

BRIEFING PAPER
ON THE 2004 INFANT MORTALITY RATE
FOR THE
DISTRICT OF COLUMBIA

Prepared by

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BRIEFING PAPER ON THE 2004 INFANT MORTALITY RATE

Statistical Overview

There has been an overall declining trend in the infant mortality rate over the past ten years from 1995 to 2004. During this ten-year period, the number of infant deaths declined from 145 in 1995 to 94 in 2004 resulting in an overall decline in the District's infant mortality rate of 26.7 percent between 1995 and 2004. There were 51 fewer infant deaths in 2004 compared to 1995 and there were 1,056 fewer live births in 2004 compared to 1995. Table 1 presents a ten-year summary of these statistics.

In 2004, there were 7,937 live births and 94 infant deaths to District of Columbia residents (Table 1). This resulted in an infant mortality rate of 11.8 deaths for every 1,000 live births. In 2003, there were 7,616 live births and 78 infant deaths. The infant mortality rate for 2003 was 10.2 deaths per 1,000 live births. There were 16 more infant deaths in 2004 than in 2003 and 321 more births to District women in 2004 as compared to 2003. Ward 3 had the lowest infant mortality rate at 1.0 death per 1,000 live births and Ward 7 had the highest infant mortality rate at 22.3 deaths per 1,000 live births (Table 6).

Year	Births	Infant Deaths	Infant Mortality Rate*
1995	8,993	145	16.1
1996	8,377	121	14.4
1997	7,916	104	13.1
1998	7,678	96	12.5
1999	7,513	113	15.0
2000	7,666	91	11.9
2001	7,621	81	10.6
2002	7,494	86	11.5
2003	7,616	78	10.2
2004	7,937	94	11.8

* Per 1,000 live births

Source: D.C. State Center for Health Statistics.

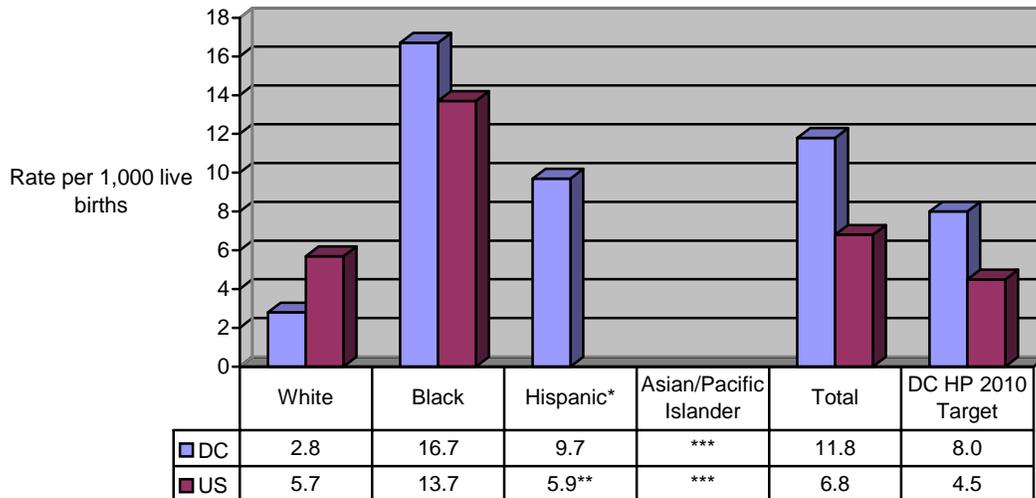
2003 to 2004 Comparisons

- The number of infant deaths increased from 78 in 2003 to 94 in 2004, an increase of 20.5 percent.
- The overall infant mortality rate for the District increased by 15.7 percent from a rate of 10.2 in 2003 per 1,000 live births to 11.8 per 1,000 live births for 2004. This increase in the District's infant mortality is inconsistent with the drop in the national infant mortality rate, which decreased from 6.9 per 1,000 live births in 2003 to 6.8 per 1,000 in 2004.
- The infant mortality rates decreased in Wards 3, 4, and 8.
- The infant mortality rates increased in Wards 1, 2, 5, 6 and 7.
- Death to infants younger than 28 days increased at a rate of 7.1 per 1,000 live births in 2003 to 8.3 per 1,000 live births in 2004, an increase of 16.9 percent. (66 neonatal deaths in 2004 and 54 in 2003.)
- The postneonatal death rate (deaths occurring from 28 days to under one year of age) was 3.5 per 1,000 live births in 2004 compared to 3.2 per 1,000 live births in 2003, a increase of 9.4 percent. (28 postneonatal deaths in 2004 and 24 in 2003)
- The infant death rate to black mothers increased from 14.2 per 1,000 live births in 2003 to 16.7 per 1,000 live births in 2004, an increased of 17.6 percent, which is higher than the preliminary 2004 US rate of 13.7 per 1,000. The increase in this rate breaks the four-year downward trend since 2000. (78 infant deaths in 2004.)
- The infant death rate to white mothers also increased from 2.1 per 1,000 live births in 2003 to 2.8 per 1,000 live births in 2004, which is lower than the preliminary 2004 US rate of 5.7 per 1,000. (Six infant deaths in 2004.)
- The infant death rate to Hispanic mothers increased from 8.2 per 1,000 live births in 2003 to 9.7 per 1,000 live births in 2004. (10 infant deaths in 2004.)
- The number of infant deaths that resulted from multiple births increased from 6 in 2003 to 15 in 2004.
- There were 2 maternal deaths in 2004.
- Births to adolescent mothers (younger than 20 years of age) decreased from 11.4 percent of the total in 2003 to 11.2 percent of the total in 2004, a record low for the District of Columbia.
- Births to teen mothers (15-19 years of age) decreased from 11.0 percent of the total births in 2003 to 10.9 percent of the total births in 2004.

Of the 94 infant deaths that occurred in 2004, 66 (or 70.2 percent) occurred during the neonatal period (under 28 days of life). The neonatal death rate increased by 22.1 percent from 6.8 per 1,000 live births in 2003 to 8.3 per 1,000 live births in 2004. The neonatal period is important

relative to efforts to reduce infant mortality. Many of the causes of infant deaths during this period could have been mitigated or prevented with preconception and prenatal care.

Figure 1: Infant Mortality Rates for the District of Columbia and the United States, 2004



Note: US 2003 rates are preliminary.

Source: D.C. State Center for Health Statistics.

National Center for Health Statistics.

*Hispanics include persons of all Hispanic origin of any race.

** US rate based on 2003 data.

***Rates not computed due to small number of infant deaths and, therefore, are likely to be unstable.

Factors Contributing to Infant Mortality

Low Birth Weight and Race of Mother

Vital statistics over the years have indicated that factors such as low birth weight and lack of adequate prenatal care are associated with infant mortality. In 2004, the percentage of low birth weight infants (those weighing under 2,500 grams or 5.5 pounds) in the District was 11.1 compared to 11.0 percent in 2003 (Table 2). This represents a slight increase of 0.9 percent. The percentage of low birth weight babies that was born to all black mothers increased from 13.8 in 2003 to 14.0 in 2004. Comparatively, there was a decrease in low birth weight babies born to all white mothers, from 6.4 in 2003 to 6.0 in 2004. Similarly, the percentage of low birth weight babies born to Asian and Pacific Islander mothers increased from 7.7 in 2003 to 10.9 in 2004.

Table 2: Percent Distribution of Low Birth Weight Babies by Race of Mother District of Columbia Residents, 2003 and 2004			
Race	2003	2004	Percent Change
Total Births for All Races	7,616	7937	
- Number Low Birth Weight	836	881	
- Percentage LBW among all Births	11.0%	11.1%	0.9
Total Births to Black Mothers	4,566	4684	
- Number Low Birth Weight	629	656	
- Percentage LBW among Births to Black Mothers	13.8%	14.0%	1.4
Total Births to White Mothers	1925	2115	
- Number Low Birth Weight	124	127	
- Percentage LBW among Births to White Mothers	6.4%	6.0%	-6.3
Total Births to Asian and Pacific Islander Mothers	221	193	
- Number Low Birth Weight	17	21	
- Percentage LBW among Births to Asian and Pacific Islander Mothers	7.7%	10.9%	41.6

Low Birth Weight means under 2,500 grams or 5lbs. 8oz.

Source: D.C. State Center for Health Statistics.

Infant Deaths and Race of Mother by Low Birth Weight

Of the 94 infant deaths, 72 (76.6 percent) were low birth weight infants (60 died during the neonatal period and 12 in the post-neonatal period). Four of the six infant deaths to white mothers were born weighing under 2,500 grams. Sixty of the 78 (76.9 percent) infant deaths to black mothers were low birth weight babies. There were no infant deaths to Asian mothers.

Low Birth Weight and Age of Mother

In the District of Columbia the percentage of low birth weight infants born to all mothers under 20 years of age decreased from 12.9 in 2003 to 12.7 in 2004 (Table 3). The percentage of low birth weight babies born to all mothers 20 years of age and older increased from 10.7 percent in 2003 to 10.9 percent in 2004.

Table 3: Percent Distribution of Low Birth Weight Babies by Age of Mother District of Columbia Residents, 2003 and 2004			
	2003	2004	Percent Change
Total Births for All Ages	7,616	7937	
- Number of Low Birth Weight	836	881	
- Percentage of Low Birth Weight	11.0%	11.1%	0.9
Total Births to Mothers Under 20 Years of Age	865	887	
- Number of Low Birth Weight	112	113	
- Percentage of Low Birth Weight among mothers < 20 years old	12.9%	12.7%	-1.6
Total Births to Mothers 20 Years of Age and Older	6747	7049	
- Number of Low Birth Weight	724	768	
- Percentage of Low Birth Weight among mothers ≥20 years old	10.7%	10.9%	1.9
Total Births to Mothers Whose Age is Unknown	4	1	
- Number of Low Birth Weight	-	-	-
- Percentage of Low Birth Weight	-	-	-

Low Birth Weight means under 2,500 grams or 5lbs. 8oz.

Source: D.C. State Center for Health Statistics.

Low Birth Weight and Infant Deaths

Of the 881 low birth weight births, 72 infants (8.2 percent) died in 2004. A total of 25 infants (26.6 percent of all 94 infant deaths) died to mothers 25-29 years of age. Twenty of these 25 infants (80.0 percent) were low birth weight. Fifty percent of all infant deaths (N=94) occurred to mothers aged 20-29 years. Approximately 27 percent of all infant deaths occurred to mothers aged 30 to 39 years and 20 percent of all infant deaths were to mothers aged below 20 years (Table 4).

Age of Mother	Infant Deaths	Percent Deaths*	LBW Deaths	%LBW Deaths**	Time of Infant Death		
					Total LBW	Neonatal	Post-neonatal
Total	94	100.0	72	76.6	72	60	12
< 20 years	19	20.2	12	63.2	12	9	3
20-24 years	22	23.4	17	77.3	17	13	4
25-29 years	25	26.6	20	80.0	20	19	1
30-34 years	13	13.8	11	84.6	11	8	3
35-39 years	12	12.8	9	75.0	9	8	1
≥ 40 years	3	3.2	3	100.0	3	3	0

*Percentage based on all infant deaths (N=94).

**Percentage based on total deaths in each age group.

Note: LBW means low birth weight (under 2,500 grams or 5lbs. 8 oz.).

Source: D.C. State Center for Health Statistics.

Prenatal Care

Adequate prenatal care, defined by the Kessner Index (Kessner et al., 1973), is care initiated in the first trimester with a minimum of nine prenatal visits. Care is considered to be inadequate if initiated in the third trimester and consisting of fewer than four prenatal visits; no prenatal care is included in this category. Any other combination of prenatal care and number of visits is considered to be intermediate care. Adequate prenatal care increased between 2003 (67.6 percent) and 2004 (70.3 percent). Intermediate care decreased from 24.0 percent in 2003 to 22.3 in 2004. Inadequate care decreased by 10.8 percent from 8.3 percent in 2003 to 7.4 percent in 2004 (Table 11).

Percent of births to mothers who began prenatal care in the first trimester increased from 77.5 percent in 2003 to 79.4 percent in 2004, increased by 2.5 percent (Table 11). Ward 3 had the highest percentage of women who began prenatal care in the first trimester (90.7 percent) and also the highest percentage of women who received adequate prenatal care (85.1 percent). Ward 7 had 72.4 percent of pregnant women who began prenatal care in the first trimester (the lowest among the Wards) and 63.2 percent received adequate prenatal care, the second lowest among the Wards—which partially explain the largest percentage increase in the infant mortality rate (72.9 percent). Ward 4 had the second lowest percentage for first trimester prenatal care began (74.2 percent) but the lowest percentage for adequate prenatal care in Ward 8 (59.8 percent (Tables 6 and 11).

Hispanic / Latina Outcomes

The number of births to Hispanic / Latina mothers increased from 975 in 2003 to 1,028 in 2004. Of these births, eight infants died in 2003 and 10 infants died in 2004. Thus, the infant mortality rate increased from 8.2 per 1,000 live births in 2003 to 9.7 per 1,000 live births in 2004. Births to Hispanic mothers younger than age 20 increased by 4.5 percent from 11.0 percent in 2003 to 11.5 percent in 2004. Births to Hispanic teen (15-19 years) mothers increased by 7.6 percent from 10.5 percent in 2003 to 11.3 percent in 2004. Overall, the percentage of low birth weight infant increased by 3.8 from 7.8 in 2003 to 8.1 in 2004. Births to mothers age below 20 years, the percentage of low birth weight babies decreased by 8.6 from 9.3 in 2003 to 8.5 in 2004 and the mothers age 20 years and older, the percentage of low birth weight babies increased by 5.3 from 7.6 in 2003 to 8.0 in 2004 (Table 5).

Of the 94 infant deaths, eight infant deaths to Hispanic / Latina mothers were low birth weight babies. Of these eight infant deaths, three infants died to mothers in age groups 25-29 and two infants died to mothers in age group 30-34, two infants died to mothers in age group under 20 and one infant died to mothers in age group 20-24 years old.

Approximately, fifty five percent of Hispanic / Latina mothers received adequate prenatal care in 2004 compared to 62.0 percent in 2003. In 2004, 61.6 percent of Hispanic / Latina mothers began prenatal care in the first trimester compared to 71 percent in 2003.

Table 5: Percent Distribution of Low Birth Weight Babies to Hispanic / Latina Mothers by Age of Mother District of Columbia Residents, 2003 and 2004			
	2003	2004	Percent Change
Total Births to Hispanic Mothers for All Ages	975	1028	
- Number of Low Birth Weight	76	83	
- Percentage of Low Birth Weight	7.8%	8.1%	3.8
Total Births to Mothers Under 20 Years of Age	107	118	
- Number of Low Birth Weight	10	10	
- Percentage of Low Birth Weight among mothers < 20 years old	9.3%	8.5%	-8.6
Total Births to Mothers 20 Years of Age and Older	867	910	
- Number of Low Birth Weight	66	73	
- Percentage of Low Birth Weight among mothers ≥20 years old	7.6%	8.0%	5.3
Total Births to Mothers Whose Age is Unknown	1	0	
- Number of Low Birth Weight	-	-	-
- Percentage of Low Birth Weight	-	-	-

Low Birth Weight means under 2,500 grams or 5lbs. 8oz.

Note: (1) Persons of Hispanic origin may be of any race; therefore, Hispanics include persons of all Hispanic origin of any race.

(2) Due to the small number of births, the above percentages should be interpreted cautiously.

Source: D.C. State Center for Health Statistics.

Geographical Distribution

The presence of geographical subdivisions such as Wards and Census Tracts in the District provides a basis for breaking down District-wide data into small area statistics for comparison and analyses. In the absence of individual-level socioeconomic data, these Ward statistics form a useful basis for evaluating health status indicators against demographic and environmental Ward characteristics. In 2004, there was an increase in the number of infants born in six Wards (1, 2, 3, 4, 5, and 6) of the city. The infant mortality breakdown by Ward for 2004 shows a decline in the infant mortality rate for three Wards (3, 4 and 8). The infant mortality rate increased in the other five Wards (1, 2, 5, 6 and 7). Among the five Wards with increased infant mortality rates for 2004, Ward 7 had the highest rate, but Ward 6 had the largest percentage increase from a rate of 8.4 in 2003 to 18.0 in 2004. In 2004, the number of infant deaths increased by 10 in Ward 6. Ward 3 had the largest decrease from a rate of 4.2 in 2003 to 1.0 in 2004. Caution should be used when interpreting the rate and percentage change for Ward 3 because of very small numbers (Table 6).

Ward	Births		Infant Deaths		Infant Mortality Rate*		
	2004	2003	2004	2003	2004	2003	Percent Change
1	1,141	1,053	15	8	13.1	7.6	98.5
2	763	759	5	4	6.6	5.3	24.5
3	1,013	956	1	4	1.0	4.2	-76.2
4	1,088	1,033	9	9	8.3	8.7	-4.6
5	854	791	14	10	16.4	12.6	18.0
6	946	834	17	7	18.0	8.4	114.3
7	898	932	20	12	22.3	12.9	72.9
8	1,231	1,252	13	23	10.6	18.4	-42.4
Unknown	3	6	0	1	-	-	-
Total	7,937	7,616	94	78	11.8	10.2	15.7

*Infant deaths per 1,000 live births.

Note: (1) Due to the small number of infant deaths, the above infant mortality rates are highly variable and should be interpreted cautiously.

Source: D.C. State Center for Health Statistics.

**Table 7: Statistical Overview by Ward
District of Columbia Residents, 2004**

Ward	Births	Infant Deaths	IMR*	LBW	Teen Births	LBW to Teens
1	1,141	15	13.1	120	90	9
2	763	5	6.6	89	65	6
3	1,013	1	1.0	51	6	0
4	1,088	9	8.3	99	119	12
5	854	14	16.4	113	125	19
6	946	17	18.0	105	119	13
7	898	20	22.3	134	166	24
8	1,231	13	10.6	170	197	30
Unknown	3	0	-	0	0	0
Total	7,937	94	11.8	881	887	113

* Infant deaths per 1,000 live births.

Notes: (1) Teen birth means birth to a mother under the age of 20 years.

(2) LBW means low birth weight (under 2,500 grams or 5 lbs. 8 oz.).

(3) Due to the small number of infant deaths, the above infant mortality rates are highly variable and should be interpreted cautiously.

Source: D.C. State Center for Health Statistics.

Ward	Births	Infant Deaths	IMR*	LBW	Teen Births	LBW to Teens
1	1,053	8	7.6	87	80	9
2	759	4	5.3	74	46	5
3	956	4	4.2	55	3	0
4	1,033	9	8.7	121	111	12
5	791	10	12.6	86	118	15
6	834	7	8.4	86	102	9
7	932	12	12.9	142	173	27
8	1,252	23	18.4	185	232	35
Unknown	6	1	-	0	0	0
Total	7,616	78	10.2	836	865	112

* Infant deaths per 1,000 live births.

Notes: (1) Teen birth means birth to a mother younger than 20 years of age.

(2) LBW means low birth weight (under 2,500 grams or 5 lbs. 8 oz.).

(3) Due to the small number of infant deaths, the above infant mortality rates are highly variable and should be interpreted cautiously.

Source: D.C. State Center for Health Statistics.

City	2000	2001	2002	2003	2004
Baltimore, Maryland ¹	11.7	11.9	10.4	13.2	12.7
Detroit, Michigan ²	14.7	14.0	16.7	16.3	15.5
District of Columbia ³	11.9	10.6	11.5	10.2	11.8
Richmond, Virginia ⁴	12.4	18.5	17.2	14.3	11.0

Sources: ¹Vital Statistics Administration, Department of Health and Mental Hygiene, Maryland.

²Vital Records & Health Data Development Section, Michigan Department of Community Health.

³D.C. State Center for Health Statistics.

⁴Virginia Department of Health, VA State Center for Health Statistics.

Causes of Death

The leading cause of infant mortality, **Newborn affected by maternal complications of pregnancy**, accounted for 21.3 percent of all infant deaths (Table 10). **Disorders related to short gestation and low birth weight, not elsewhere classified** was the second ranked leading cause of infant death, which accounted for 16.0 percent of all infant deaths in 2004. **Congenital malformations, deformations and chromosomal abnormalities** were ranked third ranked leading cause of death, which accounted for 11.7 percent of all infant mortality. **Newborn affected by complications of placenta, cord, and membranes and Necrotizing enterocolitis of newborn** tied for the fourth leading cause of death, which accounted for 5.3 percent each of all infant mortality.

Rank ¹	Cause of Death (Based on Tenth Revision, International Classification of Diseases, 1992)	Number	Percent*	Rate**
...	All causes	94	100.0	1184.3
1	Newborn affected by maternal complications of pregnancy (P01)	20	21.3	252.0
	...Premature rupture of membrane (P01.1)	17	18.1	214.2
	...Newborn affected by other maternal complications of pregnancy (P01.2)	2	2.1	25.2
	...Incompetent cervix (P01.0)	1	1.1	12.6
2	Disorders related to short gestation and low birth weight, not elsewhere classified (P07)	15	16.0	189.0
	... Under 28 weeks gestation, immature (P07.2)	10	10.6	126.0
	... Other low birth weight or preterm (P07.3)	5	5.3	63.0
3	Congenital malformations, deformations and chromosomal abnormalities (Q00-Q99)	11	11.7	138.6
4	Newborn affected by complications of placenta, cord, and membranes (P02)	5	5.3	63.0
4	Necrotizing enterocolitis of newborn (P77)	5	5.3	63.0
...	All other causes	38	40.4	-

*Percent based on total number of infant deaths.

**Rate per 100,000 live births.

¹Rank based on number of infant deaths.

Source: D.C. State Center For Health Statistics.

**Table 11. Indicators of Maternal and Child Health, and Infant Mortality
for the District of Columbia by Ward, 2004**

Indicators	DC	Ward 1	Ward 2	Ward 3	Ward 4	Ward 5	Ward 6	Ward 7	Ward 8
Census 2000 Population	572,059	80,014	82,845	79,566	71,393	66,548	65,457	64,704	61,532
Live Births Rate/1,000 pop ¹	7,937 13.9	1,141 14.3	763 9.2	1,013 12.7	1,088 15.2	854 12.8	946 14.5	898 13.9	1,231 20.0
Births to Unmarried Women (Percent)	4,442 56.0	597 52.3	368 48.2	67 6.6	604 55.5	575 67.3	523 55.3	742 82.6	965 78.4
% Births to Unmarried Women									
Black	77.5	70.7	81.4	17.0	59.5	73.4	85.1	83.2	85.3
White	8.9	15.9	10.7	4.1	19.1	19.4	5.4	50.0	9.5
Hispanic ²	63.1	71.3	53.3	37.5	64.4	59.6	38.1	71.4	23.1
Births to Mothers age <20 yrs (Percent)	887 11.2	90 7.9	65 8.5	6 0.6	119 10.9	125 14.6	119 12.6	166 18.5	197 16.0
Births to Mothers 15-19 yrs (Percent)	864 10.9	88 7.7	63 8.3	5 0.5	117 10.8	123 14.4	116 12.3	161 17.9	191 15.5
Birth Rate/1,000 Women 15-19 yrs ¹	43.5	31.7	21.9	1.8	47.2	53.3	51.1	71.7	89.5
Low Birth Weight Live Births ³ (Percent)	881 11.1	120 10.5	89 11.7	51 5.0	99 9.1	113 13.2	105 11.1	134 14.9	170 13.8
% Low Birth Weight Births ³									
Black	14.0	15.2	16.3	3.8	10.4	14.9	13.9	15.1	14.2
White	6.0	7.4	8.9	4.6	7.6	3.0	6.3	0.0	5.3
Hispanic ²	8.1	9.1	5.6	8.3	7.4	1.9	14.3	0.0	19.2
Low Birth Weight ³ to Mothers <20 yrs (Percent)	113 12.7	9 10.0	6 9.2	0 0.0	12 10.1	19 15.2	13 10.9	24 14.5	30 15.2
% Births With Adequate Prenatal Care ⁴	70.3	70.6	72.4	85.1	67.5	69.2	74.2	63.2	59.8
% Births With Prenatal Care Beginning First Trimester ⁵	79.4	78.0	83.5	90.7	74.2	77.6	84.0	72.4	74.4
Infant Deaths (under 1 yr.) Rate (per 1,000 live births) ⁶	94 11.8	15 13.1	5 6.6	1 1.0	9 8.3	14 16.4	17 18.0	20 22.3	13 10.6

¹Rates based on Census 2000 population.

²Hispanics include persons of all Hispanic origin of any race.

³Low birth weight (under 2,500 grams or 5 lbs. 8 oz.).

⁴Adequate prenatal care is based on care initiated in the first trimester with a minimum of nine prenatal visits.

⁵Excludes not stated from total number of births before percentages were computed.

⁶Due to the small number of infant deaths, infant mortality rates are highly variable and should be interpreted cautiously.

Source: D.C. State Center For Health Statistics.