

## Child Passenger Safety Behaviors in Latino Communities

Beth E. Ebel, MD, MSc, MPH

Gloria D. Coronado, PhD

Beti Thompson, PhD

Teri Martinez

Katharine Fitzgerald

Frederico Vaca, MD, MPH

Frederick P. Rivara, MD, MPH

**Abstract:** Booster seats protect child occupants between 4 and 8 years of age. The objective of this study was to determine barriers and facilitators for booster seat use among Latino families. We conducted one-to-one elicitation interviews with 56 mothers and 35 fathers of booster-eligible Latino children in an urban county and a rural county in Washington State. Half of the parents did not consistently use booster seats. Interviews were recorded, transcribed, translated, and coded. Statements expressed by at least one-third of respondents were entered into explanatory models. Motivators for booster use were child safety and concern about getting a ticket. Facilitators for booster use included affordability, ease of use, and children liking the seat. Barriers were the belief that the child was too big/old, perceived child resistance, and cost. Rural parents preferred radio to television messages. Campaign messages highlighting the risks to child safety and the risk of a citation are likely to motivate booster seat use among Latino families.

**Key words:** Booster seat, seat belt, child passenger safety, motor vehicle injury, community health, social marketing, Latino families, Hispanic, qualitative research, elicitation interview.

**B**elt-positioning booster seats are a relatively new technology for protecting child occupants who have outgrown child car seats but do not yet fit into adult seat belts. Safety experts recommend booster seats for children 4 to 8 years of age who are under 4'9" tall.<sup>1,2</sup> Booster seats elevate the seated child so that the seat belt system distributes forces over the hip and sternal bones rather than the abdomen.

---

***BETH EBEL** is Asst. Professor of Pediatrics and Associate Director of Harborview Injury Prevention and Research Center, University of Washington (UW) and can be reached at [bebel@u.washington.edu](mailto:bebel@u.washington.edu). **GLORIA CORONADO**, **BETI THOMPSON**, and **TERI MARTINEZ** are all affiliated with the Cancer Prevention Program at the Fred Hutchinson Cancer Research Center in Seattle. **KATHARINE FITZGERALD** is affiliated with the Children's Hospital and Regional Medical Center in Seattle (as are the lead author and Dr. Rivara). **FREDERICO VACA** is affiliated with the Center for Trauma and Injury Prevention Research at the University of California at Irvine. **FREDERICK RIVARA** is Head of the Division of General Pediatrics and George Adkins Professor of Pediatrics at UW.*

Without a booster seat, children are at greater risk for a constellation of injuries known as *seat belt syndrome*:<sup>3</sup> abdominal injuries such as a ruptured bowel, liver and splenic lacerations caused from a malpositioned lap belt; hyperflexion spinal injuries from flexing over the lap belt; and head injuries, resulting from the unrestrained torso flexing forward so that the child's head strikes the vehicle interior. Because adult lap/shoulder belts do not fit children properly and rub on the neck, children often place the shoulder belt behind the back or arm, exacerbating the risk for serious injury or ejection.<sup>4</sup>

The death rate for children between 4 and 8 years of age in car crashes has remained at levels reached in the 1990s despite technological advances in child restraint design.<sup>5</sup> While death rates have improved for younger and older children, the lack of improvement for 4 to 8-year-old children is in part due to premature use of the vehicle lap and shoulder systems before the child's body fits well into the adult restraints.<sup>6</sup> National data show booster seats protect older children from serious injury 59% better than seat belts alone,<sup>7</sup> yet nationally only 19% of eligible children used them.<sup>8</sup> Use of booster seats can be effectively increased using a community-based campaign.<sup>9</sup> However, communities in which children may be at highest risk of injury may be slow to adopt this new technology.

Latino children are less likely to be properly restrained in the vehicle<sup>10</sup> and are therefore at higher risk of dying in a crash when they travel.<sup>11</sup> Latino parents are often ill-informed about the proper use of child safety seats,<sup>12</sup> and booster seat use is particularly low. In a recent survey of booster seat use in Washington State, only 14% of Latino children used a booster seat, compared with 40% of non-Latino children from the same communities (Ebel, 2005, unpublished data). We sought to determine the behavioral barriers and facilitators for booster seat use among Latino families. We additionally sought to determine whether factors such as compliance with booster seat recommendations, urban or rural environment, and mother/father differences affect these behaviors.

## Methods

**Study design.** We conducted individual elicitation interviews to explore attitudes, normative beliefs, self-efficacy, risk perception, and intention to use booster seats. To ensure that community interventions are appropriate in reaching families, many have recommended that qualitative methods be used in the development of intervention materials and activities.<sup>13,14</sup> Because there are few interventions that have been developed specifically for Latino parents of low literacy levels, we used rigorous qualitative methods to identify salient barriers and facilitators. Study procedures and qualitative instruments were approved by the institutional review boards of the Fred Hutchinson Cancer Research Center and the University of Washington.

**Elicitation group participants.** From November 2003 to June 2004 we recruited parents who self-identified as Latino; lived in Yakima County or King County, Washington; were at least 18 years of age; spoke Spanish; regularly drove a car; and had at least one booster-eligible child between 4 and 8 years of age. Parents were recruited in person and with fliers distributed at community sites and organizations

working with Latino families such as churches; Women, Infants, and Children (WIC) clinics; and health clinics serving Latinos. Elicitation interviews were held both with parents who did and parents did not consistently use a booster seat. Fathers and mothers were included in roughly equal proportions. This strategy allowed the identification of both behavior maintenance and behavior change.<sup>15,16</sup>

**Elicitation interview methods.** Each interview was conducted in Spanish by an experienced bilingual interviewer and lasted approximately one hour. Interviews were conducted in the respondent's home or in a private room at a community center and were audio-taped. The interviewer followed a script of open-ended questions with prompts for exploring topic areas; examples of some questions are given in the appendix. We did not have a prior assumption of respondent answers in this hypothesis-generating work.

All survey instruments were pre-tested with Spanish speaking parents to assure that questions were clear and easy to understand. Pictures illustrating booster seats and car seats were used to clarify car seat type. Interviewers used open questioning to encourage respondents to provide candid and complete information about their child restraint behaviors. Participants in the interviews received \$10 to compensate them for their time. Participants were asked about past car seat use, how they keep their children safe in the vehicle, factors that made it hard or easy to use a booster seat, and how parents could best be reached with safety messages. Elicitation interviews were audio-taped, translated, transcribed, and independently coded by three teams of three researchers. Coding differences were identified and discussed by each team until consensus was reached.

**Elicitation interview analysis.** Variables were not pre-determined but emerged from the textual analysis. After data were independently coded by three reviewers, we assembled a code book and then collapsed similar codes to facilitate analysis. We collapsed codes by looking for common answers, words, themes and constructs in order to highlight the main findings from hundreds of pages of transcripts. For example, codes for *child resistance*, *child uncomfortable*, and *hassle to convince child* were combined into a category of *child resistance*.

Each interview was entered into N'Vivo,<sup>17</sup> a software package for qualitative analysis that permits manipulation of coded text. We counted the number of interviews in which each coded concept was discussed. Statements expressed by at least two-thirds (top two tertiles) of respondents were placed in models to understand the relationship between concepts. We identified the variables that held greatest influence over child restraint decisions. Critical variables were separately analyzed for key subgroups among users and non-users of booster seats (rural and urban, male and female parents).

## Results

**Participant characteristics.** We interviewed 91 Latino mothers (62%) and fathers (38%) of booster-eligible children. Forty-eight parents reported they used a booster seat, and 43 were non-users (Table 1). Most urban (68%) and rural (62%) parents reported an annual household income below \$25,000. Parents who had completed

**Table 1.**  
**CHARACTERISTICS OF ELICITATION INTERVIEW PARTICIPANTS**

	Urban vs. rural participants (%)		Booster seat use (%)		Total (%) N = 91
	Urban n=41	Rural n=50	User n=48	Non-user n=43	
Female	66	58	63	60	62
High school education or greater	41	16	40	14	27
Annual household income					
Less than \$25,000	68	62	58	72	65
\$25,000->\$40,000	22	36	31	28	29
\$40,000 or more	7	0	6	0	3
Unknown	2	2	4	0	2
Vehicle age					
Older than 1992	32	30	25	37	31
1992-1994	7	26	21	14	19
1995 or newer	29	40	38	33	35
Unknown	32	4	17	16	16
Rear passenger lap/shoulder belt available	90	88	90	88	88
Lap belt only	10	12	10	12	11
Urban	100	0	46	44	45
Uses booster seat	54	52	100	0	53
Consistently uses booster seat	41	14	50	0	26

high school were much more likely than those who had not to report booster seat use (40% vs. 14%). Most parents (88%) had lap and shoulder belts available in the rear seat, which are required for the proper use of booster seats. However 10% of parents who stated that their children used a booster seat also reported that they had only lap belts available, although use of booster seats with lap belts only is unsafe.

**Motivators and facilitators of booster seat use.** Table 2 shows the key behavioral factors identified by parents of booster eligible children, comparing parents who reported using a booster seat with those who do not use a booster seat. Keeping children safe was the leading reason cited by parents who were already using a booster seat. Parents who were not using a booster seat commonly reported (60%) that their child was safe in just a seat belt. Key motivators for booster users were child safety (94%), and concern about receiving a ticket (94%). Under current Washington state law, drivers receive a \$101 ticket for each child passenger between 4 and 6 years of age or between 40 and 60 pounds who is not restrained a booster seat.<sup>18</sup>

Among non-users, fear of receiving a ticket (79%) was cited more often than child safety (70%) as a potential motivator for using a booster seat. One parent remarked,

I am not very aware of [the booster seat law], but my law is to have my children 100% safe.

Many parents were certain that if pulled over by police for a traffic stop, they would receive a ticket for not using the proper child restraint. One stated,

I do worry about getting stopped by the police and getting a ticket because that's the first thing they'll do. The chances of [not] getting a ticket for not having a booster seat? I think there is no "chance"; it's for sure that I'll get one. The police are watching over us to take care of us, but if we don't worry about ourselves then we deserve one.

Another recurring theme was that parents have a responsibility to care for and protect their children:

If we love our kids we need to take care of them. They do not know when they are in danger, so it's our job to make sure they are safe.

Parents who were using booster seats were more likely to feel that cost was not a barrier to use. They placed a premium on using booster seats because they felt secure and comfortable knowing their child was safely buckled. Part of feeling comfortable was believing that drivers would be less distracted if their child was safely secured in a booster seat. Compared with non-users, most parents consistently using a booster seat reported that their child liked the booster seat (71% vs. 21%) and that booster seats were easy to use (69% vs. 9%).

**Barriers to booster seat use.** The majority of families felt that the relatively modest price of a booster seat (\$20–30) was affordable, many commenting that parents spend more money on other items that are less important. Nonetheless,

**Table 2.**  
**BEHAVIORAL FACTORS DETERMINING BOOSTER SEAT USE**

	Booster use (%) n=48	No booster use (%) n=43	Difference
<b>Motivators</b>			
Law/ticket	94	79	15
Child safety	94	70	24
Spouse supports	83	86	-3
Child likes seat	71	21	50
Willing to buy/cost not barrier	69	58	11
Ease of use	69	9	59
Parent comfort	56	30	26
Child comfort	50	35	15
<b>Barriers</b>			
Believed child too big/too old	60	70	-9
Lack knowledge of importance	52	40	13
Cost	40	63	-23
Parent irresponsible	29	40	-10
<b>Self-efficacy</b>			
Can convince child	73	93	-20
Can convince spouse	67	63	4
Can convince others	38	21	17
<b>Risk perception</b>			
Driving is risky	88	88	-1
Risk of child injury	83	72	11
Same risk for all ages	50	49	1
Child safe with just seatbelt	15	60	-46
<b>Knowledge</b>			
Knows where to obtain	83	84	0
Heard of booster seats	81	67	14
No/partial knowledge of fine	75	84	-9
Small size causes risk	69	49	20
Knows booster seat required by law	65	49	16
No/partial knowledge of age/weight requirements	50	56	-6
Knows child safest in back seat	33	35	-2
Doesn't know why booster seat needed	13	37	-25
<b>Interventions</b>			
Safety	98	100	-2
Laws/tickets	98	98	0
Seat availability	85	81	4
How to use different types of seats	48	42	6
Same message for both parents	42	37	4
<b>Intervention channels</b>			
Radio	42	28	14

cost was more likely to be mentioned as a barrier by parents who did not use a booster seat. Several respondents commented that parents may believe booster seats to be expensive, based on purchasing child seats (which are more expensive) for younger children:

I think that in my opinion, my personal opinion . . . a lot of people don't buy [booster seats] because they think they are as expensive as the [infant] carrier or [child harness seats]. And I've seen the price and I haven't seen that they're that expensive.

Parents who reported consistent booster seat use are also more knowledgeable about the importance of booster seat use by children who do not yet fit into the adult seat belt:

A lot of parents think [their children] are already big, you know, we trust that we're just gonna buckle them up with a seatbelt and they'll be safe. So a lot of us parents think that, you know, they're safe just buckled up. But I also think that their body size is shorter, so the seatbelt is gonna hurt their face. And with the elevated [booster] seat, the seatbelt of the car crosses their chest. So that's safer for them, they're more comfortable and I think that we do have to use them [booster seat].

Other parents felt that children over 4 years old were more mature therefore capable of traveling without a booster seat:

From 4 years of age [children] aren't that big, but one feels that they can go without the seat because of their age.

The parents of children who regularly used booster seats experienced less child opposition and resistance. It is possible that their consistent use of the seat makes booster seat use non-negotiable for the child, while parents who do not use a booster seat on every car trip open themselves up to endless bargaining. One parent described her approach as follows:

[My son] likes [his booster seat], but sometimes he fusses. And I tell him it's better that you cry a little bit now, than that we cry at your funeral later.

**Self-efficacy and negotiation with spouse.** Parents nearly all reported that their spouses supported their choices, whether or not they were using a booster seat, and thought men and women had similar beliefs. In response to a question of whether men have beliefs different from those of women, one mother noted, "I don't think so, because men are also changing their ways to the ways of this country, the United States, and they also feel that these are their children too, not just ours."

Parents reported being uncomfortable trying to convince others to use a booster seat, and felt concerned when their children traveled with others who did not use the proper child seat.

**Perception of risk and consequences.** Nearly all families felt that driving was inherently risky (88%) and that children were at risk of injury. Parents wanted to

learn about the injuries a child might sustain in a crash when s/he is not properly restrained in a booster seat. Unlike our previous focus groups with English speaking families,<sup>19</sup> parents wanted to see more graphic images that conveyed injury risk. In many cases parents shared stories of children tumbling around the car or out the window, often instances they witnessed when unrestrained children were buffeted about as the driver abruptly braked:

I think the things to let [parents] know are what might happen to a child if he doesn't have a car seat . . . that they can fly out the windows and things like that.

**Knowledge of booster seats and child safety practices.** Most parents stated that they had heard of booster seats and knew where to obtain one. About half of parents knew a booster seat was required by law, but most had only partial knowledge of the amount of the fine (\$101 per improperly restrained child). Parents who used a booster seat were more likely to understand that a child's small size put him/her at risk; however most parents had an incomplete understanding of the age, height, and weight recommendations for a booster seat.

**Cultural beliefs.** Several respondents commented that there are a complex group of beliefs contributing to child restraint choices, including cultural history, perceptions of seat expense, and occasionally religious beliefs about outcomes being beyond parental control:

A lot of things come together like the beliefs that we have . . . that the child is already too big, that . . . we come from a country [where] we don't use car seats, and then . . . that a lot of people think booster seats are very expensive and that it's going to cost the same as the other ones that you bought . . . and . . . you have to buy three different seats on the different stages, but that one that I saw was pretty cheap.

In Mexico they don't use [a booster seat] because it costs too much; it's like a luxury in Mexico. But here it is a necessity.

**Mother/father differences.** There were a number of differences noted between male and female respondents (Table 3). In interpreting these results, readers should remember that approximately an equal number of booster seat users and non-users were recruited among both males and females. Consistent booster seat use was reported by 60% of females but only 33% of males. Women were more likely than men to cite child safety as a motivator for booster use (91% vs. 69%) and were more likely to report that their child liked the seat (54% vs. 37%) and that the seat was easy to use (46% vs. 31%). Women were more likely than men to identify cost as a barrier (59% vs. 71%). More men than women felt that their child was safe using only an adult seatbelt (43% vs. 32%); this difference was particularly pronounced among booster seat users.

The majority of males and females were motivated to use booster seats because of concerns about child restraint laws or getting a ticket. Nearly half of both groups reported that they felt more comfortable when their child was properly restrained,

**Table 3.****KEY BEHAVIORAL FACTORS DETERMINING BOOSTER SEAT USE: MOTHERS AND FATHERS**

	Men (%) (n=35)	Women (%) (n=56)
<b>Motivators for booster use</b>		
Child safety	69	91
Concerned about fine	83	89
Parental peace of mind	40	46
Child comfort	40	45
<b>Barriers for use</b>		
Cost not a barrier	71	59
Know that booster is important	29	57
Misperception that child “too big”	66	64
Child resistance	34	36
Parent apathy	34	34

and nearly half cited child comfort as a factor facilitating booster seat use. In a crash, both groups felt that the risk for child injury was high and noted that driving was inherently risky.

One-third of each group identified child resistance and parent hassle as a barrier to booster seat use; two-thirds of mothers and fathers believed that their child was too old or too big to ride in a booster seat.

Fathers (86%) and mothers (80%) felt capable of convincing their children to use booster seats. Most males (63%) and females (66%) were also comfortable convincing their own spouses to use a booster seat for their children. There were no significant differences in knowledge that a booster seat was required by law (males and females 57%), in having heard of a booster seat (males 71%, females 77%), or in knowledge about where to obtain one (males 89%, females 80%).

More women than men felt that families lacked the knowledge that booster seats were important (57% vs. 29%). Fathers and mothers uniformly cited messages about child safety and laws/fines as key components of a booster seat intervention. Women were more likely than men to feel that a child restraint message directed specifically at mothers and another at fathers might be needed (48% vs. 26%). Among booster seat users, women were more likely to endorse television as an intervention strategy (40% vs. 17%) while men were more likely than women to suggest radio messages (50% vs. 37%).

**Urban and rural differences.** Most fundamental beliefs were shared by rural and urban parents (Table 4). Urban parents who used booster seats were much more likely to report consistent booster seat use than were rural parents (77% vs. 27%)

and to have purchased seats (23% vs. 8%). Perhaps as a consequence, urban parents were more likely to note that their children liked booster seats (82% vs. 62%) and felt they were comfortable (59% vs. 42%). Urban parents were more concerned about the risk of injury in a crash (85% vs. 72%), and were more confident in their ability to convince others to use a booster seat. Urban parents were much more likely to state that children should be riding in the rear seats (71% vs. 4%); rural parents were more likely to know where to obtain a booster seat and to know that booster seats were required by law (68% vs. 44%). Rural parents identified radio messages as an effective communication strategy (50%), while urban parents identified television (39%) more often than radio (17%).

**Table 4.**

**BEHAVIORAL FACTORS DETERMINING BOOSTER SEAT USE:  
URBAN VS. RURAL PARTICIPANTS**

<b>Codes</b>	<b>Rural (%) n=50</b>	<b>Urban (%) n=41</b>	<b>Difference</b>
<b>Booster seat use</b>			
Consistent use	14	41	27
Proper use	30	41	11
<b>Motivators/facilitators</b>			
Child comfort	30	59	29
Child likes seat	38	59	21
Child safety	80	85	5
Law/ticket	88	85	-3
Spousal support	88	80	-8
Parent comfort	48	39	-9
Willing to buy/cost not barrier	68	59	-9
Seat available	34	12	-22
<b>Barriers</b>			
Lack of knowledge of importance	40	54	14
Parent lazy/don't care	32	37	5
Child resistance	34	37	3
Child is too old/too big	66	63	-3
Cost	52	49	-3
<b>Self-efficacy</b>			
Can convince others	22	39	17
Can convince spouse	70	59	-11
Can convince child	92	71	-21
Driving is risky	96	78	-18

*(Continued on p. 00)*

**Table 4. (continued)**

Codes	Rural (%) n=50	Urban (%) n=41	Difference
<b>Knowledge</b>			
Knows child belongs in back seat	4	71	67
Small size causes risk	50	71	21
No/partial knowledge of fine	70	90	20
Perception of others' knowledge:			
zero – 50% know law	44	54	10
Has heard of BS	76	73	-3
No/partial knowledge age/weight requirements	56	49	-7
Perception of others' knowledge:			
over 80% know law	42	32	-10
Knows where to obtain	90	76	-14
Knows BS required by law	68	44	-24
<b>Intervention channels</b>			
TV	22	39	17
Radio	50	17	-33
<b>Vehicle characteristics</b>			
Year of car: 1995–2004	40	29	-11
Year of car: 1992–1994	26	10	-16

## Discussion

The first step in the process of developing an effective booster seat usage campaign among Latinos was to understand the attitudes, beliefs, and behaviors of the population as they pertain to protecting children in automobiles. Certainly, many parents still lack knowledge of booster seat recommendations, which presents a public health challenge.<sup>20,21</sup> As has been noted in other qualitative work, however,<sup>22,23</sup> knowledge alone is not enough to change behavior on child safety seat use. In our study, the primary motivator for Latino parents was the understanding that booster seats could save a child from serious injury or death. They wanted to know what happens in a crash and how injury could be prevented. This information may motivate parents who intend to purchase a seat. As we develop campaign materials, injury consequences may be illustrated through a crash scenario as part of a *radionovela* or crash dummy footage inserted into a *telenovela* on booster seats.<sup>24</sup>

Particularly for our target group of parents who do not currently use a booster seat for their booster age child, concern about being stopped by a law enforcement officer and given a traffic ticket (with an accompanying \$101 fine per improperly restrained child in the state of Washington)<sup>25</sup> was reported to be a powerful motivator to act. In June, 2007, the Washington state booster seat law will change to

require a booster seat for eligible children under 8 years of age who are under 4 feet 9 inches in height.<sup>26</sup> The new law will bring Washington state code into agreement with national booster seat safety recommendations<sup>1,2</sup> and provides added impetus to educate all families about how best to protect their children in the car.

The cost of a seat was cited as a barrier for some parents, particularly those who were not using a booster seat. More often, though, parents thought that booster seats were affordable, and even though our interviewed families reported low household income levels, they found ways to obtain inexpensive seats. Some parents were surprised that booster seats were available for as little as \$15 and \$25. Future campaign efforts may benefit from sharing information on seat prices and from partnerships that make low cost seats readily available to poor families.

There were a number of limitations to this study. The findings discussed above were derived from interviews with Latino families in one urban and one rural Washington county, and may not be generalizable to other areas. Interviews were conducted in Spanish and therefore may not represent the views of highly acculturated Latinos for whom Spanish is no longer the language of choice. Furthermore, the results may well not be generalizable to people from other socioeconomic groups. While most Latinos in Washington are from Mexico,<sup>27</sup> we did not ask about country of origin, nor whether the respondent was a first or second generation immigrant. We made considerable efforts to avoid social desirability bias in our choice of moderator and the tenor of each question. Finally, we determined booster seat use based on self-report, and did not attempt to directly observe booster seat use for these families, which may lead to misclassification error. Nonetheless most families were able to identify the child restraint device used by their booster age child visually.

## Conclusions

Booster seats protect children from injury,<sup>7</sup> and the use of booster seats can be effectively increased using a community-based campaign based on social marketing messages,<sup>9</sup> yet very little is known about changing child passenger safety behaviors in Latino families. The eventual goal of this research is to target outreach efforts better in order to reach families at greatest need. To encourage parents to keep their children safe in the car, 33 states and the District of Columbia now require booster seats of eligible child passengers, adding further force to outreach efforts.<sup>1</sup>

Child safety when traveling in the car was the foremost concern for Latino families using a booster seat. Families who were not using booster seats were equally concerned about the consequences of receiving a citation. It may be that some parents perceive a crash to be a rare event, while the likelihood of being stopped by a police officer is considerably greater. The fine was particularly often mentioned by fathers as a motivating factor. The most commonly identified themes may be developed into key campaign messages in order to develop a booster seat social marketing campaign.

Most families who were not using booster seats did have lap and shoulder belts available. Only 9% of these families owned a booster seat, and knowledge of booster

seat recommendations was poor. Our data also suggest that inconsistent booster use is a common practice in rural communities. Fathers may be more likely than mothers to be inconsistent with their safety practices and were more likely to feel that a seat belt was sufficient.

Families indicated that radio (rural communities) and television (urban communities) are preferred methods to reach Latino families in our communities. The general preference for radio messages is an appealing target for *radionovela* intervention materials, delivering messages to parents while they are driving with their children. In Washington state there is currently little to no Spanish-language programming on free television broadcast channels, thus requiring a costly cable subscription to see Spanish-language programming.

Most families thought booster seats were affordable or knew where to find inexpensive seats; however rural families were more likely to note that cost was a barrier. Coupling social marketing messages with cost reduction strategies such as the provision of discount coupons or low cost seats may help families to overcome these barriers.

This study emphasizes behavioral factors which may be important to address in a targeted social marketing campaign.<sup>28</sup> Based on these findings we are developing messages to be used in a controlled community intervention, examples of which can be viewed at [www.abrochatuvida.org](http://www.abrochatuvida.org). Targeted messages will be incorporated in radio and television *novelas* as well as printed brochures and posters, with the goal of increasing booster seat use among Latino parents. We hope this formative research to understand behavioral factors will prove helpful in developing effective, targeted interventions to redress safety-related health disparities.

## Acknowledgments

This research was funded by a grant from the National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, Atlanta, Georgia, to Dr. Ebel (R49 CCR023398), the Washington Traffic Safety Commission, Seattle, Washington, and the Robert Wood Johnson Foundation. We would particularly like to thank Milda Tautvydas, Shirley Ho, Victoria Garcia, Genoveva Ibarra, Ruby Godina, Silvia Tejada, Anne Thompson, and Sunny Diaz for their hours of service in organizing and conducting interviews and reviewing transcripts. We are grateful to the many parents who shared their time and insights with the research team.

## Appendix: Sample questions from elicitation interview

1. Okay, now we can begin. The first set of questions I have for you have to do with the car you drive most frequently.
  - a. What is the car you drive most frequently when you have your child under the age of 8 in the car? [ASK FOR MAKE, MODEL, YEAR, TWO-DOOR, ETC.]
  - b. Would you please describe the seatbelts in this car? [PROBE FOR FRONT AND BACK SEATS, SHOULDER HARNASSES, LAP BELTS, NUMBER OF SEATBELTS-USE PICTURE IF NECESSARY.]

- c. How often do you or others drive this car with your child under 8 in it? [PROBE BY ASKING QUESTIONS ABOUT GOING TO THE STORE, TO SCHOOL, TO VISIT RELATIVES, ETC.-TRY TO GET AN AVERAGE NUMBER OF HOURS PER WEEK.]
- d. How often is your child under 8 driven in another car you own or a friends' or family member's cars? [PROBE BY ASKING QUESTIONS ABOUT GOING TO THE STORE, TO SCHOOL, TO VISIT RELATIVES, ETC.-TRY TO GET AN AVERAGE NUMBER OF HOURS PER WEEK.]
6. Now, I would like to ask some questions about children between the ages of 4 and 8.
- Where does your child generally sit in the car?
  - How is your child generally restrained in the car?
  - In what situations is your child unrestrained?
  - In what situations is your child use only a seat belt? [IS THE SEAT BELT A LAP BELT ONLY OR A LAP BELT AND SHOULDER HARNESS?]
  - Have you ever heard of a special seat that is designed for children ages 4–8 to sit in while they ride in a car? [PROBE FOR RESPONSES ABOUT A BOOSTER SEAT.]
  - Why would a child between the ages of 4 and 8 need such a seat? [PROBE FOR REASONS]
  - In a recent survey, most Latino families were not using booster seats for their 4 to 8 year old children. What reasons can you give for parents (either yourself or other parents) not putting a child in a car seat? [PROBE FOR REASONS]
  - What kinds of risks do you think there are for children between the ages of 4 and 8?
  - Do you have a booster seat for your child to use in the car? [IF YES, CONTINUE; IF NO GOT TO PART j.]
    - What convinced you to use such a booster seat for your child?
    - Why do you like to use this seat for your child?
    - What are the factors that make it easy for you or others to use such a seat for your child?
    - What are the factors that make it difficult for you or others to use such a seat for your child?
    - How does your child like riding in the booster seat?
  - [FOR PARENTS WITH NO BOOSTER SEAT FOR CHILD] What are your thoughts about having a booster seat for your child between the ages of 4 and 8? [PROBE FOR REASONS FOR NOT HAVING ONE]
8. Now I would like to ask you a few questions about your feelings about using a booster seat **if you had one** (or have one).
- If you had (or have) a booster seat, how important is it for you to put your child in the seat when you are driving?
  - When traveling with your child, in general, how do you keep your child safe?
  - Does your spouse feel or act differently than you do about child safety in the car?
  - How able do you feel you would be in convincing your spouse (or others) to use a booster seat when they drive your child in a car? [PROBE FOR EXAMPLES OF HOW THEY MIGHT DO THIS.]
  - How able do you feel you are to purchase a booster seat? [PROBE FOR THOUGHTS ABOUT COST.]

- f. How able do you feel about convincing your child to regularly use the booster seat?

## Notes

1. National Highway Traffic Safety Administration (NHTSA). Improving the safety of older-child passengers: a progress report on reducing deaths and injuries among 4- to 8-year-old child passengers. (DOT HS 809 953.) Washington, D.C.: NHTSA, 2005 Nov.
2. American Academy of Pediatrics (AAP). Car safety seats: a guide for families 2002. Elk Grove Village: AAP, 2002. Updated version available at <http://www.aap.org/family/carseatguide.htm>.
3. Anderson PA, Rivara FP, Maier RV, et al. The epidemiology of seatbelt-associated injuries. *J Trauma*. 1991 Jan;31(1):60–7.
4. Bidez MW, Syson SR. Kinematics, injury mechanisms, and design considerations for older children in adult torso belts. Detroit, MI: SAE Technical Paper Series, 2001. (reprinted from Biomechanics Research and Development (SP-1577); March 5–8 2001. 2001-01-0173.)
5. National Center for Injury Prevention and Control. WISQARS (Web-based Injury Statistics Query and Reporting System): 1993–1998, 1999–2003, United States, All injury deaths and rates per 100,000—all races, both sexes, ages 4 to 8. Atlanta: Centers for Disease Control and Prevention, 2005 Nov. Available at <http://www.cdc.gov/ncipc/wisqars/>.
6. Ebel BE, Grossman DC. Crash proof kids? An overview of current motor vehicle child occupant safety strategies. *Curr Probl Pediatr Adolesc Health Care*. 2003 Feb; 33(2):38–55.
7. Durbin DR, Elliott MR, Winston FK. Belt-positioning booster seats and reduction in risk of injury among children in vehicle crashes. *JAMA*. 2003 Jun 4;289(21):2835–40.
8. Cody B, Mickalide A, Paul H, et al. Child passengers at risk in America: a national study of restraint use. Washington, DC: National SAFE KIDS Campaign, 2002 Feb.
9. Ebel BE, Koepsell TD, Bennett EE, et al. Use of child booster seats in motor vehicles following a community campaign: a controlled trial. *JAMA*. 2003 Feb 19; 289(7):879–84.
10. Matteucci RM, Holbrook TL, Hoyt DB, et al. Trauma among Hispanic children: a population-based study in a regionalized system of trauma care. *Am J Public Health*. 1995 Jul;85(7):1005–8.
11. Baker SP, Braver ER, Chen LH, et al. Motor vehicle occupant deaths among Hispanic and black children and teenagers. *Arch Pediatr Adolesc Med*. 1998 Dec; 152(12):1209–12.
12. Vaca F, Anderson CL, Agran P, et al. Child safety seat knowledge among parents utilizing emergency services in a level I trauma center in Southern California. *Pediatrics*. 2002 Nov;110(5):e61.
13. Rimer BK. Interventions to increase breast screening. Lifespan and ethnicity issues. *Cancer*. 1994 Jul 1;74(1 Suppl):323–8.
14. Thompson B, Montano DE, Mahloch J, et al. Attitudes and beliefs toward mammography among women using an urban public hospital. *J Health Care Poor Underserved*. 1997 May;8(2):186–201.
15. Montano DE, Taplin SH. A test of an expanded theory of reasoned action to predict mammography participation. *Soc Sci Med*. 1991;32(6):733–41.

16. Montano DE, Thompson B, Taylor VM, et al. Understanding mammography intention and utilization among women in an inner city public hospital clinic. *Prev Med.* 1997 Nov-Dec;26(6):817–24.
17. Scolari. N’Vivo, NUD\*IST for qualitative research. Victoria, Australia: Qualitative Solutions and Research, 1998.
18. Washington State Legislature. Safety belts, use required—Penalties—Exemptions. (RCW 46.61.688). Washington: 57th Legislature, 2002 regular session.
19. Rivara FP, Bennett E, Crispin B, et al. Booster seats for child passengers: lessons for increasing their use. *Inj Prev.* 2001 Sep;7(3):210–3.
20. Lapidus JA, Smith NH, Ebel BE, et al. Restraint use among northwest American Indian children traveling in motor vehicles. *Am J Public Health.* 2005 Nov; 95(11):1982–8.
21. Ebel BE, Koepsell TD, Bennett EE, et al. Too small for a seatbelt: predictors of booster seat use by child passengers. *Pediatrics.* 2003 Apr;111(4 Pt 1):e323–7.
22. Simpson EM, Moll EK, Kassam-Adams N, et al. Barriers to booster seat use and strategies to increase their use. *Pediatrics.* 2002 Oct;110(4):729–36.
23. Lee JW, Fitzgerald K, Ebel BE. Lessons for increasing awareness and use of booster seats in a Latino community. *Inj Prev.* 2003 Sep;9(3):268–9.
24. Ebel BE, Coronado G, Thompson B, et al. Developing Effective Messages to improve child passenger safety in Latino Communities. 2005 (Under review.) **Which Journal?**
25. Washington State Legislature. Child Passenger Restraint Required—Conditions—Exceptions—Penalty for violation—Dismissal—Noncompliance not negligence—Immunity. (Revised Code of Washington (RCW) 46.61.687.) Washington: 56th Legislature, 2000 regular session.
26. Washington State Legislature. Engrossed Substitute House Bill 1475. AN ACT Relating to child passenger restraint; amending RCW 46.61.687; adding a new chapter to 46.61; and providing an effective date. Washington: 59th Legislature, 2005 Regular Session.
27. U.S. Census Bureau. 2004 American Community Survey. American FactFinder Custom Table: Hispanic population of Washington state by country of origin. Washington, D.C.: U.S. Census Bureau, 2005.
28. Grier S, Bryant CA. Social marketing in public health. *Annu Rev Public Health.* 2005;26:319–39.