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Brief Original Report

Affordable Care Act standards for race and ethnicity mask disparities in maternal smoking during pregnancy

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ABSTRACT

Objective. This study compared maternal smoking during pregnancy between the new Patient Protection and Affordable Care Act (ACA) data collection standards and Federal Office of Management and Budget (OMB) standards.

Method. Data were from the Massachusetts Standard Certificate of Live Births on 1,156,472 babies from 1996 to 2010. A parent reported whether the mother smoked during pregnancy (yes/no), her race (5 options) and, separately, her ethnicity (39 categories). Prenatal smoking rates were compared between the ACA and OMB standards. Detailed ethnicity from the birth certificate was then examined within all broad categories of the ACA standards: White, Black/African American, Other Hispanic, Other Asian/Pacific Islander, and Other categories.

Results. For Hispanic/Latina and Asian mothers, the ACA standards captured the variability in smoking across and within racial/ethnic groups more than the OMB standards. However, for White and Black/African American mothers, the broad ACA categories masked striking differences in prenatal smoking. While the overall prevalence among Whites was 10.2%, this ranged from 0.8% for Iranians to 21.0% for Cape Verdeans. Among Black/African Americans (7.6%), this ranged from 0.5% for Nigerians to 12.9% for African Americans. The ACA standards also combined ethnic groups with sizeable populations into Other Hispanics and Other Asian/Pacific Islanders.

Conclusion. When population health surveys and other reporting tools are being revised, state and federal agencies should consider expanding all race/ethnicity categories to capture detailed ethnicity on everyone.

Introduction

The Patient Protection and Affordable Care Act (ACA), section 4302, required all national population health surveys to collect additional information on race and ethnicity to help document and track health disparities (Office of Minority Health, 2011; U.S. Government, 2010), while still maintaining consistency with the 5 broad race/ethnicity categories from the 1997 revision of the Federal Office of Management and Budget (OMB) Directive No. 15 (Office of Management and Budget, 1997). In October 2011, the U.S. Department of Health and Human Services (HHS) published standards for surveys sponsored by HHS where respondents self-report their race and ethnicity, which require the collection of additional information for the Hispanic (4 categories), Asian (7 categories), and Native Hawaiian or Other Pacific Islander (4 categories) categories (Office of Minority Health, 2011). Despite these improvements, the broad standards for White and Black/African American remain (Office of Minority Health, 2011).

An important component of achieving national targets and recommendations to promote healthy behaviors during pregnancy is identifying at-risk groups (American College of Obstetricians and Gynecologists, 2011; Fiore et al., 2008; U.S. Department of Health and Human Services, 2010). Despite the decreasing trend in maternal smoking during pregnancy nationally and in Massachusetts, racial/ethnic differences remain (Centers for Disease Control, Prevention, 2011; Hawkins et al., in press). The socio-demographic composition of new mothers has been changing rapidly (Martin et al., 2011; Massachusetts Department of Public Health, 2012). Over the past two decades in Massachusetts, there has been growth in the proportion of births by Asian and Hispanic mothers as well as foreign-born mothers (Massachusetts Department of Public Health, 2000, 2012). Although births by Black mothers have increased from 6.8% in 1998 to 9.3% in 2010, only 3.5% of births were by African American mothers over this time period suggesting that the additional births were by mothers from other ethnic groups (Massachusetts Department of Public Health, 2000, 2012).

Abbreviations: ACA, Patient Protection and Affordable Care Act; HHS, U.S. Department of Health and Human Services; MA, Massachusetts; OMB, Federal Office of Management and Budget.

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The extent to which the new ACA standards can identify disparities in prenatal smoking is unknown. We compared maternal smoking during pregnancy between the ACA data collection standards and OMB standards using detailed race and ethnicity information collected on the Massachusetts birth certificate.

Methods

Information was obtained on all live births in Massachusetts from the Registry of Vital Records and Statistics for years 1996 through 2010. The 1989 Revision of the Standard Certificate of Live Births includes a Parent Worksheet for Birth Certificates, which contains the legal and socio-demographic information on the child's mother and father. Of the 1,162,099 live births in Massachusetts, 1,156,472 were included in the analyses. Those with missing information on maternal ethnicity (4632), race (2154), or smoking (2891) were excluded. The study was exempt from ethics review by the Boston College Institutional Review Board.

On the birth certificate a parent reports the number of cigarettes smoked on an average day during pregnancy, which was dichotomized into yes (1 + cigarettes/day) or no (none). Using information from the following two questions on race and ethnicity, the ACA race and ethnicity definitions were simulated and these categories were collapsed into the OMB standards (Office of Minority Health, 2011). A parent indicates "*one* category that *best describes* the mother's race" from 5 options (White, Black, Asian/Pacific Islander, American Indian, and Other); and, separately, "*one* category that *best describes* the mother's ancestry or ethnic heritage" ('ethnicity') from 39 options, including several write-in options. As defined by the Massachusetts Department of Public Health, mothers who reported their race as Black and ethnicity as American (5318 mothers) were recoded as African American ethnicity (Massachusetts Department of Public Health, 2000). Mothers who were not African American or Native American were coded as Other American (Hawkins et al., in press).

The rates of maternal smoking during pregnancy were first compared between the new ACA standards for race and ethnicity with the original OMB standards. Using detailed ethnicity from the Massachusetts birth certificate, smoking rates were then examined within all broad categories of the ACA standards: White, Black/African American, Other Hispanic, Other Asian/Pacific Islander, and Other categories. Smoking rates are highlighted for those populations with more than 500 births over the study period. Analyses were conducted using Stata 12.1SE (StataCorp, College Station, TX).

Results

Although overall 8.9% of mothers reported smoking during pregnancy, the prevalence varied both across and within maternal racial/ethnic groups (Table 1). For Hispanic/Latina and Asian mothers, the new ACA standards captured the variability in smoking more than the OMB standards. Among Hispanic/Latina mothers (6.4%), maternal smoking during pregnancy varied from 2.2% for Mexicans to 11.7% for Puerto Ricans. Similar differences were seen among Asian mothers (1.6%), with smoking varying from 0.2% for Asian Indians to 2.9% for Filipinos.

Collapsing detailed ethnicity from the Massachusetts birth certificate into the broad categories of the ACA standards masked striking differences in maternal smoking during pregnancy (Table 2). While the overall prevalence of prenatal smoking among White mothers was 10.2%, this ranged from 0.8% for Iranian mothers to 21.0% for Cape Verdean mothers. Among Black/African American mothers (7.6%), this ranged from 0.5% for Nigerian mothers to 12.9% for African American mothers. The ACA standards also combined ethnic groups with sizeable populations into the relevant 'Other' category for Hispanics and Asian/Pacific Islanders (Table 2). For example, Dominican (N = 26,391), Salvadoran (N = 13,305), and Colombian (N = 5077) mothers were combined in the Other Hispanic category.

Discussion

Utilizing routinely-collected data on new mothers can help identify emerging populations and public health needs. We showed that the refined categories in the ACA data collection standards are more useful at detecting groups at risk for prenatal smoking than the OMB standards. However, they do not recognize that heterogeneity lies within all broad categories that remain in the new ACA standards, including ethnic groups within the Other Hispanic and Asian/Pacific Islanders categories.

Major strengths of the study include population-level data and detailed information on maternal ethnicity. Although a limitation is that the data are not necessarily representative of all US states, births in Massachusetts reflect the changing socio-demographic characteristics of new mothers (Martin et al., 2011; Massachusetts Department of Public Health, 2012). Race and ethnicity on the Massachusetts birth certificate are self-reported by parents, as recommended by the ACA standards (Office of Minority Health, 2011). Maternal smoking is also based on self-report and often under-reported on the birth certificate (Allen et al., 2008). Although under-reporting has been shown to be higher among more advantaged mothers, there were no differences by race/ethnicity (Allen et al., 2008). On the Massachusetts birth certificate a parent indicates 'one' race or ethnic category, while on the ACA standards a participant can select 'one or more' race or ethnicity categories (Office of Minority Health, 2011). A challenge for research and surveillance using the new standards will be determining how to

Table 1
Prevalence of maternal smoking during pregnancy using new ACA data collection standards for race and ethnicity and OMB standards, Massachusetts birth certificate 1996–2010.

New ACA data collection standards	OMB standards					
	White n (% smoked)	Black/African American n (% smoked)	Hispanic/Latina n (% smoked)	Asian n (% smoked)	American Indian n (% smoked)	Other n (% smoked)
White	819,760 (10.2)					
Black/African American		91,484 (7.6)				
Mexican			6510 (2.2)			
Puerto Rican			66,964 (11.7)			
Cuban			1083 (7.1)			
Other Hispanic			70,397 (1.8)			
Asian Indian				16,279 (0.2)		
Chinese				20,364 (0.4)		
Filipino				3406 (2.9)		
Japanese				2760 (1.8)		
Korean				4920 (2.7)		
Vietnamese				10,941 (1.0)		
Other Asian/Pacific Islander				18,317 (3.8)		
Hawaiian				246 (20.7)		
American Indian					4322 (25.4)	
Other						18,719 (7.4)
Total N (% smoked)	819,760 (10.2)	91,484 (7.6)	144,954 (6.4)	77,233 (1.6)	4322 (25.4)	18,719 (7.4)

Abbreviations: ACA, Patient Protection and Affordable Care Act; OMB, Federal Office of Management and Budget.