

# Racial and Ethnic Differences in Injury Prevention Behaviors Among Caregivers of Infants

William J. Heerman, MD, MPH,<sup>1,2</sup> Eliana M. Perrin, MD, MPH,<sup>3</sup> Lee M. Sanders, MD, MPH,<sup>4</sup> H. Shonna Yin, MD, MS,<sup>5</sup> Tamera Coyne-Beasley, MD, MPH,<sup>3</sup> Andrea B. Bronaugh, BA,<sup>1</sup> Shari L. Barkin, MD, MSHS,<sup>1,2</sup> Russell L. Rothman, MD, MPP<sup>1,6</sup>

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**Introduction:** African American and Latino children experience higher rates of traumatic injury and mortality, but the extent to which parents of different races and ethnicities disparately enact injury prevention behaviors has not been fully characterized. The objective of this study is to evaluate the association between caregiver race/ethnicity and adherence to injury prevention recommendations.

**Methods:** This was a cross-sectional analysis of caregiver-reported baseline data from the Greenlight study, a cluster-randomized pediatric obesity prevention trial. Data were collected between 2010 and 2012 in four academic pediatric practices and analyzed in 2015. Non-adherence to injury prevention recommendations was based on five domains: car seat safety, sleeping safety, fire safety, hot water safety, and fall prevention.

**Results:** Among 864 caregiver–infant pairs (17.7% white, non-Hispanic; 49.9% Hispanic; 27.7% black, non-Hispanic; 4.7 % other, non-Hispanic), mean number of non-adherent injury prevention behaviors was 1.8 (SD=0.9). In adjusted regression, Hispanic caregivers had higher odds of non-adherence to car seat safety (AOR=2.1, 95% CI=1.2, 3.8), and lower odds of non-adherence with fall prevention (AOR=0.4, 95% CI=0.3, 0.7) compared with whites. Black, non-Hispanic caregivers had higher odds of non-adherence to car seat safety (AOR=2.4, 95% CI=1.3, 4.4) and sleeping safety (AOR=2.1, 95% CI=1.3, 3.2), but lower odds of fall prevention non-adherence (AOR=0.5, 95% CI=0.3, 0.8) compared with whites.

**Conclusions:** A high prevalence of non-adherence to recommended injury prevention behaviors is common across racial/ethnic categories for caregivers of infants among a diverse sample of families from low-SES backgrounds.

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## Introduction

Sudden infant death syndrome and unintentional injuries are two leading causes of infant mortality, with rates increasing over the last decade.<sup>1</sup> The Centers for Disease Control and Prevention reports that in 2013, sudden infant death syndrome accounted for 6.7% of infant deaths and unintentional injury accounted for 4.9% of infant deaths.<sup>2</sup> In 2011, the American Academy of Pediatrics published a report highlighting the importance of providing a safe sleep environment to prevent sudden infant death syndrome and other forms of sleep-related deaths, including suffocation, asphyxia, and entrapment (collectively known as sudden

From the <sup>1</sup>Center for Health Services Research, Vanderbilt University Medical Center, Nashville, Tennessee; <sup>2</sup>Department of Pediatrics, Vanderbilt University Medical Center, Nashville, Tennessee; <sup>3</sup>Department of Pediatrics, University of North Carolina School of Medicine, Chapel Hill, North Carolina; <sup>4</sup>Department of Pediatrics, Stanford University, Palo Alto, California; <sup>5</sup>Departments of Pediatrics and Population Health, New York University School of Medicine, New York, New York; and <sup>6</sup>Department of Internal Medicine, Vanderbilt University Medical Center, Nashville, Tennessee

Address correspondence to: William J. Heerman, MD, MPH, Department of Pediatrics, Vanderbilt University Medical Center, 2146 Belcourt Avenue, 2nd Floor, Nashville TN 37212. E-mail: bill.heerman@vanderbilt.edu.

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unexpected infant death).<sup>3</sup> In children aged <1 year, leading causes of unintentional injuries include falls, motor vehicle crashes, and fire-related injuries.<sup>4</sup> These causes of infant death are largely preventable, but caregiver safety practices often do not match well-established injury prevention recommendations.<sup>5–7</sup> African American and Latino children have disproportionately higher rates of traumatic injury and suffer worse outcomes from those injuries.<sup>8,9</sup> The greatest disparities have been reported for safe car seat use: African American children are less likely to be both seated in a car seat and properly restrained.<sup>10,11</sup>

However, several gaps remain in understanding why there are racial disparities in infant injuries. Specifically, previous studies have focused largely on a single injury prevention behavior instead of a broad range of recommended practices. Additionally, most studies compare injury rates and behaviors in African American families with white families. Data are limited on injury prevention behaviors of Latino families or the extent to which acculturation is related to adherence to recommended behaviors. In previous work, the authors have demonstrated associations between health literacy and injury prevention behaviors among caregivers of 2-month-old infants, indicating that this is an important age group in which to consider mutable behaviors to reduce unintentional injury.<sup>12</sup> Furthermore, injury prevention approaches often employ social marketing techniques focused on specific communities, underscoring the importance of recognizing how these injury prevention behaviors might vary based on race or ethnicity. Therefore, the purpose of this study is to explore variation by race/ethnicity in a broad range of injury prevention behaviors among a racially diverse sample of families from low-SES backgrounds.

## Methods

The authors performed a cross-sectional analysis of baseline data from the Greenlight study, which is a cluster-randomized trial to prevent obesity in the first 2 years of life. The Greenlight study was conducted at pediatric resident primary care clinics at four university-affiliated medical centers: New York University/Bellevue Hospital Center; Vanderbilt University; University of North Carolina—Chapel Hill; and University of Miami/Jackson Memorial Medical Center. Two sites received an obesity prevention intervention and two sites received an attention control condition focusing on injury prevention. The full methods of Greenlight have been previously published.<sup>13</sup>

Caregiver–child dyads were consecutively recruited to participate in the Greenlight study from April 28, 2010 to August 30, 2012 at 2-month well-child visits. Inclusion criteria for caregiver–child dyads were:

1. infant aged 6–16 weeks presenting for a 2-month well-child visit with a pediatric resident;

2. a caregiver who spoke English or Spanish; and
3. a caregiver who reported that they planned to return to the clinic for all well-child visits through age 2 years.

Child-related exclusion criteria were:

1. <34 weeks gestation;
2. birth weight <1,500 grams;
3. weight for length less than third percentile at 2-month visit; or
4. diagnosis of failure to thrive or other medical problem known to affect child growth (e.g., cleft palate).

Caregiver-related exclusion criteria were:

1. aged <18 years;
2. significant mental/neurological illness; or
3. poor visual acuity (Rosenbaum Pocket Screener; worse than 20/50 corrected vision).

Written informed consent was obtained from all participants. IRB approval was obtained from all four participating academic medical centers. Data for this analysis were obtained by in-person interviews at the 2-month well-child visit. Questionnaires were administered in English or Spanish, based on caregiver preference. Study data were managed using the secure Research Electronic Data Capture tools hosted at Vanderbilt University.<sup>14</sup>

## Measures

The primary independent variable for this study was caregiver race/ethnicity. To measure race, caregivers were asked to select from the following six options: American Indian or Alaskan Native, Asian, black or African American, Native Hawaiian or other Pacific Islander, white, or other. A brief description of people who might identify with each race followed each option and participants were allowed to select more than one response. To measure ethnicity, caregivers were asked: *Do you consider yourself Hispanic/Latino?* Based on responses to these items, caregiver race/ethnicity was categorized as four mutually exclusive categories: Hispanic; white, non-Hispanic; black, non-Hispanic; or other, non-Hispanic. This grouping was chosen as the “other” group consisted of multiple smaller groups that were too small to consider individually.

The primary outcomes of interest were caregiver reports of injury prevention practices. For this analysis, injury prevention practices were analyzed within five injury prevention domains that the authors had developed for a previous analysis.<sup>12</sup> Injury prevention domains were based on recommendations by the American Academy of Pediatrics, The Injury Prevention Program, and the leading causes of preventable injuries in children.<sup>3,4</sup> Injury prevention practices were assessed using a questionnaire developed by the Greenlight study team and other national experts in injury prevention.<sup>12</sup> The following domains were selected a priori and analyzed for this study:

1. car seat safety;
2. sleeping safety;
3. fire safety;

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