Michigan
Pregnancy & Pediatric Nutrition Surveillance Local WIC Agency Brief

2011

Branch-Hillsdale-St. Joseph District Health Department

Branch-Hillsdale-St. Joseph 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, 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 **BHStJ DHD** 2000 US census, MI PNSS/PedNSS 2007

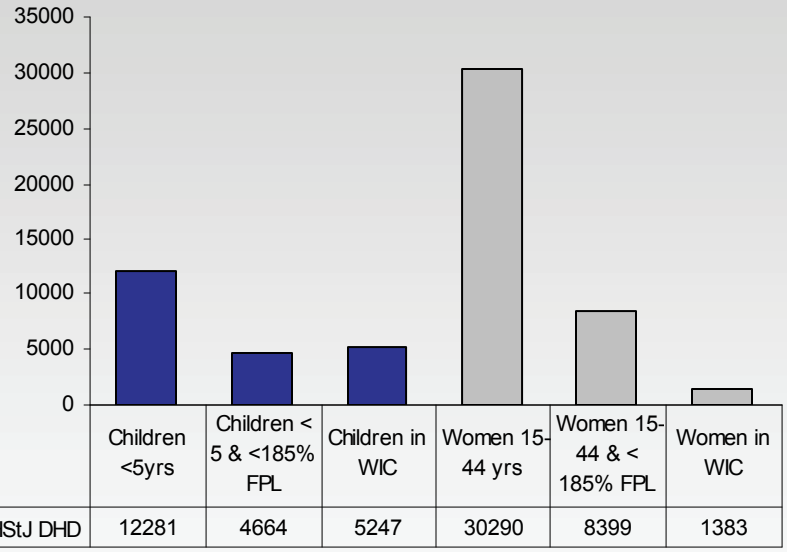
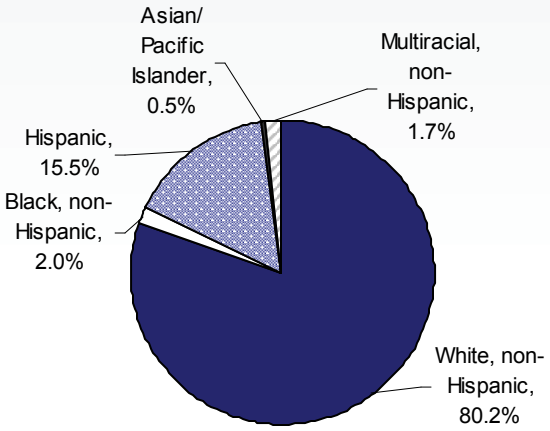


Figure 2. Distribution of race/ethnicity among **BHStJ DHD** WIC participants, MI PNSS/PedNSS 2007



The Branch-Hillsdale-St. Joseph District Health Department (BHStJ DHD) serves Branch, Hillsdale and St. Joseph counties. According to the 2000 U.S. Census, there were 154,736 persons residing in the area served by the BHStJ DHD.

Approximately 19.6% of the population were women of child-bearing age (15-44 years old). Among these women, 27.7% lived below 185% of the Federal Poverty Level (FPL). The BHStJ DHD WIC agency served approximately 1,383 pregnant, postpartum, and lactating women, representing 2.1% of women participating in the Michigan WIC program in 2007 (Figure 1).

The 2000 Census also revealed that 7.9% of the population served by the BHStJ DHD agency was less than five years of age. Among infants and children younger than five years old, 38.0% lived below 185% of the FPL. In 2007, the BHStJ DHD WIC agency served 5,247 infants and children, representing 2.2% 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.

BHStJ DHD At-A-Glance

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

Fewer women enrolled in the BHStJ DHD agency reported a pregnancy interval of at least 18 months, adequate pregnancy weight gain and breastfeeding duration of 6 months compared to the state WIC program.

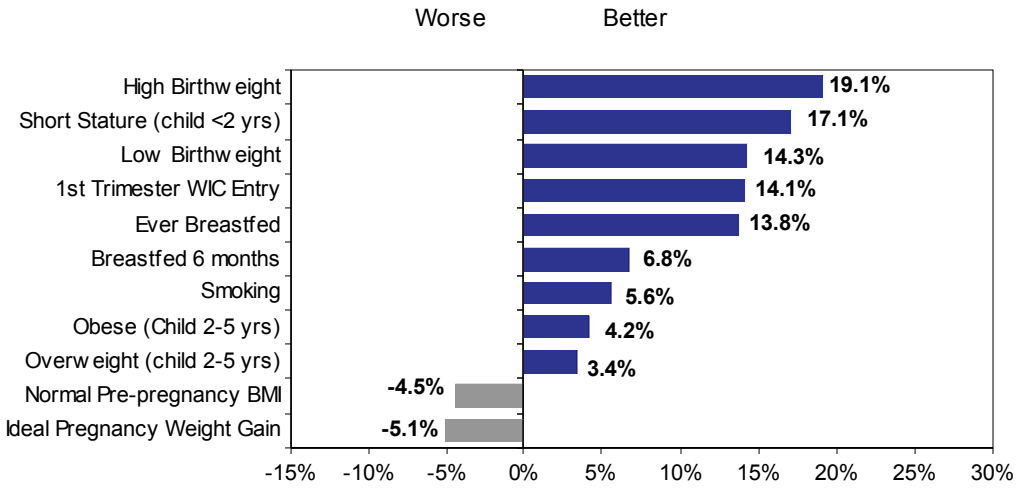
Fewer infants were born with low birthweight (full term). More children were underweight and overweight/obese in the BHStJ DHD compared to children enrolled statewide.

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

	BHStJ DHD		State	
	N	%	N	%
Income < 50% FPL	432	30.2%	25285	41.3%
Income 50%-100% FPL	322	25.0%	15633	25.5%
1st Trimseter WIC Enrollment	513	38.7%	20201	32.3%
1st Trimseter PNC Enrollment	876	75.3%	42815	75.2%
Pregnancy Interval >=18mo	455	55.1%	21585	55.5%
Maternal normal pre-natal BMI	561	43.6%	25822	42.9%
Adequate maternal weight gain	246	25.1%	13353	26.9%
Smoking durng pregnancy	258	32.4%	9524	19.5%
Full term low birthweight	64	6.7%	3779	7.4%
Breastfeeding initiation	590	57.6%	27288	54.0%
Breastfeeding to 6 mo	37	16.9%	2055	17.1%
Child <2 underweight	173	6.3%	5942	4.5%
Child 2-5 yrs Overwt/Obese	868	36.0%	29491	29.5%

* PNC= Prenatal Care

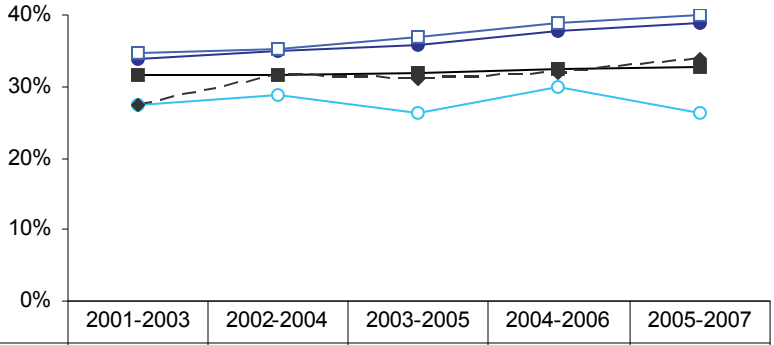
Figure 3. **Health Progress Review** for BHStJ DHD WIC women, infants and children under five years old, 2005-2007 compared to 2001-2003 MI PNSS & PedNSS



From 2003 to 2007, the average prevalence of high birthweight, short stature and low birthweight showed the most improvement in the BHStJ DHD agency.

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

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

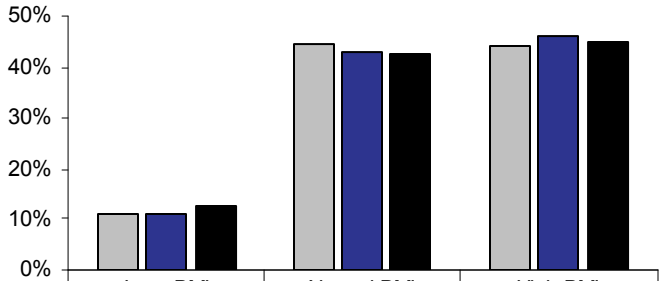


	2001-2003	2002-2004	2003-2005	2004-2006	2005-2007
State PNSS	31.5%	31.7%	31.9%	32.5%	32.8%
BHStJ DHD PNSS	33.9%	34.8%	35.9%	37.7%	38.8%
White, non-Hispanic	34.7%	35.3%	37.0%	38.9%	40.1%
Black, non-Hispanic	27.4%	28.7%	26.2%	29.9%	26.4%
Hispanic	27.5%	31.7%	30.9%	31.9%	34.0%

The proportion of women who enroll in WIC in the first trimester of their pregnancy was consistently higher among women in the BHStJ DHD agency compared to WIC participants statewide.
The average prevalence was highest among White, non-Hispanic women and lowest among Black, non-Hispanic women.
Data were not sufficient to report the trend among Asian, American Indian and Multiracial women.

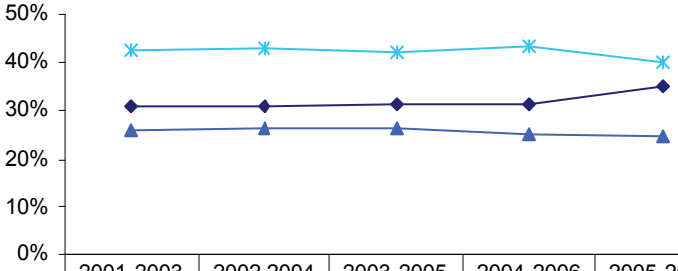
Figure 5. Average prevalence of **maternal prenatal BMI** among women in BHStJ DHD, 2005-2007 PNSS[1-3]

More women enrolled in the BHStJ DHD agency 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%
BHStJ DHD PNSS	12.7%	42.4%	44.9%

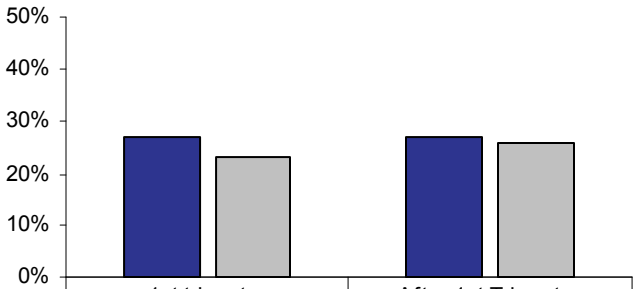
Figure 6. Trend of average prevalence of **maternal weight gain** among women in BHStJ DHD, 2003-2007 PNSS[1-3]



	2001-2003	2002-2004	2003-2005	2004-2006	2005-2007
< Ideal Weight gain	31.2%	30.9%	31.3%	31.3%	35.1%
Ideal Weight Gain	26.2%	26.3%	26.6%	25.3%	24.9%
> Ideal w eight gain	42.6%	42.8%	42.2%	43.4%	40.1%

From 2003 to 2007, the average prevalence of less than recommended weight gain increased 13%, while the average prevalence of greater than ideal weight gain decreased 6% among women in the BHStJ DHD agency.

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



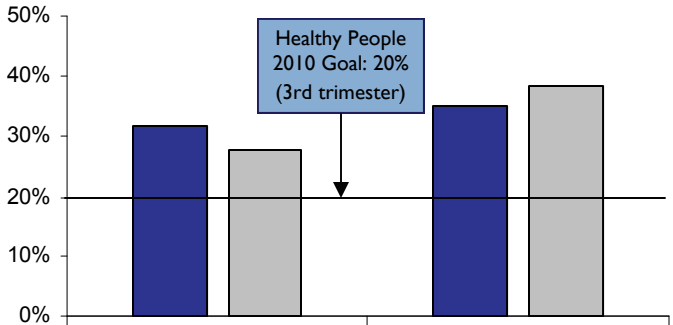
	1st trimester	After 1st Trimester
State PNSS	27.1%	27.2%
BHStJ DHD PNSS	23.4%	25.8%

The average prevalence of ideal pregnancy weight gain was lower among women who enrolled in the BHStJ DHD agency during their first trimester compared to women who enrolled later.

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

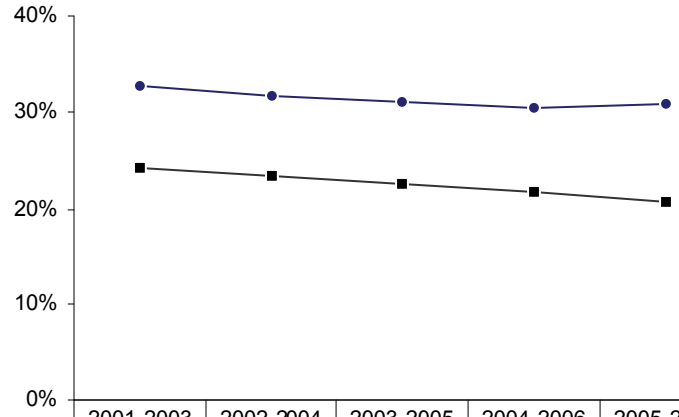
The average prevalence of anemia during the 3rd trimester was lower among women enrolled in the BHStJ DHD agency compared to women participating in WIC throughout the state.

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%
BHStJ DHD PNSS	27.9%	38.4%

Figure 9. Trend in average prevalence of **smoking in the last three months of pregnancy by race/ethnicity** among women in BHStJ 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%
BHStJ DHD PNSS	32.7%	31.7%	31.0%	30.5%	30.9%

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

The rate decreased 6% in the BHStJ DHD agency compared to 15% for the state from 2003 to 2007.

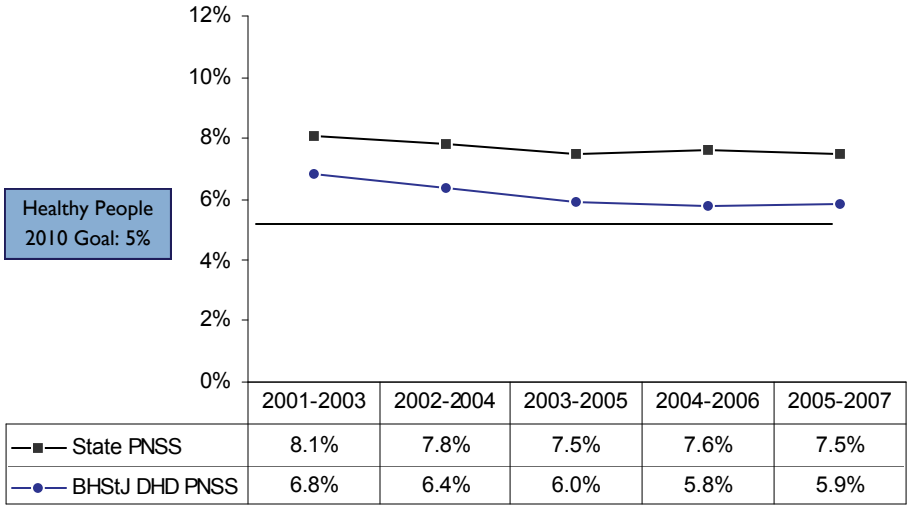
Data were not sufficient to report the trend by race/ethnicity.

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

From 2003 to 2007, the average incidence decreased 14% in the BHStJ DHD agency.

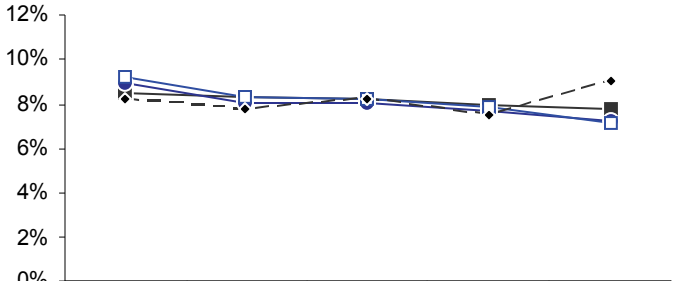
Data were not sufficient to report the trend by race/ethnicity.

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



	2001-2003	2002-2004	2003-2005	2004-2006	2005-2007
State PNSS	8.1%	7.8%	7.5%	7.6%	7.5%
BHStJ DHD PNSS	6.8%	6.4%	6.0%	5.8%	5.9%

Figure 11. Trend of average incidence in **high birthweight by race/ethnicity** among infants in BHStJ 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%
BHStJ DHD PNSS	9.0%	8.1%	8.1%	7.7%	7.3%
White, non-Hispanic	9.2%	8.3%	8.2%	7.9%	7.2%
Hispanic	8.2%	7.8%	8.3%	7.5%	9.1%

The average incidence of high birthweight among infants whose mothers enrolled in the BHStJ DHD agency was similar to children enrolled statewide.

From 2003 to 2007, the average incidence decreased 19% in the BHStJ DHD agency. High birthweight was highest among Hispanic infants and lowest among White, non-Hispanic infants.

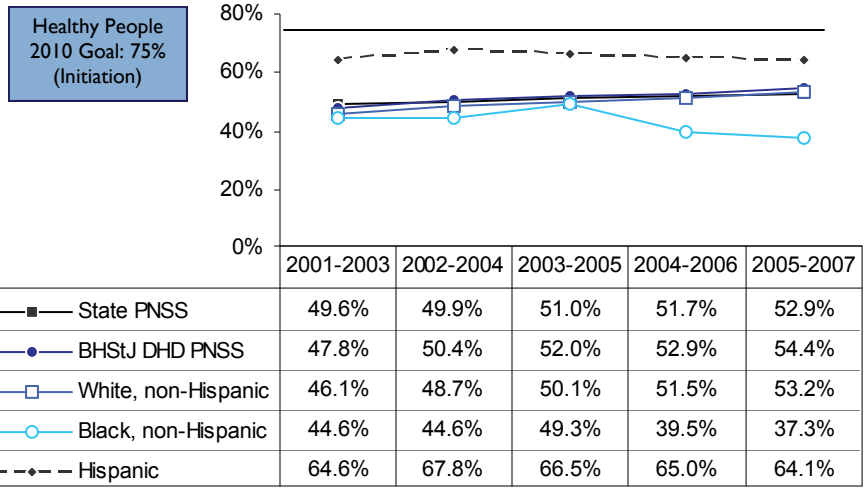
Data were not sufficient to report the trend among Asian, American Indian, Black, non-Hispanic and Multiracial infants.

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

The average incidence of low and high birthweight was lower among infants born to women who enrolled in the BHStJ DHD local agency during their first trimester than for infants born to mothers who enrolled later in their pregnancies.

	Low Birthweight	High birthweight
1st trimester	4.3%	6.7%
After 1st trimester	6.6%	7.3%

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



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

From 2003 to 2007, the average prevalence increased 14% in the BHStJ DHD agency. Breastfeeding initiation was highest among Hispanic infants and lowest among Black, non-Hispanic infants.

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

Figure 14. Average prevalence of **breastfeeding initiation and 6 month duration** among infants in BHStJ DHD 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 BHStJ DHD WIC program in their first trimester compared to women who enrolled later.

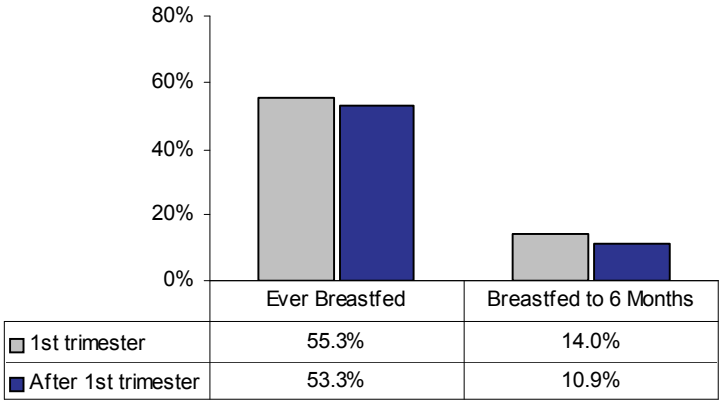
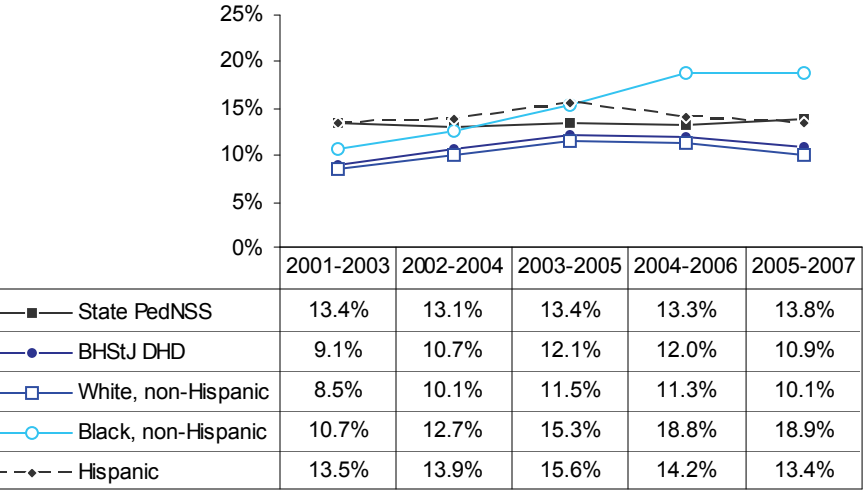


Figure 15. Trend in average prevalence of **anemia by race/ethnicity** among children < 5 years of age in BHStJ DHD 2003-2007 MI PedNSS [1-2,5]



The average prevalence of anemia among children enrolled in the BHStJ DHD agency was lower compared to children enrolled in WIC statewide.
From 2003 to 2007, the average prevalence increased 21% in the BHStJ DHD agency. Anemia was highest among Black, non-Hispanic children and lowest among White, non-Hispanic children.
Data were not sufficient to report the trend among Asian, American Indian and Multiracial children.

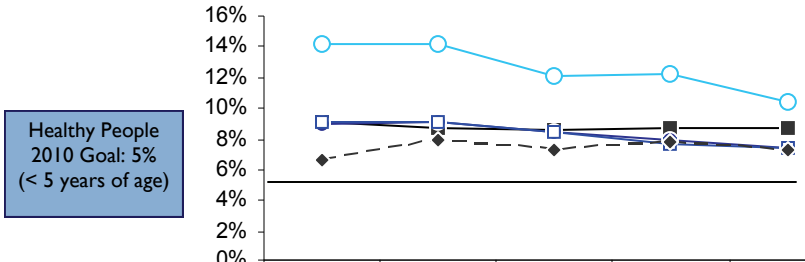
(Children with sickle cell disease and other hemoglobinopathies are included and thus the prevalence of nutritional anemia may be lower).

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

From 2003 to 2007, the average prevalence decreased 17% in the BHStJ DHD agency. Short stature was highest among Black, non-Hispanic children and lowest among Hispanic children.

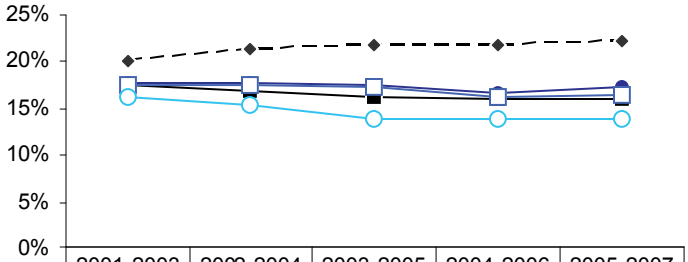
Data were not sufficient to report the trend among Asian, American Indian and Multiracial children.

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



	2001-2003	2002-2004	2003-2005	2004-2006	2005-2007
State PedNSS	9.1%	8.7%	8.6%	8.7%	8.7%
BHStJ DHD	9.0%	9.2%	8.4%	7.9%	7.5%
White, non-Hispanic	9.1%	9.1%	8.4%	7.7%	7.4%
Black, non-Hispanic	14.2%	14.2%	12.1%	12.2%	10.5%
Hispanic	6.6%	8.0%	7.3%	7.7%	7.3%

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



	2001-2003	2002-2004	2003-2005	2004-2006	2005-2007
State PedNSS	17.5%	16.8%	16.3%	15.9%	16.0%
BHStJ DHD PedNSS	17.8%	17.8%	17.6%	16.8%	17.2%
White, non-Hispanic	17.6%	17.5%	17.3%	16.2%	16.5%
Black, non-Hispanic	16.1%	15.4%	13.8%	13.8%	14.0%
Hispanic	20.2%	21.3%	21.8%	21.8%	22.3%

The average prevalence of overweight among children enrolled in the BHStJ DHD agency was higher compared to children enrolled in WIC statewide.
From 2003 to 2007, the average prevalence decreased 3% in the BHStJ DHD agency. Overweight was highest among Hispanic children and lowest among Black, non-Hispanic children.

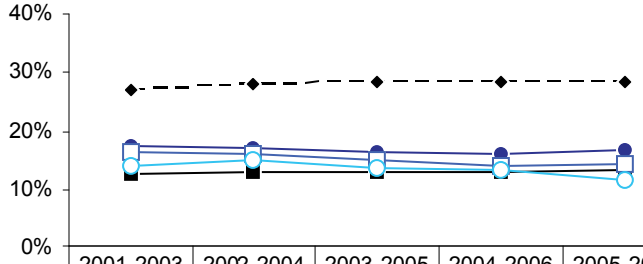
Data were not sufficient to report the trend among Asian, American Indian and Multiracial children.

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

From 2003 to 2007, the average prevalence decreased 4% in the BHStJ DHD agency. Obesity was highest among Hispanic children and lowest among Black, non-Hispanic children.

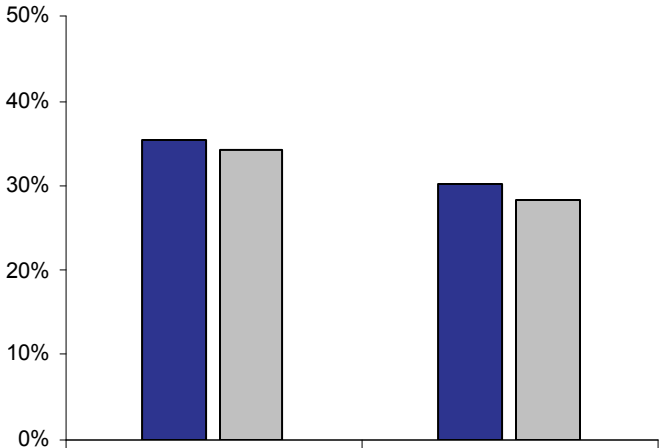
Data were not sufficient to report the trend among Asian, American Indian and Multiracial children.

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



	2001-2003	2002-2004	2003-2005	2004-2006	2005-2007
State PedNSS	12.7%	12.9%	13.0%	13.1%	13.3%
BHStJ DHD PedNSS	17.3%	17.2%	16.6%	16.0%	16.6%
White, non-Hispanic	16.5%	15.9%	15.0%	14.0%	14.4%
Black, non-Hispanic	13.9%	14.9%	13.8%	13.3%	11.6%
Hispanic	26.9%	27.9%	28.5%	28.3%	28.5%

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



	BHStJ DHD	State
1st trimester	35.5%	30.4%
After 1st trimester	34.2%	28.3%

The average prevalence of obesity and overweight was higher among children whose mothers enrolled in the BHStJ DHD agency 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.

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.

In accordance with Federal law and U.S. Department of Agriculture policy, this institution is prohibited from discriminating on the basis of race, color, national origin, sex, age, or disability. To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 1400 Independence Avenue, SW, Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TTY). USDA is an equal opportunity provider and employer.

Rick Snyder, Governor
Olga Dazzo, Director

Michigan Department of Community Health, WIC Division is an equal opportunity provider.

25 copies printed at $1.86 each with a total cost of $46.50