Michigan
Pregnancy & Pediatric Nutrition Surveillance Local WIC Agency Brief

2011

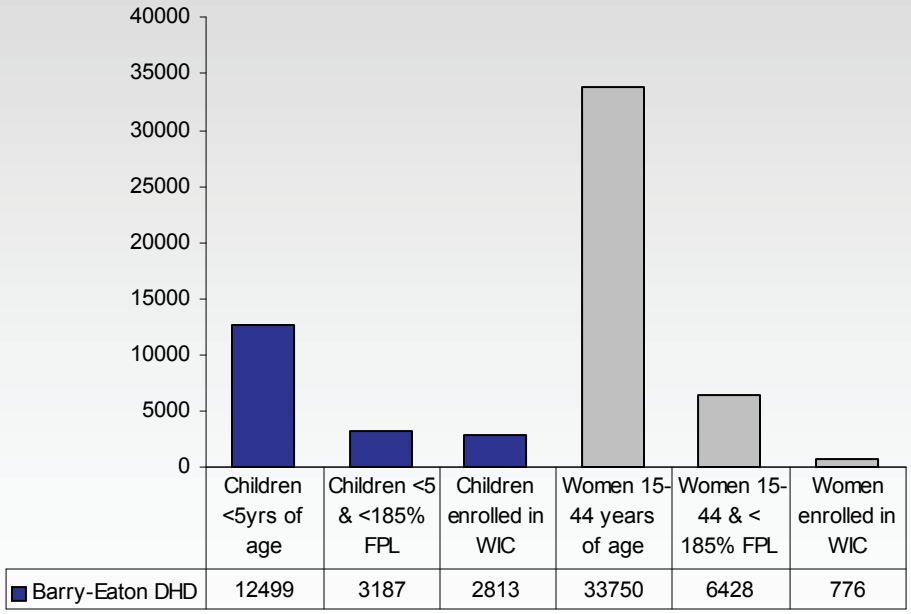
Barry-Eaton District Health Department

Barry-Eaton District Health Department

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, breastfeeding 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 three year rolling averages and cover the period between 2001 and 2007.

Figure 1 Number of children < 5years of age and women of reproductive age residing in **Barry-Eaton DHD** 2000 US census, MI PNSS/PedNSS 2007



The Barry-Eaton District Health Department (Barry-Eaton DHD) serves Barry and Eaton counties. According to the 2000 U.S. Census, there were 160,410 persons residing in the two counties. Approximately 21.0% of the population were women of child-bearing age (15-44 years old). Among these women, 19.0% lived below185% of the Federal Poverty Level (FPL). The Barry-Eaton DHD WIC agency served approximately 776 pregnant, postpartum, and lactating women, representing 1.2% of women participating in the Michigan WIC program in 2007 (Figure 1).

The 2000 Census also revealed that 7.8% of the population served by the Barry-Eaton DHD was less than five years of age. Among infants and children younger than five years of age, 25.5% lived below 185% of the FPL. In 2007, the Barry-Eaton DHD WIC agency served 2,813 infants and children, representing 1.2% of all infants and children participating in Michigan WIC. Selected characteristics of WIC participants are displayed in Table 1 and Figures 2 –18.

Barry-Eaton DHD At-A-Glance

For the year 2007, enrollees in the Barry-Eaton DHD WIC local agency tended to enroll earlier in WIC and prenatal care. More women reported smoking during pregnancy or initiating breastfeeding compared to women enrolled in the WIC program statewide.

Fewer women in the Barry-Eaton DHD agency reported a normal body mass index (BMI) or adequate weight gain compared to statewide results.

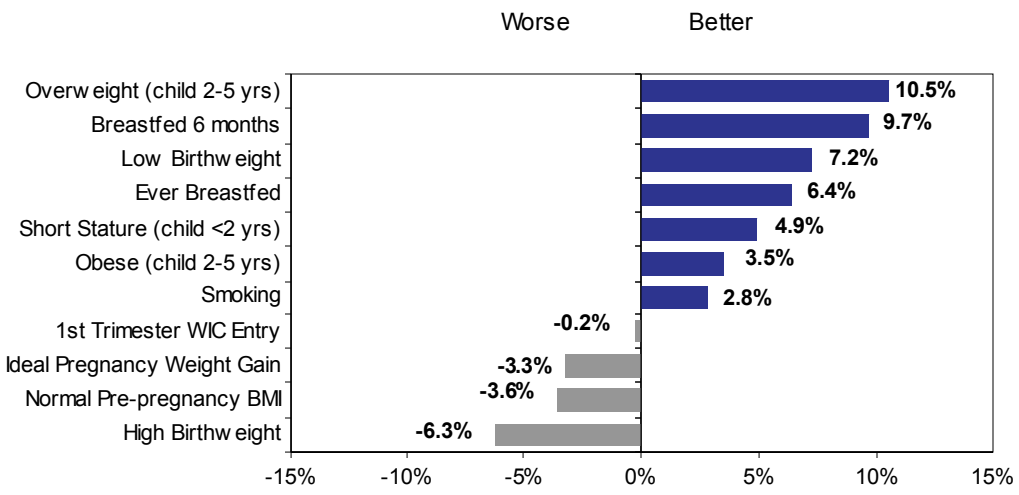
Fewer children were born with low birthweight (full term), but more children were underweight, obese or overweight in the Barry-Eaton DHD agency compared to children enrolled statewide.

Table 1 Selected Characteristics of WIC participants in Barry-Eaton DHD, MI PNSS/ PedNSS 2007 1 year . [1-2]

	Barry-Eaton DHD		State	
	N	%	N	%
Income < 50% FPL	281	39.1%	25285	41.3%
Income 50%-100% FPL	125	17.4%	15633	25.5%
1st Trimseter WIC Enrollment	262	35.6%	20201	32.3%
1st Trimseter PNC* Enrollment	526	78.7%	42815	75.2%
Pregnancy Interval >=18mo	249	55.2%	21585	55.5%
Maternal normal prenatal BMI	302	41.9%	25822	42.9%
Adequate maternal weight gain	146	23.0%	13353	26.9%
Smoking durng pregnancy	152	34.2%	9524	19.5%
Full term low birthweight	34	5.3%	3779	7.4%
Breastfeeding initiation	381	58.3%	27288	54.0%
Breastfeeding to 6 mo	33	17.1%	2055	17.1%
Child <2 underweight	93	6.0%	5942	4.5%
Child 2-5 yrs Overwt/Obese	364	30.0%	29491	29.5%

* PNC= Prenatal Care

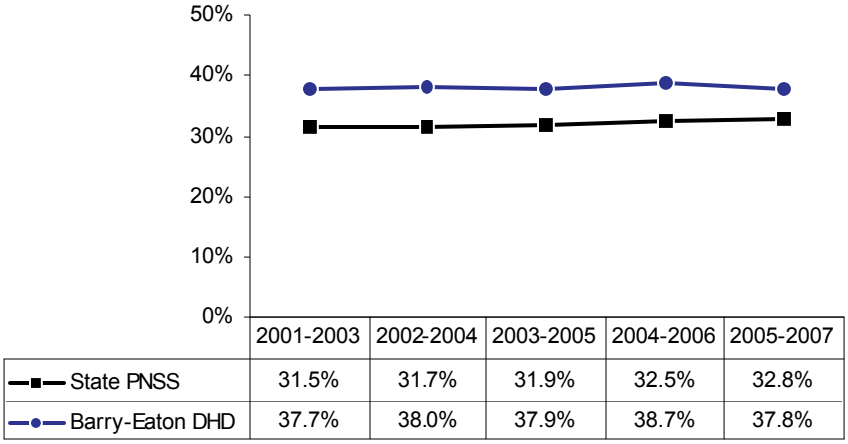
Figure 2. **Health Progress Review** for Barry-Eaton DHD WIC women, infants and children under five years old, 2005-2007 compared to 2001-2003 MI PNSS & PedNSS



From 2003 to 2007, the average prevalence of child overweight, breastfeeding to 6 months and low birthweight showed the most improvement in the Barry-Eaton DHD agency.

However the average prevalence of ideal pregnancy weight gain, normal pre-pregnancy BMI and high birthweight worsened during the same period.

Figure 3. Trend of average prevalence of **1st trimester WIC enrollment** among women in Barry-Eaton DHD, 2003-2007 PNSS[1-3]



The proportion of women who enrolled in WIC in their first trimester of pregnancy was consistently higher among women in Barry-Eaton DHD compared to WIC participants statewide.

Figure 4. Average prevalence of **maternal prenatal BMI** among women in Barry-Eaton DHD, 2005-2007 PNSS[1-3]

Nearly half of women enrolled in the Barry-Eaton DHD WIC program had a high BMI prior to their pregnancy, which is consistent with statewide participants.

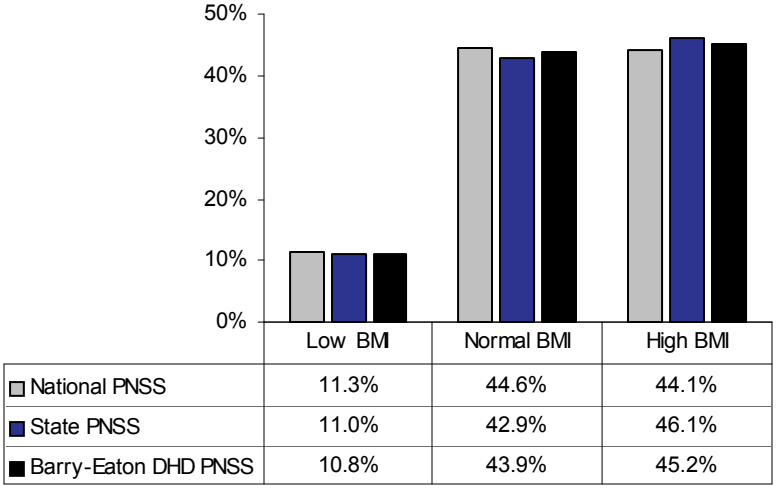
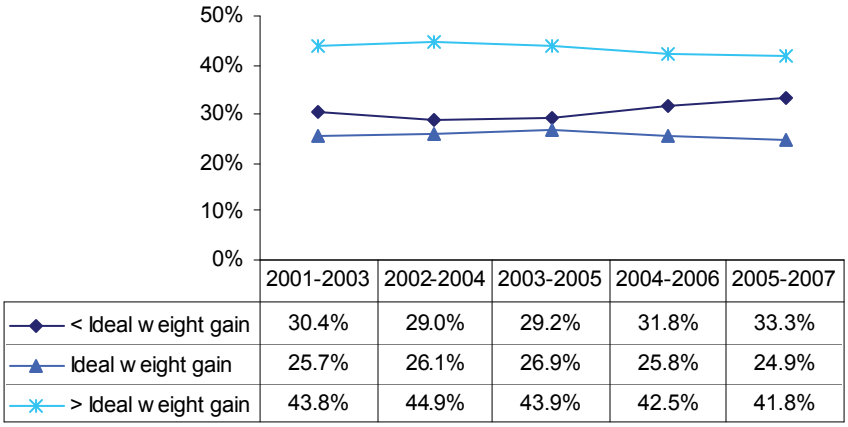
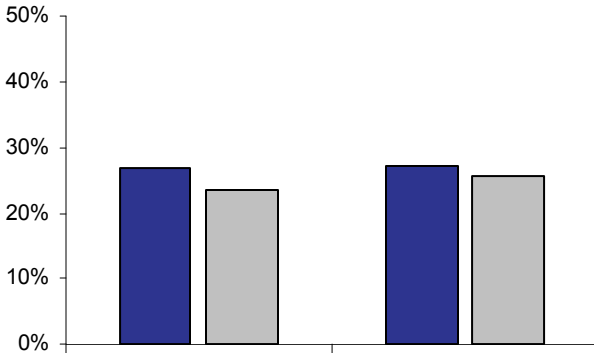


Figure 5. Trend of average prevalence of **maternal weight gain** among women in Barry-Eaton DHD, 2003-2007 PNSS[1-3]



From 2003 to 2007, the average prevalence of greater than ideal pregnancy weight gain remained high among women enrolled in Barry-Eaton DHD agency.

Figure 6. Average prevalence of **recommended pregnancy weight gain by trimester of WIC enrollment** among women in Barry-Eaton DHD, 2005-2007 PNSS[1-3]



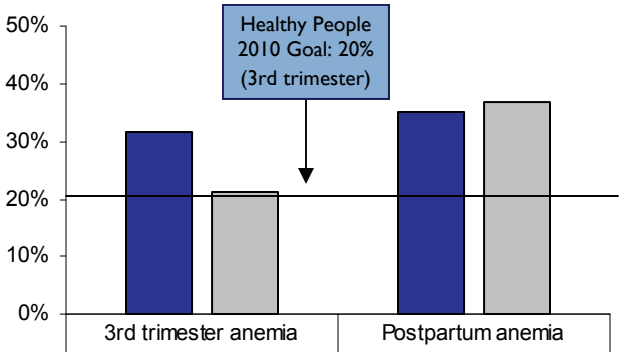
	1st trimester	After 1st Trimester
State PNSS	27.1%	27.2%
Barry-Eaton DHD PNSS	23.6%	25.8%

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

Figure 7. Average prevalence of **anemia** among women in Barry-Eaton DHD, 2005-2007 PNSS[2,4]

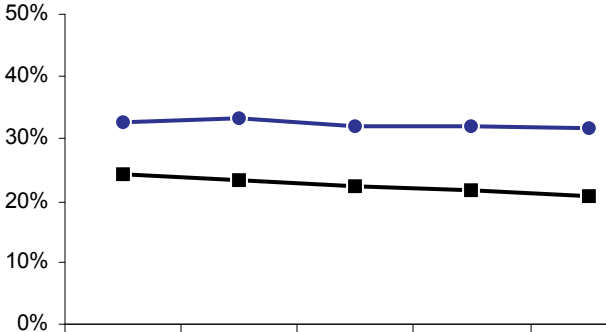
The average prevalence of anemia during the 3rd trimester was lower among women enrolled in the Barry-Eaton DHD agency (nearly achieving the HP 2010 objective) compared to women participating in WIC throughout the state.

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%
Barry-Eaton DHD PNSS	21.4%	37.0%

Figure 8. Trend of average prevalence of **smoking in the last three months of pregnancy** among women in Barry-Eaton DHD, 2003-2007 PNSS [1-2]

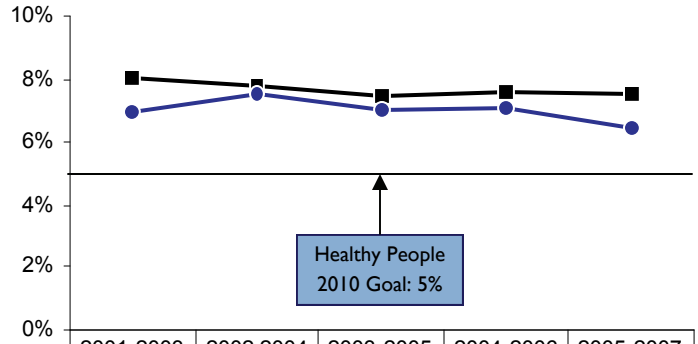


	2001-2003	2002-2004	2003-2005	2004-2006	2005-2007
State PNSS	24.3%	23.5%	22.5%	21.9%	20.7%
Barry-Eaton DHD	32.7%	33.2%	32.1%	32.1%	31.8%

The average prevalence of smoking during the last 3 months of pregnancy was consistently higher among women enrolled in the Barry-Eaton DHD agency compared with the state, although rates continue to decrease. The rate decreased by 3% in the Barry-Eaton DHD agency compared to 15% for the state from 2003 to 2007.

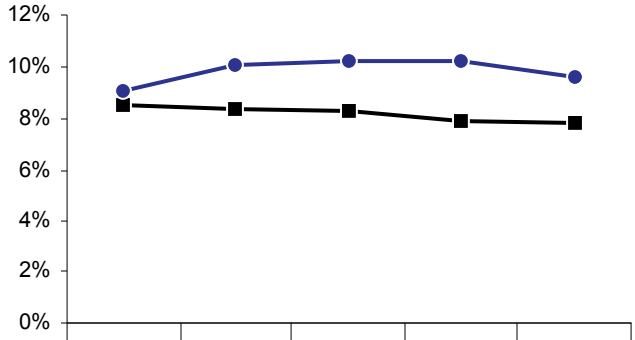
Figure 9. Trend of average incidence of **low birthweight** among infants in Barry-Eaton DHD, 2003-2007 PNSS [1-2,5-6]

The average incidence of low birthweight among infants born to mothers enrolled in the Barry-Eaton DHD WIC agency decreased by 7% from 2003 to 2007.



	2001-2003	2002-2004	2003-2005	2004-2006	2005-2007
State PNSS	8.1%	7.8%	7.5%	7.6%	7.5%
Barry-Eaton DHD	7.0%	7.5%	7.0%	7.1%	6.5%

Figure 10. Trend of average incidence of **high birthweight** among infants in Barry-Eaton DHD, 2003-2007 PNSS [1-2,5-6]

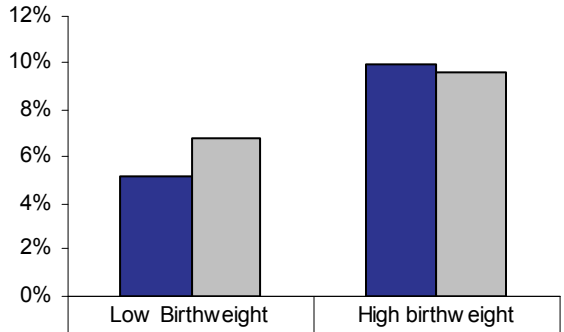


	2001-2003	2002-2004	2003-2005	2004-2006	2005-2007
State PNSS	8.5%	8.3%	8.3%	7.9%	7.8%
Barry-Eaton DHD	9.0%	10.1%	10.3%	10.2%	9.6%

The average incidence of high birthweight among infants born to mothers enrolled in the Barry-Eaton DHD agency was consistently higher compared to infants in the state WIC program.

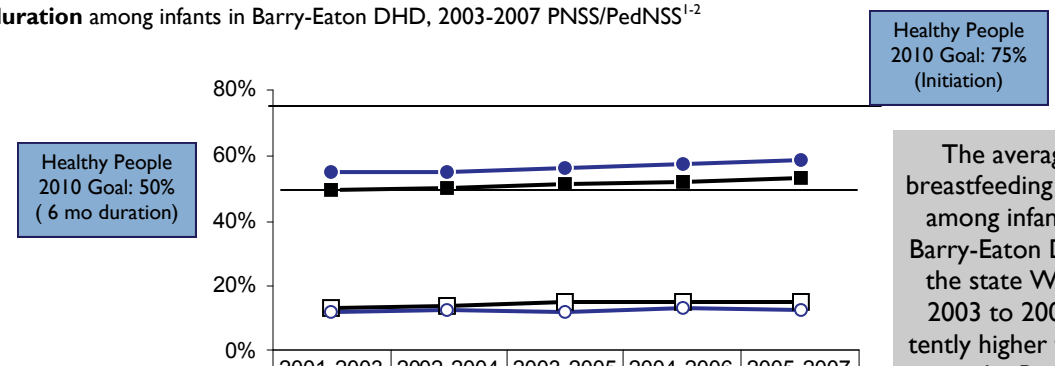
Figure 11. Average Incidence of **birthweight** among infants in Barry-Eaton DHD by maternal WIC enrollment, 2005-2007 PNSS [1-2,5-6]

The average incidence of low birthweight was lower among infants born to women who enrolled in the Barry-Eaton DHD during their first trimester than for infants born to mothers who enrolled later in their pregnancies. However, the incidence of high birthweight was nearly the same.



	Low Birthweight	High birthweight
1st trimester	5.2%	10.0%
After 1st trimester	6.8%	9.6%

Figure 12. Trend in average prevalence of **breastfeeding initiation & 6 months duration** among infants in Barry-Eaton DHD, 2003-2007 PNSS/PedNSS[1-2]

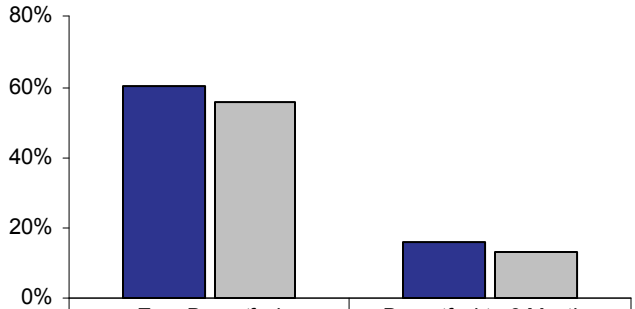


	2001-2003	2002-2004	2003-2005	2004-2006	2005-2007
State Ever Breastfed	49.6%	49.9%	51.0%	51.7%	52.9%
Barry-Eaton DHD Ever Breastfed	55.0%	55.0%	56.3%	57.6%	58.5%
State Breastfed 6mo	13.6%	14.3%	15.0%	15.3%	15.6%
Barry-Eaton DHD Breastfed 6 mo	11.9%	13.1%	12.0%	13.5%	13.1%

The average prevalence of breastfeeding initiation increased among infants enrolled in the Barry-Eaton DHD agency and in the state WIC program from 2003 to 2007. It was consistently higher for infants enrolled in the Barry-Eaton DHD. The average prevalence of breastfeeding to 6 months was lower in the Barry-Eaton DHD agency compared to the statewide program.

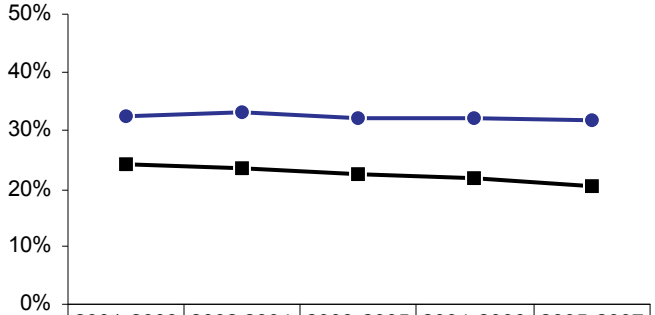
Figure 13. Average prevalence of **breastfeeding initiation and 6 months duration** among infants in Barry-Eaton DHD by maternal WIC enrollment, 2005-2007 PNSS/PedNSS[1-2]

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



	Ever Breastfed	Breastfed to 6 Months
1st trimester	60.1%	15.6%
After 1st trimester	55.8%	12.9%

Figure 14. Trend in average prevalence of **anemia** among children < 5 years of age in Barry-Eaton DHD, 2003-2007 MI PedNSS [1-2,5]



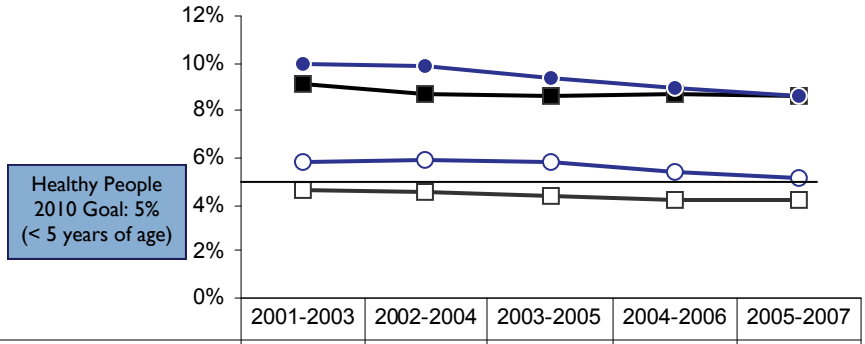
	2001-2003	2002-2004	2003-2005	2004-2006	2005-2007
State PNSS	24.3%	23.5%	22.5%	21.9%	20.7%
Barry-Eaton DHD	32.7%	33.2%	32.1%	32.1%	31.8%

The average prevalence of anemia among children enrolled in the Barry-Eaton DHD agency was higher than among children enrolled in WIC statewide.

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

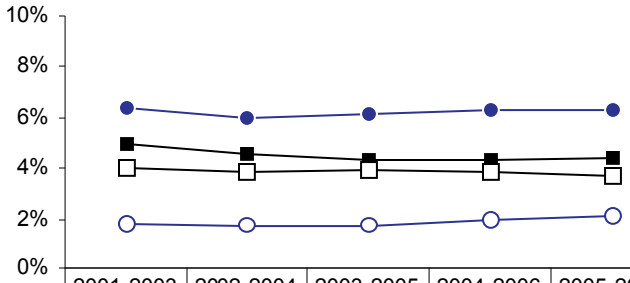
The average prevalence of short stature among children enrolled in the Barry-Eaton DHD agency was higher or nearly the same among both age groups compared to children enrolled statewide.
However, the prevalence decreased by 14% and 10% for children < 2yrs and 2-5 yrs (respectively) enrolled in the Barry-Eaton DHD agency from 2003 to 2007.

Figure 15. Trend in average prevalence of **short stature** among children in Barry-Eaton DHD by age group, 2003-2007 PedNSS[1-2,7]



	2001-2003	2002-2004	2003-2005	2004-2006	2005-2007
State < 2yrs	9.1%	8.7%	8.6%	8.7%	8.7%
Barry-Eaton DHD <2 yrs	10.0%	9.9%	9.4%	9.0%	8.6%
State 2-5 yrs	4.6%	4.5%	4.4%	4.2%	4.2%
Barry-Eaton DHD 2-5 yrs	5.8%	5.9%	5.8%	5.4%	5.2%

Figure 16. Trend in average prevalence of **underweight** among children in Barry-Eaton DHD by age group, 2003-2007 PedNSS[1-2,8]



	2001-2003	2002-2004	2003-2005	2004-2006	2005-2007
State < 2yrs	4.9%	4.6%	4.3%	4.3%	4.4%
Barry-Eaton DHD <2 yrs	6.3%	6.0%	6.1%	6.3%	6.3%
State 2-5 yrs	4.0%	3.9%	3.9%	3.8%	3.7%
Barry-Eaton DHD 2-5 yrs	1.8%	1.7%	1.7%	1.9%	2.1%

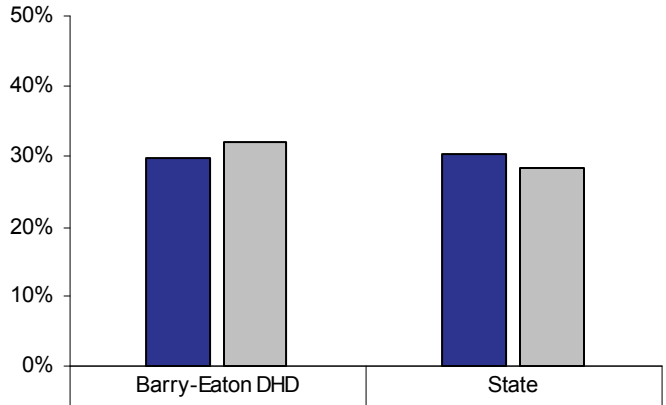
The average prevalence of underweight among children ages 2-5 years enrolled in the Barry-Eaton DHD agency was lower than among children enrolled statewide. However, it was higher for children younger than 2 yrs than among children enrolled statewide.

The prevalence of obesity and overweight among children enrolled in the Barry-Eaton DHD agency was similar to that of children enrolled in WIC statewide. Obesity among children enrolled in the Barry-Eaton DHD agency decreased from 2003 to 2007, while state rates continue to increase slightly.

Figure 17. Trend in average prevalence of **obese** and **overweight** among children 2 to 5 years old in Barry-Eaton DHD, 2003-2007 PedNSS[1-2,8]

	2001-2003	2002-2004	2003-2005	2004-2006	2005-2007
State Obese	12.7%	12.9%	13.0%	13.1%	13.3%
Barry-Eaton DHD Obese	13.5%	13.4%	13.7%	13.3%	13.0%
State Overweight	17.5%	16.8%	16.3%	15.9%	16.0%
Barry-Eaton DHD Overweight	19.8%	19.1%	19.1%	17.7%	17.7%

Figure 18. Average prevalence of **obese** and **overweight** among children 2 to 5 years old in Barry-Eaton DHD by maternal WIC enrollment, 2005-2007 PNSS/ PedNSS[1-2,8]



	Barry-Eaton DHD	State
1st trimester	29.8%	30.4%
After 1st trimester	32.0%	28.3%

The average prevalence of obesity and overweight was lower among children whose mothers enrolled in the Barry Eaton DHD WIC program during their first trimester than children whose mothers enrolled later in their pregnancies.

Michigan Department of Community Health

MDCH

Rick Snyder, Governor
Olga Dazzo, Director

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For more information, please contact:
WIC Division
Michigan Department of Community Health
Lewis Cass Building, 6th floor
320 South Walnut Street
Lansing, MI 48913

Website: http://www.michigan.gov/wic
E-mail: MichiganWic@michigan.gov

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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