

## 1. Maternal and Child Health Appendix Data Tables

This chapter presents data on the following indicators related to maternal and child health:

- 1.1. Births
  - Number of Births (2000, 2009)
  - Fertility Rate (1999-2001, 2007-2009)
  - % to teen mothers (1999-2001, 2007-2009)
- 1.2. Infant Mortality
  - All cause infant mortality rate (1999-2001, 2007-2009)
- 1.3. Pre-term Births
  - % if births born preterm (1999-2001, 2007-2009)
- 1.4. Cesarean Delivery
  - % of births delivered by cesarean section – primary, repeat, total (1999-2001, 2006-2008)
- 1.5. Adequate Prenatal Care
  - % of women receiving adequate prenatal care (1999-2001, 2007-2009)
- 1.6. Low Birth Weight
  - % of children born with lower birth weight (1999-2001, 2007-2009)
- 1.7. Multiple Births
  - % of births that are multiple births (1999-2001, 2006-2008)
- 1.8. Breastfeeding
  - % of mothers breastfeeding or planning to breastfeed at hospital discharge (1999-2001, 2006-2008)
- 1.9. WIC Participants
  - Number of total WIC participants, including children, infants, and women (2000, 2007)

Presented for each indicator is an explanation of the indicator, the data, the source of the data, a Healthy People 2020 objective when available, and a comment on whether there are any statistically significant differences between each community in CHNA 18 and Massachusetts.

### **A note on determining statistical significance:**

The 95% confidence interval (95% CI) is a range of values that has a 95% chance of including the observed percentage. Observed rates are subject to statistical variation; even if the observed percentages are identical in two populations, the populations may differ because of random variation. The confidence interval describes the precision of the observed rate as an estimate of the underlying risk, with a wider interval indicating less certainty about this estimate. The width of the interval reflects the size of the population and the number of cases; smaller populations with fewer cases lead to wider confidence intervals.

The **statistical significance** of differences between rates can be estimated based on whether the confidence intervals overlap. For example, if the 95% confidence intervals for the birth rate for a community and state do not overlap, it is safe to conclude that the rates are statistically different (i.e., the difference is very unlikely to be due to sampling error).

## 1.1 Births

**Number of Births:** The total number of live births to all mothers during the specified year

**Fertility Rate:** The number of live births occurring in a population during the specified year in relation to the number of women 15-44 years of age during the same time period. It is interpreted as the number of births per 1000 women of childbearing age (15-44 years). This is a good indicator of population growth

**% to teen mothers:** This is the percent of births during the specified time period to women 15-19 years of age

	Number of Births		Fertility Rate (95% CI)	
	2000	2009	1999-2001	2007-2009
<b>Brookline</b>	614	676	36.98 (35.30 - 38.66)	44.47 (42.57 - 46.38)
<b>Dedham</b>	301	266	62.63 (58.61 - 66.65)	63.60 (59.38 - 67.83)
<b>Dover</b>	58	31	63.49 (54.66 - 72.32)	34.11 (27.29 - 40.92)
<b>Needham</b>	401	298	76.82 (72.62 - 81.02)	64.68 (60.63 - 68.72)
<b>Newton</b>	886	806	44.36 (42.68 - 46.03)	48.00 (46.16 - 49.83)
<b>Waltham</b>	684	815	44.53 (42.64 - 46.42)	56.45 (54.27 - 58.62)
<b>Wellesley</b>	351	215	49.99 (46.98 - 53.00)	36.31 (33.68 - 38.94)
<b>Weston</b>	93	80	51.19 (45.82 - 56.56)	36.65 (31.95 - 41.35)
<b>Westwood</b>	193	114	78.44 (72.27 - 84.60)	58.03 (52.34 - 63.71)
<b>CHNA 18</b>	3,581	3,301	48.33 (47.43 - 49.23)	49.84 (48.89 - 50.79)
<b>Massachusetts</b>	81,582	74,966	56.51 (56.30 - 56.73)	56.25 (56.03 - 56.48)
<b>United States*</b>	4,058,814	4,130,665	65.9 (65.85 - 65.98)	66.7 (66.62 - 66.74)

\*United States data for 2000 and 2009 only

Source: Vital Records (MassCHIP custom report); National Vital Statistics Reports

	% to teen mothers (95% CI)	
	1999-2001	2007-2009
<b>Brookline</b>	0.67 (0.29-1.04)	0.50 (0.19-0.81)
<b>Dedham</b>	2.06 (1.12-3.00)	2.82 (1.68-3.95)
<b>Dover</b>	NA*	NA*
<b>Needham</b>	NA*	NA*
<b>Newton</b>	0.89 (0.53-1.25)	0.44 (0.18-0.69)
<b>Waltham</b>	3.41 (2.63-4.20)	3.61 (2.87-4.36)
<b>Wellesley</b>	NA*	0.97 (0.26-1.69)
<b>Weston</b>	NA*	NA*
<b>Westwood</b>	0.87 (0.11-1.63)	NA*
<b>CHNA 18</b>	1.27 (1.06 - 1.48)	1.42 (1.19 - 1.65)
<b>Massachusetts</b>	6.49 (6.39-6.59)	6.09 (5.99-6.19)
<b>United States**</b>	11.55 (11.52 - 11.89)	9.92 (9.89 - 9.95)

\*Cells are marked as NA when either: 1) Data are suppressed for confidentiality reasons, 2) The data is unavailable, or 3) The population on which the statistic is based on is too small to calculate reliable results

\*\*United States data are from 2000 and 2009 only

Source: Vital Records (MassCHIP custom report); National Vital Statistics Reports

**Comment:**

*Are there any statistically significant differences over time or between each community and the CHNA and Massachusetts?*

- From 1999-2001 to 2007-2009, the fertility rate went up in Brookline, Newton, and Waltham; went down in Dover, Needham, Wellesley, Weston, and Westwood; and there was no change in Dedham
- From 2007-2009, compared to the CHNA as a whole, Dedham, Needham, Waltham, and Westwood have a higher fertility rate, and Brookline, Dover, Wellesley, and Weston have a lower fertility rate
- From 2007-2009, compared to Massachusetts, Dedham and Needham have a higher fertility rate, and Brookline, Dover, Newton, Wellesley, and Weston have a lower fertility rate

## 1.2 Infant Mortality

**Infant Mortality Rate:** This is a rate of the number of infants whose age at death is less than one year, per 1,000 live births

**Healthy People 2020 Objective:** 6.0 infant deaths per 1,000 live births

	Infant Mortality Rate (95% CI)	
	1999-2001	2007-2009
<b>Brookline</b>	0.55 (0.00 - 1.64)	1.00 (0.00 - 2.37)
<b>Dedham</b>	4.57 (0.10 - 9.04)	NA*
<b>Dover</b>	NA*	NA*
<b>Needham</b>	0.84 (0.00 - 2.49)	4.31 (0.10 - 8.52)
<b>Newton</b>	3.08 (0.95 - 5.22)	1.98 (0.25 - 3.71)
<b>Waltham</b>	4.39 (1.53 - 7.25)	2.05 (0.26 - 3.85)
<b>Wellesley</b>	1.99 (0.00 - 4.74)	1.39 (0.00 - 4.11)
<b>Weston</b>	1.74 (0.00 - 5.14)	NA*
<b>Westwood</b>	1.74 (0.00 - 5.14)	NA*
<b>CHNA 18</b>	2.54 (1.59 - 3.50)	1.68 (0.88 - 2.47)
<b>Massachusetts</b>	4.94 (4.66 - 5.22)	4.89 (4.60 - 5.17)
<b>United States</b>	6.94	6.59

\*Cells are marked as NA when either: 1) Data are suppressed for confidentiality reasons, 2) The data is unavailable, or 3) The population on which the statistic is based on is too small to calculate reliable results

Source: Vital Records (MassCHIP Custom Report); National Vital Statistics Reports

### Comment:

*Are there any statistically significant differences over time or between each community and the CHNA and Massachusetts?*

- There have been no changes in the infant mortality rate for any community over time
- Brookline, Newton, Waltham and Wellesley have lower infant mortality rates compared to Massachusetts as a whole
- Both the CHNA and Massachusetts have met the Healthy People 2020 Objective for infant mortality

### 1.3 Pre-term births

**% Preterm:** This is the percent of births delivered before the gestational age of 37 weeks

**Healthy People 2020 Objective:** Reduce to the percent of preterm births to 11.4 %

	% Preterm (95% CI)	
	1999-2001	2007-2009
<b>Brookline</b>	6.83 (5.66 - 7.99)	7.71 (6.55 - 8.88)
<b>Dedham</b>	9.03 (7.13 - 10.93)	8.20 (6.32 - 10.08)
<b>Dover</b>	12.37 (7.63 - 17.10)	9.68 (3.67 - 15.69)
<b>Needham</b>	9.33 (7.68 - 10.98)	7.21 (5.55 - 8.88)
<b>Newton</b>	8.25 (7.19 - 9.31)	9.45 (8.31 - 10.59)
<b>Waltham</b>	8.19 (7.00 - 9.38)	9.03 (7.90 - 10.17)
<b>Wellesley</b>	6.65 (5.11 - 8.19)	7.79 (5.83 - 9.75)
<b>Weston</b>	9.25 (6.15 - 12.36)	6.17 (3.04 - 9.30)
<b>Westwood</b>	6.94 (4.87 - 9.02)	9.52 (6.56 - 12.48)
<b>CHNA 18</b>	8.06 (7.55 - 8.58)	8.51 (7.97 - 9.06)
<b>Massachusetts</b>	7.74 (7.64 - 7.85)	8.71 (8.59 - 8.82)
<b>United States</b>	11.77	12.4

Source: Vital Records (MassCHIP Custom Report); National Vital Statistics Reports

**Comment:**

*Are there any statistically significant differences over time or between each community and the CHNA and Massachusetts?*

- Massachusetts had an increase in % of preterm births from 1999-2001 to 2007-2009, which was not seen in the CHNA or individual communities
- In 1999-2001 or 2007-2009, there was no differences seen when comparing each community to the CHNA or to Massachusetts
- Although each community has a point estimate below the Healthy People 2020 objective, the % of preterm births in Dover and Westwood is not significantly less than the Healthy People 2020 objective

## 1.4 Cesarean Delivery

**% Cesarean Delivery:** This is the percent of all live births delivered by a cesarean section. A **primary cesarean delivery** is one where the mother is having a cesarean delivery for the first time (regardless of number of births), and a **repeat cesarean delivery** is one where the mother is having a cesarean delivery after already having one during a previous delivery (regardless of number of births). The denominator for each indicator is all deliveries.

**Healthy People 2020 Objective:** Reduce cesarean births among low-risk women to 23.9% for women giving birth for the 1st time

		<b>% Cesarean Delivery (95% CI)</b>	
		<b>1999-2001</b>	<b>2006-2008</b>
<b>Brookline</b>	Primary	16.09 (14.40 - 17.79)	19.75 (18.02 - 21.49)
	Repeat	4.61 (3.64 - 5.57)	11.11 (9.74 - 12.48)
	<b>Total</b>	<b>20.70 (18.83 - 22.57)</b>	<b>30.86 (28.85 - 32.88)</b>
<b>Dedham</b>	Primary	16.00 (13.57 - 18.43)	22.13 (19.30 - 24.96)
	Repeat	9.14 (7.23 - 11.05)	17.17 (14.60 - 19.74)
	<b>Total</b>	<b>25.14 (22.27 - 28.02)</b>	<b>39.30 (35.97 - 42.63)</b>
<b>Dover</b>	Primary	13.44 (8.54 - 18.34)	22.86 (14.83 - 30.89)
	Repeat	9.68 (5.43 - 13.93)	14.29 (7.59 - 20.98)
	<b>Total</b>	<b>23.12 (17.06 - 29.18)</b>	<b>37.14 (27.90 - 46.39)</b>
<b>Needham</b>	Primary	14.87 (12.85 - 16.90)	17.68 (15.26 - 20.10)
	Repeat	8.91 (7.29 - 10.53)	17.05 (14.67 - 19.43)
	<b>Total</b>	<b>23.78 (21.36 - 26.20)</b>	<b>34.73 (31.71 - 37.75)</b>
<b>Newton</b>	Primary	15.84 (14.44 - 17.25)	21.78 (20.18 - 23.39)
	Repeat	7.86 (6.83 - 8.90)	13.38 (12.05 - 14.70)
	<b>Total</b>	<b>23.71 (22.07 - 25.35)</b>	<b>35.16 (33.30 - 37.02)</b>
<b>Waltham</b>	Primary	19.06 (17.36 - 20.76)	22.94 (21.26 - 24.63)
	Repeat	7.46 (6.32 - 8.60)	10.65 (9.42 - 11.89)
	<b>Total</b>	<b>26.52 (24.61 - 28.43)</b>	<b>33.60 (31.70 - 35.50)</b>
<b>Wellesley</b>	Primary	14.30 (12.14 - 16.46)	19.43 (16.65 - 22.22)
	Repeat	8.64 (6.90 - 10.37)	13.13 (10.75 - 15.50)
	<b>Total</b>	<b>22.94 (20.34 - 25.54)</b>	<b>32.56 (29.27 - 35.86)</b>
<b>Weston</b>	Primary	12.54 (8.99 - 16.08)	16.14 (11.31 - 20.97)
	Repeat	11.64 (8.21 - 15.08)	20.63 (15.32 - 25.94)
	<b>Total</b>	<b>24.18 (19.59 - 28.76)</b>	<b>36.77 (30.44 - 43.10)</b>

Table Continues on Next Page

<b>Westwood</b>	Primary	13.54 (10.75 - 16.34)	17.45 (13.84 - 21.07)
	Repeat	9.90 (7.46 - 12.33)	18.16 (14.49 - 21.83)
	<b>Total</b>	<b>23.44 (19.98 - 26.90)</b>	<b>35.61 (31.06 - 40.17)</b>
<b>CHNA 18</b>	Primary	15.99 (15.30 - 16.69)	20.83 (20.04 - 21.61)
	Repeat	7.79 (7.28 - 8.30)	13.29 (12.63 - 13.95)
	<b>Total</b>	<b>23.78 (22.97 - 24.59)</b>	<b>34.12 (33.20 - 35.04)</b>
<b>Massachusetts</b>	Primary	15.62 (15.47 - 15.76)	20.55 (20.38 - 20.71)
	Repeat	8.13 (8.02 - 8.23)	13.15 (13.02 - 13.29)
	<b>Total</b>	<b>23.74 (23.57 - 23.91)</b>	<b>33.70 (33.51 - 33.89)</b>
<b>United States</b>	<b>Total</b>	<b>23.1</b>	<b>31.7</b>

Source: Vital Records (MassCHIP custom report); National Vital Statistics Reports

**Comment:**

*Are there any statistically significant differences over time or between each community and the CHNA and Massachusetts?*

- Massachusetts, the CHNA, and every community except Dover had a increase in the % of births delivered by a cesarean section between 1999-2001 and 2006-2008
- From 2006-2008, Brookline had fewer cesarean deliveries compared to the CHNA and to Massachusetts while Dedham had more

## 1.5 Adequate Prenatal Care

**% Adequate Prenatal Care:** This is an official measurement that assesses the initiation and receipt of care, but not the quality of care. The Kessner Index of Prenatal Care Adequacy was used to calculate this statistic.

**Healthy People 2020 Objective:** Increase the proportion of pregnant women who receive early and adequate prenatal care to 77.6%

	% Adequate Prenatal Care (95% CI)	
	1999-2001	2007-2009
<b>Brookline</b>	90.01 (88.63 - 91.40)	88.56 (87.17 - 89.95)
<b>Dedham</b>	88.46 (86.34 - 90.57)	85.07 (82.62 - 87.51)
<b>Dover</b>	84.41 (79.20 - 89.62)	86.02 (78.97 - 93.07)
<b>Needham</b>	88.49 (86.67 - 90.30)	86.01 (83.78 - 88.24)
<b>Newton</b>	86.82 (85.51 - 88.12)	85.92 (84.56 - 87.27)
<b>Waltham</b>	80.69 (78.98 - 82.40)	74.83 (73.10 - 76.55)
<b>Wellesley</b>	90.86 (89.08 - 92.64)	84.14 (81.47 - 86.81)
<b>Weston</b>	88.06 (84.59 - 91.53)	87.22 (82.88 - 91.57)
<b>Westwood</b>	89.41 (86.90 - 91.92)	88.10 (84.83 - 91.36)
<b>CHNA 18</b>	87.02 (86.38 - 87.66)	83.70 (82.98 - 84.42)
<b>Massachusetts</b>	78.63 (78.47 - 78.79)	76.30 (76.12 - 76.47)

Source: Vital Records (MassCHIP custom report)

### Comment:

Are there any statistically significant differences over time or between each community and the CHNA and Massachusetts?

- From 1999-2001 to 2007-2009, the percent of mothers receiving adequate prenatal care has decreased in Waltham, Wellesley, CHNA 18, and Massachusetts
- In 2007-2009, Brookline, Newton, and Westwood had higher rates of adequate prenatal care compared to the CHNA, while Waltham had lower rates
- Every town in CHNA 18 had higher rates of adequate prenatal care compared to Massachusetts, and every town, except Waltham, met the Healthy People 2020 goal



1.6 Low Birth Rate

**% Low Birth Rate:** This is the percent of children born during the specified time period weighing less than 2,500 grams

**Healthy People 2020 Objective:** Reduce the percent of children born with low birth weight to 7.8%

	% Low Birth Rate (95% CI)	
	1999-2001	2007-2009
<b>Brookline</b>	6.55 (5.41 - 7.69)	8.36 (7.15 - 9.57)
<b>Dedham</b>	6.06 (4.48 - 7.64)	6.49 (4.80 - 8.18)
<b>Dover</b>	8.60 (4.57 - 12.63)	5.38 (0.79 - 9.96)
<b>Needham</b>	6.30 (4.92 - 7.68)	5.38 (3.93 - 6.83)
<b>Newton</b>	6.67 (5.71 - 7.63)	8.23 (7.16 - 9.30)
<b>Waltham</b>	7.22 (6.10 - 8.34)	8.21 (7.12 - 9.30)
<b>Wellesley</b>	5.46 (4.06 - 6.87)	6.54 (4.73 - 8.34)
<b>Weston</b>	7.76 (4.90 - 10.63)	5.73 (2.70 - 8.75)
<b>Westwood</b>	5.03 (3.25 - 6.82)	5.03 (2.82 - 7.23)
<b>CHNA 18</b>	6.53 (6.06 - 7.00)	7.53 (7.01 - 8.04)
<b>Massachusetts</b>	7.07 (6.97 - 7.17)	7.79 (7.68 - 7.90)
<b>United States</b>	7.62 (7.61 – 7.63)	8.19 (8.17 – 8.21)

Source: Vital Records (MassCHIP custom report); National Vital Statistics Reports

**Comment:**

*Are there any statistically significant differences over time or between each community and the CHNA and Massachusetts?*

- There was no difference over time in the percent children born with low birth weight
- Needham had a lower percent of children born with low birth weight than both CHNA 18 and Massachusetts

## 1.7 Multiple Births

**% Multiple Births:** This is the percent of all births that are twin births, triplet births, or higher

	% Multiple Births (95% CI)	
	1999-2001	2006-2008
<b>Brookline</b>	5.05 (4.04 - 6.06)	6.57 (5.48 - 7.65)
<b>Dedham</b>	4.46 (3.09 - 5.82)	4.90 (3.42 - 6.38)
<b>Dover</b>	15.05 (9.91 - 20.19)	10.75 (4.46 - 17.05)
<b>Needham</b>	7.56 (6.06 - 9.07)	4.74 (3.37 - 6.10)
<b>Newton</b>	5.55 (4.67 - 6.43)	6.33 (5.38 - 7.28)
<b>Waltham</b>	5.41 (4.43 - 6.39)	4.93 (4.07 - 5.79)
<b>Wellesley</b>	6.36 (4.85 - 7.86)	6.95 (5.09 - 8.81)
<b>Weston</b>	9.25 (6.15 - 12.36)	7.49 (4.06 - 10.91)
<b>Westwood</b>	5.21 (3.39 - 7.02)	7.94 (5.21 - 10.66)
<b>CHNA 18</b>	5.92 (5.47 - 6.36)	5.95 (5.49 - 6.41)
<b>Massachusetts</b>	4.31 (4.23 - 4.40)	4.56 (4.47 - 4.64)
<b>United States</b>	3.13	3.38

Source: Vital Records (MassCHIP custom report); National Vital Statistics Reports

**Comment:**

*Are there any statistically significant differences over time or between each community and the CHNA and Massachusetts?*

From 2006-2008, Brookline, Newton, Wellesley, and Westwood had a higher rate of multiple births compared to Massachusetts

## 1.8 Breastfeeding

**% Breastfeeding:** This is the percent of mothers who are breastfeeding or planning on breastfeeding at hospital discharge. Just for the US data, this is the percent of mothers who reported they are breastfeeding early postpartum

**Healthy People 2020 Objective:** Increase the proportion of infants who are ever breastfed to 81.9%

	% Breastfeeding (95% CI)	
	1999-2001	2006-2008
<b>Brookline</b>	93.34 (92.19 - 94.49)	96.72 (95.94 - 97.50)
<b>Dedham</b>	76.34 (73.53 - 79.16)	80.54 (77.82 - 83.25)
<b>Dover</b>	88.17 (83.53 - 92.81)	94.62 (90.04 - 99.21)
<b>Needham</b>	88.66 (86.85 - 90.46)	90.85 (89.00 - 92.70)
<b>Newton</b>	90.25 (89.10 - 91.39)	93.35 (92.38 - 94.33)
<b>Waltham</b>	82.94 (81.31 - 84.56)	92.07 (91.00 - 93.15)
<b>Wellesley</b>	90.57 (88.76 - 92.37)	91.93 (89.94 - 93.92)
<b>Weston</b>	90.45 (87.30 - 93.60)	91.63 (88.03 - 95.23)
<b>Westwood</b>	85.42 (82.53 - 88.30)	87.30 (83.95 - 90.66)
<b>CHNA 18</b>	87.77 (87.15 - 88.40)	92.10 (91.57 - 92.62)
<b>Massachusetts</b>	72.08 (71.90 - 72.26)	79.26 (79.09 - 79.42)
<b>United States*</b>	71.25	74.50

Source: Vital Records (MassCHIP custom report); National Immunization Survey

### Comment:

*Are there any statistically significant differences over time or between each community and the CHNA and Massachusetts?*

- There was a significant increase in the percent of mothers who were breastfeeding or planning on breastfeeding from 1999-2001 to 2006-2008 in Brookline, Newton, Waltham, CHNA 18, and Massachusetts
- From 2006-2008, Brookline had a higher percentage of breastfeeding compared to the CHNA, while Dedham and Westwood had fewer rates of breastfeeding
- Every community, except Dedham, had a higher percentage of breastfeeding compared to Massachusetts

## 1.9 WIC Participants

**Number of Participants:** This is the number of active participants in the WIC program, which includes women, infants, and children

	Number of Participants	
	2000	2007
<b>Brookline</b>	150	163
<b>Dedham</b>	147	198
<b>Dover</b>	NA*	NA*
<b>Needham</b>	20	32
<b>Newton</b>	144	194
<b>Waltham</b>	692	972
<b>Wellesley</b>	24	64
<b>Weston</b>	NA*	NA*
<b>Westwood</b>	14	12
<b>CHNA 18</b>	1,195	1,639
<b>Massachusetts</b>	121,770	131,846

\*Cells are marked as NA when either: 1) Data are suppressed for confidentiality reasons, 2) The data is unavailable, or 3) The population on which the statistic is based on is too small to calculate reliable results

Source: WIC Program Utilization (MassCHIP custom report);