

Monitoring Maternal Health Among U.S. Hispanics On the U.S.-Mexico Border

Jill A. McDonald*

INTRODUCTION

Maternal health is one of the best indicators of the overall health of a country. Maternal health is measured by rates of maternal morbidity and mortality, but also by the occurrence of certain birth outcomes, such as adolescent birth and preterm birth. These outcomes are also, of course, detrimental to infants' health. Having healthy mothers giving birth to healthy babies is a strong foundation for the overall health of a population.

Maternal health among U.S. Hispanics is therefore an indicator of the overall health of the U.S. Hispanic population. Hispanic women accounted for over 900 000 births in 2013, 23 percent of all U.S. births.¹ Unfortunately, many signs indicate that maternal health is generally poorer for U.S. Hispanics than for other groups. For example, birth rates for Hispanic teenaged women 15-19 years of age are higher than rates for whites or blacks and more than double the rates for non-Hispanic white teens of the same age (41.7 births per 1 000 as compared to 18.6 births per 1 000 in 2013, respectively). In addition, among Hispanic youth under age 15, who are at the highest risk for poor pregnancy outcomes, the birth rate disparity is even greater (0.5 per 1 000 as compared to 0.1 per 1 000 among non-Hispanic whites).

Low birth weight (babies less than 2 500 grams at birth, about five and one half pounds) and preterm birth (less than 37 weeks gestation) are other examples of the maternal health disparity among Hispanics. Both low birth weight and preterm birth are associated with increased risk of acute health con-

ditions, lifelong disabilities, and chronic diseases in mothers and infants.² In contrast to the overall decline in low birth weight in the U.S. since 2006, the low birth weight rate in the Hispanic population, historically lower than that of the U.S. population overall, has increased and is now at 7.1 percent of births as compared to 7.0 percent for non-Hispanic white births.³ Preterm birth is also now more common in births to Hispanic women (11.3 percent) than in births to non-Hispanic white women (10.2 percent).⁴

Since 1990, Caesarean birth, which leads to adverse maternal and infant health outcomes when performed electively and repeatedly,⁵ has surged above the 10-percent to 15-percent level that the World Health Organization recommends as optimal⁶ in U.S. Hispanics and non-Hispanic whites.⁷ Further, the proportion of live infants delivered via Caesarean section in U.S. Hispanic women (32.2 percent) surpassed that in non-Hispanic white women (32.0 percent) for the first time in 2013.

It is important to note that maternal mortality (death during pregnancy, childbirth, or within a defined interval after birth) is an exception to the general pattern of reproductive health problems among U.S. Hispanics. Despite the fact that maternal mortality is associated with poverty and reduced access to health services internationally and that U.S. Hispanic women as a group have less access to economic and health care resources than other U.S. women, Hispanics have a lower maternal mortality ratio (deaths per 1 000 live births) than other U.S. women. This is part of what is referred to more broadly as the Hispanic Mortality Paradox.⁸ The apparent mortality advantage among U.S. Hispanics is well-studied, but the reasons for the paradox remain unclear and are beyond the scope of this article.

*Epidemiologist, holder of the Stan Fulton Endowed Chair in Health Disparities Research and director of the Southwest Institute for Health Disparities Research at the New Mexico State University College of Health and Social Services in Las Cruces, New Mexico; jillmed@nmsu.edu.

U.S.-MEXICO BORDER HISPANICS

It is revealing to look for differences within the U.S. Hispanic population based on place of maternal residence. About 50 percent of U.S. Hispanics reside in the four border states. There, roughly one in six (18 percent) of all Hispanics, reside in the “border region.” The U.S. section of the border region is defined as the narrow strip of land within 100 kilometers (62 miles) of Mexico that extends from the Pacific Coast in California to the Gulf of Mexico in Texas. The vast majority of Hispanics in the border region are of Mexican origin.⁹

Comparing rates for border Hispanics to those for other U.S. Hispanics shows that Hispanic mothers and infants living along the U.S.-Mexico border fare more poorly. Adolescent births are a case in point. About 60 percent of all U.S. Hispanic adolescent births occur in one of the four border states and one in six of those occur in a border county.¹⁰ U.S. birth certificate data show that adolescent birth rates among Hispanics in Texas, New Mexico, Arizona, and California were higher in each state’s border counties than non-border counties in 2009, the most recent year for which border data have been compiled. For most of the first decade of this century, birth rates among all U.S. Hispanics fell sharply (see Figure 1). But they fell just 19 percent in the border counties, as opposed to 28 percent in the non-border counties of border states.

Research indicates that sexual and contraceptive behavior, education, access to services and other economic factors all play a role in explaining higher fertility in U.S. Hispanic compared to non-Hispanic white adolescents.¹¹ Uneven distribution of these factors within the U.S. Hispanic population may contribute to higher birth rates among adolescents living in border counties, where educational attainment and income levels are generally lower than in non-border counties.

Interestingly, geographic birth rate disparities among Mexican adolescents living in border *municipios* based on Mexican birth certificate data are similar to those on the U.S. side of the border (see Figure 2), with the highest rates in border municipalities.

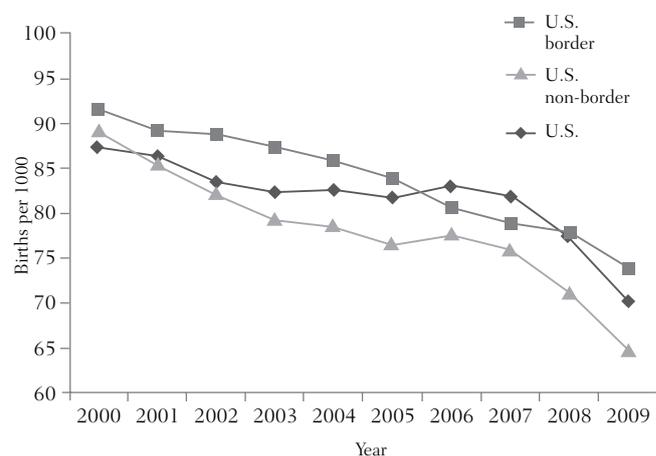
Birth certificate data also reveal problems with low birth weight, preterm birth, and Caesarean birth outcomes in the U.S.-Mexico border region (see Figure 3).¹² In U.S. border counties, 7.4 percent of Hispanic births were low birth weight in 2009, compared with 6.7 percent of non-border and 6.9 percent (not shown) of all U.S. Hispanic births. Because most low birth weight babies are born prematurely, the proportions of preterm births among Hispanic women in these

geographic areas ranked the same way, with 12.8 percent of border, 11.4 percent of non-border, and 12.0 percent (not shown) of all US Hispanic births being preterm. Among Hispanic women who gave birth in the U.S. border counties, 37.9 percent had a Caesarean section, compared with 30.9 percent for non-border Hispanics and 31.6 percent (not shown) for all U.S. Hispanics.

In contrast to the higher rates for low birth weight, preterm birth and Caesarean delivery seen among Hispanics in U.S. border counties compared to other geographic areas, Mexican women living in border municipalities had lower rates for these outcomes in 2009 compared to other Mexican women in the six Mexican border states (see Figure 4). Higher rates of low birth weight and preterm birth among U.S. Hispanic women in border counties and Mexican women in non-border municipalities may in part result from the higher prevalence of elective Caesarean delivery in these areas.

To prevent adverse birth outcomes like low birth weight and preterm birth, it is important that women receive early and adequate prenatal care.¹³ Prenatal care guidelines in the U.S. and Mexico both strongly support prenatal care,¹⁴ but the guidelines appear to have less impact in the border counties and Mexican municipalities. The proportion of U.S.

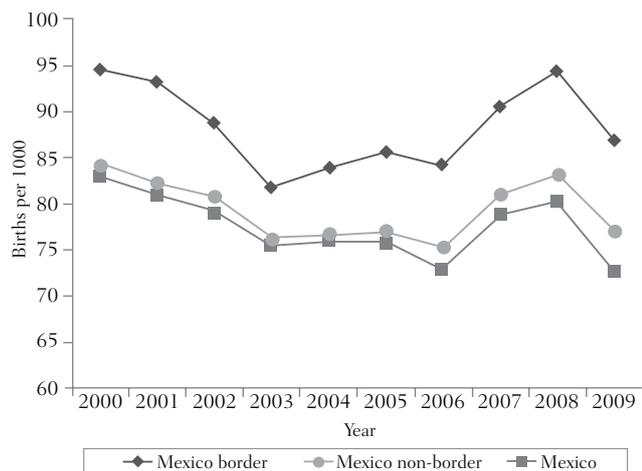
FIGURE 1
BIRTH RATES AMONG U.S. HISPANIC ADOLESCENTS
ALONG THE BORDER (2000-2009)



Note: The figure refers to the number of births among adolescents ages 15-19 overall, along the border, and in non-border counties of U.S. border states.

Source: Jill A. McDonald, Octavio Mojarro, Paul D. Sutton, and Stephanie J. Ventura, “Adolescent Births in the Border Region: A Descriptive Analysis Based on US Hispanic and Mexican Birth Certificates,” *Maternal and Child Health Journal* vol. 19, no. 1 (January 2015), p. 128-135.

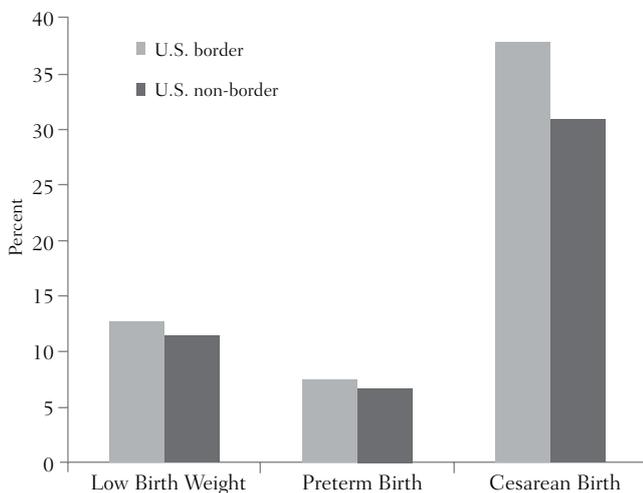
FIGURE 2
BIRTH RATES AMONG MEXICAN ADOLESCENTS
ALONG THE BORDER (2000-2009)



Note: The figure refers to the number of births among adolescents ages 15-19, overall, along the border, and in non-border municipalities of Mexican border states.

Source: Jill A. McDonald, Octavio Mojarro, Paul D. Sutton, and Stephanie J. Ventura, "Adolescent Births in the Border Region: A Descriptive Analysis Based on US Hispanic and Mexican Birth Certificates," *Maternal and Child Health Journal* vol. 19, no. 1 (January 2015), p. 128-135.

FIGURE 3
LOW BIRTH WEIGHT, PRETERM, AND CESAREAN
BIRTHS TO U.S. HISPANIC WOMEN (2009)



Note: The figure refers to women in U.S.-Mexico border counties and non-border counties in U.S. border states.

Source: Jill A. McDonald, Octavio Mojarro, Paul D. Sutton, and Stephanie J. Ventura, "A Binational Overview of Reproductive Health Outcomes among US Hispanic and Mexican Women in the Border Region," *Preventing Chronic Disease* vol. 10, August 15, 2013.

Hispanic women living in border counties who received late (third trimester) or no prenatal care during pregnancy was 82 percent higher in U.S.-Mexico border counties than in non-border counties (14.0 percent versus 7.7 percent) (Figure 5). In Mexico, late or no prenatal care is less common overall than it is in U.S. Hispanic women. However, the proportion of Mexican women who receive late or no prenatal care is still higher in border municipalities (10.1 percent) than in non-border municipalities (5.7 percent).

DISCUSSION

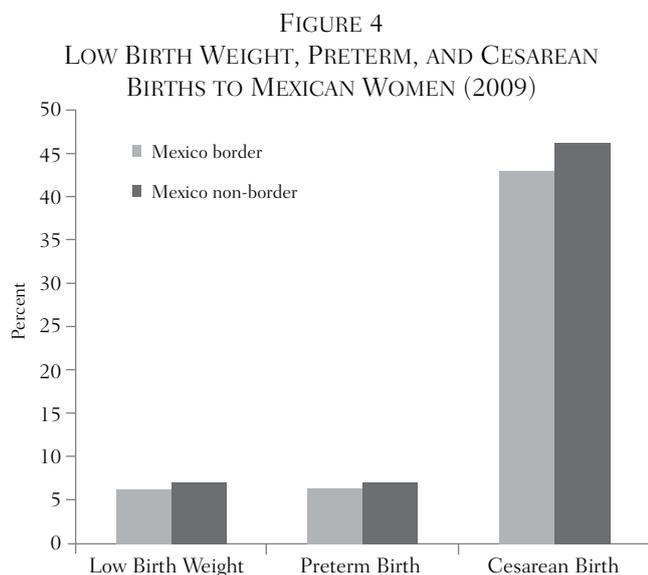
The availability of comparable birth certificate data for the United States and Mexico allows both a description of the U.S. Hispanic population and some instructive comparisons with recent experience in Mexico. Dividing the U.S. Hispanic population into those who live on the border with Mexico and elsewhere reveals some major internal differences in maternal outcomes. Clearly not all Hispanic births in the U.S. are the same, and the overall picture of maternal health in both countries to some extent reflects the poorer outcomes in their border regions.

Although adolescent birth rates are declining among U.S. Hispanics and Mexicans, progress is being checked to some extent by the slower improvements along the border. This is a critical issue because adolescent mothers and their offspring face multiple risks. Many of the pregnant Hispanic adolescents living on the border start prenatal care late or not at all (17.6 percent—data not shown), and roughly three in ten, most healthy and pregnant for the first time, deliver their baby via Cesarean section. A primary Cesarean makes Cesarean delivery much more likely in subsequent pregnancies and increases the risk of serious complications, including placenta previa, hemorrhage, and infection.¹⁵ In addition, higher prevalence of preterm birth and low birth weight among Hispanic adolescents living in the border region also places the infants of these mothers at greater risk.

Another problem for U.S. Hispanics that must be addressed is the startlingly high rate of Cesarean birth, especially in the border region. This is an issue for non-Hispanic U.S. women as well, but the finding that Cesarean birth rates in the U.S. Hispanic border region, where most women are of Mexican origin, are intermediate between those in Mexico and those among U.S. Hispanics elsewhere suggests that cultural factors may also be influencing the rates associated with this

outcome. In addition, variation in the type of hospital ownership within the U.S. might contribute to this pattern. Private and for-profit hospital ownership has been associated with higher risk of Caesarean delivery in the U.S.¹⁶ and in Mexico.¹⁷ In the Texas border region, where half of U.S. Hispanic border births occur, a majority of hospitals are for-profit.¹⁸

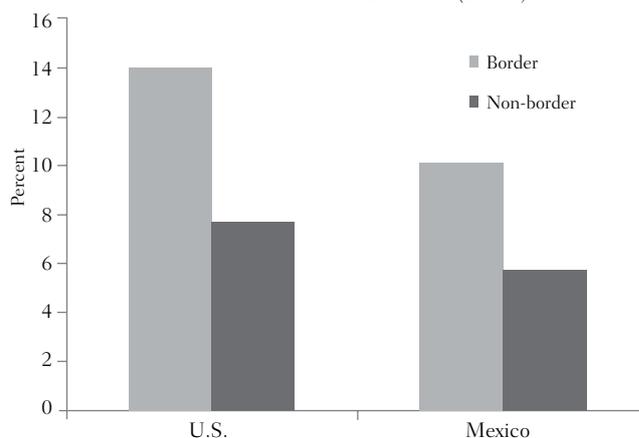
As noted, higher rates of inadequate prenatal care in the border region could reflect the region's poverty and limited access to health care services, but they could also reflect a tendency for border women to receive care on both sides of the border.¹⁹ Crossing the border for prenatal care in either direction could contribute to lower rates of prenatal care through disruption of health insurance coverage and could also lead to incomplete prenatal records for Mexican and U.S. Hispanic women. Consistent with findings from an earlier study of prenatal care in El Paso, Texas,²⁰ a smaller investigation of U.S. and Mexican women in active labor who crossed the border from Ciudad Juárez to El Paso seeking emergency medical services found that half of women had no record of prenatal care on their medical chart.²¹ However, authors observed chart notations of prenatal care received in Mexico or prenatal care records in Spanish that were not recognized in the admissions summary of the El Paso hospital record.



Note: The figure refers to the number of births among Mexican women along the U.S.-Mexico border and in non-border municipalities of Mexican border states.

Source: Jill A. McDonald, Octavio Mojarro, Paul D. Sutton, and Stephanie J. Ventura, "A Binational Overview of Reproductive Health Outcomes among US Hispanic and Mexican Women in the Border Region," *Preventing Chronic Disease* vol. 10, August 15, 2013.

FIGURE 5
U.S. HISPANIC AND MEXICAN BIRTHS WITH LATE OR NO PRENATAL CARE (2009)



Note: The figure refers to births to women in border and non-border U.S. counties and Mexican municipalities in border states.

Source: Jill A. McDonald, Octavio Mojarro, Paul D. Sutton, and Stephanie J. Ventura, "A Binational Overview of Reproductive Health Outcomes among US Hispanic and Mexican Women in the Border Region," *Preventing Chronic Disease* vol. 10, August 15, 2013.

Women who cross the U.S.-Mexico border for obstetric care in the U.S. are a population that we know little about. Among Mexican women who choose to give birth in the U.S., some reports have found more middle- and upper-income women than low-income women, suggesting that most such births occur to documented mothers.²² In contrast, a national survey indicates that undocumented immigrant women of all countries of origin account for fully 8 percent of U.S. births,²³ while births to non-U.S. residents legally in the United States account for a much smaller fraction.²⁴

Little is also known about the maternal and infant outcomes for Mexican women who give birth in the U.S. Mexican and U.S.-born women who gave birth in California had different patterns of maternal morbidity with neither group being clearly healthier than the other.²⁵ Mexican and U.S. residents who requested emergency medical transportation from ports of entry to hospitals in El Paso (about 0.2 percent of all El Paso births) appeared to have higher rates of preterm and low birth weight than those seen in the U.S. general population.

Overall, the health of pregnant Hispanic women and their infants varies greatly in the United States by geographic region. Prescriptions for addressing these health disparities need to be sensitive to geographic differences among Hispanic subpopulations. Prevention measures also need to be sensitive to country-of-origin differences among U.S. Hispanics, a topic

that could easily fill another article. Cuban-Americans, for example, are not the same as Mexican-Americans.

Future research has to consider both geographic and cultural differences, which are often difficult to identify with birth certificate data alone. Qualitative interviews with pregnant Hispanic women or new mothers are an essential complement to epidemiologic data. Some of this work has been done, but more is necessary. Quantitative and qualitative efforts together might help identify effective interventions to improve the maternal health of all Hispanic women. Ideally, in the U.S.-Mexico border region, public health workers would collaborate in binational, community-based efforts to disseminate such interventions. ■■■

NOTES

- ¹ Joyce A. Martin, Brady E. Hamilton, Michelle J.K. Osterman, Sally C. Curtin, and T. J. Mathews, "Births: Final Data for 2013," *National Vital Statistics Reports* vol. 64, no. 1, January 15, 2015, pp. 1-68.
- ² Centers for Disease Control and Prevention, "Reproductive and Birth Outcomes," <http://ephtracking.cdc.gov/showRbMain.action>, accessed July 28, 2015; March of Dimes Perinatal Data Center, "Maternal and Infant Health in US Hispanic Populations: Prematurity and Related Health Indicators," March of Dimes, http://www.marchofdimes.org/Peristats/pdflib/991/MOD_2014HispanicReport.pdf, accessed July 27, 2015.
- ³ Joyce A. Martin, Brady E. Hamilton, Michelle J. K. Osterman, Sally C. Curtin, and T. J. Mathews, op. cit.
- ⁴ Ibid.
- ⁵ Elliott K. Main, Christine H. Morton, Kathryn Melsop, David Hopkins, Giovanni Giuliani, and Jeffrey B. Gould, "Creating a Public Agenda for Maternity Safety and Quality in Cesarean Delivery," *Obstetrics and Gynecology* vol. 120 (2012), pp. 1194-1198.
- ⁶ World Health Organization, "WHO Statement on Caesarean Section Rates," Human Reproduction Programme, http://apps.who.int/iris/bitstream/10665/161442/1/WHO_RHR_15.02_eng.pdf?ua=1, 2015, accessed July 27, 2015.
- ⁷ Joyce A. Martin, Brady E. Hamilton, Michelle J.K. Osterman, Sally C. Curtin, and T. J. Mathews, op. cit.
- ⁸ Population Reference Bureau, "Exploring the Paradox of U.S. Hispanics' Longer Life Expectancy," <http://www.prb.org/Publications/Articles/2013/us-hispanics-life-expectancy.aspx>, July 2013, accessed July 27, 2015.
- ⁹ Christopher E. Wilson and Erik Lee, eds., "State of the Border Report: a Comprehensive Analysis of the U.S.-Mexico Border," http://www.wilsoncenter.org/sites/default/files/mexico_state_of_border_0.pdf, May 2013, accessed July 27, 2015.
- ¹⁰ Jill A. McDonald, Octavio Mojarro, Paul D. Sutton, and Stephanie J. Ventura, "Adolescent Births in the Border Region: A Descriptive Analysis Based on US Hispanic and Mexican Birth Certificates," *Maternal and Child Health Journal* vol. 19, no. 1, January 2015, pp. 128-135.
- ¹¹ Douglas Kirby and Gina Lepore, "Sexual Risk and Protective Factors: Factors Affecting Teen Sexual Behavior, Pregnancy, Childbearing and Sexually Transmitted Disease," ETR Associates and The National Campaign to Prevent Teen and Unplanned Pregnancy, https://thenationalcampaign.org/sites/default/files/resource-primary-download/protective_factors_full.pdf, accessed July 28, 2015.
- ¹² Jill A. McDonald, Octavio Mojarro, Paul D. Sutton, and Stephanie J. Ventura, "A Binational Overview of Reproductive Health Outcomes among US Hispanic and Mexican Women in the Border Region," *Preventing Chronic Disease* vol. 10, August 15, 2013, doi: <http://dx.doi.org/10.5888/pcd10.130019>.
- ¹³ Office on Women's Health, "Pregnancy: Prenatal Care and Tests," U.S. Department of Health and Human Services, 2010, <http://womenshealth.gov/pregnancy/you-are-pregnant/prenatal-care-tests.html>, accessed July 28, 2015.
- ¹⁴ Secretaría de Salud, "Norma Oficial Mexicana NOM-007-SSA2-1993: Atención de la mujer durante el embarazo, parto y puerperio y del recién nacido. Criterios y procedimientos para la prestación del servicio," 1994, <http://www.salud.gob.mx/unidades/cdi/nom/007ssa23.html>, accessed July 28, 2015; Colleen Kirkham, Susan Harris, and Stefan Grzybowski, "Evidence-based Prenatal Care: Part 1. General Prenatal Care and Counseling Issues," *American Family Physician* vol. 71, no. 7, pp. 1307-1316.
- ¹⁵ Elliott K. Main, Christine H. Morton, Kathryn Melsop, David Hopkins, Giovanni Giuliani, Jeffrey B. Gould, op. cit.
- ¹⁶ Elliott K. Main, Christine H. Morton, David Hopkins, Giovanni Giuliani, Kathryn Melsop, and Jeffrey B. Gould, "Cesarean Deliveries, Outcomes, and Opportunities for Change in California: Toward a Public Agenda for Maternity Care Safety and Quality," California Maternal Quality Care Collaborative, <https://www.cmqcc.org/resources-tool-kits/cmqcc-publications/white-paper-cesarean-deliveries>, 2011, accessed July 27, 2015.
- ¹⁷ J. P. Gutiérrez, J. Rivera-Dommarco, T. Shamah-Levy, S. Villalpando-Hernández, A. Franco, L. Cuevas-Nasu, M. Romero-Martínez, M. Hernández-Ávila M., et al., "Encuesta Nacional de Salud y Nutrición 2012: resultados nacionales," Instituto Nacional de Salud Pública, <http://ensanut.insp.mx/informes/ENSANUT2012ResultadosNacionales.pdf>, accessed July 28, 2015.
- ¹⁸ Texas Department of State Health Services, "Annual Survey of Hospitals," 2013, <https://www.dshs.state.tx.us/chs/hosp/hosp2.aspx>, accessed July 28, 2015.
- ¹⁹ Judith T. Fullerton, Carlene Nelson, Rachel Shannon, Julia Bader, "Prenatal Care in the Paso del Norte Border Region," *Journal of Perinatology* vol. 24, 2004, pp. 62-71; Jill A. McDonald, Karen Rishel, Miguel A. Escobedo, Danielle E. Arellano, and Timothy J. Cunningham, "Obstetric Emergencies at the United States-Mexico Border Crossings in El Paso, Texas," *Revista Panamericana de Salud Pública* vol. 37, no. 2, 2015, pp. 76-82; Dejun Su, William R. Pratt, Jim P. Stimpson, Rebeca Wong, and José A. Pagán, "Uninsurance, Underinsurance, and Health Care Utilization in Mexico by US Border Residents," *Journal of Immigrant and Minority Health* vol. 16, no. 14, 2014, pp. 607-612; Theresa L. Byrd and Jon G. Law, "Cross-border Utilization of Health Care Services by United States Residents Living near the Mexican border," *Revista Panamericana de Salud Pública* vol. 26, no. 2, 2009, pp. 95-100.
- ²⁰ Judith T. Fullerton, Carlene Nelson, Rachel Shannon, and Julia Bader, op. cit.
- ²¹ Jill A. McDonald, Karen Rishel, Miguel A. Escobedo, Danielle E. Arellano, and Timothy J. Cunningham, op. cit.
- ²² Sylvia Guendelman, "Binational Collaborative Research," Chapter 23 in Marc B. Schenker, Xóchitl Castañeda, Alfonso Rodríguez-Lainz, eds., *Migration and Health: A Research Methods Handbook*, 1st ed. (Berkeley: University of California Press, 2014), pp. 437-454.
- ²³ Jeffrey S. Passel and Paul Taylor, "Unauthorized Immigrants and Their U.S.-Born Children," PEW Hispanic Center, August 11, 2010, <http://www.pewhispanic.org/2010/08/11/unauthorized-immigrants-and-their-us-born-children/>, accessed July 28, 2015.
- ²⁴ David Gonzalez, "'Birth Tourism' Not a Widespread Practice in U.S., Data Show," *The Arizona Republic* and *USA Today*, August 17, 2011, http://usatoday30.usatoday.com/news/nation/2011-08-17-birth-tourism-arizona-border_n.htm, accessed July 28, 2015.
- ²⁵ Sylvia Guendelman, Dorothy Thornton, Jeffrey Gould, and Nap Hosang, "Social Disparities in Maternal Morbidity during Labor and Delivery between Mexican-born and US-born White Californians, 1996-1998," *American Journal of Public Health* vol. 95, no. 12, December 2005, pp. 2218-2224.