# Births from Portuguese-speaking Mothers in Massachusetts 2009-2013

Massachusetts Department of Public Health SEPTEMBER 2016

## Introduction

Massachusetts has the largest concentration of Portuguese and Cape Verdeans, and the second largest concentration of Brazilians in the U.S.[1,2] In addition, Massachusetts holds the largest number of Portuguese speakers in the U.S., which constitutes 26.2% of the Portuguese-speaking population in the U.S.[3] For such a large and heterogeneous population, little is known regarding the maternal care they receive and the birth outcomes of their infants.

The Massachusetts Department of Public Health (MDPH) is developing a series of birth reports to draw attention to specific populations in order to monitor the health of several ethnicities in the Commonwealth.[4] *Births from Portuguese-speaking Mothers in Massachusetts* is the first report in these series of report, as well as the first report in the nation to focus on the health status of Portuguese-speaking mothers and infants residing in the state.

This report contains a brief summary of births from Portuguese-speaking mothers in Massachusetts. A separate Data Brief (*Births from Portuguese-speaking Mothers in Massachusetts: Data Brief*) has been prepared with extensive tables and graphs regarding the various maternal and perinatal characteristics and health indicators, as well as the methodologies for computing the statistics presented.

## Highlights

Portuguese-speaking mothers are identified based on their ethnicity and birthplace. For the purpose of this report, the following mutually exclusive subgroups were created: Brazilian mothers, Portuguese mothers, Cape Verdean mothers, Azorean & Madeirense mothers, Angolan mothers, and Other Portuguese-speaking mothers. White non-Hispanic mothers residing in Massachusetts were also included for comparison purposes.

From 2009 to 2013, there were 23,248 births among Portuguese-speaking mothers in Massachusetts, constituting 6.4% of all births in Massachusetts. The majority of these births occurred among Brazilian mothers (40.9%), followed by Portuguese (31.0%), Cape Verdean

[1] U.S. Census Bureau, 2009-2013 American Community Survey, 5-Year Estimates

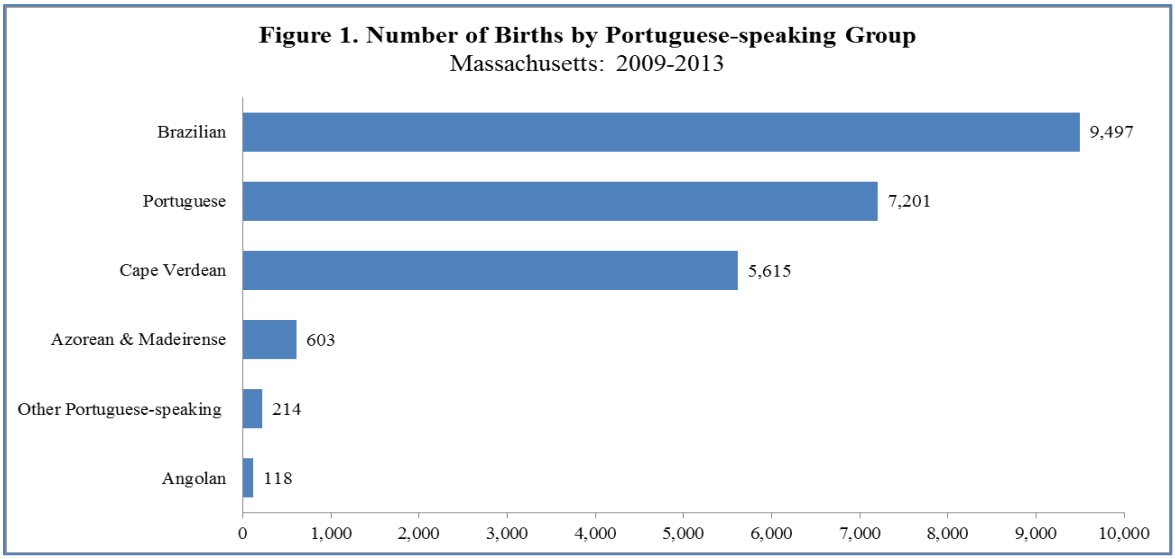
[2] According to the 2013 American Community Survey, 1-Year Estimates, approximately 314,000 Portuguese, 59,000 Cape Verdeans, and 64,000 Brazilians reside in Massachusetts in 2013.

[3] U.S. Census Bureau, 2009-2013 American Community Survey, 5-year Estimates. Estimates are subject to margin of errors.

4 MDPH has previously published Asian Births in Massachusetts 1996-1997, Hispanic Births in Massachusetts 1996 -1999, and Births to Black Mothers in Massachusetts 1997-2000.

(24.2%), Azorean & Madeirense (2.6%), Other Portuguese-speaking (0.9%), and Angolan (0.5%) mothers (Figure 1).

**Figure 1. Number of Births by Portuguese-speaking Group**
Massachusetts: 2009-2013




Regarding maternal demographic characteristics, Portuguese-speaking mothers were on average younger than White non-Hispanic mothers. The percentage of mothers under 20 years of age at the time of delivery was highest for Cape Verdean mothers (10%) and the percentage of mothers over 35 years of age was highest for Angolan mothers (36%). With more than half reported having completed no more than 12 years of formal education, Angolan, Cape Verdean, and Brazilian mothers showed the lowest levels of educational attainment, compared to 19% among White non-Hispanic mothers. The percentage of mothers who were college graduates was also lowest among Angolan (18%), Cape Verdean (15%), and Brazilian mothers (15%), compared to White non-Hispanic mothers (60%).

Looking at maternal risk factors, the prevalence of selected medical risk factors[5] was higher among Other Portuguese-speaking (50.3%), Azorean & Madeirense (47.3%), and Portuguese mothers (42.7%), yet lower for Brazilian mothers (38.2%), compared to White non-Hispanic mothers (40.2%). While Azorean & Madeirense (40.7%) and Brazilian mothers (36.8%) were more likely to experience complications during labor and delivery, Angolan mothers (21.2%) were less likely to experience complications, compared to White non-Hispanic mothers (32.2%).

Examining infant characteristics, the incidence of low birthweight infants[6] varied across Portuguese-speaking subgroups ranging from 5.9% among Azorean & Madeirense to 10.2% among Angolan mothers. When compared to White non-Hispanic mothers (7.0%), Cape Verdean mothers (8.6%) were more likely to deliver a low birthweight infant. Brazilian mothers (7.6%) had a lower rate of preterm births[7], compared to White non-Hispanic mothers (9%).

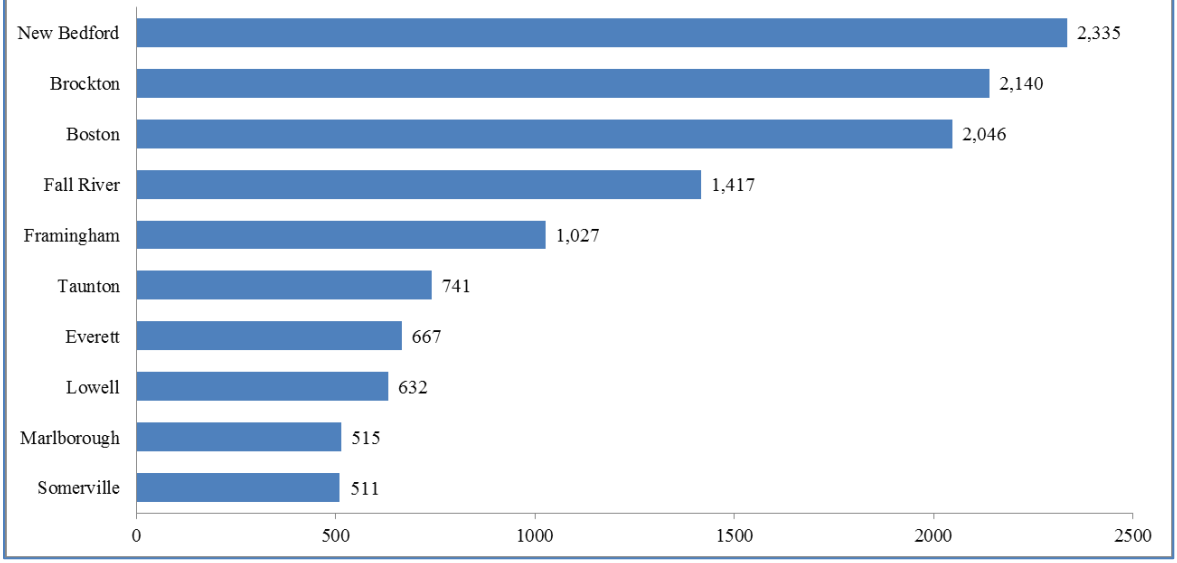
[5] List of maternal risk factors can be found in the Data Brief Appendix.
[6] Low birthweight infants weigh less than 2,500 grams (5.5 pounds) and are at increased risk of illness and death.
[7] Infants born before the completion of the 37th week of gestation are considered to be preterm births and are at greater risk for illnesses and death than those born at full term.

# Selected Topics

## Geographic Distribution

Five out of every ten births (52%) from Portuguese-speaking mothers in Massachusetts were concentrated among residents of 10 cities/towns in the eastern half of the state: New Bedford (10%), Brockton (9%), Boston (9%), Fall River (6%), Framingham (4%), Taunton (3%), Everett (3%), Lowell (3%), Marlborough (2%), and Somerville (2%) (Figure 2). As a result, one-fifth of all births in the state occurred at three hospitals: Cambridge Hospital, Cambridge, MA (8%); Charlton Memorial Hospital, Fall River, MA (8%); and Saint Luke's Hospital, New Bedford, MA (7%,).

**Figure 2. Number of Births from Portuguese-speaking Mothers**
Selected Communities, Massachusetts: 2009-2013



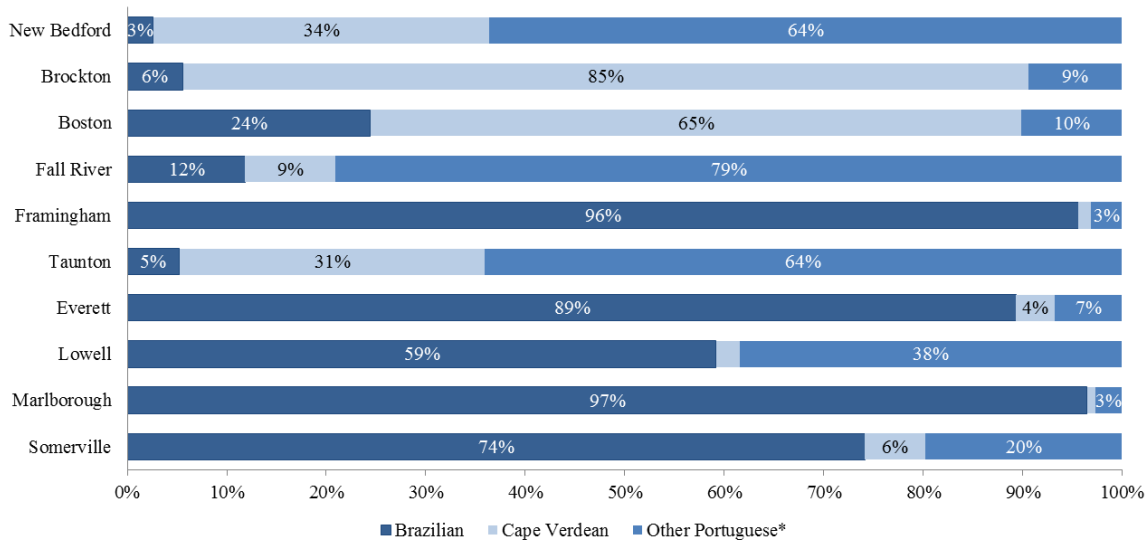

According to the 2009-2013 American Community Survey, 37% of Portuguese speakers (men, women and children) born in Brazil resided in 6 cities/towns: Framingham, Everett, Malden, Boston, Somerville, and Lowell, while 66% born in Cape Verde lived in Boston and Brockton, and 37% born in Portugal lived in Fall River and New Bedford. Overall, the largest numbers of Portuguese speakers live in 4 cities: Fall River (11,429), New Bedford (10,298), Boston (10,421), and Brockton (10,421), which corresponds to the top four cities with the highest numbers of births from Portuguese-speaking mothers in Figure 2.

From 2009 to 2013, there were 23,248 births among Portuguese-speaking mothers in Massachusetts, constituting 6.4% of all births in the state. The majority of these births occurred among Brazilian mothers (40.9%), followed by Portuguese (31.0%), Cape Verdean (24.2%).[8] There are differences in the breakdown of births by subgroup among the 10 selected

[8] Birth from Portuguese, Angolan, and Azorean & Madeirense mothers were combined with births from Other Portuguese-speaking mothers for the purpose of comparing the breakdown of births by subgroup within each city/town and across the state.

communities (Figure 3). While over half of the births from Brazilian mothers were in Framingham, Everett, Lowell, Marlborough, and Somerville, over half of the births from Cape Verdean mothers were in Brockton and Boston, and over half of the births from Other Portuguese-speaking mothers were in New Bedford, Fall River, and Taunton.

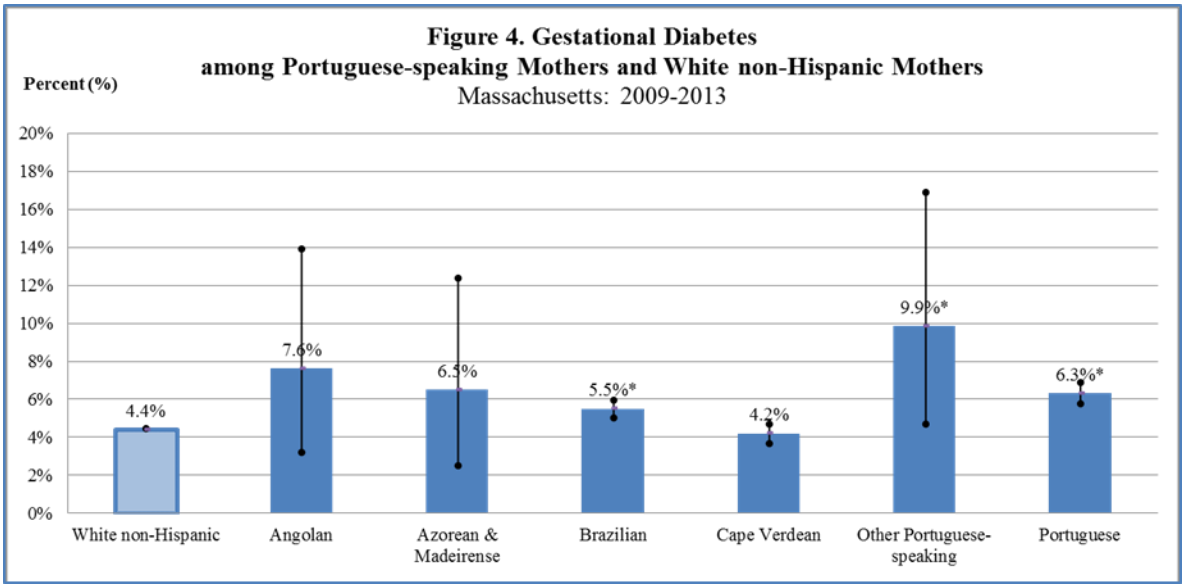
**Figure 3. Percentage of Births from Portuguese-speaking Mothers**
Selected Communities, Massachusetts: 2009-2013




*Birth from Portuguese, Angolan, and Azorean & Madeirense mothers were combined with births from Other Portuguese-speaking mothers due to small sample size.

## Obesity Prior to Pregnancy and Gestational Diabetes

From 2009 to 2013, the overall prevalence of gestational diabetes was 5.5% among Portuguese-speaking mothers and 4.4% among White non-Hispanic mothers. Among Portuguese-speaking mothers, Other Portuguese-speaking (9.9%), Portuguese (6.3%), and Brazilian mothers (5.5%) had a higher proportion of gestational diabetes, compared to White non-Hispanic mothers (Figure 4).



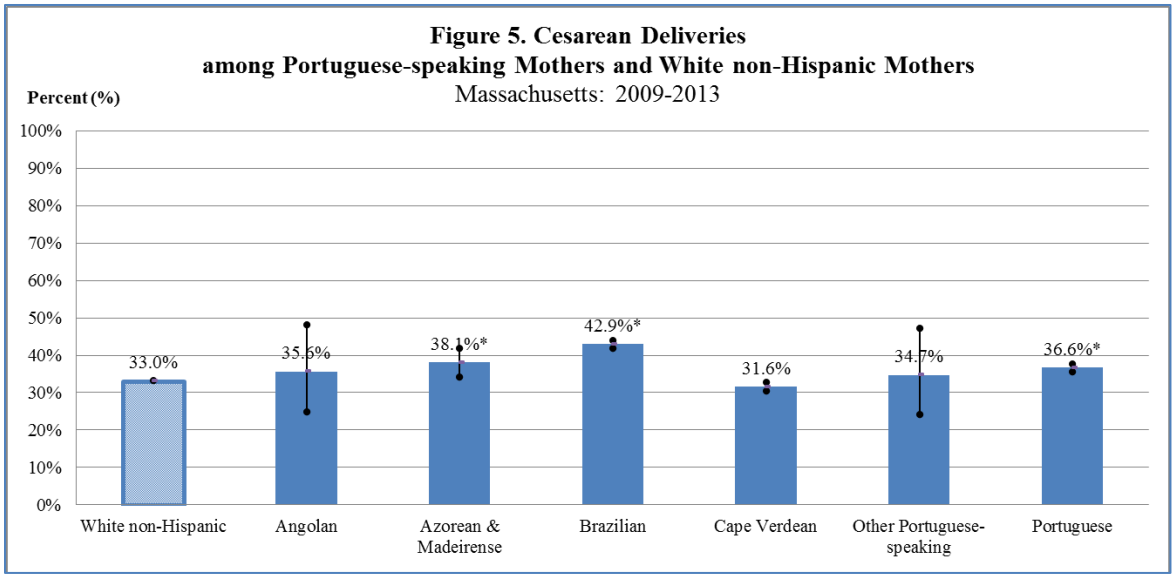

*Percentage statistically different from White non-Hispanic mothers.
Note: High-low lines with oval arrows denote the 95% Confidence Interval around percentages.

Numerous studies have reported an increased risk of gestational diabetes among women who were overweight or obese compared with normal-weight women.[9] It is no surprise that Portuguese-speaking mothers were on average less likely to be normal weight prior to pregnancy than White non-Hispanic mothers. Across subgroups, 50% of all Portuguese-speaking mothers were normal weight, compared to 56% of White non-Hispanic mothers (full distribution of Body Mass Index distribution by subgroups can be found in Data Brief).

## Cesarean Delivery

From 2009 to 2013, the percentage of delivery by Cesarean section was 37.8% among all Portuguese-speaking mothers and 32.7% among White non-Hispanic mothers. Among Portuguese-speaking mothers, Brazilian (42.9%), Azorean & Madeirense (38.1%), and Portuguese mothers (36.6%) had higher percentages of delivery by Cesarean section, compared to White non-Hispanic mothers (33.0%) (Figure 5).

[9] Chu, S. Y. , W. M. Callaghan, S. Y. Kim, C. H. Schmid, J. Lau, L. J. England & P. M. Dietz. Maternal obesity and risk of gestational diabetes mellitus. Diabetes Care. 2007;30(8):2070–2076.



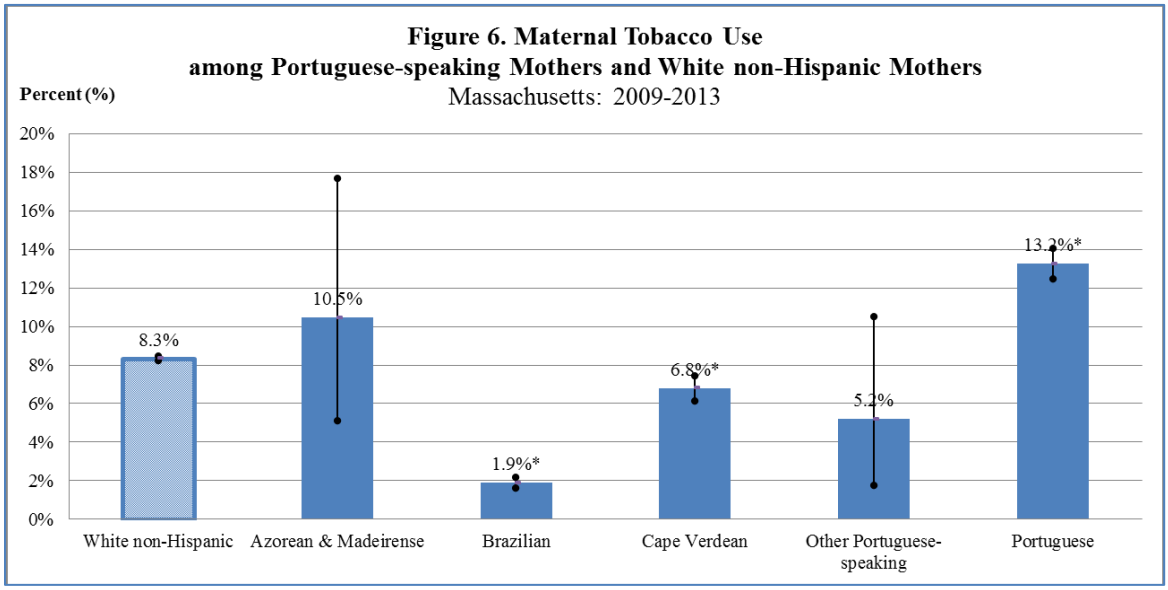

*Percentage statistically different from White non-Hispanic mothers.
Note: High-low lines with oval arrows denote the 95% Confidence Interval around percentages.

Previous studies reported a higher rate of cesarean delivery among older mothers compared to younger mothers[10], among obese and overweight mothers compared to normal weight mothers[11], and among Brazilian mothers compared to other Portuguese-speaking mothers[12]. More research is needed to explain the significantly higher percentage of Cesarean deliveries among Brazilian and Portuguese mothers since these differences remained even after accounting for several risk factors.

[10] Patel, R. R., T. J. Peters & D. J. Murphy. Prenatal Risk Factors for Caesarean Section. International Journal of Epidemiology 34.2 (2005): 353-67.
[11] Chu, S. Y., S. Y. Kim, C. H. Schmid, P. M. Dietz, W. M. Callaghan, J. Lau & K. M. Curtis. Maternal Obesity and Risk of Cesarean Delivery: A Meta-analysis. Obesity Reviews. 8.5 (2007): 385-94.
[12] Massachusetts Department of Public Health, Massachusetts Births 2013

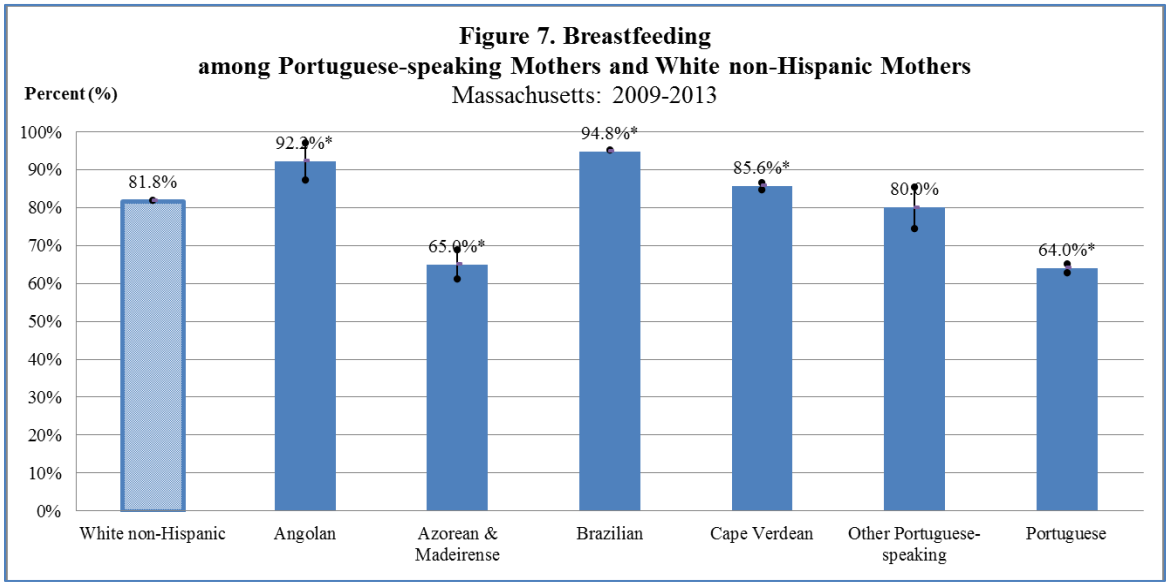
## Maternal Tobacco Use

While Portuguese mothers (13.2%) were more likely to smoke during pregnancy, Brazilian (1.9%) and Cape Verdean mothers (6.8%) were less likely to smoke compared to White non-Hispanic mothers (8.3%) (Figure 6).[13]




## Breastfeeding

There were clear differences in breastfeeding among the study groups. Brazilian (94.8%), Angolan (92.2%), and Cape Verdean mothers (85.6%) had higher percentages of breastfeeding, while Portuguese (64.0%) and Azorean & Madeirense mothers (65.0%) had lower percentages, compared to White non-Hispanic mothers (81.8%) (Figure 7).[14]




[13] Births from Angolan mothers were combined with births from Other Portuguese-speaking mothers due to small sample size.
[14] Mother was breastfeeding or was intending to breastfeed at the time the birth certificate was completed.

# Summary

Across a wide variety of issues from education to prenatal care, Portuguese-speaking mothers appeared to be at a disadvantage compared to White non-Hispanic mothers. All subgroups of Portuguese-speaking mothers were less educated and on average younger compared to White non-Hispanic mothers. Portuguese-speaking mothers were also less likely to be born in the U.S., less likely to be married, less likely to receive adequate prenatal care and more likely to have public funding for their prenatal care. These differences have substantial implications for program development and health policy.

Despite the similarities among Portuguese-speaking mothers, there were also many variations among the six different subgroups. For example, Brazilian, Angolan, and Cape Verdean mothers were more likely to breastfeed while Azorean & Madeirense and Portuguese mothers were less likely to breastfeed, compared to White non-Hispanic mothers. As for tobacco use, Brazilian mothers are less likely to smoke during pregnancy, compared to White non-Hispanic mothers, as well as other subgroups. Further analyses on the adoption of American culture and health-related behaviors may improve our understanding of these variations among different subgroups.

Since there is no systematic surveillance of the health of Portuguese-speaking mothers by states or the U.S., we have no external data with which to compare our findings. Therefore, we do not know how the health status of Portuguese-speaking mothers in Massachusetts ranks among all U.S. states. However, the findings in this report provide a benchmark with which Massachusetts can track improvement in maternal and infant health for Portuguese-speaking populations. These results will also contribute to the literature and help guide future public health programs and policies to reduce the incidence of adverse births outcomes among Portuguese-speaking subgroups in Massachusetts.

# Acknowledgments

This report was prepared by Malena Hood, Division of Research and Epidemiology, Office of Data Management and Outcomes Assessment, Massachusetts of Public Health and intern Sifang (Kathy) Zhao, Boston University School of Public Health.

We wish to express our sincere gratitude to members of the *Birth from Portuguese-speaking Mothers Advisory Task Force* for their invaluable input in the development and review stages of this report: Eduardo Siqueira, University of Massachusetts Boston; Elisa Garibaldi, Cambridge Health Alliance; Milena Mello, Massachusetts Alliance of Portuguese Speakers.

Special thanks also go to: Bruce Cohen, Former Deputy Director, Office of Data Management and Outcomes Assessment; Tom Land, Director, Office of Data Management and Outcomes Assessment, Georgia Simpson May, Former Director, Office of Health Equity and Rodrigo Monterrey, Office of Health Equity.