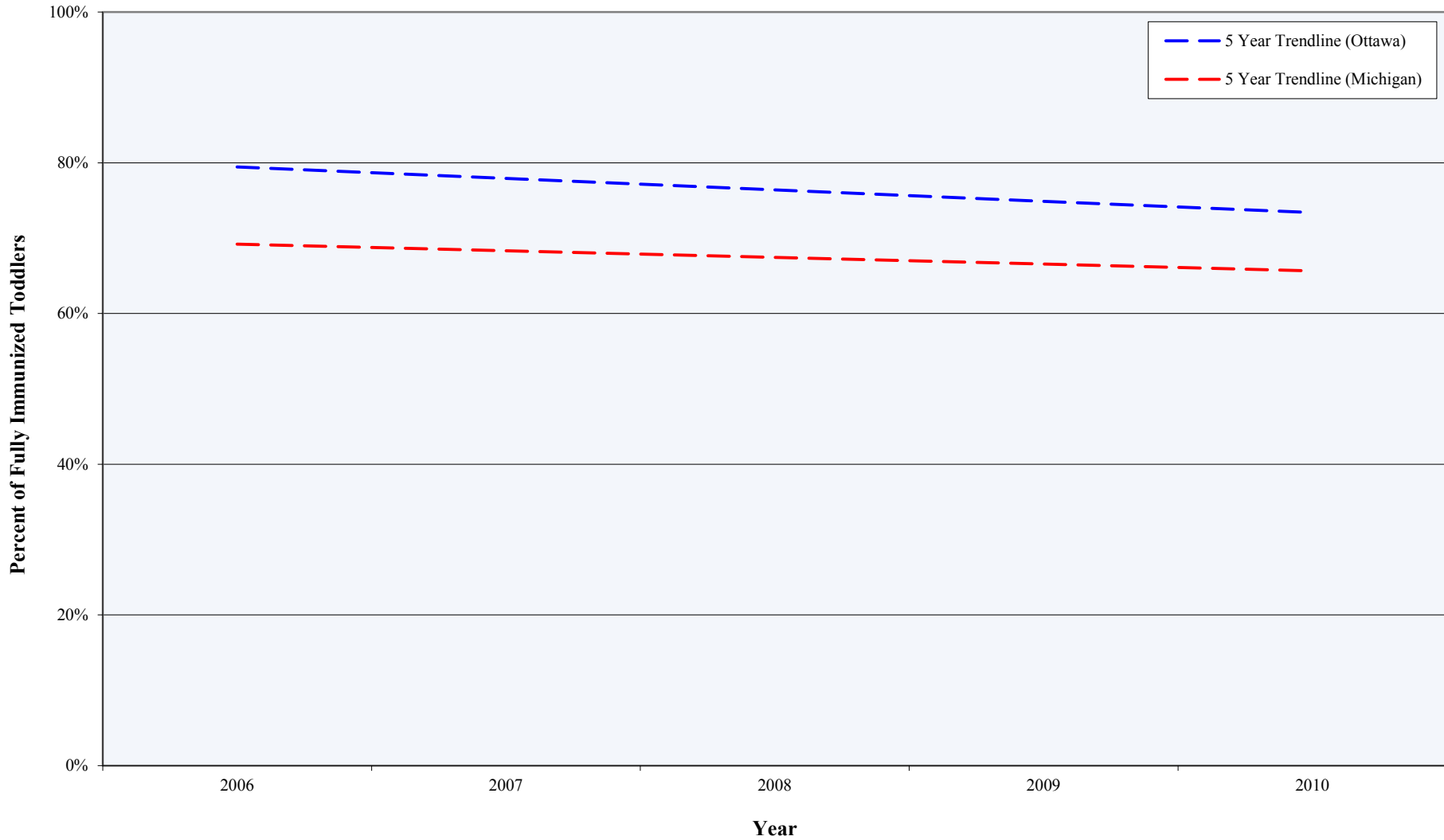


Source: The Annie E. Casey Foundation, KIDS COUNT Data Center



# Immunizations Among Toddlers Age 19-35 Months

## 5 Year Trend



Source: The Annie E. Casey Foundation, KIDS COUNT Data Center