Michigan
Pregnancy & Pediatric Nutrition Surveillance Local WIC Agency Brief

2011

Community Action Agency

Community Action Agency

Local WIC Agency Pregnancy Nutrition Surveillance System (PNSS) & Pediatric Nutrition Surveillance System (PedNSS) Brief 2007

The goal of the Michigan WIC program is to improve the health outcome of low income, nutritionally at-risk women, infants and children by providing supplemental nutritious foods, nutrition education and counseling, breast-feeding support, and referral to other health and social services. This report is developed to provide specific local information regarding the health and nutritional status of WIC participants. Three-year averages were calculated for each health indicator to provide statistics. Consequently, the point estimates represent the incidence or prevalence of an indicator between the years 2005 and 2007. Trends were constructed using 3 year rolling averages and cover the period between 2001 and 2007. Trends of selected characteristics stratified by race/ethnicity are also reported where data are sufficient.

Figure 1. Number of children < 5years of age and women of reproductive age in **CAA** 2000 US census, MI PNSS/PedNSS 2007

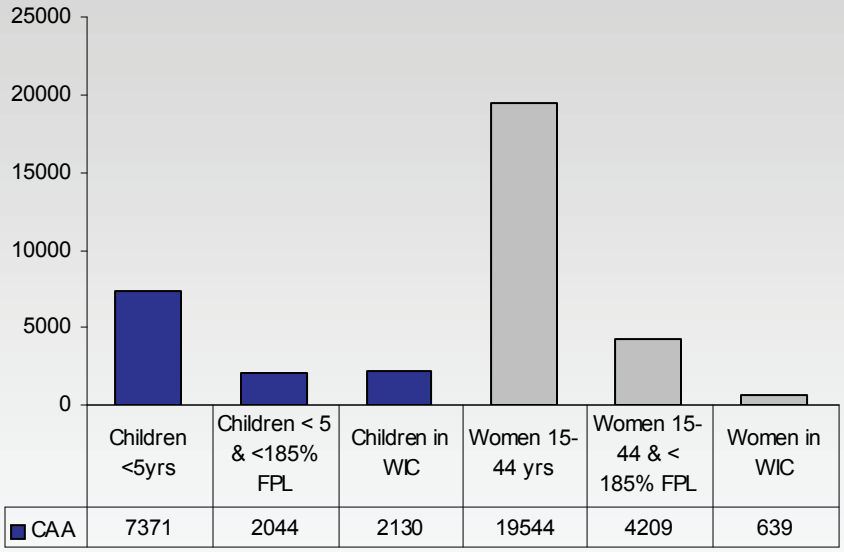
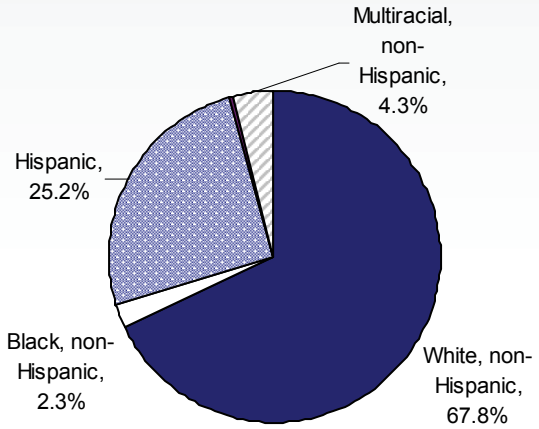


Figure 2. Distribution of race/ethnicity among **CAA** WIC participants, MI PNSS/PedNSS 2007



The Community Action Agency (CAA) serves Lenawee county. According to the 2000 U.S. Census, there were 98,890 persons residing in the area served by the CAA.

Approximately 19.8% of the population were women of child-bearing age (15-44 years old). Among these women, 21.5% lived below 185% of the Federal Poverty Level (FPL). The CAA WIC agency served approximately 639 pregnant, post-partum, and lactating women, representing 1.0% of women participating in the Michigan WIC program in 2007 (Figure 1).

The 2000 Census also revealed that 7.5% of the population served by the CAA was less than five years of age. Among infants and children younger than five years old, 27.7% lived below 185% of the FPL. In 2007, the CAA WIC agency served 2,130 infants and children, representing 0.9% of all infants and children participating in the Michigan WIC program. Selected characteristics of WIC participants are displayed in Table 1 and Figures 2 –19. The distribution of race/ethnicity is shown in Figure 2.

CAA At-A-Glance

For the year 2007, enrollees in the CAA tended to enroll earlier in prenatal care and later in WIC than women enrolled statewide. More women reported a normal pre-natal body mass index (BMI), adequate pregnancy weight gain, smoking during pregnancy and breastfeeding initiation compared to women enrolled in the WIC program statewide.

Fewer women enrolled in the CAA reported a pregnancy interval of at least 18 months and breastfeeding to 6 months compared to the state WIC program.

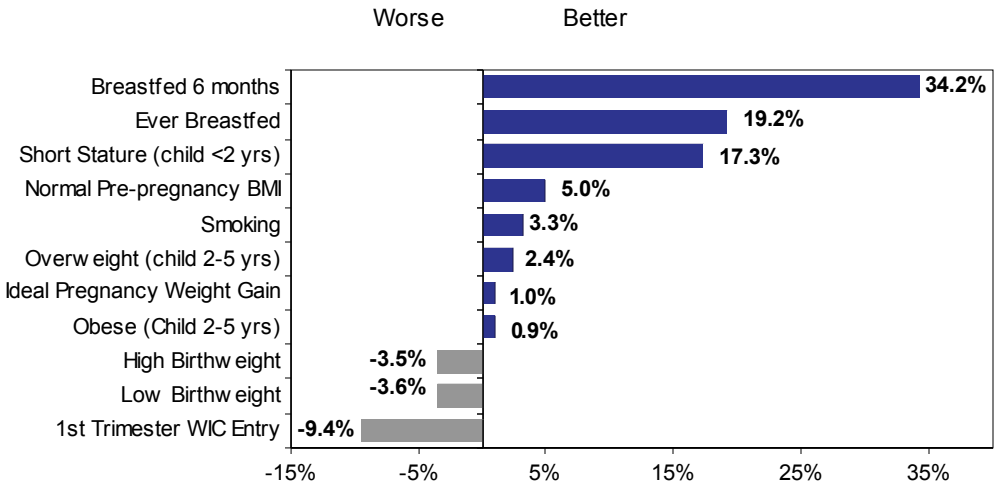
Fewer infants were born with low birthweight (full term). More children were overweight/obese and fewer were underweight in the CAA compared to children enrolled statewide.

Table 1. **Selected Characteristics** of WIC participants in CAA, MI PedNSS/PNSS 2007 1 year data . [1-2]

	CAA		State	
	N	%	N	%
Income < 50% FPL	193	31.3%	25285	41.3%
Income 50%-100% FPL	166	26.9%	15633	25.5%
1st Trimseter WIC Enrollment	164	27.0%	20201	32.3%
1st Trimseter PNC Enrollment	491	86.1%	42815	75.2%
Pregnancy Interval >=18mo	186	49.1%	21585	55.5%
Maternal normal pre-natal BMI	265	44.2%	25822	42.9%
Adequate maternal weight gain	166	32.0%	13353	26.9%
Smoking durng pregnancy	120	22.8%	9524	19.5%
Full term low birthweight	29	5.4%	3779	7.4%
Breastfeeding initiation	296	55.6%	27288	54.0%
Breastfeeding to 6 mo	19	13.2%	2055	17.1%
Child <2 underweight	48	3.8%	5942	4.5%
Child 2-5 yrs Overwt/Obese	267	31.0%	29491	29.5%

* PNC= Prenatal Care

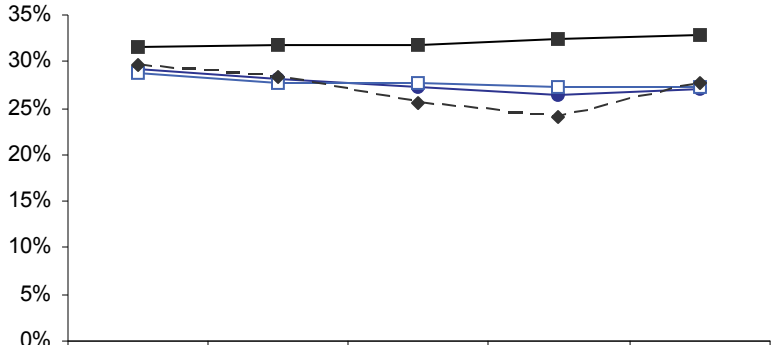
Figure 3. **Health Progress Review** for CAA WIC women, infants and children under five years old, 2005-2007 compared to 2001-2003 MI PNSS & PedNSS



From 2003 to 2007, the average prevalence of breastfeeding to 6 months, breastfeeding initiation and short stature showed the most improvement in the CAA.

However the average prevalence of high birthweight, low birthweight and 1st trimester WIC enrollment worsened during the same period.

Figure 4. Trend of average prevalence of **1st trimester WIC enrollment by race/ethnicity** among women in CAA, 2003-2007 PNSS[1-3]



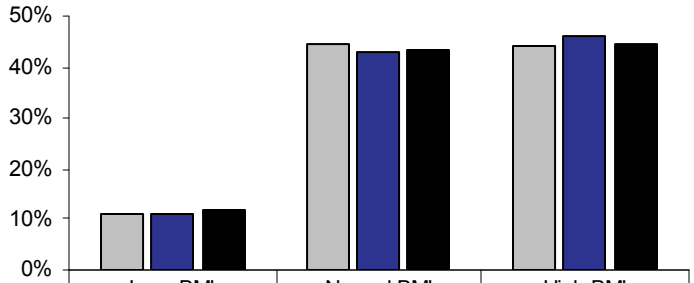
	2001-2003	2002-2004	2003-2005	2004-2006	2005-2007
State PNSS	31.5%	31.7%	31.9%	32.5%	32.8%
CAA PNSS	29.2%	28.0%	27.2%	26.4%	27.1%
White, non-Hispanic	28.9%	27.7%	27.8%	27.3%	27.4%
Hispanic	29.7%	28.3%	25.6%	24.0%	27.8%

The proportion of women who enroll in WIC in the first trimester of their pregnancy was consistently lower among women in the CAA compared to WIC participants statewide. There was little difference in the prevalence when analyzed by race/ethnicity.

Data were not sufficient to report the trend among American Indian, Asian, Black, non-Hispanic, and Multiracial women.

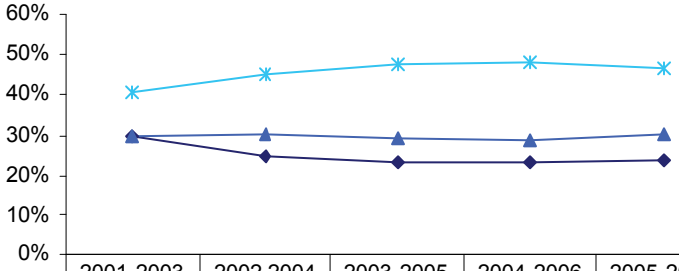
Figure 5. Average prevalence of **maternal prenatal BMI** among women in CAA, 2005-2007 PNSS[1-3]

More women enrolled in the CAA had a low prenatal BMI compared to their national and state counterparts.



	Low BMI	Normal BMI	High BMI
National PNSS	11.3%	44.6%	44.1%
State PNSS	11.0%	42.9%	46.1%
CAA PNSS	12.0%	43.4%	44.6%

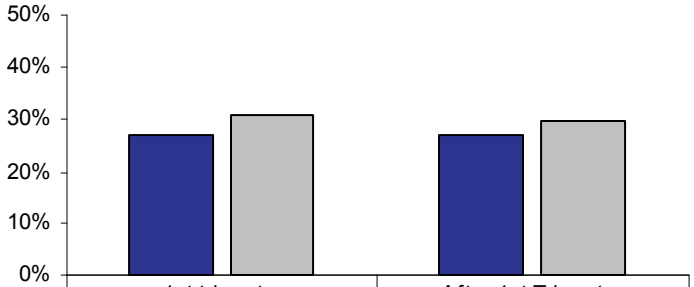
Figure 6. Trend of average prevalence of **maternal weight gain** among women in CAA, 2003-2007 PNSS[1-3]



	2001-2003	2002-2004	2003-2005	2004-2006	2005-2007
< Ideal Weight gain	29.5%	24.9%	23.5%	23.2%	23.6%
Ideal Weight Gain	29.7%	30.1%	29.0%	28.7%	30.0%
> Ideal w eight gain	40.8%	45.0%	47.5%	48.1%	46.4%

From 2003 to 2007, the average prevalence of less than recommended weight gain decreased 20%, while the average prevalence of greater than ideal weight gain increased 14% among women in the CAA.

Figure 7. Average prevalence of **recommended pregnancy weight gain by trimester of WIC enrollment** among women in CAA, 2005-2007 PNSS[1-3]



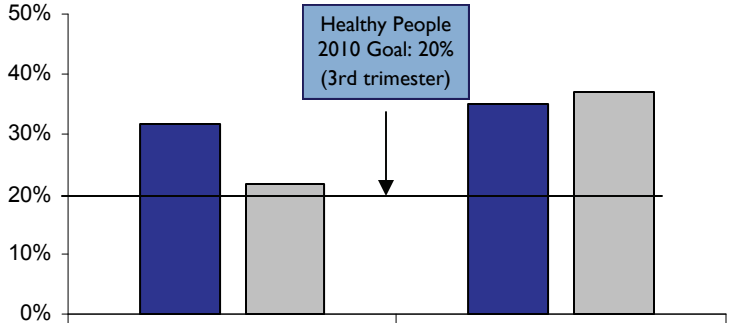
	1st trimester	After 1st Trimester
State PNSS	27.1%	27.2%
CAA PNSS	30.9%	29.6%

There was little difference in the average prevalence of recommended pregnancy weight gain when analyzed by trimester of WIC enrollment.

Figure 8. Average prevalence of **anemia** among women in CAA, 2005-2007 PNSS[2,4]

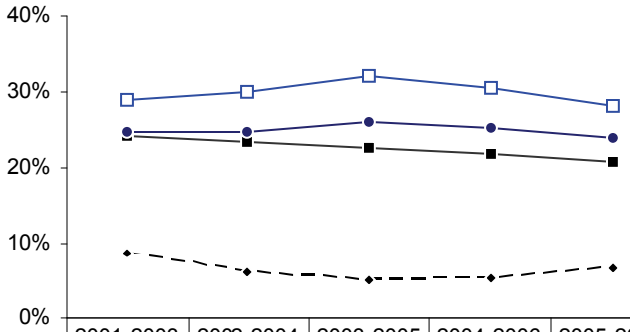
The average prevalence of anemia during the 3rd trimester was lower among women enrolled in the CAA compared to women participating in WIC throughout the state.

Anemia is measured at WIC enrollment and thus reflects the health status of women at the time of enrollment.



	3rd trimester anemia	Postpartum anemia
State PNSS	31.6%	35.1%
CAA PNSS	21.9%	37.2%

Figure 9. Trend in average prevalence of **smoking in the last three months of pregnancy by race/ethnicity** among women in CAA, 2003-2007 PNSS [1-2]



	2001-2003	2002-2004	2003-2005	2004-2006	2005-2007
State PNSS	24.3%	23.5%	22.5%	21.9%	20.7%
CAA PNSS	24.7%	24.8%	26.1%	25.2%	23.9%
White, non-Hispanic	29.0%	30.0%	32.0%	30.5%	28.1%
Hispanic	8.6%	6.1%	4.9%	5.2%	6.5%

The average prevalence of smoking during the last 3 months of pregnancy was higher among women enrolled in the CAA compared to the state WIC program.

The rate decreased 3% in the CAA compared to 15% for the state from 2003 to 2007. Rates were highest among White, non-Hispanic women and lowest among Hispanic women.

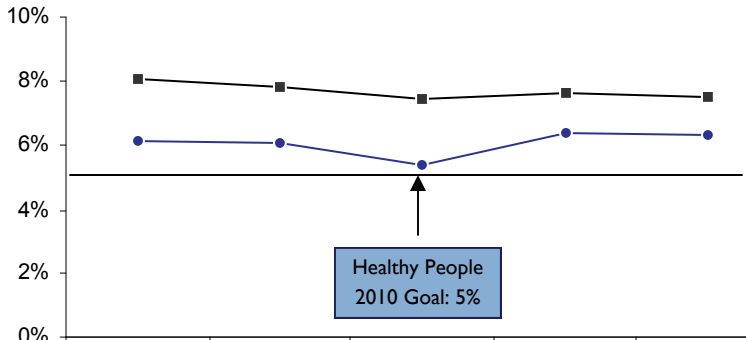
Data were not sufficient to report the trend among American Indian, Asian, Black, non-Hispanic, and Multiracial women.

Figure 10. Trend in average incidence of **low birthweight by race/ethnicity** among infants in CAA, 2003-2007 PNSS [1-2,5-6]

The average incidence of low birthweight among infants whose mothers enrolled in the CAA was lower compared to children enrolled statewide.

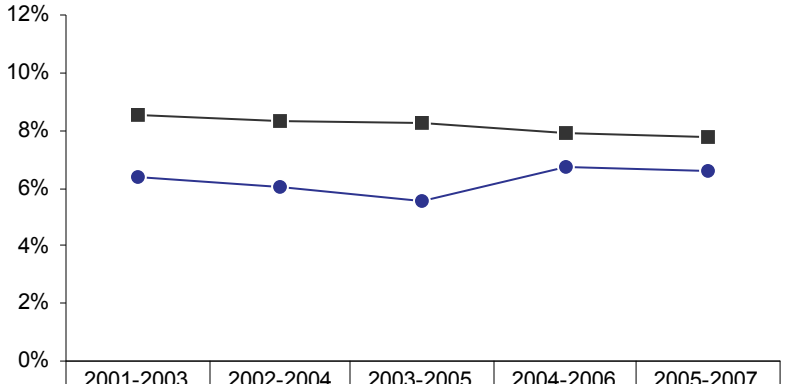
From 2003 to 2007, the average incidence increased 4% in the CAA.

Data were not sufficient to report analysis by race/ethnicity.



	2001-2003	2002-2004	2003-2005	2004-2006	2005-2007
State PNSS	8.1%	7.8%	7.5%	7.6%	7.5%
CAA PNSS	6.1%	6.1%	5.4%	6.4%	6.3%

Figure 11. Trend of average incidence in **high birthweight by race/ethnicity** among infants in CAA, 2003-2007 PNSS [1-2,5-6]



	2001-2003	2002-2004	2003-2005	2004-2006	2005-2007
State PNSS	8.5%	8.3%	8.3%	7.9%	7.8%
CAA PNSS	6.4%	6.1%	5.6%	6.8%	6.6%

The average incidence of high birthweight among infants whose mothers enrolled in the CAA was lower compared to children enrolled statewide.

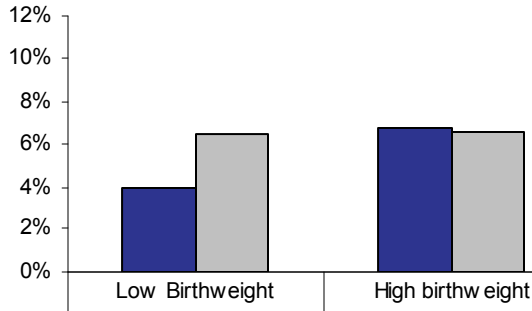
From 2003 to 2007, the average incidence increased 4% in the CAA.

Data were not sufficient to report analysis by race/ethnicity.

Figure 12. Average incidence of **birthweight** among infants in CAA by maternal WIC enrollment, 2005-2007 PNSS [1-2,5-6]

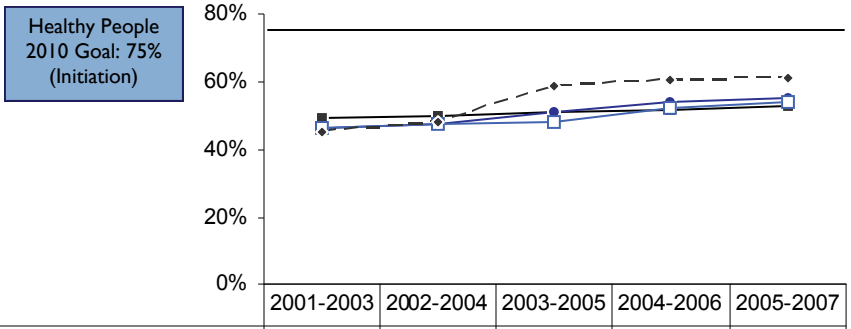
The average incidence of low birthweight was lower among infants born to women who enrolled in the CAA during their first trimester than for infants born to mothers who enrolled later in their pregnancies.

There was little difference in the incidence of high birthweight when analyzed by trimester of WIC enrollment.



	Low Birthweight	High birthweight
1st trimester	4.0%	6.8%
After 1st trimester	6.5%	6.6%

Figure 13. Trend in average prevalence of **breastfeeding initiation by race/ethnicity** among infants in CAA 2003-2007 PNSS[1-2]



	2001-2003	2002-2004	2003-2005	2004-2006	2005-2007
State PNSS	49.6%	49.9%	51.0%	51.7%	52.9%
CAA PNSS	46.4%	47.8%	51.3%	54.2%	55.2%
White, non-Hispanic	46.3%	47.6%	48.5%	52.2%	54.0%
Hispanic	45.3%	48.1%	58.9%	60.8%	61.3%

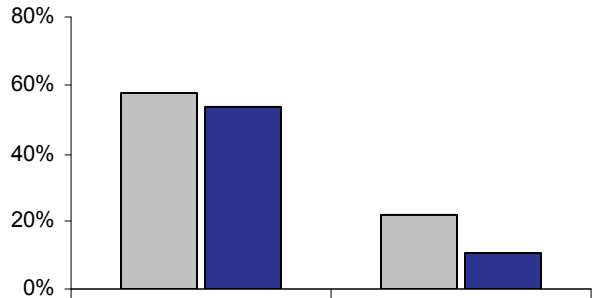
The average prevalence of breastfeeding initiation among infants whose mothers enrolled in the CAA was higher compared to children enrolled statewide.

From 2003 to 2007, the average prevalence increased 19% in the CAA. Breastfeeding initiation was highest among Hispanic infants and lowest among White, non-Hispanic infants.

Data were not sufficient to report the trend among American Indian, Asian, Black, non-Hispanic, and Multiracial infants.

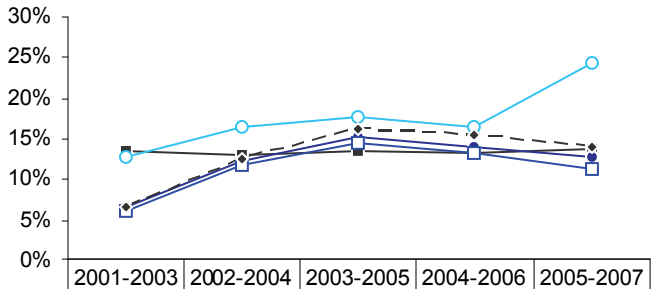
Figure 14. Average prevalence of **breastfeeding initiation and 6 month duration** among infants in CAA by maternal WIC enrollment, 2005-2007 PNSS, PedNSS[1-2]

The average prevalence of breastfeeding initiation and 6 months duration was higher among women who enrolled in the CAA WIC program in their first trimester compared to women who enrolled later.



	Ever Breastfed	Breastfed to 6 Months
1st trimester	57.6%	21.4%
After 1st trimester	53.6%	10.5%

Figure 15. Trend in average prevalence of **anemia by race/ethnicity** among children < 5 years of age in CAA 2003-2007 MI PedNSS [1-2,5]



	2001-2003	2002-2004	2003-2005	2004-2006	2005-2007
State PedNSS	13.4%	13.1%	13.4%	13.3%	13.8%
CAA	6.6%	12.2%	15.1%	14.0%	12.8%
White, non-Hispanic	6.0%	11.8%	14.6%	13.4%	11.4%
Black, non-Hispanic	12.8%	16.6%	17.8%	16.5%	24.4%
Hispanic	6.7%	12.5%	16.1%	15.5%	13.9%

The average prevalence of anemia among children enrolled in the CAA was lower compared to children enrolled in WIC statewide.
From 2003 to 2007, the average prevalence increased 93% in the CAA. Anemia was highest among Black, non-Hispanic children and lowest among White, non-Hispanic children.
Data were not sufficient to report the trend among American Indian, Asian, and Multiracial children.

(Children with sickle cell disease and other hemoglobinopathies are included and thus the prevalence of nutritional anemia may be lower).

The average prevalence of short stature among children enrolled in the CAA was lower compared to children enrolled statewide.

From 2003 to 2007, the average prevalence decreased 17% in the CAA. There was little difference in the prevalence of short stature when analyzed by race/ethnicity.

Data were not sufficient to report the trend among American Indian, Asian, Black, non-Hispanic, and Multiracial children.

Figure 16. Trend in average prevalence of **short stature by race/ethnicity** among children in CAA < 2 years old 2003-2007 PedNSS[1-2,7]

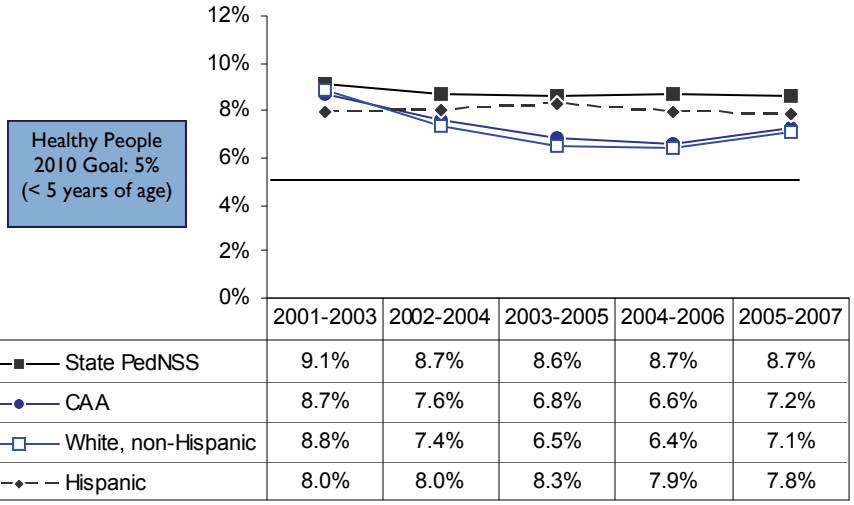
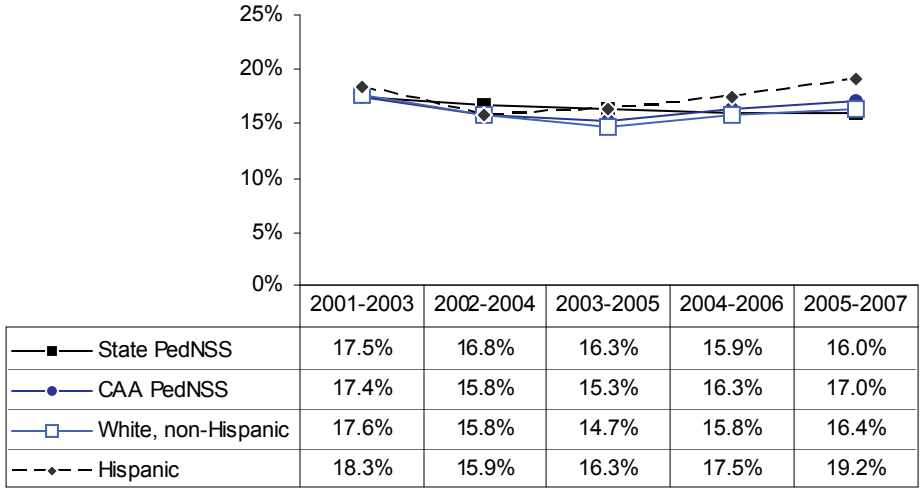


Figure 17. Trend in average prevalence of **overweight by race/ethnicity** among children 2-5 years old in CAA, 2003-2007 PedNSS[1-2,8]



The average prevalence of overweight among children enrolled in the CAA was higher compared to children enrolled in WIC statewide.

From 2003 to 2007, the average prevalence decreased 2% in the CAA. Overweight was highest among Hispanic children and lowest among White, non-Hispanic children.

Data were not sufficient to report the trend among American Indian, Asian, Black, non-Hispanic, and Multiracial children.

The average prevalence of obesity among children enrolled in the CAA was higher compared to children enrolled in WIC statewide.

From 2003 to 2007, the average prevalence decreased 1% in the CAA. Obesity was highest among Hispanic children and lowest among White, non-Hispanic children.

Data were not sufficient to report the trend among American Indian, Asian, Black, non-Hispanic, and Multiracial children.

Figure 18. Trend in average prevalence of **obesity by race/ethnicity** among children 2-5 years old in CAA 2003-2007 PedNSS[1-2,8]

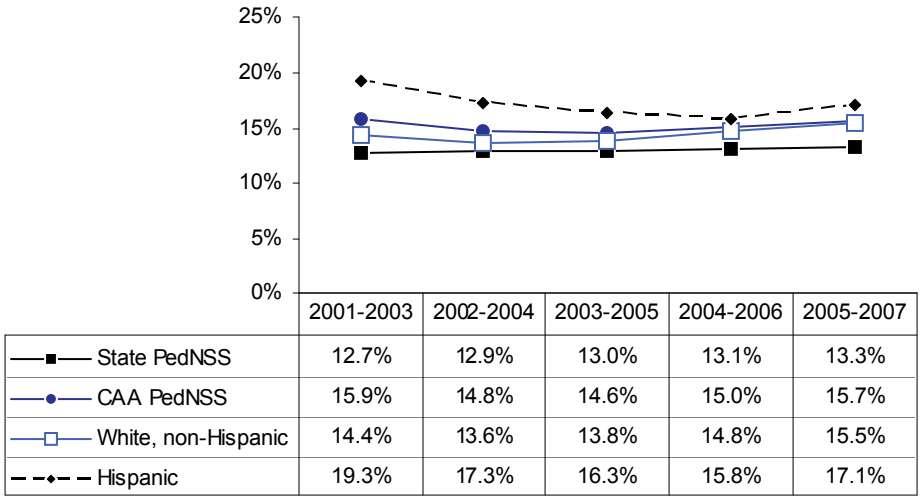
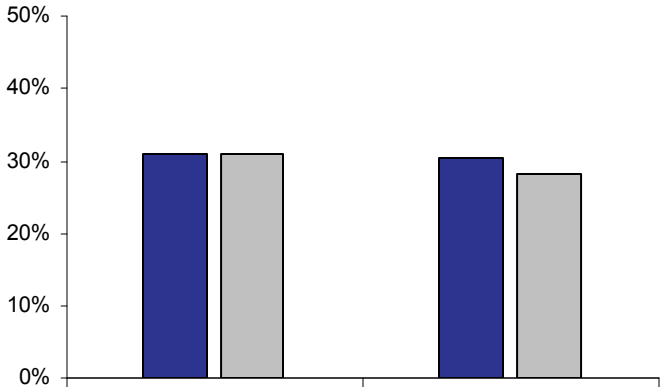


Figure 19. Average prevalence of **obese** and **overweight** by maternal WIC enrollment among children two to five years old in CAA, 2005-2007 PNSS/ PedNSS[1-2,8]



	CAA	State
1st trimester	31.0%	30.4%
After 1st trimester	31.2%	28.3%

The average prevalence of obesity and overweight was nearly the same among children whose mothers enrolled in the CAA during their first trimester compared to women who enrolled later in their pregnancies.

Michigan Department of Community Health

MDCH

Rick Snyder, Governor
Olga Dazzo, Director

Suggested Citation:
McKane P, Eghtedary K, Grigorescu V, Bien S. "2007 Local WIC Agency Pregnancy Nutrition Surveillance System (PNSS) & Pediatric Nutrition Surveillance System (PedNSS) Report: Barry-Eaton District Health Department." WIC Division, Bureau of Family, Maternal, and Child Health, Michigan Department of Community Health. August 2011.

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Michigan Department of Community Health
WIC Program

Mission Statement

The mission of the Michigan WIC program is to improve the health outcomes and quality of life for eligible women, infants, and children by providing nutritious food, nutrition education, breastfeeding promotion, and support and referrals to health and other services.

To this end:

- Delivery of services and supports are to be provided in a caring, respectful, efficient, and cost effective manner.
- Delivery of services shall be provided in a culturally competent and confidential manner.
- The WIC Program shall assure the broadest possible access to services, supports, and food.

[1]Recording period is January 1st through December 31st
[2]Excludes records with unknown data and errors.
[3]Based on 1990 IOM report "Nutrition during pregnancy": underweight (BMI <19.8), Overweight (BMI =26.1-29..0) & Obese (BMI>=29.1)
[4]Based on 1990 MMWR, "Recommendations to prevent and control Iron deficiency in the United States;" adjusted for altitude and smoking
[5]Low Birthweight <2,500 grams regardless of gestational age
[6]High birthweight> 4,000grams regardless of gestational age
[7]Based on 2000 CDC growth chart percentiles for length-for-age for children under 2 years of age and height-for-age for children 2 years of age and older
[8] Based on the CDC's growth chart percentiles for BMI-for-age for children≥ 2yrs. Obese is defined as BMI greater then or equal to the 95th percentile. Overweight is defined as BMI greater than 85th percentile to less than the 95th percentile.

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