Highlights
Massachusetts Births 2007

Massachusetts Department of Public Health
Malena Hood, MPH

Bureau of Health Information, Statistics, Research, and Evaluation
Division of Research and Epidemiology
Registry of Vital Records & Statistics
MassCHIP

Bureau of Family Health and Nutrition

February 11, 2009
Outline

I. Overview and Trends

II. Changing Demographics

III. Diversity and Disparities

IV. Selected Topics:
   A. Preterm infants
   B. Smoking during pregnancy
   C. Gestational Diabetes
   D. Cesarean Deliveries

V. Summary
Overview and Trends
On an Average Day in 2007...

- 214 births
- 72 Cesarean deliveries
- 1 Infant death
- 5 sets of twins
- 14 Teen births
- 9 Gestational diabetes
- 19 Preterm
- 20 Inadequate prenatal care
- 17 Low birthweight

Massachusetts 2007
77,934 Births

Source: Massachusetts Department of Public Health, Bureau of Health Information, Statistics, Research, and Evaluation
<table>
<thead>
<tr>
<th>Indicator</th>
<th>2000</th>
<th>2007</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Births</td>
<td>81,582</td>
<td>77,934</td>
<td>-5%*</td>
</tr>
<tr>
<td>% Foreign Born Mothers</td>
<td>20.8</td>
<td>27.2</td>
<td>+31%*</td>
</tr>
<tr>
<td>% Multiple Births</td>
<td>4.3</td>
<td>4.4</td>
<td>+2%</td>
</tr>
<tr>
<td>Teen Birth Rate (births/1000 women ages 15-19 years)</td>
<td>25.9</td>
<td>22.0</td>
<td>-15%*</td>
</tr>
<tr>
<td>Infant Mortality Rate (IMR) (deaths per 1,000 live births)</td>
<td>4.6</td>
<td>4.9</td>
<td>+6%</td>
</tr>
<tr>
<td>% Preterm (&lt;37 weeks)</td>
<td>8.3</td>
<td>9.0</td>
<td>+8%*</td>
</tr>
<tr>
<td>% Low Birthweight (&lt;2,500 g, 5.5 lbs)</td>
<td>7.1</td>
<td>7.9</td>
<td>+11%*</td>
</tr>
<tr>
<td>% Smoking During Pregnancy</td>
<td>9.7</td>
<td>7.5</td>
<td>-23%*</td>
</tr>
<tr>
<td>% Gestational Diabetes</td>
<td>2.8</td>
<td>4.2</td>
<td>+50%*</td>
</tr>
<tr>
<td>% Cesarean Deliveries</td>
<td>23.4</td>
<td>33.7</td>
<td>+44%*</td>
</tr>
</tbody>
</table>

* Statistically Significant (p≤.05)

Source: Massachusetts Department of Public Health, Bureau of Health Information, Statistics, Research, and Evaluation
# A Comparison of 2007 Massachusetts Birth Indicators with Recent U.S. Data

<table>
<thead>
<tr>
<th>Indicator</th>
<th>MA</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fertility Rate</strong> (births/1000 females ages 15-44 yrs)</td>
<td>57.0*</td>
<td>68.5</td>
</tr>
<tr>
<td><strong>Teen Birth Rate</strong> (births/1000 females ages 15-19 yrs)</td>
<td>22.0*</td>
<td>41.9</td>
</tr>
<tr>
<td><strong>% Low Birthweight</strong> (&lt; 2,500 g, 5.5 lbs)</td>
<td>7.9*</td>
<td>8.3</td>
</tr>
<tr>
<td><strong>% Smoking during pregnancy</strong></td>
<td>7.5*</td>
<td>13.2</td>
</tr>
<tr>
<td><strong>% Cesarean deliveries</strong></td>
<td>33.7*</td>
<td>31.1</td>
</tr>
<tr>
<td><strong>Infant Mortality Rate (IMR)</strong></td>
<td>4.9*</td>
<td>6.6</td>
</tr>
</tbody>
</table>

2. 2006 data for 17 states for which revised information on tobacco use is available for 2006.

*Statistically Significant (p ≤ .05)
Changing Demographics
Trend in the Number of Births
Massachusetts: 1990-2007

-1%*
APC

* Statistically Significant (p ≤ .05)    APC = Annual Percentage Change

Source: Massachusetts Department of Public Health, Bureau of Health Information, Statistics, Research, and Evaluation
Massachusetts Births by Race and Hispanic Ethnicity: 1990

- **White**: 78%
- **Black**: 8%
- **Asian**: 4%
- **Hispanic**: 9%
- **Other**: 1%

**Minority**: 22%

**Massachusetts 1990**: 92,461 Births

White, Black, Asian, and Other are Non-Hispanic
Massachusetts Births by Race and Hispanic Ethnicity: 2007

- **White**: 68%
- **Black**: 8%
- **Hispanic**: 14%
- **Asian**: 7%
- **Other**: 3%

**Minority**: 32%

Total: 77,934 Births

Source: Massachusetts Department of Public Health, Bureau of Health Information, Statistics, Research, and Evaluation
Percent Non-U.S. Born Mothers
Massachusetts: 1990-2007

Source: Massachusetts Department of Public Health, Bureau of Health Information, Statistics, Research, and Evaluation
Number of Births by Mother’s Age
Massachusetts: 1990-2007

*Statistically Significant (p ≤ .05)  APC = Annual Percentage Change
Percent Multiple Births
Massachusetts: 1990-2007

*Statistically Significant (p ≤ .05)  APC = Annual Percentage Change

Source: Massachusetts Department of Public Health, Bureau of Health Information, Statistics, Research, and Evaluation
Diversity and Disparities
Teen Birth Rates

Births per 1,000 Women Ages 15-19

United States
Massachusetts
MA Hispanic

Source: Massachusetts Department of Public Health, Bureau of Health Information, Statistics, Research, and Evaluation
Infant Mortality Rate (IMR)  
Massachusetts: 1990-2007

IMR (# deaths/1,000 live births)

* Statistically Significant (p ≤ .05)  
APC = Annual Percentage Change

Source: Massachusetts Department of Public Health, Bureau of Health Information, Statistics, Research, and Evaluation
IMR by Race & Hispanic Ethnicity
Massachusetts: 1990-2007

Year

IMR (# deaths/1,000 live births)

White
Black
Hispanic


13.7
9.1
6.1

10.2
7.4
3.9

- 2%* APC

Source: Massachusetts Department of Public Health, Bureau of Health Information, Statistics, Research, and Evaluation
Hispanic IMR
Massachusetts: 1990-2007

IMR (# deaths/1,000 live births)

Year


- 8%* APC

+ 1% APC

* Statistically Significant (p ≤ .05)  APC = Annual Percentage Change

Source: Massachusetts Department of Public Health, Bureau of Health Information, Statistics, Research, and Evaluation
### Highest Infant Mortality Rates Among the 30 Largest Communities in Massachusetts: 2007

<table>
<thead>
<tr>
<th>City</th>
<th>Rate</th>
<th>(n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall River</td>
<td>13.1*</td>
<td>(n=16)</td>
</tr>
<tr>
<td>Revere</td>
<td>8.9</td>
<td>(n=7)</td>
</tr>
<tr>
<td>New Bedford</td>
<td>8.7</td>
<td>(n=12)</td>
</tr>
<tr>
<td>Somerville</td>
<td>8.3</td>
<td>(n=8)</td>
</tr>
<tr>
<td>Worcester</td>
<td>8.2</td>
<td>(n=21)</td>
</tr>
<tr>
<td>Springfield</td>
<td>7.9</td>
<td>(n=20)</td>
</tr>
<tr>
<td>MA Overall</td>
<td>4.9</td>
<td>(n=380)</td>
</tr>
</tbody>
</table>

* Statistically Significantly higher from state rate (p ≤.05)

Rate = infant deaths per 1,000 live births

Source: Massachusetts Department of Public Health, Bureau of Health Information, Statistics, Research, and Evaluation
# Highest Infant Mortality Rates Among the 30 Largest Communities in Massachusetts: 2005-2007

<table>
<thead>
<tr>
<th>Community</th>
<th>Rate (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revere</td>
<td>10.4* (n=22)</td>
</tr>
<tr>
<td>Springfield</td>
<td>9.2* (n=68)</td>
</tr>
<tr>
<td>Worcester</td>
<td>9.0* (n=70)</td>
</tr>
<tr>
<td>New Bedford</td>
<td>8.7* (n=37)</td>
</tr>
<tr>
<td>Fall River</td>
<td>8.5* (n=31)</td>
</tr>
<tr>
<td>MA Overall</td>
<td>4.9 (n=1,152)</td>
</tr>
</tbody>
</table>

* Statistically Significantly higher from state rate (p ≤.05)

Rate = infant deaths per 1,000 live births

Source: Massachusetts Department of Public Health, Bureau of Health Information, Statistics, Research, and Evaluation
Birth Characteristics by Maternal Education
Massachusetts: 2007

<table>
<thead>
<tr>
<th>Category</th>
<th>Less than high school (age 20+)</th>
<th>College graduate or higher</th>
</tr>
</thead>
<tbody>
<tr>
<td>LBW</td>
<td>9.3</td>
<td>7.0</td>
</tr>
<tr>
<td>Smoking</td>
<td>18.2*</td>
<td>0.7</td>
</tr>
<tr>
<td>Publicly Financed</td>
<td>85.3*</td>
<td>6.2</td>
</tr>
<tr>
<td>C-Section</td>
<td>26.1</td>
<td>36.4*</td>
</tr>
<tr>
<td>Multiple Births</td>
<td>2.1</td>
<td>5.8*</td>
</tr>
<tr>
<td>Breastfeed</td>
<td>89.1*</td>
<td>66.5</td>
</tr>
<tr>
<td>Adequate Prenatal Care</td>
<td>88.4*</td>
<td>68.9</td>
</tr>
</tbody>
</table>

* Statistically Significant (p ≤ .05)

Source: Massachusetts Department of Public Health, Bureau of Health Information, Statistics, Research, and Evaluation
Selected Topics:

A. Preterm
B. Smoking during pregnancy
C. Gestational Diabetes
D. Cesarean Deliveries
Preterm Deliveries by Gestational Age
Massachusetts: 1990-2007

Percent of Births (%)

<28 weeks 28-33 weeks 34-36 weeks <37 weeks

Year

+ 3%* APC

71%

* Statistically Significant (p ≤ 0.05)  APC = Annual Percentage Change

Source: Massachusetts Department of Public Health, Bureau of Health Information, Statistics, Research, and Evaluation
Women Who Smoked During Pregnancy
Massachusetts: 1990-2007

* Statistically Significant \( p \leq 0.05 \)  
APC = Annual Percentage Change

Source: Massachusetts Department of Public Health, Bureau of Health Information, Statistics, Research, and Evaluation
Tobacco Control Program
Rural Birth Hospital – Pilot Program

• Areas with above average rates of smoking during pregnancy

• 3 Hospitals selected:
  – Berkshire Medical Center (Pittsfield)
  – North Adams Regional Hospital (North Adams)
  – Heywood Hospital (Gardner)

• Implement program of brief interventions (AARP model: Ask, Advice, Refer, Prescribe)

• Electronic tracking of interventions

Source: Massachusetts Department of Public Health, Massachusetts Tobacco Control Program (MTCP)
Tobacco Control Program
Intervention Rates
North Adams Regional Hospital

Percentages are based on Intent To Treat model (ITT). Prescription data is not currently recorded.

Source: Massachusetts Department of Public Health, Massachusetts Tobacco Control Program (MTCP)
Gestational Diabetes Mellitus (GDM) 
Massachusetts: 2000-2007

+5%* APC

* Statistically Significant (p ≤ 0.05)  APC = Annual Percentage Change

Source: Massachusetts Department of Public Health, Bureau of Health Information, Statistics, Research, and Evaluation
Cesarean Deliveries
Massachusetts and the US: 1990-2007

Percent

+ 2.6%*
APC

* Statistically Significant (p ≤ .05)  
APC = Annual Percentage Change

Source: Massachusetts Department of Public Health, Bureau of Health Information, Statistics, Research, and Evaluation
Summary
Summary

- Massachusetts perinatal health indicators are better than those of the U.S.
- One-third of all births are to non-white mothers
- Teen birth rates have continued to decline by about 3% per year since 1990
- Gestational diabetes has increased by 5% per year since 2000
- One-third of all births are delivered by Cesarean
- Continued increase in LBW and late preterm infants
- Smoking during pregnancy had been declining but has leveled off in recent years

Source: Massachusetts Department of Public Health, Bureau of Health Information, Statistics, Research, and Evaluation
Disparities Persist by Race, Ethnicity, Geography, and SES

- Black IMR is more than twice as high as the White IMR
- Hispanic teen birth rate is almost 6 times that of Whites
- The percent of mothers who smoked during pregnancy varied by communities: from less than 1% to 28%
- Less educated mothers have poorer birth indicators than more educated mothers

Source: Massachusetts Department of Public Health, Bureau of Health Information, Statistics, Research, and Evaluation
Infant Mortality Rate
Massachusetts: 1842-2007

Deaths per 1,000 live births

Year

Source: Massachusetts Department of Public Health, Bureau of Health Information, Statistics, Research, and Evaluation
How to Access the Births Report and Data

To access the 2007 Report:

• Hard Copies: (617) 740-2670
• TDD/TTY: (617) 624-6001
• DPH Website:
  http://mass.gov/dph/bhsre/resep/resep.htm#birth

• To access Birth data via MassCHIP (DPH’s Internet-based public health information service):
  • Website: http://masschip.state.ma.us
  • Telephone: 1-888-MASCHIP (Mass only)
    (617) 624-5629
Thank You