

## **Prenatal Care in Utah: Improvement in Access, but Persistent Gaps by Mother's Race, Ethnicity, and Nativity Status**

**Policy In-depth: 06-25-08**

By

Kim Korinek, Ph.D., Assistant Professor of Sociology,  
and

Ken R. Smith, Ph.D., Professor of Family and Consumer Studies

Topic Area: Health Care

# **Prenatal Care in Utah: Improvement in Access, but Persistent Gaps by Mothers' Race-Ethnicity and Nativity Status**

## **Policy Brief: 06-25-08**

by *Kim Korinek, Ph.D., Assistant Professor of Sociology, & Ken R. Smith, Ph.D., Professor of Family & Consumer Studies*

Center for Public Policy & Administration

email: [policy@cpga.utah.edu](mailto:policy@cpga.utah.edu)

web: [www.cpga.utah.edu](http://www.cpga.utah.edu)

## **Introduction**

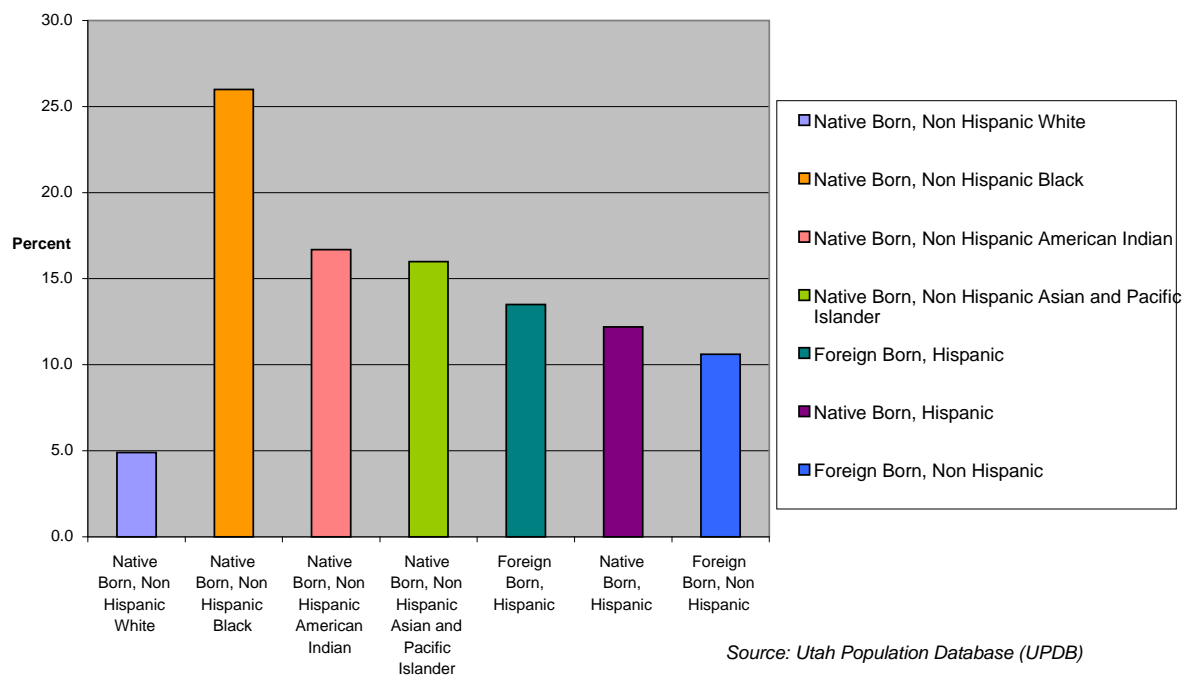
Developed at the turn of the 20<sup>th</sup> century, prenatal care is seen as one of the most important advances in obstetrics in the 20<sup>th</sup> century and its importance in reducing the incidence of fetal death is widely established (Healy et al. 2006). Prenatal care (PNC) visits provide a setting and context for education on pregnancy, delivery and infant care, and detection and treatment of medical conditions that may impede healthy pregnancy and delivery. Most medical experts maintain, therefore, that adequate PNC allows for prevention of pregnancy and delivery complications, and reduction of risk of low birth weight and other post-natal health problems. According to the American College of Gynecologists and Obstetricians, PNC should begin in the first month of pregnancy and a woman should have 14 PNC visits during an uncomplicated 40 week pregnancy (ACOG 1985). The U.S. public health service advocates more moderate levels of PNC – at least eight visits beginning prior to the second trimester. Based on the ACOG recommendations, the Kotelchuck index (1994) was developed to assess whether PNC is adequate, based upon the date of a woman's first PNC visit, the total number of PNC visits, and the length of her pregnancy.

Social science research has documented myriad obstacles hindering expectant mothers, often those most in need of social, health, and educational benefits, from obtaining adequate prenatal care (e.g., Frisbie et al. 2001). For numerous reasons, from perceived and actual discrimination to language barriers and other obstacles to social integration, racial and ethnic minorities, especially Hispanics and African Americans, are significantly less likely than Non-Hispanic whites to have access to a regular healthcare provider (e.g., Durden 2007; Durden & Hummer 2006). Additional obstacles, particularly salient for racial ethnic minorities and immigrants, are financial – such as the rising costs of health care and absence of insurance coverage. In Utah, as in many other states, undocumented immigrant women are particularly likely to lack insurance coverage. Although undocumented immigrants are eligible for a specific range of healthcare services through emergency Medicaid, this program only covers life threatening conditions and the delivery of a child. Pre- and post-natal care services are not covered by emergency Medicaid, or other publicly funded programs, in the state of Utah. Therefore, PNC is often provided in nonprofit clinics established to serve low-income and immigrant populations. Cost-benefit evaluation studies conducted in California indicate that failure to provide publicly funded prenatal care services to undocumented mothers can be costly in the long run. Specifically, researchers found that undocumented women lacking prenatal care were significantly more likely to have low birth weight and premature babies; this resulted in vast indirect costs related to post-natal care services provided to address neonate morbidity in cases where PNC was denied to undocumented mothers (Lu et al. 2000).

Beginning in 1987, the Utah Department of Health implemented a prenatal outreach and media campaign in response to low levels of prenatal care utilization in the state and with the intention of improving maternal and infant health across the state. The “Baby Your Baby” campaign educates and advocates that women achieve the goal of “13/13” prenatal care visits; that is a first visit by week 13 and 13 total visits. Although prenatal care utilization in Utah increased substantially following the “Baby Your Baby” campaigns, with more than 100,000 mothers served by the campaign over its 20 year history (UDOH 2007), our analyses of prenatal care visits reported in state birth records between 2000 and 2005 indicate that gaps in prenatal care utilization persist. Specifically, we see that racial-ethnic minority and immigrant women remain at a distinct risk for inadequate prenatal care (Figure One). The growing diversity of the state’s population, in particular the rise in Latina and immigrant women giving birth in Utah, means that disparities in access and coverage are more likely to occur due to barriers related to socioeconomic position, access to transportation and insurance, and linguistic and cultural differences.

In this paper we examine the determinants of prenatal care utilization among Utah mothers, seeking to delineate whether race, ethnicity, immigrant status and a range of socio-demographic characteristics influence mothers’ risks of receiving less than adequate prenatal care. We also consider whether state policies toward immigrants, in particular immigrant mothers’ ability to access a Utah driver privilege card, might influence levels of prenatal care utilization among expectant mothers.

**Figure One. Percent of Mothers Obtaining Inadequate Prenatal Care, Utah Births, 2000-2005**



## **Utah Population Database and the Measurement of Maternal Characteristics and PNC Utilization**

To conduct research on mothers' utilization of PNC in Utah we rely upon data from the Utah Population Database (UPDB). The UPDB, which is administered and maintained by the Utah Resource for Genetic and Epidemiological Research (RGE), is a unique, dynamic database that is annually updated with Utah Vital Records, as well as records from the Utah and Idaho cancer registries, the Utah Driver License Division (UDLD), and other sources. In total, the UPDB contains more than nine million longitudinally-linked and family-linked records which have permitted extensive genetic and epidemiological research on population health and genetics by University of Utah researchers. All personal information from the UDLD and birth certificates was removed before the data were provided to the investigators on this research project; this was done to protect the confidentiality of the individuals in these records. This project has been approved by the University of Utah Institutional Review Board and the RGE.

Our measures of prenatal care utilization, and the characteristics of parents of infants born in Utah between 2000 and 2005, are derived from birth details on Utah birth certificates. While errors due to reporting and omission are possible, birth certificates maintained by the Utah Department of Health provide a complete and reliable base of information on all births occurring in the state. In addition to clinical information, such as the mother's height and weight and infant's weight, the birth records provide valuable social background information on newborns' mothers and fathers. Specifically, we utilize reported information on the mother's age, education level, country of birth, race and ethnicity, marital status, and labor force position of the mother prior to pregnancy, as well as the father's race-ethnicity and education level, in order to ascertain whether social characteristics of parents are associated with patterns of prenatal care utilization.

The UPDB system of linked records also allows for inclusion of information from birth mothers' records held by the Utah Driver License Division. In particular, the UDLD data flags records in which drivers have been issued either a driver license (1999-2005) or a driver privilege card (2005 and later) using an individual tax identification number (ITIN) rather than a regular social security card. Isolating those who have used an ITIN for a special license or driver privilege card provides a means of identifying birth mothers in the state who are undocumented immigrants.

Address information provided on birth certificates or driver licenses can be used to delineate the census block group in which the mother resided at or around the time of her pregnancy. For those mothers whose records contained valid address information, the address was geocoded and linked to a census block group. Census block was provided from UPDB, allowing us to include in the model information on the socioeconomic and demographic composition of the mother's neighborhood. Specifically, we examine the share of population residing in the mother's block group that are below the poverty level and the percentage that are foreign-born.

### **Prenatal Care Adequacy among Utah Mothers**

We use logistic regression analysis with robust standard errors to model the risk of inadequate prenatal care utilization among Utah mothers giving birth between 2000 and 2005. Odds ratios and robust standard errors are shown in Table One; results significant at the .05, .01, and .001 level are indicated by \*, \*\*, and \*\*\*, respectively.

It is readily apparent (see Model 1 in Table One) that Hispanic women, both U.S. born and foreign born, Non-Hispanic foreign born women, and Non-Hispanic Non-white women have much higher odds of inadequate PNC in Utah than Non-Hispanic white women. Native-born Non-Whites, consisting primarily of American Indian, African American and Pacific Islander women, are at the greatest risk of receiving inadequate PNC. Furthermore, this segment of Utah mothers also experiences the highest risk of having a low birth weight infant in the period under study (results not shown).

The results in Model 1 further reveal that the prenatal care disadvantage associated with immigrant and ethnic-minority status remains after we control for mother's age, marital status, educational attainment, pre-pregnancy labor force status, pregnancy history, and neighborhood characteristics. Being a teenager, being unmarried, having less than a high school education, being out of the labor force prior to pregnancy, and having had two or more previous births are each risk factors that increase the odds of inadequate prenatal care. The bottom panel of Model 1 indicates a positive trend in PNC utilization in Utah over the 2000-2005 period; the odds that any mother in Utah experiences inadequate PNC has declined in each year since 2000. So, although the overall picture is improving, gaps in receipt of adequate PNC remain.

In Model 2, an alternative break-down of mothers' race, ethnicity and nativity status is provided which takes into account the driver license information, and hence immigration status, of foreign born mothers. Accordingly, we are able to compare foreign born Hispanic women with driver licenses (presumed to be documented immigrants) to those who have driver privilege cards (presumed to be undocumented immigrants), and those who have neither a regular driver license or driver privilege card (presumed to be mainly undocumented women, or documented immigrants that are relatively poor or poorly integrated into the local community). A comparison of results for different categories of foreign born women indicates that immigrant Hispanic women with neither a driver license nor a driver privilege card have the greatest odds of inadequate prenatal care. By comparison, mothers possessing a Utah driver privilege card have odds of PNC utilization that more closely approximate those of documented foreign born women. While cautious interpretation is advised, these results are indicative of a moderate, positive effect of the driver privilege card upon undocumented mothers' utilization of prenatal care in Utah. The nature of this relationship, and other effects of driver privilege cards on immigrant social and health outcomes, warrants further study.

Model 3 includes characteristics of the mother's neighborhood at or around the time of her pregnancy. We find that, controlling for individual level characteristics, inadequate PNC utilization is also more prevalent among women residing in poor neighborhoods and neighborhoods with a relatively dense concentration of foreign-born residents. Besides individual traits, it appears that certain mothers are disadvantaged by where they live. Whether poor or foreign born themselves, women residing in poor neighborhoods, and neighborhoods that are disproportionately populated by immigrants, are less likely to obtain adequate levels of PNC. Because birth certificate records lack specific information on women's income, and because poor women are likely to reside in neighborhoods with a high concentration of poverty, the neighborhood level of poverty may reflect individual experience with poverty, and/or residence in a community that, due to its relatively dearth of economic resources and also perhaps social capital and other resources, may hinder PNC access.

## Conclusion

As Utah attains the status of a new immigrant destination, and as its demographics shift toward greater racial, ethnic, and cultural diversity, systems of healthcare delivery will face the challenge of reaching and serving an increasingly diverse body of patients. Ensuring the health of newborns in the state is a crucial step toward ensuring the health of the state's future population. Our analyses of state birth records from 2000 to 2005 reveals that certain subgroups of mothers remain at risk of receiving inadequate prenatal care – in particular mothers with low levels of education, those who are unmarried or teenagers at the time of birth, and those who are outside of the labor force at the time of their pregnancy (and hence likely to lack insurance coverage and personal income). These factors point to the importance of informational, social, and socioeconomic resources for mothers as they attempt to seek care during pregnancy. Race, ethnicity, and immigrant status have significant effects on prenatal care utilization in the state, independent of other maternal characteristics. We find that, controlling for education, marital status, and other individual and neighborhood level factors, racial ethnic minority women, in particular American Indians, African Americans, and Latinas, are more likely than non-Hispanic white women to receive inadequate prenatal care.

Immigrant women constitute a growing proportion of mothers giving birth in Utah in recent years. Their utilization of prenatal care, and their subsequent perinatal health outcomes, presents a mixed picture. All immigrant women, irrespective of their legal status or origins, fare better than non-white minorities with respect to prenatal care utilization in the study period. This suggests that the social and economic barriers to healthcare are most pronounced not among newcomers, but among long resident, often socially marginalized groups, in particular American Indians and African Americans. In terms of the immigrant population, the legal or documentation status of immigrant women seems to shape prenatal care access. The much debated driver privilege card program appears to benefit infant health through improved PNC utilization by undocumented women in possession of driver privilege cards. Immigrant women lacking a driver license or driver privilege card are likely to meet additional obstacles, in addition to their immigrant status, that limit their ability to make regular visits to healthcare providers. Previous studies conducted with pregnant women identified access to transportation as one of the primary factors influencing regular PNC visits. The Utah driver privilege card may facilitate immigrant women's mobility, as well as their levels of local social integration, in directions that enhance their access to prenatal care and other forms of healthcare.

While PNC adequacy standards have been widely adopted in the field of obstetrics, recent research indicates that despite improved access to prenatal care, racial-ethnic minority women, as compared to non-Hispanic whites, often continue to be at greater risk of most types of pregnancy complications and perinatal mortality (Healy et al. 2006). Healy and colleagues conclude that increased accessibility to early prenatal care has not had the positive effect on minority communities that was anticipated, and hence they suggest developing novel and appropriate strategies to reach minority women so as to reduce their levels of birth complications and perinatal mortality. Thus, for the state of Utah and its healthcare providers to best ensure maternal and infant health across the state's racial, ethnic, and socioeconomic spectrum, existing gaps in prenatal care access should be addressed, as well as the social, cultural, and economic differences that divide these populations and influence their receipt of care.

Table One. Logistic Regression Analysis: Predictors of *Inadequate* Prenatal Care among Mothers in Utah, 2000-2005

Source: Utah Population Database

	Model 1 Odds Ratio/ [Robust SE]	Model 2 Odds Ratio/ [Robust SE]	Model 3 Odds Ratio/ [Robust SE]
US Born, Non-Hispanic White (omitted)	1.000	1.000	1.000
US Born, Hispanic	1.418*** [0.056]	1.498*** [0.059]	1.424*** [0.055]
Foreign-born Hispanic (only those with drivers' licenses in Models 2 & 3)	1.157*** [0.057]	1.187*** [0.064]	1.126** [0.062]
Foreign-born, Non Hispanic	1.955*** [0.082]	2.059*** [0.086]	1.978*** [0.083]
US Born, Non Hispanic, Non White (~40% Amer Ind, 40% API, 20% Black)	2.329*** [0.142]	2.504*** [0.149]	2.371*** [0.139]
Foreign-born, Hispanic, with no DL/DPC	--	2.070*** [0.117]	1.908*** [0.111]
Foreign-born, Hispanic, with DPC	--	1.302*** [0.079]	1.211*** [0.075]
Missing Info on Ethnicity-Nativity	1.315** [0.144]	1.373*** [0.149]	1.356*** [0.147]
Mother's Driver's License Status - Has Regular DL (omitted)	--	--	--
Mother's Driver's License Status - Has No DL	2.298*** [0.088]	--	--
Mother's Driver's License Status - Has Driver Privilege card	1.304*** [0.073]	--	--
Mother's Age at Birth: <=19	1.084** [0.042]	1.110*** [0.042]	1.118*** [0.043]
Mother's Age at Birth: 20-34 (omitted)	1.000	1.000	1.000
Mother's Age at Birth: 35 & Older	0.927* [0.038]	0.924* [0.038]	0.932* [0.038]
Previous Live Births: Zero	0.644*** [0.019]	0.645*** [0.019]	0.645*** [0.019]
Previous Live Births: One	0.768*** [0.020]	0.766*** [0.019]	0.764*** [0.019]
Previous Live Births: Two or more (omitted)	--	1.000	1.000
Number of Previous Stillbirths/Terminations: Zero (omitted)	1.000	1.000	1.000
Number of Previous Stillbirths/Terminations: One or more	0.880*** [0.021]	0.880*** [0.021]	0.877*** [0.021]
Mother's Marital Status at Time of Birth - Not Married (omitted: Married)	1.602*** [0.053]	1.641*** [0.054]	1.609*** [0.052]
Father US Born, Non-Hispanic (omitted)	--	1.000	1.000
Father US Born, Hispanic	1.085* [0.052]	1.312*** [0.055]	1.270*** [0.054]
Father Foreign-born, Hispanic	1.107*** [0.032]	1.655*** [0.107]	1.639*** [0.106]
Father Foreign-born, Non-Hispanic	1.085* [0.052]	1.547*** [0.067]	1.491*** [0.066]
Father's Country/Ethnicity Information Missing	1.107*** [0.032]	2.004*** [0.107]	1.979*** [0.106]
Mother's Educational Attainment - 0-9 years	1.085* [0.052]	1.206*** [0.057]	1.167*** [0.056]
Mother's Educational Attainment - 10-12 years	1.107*** [0.032]	1.137*** [0.033]	1.127*** [0.032]
Mother's Educational Attainment - 13-16 years (omitted)	1.000	1.000	1.000
Mother's Educational Attainment - Greater than 16 years	0.968 [0.046]	0.977 [0.047]	0.978 [0.047]
Mother's Educational Attainment - Missing Information	1.134 [0.089]	1.180** [0.092]	1.183** [0.092]
Mother's Labor Force Status Prior to Birth - Employed (omitted)	1.000	1.000	1.000
Mother's Labor Force Status Prior to Birth - Student	1.139** [0.068]	1.185*** [0.070]	1.169*** [0.069]
Mother's Labor Force Status Prior to Birth - Homemaker	1.261*** [0.028]	1.304*** [0.029]	1.303*** [0.029]
Mother's Labor Force Status Prior to Birth - Missing Information	1.789* [0.537]	1.771* [0.523]	1.735* [0.514]
Father's Educational Attainment - 0-9 years	1.414*** [0.076]	1.451*** [0.078]	1.421*** [0.076]
Father's Educational Attainment - 10-12 years	1.292*** [0.039]	1.305*** [0.039]	1.298*** [0.039]
Father's Educational Attainment - 13-16 years (omitted)	1.000	1.000	1.000
Father's Educational Attainment - Greater than 16 years	1.006 [0.038]	1.003 [0.038]	1.009 [0.038]
Father's Educational Attainment - Missing Information	1.638*** [0.087]	1.669*** [0.089]	1.655*** [0.088]
Year of Birth: 2000 (omitted: 2005)	1.652*** [0.061]	1.638*** [0.060]	1.617*** [0.060]
Year of Birth: 2001 (omitted: 2005)	1.613*** [0.058]	1.595*** [0.058]	1.578*** [0.057]
Year of Birth: 2002 (omitted: 2005)	1.489*** [0.054]	1.477*** [0.054]	1.465*** [0.054]
Year of Birth: 2003 (omitted: 2005)	1.116*** [0.041]	1.112*** [0.041]	1.106*** [0.040]
Year of Birth: 2004 (omitted: 2005)	1.103** [0.042]	1.090** [0.042]	1.087** [0.042]
% of hhs linguistically isolated, all languages	--	--	1.464 [0.619]
% of persons that are foreign born	--	--	2.073*** [0.477]
% of persons below poverty threshold	--	--	1.497*** [0.214]
Observations	231038.000	231038	231037

Robust standard errors in brackets

\* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%

## ACKNOWLEDGEMENTS

The authors thank the Florsheim Family Foundation and Department of Pediatrics for an Adolescent Health Research Initiative grant which supported this research. Partial support for all datasets within the Utah Population Database is being provided by the Huntsman Cancer Institute.

## REFERENCES

American College of Gynecologists and Obstetricians. 1985. *Standards for Obstetric-Gynecologic Services*. 6<sup>th</sup> edition. Washington, DC: American College of Gynecologists and Obstetricians

Frisbie, W. Parker, Samuel Echevarria, and Robert A. Hummer. 2001. "Prenatal Care Utilization among Non-Hispanic Whites, African Americans and Mexican Americans," *Maternal and Child Health Journal* 5(1):21-33.

Healy, Andrew J., Fergal D. Malone, Lisa M. Sullivan, T. Flint Porter, David A. Luthy, Christine A. Comstock, George Saade, Richard Berkowitz, Susan Klugman, Lorraine Dugoff, Sabrina Craigo, Ilan Timor-Tritsch, Stephen R. Carr, Honor M. Wolf, Diana W. Bianchi, and Mary E. D'Alton. 2006. "Early Access to Prenatal Care: Implications for Racial Disparity in Perinatal Mortality," *Obstetrics and Gynecology* 107(3):625-632.

Kotelchuck, Milton. 1994. "An Evaluation of the Kessner Adequacy of Prenatal Care Index and a Proposed Adequacy of Prenatal Care Utilization Index," *American Journal of Public Health* 84(9):1414-1420.

Lu, Michael C., Yvonne G. Lin, Noelani Prietto, and Thomas J. Garite. 2000. "Elimination of Public Funding of Prenatal Care for Undocumented Immigrants in California: A Cost/Benefit Analysis," *American Journal of Obstetrics and Gynecology* 182(1):233-239.

Authors: Kim Korinek, Ph.D., is an Assistant Professor in the Department of Sociology at the University of Utah.

Ken R. Smith, Ph.D., is a Professor in the Department of Family & Consumer Studies at the University of Utah.

Email: [policy@cpga.utah.edu](mailto:policy@cpga.utah.edu)

Web: [www.cpga.utah.edu](http://www.cpga.utah.edu)