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Special Report from the CDC

Child safety and booster seat use in five tribal communities, 2010–2014☆,☆☆

Holly Billie, [a,*] Carolyn E. Crump, [b] Robert J. Letourneau, [b] Bethany A. West [a]

[a] National Center for Injury Prevention and Control, CDC, Atlanta, GA, United States
[b] Gillings School of Global Public Health, University of North Carolina at Chapel Hill, Chapel Hill, NC, United States

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ABSTRACT

Problem: Motor-vehicle crashes are a leading cause of death for American Indian/Alaska Natives (AI/AN) including AI/AN children. Child safety seats prevent injury and death among children in a motor-vehicle crash, yet use is low among AI/AN children. *Methods:* To increase the use of child safety seats (CSS; car seats and booster seats), five tribal communities implemented evidence-based strategies from the Guide to Community Preventive Services during 2010–2014. Increased CSS use was evaluated through direct observational surveys and CSS event data. CSS events are used to check the installation, use, and safety of CSS and new CSS can be provided. *Results:* CSS use increased in all five programs (ranging from 6% to 40%). Four out of five programs exceeded their goals for increased use. Among the five communities, a total of 91 CSS events occurred resulting in 1417 CSS checked or provided. *Conclusions and practical applications:* Evidence-based child passenger safety interventions are both feasible in and transferable to tribal communities.

1. Introduction

Motor-vehicle crashes are a leading cause of death among children in the United States—with some U.S. populations disproportionately affected (WISQARS, 2015; Sauber-Schatz, West, & Bergen, 2014; West & Naumann, 2011, 2013a, 2013b). American Indians/Alaska Natives (AI/ANs) have death rates two to eight times higher by gender and age than that of other races/ethnicities (Murphy et al., 2014; West & Naumann, 2011, 2013a, b). Several factors place AI/ANs at increased risk for motor vehicle-related injuries and deaths, including low rates of child safety seat (CSS; car seat and booster seat) use. In 2004, approximately 66% of fatally injured AI/AN children aged <5 years were unrestrained at the time of the crash (NHTSA, 2006), compared with 35% in the general population (NHTSA, 2005).

Research has identified proper restraint use as the most effective way to reduce the risk of death or injury in the event of a crash. CSS use reduces the risk of death to infants by 71% and to toddlers (aged 1–4 years) by 54% in passenger vehicles (Kahane, 1986 and NHTSA, 1996). Booster seat use reduces the risk for serious injury by 45% for children aged 4–8 years when compared with seat belt use alone (Arbogast, Jermakian, Kallan, & Durbin, 2009). However, 38% of children aged 12 and under who died in motor vehicle crashes in 2013 were not restrained (NHTSA, 2015). Three strategies have been proven effective at increasing CSS use and/or decreasing motor vehicle-related injuries and deaths among children including child passenger restraint laws (Zaza, Sleet, Thompson et al., 2001), CSS distribution plus education programs (Ehiri et al., 2006; Zaza, Sleet, Thompson, et al., 2001), and community-wide information plus enhanced enforcement campaigns (Zaza, Sleet, Thompson et al., 2001). Additionally, a recent study found that CSS/booster use increased while fatal and incapacitating injuries decreased in states that expanded their child passenger restraint law to cover children ages 7 to 8 years (Eichelberger, Chouinard, & Jermakian, 2012).

Previous reports have documented successful tailoring of these child passenger safety (CPS) interventions to some high-risk groups, including AI/AN (Letourneau, Crump, Bowling, Kuklinski, & Allen, 2008; West & Naumann, 2014). However, there are few studies that have implemented or tested interventions targeting motor vehicle crash deaths among AI/AN (Pollack, Frattaroli, Young, Dana-Sacco, & Gielen, 2011). During 2010–

☆ The *Journal of Safety Research* has partnered with the Office of the Associate Director for Science, Division of Unintentional Injury Prevention in the National Center for Injury Prevention & Control at the Centers for Disease Control and Prevention (CDC) in Atlanta, Georgia, USA, to briefly report on some of the latest findings in the research community. This report on child safety and booster seat use is the 42nd in a series of CDC articles for this journal.

☆☆ The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

* Corresponding author at: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, 4770 Buford Highway NE, Atlanta, GA 30341, United States.
E-mail address: hdb3@cdc.gov (H. Billie).

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2014, the CDC funded eight tribal communities to tailor, implement, and evaluate evidence-based road safety interventions. Five of these communities chose CPS interventions. The purpose of this report is to describe results from the five tribal communities that implemented evidence-based strategies to increase CSS use.

2. Methods

Data come from five tribal communities (AI/AN in Caddo County, Oklahoma via Tribal Program A (tribe requested their name not be used), Yurok Tribe via California Rural Indian Health Board (Yurok/CRIHB), Hopi Tribe (Hopi), Rosebud Sioux Tribe (Rosebud), and AI/AN in Juneau, Alaska via Tribal Program B (tribal organization requested their name not be used)) that implemented evidence-based strategies to increase CSS use during 2010–2014. Each tribal program was expected to implement evidence-based interventions chosen from the Guide to Community Preventive Services (Community Preventive Services Task Force, 2013). The tribal communities were encouraged to take a multi-faceted approach by incorporating education and awareness-raising activities, media campaigns, and enforcement components. All five tribal programs chose to include both enhanced enforcement campaigns and CSS distribution plus education programs. Enhanced enforcement campaigns involved targeted police enforcement with increased resources and staffing during specific times. For example, CSS use checkpoints with increased citations. Additionally, enhanced enforcement campaigns include mass media, safety information, and publicity.

All five tribal programs set measurable objectives to increase CSS use by the fourth program year (2013–2014). The objective for both Tribal Program A and Yurok/CRIHB was a 5% increase in CSS use; Hopi's objective was a 25% increase; Rosebud's a 20% increase; and Tribal Program B's an 8% increase. Tribal Program B had an additional objective to distribute at least 125 CSSs and provide seat installation plus education. CSS distribution for all programs occurred during two types of CSS events including: (1) CSS installation and check events and (2) CSS enforcement and installation events. The primary purpose of CSS installation and check events was to provide seats and education to community members. The purpose of the CSS enforcement and installation events was to have law enforcement officers identify cars that needed CSSs and divert them to an area where tribal program staff could conduct CSS checks and installation.

During the 2010–2014 program period, observational surveys of CSS use conducted by tribal staff were adapted from the Indian Health Service's Ride Safe Program guidelines (Indian Health Service, 2011 and Letourneau et al., 2008). The observational CSS use data were collected at Head Start Centers, child-focused events (such as Halloween carnivals, Easter egg hunts), and at intersections throughout the communities.

3. Results

Tribal enrollment ranged from 5000 to 24,000 with the 3 smallest communities being non-reservation-based (Table A). Enhanced enforcement campaign activities and CSS distribution plus education activities were incorporated in all five tribal programs (Table B). While all tribal programs included both free and paid media events, press releases and public service announcements (PSAs) were the most common type of media (Table C).

CSS use increased for all tribes during the program period, although only one tribe reported observational survey results for all four program years (Fig. 1). CSS use increased 40% for Tribal Program A (goal was 5% increase), 38% on the Rosebud reservation (goal was 20%), 34% for Yurok/CRIHB (goal was 5%), 32% on the Hopi reservations (goal was 25%), and 6% for Tribal Program B (goal was 8%).

From 2010 to 2014, a total of 91 CSS events (90 of which were installation and check events) reached 1276 vehicles across the five tribal programs (Table 1). Hopi and Tribal Program A conducted the largest number of events (35 and 33, respectively). During these events, a total of 1417 CSSs were either checked or provided, including 896 new seats provided. Of the 896 new seats provided, 45% were booster seats, 32% were convertible CSSs (seats that can be used as both a rear-facing and forward facing seat), 21% were combination seats (forward-facing CSS that can convert into

Table A
Characteristics of the five funded tribal communities, 2010–2014.

	Location	Tribal enrollment	Reservation status	Type of law enforcement
Tribal Program A	Caddo County, OK[a]	5200	Non-reservation-based	State and County
Yurok/California Rural Indian Health Board (CRIHB)	Klamath, CA	5000	Non-reservation-based[b]	Tribal
Hopi Tribe	Hopi Reservation, AZ	14,000	Reservation-based	Tribal and BIA[c]
Rosebud Tribe	Rosebud Sioux Reservation, SD	24,200	Reservation-based	Tribal
Tribal Program B	Juneau, AK and surrounding Alaska Native villages	5,100[d]	Non-reservation-based	State and County

[a] Tribal Program A served all AI/AN in Caddo County including members of the following tribes: Caddo, Kiowa, Comanche, Apache, Wichita, and Delaware.
[b] CRIHB is non-reservation-based and Yurok is reservation-based. The Yurok/CRIHB CPS program was classified as non-reservation-based as the project was located in a state that had predominantly state-managed roads.
[c] Bureau of Indian Affairs.
[d] Approximate AI/AN population based on Census estimates (available at http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml).

Table B
Strategies and activities to increase child safety seat (CSS[a]) use by tribal program, 2010–2014.

	Community-wide information plus enhanced enforcement campaigns			CSS distribution plus education programs	
	Increase citations for non-use of child restraints	Conduct CSS use checkpoints	Develop strategy to publicize enhanced enforcement efforts through media	Distribute CSSs	Provide education on age- and size-appropriate restraint use to parent/guardians
Tribal Program A			✓	✓	✓
Yurok/CRIHB	✓	✓	✓	✓	✓
Hopi	✓			✓	✓
Rosebud		✓		✓	✓
Tribal Program B		✓	✓	✓	✓

[a] Child safety seats include car seats and booster seats.