

UNITED STATES OF AMERICA

NATIONAL TRANSPORTATION SAFETY BOARD

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In the matter of: \*

PUBLIC FORUM: CHILD PASSENGER \*

SAFETY IN THE AIR AND IN AUTOMOBILES \*

\* \* \* \* \*

NTSB Board Room and Conference Center  
 490 L'Enfant Plaza  
 Washington, D.C. 20024

Thursday,  
 December 9, 2010

The above-entitled matter came on for hearing, pursuant  
 to notice, at 9:00 a.m.

BEFORE: BOARD OF INQUIRY  
 National Transportation Safety Board

## APPEARANCES:

NTSB Board of Inquiry

DEBORAH A.P. HERSMAN, Chairman  
CHRISTOPHER A. HART, Vice Chairman  
MARK R. ROSEKIND, Ph.D.  
ROBERT L. SUMWALT  
EARL F. WEENER, Ph.D.

NTSB Technical Panel

ELISA BRAVER, Ph.D., Transportation Research Analyst,  
Office of Research and Engineering  
DENNIS COLLINS, Senior Human Performance Investigator,  
Office of Highway Safety  
STEPHANIE DAVIS, Safety Advocate, Office of  
Communications  
NORA MARSHALL, Chief of Human Performance and Survival  
Factors, Office of Aviation  
JEFF MARCUS, Safety Recommendations and Quality  
Assurance Division  
KRISTIN POLAND, Ph.D., Office of Research and  
Engineering  
JANA PRICE, Ph.D., Senior Human Performance  
Investigator, Office of Highway Safety

Panel 1: Aviation Child Passenger Safety

RICK DEWEESE, Team Coordinator, Federal Aviation  
Administration (FAA)  
NANCY CLAUSSEN, Aviation Safety Inspector, FAA  
PATRICIA FRIEND, International President, Association of  
Flight Attendants (AFA)

Panel 2: Aviation Child Passenger Safety (cont.)

JOHN MEENAN, Executive Vice President and Chief  
Operating Officer, Air Transport Association (ATA)  
KATHLEEN VASCONCELOS, Vice President, Education and  
Operations, Air Safety Institute (ASI)  
MARY GOODING, Cabin Safety Manager,  
Virgin Atlantic Airways

## APPEARANCES (Cont.)

Panel 3: Highway Child Passenger Safety

ALEXANDER SINCLAIR, Traffic Safety and Communications  
Professional, NHTSA  
KRISTY ARBOGAST, Ph.D., Center for Injury Research and  
Prevention, Children's Hospital of Philadelphia  
ANNE MCCARTT, Ph.D., Senior Vice President, Research,  
Insurance Institute for Highway Safety  
STEPHEN ROUHANA, Ph.D., Senior Technical Leader for  
Safety, Ford Motor Company

Panel 4: Moving Forward: Solutions that Work

GRANT BALDWIN, Ph.D., National Center for Injury  
Prevention and Control, Centers for Disease Control  
DENNIS DURBIN, M.D., American Academy of Pediatrics  
LARRY DECINA, Senior Associate, TransAnalytics LLC  
LORRIE WALKER, Training Manager and Technical Advisor,  
Safe Kids Worldwide  
DAVID CAMPBELL, Juvenile Products Manufacturers Assoc.

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P R O C E E D I N G S

(9:00 a.m.)

1  
2  
3 CHAIRMAN HERSMAN: Good morning and welcome to our board  
4 room. I am Debbie Hersman, Chairman of the National  
5 Transportation Safety Board and it's my privilege to introduce my  
6 colleagues; Vice Chairman Chris Hart, Member Robert Sumwalt,  
7 Member Mark Rosekind and Member Earl Weener.

8 This morning, we convene a forum on child passenger  
9 safety in the air and in automobiles. This kicks off a year-long  
10 effort at the Safety Board to promote child safety across all  
11 modes of transportation.

12 Before we begin, I would like to recognize the accident  
13 survivors and family members who might be watching via webcast.  
14 Many of you, like Jan Brown, who is in the audience, have been  
15 directly involved in accidents where children were killed or  
16 injured. You have been some of the strongest advocates for  
17 improved transportation safety for our youngest passengers and we  
18 are grateful for your continuous support.

19 Also in our audience today is Mr. Martin Sperber who,  
20 for many years, has been a leading advocate for the use of child  
21 restraints in Europe. Mr. Sperber attended our forum on child  
22 restraints in aviation in 1999 and we welcome him back. If you  
23 would like to just stand up? Thank you.

24 As many of you know, the Safety Board investigates the  
25 causes of major transportation accidents and issues

1 recommendations to make travel safer, but we also examine safety  
2 issues by bringing together leading experts to identify safety  
3 risks and solve problems even when they are not tied to a specific  
4 accident.

5           We gather today at a time when our skies and our roads  
6 are safer for all travelers, including our smallest passengers.  
7 Thirty-five years ago, when I was a child, nearly 1,400 children  
8 aged 12 and younger died as car occupants. Last year, as my  
9 children are growing up, that number had fallen to 750, a decrease  
10 of nearly 50 percent in just one generation. These gains have  
11 been achieved in large part because individuals and organizations  
12 around the nation, including some represented here today, worked  
13 diligently to change the culture of child passenger safety.

14           And the culture around child protection has changed. We  
15 can all recall an environment that looked very different. I  
16 remember riding in my family's station wagon a generation ago  
17 where my little sister's favorite spot was perched on the arm rest  
18 in the front seat. She was not secured by a car seat or even a  
19 seatbelt, but she could see better from where she was sitting.  
20 Today, parents install their first car seat before their child is  
21 even born and children are often the ones reminding adults to  
22 buckle up. They have never known any other way to ride in a car.

23           These anecdotal examples of cultural shifts and highway  
24 safety are reflected in several concrete policy changes as well.  
25 Every state has a law that requires children under the age 4 to be

1 transported in child safety seats. Pediatricians and nurses in  
2 maternity wards across the country counsel parents and caregivers  
3 about the importance of child seats before they take their baby  
4 home.

5           Community organizations distribute free or low cost  
6 child seats during seat checks at fire stations and baby  
7 superstores and education campaigns are successfully reaching most  
8 parents and caregivers. Yet, even with this progress, vehicle  
9 crashes are still the number one cause of death for children in  
10 the United States. Of the 750 children that are killed in car  
11 crashes last year, more than 40 percent were not using a child  
12 seat or a seatbelt, so many of these deaths were preventable. We  
13 can and must do better for our children.

14           The Safety Board has long advocated child safety in  
15 automobiles. We've issued more than 20 recommendations addressing  
16 child passenger safety and 12 of those recommendations have been  
17 on our Most Wanted List of Transportation Safety Improvements.  
18 The Board has seen the benefits of child seats in its accident  
19 investigations as recently as March, when a 15-passenger van was  
20 hit by a tractor trailer in Munfordville, Kentucky. Although the  
21 van experienced very severe crash forces with significant  
22 intrusion into the passenger compartment, the only two survivors  
23 were children in safety seats who sustained only minor injuries.

24           Our work is not limited to highway safety. The Safety  
25 Board has issued 14 recommendations on child safety in aviation.

1 Among them is a recommendation for the FAA to require restraint  
2 use for all occupants of airplanes, including infants and small  
3 children. While the FAA guidance notes that a child younger than  
4 2 is safer in a restraint system than on an adult's lap, this  
5 information, unfortunately, is only a suggestion and not a  
6 requirement.

7           And yet, we all see it regularly when we travel, parents  
8 putting their children in child safety seats when they drive to  
9 the airport and checking the car seat like their luggage and then  
10 holding their child on their lap during the flight, even when  
11 everyone else on the plane is required to be buckled in. Once at  
12 their destination, they pick up their seat at the baggage claim  
13 and then they secure their child again on the car trip from the  
14 airport.

15           The laws of physics don't change whether you're on an  
16 airplane or in an automobile, and we know that no parent would  
17 intentionally place their child in a less safe position than they  
18 would put themselves in. If we are so careful to strap our  
19 children into car seats when we drive to the airport, then why are  
20 we not as diligent in requiring them to be secured in their own  
21 seat on an airplane? How many times have you seen car seats on a  
22 baggage carousel?

23           Our recommendation to the FAA regarding restraint use  
24 dates back to the 1970s. However, our purpose today is not to  
25 engage in a statistical stalemate about diversion. Rather, we're

1 here to inform and educate those who travel with children about  
2 the safest way to transport their most precious cargo. Children  
3 cannot make decisions themselves, so they are relying on adults to  
4 know what is best and to do what is right.

5           To bring about a cultural shift in how we look at child  
6 safety, we must remain consistent in our attitudes regarding the  
7 use of safety equipment, whether we are flying in a 737 or driving  
8 on the interstate. A main focus of our forum is closing that  
9 education gap so that securing our children in proper restraints  
10 is what we do each and every time. As part of that education, we  
11 have some displays and exhibits showing DOT-approved devices and  
12 how to properly restrain a child and I encourage you to visit  
13 those displays during the breaks. And we thank the organizations  
14 and the companies who are here with us today.

15           Today, you will hear from experts on four panels. This  
16 morning, we will focus on the safety of children in aviation and  
17 this afternoon, we will transition to child passenger safety on  
18 our highways, and then we will conclude the forum with a look at  
19 positive steps moving forward.

20           So now, a few housekeeping reminders before we begin.  
21 Safety is our priority, so in case of an emergency, please note  
22 the nearest emergency exit in the board room. There are three  
23 exits here: the rear doors that you used to enter the conference  
24 center and two emergency doors on the side, here in the front.

25           If you have not already done so, please silence your

1 electronic devices. The board room is Wi-Fi equipped so if you  
2 have a laptop, you can connect through our Verizon connection.  
3 Today's agenda and speakers, biographical information is available  
4 in Atrium and also, posted on the NTSB's website.

5           Within the next several days, presentations provided by  
6 our speakers will be posted to our website. A video archive of  
7 the forum can also be accessed through the website for the next  
8 several months. And for those of you who are attending in person,  
9 who are child passenger safety technicians, you may earn CEUs by  
10 attending the forum. Please make sure you sign in on the sign-up  
11 sheets that are out front.

12           So at this point, I would like to turn your attention to  
13 the monitors as we debut a video on the importance of appropriate  
14 restraint use for children.

15           (Video playback.)

16           CHAIRMAN HERSMAN: Our first panel will be led by  
17 Ms. Nora Marshall, Chief of the Human Performance and Survival  
18 Factors Division in the Office of Aviation Safety. Our Aviation  
19 Panel will discuss research, rules, guidance, passenger education  
20 and operational issues related to lap children and child  
21 restraints on air carriers and general aviation aircraft.

22           Ms. Nora -- Ms. Marshall, please proceed.

23           MS. MARSHALL: Thank you, Chairman Hersman.

24           I'm joined by Jeff Marcus from our Safety  
25 Recommendations and Quality Assurance Division and Dr. Kristin

1 Poland from the Office of Research and Engineering.

2 Our first presenter will be Mr. Rick DeWeese from the  
3 FAA's Civil Aerospace Medical Institute, the Biodynamics Research  
4 Team, and we thank Mr. DeWeese for coming to visit us from  
5 Oklahoma and please begin your presentation.

6 MR. DEWEESE: I want to thank the Board for inviting me  
7 here today. This forum continues a longstanding history of  
8 collaboration between the FAA and the NTSB on a variety of safety  
9 issues. I appreciate the opportunity to share the FAA's child  
10 safety research with you and the public.

11 For several years now, the FAA has encouraged parents to  
12 use child restraints when traveling by air. They're simply the  
13 best way to ensure a child's safety during turbulence or an  
14 emergency. At this point in time though, the choice whether to  
15 use a child restraint is still up to the parents.

16 The reason the FAA so strongly encourages child  
17 restraint use is that some of the seating options for children  
18 don't provide the highest level of safety possible. Two  
19 situations that are the most concerning are lap-held children and  
20 children secured in their seat with just a seatbelt.

21 While holding a child under 2 on the lap is allowed,  
22 there's a risk for serious injury in the unlikely event of severe  
23 air turbulence or a crash landing. This is because the person  
24 holding the child cannot react fast enough to counter an  
25 unanticipated and suddenly applied load as occurs during

1 turbulence. They also just don't have enough strength to hold  
2 onto a child during extreme loading conditions that can occur  
3 during a crash landing.

4 To study child safety on aircraft, the FAA has conducted  
5 impact tests that simulate crash landings. The test shown here  
6 simulates an impact with a significant forward deceleration. As  
7 you can see, the unrestrained, lap-held child just slides straight  
8 forward, hitting the seat back. The adult folds forward onto the  
9 child, potentially crushing it. In an actual crash where the  
10 aircraft would be bouncing or yawed, there's a good chance the  
11 child would be ejected from the seat instead.

12 In some countries, lap-held children are attached to the  
13 adult's seatbelt with a loop of webbing wrapped around their  
14 midsection. This device, sometimes referred to as the belly belt,  
15 can help restrain the child in turbulence. However, this type of  
16 restraint provides virtually no protection during a crash landing.  
17 The belly belt's performance was evaluated in a test using a  
18 forward-facing impact. In this test, the adult and the child  
19 translate forward together, then fold over and strike the seat  
20 back. The adult continues to fold forward onto the child, who is  
21 finally trapped between the adult and the seat back.

22 Strap systems for carrying small children, commonly  
23 referred to as baby slings, are allowed by the FAA during cruise  
24 portion of the flight. These slings may be useful in restraining  
25 the lap-held child during turbulence. However, they're not

1 allowed during takeoff and landing since, like the belly belt and  
2 other similar devices intended to restrain the child on the lap,  
3 they provide no real protection during a crash landing.

4 Another reason the baby slings aren't permitted during  
5 takeoff and landing is that they're just not designed to withstand  
6 impact loading. Because the systems can fail at relatively low  
7 loads, a child restrained in one of these slings just isn't much  
8 safer than being unrestrained during a crash landing. In this  
9 test, the baby sling strap buckles failed during a relatively low  
10 G impact, completely ejecting the child.

11 Children of any age are permitted to occupy a passenger  
12 seat and be secured with just the lap belt. Now, use of the lap  
13 belt can provide restraint during turbulence. However, without  
14 shoulder straps, these children are at an increased risk for  
15 injury during a crash landing.

16 During forward impact, a person restrained with just a  
17 lap belt folds forward around the belt. In smaller children, the  
18 tension produced in the neck due to this whipping effect can cause  
19 spinal cord injuries. Also, children that are about the height of  
20 a 3-year-old test dummy used in this test are at risk for a head  
21 injury since they can easily strike the rigid frame that's just  
22 under the front of their seat.

23 Now, one way to provide the highest level of safety for  
24 your child is, of course, using an automotive child restraint that  
25 has also been approved for use on aircraft. Aft-facing carriers

1 for small children have a protective shell that distributes the  
2 crash forces evenly and prevents the child from contacting  
3 surrounding objects.

4 Forward-facing child restraints are designed to limit  
5 the child's forward excursion using an internal harness. Now, by  
6 limiting the excursion, it's often possible to prevent head  
7 contact with the seat in front. This significantly reduces the  
8 chance of head injury. In this test, the child restraint is well  
9 coupled to the aircraft seat and the child's excursion is short  
10 enough to prevent impact with the seat in front, had there been  
11 one there.

12 That's not to say using an automotive child restraint in  
13 an aircraft is a perfect solution. Aircraft seats differ from  
14 auto seats in important ways that can affect the child restraint  
15 performance. One important factor is the location of the lap belt  
16 anchor. For instance, the aircraft seat in the video shown  
17 earlier had belt anchors at a similar location to an automobile,  
18 near the intersection of the back and bottom cushions.

19 The seat in this video has belt anchors further forward,  
20 as found on some airplane seats. It's this forward belt anchor  
21 location that -- rather than any difference between the child  
22 restraints, that's causing the excessive excursion. The good news  
23 is that airlines are gradually replacing these older seats that  
24 have the poor interface with newer ones with an interface similar  
25 to the one in the first video.

1           A frustrating problem that parents can sometimes face is  
2 that the larger automotive child restraints don't fit in the  
3 smaller airplane seats. During pre-boarding is not the best time  
4 to find this out. Commuter-size aircraft typically have the  
5 narrowest seat places, but if a child restraint is less than 16  
6 inches wide, it should fit in nearly all transport seats,  
7 including commuters.

8           Ensuring that there's enough room to accommodate an aft-  
9 facing child restraint is a more complex issue. The amount of  
10 space available between the seat rows for installing an aft-facing  
11 child restraint can vary significantly between classes of service  
12 and between air carriers. The 21-inch length we're suggesting  
13 here is based on the shape of a typical seat back and a fairly  
14 tight, 30-inch row pitch.

15           By pitch, I mean the spacing between the rows, not the  
16 distance between the seat back and the front of the seat behind  
17 it. If the actual row pitch is known, then this relationship  
18 could be used to determine the maximum length of child restraint  
19 that would fit on any aircraft. Since the aft-facing automotive  
20 child restraints are now longer so they can safely accommodate  
21 larger children, this is likely to continue to be an issue.

22           Some good news for traveling families is that the FAA  
23 has directed the airlines to make every effort to accommodate  
24 child restraints that are brought onboard. This includes moving  
25 to a wider seat or to a seat with more room between rows or the

1 front row. It's the row behind any wall in the aircraft is often  
2 a good choice because of the extra room that's always there.

3 Parents also need to be aware that aircraft seats  
4 currently don't have the latch anchor points that they would  
5 normally use when installing a child restraint in their car. They  
6 must instead use the aircraft lap belt. Since the child  
7 restraint's belt path is not specifically designed to accommodate  
8 an aircraft style belt, the buckle can sometimes interfere with  
9 the child restraint's shell. In general, though, with a little  
10 practice and patience, most child restraints can be successfully  
11 installed.

12 If you want to see how a typical installation goes, the  
13 FAA has just posted a video on our website showing the steps for  
14 installing a forward-facing child restraint in an aircraft  
15 passenger seat.

16 Because of the concerns about fit and performance of  
17 automotive child restraints when used in aircraft, the FAA worked  
18 with the SAE to develop a safety standard specifically for  
19 aircraft child restraint systems. Meeting the standard would  
20 ensure the child restraint would both fit and perform well in  
21 virtually any transport aircraft seat. To achieve this goal, the  
22 standard limited the overall size of the systems and required the  
23 test parameters to be more representative of a transport aircraft  
24 seat installation.

25 The FAA also issued a TSO that references the SAE

1 standard and revised the operating rules to allow airlines or  
2 passengers to supply and use the TSO-approved devices. So far  
3 though, this standard has proven to be technically challenging to  
4 meet and while there are some models under development, none have  
5 actually been issued a TSO yet.

6           Recently, inventors have proposed child restraint system  
7 designs that couldn't be directly evaluated using the TSO criteria  
8 since it specifically addresses systems in an incorporated  
9 protective shell. To properly evaluate these innovative designs,  
10 the FAA developed an approval process that requires any proposed  
11 device to demonstrate an equivalent level of safety to TSO C100.  
12 So far, one device, the AmSafe CARES, that adds upper torso  
13 restraints to the existing lap belt, has been approved using this  
14 procedure.

15           I want to thank you for your attention and I hope this  
16 presentation provided some information parents can use the next  
17 time they're flying with children.

18           MS. MARSHALL: Thank you, Mr. DeWeese.

19           Our next presenter is Ms. Nancy Claussen from the FAA's  
20 Flight Standard Service and over the last 10 years, she has been  
21 the team lead on FAA rulemaking projects regarding the use of  
22 child restraint systems on aircraft and has developed the guidance  
23 documents associated with those regulations.

24           Thank you for attending today, Ms. Claussen, and you may  
25 begin your presentation.

1 MS. CLAUSSEN: Thank you, Ms. Marshall.

2 First, I would like to thank you and the members of the  
3 Board.

4 CHAIRMAN HERSMAN: If you could pull the mic just a  
5 little bit --

6 MS. CLAUSSEN: Yeah.

7 CHAIRMAN HERSMAN: -- closer.

8 MS. CLAUSSEN: Thank you, Ms. Marshall. First, I would  
9 like to thank you and the members of the Board, especially now for  
10 that tip with the mic, for the opportunity to present information  
11 today to both the Board and the public regarding the use of child  
12 restraint on aircraft.

13 First and foremost, I would like to say that the FAA and  
14 the NTSB agree that the safest place for a child on board an  
15 aircraft is in an approved child restraint system, not being lap-  
16 held, and the FAA continues to do everything that we can to  
17 encourage the use of child restraint on aircraft. We amend  
18 regulations, develop guidance documents, conduct outreach and  
19 education programs to inform parents and guardians of young  
20 children, air operators, air carriers about the information that  
21 they need to use to facilitate, encourage and increase the use of  
22 child restraint on airplanes.

23 However, the FAA has not required the use of child  
24 restraint for children under 2. The FAA continues to believe that  
25 requiring the use of child restraint for children under 2 would

1 significantly increase the price of travel for a small targeted  
2 population, a family, and the extra cost of that seat may divert a  
3 small percentage of families to the highways, which is a mode of  
4 travel with statistically greater chance of fatality or accident.

5 For every child under 2 saved by a regulation, if we  
6 look forward over the next 10 years, we believe that a minimum of  
7 60 lives will be lost on the highways and that diversion to  
8 highways would have the unintended consequence of an increase in  
9 transportation deaths.

10 The FAA has relied on many studies to get our  
11 conclusions, starting back in the '90s; more recently, in 2003,  
12 2005. Several of these studies are from peer-reviewed scientific  
13 journal articles. Several of these studies are independent of  
14 FAA. In the aggregate, they don't give us an exact percentage,  
15 but we do know that a certain percentage of folks would divert to  
16 the highways.

17 There is such a large disparity between safety in air  
18 travel and safety on the highways that this is a very important  
19 consideration for us as regulators. Aviation is much safer. It's  
20 highly regulated. It's very controlled, and aviation accidents  
21 are very rare. For example, if we look back over the last 32  
22 years, there were 3 accidents where the fatality of a child under  
23 2 would have been prevented if that child had been in a child  
24 restraint system; none, in the 14 years that I've been working at  
25 the FAA. And long-term fatality rates in aviation have decreased

1 dramatically since 1994.

2           The FAA does everything it can to encourage and promote  
3 the use of child restraint on airplanes. We have a long history  
4 of rulemaking in this area. When the regulations for child  
5 restraint were originally written years ago, it was not  
6 appropriate to require restraint because there were not effective  
7 restraints for children under the age of 2 at the time the  
8 regulations were originally written.

9           But over the years, as effective child restraint has  
10 been developed and tested and approved for use to be safe, to be  
11 used in aircraft, the FAA has followed suit with rulemaking: in  
12 1992, which required carriers to allow the use of approved child  
13 restraint on airplanes; in '96, when we took the results of a  
14 study conducted at the FAA Civil Aeromedical Institute to prohibit  
15 the use of child restraint that was not safe to be used on  
16 aircraft. In 1998, the FAA did publish an advanced notice of  
17 proposed rulemaking to seek public comment on requiring the use of  
18 child restraint of aircraft, but at that time, we did not propose  
19 any specific regulatory changes.

20           More recently, in 2005 and 2006, in order to encourage  
21 innovation in the use of child restraint to provide parents more  
22 options, we've done additional rulemaking to allow operators and  
23 passengers to use new, innovative types of child restraint  
24 approved for use on aircraft. Mr. DeWeese mentioned one such  
25 example of a new, innovative child restraint, the AmSafe CARES. I

1 understand that over 78,000 of those have been distributed and  
2 that was because the FAA did the rulemaking that allowed them to  
3 be used on airplanes.

4 Parents and guardians of small children have a lot of  
5 child restraint options now. In commercial aviation, in general  
6 aviation, we have the typical forward and aft approved facing  
7 child restraint, but also, innovative restraints like the ones  
8 that I just talked about that are approved under FAA's  
9 certification processes.

10 The FAA also continues to develop guidance and  
11 publication. We reach out to general aviation and commercial  
12 aviation air carriers and air operators with guidance that gives  
13 them the tools and the information they need to facilitate the use  
14 of child restraint on an aircraft.

15 Our guidance helps air carriers develop crewmember  
16 policies and procedures, crewmember education. We address  
17 specialized issues. We discuss the use of child restraint for  
18 children with disabilities, education about new types of approved  
19 child restraint. We address many of the fit and placement issues  
20 that Mr. DeWeese raised in his presentation, and give airlines the  
21 best information that they need to develop emergency procedures to  
22 be used when there are children on board in aircraft in approved  
23 child restraint.

24 The FAA continues with its education and outreach. We  
25 developed a large, very large, on a national scale, media campaign

1 in 1996, Turbulence Happens. It was a lot of partners. Child  
2 safety brochure. There are print, television and radio public  
3 service announcements and we joined with a lot of stakeholders and  
4 partners to get the word out that child restraint is the safest  
5 place for your child on an aircraft.

6 We updated that campaign in 2004. We designed a new FAA  
7 website dedicated to informing passengers about the use of child  
8 restraint on aircraft. We currently average 6700 hits a month on  
9 that website. We're getting the word out. We've developed  
10 brochures. We've partnered with Babies R Us. But there are new  
11 parents every year, so the education and outreach continues and it  
12 continues in a way that's friendly to this new generation of  
13 parents.

14 We do outreach to travel websites, travel blogs, 40  
15 travel bloggers. We get many, many hits on our FAA websites every  
16 month, as I mentioned, 6700, in average, last year.

17 The FAA, on its main website, has also placed an  
18 instructional video that Mr. DeWeese mentioned, that shows parents  
19 the effective way to use child restraint on aircraft.

20 We reach out with social media. DOT Secretary Ray  
21 LaHood used his FastLane blog during the holiday season to  
22 encourage parents to use child restraint for their children when  
23 they fly.

24 FAA tweets since Thanksgiving have been re-tweeted by  
25 many Twitter users to get the word out that child restraint is the

1 safest way for your child to fly on an aircraft and we've reached  
2 an audience of 114,000 members.

3           So the FAA continues to encourage parents of young  
4 children to use child restraint on their aircraft. We enable the  
5 use of new and innovative types of child restraint via  
6 regulations. We do everything we can to educate operators about  
7 the effective use of child restraint. We educate parents. We  
8 reach out to other stakeholders to join us in these efforts, these  
9 education and outreach efforts, and we provide more options by  
10 encouraging innovation, research and new designs for child  
11 restraint.

12           Although the FAA does not require child restraint for  
13 children under 2 on aircraft, we do everything we can to enable  
14 and educate, reach out and inform to encourage the use of child  
15 restraint on aircraft because that is the safest way for a child  
16 to fly. Thank you.

17           MS. MARSHALL: Thank you, Ms. Claussen.

18           Our next presenter is Ms. Patricia Friend, who is the  
19 president of the Association of Flight Attendants. And during her  
20 14 years in office, Ms. Friend has become a respected leader in  
21 the airline industry and throughout the labor movement.

22           Please begin your presentation.

23           MS. FRIEND: Thank you, Ms. Marshall, and thank you,  
24 Chairman Hersman and the fellow Board members for this invitation  
25 to speak on behalf of our 42,000 flight attendant members.

1           One of the goals of the Association of Flight Attendants  
2 is to ensure safe air travel for our members and the flying  
3 public. Flight attendants are responsible for the safety and  
4 security of all occupants of the cabin on commercial airplanes.  
5 For our youngest passengers, we continue to believe there is only  
6 one safe way to fly. That is the reason for this organization's  
7 steadfast support over the past 20 years, that proper use of  
8 approved child restraint systems be required for passengers under  
9 the age of 2 during takeoff, landing and turbulence.

10           On the aircraft, flight attendants are required to  
11 secure all items in the cabin, galley and lavatories, from carry-  
12 on bags to coffee pots, to comply with federal regulations  
13 intended to ensure safety in an emergency. In fact, an unsecure  
14 lap child, as a loose item, may not only suffer serious injury,  
15 but may also injure others.

16           Flight attendants should never have to look a parent in  
17 the eye and instruct them to continue to hold the lap child when  
18 we know there is a very a real possibility that child may not  
19 survive an emergency landing without proper restraints.

20           There were two aircraft accidents in which children died  
21 that began to focus AFA on the necessity for child restraint  
22 systems. United Airlines Flight 232 en route from Denver to  
23 Chicago on July 19th, 1989, experienced a loss of hydraulic  
24 pressure. At the time of that accident, the crash-landing brace  
25 position at United Airlines for lap children was to have parents

1 place their small child on the floor at their feet and hold them  
2 there while the parents assumed the protective brace position.  
3 One child on Flight 232 died of asphyxia secondary to smoke  
4 inhalation. Then, five years later, on July 2nd, 1994, another  
5 child died on US Airways Flight 1016.

6           Investigative reports filed from both of these accidents  
7 described the difficulties faced by the parents in their inability  
8 to hold onto their children. These two accidents should be reason  
9 enough to require the use of CRS for all small children traveling  
10 on commercial aircraft. It has been said that a small number of  
11 children die on aircraft accidents. I would submit that if it is  
12 your child, one is too many.

13           In preparation for this forum, we surveyed our flight  
14 attendant members to find out what's actually happening in the  
15 cabin regarding lap children and the use of child restraint  
16 systems. Just over 600 flight attendants completed this survey,  
17 which represents a fair sampling of our member's experiences,  
18 observations and opinions. We are more than willing to share the  
19 survey data, suitably de-identified, with the NTSB.

20           One consistent response from our members, if a CRS did  
21 not have a placard approving it for use on the aircraft or if it  
22 was a booster-type seat without a hard back and internal  
23 restraint, then the use of the CRS was not allowed. Everyone  
24 agreed on that.

25           However, with respect to all other questions regarding

1 carrier policies, procedures and training related to lap children  
2 and CRS, survey responses were confused and contradictory. This  
3 confusion is apparent from an analysis of responses representing  
4 all airlines included in the survey, as seen in the data for the  
5 two questions summarized in this slide.

6           Also apparent from the survey, as seen in this slide,  
7 was the frustration among more than half of survey respondents who  
8 feel they are either not allowed to question parents about a  
9 child's age or not encouraged by their employer to ask the age of  
10 the child, even when the flight attendant suspects the lap-child  
11 is above 24 months of age. This frustration was apparent in both  
12 tone and the quantity of flight attendant comments to this  
13 question. Multiple flight attendants describe situations where  
14 the lap child seemed larger than an average 2-year-old in both  
15 size and maturity.

16           As I mentioned earlier, flight attendants are required  
17 to ensure that everything is stowed on an aircraft. However,  
18 specific guidance from our airlines relevant to child restraint  
19 systems has our members confused and frustrated over the obviously  
20 inconsistent application of the Federal Aviation Occupant Safety  
21 Regulations.

22           One member who responded to our survey summed it quite  
23 nicely. Some children, some lap children are as big as my 4-year-  
24 old. It's tricky because I have to tell passengers that they  
25 cannot hold their laptop computer on their lap; however, a wiggly

1 20-pound human is allowed.

2           This inconsistent application of safety standards occurs  
3 because federal regulations do not require parents to show proof  
4 of or airlines to otherwise verify a lap child's age. Therefore,  
5 by default, each airline may choose how and even whether to  
6 enforce the age-2 limit for lap children.

7           The FAA has contended and continued here today to argue  
8 that if airlines were to require the purchase of a seat and the  
9 use of a child restraint system, people who would otherwise fly  
10 would use cars. And since highway travel is inherently less safe  
11 than air travel, they argue, such a shift would result in the loss  
12 of additional lives on the nation's highways.

13           As AFA has said in the past, this is a flawed, unproven  
14 argument. In fact, AFA commissioned an independent review of this  
15 contention in 1995. Our review identified four key shortcomings  
16 in the FAA's assumptions. We're happy to, again, share that  
17 report with the NTSB, but to summarize, the FAA analysis lacked  
18 key data to determine price sensitivity. It used an industry  
19 demand curve that unrealistically simplifies a complex situation.  
20 It failed to take into account the price competition generated by  
21 low fare carriers and it failed to take into account the effects  
22 of income sensitivity. At a fundamental level, the FAA argument  
23 that requiring child safety seats is not a worthwhile and cost-  
24 effective safety improvement turns on unproven assumptions  
25 regarding the cross-elasticity of demand for airplane and

1 automobile travel.

2           It is through agencies like the NTSB making  
3 recommendations aimed at protecting children from death and injury  
4 in transportation-related crashes, that the traveling public has a  
5 slightly increased awareness regarding the need to protect infants  
6 and small children. We were, therefore, disappointed when, in  
7 2006, the NTSB removed the recommendation to the FAA to require  
8 infants and toddlers under age 2 to be safely restrained on  
9 takeoff, landing and in turbulence from their Most Wanted List of  
10 Aviation Safety Improvements.

11           That said, we were pleased to see the recent NTSB  
12 recommendations to the FAA to amend the regulations to require  
13 each person who is less than 2 years of age to be restrained in a  
14 separate seat position by an appropriate child restraint system  
15 during takeoff, landing and turbulence.

16           We wish to thank the NTSB for sponsoring today's public  
17 forum. An event like this and subsequent education campaigns are  
18 useful for increasing public awareness of the hazards of allowing  
19 children under the age of 2 to be held on the lap. But  
20 unfortunately, the FAA's decision to continue allowing children  
21 under the age of 2 to be held on a parent's lap during takeoff,  
22 landing and turbulence gives many parents the false impression  
23 that this practice is safe. With no change in the regulations, no  
24 matter how much education the public receives, this impression  
25 will be impossible to eradicate.

1           Since United Flight 232, one level of safety is still  
2 not afforded to our most precious passengers: children traveling  
3 on laps. To achieve one level of safety for our smallest  
4 travelers, we must develop a strong regulation and couple it with  
5 adequate monitoring and enforcement.

6           Thank you for your attention to these comments and for  
7 taking the time to hear the concerns expressed by our member  
8 flight attendants.

9           MS. MARSHALL: I would like to thank the panel for the  
10 excellent presentations and turn the first round of questioning  
11 over to Mr. Jeff Marcus.

12           MR. MARCUS: I would like to start with Mr. DeWeese, and  
13 Ms. Claussen might also want to jump in here, but as I gather from  
14 your presentations, there's two sets of standards. There's the  
15 TSO and there is something that is not an FAA standard that is  
16 used to approve a child seat. Could you just explain, if I'm a  
17 parent and I go out to Walmart, should I look for a TSO seat?  
18 Should I look for a 213 seat? And how do I tell?

19           MR. DEWEESE: Yes. Basically, there are two different  
20 ways right now and, essentially, the child restraints that are  
21 available for purchase at this point in time are ones that are  
22 both FMVSS 213 approved. That's the automotive approval standard  
23 put out by the National Highway Traffic Safety Administration.  
24 But they also do an inversion test to ensure that the child in  
25 that kind of restraint would be restrained in the event of

1 turbulence in addition to the normal crash testing that they do as  
2 part of that standard.

3           So if that restraint system passes that inversion test,  
4 it also gets the sticker that says approved for use in aircraft  
5 and it's in red letters on the side of the restraint system. And  
6 many FMVSS 213 restraint systems also are approved for use in  
7 aircraft by that means.

8           The TSO is a standard, essentially is a technical  
9 standard order put out by the FAA that references an SAE aerospace  
10 standard for child restraint systems. Now, that standard was  
11 developed specifically to qualify systems for use only on  
12 aircraft, not in automobiles. And it's essentially a standard  
13 that provides a very high level of safety. It ensures that the  
14 system would work exactly as designed and fit and operate well in  
15 a typical airplane passenger seat.

16           Once it passes that standard, then a TSO can be granted  
17 for it and then, eventually, either airline operators or the  
18 general public can buy these TSO-approved devices and bring them  
19 on board.

20           MR. MARCUS: Thank you.

21           My next question is, it looked like the seats you showed  
22 in your testing were the kind of seats you would see on an  
23 airliner. There's a segment of the aviation community that flies  
24 on general aviation aircraft that the seats might be different.  
25 Are you aware of any testing that's been done of the compatibility

1 between child seats and the types of seats in general aviation  
2 aircraft, and in particular, when an aviation seat has a shoulder  
3 harness?

4 MR. DEWEESE: Our research efforts were focused on the  
5 transport category of seats because that was the segment on the  
6 market that had the most children flying and so we wanted to focus  
7 our resources in that direction.

8 In general, some of the conclusions we came to, though,  
9 would still be applicable. For instance, the effect of the belt  
10 anchor point on the forward excursion of a forward-facing child  
11 restraint, that would be the same regardless of what type of  
12 aircraft that seat was -- a seat that had that sort of belt anchor  
13 was in.

14 As far as the shoulder strap interface goes, since in  
15 aircraft the lap belt is always manually tightened -- it has to be  
16 that way because it's the only way it would work for turbulence --  
17 the child restraint should interact with the belt system in the  
18 same way in a general aviation as it does in the transport  
19 category. The shoulder belt actually being more of a --  
20 potentially, something that could get in the way rather than  
21 assisting you in holding the child restraint in the aircraft.  
22 Many general aviation aircraft, the shoulder belt can be removed,  
23 detached from the lap belt and that's a -- would actually be the  
24 thing to do if you're trying to put in a child restraint into a  
25 small aircraft.

1 MR. MARCUS: Thank you. I think I've used my time.

2 MS. MARSHALL: Ms. Claussen, you mentioned that the FAA  
3 has done education campaigns about the use of child restraint.  
4 Have you done any specific campaigns for the use of general  
5 aviation aircraft?

6 MS. CLAUSSEN: That's an excellent question. The FAA is  
7 engaged in education and outreach towards all operating parts,  
8 general aviation, under Part 91, as well as commercial aviation.  
9 So many of the guidance documents that I referenced in my  
10 presentation, the advisory circulars, the infos, the audience for  
11 those are all operators, all air operators and air carriers. That  
12 would include general aviation.

13 Specifically to general aviation, though, the FAA has  
14 engaged in outreach in a form of a brochure, a safety brochure  
15 that does contain specific information about how to address that  
16 unique configuration that Mr. Marcus and Mr. DeWeese were talking  
17 about to appropriately use child restraint in general aviation  
18 aircraft. To date, approximately 10,000 DVDs that contain that  
19 safety brochure, as well as some other information pertinent to  
20 general aviation, has been distributed to air craft operators and  
21 owners in the general aviation community.

22 MS. MARSHALL: Are booster seats allowed in general  
23 aviation?

24 MS. CLAUSSEN: The prohibition against booster seats,  
25 vest and harness type devices and lap-held devices, the language

1 in the regulations that apply to general aviation and commercial  
2 aviation, it's verbatim and there is a prohibition against all of  
3 those restraints under all operating Parts: 91, 121, 125 and 135,  
4 which is the gambit of operations you would see out there.

5 MS. MARSHALL: All right. FAA and DOT has a hotline.  
6 Do you have a lot of complaints on the hotline related to child  
7 restraint usage?

8 MS. CLAUSSEN: In preparation for this forum, I actually  
9 went to our FAA safety hotline personnel and asked them what data  
10 they could provide me. They were able to look back 5 years and  
11 provided me with the data from all the calls that they had  
12 received regarding use of child restraint on aircraft. There were  
13 about 35 calls over the last 5 years and I went through the  
14 transcript and the notes from each one of those calls.

15 The most interesting thing that I found in looking at  
16 those calls is that the number one reason that people call the FAA  
17 safety hotline about the use of child restraint is to complain  
18 because they aren't able to use their FAA-approved child restraint  
19 on foreign air carriers. That was interesting to me. The other  
20 majority of the calls were seeking general information.

21 And also, to speak to Ms. Friend's point about flight  
22 attendant confusion, there were quite a few calls that reflected a  
23 need for the FAA and air carriers to work together better to  
24 provide better flight attendant education because they were the  
25 front line.

1           For example, when a new, innovative type of child  
2 restraint that we talked about earlier today, the AmSafe CARES,  
3 became approved for use on aircraft, in 2006 and 2007, we received  
4 several calls from people who had their approved AmSafe CARES  
5 restraint and were not able to use it because a flight attendant  
6 wasn't sure if it was able to be used on the aircraft. We  
7 responded with several guidance documents, a lot of outreach, a  
8 lot of education, and it was gratifying to see, when I looked at  
9 the data from 2009 and early 2010, those calls went down to zero.  
10 So obviously, the word got out.

11           MS. MARSHALL: Okay. Ms. Friend, you indicated in your  
12 presentation that there was confusion among AFA members about  
13 child restraint. Do you have any suggestions for solutions for  
14 those -- to alleviate that kind of confusion?

15           MS. FRIEND: Well, the confusion is coming from a lack  
16 of consistent policy at the operator level and inconsistent  
17 training at the operator level. So my recommendation would be  
18 that the FAA do an audit about what kind of training is actually  
19 being done. They seem to have a lot of guidance for that  
20 training, but I don't believe that it's being implemented.

21           MS. MARSHALL: Thank you.

22           Mr. Marcus.

23           MR. MARCUS: I wanted to follow up with Mr. DeWeese.  
24 You were talking about the video that was recently produced  
25 showing how to install a child restraint in an aircraft seat and

1 it emphasized the fact that you do not have the LATCH attachments  
2 in an aircraft seat. Are you aware of any developments with seat  
3 manufacturers who might be installing a LATCH system in an airline  
4 seat?

5 MR. DEWEESE: At this point in time, there aren't any  
6 that are installed, but there's quite a bit of research going on  
7 in that regard. I know the general aviation manufacturers have  
8 looked at what it would take to install those types of LATCH  
9 attachments in their seats.

10 Our colleagues down at the Civil Aviation Authority in  
11 Australia have done a lot of research looking at what it would  
12 take to add those devices to transport category seats and gathered  
13 quite a bit of data. And so far, the data's been really  
14 promising. By adding the LATCH attachments to the seats, the  
15 child restraints worked very well. They were coupled to the seat  
16 well and performed very well and were easy to install. So it's  
17 something I think is something that certainly should be researched  
18 further and is a promising solution so that parents would be able  
19 to put the child restraint in the seat the same way, whether  
20 they're in their car or coming on board an airplane.

21 MR. MARCUS: Is there a top tether in the LATCH systems  
22 that have been investigated in aircraft seats?

23 MR. DEWEESE: No. These have only been looking at the  
24 two lower anchorages. In at least transport category aircraft,  
25 there's just really no place to attach a top tether. The

1 Australian researchers looked at the current practice they have of  
2 putting a top tether over the top of the seat and down to the  
3 floor and found that it was completely ineffective use that way.

4 MS. MARSHALL: Ms. Claussen, does the FAA approve  
5 devices for in-flight usage, such as the sling that was shown in  
6 CAMI video?

7 MS. CLAUSSEN: Excellent question. The devices that are  
8 prohibited for use that I just listed, booster type seats, vest  
9 and harness type seats and lap-held devices, those devices and  
10 child restraints are prohibited for use during surface movement,  
11 takeoff and landing. Therefore, in-flight, there is no  
12 prohibition. There is no regulatory prohibition against the use  
13 of those types of devices in-flight.

14 MS. MARSHALL: Can an airline establish policies about  
15 that?

16 MS. CLAUSSEN: Yes, absolutely. Although the FAA does  
17 not prohibit the use of those devices in-flight, if an airline  
18 wants to establish operational policies that those devices cannot  
19 be used, there is not a regulation that would prohibit an airline  
20 from doing that. There are some airlines that have done that  
21 simply because for them it made sense, perhaps, to not put a  
22 flight attendant on a wide-body aircraft in the position of having  
23 to require parents to remove children from non-approved devices  
24 before landing. So they made a decision to prohibit their use at  
25 all times on the aircraft.

1 MS. MARSHALL: Thank you.

2 MS. CLAUSSEN: You're welcome.

3 MS. MARSHALL: Ms. Friend, are flight attendants allowed  
4 to install devices for parents?

5 MS. FRIEND: They're allowed to, but the problem comes  
6 with whether or not, if they're not a parent themselves and don't  
7 have experience, they actually have had sufficient training to be  
8 able to properly install it.

9 MS. MARSHALL: Thank you.

10 Dr. Poland.

11 DR. POLAND: I just have one quick question. At what  
12 age is it safe for me to put my child in the lap belt in a  
13 commercial aviation flight?

14 MR. DEWEESE: Well, essentially, because of the -- well,  
15 what I mentioned earlier about the potential for injury to a lap-  
16 belted child, it's really not a precise age that we specify.  
17 Essentially, children need to have upper torso restraint to  
18 prevent contact with the seat frame or potentially experience  
19 spinal cord injuries due to the whipping forward effect. So our  
20 recommendation is that children, just like the National Highway  
21 Traffic Safety Administration recommends, under 4 be restrained in  
22 an appropriate-sized child restraint.

23 MS. MARSHALL: Thank you.

24 Chairman Hersman, this completes our questioning.

25 CHAIRMAN HERSMAN: Thank you very much to the tech

1 panel.

2 Member Weener is going to lead this round of questioning  
3 for the Board. Member Weener.

4 DR. WEENER: Thank you, Chairman Hersman.

5 I'm well aware of changes back in the late '80s with  
6 regard to seat requirements in commercial transports. Could you,  
7 Mr. DeWeese, just summarize what those changes were and then the  
8 effect of those changes on child restraint systems or carrying lap  
9 children?

10 MR. DEWEESE: Yes. In the late '80s, an entirely new  
11 way of certifying seats for use in aircraft became effective.  
12 Essentially, seats had to be dynamically tested in much the same  
13 way we do tests with cars, automobiles to show their safety,  
14 airplane seats had to undergo a series of dynamic tests to ensure  
15 that they were both going to remain structurally attached to the  
16 airplane and also prevent injuries to occupants of those seats.  
17 So the level of safety for aircraft seats raised significantly  
18 with those rule changes.

19 In transport category seats, one of the means of  
20 reducing head injury is to have the seat back actually bend  
21 forward at a controlled rate to absorb energy. Previous designs,  
22 the seat back could move forward fairly easily. Sometimes they  
23 could be folded completely over quite readily. What this seat  
24 back does is when an occupant from behind strikes it, it pushes  
25 over at a controlled rate. This reduces the head accelerations

1 and the potential for head injury.

2           Now, as far as interaction with the lap-held child goes,  
3 a seat back that is upright when they strike it, the adult and the  
4 child in the adult's lap are still going to strike the seat back,  
5 but the seat back is not designed to necessarily mitigate that  
6 impact. It's designed to mitigate the impact of an adult-sized  
7 occupant, but it really isn't designed to do anything about  
8 preventing injury for a child who would be on the lap of the  
9 occupant.

10           So while the level of safety raised significantly for  
11 the rest of the passengers, really, nothing changed there for the  
12 lap-held child.

13           DR. WEENER: So in a sense, the requirements have kind  
14 of optimized crashworthiness for adults, but didn't do anything  
15 for the kids.

16           There was some discussion of the Sioux City United 232  
17 accident. The NTSB, from that accident, made a recommendation to  
18 the FAA to conduct research to determine the adequacy of aircraft  
19 seatbelts to restrain children too large to use child safety seats  
20 and to develop some suitable means of providing adequate restraint  
21 for such children. Could you describe what CAMI has done to  
22 follow that recommendation?

23           MR. DEWEESE: Well, our research was mainly focused on  
24 child restraint systems and the -- the automotive child restraint  
25 systems themselves and was limited to the ones that have internal

1 harness systems. Restraining a child too large to use one of  
2 those systems, in an automobile, you normally have the vehicle  
3 belt that comes into play to provide the forward restraint.

4 In transport category aircraft, of course, we don't  
5 normally have shoulder restraints, shoulder belts and so, there's  
6 really been --

7 (Alarm sounding.)

8 MR. DEWEESE: -- nothing we can have -- we haven't  
9 investigated anything as far as using shoulder straps because --

10 CHAIRMAN HERSMAN: Mr. DeWeese --

11 MR. DEWEESE: -- they simply weren't available.

12 CHAIRMAN HERSMAN: -- I apologize. That alarm, I think,  
13 probably is a distraction. We'll just wait for a minute for it to  
14 go off so we can keep you going, okay?

15 MR. DEWEESE: Okay.

16 (Pause.)

17 CHAIRMAN HERSMAN: It's not an emergency. I don't need  
18 to evacuate the room. I do see some people that look like they  
19 might be fire officials in the audience. I know that they were  
20 concerned what are we doing. Usually, that's either a car alarm  
21 or a door has been breached, a security door has been breached.  
22 So it should turn off in just a couple of minutes.

23 (Pause.)

24 CHAIRMAN HERSMAN: Ms. Friend, if we have too much of a  
25 delay in the process, we'll make sure that we make -- make sure

1 everyone has water and we'll get back to the time start soon.

2 MS. FRIEND: Yeah. I think you have 3 hours before you  
3 have to worry about that.

4 (Off the record.)

5 (On the record.)

6 CHAIRMAN HERSMAN: Mr. DeWeese, if you want to go ahead,  
7 we actually have C-SPAN cameras here and so it might be good if  
8 you want to just go ahead and start from the top of your answer,  
9 if you want to repeat the response?

10 MR. DEWEESE: Okay. Yeah. The question about have we  
11 looked at restraint for larger children. I guess I want to  
12 clarify, actually, a previous answer I made to the members earlier  
13 was about what age it's safe to occupy just a lap belt. What it  
14 really boils down to is, while age is something we use a lot, it's  
15 really more -- has to do with size and weight. And the child  
16 restraint systems are usually marked with an appropriate weight on  
17 the side and that way a parent knows what size it can  
18 appropriately be used for. And so that's really the guideline  
19 rather than an age.

20 Now, as far as looking into restraining larger children,  
21 again, like I say, our research focus has been on the child  
22 restraint systems that accommodate the approximately 40 pounds and  
23 below size child, the child restraint systems that have an  
24 internal harness. The child restraint systems, although there are  
25 a few with internal harnesses for larger children, and if those

1 pass the requirements in 213 for aviation use, would be allowed on  
2 aircraft. And so that is an option for larger children that's  
3 currently approved.

4 Many of the child restraints, essentially, we consider  
5 them booster seats, require a vehicle shoulder belt to be  
6 effective. And since in transport aircraft, those belts just  
7 simply aren't available, there's really not a whole lot you can do  
8 there to utilize that type of restraint system.

9 DR. WEENER: Okay. Thank you, Mr. DeWeese.

10 A question for Ms. Claussen. You described the FAA's  
11 educational campaign with regard to child restraint systems and  
12 talked about a website for that purpose getting 6700 hits a month.  
13 How do you address or evaluate the effectiveness of this kind of  
14 campaign?

15 MS. CLAUSSEN: It's very difficult to evaluate why  
16 people make certain travel decisions, so what we have done is  
17 looked at how we've gotten the word out, the hits on the website,  
18 the tweets and re-tweets, the amount of educational materials  
19 distributed to the general aviation community; that's how we  
20 measure how we're getting the word out.

21 DR. WEENER: Okay. You mentioned in your remarks that  
22 the diversion argument says that there are not very many children  
23 to be saved, so to speak, in commercial transports. On the other  
24 hand, general aviation is almost neglected, in a sense, when we  
25 talk about aviation fatalities, and there are a lot more

1 fatalities in general aviation by far than in transport aviation.  
2 You mentioned that there were 10,000 DVDs related to child safety  
3 sent out, but I think if my memory serves me right, there are  
4 600,000 general aviation pilots, so that's 1 DVD per 60 pilots.  
5 Have you any campaign that's targeted at the GA pilots?

6 MS. CLAUSSEN: There are challenges inherent in  
7 addressing the general aviation population. The statistics that  
8 the FAA uses to determine how many children under the age of 2 are  
9 in domestic enplanements, in commercial aviation we use one  
10 percent. So, for example, in 2009, there were 631 million  
11 domestic enplanements in commercial aviation. One percent would  
12 be approximately 6 million children under the age of 2. That's  
13 our target audience.

14 In general aviation, it's very different. You're  
15 absolutely right, there are a lot of owner/operators. There are a  
16 lot of aircraft and, statistically, fatalities in general  
17 aviation, the statistics are much higher than in commercial  
18 aviation. But when you look at general aviation, fully half those  
19 aircraft have -- are single-pilot operations when we look at the  
20 accident statistics. We are not aware of the exponentially high  
21 numbers of lap-held children, children under 2 in general  
22 aviation, as with commercial aviation.

23 To be more specific to your point and your question, we  
24 have engaged in outreach and education by the vehicles that I was  
25 talking about before. Our guidance and our publications are

1 not -- they're all inclusive. We reach out to all types of  
2 operators and we do have one specific brochure that is geared  
3 specifically to general aviation, but that is the extent of our  
4 education outreach to this point.

5 DR. WEENER: I appreciate a focus on general aviation  
6 being a general aviation pilot, aircraft owner and grandfather  
7 who's carried grandkids in the airplane on a number of occasions,  
8 always in a seat, booster seat, by the way. Appreciate the focus.

9 I would like to address a question to Ms. Friend. You  
10 mentioned that only 14 percent of the flight attendants surveyed  
11 had airlines that encouraged questions regarding children's age.  
12 What sort of difficulty does lap children provide for the flight  
13 attendants?

14 MS. FRIEND: And obviously, our overriding concern is  
15 their vulnerability during turbulence and during the most likely  
16 time of an aircraft accident, on takeoff and landing. That's our  
17 overriding concern on how to protect them.

18 But just for general travel, it's a very uncomfortable  
19 situation for both the parent and the child. Children today, as  
20 Chairman Hersman has noted, are accustomed from infancy to riding  
21 in child restraint systems in the automobile. So for them to have  
22 that ability on the aircraft is very -- it's a very comfortable  
23 and natural environment for them and for their parent. So when  
24 they're attempted to be restrained in-flight by sitting on the  
25 parent's lap, there's a lot of resistance to that.

1           So there's a concern, not just for expected turbulence  
2 when the seatbelt sign is lighted, but for clear air turbulence,  
3 that the child is truly at risk all the time when they're sitting  
4 on the parent's lap because the parent is simply not going to be  
5 sitting there with a tight grip on that child for the entire  
6 flight. The child wouldn't tolerate it.

7           DR. WEENER: So in a sense, we've done a pretty good job  
8 of training children to expect to be restrained.

9           MS. FRIEND: I believe we have. Yes.

10          DR. WEENER: Yeah. Some of the NTSB investigations over  
11 the years have identified accidents where lap children were over 2  
12 years old. Ms. Claussen, is there any way the FAA has of  
13 enforcing only 2 years and under lap children?

14          MS. CLAUSSEN: In preparation for this forum, I actually  
15 went back and queried our enforcement systems to look at  
16 enforcements that were a result of the pertinent sections of Part  
17 121 and Part 135. So to cover commercial aviation, over the last  
18 15 years, there were 25 enforcements in that database over 15  
19 years. Unfortunately, the data that we have is very limited to  
20 get an overview of what we've done in the past relative to  
21 enforcement using that database because information is expunged  
22 after several years and you can't look at the facts and  
23 circumstances of each case.

24          So what I did do is I queried our aviation safety  
25 inspectors with a specialty in cabin safety at the FAA, because

1 they would typically be the ones who would be initiating  
2 enforcement for a regulation such as that and asked, in an  
3 anecdotal sense, have you initiated enforcements in the last 15  
4 years and what were sort of the facts and circumstances of those,  
5 and have evidence of six or seven enforcements that were  
6 initiated.

7           What was interesting is that a small number were because  
8 the airline was disregarding the age of the child, but the larger  
9 number of the enforcements were coupled with passenger  
10 interference charges because it was a case of a flight attendant  
11 specifically directing the passenger to put their child back in  
12 their child restraint and the parent not complying for some  
13 reason. So that was the result of the query.

14           Relative to the FAA's position on enforcing any  
15 regulation that we promulgate, our position is, is that we take  
16 all of our regulations very seriously and if we are aware of a  
17 violation of a regulation, we will investigate.

18           DR. WEENER: Okay. Thank you.

19           To wrap this panel up and a challenge for Mr. DeWeese,  
20 in 30 seconds, how do you summarize the dangers to lap children?

21           MR. DEWEESE: Well, essentially, as you saw in the  
22 videos, the potential, if the child is trapped between the seat in  
23 front and the adult, it could be crushed. If they're ejected  
24 entirely, the opportunities for injury are numerous.

25           Essentially, what all this science is doing is

1 essentially pointing out the obvious that, for a child or an  
2 adult, it's safer to be restrained in the event of a crash than  
3 not.

4 DR. WEENER: Thank you.

5 DR. ROSEKIND: Just a quick question --

6 CHAIRMAN HERSMAN: Member Rosekind.

7 DR. ROSEKIND: I'm sorry.

8 CHAIRMAN HERSMAN: Member Rosekind.

9 DR. ROSEKIND: Just a quick question. How many kids are  
10 we talking about? Just give us a sense of how many kids are  
11 flying on laps with major carriers, 121; regional, 135, forget the  
12 general aviation. But a day, annual basis, how many kids are we  
13 talking about here?

14 MS. CLAUSSEN: The statistics that the FAA uses is  
15 approximately one percent of domestic enplanements are children  
16 under 2 which would have the potential to be lap-held. So, for  
17 example, in 2009, there were 631 million domestic enplanements, so  
18 if we use the 1 percent, approximately 6 million in 2009.

19 CHAIRMAN HERSMAN: I think we had some questions about  
20 what you said that figure was. Can you repeat it again? What's  
21 the universe of the population that we're talking about?

22 MS. CLAUSSEN: We're talking about one percent of  
23 domestic enplanements and the year that I do have specific data  
24 for -- I just picked a recent year. 2009, there were 631 million  
25 domestic enplanements. So just doing the math, approximately 6

1 million.

2 CHAIRMAN HERSMAN: Ms. Friend, did you want to comment?

3 MS. FRIEND: I would and only because I think that it's  
4 really, statistically, from the airline's themselves, not possible  
5 to know how many children under 2. We have several parents with  
6 young children who work in our office, and preparing for this  
7 forum, what they told me is, almost at any airline that they have  
8 gone to the website to purchase tickets, there is no option for  
9 purchasing a ticket for a child restraint system to use for a  
10 child under 2. They have to lie and say they're buying a ticket  
11 for a child over 2. So the airline statistics would not -- would  
12 show that as an over-2 child, not an under-2 child. So I think  
13 that we just don't know how many of them are under 2.

14 CHAIRMAN HERSMAN: I guess a follow-on question to that,  
15 Ms. Claussen, is what percent of that one percent is restrained  
16 versus unrestrained?

17 MS. CLAUSSEN: I'm afraid I don't have that information  
18 for you.

19 CHAIRMAN HERSMAN: Okay. And has that ever been  
20 collected?

21 MS. CLAUSSEN: Not that I know, have -- not that I know  
22 of.

23 CHAIRMAN HERSMAN: Okay. Vice Chairman Hart?

24 MR. HART: Just a question, perhaps, for Mr. DeWeese. I  
25 noted you said that it really is not age, but size and weight that

1 makes a difference. I'm just -- was there ever any scientific  
2 basis for the selection of the age 2 as the cutoff?

3 MR. DEWEESE: Well, as I understand it, it really ended  
4 up -- it started out as a, in the beginning, as an age selected  
5 because there weren't child restraint systems back when that age  
6 was selected. So that really was the basis for that.

7 MR. HART: I think that means the answer to the question  
8 is no, there is not a scientific basis. Is that a fair statement?

9 MR. DEWEESE: Oh, I'm sorry. Yeah. Yeah.

10 MR. HART: Thank you.

11 CHAIRMAN HERSMAN: And I note in the beginning of  
12 aviation, I know that when this exemption was put forward, there  
13 weren't child restraint systems, but when aviation started, there  
14 weren't restraint systems at all. And today, we have restraints  
15 for all of the individuals on an aircraft.

16 Can you explain to me the different types of restraints  
17 we have for different individuals on the airplane, like crew  
18 restraints, passenger restraints, flight attendant restraints?  
19 Are they all two-point restraints, a lap belt?

20 MR. DEWEESE: No, they basically progress in terms of  
21 number of restraint and the amount of restraint afforded. What  
22 passengers are familiar with, of course, is the lap belt systems.  
23 The flight attendant restraints typically add two shoulder straps  
24 to that lap belt. And then pilot seat systems and systems in a  
25 general aviation aircraft sometimes have five-point restraints.

1 This has a set of shoulder straps, a lap belt and then a crotch  
2 strap that prevents submarining underneath the belt.

3 General aviation aircraft and some of the very latest  
4 ones have a single diagonal type shoulder strap, operates much the  
5 same way as in a car. So all these restraint systems afford a  
6 slightly different level of restraint as far as how well they  
7 protect you against a forward excursion, with the five-point  
8 restraint system being the best.

9 CHAIRMAN HERSMAN: And we've even seen some in general  
10 aviation, some -- and I've seen them also in some bulkhead rows,  
11 some airbag belt type restraints too.

12 MR. DEWEESE: Yeah. That's been a new technology that's  
13 came along; the inflatable restraint systems, they refer to. In  
14 fact, they're the most common, right now, installations are in  
15 general aviation aircraft. Most new general aviation aircraft  
16 comes standard with inflatable restraint systems on board.

17 CHAIRMAN HERSMAN: And I think the point of this is that  
18 there is a lot of technology, there's a lot of effort and there's  
19 a lot of investment in restraint use and there's varying levels of  
20 restraint and those are all getting better. And I think the five-  
21 point restraint that the pilots use with the shoulder straps and  
22 the crotch strap, that actually is what a child's seat -- very  
23 much what a child's seat looks like. And the more points of  
24 protection that you have, the better likelihood that you're going  
25 to be restrained, I think.

1           It just seems to me that we're leaving behind the most  
2 vulnerable of all of our passengers when we make all these  
3 advances in improvements and restraints and we continue to exempt  
4 them. But I'll just leave that there.

5           One of the things, and I'll come to Ms. Claussen on the  
6 issue of diversion. I'm struck that I haven't really heard the  
7 issue of diversion used in other arguments about aviation  
8 diversion. Can you recall the diversion argument being used for  
9 any other passenger type diversion besides child seats?

10           MS. CLAUSSEN: No, and that's an excellent point. There  
11 are many variables in aviation, price variables, some of the  
12 variables you're talking about, but the reason that the FAA has  
13 not really applied the diversion argument to its sort of  
14 thoughtful consideration of the outcomes of some of those other  
15 variables because typically, when there's a variable in aviation,  
16 it affects the broad population. It affects all passengers. If  
17 an airline raises or lowers a price or adds a charge or changes  
18 something, it's going to affect passengers in the aggregate.

19           The unique difference that sort of separates this child  
20 restraint from all the other ones is that now we're talking about  
21 a very small, targeted population that is going to feel the full  
22 impact of that economic sensitivity. So we get back to price  
23 matters, economic sensitivity matters, and in the case of a  
24 family, a statistical family of 3.2, if they're required to  
25 purchase another seat for their child to use a restraint, it's

1 going to increase the cost of their travel. And I'm -- this is  
2 all statistically, about 45 percent.

3 So unlike other variables in aviation where cost is  
4 passed on to a family, this is one that's felt by just such a  
5 small targeted population so it becomes much more acute and that's  
6 why we focused on it.

7 CHAIRMAN HERSMAN: It's interesting that we're using  
8 price as the only variable because I noted with interest over this  
9 Thanksgiving holiday, there was quite a furor about people that  
10 might divert because of security, increased security measures.  
11 And AAA did a survey and the headline in the story is travelers  
12 are opting for autos, not planes. As airport hassles mount, AAA  
13 expects 94 percent to drive this Thanksgiving, and that was 94  
14 percent in 2010 compared with 86 percent to drive in 2008 and 80  
15 percent in 2000. And so aren't we putting more people at risk  
16 there too? Do we not use the diversion argument for those  
17 additional diversions?

18 MS. CLAUSSEN: The FAA certainly agrees with you that  
19 anyone that diverts from air travel to the highways is -- will  
20 experience an increased level of risk because, statistically, it's  
21 a more dangerous way to travel. Relative to what we focused on  
22 though, in developing our child restraint diversion arguments, we  
23 focused on those, so I'm not prepared to speak to the other  
24 analyses that you're talking about.

25 Although, I certainly recognize and respect that this is

1 very complex. It's very complicated. It's an unfortunate  
2 reality. It's challenging. It's challenging as a safety  
3 regulator. But we've focused on child restraint diversion issue,  
4 not the other issues that you've raised recently.

5 CHAIRMAN HERSMAN: Okay. Is there any way to try to  
6 address the cost issue? Let's say we have 50 percent of parents  
7 voluntarily purchasing seats. Does that make the universe of  
8 costs go down?

9 MS. CLAUSSEN: Unfortunately, the FAA doesn't have the  
10 statutory authority to go into those areas in terms of cost,  
11 pricing, coordinating with airlines on those issues. So that's  
12 not an approach that we've taken. We've taken a lot of -- done a  
13 lot of initiatives to try to encourage and increase the use of  
14 child restraint on aircraft, but that's not one avenue that we're  
15 able to go down because of our authority.

16 CHAIRMAN HERSMAN: Okay. And one last question for you  
17 and I'll ask the other panelists, too. If you can recommend one  
18 thing to us -- you know, we've talked about the culture shift in  
19 automobiles that's taken place, you know, really, over a  
20 generation where we were not buckled in, most of us, in child  
21 seats, but now all of our children are. You know, we have -- all  
22 50 states and the District of Columbia have mandatory requirements  
23 for all children to be buckled in under the age of 4 in  
24 appropriate devices. What do we need to do so that my  
25 grandchildren will have 100 percent restraint use in aviation?

1 What's the one or two things that you think are the most important  
2 that we could do to shift that?

3 MS. CLAUSSEN: I'll start. Just sort of what you're  
4 doing today: education, outreach, inform parents so parents can  
5 make informed, smart choices about how to keep their children  
6 safe.

7 CHAIRMAN HERSMAN: Do you think education is enough?

8 MS. CLAUSSEN: Yes, I do.

9 CHAIRMAN HERSMAN: Okay. Mr. DeWeese?

10 MR. DEWEESE: Well, I think it would be good if we can  
11 continue to work on ways to make installing child seats in  
12 aircraft simpler, make sure that they're effective when they're  
13 installed, that way we would hopefully remove some of the  
14 trepidation parents might have about how big a hassle is this  
15 going to be if I bring it on board. And if we can make that  
16 seamless and easier, hopefully our encouragement will work better  
17 if they know that the child restraint's going to be effective and  
18 be easy to use.

19 CHAIRMAN HERSMAN: And, Ms. Friend?

20 MS. FRIEND: Well, obviously, the one single thing we  
21 think should be done is that the exemption for children under 2  
22 should be eliminated and that all occupants should be required to  
23 be properly restrained. However, after 20 years of this effort, I  
24 don't have much faith that that's going to happen.

25 So I would say that what's really important now is to

1 make it easier for parents to actually utilize the systems if they  
2 want to and do that through better training of the cabin crew and  
3 the simple thing like, if a parent goes to a website to buy a  
4 ticket, give them the option of buying a seat and using a child  
5 restraint system for their child under the age of 2.

6 CHAIRMAN HERSMAN: Great. Thank you all very much.  
7 Thank you for your excellent presentations. They were very  
8 informative and we hope that it does get the word out to parents  
9 to do a better job. We would like to see this change in a  
10 generation.

11 So we're going to take about a 15 minute break and we'll  
12 be back at 10:55.

13 (Off the record.)

14 (On the record.)

15 CHAIRMAN HERSMAN: If everyone could take their seats,  
16 we're about to begin.

17 (Pause.)

18 CHAIRMAN HERSMAN: We will now resume our panel on child  
19 aviation safety. For this next session, we will hear the  
20 perspectives of the airline industry, including both commercial  
21 and general aviation.

22 Ms. Marshall, please proceed.

23 MS. MARSHALL: Thank you, Chairman Hersman.

24 Our next presenter is Mr. John Meenan, Executive Vice  
25 President and Chief Operating Officer of the Air Transport

1 Association. And he is responsible for all aspects of ATA  
2 operations with a particular focus on technical safety, security,  
3 economic and legal policy issues impacting the airline industry.

4 Mr. Meenan, please begin your presentation.

5 MR. MEENAN: There we go. Sorry about that. I'll try  
6 that again.

7 Chairman Hersman, members, thank you very much. I  
8 greatly appreciate the opportunity to be here today on behalf of  
9 the ATA member carriers. I will say, at the outset, that this is  
10 an issue that is particularly important to me. It's something  
11 that I have been personally involved with at ATA since my very  
12 first tenure there, when I was a much younger lawyer back in the  
13 '80s and the early '90s.

14 I thought it might be useful to go through a little  
15 history on all of this. The current civil air regulation we're  
16 talking about, really, it dates back much further than this. In  
17 fact, in 1953, it was memorialized saying that infants are  
18 excluded from the seatbelt requirement, but if you really go back,  
19 you'll find that this seems to go back to the days of sailing  
20 ships. And it still applies in all other -- all kinds of other  
21 modes of transportation. It's something that was just sort of  
22 ingrained in the culture. It has been there. I think it's still  
23 there and it's something that we're all working with today.

24 You know, as things went forward, obviously, as you  
25 observed, Madam Chairman, you know, child seats in cars were a

1 rarity when we were all younger. They became more prevalent.  
2 They eventually became to dominate the -- everybody now uses a  
3 child safety seat in their car. That same thing is moving in that  
4 direction in aircraft, from what we have observed. And over time  
5 the standards have been adjusted.

6 ATA petitioned the FAA back in 1990 to eliminate the  
7 child safety exemption. That petition was actually what drove the  
8 risk/risk analysis the FAA did, and, frankly, we have no reason to  
9 disagree with the government. We were asked to withdraw that  
10 petition when they reached the conclusion that they did and we  
11 said, you know, we just want to make sure we're doing the right  
12 thing here. We continue to believe that responding to the  
13 government regulation is the right way to go. We encourage the  
14 use of these devices, but, you know, if this is the way that the  
15 government has chosen to handle the issue, that is -- you know,  
16 we're the regulated party here; we will proceed on that basis.

17 You know, I think one of the things we have observed  
18 over the last several years is that as the -- back in the mid '90s  
19 when we withdrew the petition, it was quite clear there was a lot  
20 of confusion out there as to the appropriate devices, whether some  
21 devices were less safe, actually, when used on aircraft than they  
22 were in automobiles. There was very little information in terms  
23 of the certification.

24 So we basically said to the government, look, we're  
25 eager to work with you on this, but you need to sort out these

1 issues on the government side of the equation; we'll do what we  
2 can on our side of the equation. And I think that remains the  
3 case today.

4           We were very pleased, as I think I have mentioned, to  
5 see that the -- as public acceptance of child safety seats in cars  
6 has grown, public expectations of use of these things aboard  
7 aircraft has grown; the market has expanded significantly. The  
8 suppliers, the manufacturers of these devices are coming up with  
9 new and innovative designs all the time that are intended to  
10 please the parents who are looking for different products out  
11 there.

12           So I think, right now we're at a point where, if we had  
13 speculated in the mid '80s, where we would be by 2010, I don't  
14 think anyone would have guessed we would have come as far as we  
15 have.

16           I think it's important to understand how these devices  
17 now have come to be readily identified as appropriate for use  
18 aboard aircraft. And I know the earlier panel -- I don't think  
19 they showed the labeling, but if you take a look at this slide,  
20 you'll see that it is very difficult to miss this label. It  
21 clearly indicates that the seat is appropriate for use aboard an  
22 aircraft, as well as for use in an automobile.

23           Certainly, the majority of seats manufactured today are  
24 marked appropriately and that's what consumers are buying. We  
25 expect that trend is going to continue. You know, we know that

1 these seats work. They've been certified at this point. I think  
2 they're a very effective set of devices at this -- where we are  
3 today, certainly far better than where we were a decade or so ago,  
4 but it's important that parents understand all of this. And of  
5 course, all of us are engaged in efforts to try to get that  
6 information out there.

7           Now, as I say, too, the market is responding for  
8 children who are perhaps larger than the standard child safety  
9 seat at this point. The CARES device was approved by the FAA, as  
10 we heard from the last panel. It's interesting to note, there  
11 too, that it is also prominently marked and in this case, it's  
12 prominently marked to indicate that it is not appropriate for use  
13 in a motor vehicle. And so, again, the market is responding.  
14 We're finding new products. We're finding different ways to  
15 accommodate what parents are looking for in the marketplace at  
16 this stage of things.

17           It's equally important, we think, that parents be  
18 educated about the kinds of devices that are not appropriate for  
19 use aboard an aircraft. And again, I refer back to the earlier  
20 panel and I don't think there's any need for me to go through  
21 these things in detail, but certainly, the slide is available.

22           We do, of course, have a number of points that we make  
23 to our members and we suggest they be making to their customers,  
24 that a bit of planning can go a long way when it comes to using a  
25 child restraint device aboard an aircraft. First of all, make

1 sure it's labeled. I mean, it's -- the labels are clear. We  
2 understand what those labels are, and I think the public  
3 understands those to a great extent at this point. There's always  
4 room for more education, we agree, but we're in a far different  
5 point -- place than we were even 5 years ago.

6           It's important to make sure that the CRS is appropriate  
7 to the size and weight of your child. It's important to check the  
8 airline's website for information about using a CRS aboard the  
9 aircraft. All the carriers have information available to the  
10 customers at this point. Before selecting seats, we believe it's  
11 important to check with the carrier to make sure that the seat  
12 you're selecting is appropriate for use with a restraint device.  
13 If it isn't, you'll be resealed, but it's far easier to do that at  
14 the time you're booking the flight.

15           And finally, we advise people to make sure that the  
16 label is legible. A lot of times, these seats are used by, you  
17 know, two and three and four children in a family and by the time  
18 you get down to the fourth child, that label may be a little bit  
19 worn off. We urge people to bring appropriate information from  
20 its manufacturer to identify it as an appropriate device for use  
21 aboard an aircraft if that is the case.

22           I think the bottom line is, as Secretary LaHood said  
23 recently, that securing children in child safety seats aboard an  
24 aircraft is a smart way to keep kids safe. It's the right thing  
25 to do. I don't think we would find anybody who disagrees with

1 that point.

2 We've made tremendous progress. We think we're going to  
3 continue to make progress. We are happy to continue working with  
4 the NTSB, with the FAA. We have reached out to other  
5 organizations in the past. We've had some discussions recently  
6 about, perhaps, convening a forum ourselves involving the seat  
7 manufacturer, the aircraft seat manufacturers and some of the  
8 device manufacturers to make sure that they are communicating as  
9 closely as possible.

10 And on that, I will stop and be happy to answer  
11 questions later.

12 MS. MARSHALL: Thank you, Mr. Meenan.

13 Our next presenter is Mrs. Kathleen Vasconcelos, who is  
14 vice president of education and operations for the Air Safety  
15 Institute, which is a division of the Aircraft Owners and Pilots  
16 Association.

17 Ms. Vasconcelos, please begin your presentation.

18 MS. VASCONCELOS: Thank you, Ms. Marshall, and thank  
19 you, Chairman Hersman and Board members for the opportunity to  
20 address you today from the general aviation perspective.

21 I am representing the Air Safety Institute, which is a  
22 nonprofit association. We provide safety information and promote  
23 safety in general aviation. Since we work very closely with the  
24 Aircraft Owners and Pilots Association, I will also be addressing  
25 what they do with their membership of 410,000 members.

1           The Air Safety Institute provides safety education to  
2 all pilots. It is not limited to AOPA members. For quarter one,  
3 2011, we are currently conducting research for a safety brief,  
4 which is a publication that will be available on our website and  
5 by print on demand. We will address various restraint systems.  
6 We will touch on shoulder harnesses, airbag seatbelts, and of  
7 course, child restraint systems.

8           We're looking into addressing child safety restraint  
9 options such as how to choose what's correct for your child, age  
10 and size, and for the aircraft you fly. Also, back seat versus  
11 front seat, a cursory review of our database indicates that back  
12 seat survivability is safe -- or you increase your chances of  
13 survivability by being in the back seat. We're aware of other  
14 studies that have been done. We will be doing more in-depth  
15 research on that, but we plan to address that in the safety brief.

16           Other issues with front seat versus back seat in general  
17 aviation is, beyond the survivability, it's just a pilot  
18 distraction to have a small child in the front seat. Full motion,  
19 full range of motion for the control yoke is an issue if you have  
20 a child, especially in a car seat, in the front seat. And as a  
21 mother of a 2- and a 4-year old, I can tell you, I would not want  
22 them in the front seat, able to access some of the things that are  
23 in the cockpit.

24           We have an accident database of general aviation  
25 accidents involving aircraft weighing 12,500 pounds or less. This

1 dates back to 1983, so it includes those accidents 1983 to  
2 present, and all of the information comes directly from the NTSB.

3 A review of the narratives, the accident narratives in  
4 the database back to 2000 showed up seven accidents where a child  
5 seat, child restraint, child safety, those types of key words,  
6 were in the narrative. One problem we run into is that the age of  
7 the passenger and whether or not child safety seats were used are  
8 not standard data fields in the NTSB reporting, so we do go  
9 through the narratives to get that information.

10 We have seen accidents, for example, in which the only  
11 survivor was a child in a safety seat. We have seen an accident  
12 in which it was an older aircraft that did not have shoulder  
13 harnesses and was not retrofitted with shoulder harnesses.  
14 Therefore, the pilot did not install booster seats for the two  
15 children and they were fatally injured. So those are two examples  
16 of what we're looking at and what we will provide in our education  
17 to pilots.

18 AOPA has a membership base of 410,000 aircraft owners  
19 and pilots. The Pilot Information Center is staffed by pilots  
20 that work for AOPA who answer questions on a variety of aviation  
21 topics. On the subject of flying with children, they receive  
22 questions about once per week. The questions generally involve  
23 what is allowed, pilots not clear what is allowed on general  
24 aviation and whether or not it differs from the regulations for  
25 the airlines and legal issues regarding seatbelts and child seats.

1           So we refer them to the FARs, the regulations, and we  
2 also provide online articles and a subject report on flying with  
3 family. That subject report is a compilation of articles,  
4 websites, regulations that would be of interest to a pilot  
5 planning on flying with their family. It includes information  
6 about seatbelt G's and studies that have shown that parents cannot  
7 hold a child on their lap beyond 3 G's, whereas aircraft  
8 restraints and the aircraft itself are generally rated to  
9 withstand to 10 G's. So that indicates that, in an accident, the  
10 parent very well may survive while an unrestrained child may not.

11           We have online articles to give more information about  
12 legalities and also problems with installing child seats and how  
13 to address that, and we have web forums that are available to our  
14 membership to communicate with each other, and that is monitored  
15 by the Pilot Information Center. So we're able to see directly  
16 from the members what kind of problems or concerns they have with  
17 this type of issue.

18           Some of the problems that we've seen are four-point  
19 harnesses in general aviation aircraft generally don't accommodate  
20 a car seat. Older aircraft, as I mentioned, not outfitted with  
21 shoulder harnesses and not retrofitted with shoulder harnesses  
22 would not properly accommodate a booster seat. And as mentioned  
23 in the earlier panel, the lack of a LATCH anchor is also an issue;  
24 so it just takes a little bit more time and maneuvering to install  
25 a car seat in an aircraft.

1           The positives are that a child -- what we've heard from  
2 our membership is that children really can just see better if  
3 they're in the back in the booster seat, so it's more enjoyable  
4 for them. They're more comfortable because they're in their own  
5 car seat, their booster seat that they know from the car, and  
6 again, they're restrained in there for less of a distraction and  
7 less of a detriment to safety for the pilot.

8           Thank you very much for the opportunity.

9           MS. MARSHALL: Thank you, Mrs. Vasconcelos.

10           And our last aviation presenter is Ms. Mary Gooding, the  
11 cabin safety manager at Virgin Atlantic Airways. Ms. Gooding  
12 spoke at the Board's 1999 symposium on child restraint in aviation  
13 and she will update us on Virgin Atlantic's experience with  
14 providing aviation child restraint systems to passengers who  
15 purchase a seat for their lap children.

16           Please begin your presentation and welcome back.

17           MS. GOODING: Good morning, Chairman, Members, ladies  
18 and gentlemen. First, I would like to thank the National  
19 Transportation Safety Board for convening this forum and inviting  
20 me to provide an update on my 1999 presentation on Virgin  
21 Atlantic's child restraint policy, being the first commercial  
22 airline to offer child seats as part of our customer product.

23           So as not to repeat my previous presentation, which is  
24 still available on the NTSB website, I'll give a brief review of  
25 the UK and EU child restraint regulations since 1984, when Virgin

1 Atlantic was established.

2 CHAIRMAN HERSMAN: I'm sorry, Ms. Gooding. Could you  
3 perhaps just speak up just a little bit or move the microphone  
4 just a little closer to you? Thank you.

5 MS. GOODING: I'm sorry.

6 I'll cover a brief history of our child restraint  
7 systems program, provide some data on usage and our operational  
8 experience with child seats. It's not in the right order. Sorry  
9 about that, but -- okay.

10 To put the airline's decision to provide infant and  
11 child seats into context, this slide and the next one provides a  
12 brief chronology of how the regulations evolved in the UK and  
13 Europe since Virgin Atlantic started operating. You'll see that  
14 between 1984 and 1992, child restraint regulations evolved from  
15 allowing lap-held infants with no restraint to requiring the use  
16 of loop belt or the use of the car-type seat up to the ages of 2  
17 years old.

18 Then, in 1991, following the child restraint tests at  
19 Cranfield Impact Center, the age units for use of car-type seats  
20 were changed from between 0 and 2 years, to from 6 months to less  
21 than 3 years.

22 In January 1992, a further amendment approved the use of  
23 the Care Chair and other child seats that were purpose-built for  
24 aircraft use; the Care Chair being the child restraint seat that  
25 Virgin originally commissioned. We introduced the Care Chair in

1 March 1992 and carried through; it went on our 747s and two on the  
2 Airbus A340s from 1992 to 2008, when they were replaced by our  
3 current infant child seat.

4           The current child restraint regulations for UK-  
5 registered airlines offer options to ensure that all infants and  
6 children between zero to 3 years are secured with a child  
7 restraint device. Children over 3 years must sit in an aircraft  
8 seat only, but they can use the previously mentioned AmSafe CARES  
9 harness. In other words, each person on a UK-registered aircraft  
10 must be secured with an accepted or approved restraint device  
11 during the critical phases of a flight, including turbulence.

12           As the EU and the UK regulations now permitted the use  
13 of aft-facing child seats for infants between 0 and 6 months, in  
14 March 2008, Virgin Atlantic introduced a new seat, which we  
15 commissioned in 2006 and was designed and manufactured by Mann  
16 Aviation, who are exhibiting here today.

17           It could be positioned both forward and aft-facing,  
18 depending on the age of the child and in any aircraft seat,  
19 including those fitted with airbags and in any class. We continue  
20 to have three child seats fitted on each 7-4 and two on each A340  
21 aircraft. There also will be two fitted on our new A330s when  
22 they're introduced next year.

23           For booking, we require that the infant child seat be  
24 reserved at the time of flight booking. The fares range from 50  
25 percent to 70 percent of the adult fare depended on the

1 destination and the fare type booked. It is then included on our  
2 specialist lists, which contains modifications of all customers  
3 needing special needs.

4           After boarding the aircraft, the cabin crew will fit the  
5 infant child seat to the assigned aircraft seat. If the infant  
6 child seat was not booked, it could still be offered at check-in,  
7 especially if the customer has turned up with their own car seat  
8 which they intended to use on board, as this means that they have  
9 paid for a seat for their infant. Their car seat will be tagged  
10 and carried as hold baggage without any additional costs.

11           Even after boarding, as long as an empty seat next to  
12 the parent or guardian is available, the crew can use their own  
13 discretion to offer the child seat without charge.

14           In engineering, the procedures have been implemented to  
15 ensure that the infant and child seats remain airworthy and  
16 hygienic. A daily check is made to ensure continued airworthiness  
17 and the child seats are deep cleaned every 8 weeks, unless  
18 reported soiled on a particular flight in a shorter time frame by  
19 the cabin crew in the cabin defects log.

20           Further engineering procedures require that whenever  
21 Virgin Atlantic decides to change either of the three classes of  
22 aircraft seat, the child seat must be recertified for the new  
23 aircraft seat. This includes a fit test with and without a  
24 certified seatbelt airbag. This also helps to ensure that we can  
25 retain the capability for the cabin crew to fit the infant seat

1 wherever needed.

2 Notice and usage data of child restraint systems in  
3 Virgin. We now operate to 29 business and leisure destinations  
4 from 4 UK airports. Our data indicates, although we carry the  
5 most infants and children on our London to Lagos route, infant  
6 child seats are most frequently booked on our two flights to  
7 Florida, the two longer night flight sectors to and from  
8 Johannesburg in Cape Town, and the double-sector flight to and  
9 from London-Hong Kong-Sidney. I leave you to consider whether  
10 this is because the use of the child seat makes it a more  
11 comfortable experience for the parent on these long sectors.

12 Using data for the period January 2005 to October 2010,  
13 Virgin Atlantic carried approximately 4.5 to 6 million passengers  
14 each year. Of these, an average of 7.5 percent were children and  
15 1 percent were infants. Over the same period, the number of  
16 infant child seats booked has varied with a large increase in 2009  
17 following the completion of the 2008 introduction of the new  
18 infant child seat. This trend appears to have continued during  
19 2010.

20 To ensure we comply with the UK legislation that each  
21 person on board must be secured effectively during critical phases  
22 of a flight, in addition to the child seat, we also provide a loop  
23 belt for lap-held infants and the Burnett body support or the  
24 travel chair for disabled children. We'll also allow use of the  
25 AmSafe's CARES restraint harness for children over 3 years old.

1           Finally, our experience is that when dealing with  
2   restraining infants and children, our cabin crew have the most  
3   problems during turbulence, when parents and guardians refuse to  
4   see the need to secure their infants, especially if they are  
5   asleep in a bassinet.

6           To help to further ensure the safety of these infants,  
7   all our A through 4600s, 19, which is our largest aircraft fleet,  
8   are fitted with a MacCarthy Aviation's infant cradle, which is  
9   certified for use during turbulence. This has had the added  
10  benefit of reducing the number of confrontational situations  
11  between cabin crew and parents. All new aircraft will also have  
12  this infant cradle fitted.

13           Thank you, ladies and gentlemen, for listening and I'll  
14  be available to answer your questions during the discussion  
15  period.

16           MS. MARSHALL: I would like to thank the panel for all  
17  of your presentations and I would like to begin our questioning  
18  with Mr. Marcus.

19           MR. MARCUS: I would like to ask Mr. Meenan, are you  
20  aware of any programs of your member airlines to encourage the use  
21  of child restraints in the sense that, if I'm a parent and I want  
22  to book a flight, will airlines find out if I have an under-2-  
23  year-old or if I mention that I have the under-2-year-old, will  
24  they suggest that I perhaps book a seat for the child restraint?

25           MR. MEENAN: A number of our carriers make the

1 recommendation to their customers that they book a flight for  
2 children under 2. Others simply cite the regulations involved and  
3 make the information available to parents about what options are  
4 available to them without making a recommendation.

5           In terms of identifying people carrying children under  
6 2, I'm not aware of anyone who affirmatively reaches out to them  
7 and says, you know, we can do this for you or we can do that. The  
8 fact of the matter is that I think people are generally aware and  
9 I think they're becoming more aware all of the time that booking a  
10 seat and bringing an appropriate child restraint device is a  
11 preferable way to go. It's certainly more comfortable for the  
12 child. It's more comfortable for the parent. It's something I  
13 think all of the airlines would think is a very good idea. They  
14 just have taken somewhat slightly different approaches as to how  
15 they advance those ideas.

16           MR. MARCUS: Are you aware of any statistics that -- or  
17 usage data that have been collected by either your organization or  
18 any of your member airlines on how many children fly under-2-year-  
19 old, either as lap children or in a child restraint?

20           MR. MEENAN: I'm not aware of anyone who retains that  
21 data. At the time the flight manifest is created, of course, that  
22 information is recorded and maintained, but that data is not kept  
23 in any long-term basis, so no one that I'm aware of is tracking  
24 those numbers specifically.

25           MR. MARCUS: And you just touched on something else I

1 wanted to ask about. If I'm a parent and I'm going to fly with a  
2 lap-held child, does the lap-held child need a boarding pass?

3 MR. MEENAN: It varies from carrier to carrier. It's  
4 worth pointing at this point that with the advent of Secure  
5 Flight, which is the new TSA advance passenger review system,  
6 every passenger has to be identified and their date of birth has  
7 to be indicated. So the fact of the matter is, that information  
8 is collected by the government and, you know, that's out there at  
9 this point. How that's used by TSA, I couldn't tell you.

10 MR. MARCUS: You're saying that TSA should have  
11 information on the number of under-2-year-old passengers?

12 MR. MEENAN: I would say that they must at this point  
13 because date of birth is required at this stage of things for full  
14 identification.

15 MR. MARCUS: Thank you.

16 I would like to ask Ms. -- and if I mispronounce your  
17 name, please stop me. Ms. --

18 MS. VASCONCELOS: Vasconcelos.

19 MR. MARCUS: -- Vasconcelos, you mentioned the accident  
20 database that you have. Do you have any cases that you know of  
21 that are, if you will, a success story of where a child restraint  
22 was used in an accident and it showed good performance?

23 MS. VASCONCELOS: I'm aware of one in which the only  
24 survivor, and this is one in the United States, where the only  
25 survivor was a small child in an approved -- a properly installed

1 child restraint. I also am aware of one in Canada in which a 2-  
2 year-old child was also the only survivor, again, in a child seat  
3 that was properly installed.

4 MR. MARCUS: And you mentioned you have a public  
5 information service to provide assistance to members and non-  
6 members who have questions about, I guess, any issue, but among  
7 the issues is child restraint. Do you have any information on how  
8 frequently you are contacted with questions about child  
9 restraints?

10 MS. VASCONCELOS: The frequency is about once per week.  
11 That does increase around the holidays, as we might expect, but  
12 it's a pretty regularly occurring question, about once a week.

13 MR. MARCUS: And you mentioned there's a lot of  
14 questions about the interface of the harness with the child  
15 restraint. Are there any other common issues that seem to be a  
16 problem for a flying pilot or pilots with children?

17 MS. VASCONCELOS: One of the most popular questions is  
18 just what's required, what are the regulations. So we provide the  
19 facts as regarding lap children, what you must do regarding  
20 children under 2, what you can do, but also suggestions and  
21 recommendations better provided through our articles online about  
22 the studies that I mentioned, about G forces, other accidents that  
23 we've seen that suggest that properly securing the child is a good  
24 idea.

25 MS. MARSHALL: Ms. Gooding, I'm curious, does Virgin

1 Atlantic use the availability of the child restraint system as a  
2 marketing tool?

3 MS. GOODING: Not really. There is a section on  
4 traveling with children on the website and it's included in there,  
5 but there is no overt marketing strategy, unfortunately. We're  
6 waiting until we get as bold as the car industry and advertise  
7 safety for aviation the way that cars are sold in their safety.

8 MS. MARSHALL: Okay. So then the parents who opt to  
9 purchase a seat and use the device had basically found out about  
10 it by using your website, or how do they know this is available?

11 MS. GOODING: Also, if they call up to book infant -- to  
12 make a booking and there is an infant, all reservations agents,  
13 they will ask whether they want to book a child seat and explain  
14 that that would require, also, an additional fare. Some people  
15 take it up, some don't.

16 MS. MARSHALL: Another question I have is, for a  
17 passenger who may have traveled to the UK on a U.S. carrier and  
18 brought their child restraint with them, if they were to fly on  
19 Virgin Atlantic, would they be able to use a US-approved child  
20 restraint --

21 MS. GOODING: No.

22 MS. MARSHALL: -- device?

23 MS. GOODING: No, we would package it up and allow them  
24 to carry it in the hold as free baggage, but we would then replace  
25 it with our own seat.

1 MS. MARSHALL: Okay. Dr. Poland?

2 DR. POLAND: Thank you.

3 Mr. Meenan, you mentioned that it would be appropriate  
4 or wise for parents, at the time of booking their flight, to  
5 ensure that their child's seat would fit in the plane that they're  
6 going to be traveling on. What number would I call or who would I  
7 contact to determine if my seat will fit and do I just provide the  
8 information on the seat itself?

9 MR. MEENAN: You would call the general reservation  
10 number of the carrier that you're booking on and explain that  
11 you're planning to travel with a child and the kind of device  
12 you're using and they can pretty readily indicate to you what  
13 seats will be available for that kind of device.

14 DR. POLAND: So they just tell me what measurements the  
15 seat would be and they could tell me -- like, earlier, I think  
16 Mr. DeWeese was talking about the spacing between the seats and  
17 seat back pitch dimension.

18 MR. MEENAN: I don't know that they would be able to  
19 give you the specific measurements, but they are quite well aware  
20 of what seats aboard aircraft are appropriate for use with  
21 standard child safety or child restraint devices.

22 DR. POLAND: Okay. So I guess they could probably give  
23 me information on rear-facing and forward-facing, but they  
24 wouldn't necessarily know that my Graco seat would fit or my  
25 Britax seat would specifically fit in the seat that I booked?

1           MR. MEENAN: Yeah. Our experience is that the vast,  
2 vast majority of these seats do fit in the vast, vast majority of  
3 seats aboard aircraft. Occasionally, we may find the situation  
4 where that's not the case and that passenger is then re-  
5 accommodated with a different seat.

6           DR. POLAND: Okay. And, Ms. Vasconcelos -- did I say  
7 it?

8           MS. VASCONCELOS: Yes, thank you.

9           DR. POLAND: I think you had mentioned that there were  
10 some difficulties fastening child restraint systems in general  
11 aviation aircraft and I think -- I wasn't quite sure if I heard  
12 you correctly, but I think you mentioned that child restraint  
13 systems are compatible with four-point restraint systems. We  
14 actually have a similar question to that and did some background  
15 information. I'm not sure if our information is correct, but what  
16 I had heard was that you could restrain the child restraint system  
17 if you had a four-point restraint with the lap portion of it and  
18 tighten the lap portion down and let the shoulder harnesses ride  
19 along, but not actually be acting on the child restraint itself.  
20 So it would essentially be like using the lap portion of the belt  
21 only. Does that sound reasonable to you?

22           MS. VASCONCELOS: The four-point harness is something  
23 that we've heard about. I haven't flown an aircraft with that, so  
24 I can't speak from personal experience, but I can see where  
25 installing with just the lap belt would work on some infant

1 carriers. I'm not sure if that would work on booster seats that  
2 require the shoulder harness and that's another issue that we've  
3 heard about.

4 So I think, again, it just goes back to what's -- you  
5 know, what kind of seat are you using, what kind of aircraft, and  
6 what's the configuration.

7 DR. POLAND: And I think that's a good point, that there  
8 are restraint systems that are significantly different than what  
9 parents have encountered in the automotive environment, so it is  
10 confusing. Thank you.

11 MS. MARSHALL: Ms. Gooding, have you had any flights  
12 where you had more children who wanted to use the seat than you  
13 had seats available?

14 MS. GOODING: It's very rare because, again,  
15 reservations, they manage the number of seats that have been  
16 reserved, knowing the limits of the numbers that we carry. But it  
17 has happened a couple of times and fortunately, it was -- both  
18 times were out of Orlando where we have more than one flight at a  
19 time on the ground and we were able to, you know, steal from one  
20 aircraft for the other, but it's very rare.

21 MS. MARSHALL: Okay. Madam Chairman, we are -- we've  
22 completed our questioning.

23 CHAIRMAN HERSMAN: Thank you very much.

24 Member Sumwalt will lead this round of questioning for  
25 the Board.

1 MR. SUMWALT: Thank you, Madam Chairman.

2 And, Mr. Meenan, I suspect it would be accurate to say  
3 that airline travel is highly price sensitive. There are probably  
4 economists that spend a lot of time thinking that if we change the  
5 price \$3, then the revenue is going to increase or decrease by X  
6 dollars. It's highly a highly elastic demand. Is that true?

7 MR. MEENAN: That's certainly true, but it's also true  
8 that it is a very affordable way to travel at this point and the  
9 tickets we're selling today are selling at approximately the same  
10 price we were selling them at in actual dollars, not inflation  
11 adjusted dollars, back in 2000. So it's quite an affordable way  
12 of traveling.

13 MR. SUMWALT: So if airlines started traveling -- or,  
14 I'm sorry, if airlines started charging for children under 2 to  
15 have passenger seats, what would that do to the total revenue  
16 picture? And I guess that depends on the price of those seats,  
17 but I'm going to -- let me lay it out for you here, is that I  
18 suspect -- what was the load factor -- what's the load factor been  
19 for the air carriers over the last 12 months, about 85, 87  
20 percent?

21 MR. MEENAN: It's substantially in that range. Yes.

22 MR. SUMWALT: Yeah. So that's a pretty darn good load  
23 factor, but it also means that about 13 to 15 percent of seats, on  
24 average, are not occupied.

25 MR. MEENAN: That's also correct.

1           MR. SUMWALT: So therefore, there are available seats  
2 that once that airplane departs, the value of that seat is zero  
3 dollars. So if you could put -- if you could charge for those  
4 extra seats, then you would increase your revenue.

5           So here's the point I want to make is that Ms. Claussen  
6 with the FAA said that, roughly -- and this is a rough figure, but  
7 around 6 million children under 2 travel in a year. So let's say  
8 that a price for an adult to go somewhere is \$350, but if the  
9 airline said well, for \$100, we're going to charge you -- if  
10 you're traveling with a child under 2, we're going to charge you  
11 \$100 for that seat, then potentially, there's a \$600 million  
12 revenue stream right there that the airlines could be using. Does  
13 this argument make sense to you?

14           MR. MEENAN: I think it makes sense on one level. I  
15 think it's also fair to say that, you know, those 13 or 15 percent  
16 of seats are not on any one -- they're not on every airplane  
17 that's out there and the reason we've gotten to the 85 percent  
18 load factor is because of very sophisticated pricing models that  
19 the carriers use to maximize the revenue that they're taking in.  
20 I think if the carrier felt they could benefit from selling seats  
21 at a discounted price, they certainly would do that. That's what  
22 they do today. The fact is, I think where we are right now is  
23 about as reasonable a way to approach affordable pricing of seats  
24 as you're going to find. Different carriers may take a different  
25 approach to that, but in general, that has to be a carrier-by-

1 carrier decision. There obviously can't be any discussion between  
2 carriers as to how they approach any pricing decisions.

3 MR. SUMWALT: I understand. ATA represents how many  
4 passenger carriers?

5 MR. MEENAN: We represent the vast majority of carriers  
6 in the United States, 95, 96 percent of the --

7 MR. SUMWALT: Yeah.

8 MR. MEENAN: -- passenger miles flown are flown on ATA-  
9 member carriers --

10 MR. SUMWALT: And I think you mentioned that --

11 MR. MEENAN: -- or their affiliates.

12 MR. SUMWALT: Thank you. I'm sorry. You mentioned that  
13 the ATA highly encourages parents to, first of all, fly. We want  
14 -- we know that's a very safe method of flying, mode of  
15 transportation, but we -- you encourage, your carriers encourage  
16 the parents to properly restrain their children. But I know from  
17 sitting on this Board, that the -- and you said you want them to  
18 comply with the regulations, obviously. Well, we know that the  
19 regulations is the floor. We want people, generally speaking, to  
20 go above and beyond that regulatory floor and I want to give you  
21 an example.

22 I realize that there are potential antitrust concerns  
23 here. We can't be having airlines collude on prices. But back in  
24 around '96 or '97, after an accident in -- going into Cali,  
25 Colombia, the ATA-member carriers voluntarily said we are going to

1 equip all of our aircraft with terrain awareness and warning  
2 systems. They made that decision before a regulation came. The  
3 regulation didn't -- the FAA later required that, but that  
4 regulation didn't go into effect until 2005.

5 Without getting into collusion, what's there to prevent  
6 the air carriers from just saying we're going to make this  
7 decision, the regulatory floor is too low; we want our member  
8 carriers to offer the safest method for our passengers, whether  
9 it's and 18-month-old child or a 93-year-old grandmother?

10 MR. MEENAN: I mean, certainly, the carriers could do  
11 that, but the fact is that the government regulations in place  
12 permit a parent to carry a child in their lap if they choose to.  
13 I think a number of carriers certainly would prefer to see that  
14 child in a seat, prefer to sell the seat to the parent, but the  
15 reality is, that's what the regulations permit at this point. And  
16 I think that it is unlikely that you're going to see the carriers  
17 unilaterally supplant the government decision-making here, which  
18 was done for, presumably, very valid reasons, and substitute their  
19 own.

20 MR. SUMWALT: So --

21 MR. MEENAN: As to the approach to safety, I think the  
22 carriers are always looking for ways to be as aggressive on  
23 improving safety as they possibly can be. That's why we rely so  
24 heavily on data analysis and looking at the projections of data to  
25 determine how best to improve safety performance and not just

1 respond to what is sort of an emotional issue, quite frankly.

2 MR. SUMWALT: Well, it seems paradoxical that you would  
3 say that the air carriers want to transport the passengers in the  
4 most -- in the safest fashion, and yet, your carriers are relying  
5 on the FAA to set the minimum floor.

6 MR. MEENAN: We are a regulated industry. The FAA sets  
7 the safety standards and we adhere to those standards.

8 MR. SUMWALT: Well --

9 MR. MEENAN: We train to those standards. That's the  
10 regulated environment in which we exist.

11 MR. SUMWALT: So you don't exceed the standards of the  
12 Federal Aviation Regulations?

13 MR. MEENAN: In some cases carriers have opted to do  
14 things in their own way, but all of those -- all of the operations  
15 of the carriers are designed to comply with the requirements of  
16 the federal government when it comes to administering safety.  
17 And --

18 MR. SUMWALT: I understand that.

19 MR. MEENAN: And the fact is, at this point there are  
20 parents out there who would say to you, the federal government  
21 says I am entitled to hold a child under 2 in my lap and that's  
22 what the government has decided is the appropriate standard. And  
23 I don't think you're going to see carriers taking it upon  
24 themselves.

25 We've petitioned the government and suggested that would

1 be a good decision to make. In following careful analysis, they  
2 concluded that wasn't the direction to go because more children  
3 would likely die as a result of diversion to automobile travel.  
4 That's up to the government to decide.

5 MR. SUMWALT: Well, but the ATA can and does not always  
6 adhere to the federal requirements because the federal  
7 requirements are an absolute floor. We know that, and we also  
8 know that parents turn to the law for guidance.

9 Here's a case where the government has made a -- the FAA  
10 has made a case that we don't -- if you're going to fly, we're not  
11 going to require it because we're worried about the diversion  
12 argument. But people aren't going to decide to drive from here to  
13 Los Angeles. They're still going to fly and -- or they're not  
14 going to travel. And so, you know, the ATA could, if they wanted  
15 to -- and tell me if I'm wrong. They could, if they wanted to,  
16 they could say we're going to voluntarily raise --

17 MR. MEENAN: You know, I --

18 MR. SUMWALT: -- the standards.

19 MR. MEENAN: In thinking about this just very briefly, I  
20 don't know that that's true because the fact is the airlines, I  
21 don't think, can collude among themselves to say to parents of  
22 children under 2 you have to buy a seat, which is effectively what  
23 they would be doing.

24 MR. SUMWALT: Right.

25 MR. MEENAN: And that's an off-the-top-of-my-head

1 response to your question, but I think it's one that certainly  
2 would -- I'm sure we would have lawyers looking at.

3 MR. SUMWALT: I do suspect it would have antitrust  
4 implications there, but I would hope that the organization that  
5 represents 95 or 98 percent of the passenger carriers in this  
6 country would have the attitude that we're not going to just  
7 comply with the minimum regulatory requirements, we want to exceed  
8 those.

9 MR. MEENAN: And I think our safety record stands for  
10 itself.

11 MR. SUMWALT: I will go to Ms. Vasconcelos. And I have  
12 noted over the years that the AOPA, Air Safety Foundation, which  
13 is now, I think, the Air Safety Institute, has, over the years,  
14 done many, many safety products, including many videos, and I've  
15 learned from those educational modules myself.

16 I will note that in 1993, the NTSB issued a safety  
17 recommendation to the AOPA to inform its membership of the dangers  
18 associated with using a seatbelt designed for one occupant to  
19 restrain two persons, and the benefits of using FAA-approved child  
20 restraint systems on aircraft. That was the recommendation.

21 Now, this morning, I went and looked and saw what the  
22 AOPA's response was and oftentimes -- most of the time, people  
23 will reply to us and say we're going to do it or we can't do it,  
24 but I was very surprised to see, in this particular situation, the  
25 AOPA never even responded to the NTSB's recommendation. Can you

1 explain how an organization that typically has great safety  
2 products wouldn't even respond to the National Transportation  
3 Safety Board on a recommendation like this?

4 MS. VASCONCELOS: I'm not aware of that and I can't  
5 speak for the advocacy in government affairs side of AOPA. But I  
6 can say, from the safety standpoint, that currently, we are, as I  
7 mentioned, doing some outreach and doing some research so we can  
8 educate pilots about that. But, unfortunately, I don't have  
9 enough information to speak to why there was no response in 1993.

10 MR. SUMWALT: Well, would you be willing to check on  
11 that and follow up on it and reply to the NTSB through the  
12 appropriate channels?

13 MS. VASCONCELOS: Absolutely. I would be happy to.

14 MR. SUMWALT: Thank you.

15 Ms. Gooding, Virgin Atlantic, do they operate any  
16 flights at all within the UK or are they strictly, you take off  
17 from Gatwick, you're going to another country?

18 MS. GOODING: It's strictly long-haul international from  
19 Gatwick and Heathrow.

20 MR. SUMWALT: So you don't have much of a diversion  
21 argument? People aren't going to drive from London to  
22 Johannesburg.

23 MS. GOODING: No. No. They might sail.

24 MR. SUMWALT: Okay. So this is such a great product, a  
25 service that you've made available, and so you -- to make sure

1 I've got it right, you charge for the extra seat?

2 MS. GOODING: Yes, we do.

3 MR. SUMWALT: And it sounds like a good way to do it to  
4 me. How about -- what is the relationship between Virgin Atlantic  
5 and Virgin America? They're both owned by the same person?

6 MS. GOODING: They --

7 MR. SUMWALT: I guess I --

8 MS. GOODING: I'm not sure that I'm qualified to answer  
9 that, but from my understanding, Virgin itself is a franchise.  
10 There's no link between any of the Virgin Airlines --

11 MR. SUMWALT: Yeah, I guess you're right.

12 MS. GOODING: -- other than the name Virgin.

13 MR. SUMWALT: Yeah, there can't be more than X  
14 percentage of foreign ownership, and I think that was an issue.

15 MS. GOODING: Yeah.

16 MR. SUMWALT: So -- okay, but if it's a franchise, if  
17 this concept is so good for Virgin Atlantic, I wonder why Virgin  
18 America wouldn't be doing the same?

19 MS. GOODING: I can take that back and I can ask the  
20 question for you, but I don't have the answer.

21 MR. SUMWALT: Well, we've sometimes seen that what's  
22 good for the goose doesn't always seem to be good for the gander  
23 in the eyes of the carriers, and so I would think that if it's  
24 that great of a concept, then all Virgin-affiliated carriers  
25 should be doing that.

1 MS. GOODING: Yeah.

2 MR. SUMWALT: Madam Chairman, I have no further  
3 questions.

4 CHAIRMAN HERSMAN: I have a couple of questions for the  
5 panelists and I just wanted to say, given Ms. Friend's comments  
6 about what was available on the internet, I thought it would be  
7 worth it to go ahead and just do a little bit of checking myself  
8 right now because I have three children, but my kids are 5, 8 and  
9 10. So it's been a number of years since I've had a lap-held  
10 child. And I will say that parents do look to the airlines to  
11 tell them what's acceptable.

12 I have to admit and confess that, before I came to the  
13 Board, I did travel with a lap-held child. My oldest, I traveled  
14 to go see grandparents with him on my lap. I came to the Board  
15 and one of the very first activities that I had to participate in  
16 was the Board's 2004 decision in response to the diversion  
17 argument. And it made a complete believer out of me. I tell all  
18 of my friends or anyone who asks me what the right way to travel  
19 is.

20 But I think it's so important, as Member Sumwalt said,  
21 parents have to have the expectations. Education is not enough  
22 because education is not going to reach everyone. They have to  
23 have requirements, laws or specific standards to help them to make  
24 the right decision.

25 But I looked at a couple of websites of major carriers

1 that do business in the U.S. and the first one is just as  
2 Ms. Friend said; you have an option for adults, seniors and  
3 children 2 to 11, but there's no option for -- to fill in anything  
4 for a child under 2. So you don't have the ability to even track  
5 or -- option to get a ticket. If you want to get them a seat on  
6 the airplane with you, you have to say they're at least 2 or over.

7 Another carrier didn't have a section initially to say  
8 if it was a child or not, but it did have a link to infant and  
9 child travel guidelines and restrictions, and even though I think  
10 we've heard that all carriers encourage people to transport their  
11 children properly restrained, the first website didn't have  
12 anything about that and the second website, the guidance about  
13 infant and children information, it talks about child fares and  
14 ticketing. And it talks about, you can travel with your child  
15 less than 2 years old, but it doesn't have anything about what the  
16 recommended and best and most safe way to travel with them.

17 In a section about tips for traveling with children, it  
18 focuses on, allow yourself extra time for bathroom breaks and  
19 things like that and work around their nap time, but it doesn't  
20 tell you the best way to transport them.

21 And then I went to the Virgin America website to see  
22 what they had and I -- in each of these, I had to get to some  
23 point where I entered fares in and I was surprised because you  
24 actually do better than your slideshow advertises, which is not  
25 usually the case. There is a fare from London to New York and the

1 adult fare was \$649 and the child fare was \$136, the fare for the  
2 infant. And so that was better than 50 percent. And so I could  
3 absolutely see, as a parent, why I would make that choice to buy  
4 that seat for my child. That's a huge incentive for me to go  
5 ahead and purchase that seat for them at that reduced fare.

6 So when people get on airplanes, Virgin Atlantic does  
7 provide a seat, but do we provide things to other passengers on  
8 airplanes that are additional equipment? And I'm thinking in this  
9 case of, like, seatbelt extenders. Why do we provide seatbelt  
10 extenders?

11 MS. GOODING: Is that to me?

12 CHAIRMAN HERSMAN: To anyone who feels like they could  
13 answer the question. We're talking for passengers who might be  
14 heavy and the seatbelt doesn't fit them properly. Why would we  
15 provide them a seatbelt extender?

16 MR. MEENAN: They are required by the FAA.

17 CHAIRMAN HERSMAN: The FAA requires a seatbelt  
18 extender --

19 MR. MEENAN: It is required that passengers over 2 years  
20 old be restrained by an appropriate restraint device. If a  
21 passenger can't be accommodated in a regular seatbelt, you have to  
22 have an extender.

23 CHAIRMAN HERSMAN: Okay. So for passengers over 2 years  
24 old, the FAA, in the last panel, we were asking them at what point  
25 is a child able to sit in a lap-only belt and the information that

1 got we back from Mr. DeWeese was that a 2-year-old probably isn't  
2 large enough to sit in a lap-only belt. Do we provide anything  
3 for them to make sure that they have the appropriate seat fit and  
4 they're restrained properly?

5 MR. MEENAN: The FAA requires that a -- if a child under  
6 2 is not traveling in an appropriate restraint device, you put  
7 them in a seatbelt, whether or not there is data supporting -- I  
8 mean, it's not an age issue. It's also a size issue that  
9 determines the effectiveness of those devices.

10 So there's a lot of information out there that may still  
11 be appropriate for further analysis by the government to take a  
12 look at all of these things, but that's -- you know, that's the  
13 reality at this point.

14 CHAIRMAN HERSMAN: Children over 2 have to be  
15 restrained, but I think what I'm hearing you say is there is no  
16 corollary requirement, as with a seatbelt extender, for an airline  
17 to provide anything to make sure that the seatbelt appropriately  
18 fits the, let's say, 2- to 4-year-old?

19 MR. MEENAN: We, as I say, we strongly encourage  
20 passengers to travel with the restraint devices that they use in  
21 their automobiles coming to the airport and their automobiles  
22 leaving the airport. We think that those are in -- as a result of  
23 the activity that's gone on over the last 15 years, are virtually  
24 universally interchangeable. The families are more comfortable  
25 with them, the children are more comfortable with them, the vast

1 majority of people use them.

2           The reality is that the federal government has seen that  
3 the exemption for children under 2 is an appropriate exemption to  
4 leave in place. We accommodate that.

5           Obviously, there are a number of our carriers, on their  
6 websites, as I said, who recommend to parents that they buy them.  
7 If you look at different websites, I'm sure you'll find different  
8 terminology, the way it's used, but certainly, the carriers try to  
9 get the information out there as completely as possible so that  
10 parents are aware of the options that they have.

11           As to this issue about children being under 2 and you  
12 can't click -- you know, I suspect that that is an anomaly that  
13 has come about because of the exemption that exists. There is  
14 certainly no reason that a parent can't purchase a seat for a  
15 child under 2. If the button says 2 and over, I think that is  
16 something we can raise with our carriers and make sure that they  
17 are aware of that and, presumably, that could be changed, but I  
18 don't think it was intended to somehow preclude parents from  
19 buying a seat for a child under 2 years old.

20           CHAIRMAN HERSMAN: What about if the websites are  
21 changed so that there's an option for parents to purchase the seat  
22 for a child under 2 when you have to put the information about the  
23 age? Why not have also information that would come up that  
24 clarifies the FAA guidance recommends the safest way to transport  
25 your child?

1           MR. MEENAN: You know, that's certainly an interesting  
2 idea.

3           CHAIRMAN HERSMAN: Um-hum.

4           MR. MEENAN: I'm sure that some of the carriers will be  
5 looking at that. As I'm sure you can appreciate, the programming  
6 that went into just collecting this information for TSA has been  
7 rather a formidable undertaking and adapting the websites to  
8 somehow use that information is certainly something that I'm sure  
9 folks will be looking at, but I suspect that that may be some time  
10 before people have the ability to do that.

11           CHAIRMAN HERSMAN: Well, and I've traveled with kids and  
12 you have to enter in all this information, but they don't have ID  
13 cards, so it's one of those kind of conundrums where you're  
14 putting all this information to what end, and then on the other --  
15 you know, the value is supposed to be for security, but they don't  
16 have a government-issued ID that can be checked at TSA. So it  
17 might be good if we could do something with this data as its being  
18 entered.

19           You mentioned to Member Sumwalt that you didn't think  
20 that it was appropriate for airlines to collude and it, in fact,  
21 is against the law for them to do that on pricing. But there are  
22 some carriers that offer discounts for certain classes of  
23 passengers, like seniors. Why would you offer a discount -- if  
24 you're talking with Member Sumwalt about, kind of, the elasticity  
25 and your load factors and things like that, why offer discounts

1 for seniors and not offer a discount for a lap-held child? Is it  
2 a different calculation?

3 MR. MEENAN: Carriers make their pricing decisions based  
4 on their own analysis of the market and what they think will  
5 maximize the sale of tickets. You know, that's -- I don't think  
6 they distinguish between, you know, one group of passenger --  
7 they're simply looking at the universe of people who are traveling  
8 and trying to price their product in a way that encourages the  
9 most people to buy that product.

10 CHAIRMAN HERSMAN: And if --

11 MR. MEENAN: What I said to Member Sumwalt specifically  
12 was, if the question was why don't the carriers get together and  
13 effectively eliminate the under-2 exemption, I believe that would  
14 probably be illegal.

15 CHAIRMAN HERSMAN: Right, but unfortunately, except for  
16 Southwest, I think they all decided to charge for baggage and as  
17 soon as one or two carriers did that, they all did it. And so  
18 checked baggage we generally pay for, and that was something that  
19 happened fairly quickly in the market where they all quickly moved  
20 to that position.

21 MR. MEENAN: That's correct.

22 CHAIRMAN HERSMAN: Can you explain to me why we have to  
23 pay to check our baggage, but if you're trying to maximize  
24 profits, the carriers permit parents almost universally to check  
25 booster seats and child safety seats for free? Isn't that a

1 perverse incentive to discourage people from using them?

2 MR. MEENAN: As I say, we --

3 CHAIRMAN HERSMAN: You make it cheaper for them to check  
4 their seat.

5 MR. MEENAN: We do not, in any way, shape or form get  
6 into how airlines decide to price their products and it includes  
7 issues like charging for baggage or not charging for certain  
8 items.

9 CHAIRMAN HERSMAN: All right. Any other questions? Any  
10 other questions from the staff panel?

11 MS. MARSHALL: None from here.

12 CHAIRMAN HERSMAN: So thank you all very much for your  
13 participation.

14 Mr. Meenan, I know that you probably felt like you drew  
15 the short straw on the ATA team, so hopefully they will take you  
16 out for lunch or do something for you when you go back to them.

17 MR. MEENAN: As I said, we appreciate being here.

18 CHAIRMAN HERSMAN: We very much thank you for your  
19 participation. We know it's a difficult position for you to be in  
20 personally. Obviously, our interest is to try to push a little  
21 bit to change the paradigm and I think that, hopefully, through  
22 some of this discussion today, there might be some changes that  
23 could be made just through education and carriers being aware of  
24 some of the issues that might be concerns to the flying public.

25 MR. MEENAN: We really do appreciate it and I sincerely

1 will be bringing messages back to all of our members.

2 CHAIRMAN HERSMAN: Thank you.

3 Thank you all so much for your participation on this  
4 panel. We're going to adjourn for lunch. It's 12:00. If we  
5 could come back at 1:00, we'll begin with our panel on highway  
6 safety.

7 (Whereupon, at 12:00 p.m., a luncheon recess was taken.)

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A F T E R N O O N S E S S I O N

(1:00 p.m.)

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3 CHAIRMAN HERSMAN: If everyone could take their seats,  
4 we're about to begin.

5 Welcome back. The next panel today will focus on child  
6 passenger safety on the roads. Dr. Kris Poland will lead the  
7 technical panel for this session. Dr. Poland is a senior  
8 biomechanical engineer in the Office of Research and Engineering.  
9 Our highway safety panel will discuss best practices in child  
10 passenger safety and what can be done to improve the protection of  
11 children in passenger vehicles. We will also learn about new  
12 advances in child passenger safety.

13 Dr. Poland, please proceed.

14 DR. POLAND: Thank you, Chairman Hersman.

15 With me at the technical panel are Mr. Dennis Collins, a  
16 senior human performance investigator in the Office of Highway  
17 Safety, and Mrs. Stephanie Davis, a safety advocate in the Office  
18 of Communications.

19 Our first presenter of the afternoon is Mr. Alexander  
20 Sinclair. Mr. Sinclair is an experienced traffic safety and  
21 communications professional at the National Highway Traffic Safety  
22 Administration in Washington D.C. For more than a decade, he has  
23 been a leader in NHTSA's efforts to protect the nation's child  
24 passengers. In this capacity, he promotes educational,  
25 promotional and law enforcement activities.

1           Mr. Sinclair, please begin with your opening remarks.

2           MR. SINCLAIR: There it is. Press the button. Thank  
3 you.

4           Well, first of all, it's a pleasure and a privilege to  
5 be here. I would like to thank Chairman Hersman, as well as the  
6 entire NTSB Board and the NTSB staff, we know, works very hard on  
7 this issue and has for many, many years.

8           People often mistake NHTSA for NTSB and that's -- we  
9 take that as flattery. We are the people that brought you Vince  
10 and Larry, Cash for Clunkers, and "friends don't let friends drive  
11 drunk" over the years, so we think we have our own hat to hang.

12           I would like to just say a word or two of praise to  
13 NTSB. This has been on your agenda for many, many years. You've  
14 been very consistent, very persistent about keeping child  
15 passenger safety and child safety, in general, at the forefront of  
16 the agenda, whether it's testifying locally or using your bully  
17 pulpit that you have or keeping on the Most Wanted List. We  
18 really appreciate the support from NTSB to help keep this on the  
19 public consciousness.

20           Let me just click ahead here. The first thing I want to  
21 talk about, we're looking at both progress and challenges in child  
22 passenger safety. This slide looks at all forms of traffic safety  
23 or traffic crashes, rather, in which children 14 and under die.  
24 And you can see the trends are very much in the right direction  
25 for us over the years, in the last 9 or 10 years. Crashes,

1 however, do remain the leading killer of kids from ages 3 to 14,  
2 based on the most recent available statistics.

3 In 2009, injuries -- excuse me, fatalities did drop by 3  
4 percent from 2008, but that's still over 1,300 children who died  
5 in traffic crashes. There was also a 7 percent decrease from 2008  
6 to 2009 in children who were injured, which I think is an often  
7 overlooked stat. Sometimes we look at the fatalities to the  
8 detriment of the bigger problem.

9 In 2009, an average of 4 kids every day, ages 14 and  
10 younger, were killed and 490 were injured in motor vehicle  
11 crashes. So we don't want to claim success or rest on our laurels  
12 for long.

13 There were 322 passenger vehicle occupant fatalities  
14 among children ages 4 and younger and over 30 percent of them were  
15 totally unrestrained at the time of their death. So whenever we  
16 think about progress we're making, we really have to keep in mind  
17 the unrestrained problem in addition to the issue of keeping  
18 children in the proper restraint for their age, size and state of  
19 development.

20 Car seats saved an estimated 309 lives in 2009, both the  
21 use of seatbelts and child seats. If child seat use had been at  
22 100 percent, we could have saved an additional 63 lives in 2009,  
23 according to NHTSA estimates.

24 From 1975 through 2009, our estimate is that 9,310 lives  
25 were saved by child restraints, so we think we have a fair track

1 record.

2           Last year, if we look at child restraint use, which, of  
3 course, is a big reason why we're seeing drops in fatalities, it  
4 follows the familiar pattern to many people in this room, which is  
5 the younger kids are most well protected and as they age or as  
6 they grow, the rates decline. And you can see that reflected  
7 here. This is through our most recent survey, the National Survey  
8 of the Use of Booster Seats.

9           I'm happy to say, for many ages though, we've seen  
10 sustained rates over the years rather than wild fluctuations,  
11 so -- and that's obviously to the credit of our infrastructure of  
12 child safety technicians, as well as our child safety seat  
13 inspection stations at the local level, among other factors.

14           Just looking back from, you know, 1994, when we began  
15 some of our surveys, infants were at 0 to 1, which is the blue  
16 bar. We're already at a reasonably high, comparatively speaking,  
17 rate of restraint use at 88 percent and they're sustained today at  
18 98 percent. So we think it's pretty unusual to see an infant  
19 unrestrained. Not, certainly -- I mean it does happen, but we --  
20 and we've been able to sustain those rates for years.

21           Among the older children, the toddler population,  
22 essentially, ages 1 to 4, from 1996 to 2002, it's increased from  
23 61 percent to 91 percent. That's the biggest single increase and  
24 today, it's at about 98 percent as well.

25           Just some key milestones in child passenger safety over

1 the years. The Federal Motor Vehicle Safety Standard 213 was  
2 established in 1971. In 1978, Tennessee enacted the first state  
3 child restraint law lead by a local pediatrician, Dr. Bob Sanders,  
4 and who was known as -- may he rest in peace -- Dr. Seatbelt. And  
5 by 1985, laws were in effect in all 50 states.

6 In 1996, as many people in the room probably recall,  
7 there was a horrendous series of injuries and death associated  
8 with airbags interacting with children in the wrong position, in  
9 the front seat in particular. And a major campaign was conducted,  
10 and I have to say, the NTSB was instrumental in that, heavily  
11 involved with the airbag and seatbelt safety campaign and other  
12 initiatives that have really made a difference. And airbag-  
13 related fatalities today are relatively rare in the aftermath of  
14 that and I would just opine that, you know, no law requires  
15 children to be in the back. Although, some state laws now do have  
16 that provision, it's been much more of a behavioral change through  
17 education and other measures.

18 In 1997, the Child Passenger Safety Technician Training  
19 Program was launched -- and I'm afraid these numbers are a little  
20 inflated. My Safe Kids friends in the room will tell me, it's  
21 about 34,000 plus technicians, not that that's a small number, and  
22 it's well over 1500 certified instructors. I apologize. And I  
23 have to say again, former Chairman Jim Hall was the one who issued  
24 a call for inspection stations, what he called fitting stations,  
25 to be established. And to his credit and to all of our credit,

1 there are thousands of them now in effect nationwide providing  
2 direct service to families.

3 In 2000, Congress passed the TREAD Act. I won't define  
4 it for you, but it had numerous provisions to protect older child  
5 passengers because it was clear that the older child was, if not  
6 being forgotten, was certainly not being protected enough.  
7 Washington State, that year, also passed what was known as Anton's  
8 Law, the nation's first state booster seat use requirement.

9 In 2002, LATCH, which is the Lower Anchors and Tethers  
10 for Children, as most of us know, became mandatory on all child  
11 restraints in nearly all passenger vehicles. That same year, as  
12 Congress directed, we unveiled a new child restraint ease-of-use  
13 rating system. And at the national level, they passed a version  
14 of Anton's Law with similar protections for older child  
15 passengers.

16 And in 2010, 47 states and D.C. now require booster seat  
17 use. They've upgraded their laws, and I have to say again, I know  
18 that the NTSB has been active testifying and providing other  
19 services to the states that have been absolutely instrumental in  
20 the enactment of those laws.

21 Oops. I only pressed it backwards once.

22 This chart is an attempt to just show steadiness in both  
23 the infant and toddler usage rates. The green bar is the infant  
24 population. This is by virtue of NHTSA annual surveys. So you  
25 can see the green bar has remained, more or less, constant in the

1 high 90s. The toddler population has moved a little bit more, but  
2 not significantly so it remains at very high rates today.

3           And for the older child -- and I apologize if the color  
4 gradations for people in the back of the room might not be quite  
5 as explicit as they could be. These are for the older kids, both  
6 ages 4 to 7; 8 to 12; and 8 to 15. Kids in the 4 to 7 age group  
7 have definitely made some progress. The kids in the 8 to 15 age  
8 group are pretty steady at about 85 percent, and the 8 to 12  
9 measurement came about with the introduction of our new survey  
10 back in 2006, so we have both 8 to 12 and 8 to 15 measures.

11           And then, briefly, I was asked just to summarize what it  
12 is that NHTSA currently recommends for the basics, what are the  
13 milestones, what are the recommendations for parents so they'll  
14 know when and how to transition their child to the next level  
15 based on their size, age and development.

16           So the first step is, of course, for infants, and we are  
17 extremely close, I must say, to the American Academy of Pediatrics  
18 and other organizations, including Safe Kids and others, who are  
19 heavily involved in this cause.

20           And we were -- the first recommendation is to make sure  
21 that infants are in the back seat, that they're in rear-facing  
22 seats as long as possible, as long as their restraint will allow,  
23 basically, and we currently say that, at a minimum, keep them  
24 rear-facing to at least -- and I tried to put everything numerical  
25 or specific in red -- to at least age 1 and at least 20 pounds.

1 Now we obviously know that children are safer the longer they can  
2 ride rear-facing, but that's the current recommendation.

3 For the second step of what we call four steps for kids  
4 is when children outgrow their rear-facing seats and we, again,  
5 reiterate the minimum -- and we're trying to emphasize, that's  
6 only a minimum of the age 1 and 20 pounds. Again, they should be  
7 in the back seat. They can ride of forward-facing seats until  
8 they reach the upper weight or height limit of their seat, which  
9 we have said is usually around age 4 and 40 pounds, but many  
10 available restraints now go to a much higher weights than that.  
11 So that will have to evolve in the future, that recommendation.

12 For the booster age child, again, we -- once they  
13 outgrow their seat, they should ride in booster seats in the back  
14 seat until the vehicle seatbelts fit properly. And we do define  
15 what we recommend as correct belt fit in the actual  
16 recommendation.

17 And for teens/tweens, if we can live with that term --  
18 the tweens don't like being called tweens, apparently. When they  
19 outgrow their booster seat, and we know that age 8 is a guideline;  
20 many kids don't reach 4'9" until they're well beyond 8 years old.  
21 In fact, I think it's the norm that they don't. They can then use  
22 adult seatbelts in the back seat, assuming that the seatbelts fit  
23 them properly and then we define there, as you can see, what  
24 correct fit means.

25 One challenge facing the country as a whole is sort of

1 making sure that older kids are restrained in the appropriate  
2 restraint until they're big enough to go into the seatbelt. The  
3 good news is, all but three states, and you can see them  
4 highlighted in red and we chose red for a reason, have booster  
5 seat requirements in effect in their child restraint laws.

6           However, in spite of the fact that we do have a model  
7 law and we do recommend specific provisions, as with all things,  
8 the states are independent. They're highly motivated, however,  
9 and many of them have taken steps to protect children by  
10 strengthening their laws. But as you can see, it's a rainbow out  
11 there and states have numerous requirements of age, height, size  
12 and there are obviously in many state laws, gaps and exemptions  
13 that compromise the children's correct restraint status.

14           And just a glimpse, as the states have enacted these  
15 laws, increasingly, we haven't really seen much movement in  
16 booster seat use. Many folks have been tracking booster seat use  
17 through their own metrics. We use the National Survey for the Use  
18 of Booster Seats and you can see it starts at about 41 percent the  
19 first year we conducted the survey and this year, for the most  
20 recent year, it's still at 41 percent, which at least it didn't go  
21 down. Although, statistically -- it did, but I'm not told that's  
22 not statistically significant.

23           There are a couple of populations though that are  
24 remaining at particularly heightened risk and here it's really low  
25 income families and minority populations. And this first graph,

1 again, this is from our Booster Seat Survey which captures race  
2 and ethnicities through direct interviews, as well as doing  
3 observations, looks at -- these next two slides look at both the  
4 Hispanic and the African American population.

5           And as you can see, the orange -- I think it's orange on  
6 the screen -- bar is the Hispanic population. This is looking at  
7 children 12 and under compared to the national average. The  
8 national average appears in the blue bar. As with traditional  
9 child restraint use, the older they get, the lower their correct  
10 restraint use is and it's particularly pronounced among Hispanic  
11 children, as you can see, at every age.

12           The African American population shows a similar pattern  
13 and I'm not sure if those of you in the back can see, necessarily,  
14 the individual rates that are tagged there, but I call attention  
15 to the 1- to 3-year-old and the 8- to 12-year-old, both of which  
16 are below 75 percent. So that's less than three out of four kids,  
17 again, according to direct observation and interviews with the  
18 kids; that's where we get the ethnic information.

19           Well, what does this translate into? Well, looking at  
20 overall fatalities among child passengers from 2004 to 2008, ages  
21 13 and under, these two slices of the pie, the blue and the  
22 orange, of the African American and Hispanic populations, that's  
23 more than 1,700 kids who died in car crashes. Now, the green part  
24 of the pie includes other at-risk populations, including Asian  
25 American children, Native American children, Caucasian children

1 and others.

2           When you look at it in terms of unrestrained child  
3 fatalities, it's a smaller number, of course, because not all kids  
4 are unrestrained when they die, but we still lose more than 900  
5 children over this time span from the African American and  
6 Hispanic population. And the reasons for this are complicated, of  
7 course. There's no simple answer or simple solution, but we are  
8 starting to do more to look into that and to try to resolve it.

9           The next couple slides are a little bit complicated, so  
10 I apologize in advance. These are both attempts to show, at each  
11 year of age, from 0 to 13, what is the rate of unrestrained  
12 fatalities among 3-year-olds, 4-year-olds, 5-year-olds, all the  
13 way up to age 13. And as you can see, this is the Hispanic  
14 population, so the -- again, the orange or red bar is the Hispanic  
15 population and the green bar is the overall population.

16           The Hispanic rate of unrestrained fatalities as child  
17 passengers is higher at every age, except 10 years old. Could be  
18 an anomaly in the data. Could be -- there could be some factor  
19 for that. It could be a one-time thing. We honestly don't know.  
20 But for some of the age groups, in particular, the 7-year-olds,  
21 the 12-year-olds, and the 13-year-olds, more than two out of three  
22 of them are dying while unrestrained. So we have, you know, a lot  
23 of work to do to provide direct service and education to these  
24 folks.

25           Now, my last slide -- did I hear applause -- looks at

1 the African American population 14 years of age and under,  
2 according to our FARS database. And at every year of life,  
3 African American child passengers die while unrestrained at higher  
4 rates than the overall population. And I call attention to the 6-  
5 year-olds, the 7-year-olds, the 13- and 14-year-olds, all of whom  
6 are at rates of more than 2 out of 3 who die while unrestrained at  
7 the time of their death.

8           So we're not complacent about the progress that we've  
9 made. We realize there are many challenges and that is one of the  
10 key ones we're trying to address, is how to provide better  
11 services to those families. Thank you.

12           DR. POLAND: Thank you, Mr. Sinclair.

13           Our second presenter of the afternoon is Dr. Kristy  
14 Arbogast. Dr. Arbogast is the engineering core director for the  
15 Center for Injury Research and Prevention at the Children's  
16 Hospital of Philadelphia. She is also a research assistant  
17 professor of pediatrics at the University of Pennsylvania.

18           Dr. Arbogast, please begin your opening remarks.

19           DR. ARBOGAST: Thank you very much, Dr. Poland.

20           I want to thank the NTSB for continuing to shed light on  
21 the important issues facing children. You've done it for many  
22 years and I'm pleased to see it's continuing.

23           So I want to reflect some of the good news that  
24 Mr. Sinclair highlighted in his comments and look at it in a  
25 slightly different way. If we consider the numbers of children

1 dying on our roads, and if we think if we would have continued the  
2 same rate that it was back in 1994, there are 3,500 children who  
3 are alive today because of the policies, because of the products  
4 and advances that the safety community has achieved.

5           And the reason we, at a children's hospital, care about  
6 this is because not only is it a transportation safety problem for  
7 children, it's really a public health problem that motor vehicle  
8 crashes remain the leading cause of death for children. The  
9 figure on the right of this graph shows, in a very colorful way,  
10 the leading causes of death from the Centers for Disease Control  
11 data. And I know you can't read the words in the back, but the  
12 light blue boxes are motor vehicle traffic injuries. And so you  
13 can see, up to age 24, how important these deaths are in  
14 understanding what's affecting our children.

15           So I want to go back to 1996. Mr. Sinclair reflected  
16 that, in the mid 1990s, we were in the middle of the child airbag  
17 crisis where there were several dozen children who had been killed  
18 by deploying airbags. One of the first children was actually seen  
19 and treated at our hospital. Spurred on by State Farm Insurance,  
20 we at Children's Hospital of Philadelphia and University of  
21 Pennsylvania created what was called the Partners for Child  
22 Passenger Safety. This was a child-focused crash surveillance  
23 system.

24           We used State Farm Insurance claims to identify children  
25 in crashes and then conducted statistically valid and

1 representative telephone surveys on a large number of children in  
2 crashes. A subset of those cases we studied in an in-depth manner  
3 to understand the mechanisms of injury.

4 We collected data from 1998 to 2007, and at the end of  
5 2007, when data collection ended, we had information on more than  
6 three-quarters of a million children in crashes. And the depth  
7 and breadth of this data allowed us to achieve many successes in  
8 the field of child passenger safety.

9 The impact of the quality of this data, both the large  
10 numbers, as well as the child-specific data fields that were  
11 collected, really impacted a variety of different stakeholders and  
12 arenas in child passenger safety.

13 We worked with many of the organizations that are here  
14 today. I think all my co-panelists I've worked with from the  
15 beginning of this data collection, and here are some examples of  
16 what the type of data can do if you have enough numbers and enough  
17 quality of child-specific information.

18 We use the data to enhance the evidence base for  
19 legislation and regulation. Our data evaluating the effectiveness  
20 of booster seats was used to upgrade many of the laws we just  
21 heard about. Industry and our advocacy colleagues used the data  
22 to help set their own priorities. In a time of limited resources,  
23 you want to make sure that your areas of emphasis are driven by  
24 data so that you can maximize the benefits from those limited  
25 resources.

1           And lastly, this data served as the foundation for  
2 important additional research. My area of emphasis is  
3 biomechanics and so we've used this data to help improve the  
4 pediatric crash test dummies so they better mimic real children.

5           We heard from Mr. Sinclair these best practice  
6 recommendations, and what I want to share with you now is how our  
7 data and data from others help create the evidence base behind  
8 these recommendations. They are not just common sense. They have  
9 been evaluated based on data with real numbers and I would just  
10 like to highlight some of those numbers now.

11           So, if we focus kind of from our youngest children to  
12 our oldest children, and I realize I can't quite see that from up  
13 there. I'll look at it on my computer. If we look at our infants  
14 and the recommendation of keeping the infants in a rear-facing  
15 child restraint, this is due to the fact that there is a 71  
16 percent reduction in fatalities compared to unrestrained children  
17 and a 44 percent reduction in moderate and serious injuries  
18 compared to children in forward-facing child restraints.

19           For each of these data points, I have tried, in my  
20 slides, to indicate the peer-reviewed publication that these  
21 numbers come from. And I also wanted to quote and emphasize the  
22 current policy of the U.S. American Academy of Pediatrics that  
23 encourages rear-facing beyond that 20 pounds, 1-year cutoff.  
24 Specifically, they say for optimal protection the child should  
25 remain rear-facing until reaching the maximum weight for the car

1 safety seat as long as the top of the head is below the top of the  
2 seat back.

3           Moving on to our toddlers, 20 to 40 pounds and greater  
4 than a year of age, the recommendation is a forward-facing child  
5 restraint. And the data that supports that suggests that there is  
6 a 54 to 69 percent reduction in fatalities compared to  
7 unrestrained; a 28 percent reduction in fatalities compared to  
8 children in seatbelts; and a 71 to 82 percent reduction in  
9 moderate and serious injuries compared to seatbelts. And I think  
10 these numbers are compelling. They convince us that it's more  
11 than just passion that we make these recommendations. There's  
12 hard data to suggest that these are the right things to do.

13           If we move on to our booster seat-aged children, there  
14 is a 45 percent reduction in moderate and serious injuries  
15 compared to seatbelts. And I would like to highlight for this  
16 recommendation, as well as several others, there's consistency  
17 among different datasets when calculating the effectiveness, which  
18 I think lends credibility to the fact that the data are the truth,  
19 they're the facts. There's a 55 to 67 percent reduction in  
20 fatalities compared to unrestrained.

21           This shows an animation that was actually conducted by  
22 Rajiv Menon, who's in the audience, when he worked with us at  
23 Children's Hospital. If you could, click on the animation? To  
24 show the importance of being in a booster seat, we have a 6-year-  
25 old child on the top schematic in a booster seat and the same age

1 child in a belt without a booster seat. If you could, run it one  
2 more time, please?

3 Part of the issue of being in a booster seat is that,  
4 not only does it position the belt on the appropriate parts of the  
5 child's body, but it gives them a space to sit in the vehicle such  
6 that they sit back; they're more comfortable with their legs  
7 bending over the edge of the booster seat. You can see by the  
8 yellow line that traces the head excursion, the movement of the  
9 head during a crash, that the movement of the head in a booster  
10 seat is much less than that of a child in a seatbelt.

11 And my clinical colleagues at the hospital emphasize to  
12 me regularly that the head is the most important body region that  
13 we should be concerned about. It's those injuries, particularly  
14 in children, that we're most worried about and want to prevent.

15 Moving on to children in seatbelts. The recommendation  
16 once children are out of the booster seat is that they should  
17 remain in the rear seat up to age 13. And if we look at the data  
18 that supports that, rear seat has a 35 to 45 percent reduction in  
19 fatality risk compared to the front seat for children less than  
20 12; and the rear seat has a 31 percent for 9- to 12-year-olds; and  
21 a 64 percent for 0- to 8-year-olds, reduction in injuries.

22 So for all of these best practice recommendations, we  
23 see benefits and fatalities, as well as injuries.

24 I just want to highlight this with a real case because I  
25 think that really drives home the importance of best practice. So

1 this was a case through our partnership with State Farm Insurance  
2 in which a two-door Coupe was impacted by an SUV. It was a fairly  
3 high severity crash and the driver sustained fatal injury. The  
4 roadway was under construction. The vehicle that we're talking  
5 about is the red one in the schematic, and a topic that is of  
6 great interest these days, the driver was distracted by his  
7 daughters in the back seat and drifted across the center line into  
8 the opposing traffic.

9           The right rear passenger, you can see her child  
10 restraint right there, was a 3-year-old female in a forward-facing  
11 child restraint, following best practice for her age. Her  
12 injuries were minor. She had no clinically important injuries.  
13 She was kept overnight at the hospital because the clinicians just  
14 couldn't believe, in such a severe crash, that she was actually  
15 uninjured.

16           However, her sibling who was seated next to her in the  
17 center, rear was a 7-year-old. She wore a lap belt only. She is  
18 of age that she should have been in a booster seat and she  
19 sustained a spectrum of serious injuries: brain injury, skull  
20 fracture, lumbar spine fractures, and abdominal injury.

21           So in the same crash severity, the difference between a  
22 child using best practice versus not really resulted in a  
23 dichotomy of outcomes.

24           So, I heard this from Mr. Sinclair and I want to  
25 reemphasize, we have achieved successes around child passenger

1 safety -- the numbers have gone down -- but we should not be  
2 complacent with that success. We have not cured the disease of  
3 child -- of pediatric motor vehicle injuries and it is a  
4 healthcare problem in addition to being a traffic safety problem.

5           There are future challenges that we know and there are  
6 future challenges that we don't know. The vehicle safety and  
7 traffic safety is changing rapidly. We have vehicle manufacturers  
8 and child restraint manufacturers who continue to innovate. There  
9 are wonderful, new technologies in our vehicle and we need to make  
10 sure that they benefit our child occupants and don't have any  
11 unintended consequences. And the problems are really getting more  
12 complex. The low-hanging fruit and the simple message of buckle  
13 up probably isn't enough anymore. We need more detailed data and  
14 contemporary data to help us address these problems.

15           I just highlight one of those issues for you to chew on  
16 a little bit on why we need additional data. This shows the  
17 injury risk to rear seat occupants, and if we look from left to  
18 right, on the left is our infants in rear-facing child seats,  
19 followed by our toddlers in forward-facing child seats, our 4 to  
20 7-year-olds in booster seats, and then two different age groups in  
21 seatbelts: the 8- to 12-year-olds and the 13- to 15-year-olds.

22           Now, the important thing about this graph is each one of  
23 those bars represent those that are following best practice.  
24 They're following the rules for their age. And so I submit to  
25 you, why can we not lower those last two bars? Why should those

1 8- to 12-year-olds and 13- to 15-year-olds have a higher risk of  
2 injury than their younger siblings? And so we need data to help  
3 us answer those questions and continue to advance the field of  
4 child passenger safety.

5           We are working very closely with our colleagues at  
6 NHTSA. As I mentioned, our data collection through the partners  
7 for child passenger safety study has ended. We are partnering  
8 with NHTSA to explore how we can leverage the infrastructure of  
9 the NASS system to create a national resource of child crash  
10 surveillance. We have titled this endeavor the NASS Child  
11 Occupant Special Study and we're working on feasibility studies  
12 and pilot studies funded by industry and the Insurance Institute  
13 to help us evaluate the feasibility.

14           Our vision for this is a national resource that all  
15 stakeholders in child passenger safety could access. It would be  
16 nationally representative. It would leverage the existing  
17 infrastructure and be a partnership between government industry  
18 and researchers to improve motor vehicle safety for children. And  
19 it's important that NHTSA be given the resources to be able to  
20 create this data source. It is financial and people resources  
21 that need to be devoted to this important issue and they need to  
22 be new resources. We can't take away from other important  
23 programs to devote resources to this issue.

24           So I would like to end by making, really, three key  
25 points on what I see are key principles and priorities for child

1 passenger safety, and the first is that child occupant protection  
2 is more than children in child restraints. I don't know if that  
3 reflects the aging of my own children, but I want to make sure  
4 that my 9-year-old and my 13-year-old are also protected. We need  
5 to monitor trends through rigorous child-focused crash  
6 surveillances, and the current databases we have don't necessarily  
7 have the right numbers of children nor the depth of child-specific  
8 data to help us answer these difficult problems.

9           And then I would like to issue a challenge to optimize  
10 the rear seating environment for all occupants, including the  
11 children that are back there. Thank you.

12           DR. POLAND: Thank you, Dr. Arbogast.

13           Our next presenter is Dr. Anne McCartt. Dr. McCartt is  
14 the senior vice president of research at the Insurance Institute  
15 for Highway Safety. Dr. McCartt oversees the Institute's research  
16 on child passenger safety.

17           Dr. McCartt, please begin your opening remarks.

18           DR. MCCARTT: Thank you. I would like to thank Chairman  
19 Hersman and the Board Members for inviting me to participate  
20 today.

21           Well, I'm presenting also, some historical data. It's a  
22 little bit different than the data you've seen before. These are  
23 the child passenger vehicle occupant deaths per population divided  
24 into the four age groups. And just to make a couple of comments.  
25 One thing that you see is that the reductions in death rates are

1 much stronger for the youngest groups so that infants, for  
2 example, have experienced a 74 percent reduction in the fatal  
3 crash rate, but there have been reductions for the older groups as  
4 well. And if you look especially at the last 10 years or so, and  
5 I'm sure some of that is due to increased belt use, but also, the  
6 fact that all passenger vehicle occupants are safer now as a  
7 result of improvements to vehicle crashworthiness.

8           A couple of other sort of general points I would like to  
9 make. These, again, are looking at children killed in passenger  
10 vehicles, in crashes, and as you've heard from the other speakers,  
11 two problems still remain. One is looking at the blue bars, that  
12 there are still too many children who are not restrained at all,  
13 and the yellow bars, if you look at the youngest age group, up  
14 through age 3, and then 4- to 8-year-olds, many children are not  
15 riding in the restraints that are best for their age.  
16 Particularly if you look at 4- to 8-year-olds, for example, far  
17 too many are belted when they should be riding in a booster.

18           My remarks are going to focus on really two main topics.  
19 One is boosters and some of the research we've done, and then  
20 upper tether use. And you've heard, again, you know, some of this  
21 from Kristy, but boosters used with lap and shoulder safety belts  
22 are the safest way for children about 4 to 8 years old to ride,  
23 after they outgrow their forward-facing restraints, but they are  
24 too small for adult seatbelts.

25           And Kristy and her colleagues' research has shown that

1 boosters with belts reduce injury among 4- to 8-year-olds by about  
2 45 percent compared with safety belts alone. And the concept of  
3 boosters is really simple. They raise the child, which results in  
4 moving the shoulder belt off the neck and onto the middle of the  
5 shoulder. And they improve the angle of the lap belt. They also  
6 have routing features that further improve belt use, and not  
7 unimportantly, they're more comfortable for children, which helps  
8 children stay in the best position in the case of a crash.

9           Booster use has increased. It's -- as you saw in an  
10 earlier slide, it's about 41 percent among 4 to 7-year-olds in  
11 seatbelt observations. And probably one of the biggest things  
12 moving booster seat up has been the passage of laws.

13           And this slide summarizes child restraint or booster  
14 seat laws currently and you can see there's a big range.  
15 Although, most states do now have laws requiring booster seats,  
16 there's a wide range among the states and how high those ages go.  
17 So there could be improvement there.

18           But we believe these have been a really important force  
19 for getting more children into booster seats. But part of the  
20 reason we did our research on boosters is not all boosters are  
21 alike and this slide illustrates what a good booster can do. So  
22 if you look at the child on the right, you can see the knees are  
23 bent at the edge of the booster. The belt has been moved down  
24 flat on the thighs, where it should be, and the shoulder belt is  
25 in the center of the shoulder.

1           And these are a couple of examples that aren't doing  
2 such a good job, so in one case, the shoulder belt is falling off  
3 the shoulder, riding up on the right, too close to the neck, and  
4 then the lap belts are on the abdomen where they're -- the part of  
5 the body most vulnerable to injury.

6           So we worked with a University of Michigan  
7 Transportation Research Institute to develop a system for  
8 evaluating how well lap belts and shoulder belts fit for all the  
9 boosters out there in the market. And I won't get into a lot of  
10 detail, but basically, used a 6-year-old dummy specially outfitted  
11 and we -- here, you see how we computed the lap belt fit scores.  
12 We took a reference point, which was the pelvic bone, and measured  
13 how far the lap belt rested on the child from that reference  
14 point.

15           This shows the range, and the one on the right the lap  
16 belt is riding up on the abdomen. It's doing better in the center  
17 slide, but then it's optimal on the right where it's lying flat  
18 across the upper thighs. And I don't have a slide for this.  
19 There was one booster that we measured that actually the lap belt  
20 went far too forward on the thigh, but that's really not that  
21 common, but is a problem.

22           We did a similar process for the shoulder belt, so we  
23 chose a reference point on the test dummy and then we just  
24 measured where, when we install the booster seat according to the  
25 manufacturers instructions, we measured with reference to that

1 point where the shoulder belt rested on the dummy. And here, you  
2 see, you know, the range: too close to the neck, fitting snugly  
3 on the center of the shoulder, and then beginning to fall off of  
4 the shoulder.

5 This is a picture of the test device that we used and  
6 the test dummy. And, you know, again, we've established a rating  
7 system and part of that is making sure that we use the test  
8 fixture and a really specific set of procedures that can be  
9 duplicated by other research outfits or seat manufacturers. And  
10 you can see a device that issues to vary the configuration of the  
11 lap and shoulder belt. And so we use this device to test the full  
12 range of seatbelt configurations that are out in the passenger  
13 vehicle fleet. And that was based on research that UMTRI did,  
14 going out, measuring in all vehicles in the fleet, what the range  
15 would be.

16 And this is the results of our rating program. We've  
17 now rated boosters for years. And so we have these different  
18 categories: best bet, best bet boosters are boosters that do well  
19 enough that we're confident would work with a child in almost any  
20 passenger vehicle; good bets are ones that do almost as well as  
21 the best bets; not recommended are boosters that get either a bad  
22 lap belt score or a bad shoulder belt score. And then you can see  
23 on the right, another category where the fit of the belt is  
24 variable so that it's harder to predict whether it would work in  
25 most vehicles.

1           A lot of these boosters are backless boosters that don't  
2 have a guide for the shoulder belt and so the fit of the shoulder  
3 belt is much more dependent on the vehicle that's being used. But  
4 the takeaway message from this slide is that boosters are getting  
5 better, and I can talk about that more in the questions, but we  
6 believe manufacturers have responded to the ratings by improving  
7 boosters. So, now parents have a wider -- a lot more options if  
8 they're looking for a booster seat that they can be sure will fit  
9 their child in more than one vehicle.

10           I want to talk now, just briefly, about other research  
11 we've done looking at the issue of the use of upper tethers.  
12 Upper tethers, you can see here on the slide, the way the LATCH  
13 system was phased in by the federal government -- upper tethers  
14 are part of the LATCH system. Although, I want to make sure that  
15 I say an upper tether should also be used when a forward-facing  
16 seat is secured with a seatbelt.

17           But LATCH, the system of LATCH has an upper tether and  
18 then it has two lower anchorage points. And effective 2001, top  
19 tether anchors were required in all passenger vehicles, but even  
20 before 2001, many vehicles did have anchorages and by 1999,  
21 forward-facing child seats had the tether straps.

22           So just a couple of comments about LATCH. LATCH was  
23 intended to make child restraint installation easier, partly by  
24 standardizing the way the forward-facing seat attaches to the  
25 vehicle. Based on a survey that NHTSA funded, the observations

1 were connected -- collected, excuse me, in 2005. The report was  
2 published in 2007. The researchers took a look at how seats were  
3 being attached to the vehicle and misuse of the attachment in  
4 vehicles which had LATCH available.

5           So if you look at the forward-facing restraints with top  
6 tethers that were in seating positions where anchors were  
7 available, only about half were installed with a tether. If you  
8 looked at the restraints that have the lower attachments that were  
9 in a LATCH-equipped seating position for the lower attachment, 63  
10 percent were attached using the LATCH system. And the survey did  
11 find that even with LATCH, misuse continued, especially in the  
12 looseness of the attachment.

13           So we wanted to -- what you're seeing here is a video  
14 showing the benefit of the top tether. Maybe you could play that  
15 again. What the line shows is the -- where the head excursion is  
16 first with the tether -- excuse me, without the tether and then  
17 with the tether. So this video is intended to show the benefit of  
18 using the top tether.

19           Basically, it reduced the excursion in the event of a  
20 crash. The child can even -- depending on the position of the  
21 front seat, there's even the possibility without -- a greater  
22 possibility without the tether, that the child's head would hit  
23 the front seat. So tethers keep a child safer.

24           And we wanted to go back and take a more recent look at  
25 how frequently tethers were being used. So last summer, we did an

1 observation survey in parking lots in suburban areas of Maryland  
2 and in the District of Columbia to take a look, again, at forward-  
3 facing child restraints to see what percentage of them were  
4 attached with a tether.

5           This slide summarizes the results for the vehicles that  
6 were 2001 model year or newer. Again, these are the vehicles  
7 where the anchor is required to be there. And what you can see is  
8 47 percent of these forward-facing child restraints were attached  
9 with a tether. When we considered whether the tether was being  
10 used tautly, it was reduced to 43 percent. When we looked a  
11 little further to see whether the tether was attached to the  
12 correct anchor, it was 42 percent.

13           A couple of more observations, though. We did observe  
14 13 percent of vehicles that were older than 2001 and tether use  
15 was lower, much lower in these vehicles, only 19 percent. We  
16 found that use was similar in cars, minivans and SUVs. We  
17 observed a very small sample of pickups, so this is not really a  
18 statistically significant difference, but use was very low in  
19 pickups, 17 percent.

20           We think that it's an important message to parents that  
21 many seem not to be getting, that attaching the top tether is a  
22 simple way to keep children safer. And we are not sure, I don't  
23 think others are either, why tether use is not higher. One  
24 possibility does seem to us that a lot of the publicity about  
25 tether use has been part of the LATCH publicity and many parents

1 may not understand that they need the tether even when they're  
2 attaching the restraint with a safety belt.

3           One last thing I wanted to mention, in terms of LATCH  
4 usability, we are now undertaking a study with the University of  
5 Michigan Transportation Research Institute and it's taking a look  
6 at the fact that, despite efforts to standardize child restraint  
7 attachments through use, LATCH usability, we believe, varies by  
8 vehicle due to a number of factors, but including seat geometry,  
9 where the anchors are located, how they're labeled.

10           And there are two independent recommended practices out  
11 there now through SAE and ISO, but these practices have not been  
12 fully evaluated. So the intent of our study is to first, document  
13 the range of vehicle features in the current vehicle fleet and  
14 then to assess the usability of LATCH. And by usability, I mean  
15 how easy it is to use it correctly using these two sets of  
16 procedures and then determine whether the ratings that can be  
17 obtained from the ISO system does result in real-world LATCH  
18 installation performance using real parents and grandparents.

19           Thank you very much.

20           DR. POLAND: Thank you, Dr. McCartt.

21           Our final presenter is Dr. Stephen Rouhana. Dr. Rouhana  
22 is the senior technical leader for safety in the Passive Safety  
23 Research and Advanced Engineering Department at Ford Motor  
24 Company. He works with the occupant protection systems design and  
25 was instrumental in the development of pediatric crash dummies.

1 Dr. Rouhana, please begin your opening remarks.

2 DR. ROUHANA: Thank you, Dr. Poland, and thank you to  
3 the Board for the invitation to present today.

4 I'm going to talk about our work on trying to protect  
5 rear seat occupants in vehicles which is, in a large part, based  
6 upon the information that you've heard from the previous  
7 presenters.

8 So we've, for a long time, recognized that protection to  
9 front seat occupants has been improving and we've been looking for  
10 ways to improve protection in the rear seats. Of course, front  
11 seat occupants today have airbags and there are, of course,  
12 significant issues with putting traditional airbags in rear seats.  
13 Rear seats are largely occupied by children and for years, we've  
14 been telling parents to place their kids in the back to eliminate  
15 exposure to airbags.

16 So we thought to ourselves, is there a way to bring some  
17 of the benefits of airbags to rear seats without all of the risks  
18 and our answer was, well, perhaps with an inflatable belt. And  
19 so, what is an inflatable belt? Well, it's a tubular airbag  
20 sandwiched between two pieces of shoulder belt webbing.

21 This is what it looks like before it's deployed in a  
22 crash. In the event of a crash, the airbag inflates across the  
23 chest in about 10 to 20 milliseconds and that's what it looks like  
24 when it's inflated. And I'll call your attention to the fact that  
25 she is still smiling.

1           Inflatable belts have a number of potential benefits.  
2 First of all, as the bag inflates, the size increases. It  
3 increases to about 8 -- 6 to 8 inches in diameter and that pulls  
4 the ends of the bag together which, in effect, shortens the belt  
5 system and pretensions. In addition we add a load limiter to the  
6 system.

7           What these combination of features will do is help  
8 reduce occupant head excursion, help limit occupant neck loads as  
9 the bag increases in size. Especially for smaller occupants, it  
10 catches the chin, which then offloads the neck and then it helps  
11 to distribute the belt load over more of the chest, reducing the  
12 pressure and risk of chest injury.

13           So we believe that this will help enhance protection in  
14 frontal impacts, in side impacts, both pole and barrier impacts  
15 and other crash modes. And we believe it will bring some of the  
16 benefits of airbags to the rear seat with less risk of unintended  
17 consequences. We believe it will have benefits for all occupants,  
18 but especially for children, smaller occupants and elderly  
19 occupants.

20           This is what the system currently looks like. It's a  
21 two retractor system. So we have a shoulder belt retractor, which  
22 is an emergency locking retractor, and we have a lap belt  
23 retractor, which is both an automatic locking retractor and an  
24 emergency locking retractor.

25           This is a little different than many systems out there.

1 Many systems today, you have to pull on the -- pull the shoulder  
2 belt all the way out in order to engage the locking mechanism. In  
3 this case, that won't work. You have to pull the lap belt all the  
4 way out to engage the locking mechanism.

5 The lap belt itself does not inflate. Only the shoulder  
6 belt inflates. We felt that inflating the lap belt would increase  
7 the risk of submarining.

8 This is what the components look like, the buckle and  
9 inflator on the right and the latch plate on the left. The  
10 inflator is the little cylinder at the bottom of the right-hand  
11 picture. It contains stored gas, helium and argon and that gas,  
12 during a crash, flows through the buckle and through the latch  
13 plate into the shoulder belt. You're going to see an animation of  
14 that now.

15 So you see the gas cylinder. A little diaphragm will  
16 rupture, getting a signal from the crash signal from the restraint  
17 control module. The gas flows through the buckle, through the  
18 latch plate, into the shoulder belt and inflates it. Thank you.

19 This is a video now showing a 6-year-old child on the  
20 left and a small female on the right, small adult female. The  
21 small adult female is also about the same size as a 12-year-old  
22 child and, clearly, you can see the inflatable belt inflate.

23 Can you play that one more time, please?

24 One of the things that is very apparent on the 6-year-  
25 old on the left-hand side, 6-year-old in a booster seat, is that

1 the chin is captured by the bag and, therefore, the head excursion  
2 is greatly reduced and the neck loads also come down.

3           This is just some of the data from our testing, showing  
4 the head injury criterion, the two bars on the left; chest  
5 acceleration, the two bars in the middle; and chest deflection,  
6 the two bars on the right. The red bars are a standard seatbelt  
7 and we use those to normalize the values for the inflatable belt,  
8 which are in blue. This was from a 30 mile an hour Delta V, which  
9 would be a -- two cars basically hitting at 60 miles an hour or 30  
10 miles an hour into a barrier. And what you can see is that the  
11 head accelerations have greatly reduced by about a factor of 2.

12           There's modest improvements in chest acceleration and  
13 chest deflection, but chest injuries are not the major source of  
14 injury for children. Head injuries are, so we see great  
15 improvement in the head accelerations.

16           Now, of course, one might question, if you put an  
17 inflatable belt in the rear seat, what's going to happen when we  
18 try to put child seats back there? So we did an extensive study  
19 looking at both child seat installation and child seat integrity  
20 when inflatable belts inflate.

21           As far as both of those are concerned, we got the  
22 manuals from all of the NHTSA lists of child seats, as well as all  
23 the other child seats that we could find in normal places that you  
24 would buy child restraints: Target and Walmart and the rest of  
25 those retail outlets. We evaluated from the manuals and from the

1 seats themselves, what possible interactions there would be with  
2 inflatable belts.

3           So with rear-facing infant seats, the top two rows  
4 there, we can have a lap belt -- lap/shoulder belt routed through  
5 the base of the rear-facing infant seat. We could have it routed  
6 around the infant carrier if somebody doesn't use the base. We  
7 also could see, for the next two lap/shoulder belt with a  
8 convertible seat, through a rear-facing seat or through a forward-  
9 facing seat, and for combination child restraint booster seats,  
10 you could have the lap belt routed through various ways, and I'll  
11 show you what we actually did.

12           So we took each owner's manual and we created these  
13 charts which show how they're attached with LATCH, how they're  
14 attached with a lap belt, and how they would be attached with a  
15 lap/shoulder belt. And we evaluated from this, the right-hand  
16 column, the lap/shoulder belt, what parts -- what interactions we  
17 would need to test or at least do some engineering judgment on or  
18 modeling. And the box there in the upper right-hand corner with  
19 the asterisk in it is one that we chose to test.

20           We did well over 100 different combinations, evaluations  
21 of child seats from every manufacturer that's sold in the United  
22 States and both did a fit and integrity assessment.

23           This shows a rear-facing infant seat with the shoulder  
24 belt wrapped around it and the belt deployed. And you can see,  
25 it's pretty much a non-event. There's a little bit of shaking of

1 the seat, but that -- and that, of course, was a static test.  
2 That was not a dynamic test.

3 This is a forward-facing child restraint and again, you  
4 see the bag deploy and there is -- it's a non-event. I only show  
5 one camera view for the sake of time, but looking from the front,  
6 you also don't see -- it's a non-event for the child in the seat  
7 as well.

8 So our conclusion from our child seat assessments is  
9 that a child's seat integrity is not compromised when an  
10 inflatable seatbelt is deployed. We have a number of ongoing  
11 actions. We presented these results to the Juvenile Product  
12 Manufacturers Association. We have ongoing discussions with child  
13 seat manufacturers to include installation instructions in their  
14 manuals for inflatable belts.

15 So what about children who are sleeping? In 2002, I was  
16 on my way home from a family vacation -- and I forgot to advance  
17 the slide. Sorry.

18 I was on my way home from a family vacation. I have  
19 three sons. Fred MacMurray is my hero. And I looked in my  
20 rearview mirror and this is what I saw. That's my son, Jonathan,  
21 who is my youngest. He was 6 at the time. He was in his booster  
22 seat and he fell asleep and his cheek is resting on the seatbelt,  
23 which is sandwiched between his head and the shoulder. Of course,  
24 I couldn't do that with a body builder pushing on my head, but  
25 there's a reason for that.

1           If you look at the anatomy of the neck for an adult  
2 versus a 6-year-old child, the adult on the right-hand side, if  
3 you look at the lower row, the bottom row, basically, this  
4 expresses the reason that kids can do that and we can't. As our  
5 cervical vertebrae develop, they become uncinata, which is sort of  
6 u-shaped, and they no longer slide laterally as easily as they do  
7 for the relatively flat vertebrae of a 6-year-old.

8           So, unfortunately, the dummy doesn't get in that  
9 position either so we had to be creative and we developed a  
10 modification for the dummy neck that you see here. And you see --  
11 I guess I should look at my own slide. It's a small female dummy  
12 on the left-hand side and it's a child dummy in the video.  
13 Basically, we built a hinge on the neck of the dummy so that it is  
14 fairly representative of a child who's sleeping. There isn't much  
15 active musculature in play at the time. And then, as the head  
16 comes up and passes through the neutral plane, the tension in the  
17 dummy neck starts to take over just like a child's ligaments and  
18 muscles would.

19           Well, we weren't satisfied with that. The results were  
20 very good. We didn't see any -- we measured the neck forces in  
21 moments and the head accelerations and we didn't see a cause for  
22 concern, but that picture kept playing in my mind. And so we also  
23 went beyond just dummy testing and we tested postmortem human  
24 subjects.

25           Now, it's nearly impossible to get child subjects, so we

1 tested a very small, very old female postmortem subjects, and  
2 they're also very difficult to get, but we managed to get three  
3 subjects in about 3 years and we ran tests.

4 Prior to the bag deployment, the subject's head was  
5 rotated, the neck was flexed, and we actually had to raise the  
6 shoulder to enable to get contact between the cheek and the belt  
7 and the shoulder. We also pressurized the vasculature and  
8 inflated the belts. We did a complete autopsy of the head and  
9 neck and found no issues: no vertebral damage, no ligamentous  
10 damage and no vascular damage.

11 So, based on that, we decided that we were quite  
12 confident that these belts could go into production. And so, as I  
13 mentioned last month when I was here talking about older  
14 occupants, these are going into production. The first Explorer  
15 rolled off the line last week. They won't have inflatable belts  
16 until March, but they will be option in the second row outward  
17 seats, and it's our expectation that they will help to reduce the  
18 serious injuries and fatalities for children in vehicles in the  
19 future.

20 Thank you very much.

21 DR. POLAND: Thank you, Dr. Rouhana. And I would like  
22 to thank all of the panelists for their excellent presentations.

23 The technical panel would like to begin its questioning.  
24 When we question, we may address a question to a specific  
25 panelist, but if the other panelists have information that they

1 would like to add, please feel free to do so.

2 We've heard a lot of information about how parents can  
3 exercise best practices. A lot of times, when parents are  
4 purchasing a vehicle, they may go to NHTSA's website to look at  
5 the vehicle star rating system or maybe the Insurance Institute's  
6 top vehicle safety picks. Do any of these star rating systems for  
7 the vehicle address the rear seat of the vehicle or specifically  
8 child passenger safety?

9 DR. MCCARTT: About the institute's rating, while our --  
10 first of all, I would want to say that all occupants, regardless  
11 of age, benefit from the better crashworthiness of vehicles. So  
12 in the same, you know -- so children will be protected to the  
13 extent that other ages would be protected.

14 We do in our side impact test -- our side impact test  
15 involves a pretty severe crash using a deformable barrier that's  
16 supposed to represent an SUV or a pickup into the side of the  
17 vehicle. And in that test, we do use a dummy in the back seat  
18 that's a fifth percentile female, which is equivalent to a 12-  
19 year-old.

20 And I would also say, about the side impact test, that  
21 one of the things we've seen with that is it's led, we believe, to  
22 a point today where almost all passenger vehicles now have  
23 standard side airbags, but we don't -- in our test, we don't  
24 specifically evaluate beyond that. The dummy, the small dummy in  
25 the back seat for the side impact test, we don't specifically

1 evaluate the crashworthiness for children.

2 DR. ROUHANA: I would only add that the closest thing we  
3 have is the ease-of-use rating system, which, again, assess the  
4 ease of installation for the child restraint as opposed to the  
5 installation itself: are the parts previously assembled; do the  
6 instructions match the labeling, and things of that nature to make  
7 it easier for the consumer to install.

8 DR. MCCARTT: I would like to add, too, that we do -- we  
9 have considered this from time to time. It's -- and part of the  
10 difficulty is, when you're doing -- when you're rating vehicle  
11 crashworthiness, you're rating a vehicle. And so if you rate a  
12 make, model and year of a vehicle, it's like every other make,  
13 model and year of that vehicle. And the problem with looking  
14 specifically at child restraints or child safety seats, boosters,  
15 is that there is a lot of variation. So as I've just said with  
16 boosters, one booster is not the same as another booster and it's  
17 a matter of the specific child safety seat and the specific  
18 vehicle.

19 So even, you know, even trying to figure out how to do  
20 that in a useful way is actually, logistically, very challenging.

21 DR. ARBOGAST: I think that's a really important point,  
22 the absence of either regulation or consumer information programs  
23 that specifically evaluate rear seat safety for children in  
24 frontal crashes. In the absence of both of those, manufacturers  
25 are not necessarily incentivized to put innovations back there.

1           We've seen it with Ford today, but manufacturers have  
2 many competing priorities: economics, lower weight to have better  
3 fuel economy. And so, unless we incentivize them to put restraint  
4 innovations in the rear seat that are evaluated in some objective  
5 manner through regulation or consumer information, I think we  
6 aren't going to see the flow of innovations back there that we  
7 would like to.

8           DR. POLAND: So if I'm understanding correctly, then  
9 there weren't any regulatory incentives for Ford to put these type  
10 of inflatable restraints into the rear seat, nor were there any  
11 sort of educational or testing systems that would have encouraged  
12 Ford to do that. So what was the incentive, then, for Ford to go  
13 to some sort of an inflatable restraint system for the rear?

14           DR. ROUHANA: Ford is a family company. We are owned by  
15 the Ford family. They still own most of the controlling interest  
16 and shares and we all have families, we all -- all of us who work  
17 there have families. There is no regulation that required us to  
18 put anything in the back seat. In fact, there's a disadvantage  
19 because we're spending money and resources to do something that's  
20 not required.

21           But we do -- we've looked at the data. We are data  
22 driven. We've seen what's come out of Children's Hospital of  
23 Philadelphia, from NHTSA, from IIHS, and we decided we needed to  
24 do something. We've been working for 10 years to put the  
25 inflatable belts into production. We had to go through all of

1 those -- we didn't want a repeat of airbags, so we went through  
2 all of due care analyses I just showed you and many more. But the  
3 answer is, we thought it was the right thing to do and that's why  
4 we did it.

5 DR. POLAND: Thank you.

6 I think we've heard a lot this afternoon about how much  
7 we have advanced child passenger safety, but we've also heard that  
8 we shouldn't just assume that we're done. I think some of the  
9 aspects are that we have some children that are still unrestrained  
10 or need to be in proper restraints for their age, but we've also  
11 heard some of the complexities associated with the restraint  
12 systems.

13 And I think, just looking at some of the displays that  
14 we have in front of us, we see the large variety of seats. And in  
15 the automotive seat, in the rear, we can see this doll represents  
16 a child that is 4'9" tall, which would be the size of a doll that  
17 could -- or the size of a child that could appropriately wear the  
18 adult seatbelt, according to the NHTSA guidelines. But that child  
19 is a very large child.

20 So there's complexities along all of the stages that  
21 we're going to look at to properly restrain the child. If we just  
22 want to look at just one of those, I think one of the changes that  
23 I'm hearing a lot is that rear-facing aspect of children, not just  
24 at 1-year-old and 20 pounds, turn them forward-facing, but keep  
25 them rear-facing as long as possible. It seems like this is

1 pretty accepted in European countries.

2           What are the obstacles for us to be able to have that  
3 type of system in the United States? Because it is somewhat of a  
4 challenge to keep your children rear-facing for longer, especially  
5 when you've already promulgated the idea of 1-year-old and 20  
6 pounds.

7           DR. ARBOGAST: I think you appropriately highlighted the  
8 data that's coming out of, in particular, the Scandinavian  
9 countries where they keep their children rear-facing to age 3 or  
10 even age 4. I think that there are some important differences  
11 between the products that are available and the type of rear-  
12 facing seats. I know that the seats in Sweden, in particular, are  
13 much larger so they accommodate a child that's 3 or 4. They also  
14 have a particular design feature, a support leg that kind of goes  
15 down from the back of the child seat to the floor of the vehicle.  
16 Which, as I understand, there are some limitations based on FMVSS  
17 213 of implementing that in the U.S.

18           So I think there are some design issues, but I think we  
19 also need to think about the other side of it. We could design  
20 the, you know, most effective child restraint, but we need people  
21 to use it. And so we need to understand the barriers or  
22 facilitators between why parents would or would not want to keep  
23 their children rear-facing.

24           I think we're starting to see more children remain rear-  
25 facing for longer than one year. There's nothing magical that

1 happens at one year, biomechanically, so extending that rear-  
2 facing and getting the social norms to change, that that is  
3 typical to have children of age 2, and if we want to dream, even  
4 maybe age 3 rear-facing. It's both engineering, as well as  
5 understanding the sociology.

6 DR. POLAND: Thank you.

7 MR. SINCLAIR: I would echo that and we have -- we still  
8 see a pretty significant degree of what we call premature  
9 graduation from rear-facing to forward-facing among quite young  
10 children. Part of it is human nature. When you see the back of  
11 your child's head in the rearview mirror, you can't wait to turn  
12 that child around, and we just -- we hear that repeatedly from  
13 parents.

14 They worry about whether their child might be  
15 asphyxiating back there and all that, and we can tell them that we  
16 don't have any documented instance of that and all of that, but  
17 they -- it's understandable that they would like to see their  
18 child's face in the rearview mirror. But increasingly, we are --  
19 the educational outreach, the child seat design are going to  
20 higher and higher weight rear-facing. So we are moving  
21 progressively as a society in that direction, but I think our  
22 educational efforts need to be much more engaged than they have  
23 been as well, and to really make it a social norm, like  
24 Dr. Arbogast said.

25 DR. POLAND: Now I would like to move on to the older

1 aged children and talk a little bit about the booster seats. And  
2 I have two questions associated with that. One is addressing the  
3 research that the Insurance Institute has done. And the first  
4 question is that the research that the Insurance Institute did  
5 looked at booster seat fit. Has the fit of the booster seat been  
6 associated with better outcomes in crashes?

7 DR. MCCARTT: We don't have good evidence that would  
8 compare better fit and the outcome of a crash.

9 DR. POLAND: And I guess the follow-up question to that  
10 is that I think, following on to what Dr. Arbogast had mentioned  
11 for optimizing the rear seat, we know that 4- to 8-year-olds  
12 should be in booster seats. But when we look at the height, 4'9"  
13 and when most children can fit into the adult seatbelt system,  
14 it's probably older than 8 years old.

15 Is there some way that we could optimize that rear seat,  
16 either so that children that are 8 years old do fit in the adult  
17 belt system or some way that makes it easier for parents to know?  
18 Because 8 years old is kind of like the state laws and kind of the  
19 accepted information, but they may not fit in the adult belt until  
20 they're 11 or 12 years old. And if we did optimize the rear seat  
21 in that way, would it be a disadvantage for adults sitting in the  
22 rear seat?

23 DR. MCCARTT: Well, I'll go first, I guess. I think you  
24 had a couple of questions in there. One might be what guidelines  
25 to give to parents to know, you know, at what age their child

1 should move out of a booster. In the publicity we've done with  
2 our ratings, we say over and over again, we talk about the fit  
3 and, you know, where the lap belt should be, where the shoulder  
4 belt should fit, but I think that you don't want too complicated a  
5 message in a broad publicity campaign. And it's difficult to  
6 write laws that have to do with something as complicated as fit.

7           So you know, we wouldn't use the -- we don't use the age  
8 much. We would use mostly 4'9", which, again, is not every child.  
9 Ideally though, the bottom line is that the parent should look at  
10 the fit. But again, in terms of doing some sort of broad-based  
11 publicity, I think you lose something when you have too  
12 complicated a message.

13           In terms of the back seat and the belts, we're involved  
14 -- I know there are conversations involving the people on this  
15 panel and others to try to take a look at whether there is a way  
16 to do similarly for what we've done for boosters for older  
17 children and even adults using seatbelts in the rear seat. My  
18 guess is we could have a much better system that would work for  
19 children as they graduate from booster seats, as well as adults.  
20 I think we all think we could do better and we're all trying to  
21 figure out a way, I think, to have a research program to move that  
22 forward.

23           It's complicated to figure out, but you know, I think  
24 you wouldn't -- I think we could come up with a system where you  
25 wouldn't have to make such tradeoffs. I mean, personally

1 speaking, and I think I speak for a lot of women, a lot of women  
2 are uncomfortable in belts in the back seat. And the comfort --  
3 you know, comfort with children and with adults is an issue. If a  
4 seatbelt's not comfortable, there's -- it's more likely it's going  
5 to be placed behind the neck or under the arm.

6 DR. ROUHANA: I think there are a number of issues with  
7 rear seats that make them quite different from front seats. The  
8 design, for one thing, in the front seat, most vehicles today only  
9 have two seating positions and so there's a lot more room for  
10 people to -- there's a lot more space for people, personal space.

11 In the rear seat, we usually try and compress three  
12 people into that space and that makes it quite difficult. We also  
13 have to accommodate child seats. The rear seats have to be load  
14 floors. They have to tip. They have to fold. They have to  
15 slide. People are coming up with all sorts of new challenges for  
16 rear seats that makes it very difficult for a manufacturer to  
17 create something that will meet all of these different  
18 requirements.

19 That said, we are constantly looking for ways to improve  
20 the rear seat and we have some projects going on now. I can't  
21 really talk about them, but it is something that we -- is  
22 certainly on our radar because we also feel that child restraints,  
23 particularly booster seats, are a Band-Aid approach and we would  
24 like to have a more holistic approach.

25 DR. POLAND: Thank you.

1           Mr. Collins?

2           MR. COLLINS: Thank you.

3           Dr. McCartt, in your presentation, you noted the lower  
4 use of top tethers in pickups. And understanding the sample may  
5 not be statistically significant, do you have any theories on why  
6 you're seeing that lower use in pickups?

7           DR. MCCARTT: I think our theory would be that if you  
8 had any other vehicle available to use, a pickup would probably  
9 not be your choice. So I think it's probably rare, again, in a  
10 family that has other vehicles, to use a forward-facing child  
11 restraint in a pickup.

12          DR. ARBOGAST: I think we've also seen lower rates of  
13 age appropriate restraints in pickups as well, so I think there's  
14 a lot of similar data that supports lower adherence to best  
15 practices in pickups.

16          MR. SINCLAIR: I think I could speak for many of the  
17 technicians here in the sense that it's often hard to get a good  
18 installation in a pickup truck. The tether anchors are often in  
19 such a location that they're hard to manage. A lot of mangled  
20 hands come from trying to get in there. So I don't -- it's not --  
21 I think Anne is right. It's not the vehicle of choice for a  
22 parent transporting a child and they're trying to accomplish a lot  
23 of things in their back seats as well, but I don't think they --  
24 if they even have a back seat, I don't think child seats are  
25 necessarily the first thing on their minds.

1 DR. MCCARTT: I think Sandy hit on a point I should have  
2 made earlier, too. When you look at low tether use, the anchors  
3 are in all kinds of different places. They may not be clearly  
4 labeled. They may be difficult to use. So when we look at low  
5 tether use, I think when we also look at the use of the lower  
6 anchors, but especially with tethers, I think part of the  
7 difficulty for parents is that it's not -- despite the goal of  
8 LATCH to standardize things, it's not really standardized or  
9 easily interpreted by parents.

10 MR. SINCLAIR: I also think -- I'm sorry, just one last  
11 thing -- that if you look in the back of a child seat today, there  
12 are more things dangling, there are -- there's all kinds of  
13 hardware. There's a lower LATCH attachment. There's a top  
14 tether. There's the harness strap in front. You're talking, in  
15 many cases, about parents in a very limited experience with  
16 installations on their own and maybe they have young children; it  
17 might be their first time they've tried to install it because in  
18 this country we don't install tethers rear-facing. So I think  
19 it's really a lot to ask for parents and that's why we would like  
20 to refer people to the network of inspection stations and TBS  
21 technicians out there for assistance if they need it.

22 DR. ROUHANA: Coming back to the -- where this question  
23 began, which is at pickups, as I recall the data, even for adults,  
24 restraint use is lower in pickups. So it's -- there may be some  
25 sociological issue there.

1 MR. COLLINS: Thank you.

2 MS. DAVIS: Mr. Sinclair, during your presentation, you  
3 pointed out the lower child restraint --

4 CHAIRMAN HERSMAN: Ms. Davis, can you pull the  
5 microphone just a little bit closer?

6 MS. DAVIS: Yes. You pointed out the lower child  
7 restraint use rates for the Hispanic and African American  
8 children. What do you attribute the lower use rate to?

9 MR. SINCLAIR: It's a really complicated question with  
10 no simple answer. We've tried to figure that out and we did a  
11 series of listening sessions around the country in September.  
12 Much of it is economics more than anything else. Partly, it's  
13 language that's affecting the Hispanic population. A lot of it is  
14 access.

15 What we -- the number one thing from all of these  
16 listening sessions that we took away was, oftentimes, families are  
17 faced with a choice, low income families in particular, the choice  
18 of, you know, basic needs versus what would be construed by some  
19 to be the luxury of having a car seat in the span of their child's  
20 life that might be two or three different type of devices.

21 So, you know, the income issue is really there. We  
22 don't provide reimbursement for child seats unless your child has  
23 a defined medical need under Medicaid, for example, a special  
24 needs child. So -- it's pretty clear that at the state and  
25 municipal level and the county level, the resources that your

1 county health services and other -- Department of Transportation  
2 and such have are under considerable pressure, as we can all  
3 imagine from the economic conditions. So we have for years been  
4 able to provide, you know, low cost or no cost seats to parents  
5 and -- particularly from these low income populations. And we  
6 still do some of that, but it's becoming harder and harder. So  
7 that's a long answer to a short question, but I think the other  
8 part of it is we need to a much better job of reaching these  
9 people at the community level where they live and work with  
10 appropriate educational outreach. And we're trying to do some of  
11 that. We've dabbled a little bit. We need to do a lot more, in  
12 particular with the Hispanic population, considering their  
13 exponential growth in the overall population that we know is  
14 already occurring, making this an even bigger issue for us.

15 DR. ARBOGAST: We conducted a study in a low income  
16 Hispanic population around Philadelphia and we found a few things,  
17 that the way they wanted the information, the education  
18 information delivered was different from how we were doing it for  
19 the general population. So we created fotonovelas that conveyed  
20 the importance of booster seats.

21 Also in that population, the importance of faith-based  
22 organizations was highlighted, that delivering the message of age  
23 appropriate restraints through their community faith organizations  
24 was a place that that community was looking for information. So I  
25 echo the need to get down to the community level and understand,

1 regardless of what subgroup you're talking about, where they go  
2 for the information, how do they want the information delivered, I  
3 think, will allow us to increase usage up to the 80, 90 and  
4 hopefully 100 percent that we're waiting to get to.

5 DR. POLAND: Chairman Hersman, the technical panel has  
6 completed its questioning.

7 CHAIRMAN HERSMAN: Thank you very much.

8 Member Rosekind will lead the questioning for this  
9 session.

10 DR. ROSEKIND: Thank you, Chairman Hersman.

11 Great job. Just a superb success story here and I guess  
12 I get to repeat what everyone said. Not only a great success  
13 story, but you can quantify it. Some of the numbers, I mean, over  
14 9300 children's lives saved in less than a decade. But there's  
15 clearly a lot to be done. So in current fatalities, 40 percent  
16 are unrestrained. So I have a series of questions trying to focus  
17 on that interesting challenge and what I would like to do is pose  
18 these to the whole panel. If everyone has a point, feel free. If  
19 you feel like you're ready to let someone else, you can do that  
20 too. But let's start with the information.

21 Do you feel that there's consensus about the information  
22 that's out there? Not that you agree, but if I were a new parent  
23 or, say, had a 6-, 7- or 8-year-old kid and I'm trying to figure  
24 out what do I do next, is there consensus if I'm out there looking  
25 for that information?

1 DR. ARBOGAST: I think there's a lot of information out  
2 there and one of the important things that I think the safety  
3 community has done over the last 10 years is to try to make sure  
4 that the messages they're getting from their pediatricians from  
5 their community organizations is similar. It's organizations like  
6 Safe Kids and NHTSA and the American Academy of Pediatrics that  
7 have helped, I think, reach some consensus about that information.

8 One of the unique things I think about child passenger  
9 safety is parents only pay attention when it's important to them,  
10 so they're getting the message as new parents about rear-facing.  
11 They aren't listening to the booster seat message then. It's not  
12 what's important to them. So we need to keep with these messages  
13 as each of these cohorts of parents kind of age with their  
14 children because they aren't ready to hear about booster seats  
15 when they have a 2-year-old. They're focused on other things.  
16 And so we need to keep the messages consistent and ever present  
17 because there's a different population that wants it today than  
18 was listening to it yesterday.

19 DR. ROUHANA: If I can chime in? I agree with what  
20 Kristy just said, but to answer your question directly, I would  
21 say no, there isn't consensus. We see all the state laws and you  
22 saw that they're all different ages. Ford, in our owner's  
23 manuals, we say 12 years old is when the child should come out of  
24 the booster seat, unless they're, you know, large enough.

25 But we believe in the five-step method where you

1 actually put the child in the seat and make sure their knees break  
2 over the front of the seat, make sure they can sit all the way  
3 back, make sure the shoulder belt fits properly, make sure the lap  
4 belt fits properly. And until all of those things can be done,  
5 the child should stay in a booster seat.

6 My own kids were 11 before they came out of a booster  
7 seat, even though they weren't too happy about it going to school,  
8 but that's -- so I don't think there is consensus, personally.

9 DR. MCCARTT: I would agree with that. I mean, even  
10 today, we're talking about keeping children longer in rear-facing  
11 longer. We haven't talked about that much longer and forward-  
12 facing longer and boosters. And you want laws, regulations and  
13 the message to be the same. That's sort of the macro level and I  
14 think, at the micro level, the complexities of installing and  
15 using properly specific child safety seats can -- there's just a  
16 lot of variation.

17 So we may be getting the message out there about what  
18 type of seat a certain age a child should be in, but I think when  
19 it comes to actually using those seats, it would make life a lot  
20 easier for parents, thinking about LATCH in particular, if things  
21 were -- there was less variation.

22 DR. ROSEKIND: So you know, one of the things great  
23 about these forums is the chance to talk about this stuff and we  
24 get to ask really smart people who are thoughtful, how would you  
25 fix that? You know, how would you go out and get some consensus

1 about some of these issues so there's one message developmentally  
2 appropriate, not just for the kids, but for the parents,  
3 basically? Where would you go to do that?

4 DR. MCCARTT: Well, some of it, I would say, through  
5 regulation, not that we could write the regulations today, but I  
6 think in the child safety area, more than maybe for older groups,  
7 laws are a very powerful way. Once there's consensus on what best  
8 practices, to the extent that can be captured in regulations and  
9 laws, parents -- you know, that's kind of where it all starts, I  
10 think, in this area, as -- again, as opposed to older groups.  
11 Parents want to do the right thing and they trust government to  
12 tell them what the right thing is to do. So --

13 DR. ARBOGAST: My long-term vision would be that you  
14 would need an add-on device for maybe the first 2 or maybe 3 years  
15 of life and it would be rear-facing. And then, beyond that, the  
16 protection for the occupants would be provided by the vehicle,  
17 that parents wouldn't need to have all these additional items that  
18 install differently and there's compatibility issues.

19 And it's a partnership between those who design child  
20 restraints and those that design vehicles to figure out how to do  
21 that. How do we take what we know about restraint concepts for  
22 adults and what we know about protecting kids and figure out how  
23 to provide that in the vehicle? So it doesn't matter if you're  
24 picking up your son's buddy to go to practice, that the  
25 restraint's there. It's there for them to use and you don't have

1 to worry about bringing something additional with them.

2 DR. ROSEKIND: Great. We're going to get back to both  
3 those, actually, in just a second, but staying on information,  
4 what do you think are currently the most effective distribution  
5 channels for getting information out there? You've mentioned some  
6 of them. I'm curious about the ones that you would highlight as  
7 the most effective and then the question that's come up, there are  
8 very clearly, a couple populations that need more. And I'm  
9 wondering, who else is out there that we're missing that we may  
10 not have data on, but could fit into those similar kind of groups  
11 that aren't really being addressed as effectively as possible?

12 MR. SINCLAIR: Just a couple of thoughts based on some  
13 of our recent conversations at the community level. Word of mouth  
14 seems to be, particularly in the Hispanic community, extremely  
15 popular and reliable and is something that works, so trusted  
16 people in the communities are certainly a way to go.

17 I think also, one avenue we need to pursue is new  
18 technologies. A lot of people no longer have landlines. They're  
19 using cell phones, an increasing proportion of them, and there are  
20 programs where safety information is being communicated via text  
21 message, certain -- this is something called Text 4 Babies, for  
22 example. But in addition, using all the social media that's, you  
23 know, now becoming so ever present, I think we need to be smarter  
24 and not do things a traditional way. Brochures really don't cut  
25 it anymore.

1           We've been kind of tied to the old way of doing business  
2 for a while and we have -- I say we collectively, not just our  
3 agency -- you know, made some strides. We still have a long way  
4 to go to really think of the way people get information nowadays.  
5 It's not like it used to be.

6           DR. ROSEKIND: Any other thoughts? And, by the way,  
7 that's great because I was thinking it's great to highlight the  
8 current, but the question really is, what are the new -- you know,  
9 the social media, the other -- all that kind of stuff, and that's  
10 why, again, just some brainstorming about, you have some  
11 challenges to confront; that's going to mean some new mechanisms,  
12 potentially, and clearly, the technology is one base. Any other  
13 thoughts?

14           DR. ARBOGAST: I think we can't ignore the healthcare  
15 providers. Particularly in the first few years of a child's life,  
16 you're going to the pediatrician or whatever venue you get your  
17 healthcare, fairly often. And making sure that those individuals  
18 are delivering the message and that this is really a health issue.  
19 This is not kind of a negotiable issue about raising children.  
20 This is the most important decision you can make for your child.  
21 This is the leading cause of death, and so making sure that the  
22 healthcare providers are delivering that message in a consistent  
23 way.

24           DR. ROSEKIND: Great. And, Dr. McCartt, you started  
25 this and I wanted to make sure we got to regulations, but this

1 really is for everybody. So do the current regs meet the needs?  
2 Where are the gaps? What's coming? You raised the regulatory  
3 issue from a consensus standpoint. We saw the rainbow map we've  
4 sort of seen earlier. So clearly, again, while there's some  
5 successes here, there remains some pretty significant challenges.  
6 Can you, any of you actually speak to the sort of current state,  
7 maybe where we need to be?

8 DR. MCCARTT: Well, one thing I would say is that we  
9 believe that the regulations for boosters should include a  
10 goodness of fit guidelines, just as we've done. You know, we  
11 think that, basically, our systems should be incorporated into the  
12 regulations, so that's one pretty major area we would point to.

13 DR. ROSEKIND: Mr. Sinclair is not going to think you're  
14 giving him homework, so any other thoughts, though, about -- and  
15 again, even if you just want to deal with the current status, that  
16 rainbow map that was shown, we don't have consistency, especially  
17 as we get to those older age groups. Thoughts about that?

18 DR. ARBOGAST: I think that's an important thing to  
19 highlight and I know from my colleagues that are working at the  
20 state level, many of those state laws are constantly under attack  
21 to get repealed or lessened in some way. And so we need to make  
22 sure the message of keeping it up to the model law, the best  
23 practice of having the law include children up to their eighth  
24 birthday kind of remains constant. And it's the data that allows  
25 us to keep saying that. When you provide those numbers and can

1 relate it to X number of children would have sustained an injury  
2 had there not been this law, I think that becomes very real for  
3 the legislatures and the parents and the constituents in those  
4 areas.

5 MR. SINCLAIR: It may also be a case, sir, where  
6 incentives make a difference. We've had a booster seat incentive  
7 grant program, Section 2011 of our most recent reauthorization,  
8 that has helped to spur additional strength in laws that meet the  
9 standard, where I think we funded something like 20 states. It  
10 wasn't a whole lot of money, but, you know, a little money goes a  
11 long way at the local level.

12 And we had that same basic effect with primary seatbelt  
13 laws. We're up to 31 seatbelt laws that are, you know, primary  
14 enforcement, which, if you had asked somebody 5 or 6 years ago if  
15 we would have 31 state laws, they would have laughed you out of  
16 the room. So I think that's one factor. State governments can  
17 be, you know, receptive to the notion of incentives, particularly  
18 these days when, you know, they're under considerable duress.

19 DR. MCCARTT: Another area I might mention, I mentioned  
20 LATCH before and we are not the only organization doing research  
21 in which kinds of vehicles, which kinds of seats are easier to  
22 install and make the installments better. So I think it's  
23 premature to say exactly how the regulations for LATCH might be  
24 improved, but I think that that's part of the goal of the  
25 research, is to try to maybe standardize even more and even in a

1 better way.

2 But I mean, regulation is not the only way to go with a  
3 lot of these things, as our rating system has shown or the ease of  
4 use ratings with NHTSA. But certainly, if it's clear that there's  
5 one system that's easier to use and has a better result in terms  
6 of the goodness off fit, then that would be something that could  
7 be accomplished through regulation.

8 MR. SINCLAIR: Well, and I should just note that  
9 Secretary LaHood has publically announced his intention for us to  
10 develop and implement a correct fit program that would assess how  
11 a particular seat fits into a certain vehicle, because that's the  
12 number one dilemma for parents is, what seat do I buy? You know,  
13 the good news is there's lots of seats at retail. There's all  
14 kinds of them. The bad news is, there's all kinds of seats at  
15 retail and parents can't quite -- you know, they just have a hard  
16 time picking the right seat.

17 And if there were some independent source for a seat  
18 that fits in -- and I believe certain manufacturers do that.  
19 Nissan and/or Mitsubishi, for example, have a program for -- just  
20 for their vehicles. But we expect to have that out, I believe, in  
21 the next year. I hate to make any promises about time, but the  
22 Secretary's quite firm about us issuing and developing that. It  
23 will probably start small and grow into something bigger, but that  
24 should help.

25 DR. ROSEKIND: And you've all mentioned this as well,

1 but what about research? It seems like there's a lot of stuff --  
2 there's a lot of activity going on. There seems to be the need  
3 for more, whether it's those systems and validating them, et  
4 cetera, but can you highlight what you think some of the most --  
5 you know, one is you have a great story because you've got  
6 science-based guidance to provide. You know, how great. So part  
7 of the question now is, so what's going on that needs to be  
8 continued or emphasized further or what's missing?

9 DR. ARBOGAST: I think the biggest thing, and it was  
10 reflected in my comments, is the need for child-specific crash  
11 surveillance. So we've seen innovation from the child seat  
12 manufacturers. We have higher weight limit child restraints.  
13 We've seen innovations in the vehicle. Side impact structure has  
14 changed. We're seeing all these crash avoidance technologies.  
15 The data that we collected with State Farm, you know, 10 years ago  
16 is becoming old and we can't let our decisions and our  
17 understanding of what the risks are to kids or the benefits to  
18 kids be based on that old data.

19 Usage practices are changing, and so the parents we  
20 studied 10 years ago have different practices in restraining their  
21 kids than the parents today. So having that underlying data set  
22 that you can continually check into and see, are there any new  
23 emerging hazards, is critical. We don't want to wait until we  
24 have another dozen kids killed by airbags to say, hum, maybe we  
25 need to go back and look at that. We need to be monitoring in a

1 prospective way with the right numbers of cases and the right  
2 depth of data.

3 DR. MCCARTT: I would reinforce that. I was asked  
4 earlier whether our goodness of fit we've been able to show a  
5 relationship between booster fit ratings and real-world crash  
6 experience. Well, in most crash databases, you don't know for  
7 sure that a child is in a booster versus a child restraint, much  
8 less --

9 DR. ARBOGAST: Which booster.

10 DR. MCCARTT: -- which booster and whether it fit the  
11 child well. Now, that might be going beyond what any system could  
12 do, but I think that, you know, there are -- I think that the  
13 effort with CHOP and NHTSA to develop an ongoing system is just  
14 absolutely critical because of the poor quality of information in  
15 police reported crashes on the types of restraint used and the  
16 injuries that may result.

17 MR. SINCLAIR: One thing that complicates our efforts a  
18 little bit to reach out to the diverse population and the people  
19 at particular risk is the large number of unknowns in terms of  
20 ethnicity and race that are assigned to fatalities that occur on  
21 the roadways. And some states report one Hispanic fatality when  
22 we know they have a considerable Hispanic population. So that's  
23 one area where we would be able to better address the needs of  
24 people and to better define the scope of the problem if we could  
25 find out some way through research, whether it's improving the

1 data collection method or the actual forms.

2 And I know NHTSA and its partners are working on such a  
3 thing, but it does limit our ability to really address the broad  
4 scope of the problem affecting, you know, some of our diverse  
5 populations when we have this large number of unknowns.

6 DR. ROSEKIND: So --

7 DR. ARBOGAST: Another -- oops. Sorry.

8 DR. ROSEKIND: Excuse me. Go ahead.

9 DR. ARBOGAST: Another area of research that I think  
10 deserves some attention is understanding the long-term outcomes.  
11 A lot of our research to date has kind of focused on the acute  
12 injuries, so what are the injuries that were sustained in the  
13 crash. The issue of, for example, concussions in children is  
14 gaining much more attention and how are these kids 6 months, 12  
15 months after they sustain these injuries. And none of our current  
16 crash databases particularly focus on that issue. So that's an  
17 area that deserves some research and moves us beyond simply  
18 counting fatalities or even just counting the acute injuries that  
19 are realized immediately after the crash.

20 DR. ROSEKIND: So there's a panel right after this on  
21 solutions that work. We're not going to preempt them, but we're  
22 going to very quickly -- I'm very -- I'm just curious, for each of  
23 you, if there is an innovation or something you would really love  
24 to see available now or in the next few years as opposed to, you  
25 know, who knows if it's going to be done, what innovation would

1 you identify that you think would really make a difference in this  
2 area across any of the things we've talked about? You each get  
3 one.

4 MR. SINCLAIR: Well, I have one and it's based on what  
5 we heard at the community level. It turns out that low income  
6 families in particular don't have reliable transportation and yet,  
7 they may own a car seat, they may need to transport their child to  
8 the clinic, to school to wherever. They don't actually own a car,  
9 so they are forced to -- and they're pretty good at it, in finding  
10 alternative means of transportation, whether it's a neighbor, a  
11 friend, a taxi, a bus, some other kind of service to get to the  
12 clinic, the hospital, wherever they need to go.

13 It's asking a lot for somebody of limited means to carry  
14 two, if they have more than one child, for example, you know, a  
15 big, heavy car seat around to the -- to shop and you know, to go  
16 see your doctor and all the rest of it. And specifically, they  
17 said to us in one of these sessions, I think it was in Milwaukee,  
18 could a device be invented that could be an easy fold, you know,  
19 appropriate restraint device that could be used on a mobile basis  
20 to be -- so that you wouldn't have to carry around the 30-, 40-  
21 pound restraint with you when you don't even have your own vehicle  
22 and you have no idea how to restrain it in a stranger's car or in  
23 a car that's not your own.

24 That was the light bulb going off for us in terms of the  
25 degree to which they don't have personal transportation. Much of

1 our previous work has focused on tell people the right restraint  
2 to use for their child and at their appropriate, age, size and  
3 other factors only to find out that in a great number of cases,  
4 people don't actually have a car of their own. So we have to  
5 be -- like you said, it's more complicated than we might have  
6 thought originally.

7 DR. ARBOGAST: So I'm an engineer, so I'm going to come  
8 up with an engineering solution. I think my wish would be  
9 universal availability of integrated restraints because I think it  
10 addresses the issues Sandy just raised, that if parents,  
11 grandparents, caregivers, whoever's responsible for transporting  
12 that child knows that every vehicle has a way to keep their kids  
13 safe, then I think we overcome many of these issues that are  
14 facing us. But it needs to be universal. It can't be an option  
15 that parents choose when they buy a car. It needs to be in all  
16 cars.

17 DR. ROSEKIND: Dr. McCartt, I see you --

18 DR. MCCARTT: Well, it's hard to come up with a better  
19 vision than Kristy's. In the more short-term, probably I would  
20 wish for ways, whether it's regulations for booster belt fit or a  
21 more standardized LATCH system, to take some of the guesswork out  
22 of it for parents.

23 DR. ROSEKIND: First, I see you were taking a lot of  
24 notes.

25 DR. ROUHANA: That's right.

1 DR. ROSEKIND: Take these back and start thinking about,  
2 you know --

3 DR. ROUHANA: Well, I have a terrible memory, so I had  
4 to write a few things down.

5 So I'm a physicist so I'll come up with a non-practical  
6 solution. I share Kristy's vision, of course, to have a vehicle  
7 seat that we make in a Ford Motor Company vehicle that eliminates  
8 the need for something after-market. I don't think it's going to  
9 happen anytime soon because it's an extraordinary complex  
10 situation.

11 So if I have to dream, in the short-term, I dream for an  
12 iCar seat. That is a -- not necessarily made by Apple, but it --  
13 you bring it to your car and it knows how to attach itself and it  
14 knows what tension to put in the shoulder belts and how the belts  
15 should go around the children and it tells you if it's not right  
16 and it adjusts itself. So that's my dream.

17 DR. ROSEKIND: And those are all terrific. There are  
18 people going to be watching this, taking their notes about the  
19 companies they're going to start. They're going to build those  
20 things.

21 Last question. And let me just preface by saying,  
22 there's a lot of stuff at the Board that we talk about changing  
23 safety culture and that means attitudes, behaviors, you know,  
24 specific -- not just education, but what about regulation, et  
25 cetera. That it's a long-term, kind of interesting, complex

1 issue, especially depending on the particular topic you're trying  
2 to address, and I say that because, you know, the seatbelt use in  
3 child restraints is part of that. It's one of the classic  
4 examples, and this panel really highlights, culture change. When  
5 you look at the numbers, it's just tremendous.

6           So I would like from each of you, very quickly, rather  
7 than me sort of giving the take-home messages, you know, if you  
8 have to look, not just over the past of what's been done, but how  
9 to identify sort of what you think is, you know, the big success  
10 of this culture change for all of us, what you think that would  
11 be? And if you don't mind, I'm curious also, if you can just make  
12 a comment about, you know, where you think the role of education,  
13 the regulations, design, you know, the elective nature of things,  
14 where those factors played a role in helping this change come  
15 about?

16           I am going to take away saving children's lives as  
17 number one for all of you, whether it is or not. So I'm going to  
18 let all of you come up with what you think and we're going to end  
19 our part of this on this note. So whatever you think, each of  
20 you, the number one success of this culture change that's taken  
21 place, what would that be?

22           DR. ARBOGAST: You get to go first.

23           MR. SINCLAIR: Let's start at the other end.

24           DR. ROUHANA: I think the data that Kristy showed in how  
25 many people are actually restraining their children properly is a

1 great success story and it comes from all of the education that  
2 many parties have had a hand in, NHTSA, NTSB, pediatricians,  
3 organizations like Children's Hospital of Philadelphia and IIHS.  
4 And I think that's also -- that highlights all the different  
5 organizations that have to come together to keep going and to  
6 improve things. So it's a team sport. We all have to play our  
7 roles, including the parents.

8 DR. MCCARTT: I think the only thing I would add to that  
9 is just how phenomenal it's been at -- we've been at getting kids  
10 into the back seat. I mean, I think that that does show that when  
11 there's a consistent, clear message, that education -- I mean,  
12 laws have played a role in that too, but I think a large part of  
13 that was education.

14 DR. ARBOGAST: I think the biggest success is when I  
15 walk into the office of my son's elementary school and there's a  
16 row of booster seats sitting there. There was not when my  
17 daughter, my oldest child was at that elementary school and I  
18 think that it's norms. It's not weird for the kid to bring his  
19 booster seat into school or to his friend's house. I think we  
20 collectively should be proud of that accomplishment.

21 MR. SINCLAIR: I think we have changed the norm, but I  
22 think it stops at the toddler-age child. I think the -- and it's  
23 remarkable what everybody here in the room and the organization's  
24 representatives have done to make this happen. It's rare to  
25 see -- it's not really rare, but statistically, according to our

1 surveys it's rare. Ninety-nine, 98 percent of children and  
2 toddlers are restrained; however, what we see is, again, the  
3 children who die in crashes, by and large, they're unrestrained,  
4 particularly low income, low minority populations. So you know, I  
5 think we should be very proud of what we have done, but clearly,  
6 you know, we haven't been able to forge the same kind of success  
7 with the older kids. So when we start to see those unrestrained  
8 rates drop and when we see the overall restraint use continue, and  
9 I would say not just for the children in car seats, but we have to  
10 be thinking of children that are big enough to wear seatbelts and  
11 then they get out of the seatbelt and before they start to drive  
12 and while they're driving. You know, it's really all kids are at  
13 great risk still. We've made incredible strides with the little  
14 people and we need to extend that to the older kids, too.

15 DR. ROSEKIND: Great. Thank you all very much.

16 Chairman Hersman?

17 CHAIRMAN HERSMAN: Member Weener.

18 DR. WEENER: I have a question related to the work that  
19 Ford's doing. I certainly commend Ford for taking initiative in  
20 an active restraint system. It wasn't clear to me when I was  
21 thinking about, is it to be used in place of a passenger restraint  
22 system or is it an enhancement to the current child restraint  
23 systems?

24 DR. ROUHANA: The inflatable belt?

25 DR. WEENER: The inflatable belt.

1 DR. ROUHANA: The inflatable belt is to be used when  
2 appropriate, of course, so it could be used for a child in a  
3 booster seat. It could be used to attach a child restraint system  
4 to the vehicle, as we -- as our testing has shown the integrity is  
5 maintained and installation can be done. Its main benefits will  
6 be seen, however, for children who are booster seat age and above  
7 because the children in child restraints are not going to have the  
8 airbag portion inflated on them. It's just going to be inflated  
9 around the seat that they're in. Is that clear or --

10 DR. WEENER: I guess then my follow-on is, customers are  
11 going to likely see this as a replacement for the more, if you  
12 will, traditional child restraint system, so that then probably  
13 makes it more important that it be very effective.

14 DR. ROUHANA: Well, we will not sell this as a  
15 replacement for child restraint systems. We are developing an  
16 educational pamphlet, first of all, for parents when they come  
17 into dealerships. We'll be educating our dealers. We'll also be  
18 developing a course for child passenger safety technicians. But  
19 it will not be billed as a replacement for a traditional child  
20 restraint system. It's an improvement to the existing belt system  
21 in vehicles today.

22 DR. WEENER: All right. Thank you. And once again, I  
23 commend Ford for taking the initiative. I realize that you  
24 described it as the reason, because it's a family company. I also  
25 am fully aware that your current CEO is a strong supporter of

1 safety as well.

2 DR. ROUHANA: That's true.

3 CHAIRMAN HERSMAN: Member Sumwalt?

4 MR. SUMWALT: Thank you.

5 I've had my -- been e-mailing someone in my office to  
6 try and help me find this figure and we can't find it. I remember  
7 from a meeting we had a couple of years ago, I think maybe even on  
8 the Most Wanted List, a Board meeting for the state where we said  
9 that it's something like 80 percent of child deaths in automobiles  
10 occur in child seats that were installed, but improperly  
11 restrained. Maybe that's -- does anybody from either side of this  
12 room have a figure like that? It was --

13 CHAIRMAN HERSMAN: Member Sumwalt, I think what you  
14 might be referring to is that when child passenger safety  
15 technicians evaluate installed car seats, that they find that 80  
16 percent or so are improperly installed, but they may not be gross  
17 errors. They may be minor errors. But it's not that children are  
18 killed in --

19 MR. SUMWALT: Okay.

20 CHAIRMAN HERSMAN: -- car seats. It's that they are --  
21 they identify some misuse.

22 MR. SUMWALT: Thank you. All I had to do was ask you  
23 instead of e-mailing my office, but --

24 DR. MCCARTT: Actually, the institute did a study a few  
25 years ago where we looked at children who had died in crashes who

1 were in a child restraint and what we found is that, for the most  
2 part, the crashes were devastating, that there was no survival  
3 space left for the child. And the instances of misuse the misuse  
4 to the extent that it could have contributed to the death were  
5 very small. It was actually sort of an affirmation of the amazing  
6 protective ability of restraints.

7 MR. SUMWALT: Thank you. And I think, really, the  
8 Chairman did get the figure that I was looking for and that's the  
9 sad thing. The good thing is that people are being conscientious  
10 about trying to install car seats. The sad thing is that 80  
11 percent of those that are installed, approximately, are not  
12 installed properly and that's a shame. And so what I've wondered  
13 is how do we go through the motions of making sure that those  
14 people that -- you know, it's one thing if someone says I'm not  
15 going to mess with a child seat. I don't think most people are  
16 doing that now because the laws in most states, except for, I  
17 think two states -- three states, don't -- the laws require --  
18 well, that was booster seats, I think.

19 So anyway, my point is how can we better inform them on  
20 how to do it? And you know, before you leave the hospital with a  
21 child, you have to have a child seat or the hospital won't let you  
22 take the child home. Would the -- I guess the hospitals don't  
23 want to assume the liability, but can we have these volunteers  
24 that work at the fitting stations, can they be at the hospitals  
25 and volunteer their time there? There are volunteers like

1 yourself. You're certified to do that. There are 35,000 in the  
2 country or something, so why can't those people work at the  
3 hospitals to make sure that the child seats and so the parents  
4 properly know how to install the child seats?

5 DR. ARBOGAST: Well, as someone that works at a  
6 hospital, I can, in part, answer that question. Child safety in  
7 cars and in the home and in other venues is so important to our  
8 hospital that we've created a safety store. And it's a place  
9 where parents, employees, community, members can come in, they can  
10 purchase safety devices. But to address your specific question,  
11 they can receive instructions on how to properly use it.

12 This store was funded by Kohl's Foundation, the store  
13 Kohl's, and it's been a wonderful resource for both our patients  
14 and our employees as a place to get exactly that. You're at the  
15 hospital. You can go there for bike helmets. You can go there  
16 for safety gates and you can go there for child restraints. We  
17 actually have a quarter of a car that was actually designed and  
18 built for us by Ford that allows us to demonstrate child seat  
19 installation to these families.

20 So it can be done. Other hospitals have demonstrated  
21 the value of this and it's something that I think you've hit the  
22 nail on the head, is important to encourage.

23 MR. SUMWALT: Well, thanks for giving me a concise  
24 answer and the question was -- took a long time to hit the nail on  
25 the head, so thank you for figuring out what I was trying to ask.

1           Madam Chairman, thank you very much.

2           CHAIRMAN HERSMAN: Thank you.

3           And I think Member Sumwalt raises a good point and I  
4 think we don't want to miss the forest for the trees. The message  
5 that we have is that we've had great experience with restraint  
6 use, especially when we have laws that tell parents what to do.  
7 We have clear education campaigns and that's exactly why the  
8 fitting stations were created. And that's why most parents  
9 actually, before they go to the hospital, they go to the fitting  
10 station and they get that car seat checked.

11           And so for those of us who have been parents recently, I  
12 can tell you that I've taken advantage of those options, but very  
13 often in the -- on the ward before you leave, you actually have a  
14 maternity nurse who is talking to you about proper positioning for  
15 your child and things like that. So I do think that it's a much  
16 more integrated system.

17           And when we talk about things like misuse, it's talking  
18 about that tether that's not attached to the right place. And so  
19 we know, just as Dr. Rouhana talked about -- and I'm going to mess  
20 this up. I think you called iCar or iSeat or something, but what  
21 you're talking about is, let's make sure -- you know, like tuning  
22 a violin, let's make sure we get it right, you know? It's maybe  
23 off just a little bit. You know, you're on the note, but maybe  
24 you might be a little pitchy, you know? And so let's get the fine  
25 tuning done. And I think that's what we're talking about.

1           By and large, most parents are using car seats and using  
2 them well. We just need to make sure that we get the details  
3 right.

4           But I did want to ask you a question, Dr. Rouhana. I  
5 know we're going to talk about what's next, but I didn't want to  
6 leave this. When Dr. Arbogast talked about having integrated  
7 equipment for children in the car, I just wanted to ask, this has  
8 been tried before and I think it's important for us to learn the  
9 lessons of things that have happened before. Because, if we say  
10 well, this is where we want to go in the future, when those types  
11 of things like integrated booster seats and other things were  
12 offered in vehicles, why didn't that proliferate? Why wasn't it  
13 something that we see that's standard equipment? Because those  
14 types of things were offered and have been offered. Why aren't  
15 they widespread?

16           DR. ROUHANA: Honestly, I don't know the answer. I know  
17 that they were offered when I worked General Motors. We offered  
18 them and Ford also offered them. A number of manufacturers have  
19 offered them in the past, integrated booster seats, integrated  
20 child restraints, but I think, perhaps they're only useful for a  
21 certain phase of your children's lives and maybe that has  
22 something to do with why people -- you know, people who have older  
23 kids aren't going to buy them. And so I guess I don't have a good  
24 answer, but when we offered them, they weren't -- people didn't  
25 buy them in the numbers we thought they would and so they no

1 longer made business sense to offer them.

2 MR. SINCLAIR: This is what we heard from the automakers  
3 consistently and I don't question it, but I wonder and have  
4 wondered if the marketing was sufficient at the time to really,  
5 you know, sell the idea to people. I'm not sure and I'm not  
6 thinking of any particular manufacturer. But I've seen Volkswagen  
7 years ago, has the built-in booster seat in it, folds right back  
8 into the seat so even if you don't have a child that age anymore,  
9 ideally, it would still be usable.

10 So I think it was a combination. I think it's partly  
11 promotional efforts. You know, it was more or less of a -- it's  
12 still available in certain models, correct? But as a -- not as a  
13 standard equipment.

14 DR. ROUHANA: We don't currently have one in our  
15 vehicles. But remember, it goes back to what's the function of  
16 the rear seat and, unfortunately, there are many functions, other  
17 than just holding onto the passenger. They're retaining cargo.  
18 They -- you have to fold them. In some cases, you have to flip  
19 them or take them out of the vehicle and that creates complexities  
20 when you put an integrated booster seat in and it changes the  
21 softness of the seat, so people start complaining about comfort,  
22 things like that.

23 There are many factors that are involved, unfortunately,  
24 that make it very difficult to -- as Abraham Lincoln said, you  
25 can't please all the people all the time. We can't please them

1 most of the time with these types of systems.

2 CHAIRMAN HERSMAN: Dr. Molloy, I'd like to bring up a  
3 few slides that were used in earlier presentations because I  
4 think, before we move to the next panel on what the next solutions  
5 are, I think we've got to make sure we identify the problem  
6 correctly.

7 In Mr. Sinclair's presentation, he had a graph from 2000  
8 to 2009 and then, following that graph, he had a chart and it was  
9 fatalities and the different age groups, 1 to 3; 4; 5 to 7, if you  
10 could pull that up?

11 I guess a question while he's pulling that up is, are we  
12 all agreed on what the appropriate restraint use is for ages 4 to  
13 7? Is it a booster seat?

14 MR. SINCLAIR: I think it's more complex than that now  
15 since there are restraints that go to considerably higher,  
16 restraints with a traditional harness built in that go to -- I  
17 don't even want to hazard a guess at how high they now go.

18 CHAIRMAN HERSMAN: Sixty to 80 pounds --

19 MR. SINCLAIR: Right.

20 CHAIRMAN HERSMAN: -- roughly. Yeah.

21 MR. SINCLAIR: Up to 100? Yeah, okay. And it's  
22 changing so quickly --

23 CHAIRMAN HERSMAN: Right.

24 MR. SINCLAIR: -- that in many cases, yes, a booster  
25 seat is the right choice, but it's one of these things that's

1 individualized to the motor vehicle and for the child. So -- but  
2 I don't think it is quite that simple any longer.

3 DR. ARBOGAST: I think we need to think about usage as  
4 well and what is the product that that 7-year-old, for example, is  
5 going to want to ride in every day. And it's a balance. As a  
6 parent, it's a balance of, we would probably all be better off in  
7 a five-point harness, but we don't choose that for comfort. And  
8 so we need to think of not only the engineering solution, but what  
9 is going to encourage proper restraint on every trip, every time.

10 CHAIRMAN HERSMAN: Yeah. We would all be better off in  
11 a five-point harness facing backwards.

12 DR. ARBOGAST: Probably.

13 CHAIRMAN HERSMAN: But that's not the way we get to --

14 DR. ARBOGAST: Can't pull that off.

15 CHAIRMAN HERSMAN: -- choose to ride. So -- Dr. Molloy,  
16 you're having luck with that?

17 DR. MOLLOY: I'm not finding it.

18 CHAIRMAN HERSMAN: Okay.

19 DR. POLAND: Maybe Mr. Sinclair's second slide or his  
20 fourth slide, potentially?

21 CHAIRMAN HERSMAN: And I apologize. I don't have the  
22 slide deck in front of me and they weren't numbered when they came  
23 up. There was one about 2000 to 2009.

24 MR. SINCLAIR: Yeah. That's overall fatalities,  
25 Chairman Hersman --

1           CHAIRMAN HERSMAN: Yeah.

2           MR. SINCLAIR: -- and that includes all types, you know,  
3 of crash related, which would be pedestrian, bicycle and other  
4 types of --

5           CHAIRMAN HERSMAN: Okay.

6           MR. SINCLAIR: -- injuries.

7           CHAIRMAN HERSMAN: And I'm -- what I'm trying to do is  
8 understand whether or not those fatality numbers are normalized  
9 because what you had is you had different spreads of ages. So the  
10 less than 1-year-old, that's going to be less than one year; and  
11 then you've got 1 to 3, so that's 2 years. And so you -- I think  
12 it's up now. I'm just trying to figure out, when we look to 8 to  
13 14, and we see that that's a really high number, but it's 6 years  
14 rather than 1 or 2. And so I'm trying to understand --

15           MR. SINCLAIR: I was actually going to suggest, perhaps  
16 Dr. McCartt's slide that --

17           CHAIRMAN HERSMAN: Okay.

18           DR. MCCARTT: Yes. It's --

19           MR. SINCLAIR: If you want to --

20           DR. MCCARTT: It's per capita deaths. I think it was my  
21 first slide.

22           MR. SINCLAIR: Ours were primarily a tally.

23           DR. MCCARTT: It's not quite the same age groups, but --

24           CHAIRMAN HERSMAN: Okay. But I think what I'm trying to  
25 take this back to is, Dr. Arbogast had slides that showed that we

1 have a -- we have two columns that are low because we've done a  
2 little bit more education, have laws, things, and then we've got  
3 those older -- the, you know, tweens, you know, a larger back down  
4 -- that are high, and your challenge to us was let's get that high  
5 group down to where those other two.

6           And what I'm trying to figure out is what are the  
7 numbers telling us as far as the total number of those fatalities  
8 and the causes? And so when we go into the next panel, we're  
9 going to kind of try to figure out the way forward. What I want  
10 you all to articulate is why are we seeing those higher numbers  
11 for -- and whichever chart you want to pull up, let's -- we can  
12 talk about somebody's numbers here. Why are we seeing those  
13 higher numbers for the older kids?

14           DR. ROUHANA: I would like to weigh in on that one.

15           CHAIRMAN HERSMAN: Okay.

16           DR. ROUHANA: I think that the laws that say 8 years old  
17 is enough are wrong. I think that those kids are too small to be  
18 in vehicle belt systems. It's a matter of many different types of  
19 injuries that can occur, neck injuries, chest injuries because the  
20 belts don't fit right when they're not big enough to be in them.

21           DR. MCCARTT: In addition to that, when you look at the  
22 second -- the next slide I had, when you look at fatally injured  
23 children, the percent unrestrained, it all goes up. So apart from  
24 the fact that the children who are -- older children who are in  
25 restraints, some of those should be in a booster seat. There is a

1 larger percentage of them not restrained at all. And I believe,  
2 if you go even beyond that age group into pre-teen, for example,  
3 you see this downward decline in restraint use. We're not doing  
4 as a good job keeping children restrained as they get older.

5 MR. SINCLAIR: There's something associated with a lack  
6 of concern as the child gets older. They become more independent.  
7 You know, parents want their children to reach those milestones.  
8 You have three of your own children. You certainly know what I'm  
9 talking about.

10 They're very vigilant -- the traditional parent is very  
11 vigilant at the younger ages because the children are more  
12 vulnerable. They're completely dependent upon us, whereas, when  
13 they're older and we want them to be able to, you know, to grow  
14 and to really show what they can do. And parents, there's  
15 something that's happening in this country that they make a  
16 decision to allow them to ride unrestrained, which they would  
17 never do when they're so little.

18 I don't know if it's the hectic lifestyle that people  
19 have or other explanations, but I think there is something that  
20 has -- we need to focus more on what it is that allows them to  
21 make the judgment that it's okay to let that child ride  
22 unrestrained if it's often on short trips. CHOP has done a lot of  
23 research on the dangers of short trips and I think that's one of  
24 the things that has to be driven home to parents is that every  
25 trip is a potentially dangerous trip. We don't want to scare

1 people, necessarily, but we have to raise their level of awareness  
2 about that.

3 DR. ARBOGAST: I think another issue that happens with  
4 these pre-teen and teenage children is simply the availability of  
5 space. So in a child restraint or even in a booster seat, they're  
6 kind of confined to a particular space. Once you take away that  
7 add-on child restraint, they're free to scooch forward, to lean  
8 forward. They're more involved with the vehicle interior. And  
9 our data and other's points to the important of head injuries. So  
10 all that movement begins to put their head closer to things they  
11 can hit. And so I think understanding the positions that children  
12 get in as they ride, and I think those positions are more varied  
13 for those 8+ children. They just have more space to move around  
14 in and I think that's leading to some of the increased injuries.

15 DR. MCCARTT: One thing that might help somewhat with  
16 the older children who would be in a belt is back seat aggressive  
17 belt reminder systems, which have been effective in the front seat  
18 to get those last, you know, those last people buckled up. And  
19 you know, I would guess that that would be at least as effective  
20 in the back seat. And there's -- you know, that's just something  
21 that we haven't talked about, but I think that would help.

22 CHAIRMAN HERSMAN: I call my kids back seat aggressive  
23 belt reminder systems because they are very attentive to whoever  
24 does not have their seatbelts on in the car.

25 But I would say, and we might be getting into this in

1 the next one, but I looked at the CDC growth charts and the 50th  
2 percentile 11-year-old is what hits the 4'9", not an 8-year-old.  
3 And so I think that that might have something to do with some of  
4 the data that we're looking at, but we'll leave that, potentially,  
5 to the next panel. We might be able to have a discussion about  
6 that.

7           You had mentioned, Mr. Sinclair, Chairman Hall and his  
8 push on the fitting stations. And I know, behind every good  
9 chairman, there's a great staff. And Elaine Weinstein's in the  
10 audience today and she was the one who was behind Jim Hall's  
11 leadership. It was Elaine's work on the airbag study and pushing  
12 the fitting stations and working for decades, really, on child  
13 passenger safety. So we're very glad that she could come back and  
14 join us today.

15           You all have been a fantastic panel. Thank you all so  
16 much. And Dr. Rouhana and Dr. McCartt, you all have been experts  
17 at both ends of the age spectrum. Thank you for joining us again  
18 this month and we very much appreciate the information that you've  
19 provided to us and hopefully it will help us to do our jobs better  
20 as well. So thank you very much and we're going to take a recess  
21 until 3:25.

22           (Off the record.)

23           (On the record.)

24           CHAIRMAN HERSMAN: If everyone could take their seats,  
25 we're about to begin.

1           Welcome back. Our final panel for today is: Moving  
2 Forward, Solutions That Work, and it will focus on how to  
3 accomplish our goals, both in aviation and highway safety.

4           Ms. Stephanie Davis, a safety advocate in the Office of  
5 Communication and a certified child passenger seat technician,  
6 will be leading the technical panel for this session. The panel  
7 will highlight the efforts that have been most successful in  
8 improving child safety. We're very interested in finding out what  
9 works and doesn't work so all of us can get the most of efforts to  
10 increase the numbers of young children who are using child seats  
11 and older children who are using seatbelts.

12           Ms. Davis, please proceed.

13           MS. DAVIS: Thank you, Chairman Hersman.

14           I am also joined on the panel today by Dr. Elisa Braver,  
15 who is a transportation research analyst in the Office of Research  
16 and Engineering, and Dr. Jana Price, who is a senior human  
17 performance investigator in the Office of Highway Safety.

18           Our first presenter this afternoon is Dr. Grant Baldwin.  
19 Dr. Baldwin is the director of the Division of Unintentional  
20 Injury Prevention at the National Center for Injury Prevention and  
21 Control within the Centers for Disease Control and Prevention.

22           Dr. Baldwin, if you would, begin your presentation  
23 please?

24           DR. BALDWIN: Thank you.

25           Madam Chairperson and Members of the Board, it is my

1 pleasure to be here today to help frame the way forward and put a  
2 capstone on what I think has been a very productive day-long  
3 conversation.

4           The purpose of my brief remarks is to make suggestions  
5 about how to make child passenger safety a goes-without-saying for  
6 all parents traveling with young children with a focus on air  
7 travel. I plan to ground my recommendations in three ways.

8           First, I will emphasize the value of a public health  
9 framework and an ecological perspective to understanding a problem  
10 and facilitating behavior change. Second, I will underscore the  
11 importance of applying behavioral and social science theory. I  
12 will place specific emphasis on one theory, the Health Belief  
13 Model, while drawing in constructs from others. And finally, I  
14 will outline 10 lessons learned from other change initiatives that  
15 can inform our efforts to improve child passenger safety. I will  
16 close with some questions that may be fodder for our discussion  
17 later in the session.

18           Amanda Geffner is a journalist and blogger. This quote  
19 really resonated with me. She said, "If common sense were a  
20 reliable guide, we wouldn't need science." Despite our best  
21 efforts to instill and enable a culture of safety for parents  
22 traveling with young children, we are not where we need to be. If  
23 our vision is all children traveling in age appropriate safety  
24 seats on all flights, what more can and should we be doing? I  
25 think the solutions reside in broadening our view of the points of

1 intervention and going to school on previous behavior change  
2 initiatives.

3           At CDC, we use this four-stage model to guide our work.  
4 It is the DNA or operating system of everything that we do at CDC,  
5 regardless of illness, injury or disease considered. In this  
6 model, we move from traditional surveillance to risk and  
7 protective factor identification to the development and  
8 implementation of programs and policies. Finally, we aim to bring  
9 proven, evidence-based interventions to scale. It is cyclical and  
10 iterative, where new research informs new programs and policies.  
11 Our goal is the wide-spread adoption of science-based practice.

12           More recently, we are viewing the solutions to the  
13 public health challenges we face as rooted in the social ecology.  
14 In other words, the factors depicted on this slide interact with  
15 one another to create or reinforce health. It is not just about  
16 individual choice or genetic predisposition. Each ecological  
17 level influences the other to create situations that are either  
18 health sustaining or not. This is probably too abstract, so let  
19 me get concrete with a meaningful example and then tie it back in  
20 to today's discussion.

21           This graphic shows the percentage of U.S. adults by  
22 state who are obese. It compares 1991 to 2007 to 2009. In it,  
23 you can see that in 1991, less than 15 percent of the population  
24 in most states had a body mass index over 30 or an individual  
25 being about 30 pounds overweight for a person who is about 5'4".

1 Today, the majority of U.S. states have between 25 and 30 percent  
2 of their population that is obese. How did it happen? What  
3 changed in the last 20 years?

4 Well, a whole host of things may be contributing this  
5 change across the social ecology. Consider the cost and  
6 availability of fresh fruits and vegetables, the amount of refined  
7 or processed foods we consume today, changes in portion size at  
8 many fast food restaurants, the amount of exercise or lack of  
9 exercise that most Americans do every day, government subsidies of  
10 certain crops and industries that undergird the U.S. food supply  
11 and, of course, what you and choose to eat. Those are just the  
12 tip of the iceberg and illustrative of this social ecology of the  
13 obesity epidemic. I'm sure you could think of 30 or more other  
14 factors if we had a chance to brainstorm.

15 As we think about what can be done to increase child  
16 passenger safety seat use on planes, I encourage us to think about  
17 influences across this ecology. For example, the cost of  
18 purchasing a ticket for a child, the challenges of transporting a  
19 safety seat through airport security, especially with other carry-  
20 on baggage, the incompatibility of some safety seats for air  
21 travel or the difficulty in properly using them in airplanes,  
22 parental knowledge about the importance of their use, including  
23 for protection under conditions of severe turbulence and the lack  
24 of a norm or expectation that they are used.

25 My recommendation is that we map out opportunities

1 across the ecology to make a difference. We should act on those  
2 factors that can have an immediate and far-reaching impact while,  
3 at the same time, being minimally disruptive to implement or worth  
4 the hard effort to go after. We should act on multiple levels  
5 simultaneously.

6 Let me shift briefly to talk about an individual level  
7 theory developed in the 1950s to help explain and predict health  
8 behaviors. I think it could be used here to inform our messaging  
9 and program design. It's called the Health Belief Model.

10 It assumes we are all rational beings, and I recognize  
11 that's not always the case. At its core, the model posits that a  
12 person's health behaviors are determined by their beliefs and  
13 perceptions. Four perceptions are most essential. I'll explain  
14 each construct by its application to child passenger safety seat  
15 use during air travel: Perceived threat, how likely a parent  
16 believes in the seriousness or severity of them not properly  
17 restraining their child. Perceived susceptibility, how likely a  
18 parent believes in the risk of a plane crash or severe turbulence  
19 where their child would be harmed by them being in their lapped.  
20 I'll talk about perceived benefits and barriers in the next slide.

21 While I'm espousing the model itself, my overarching  
22 interest is in convincing you of the utility of theory to inform  
23 practice. It helps us understand how a program or message may or  
24 may not be working. There is a balance in our decision making, an  
25 unconscious, pro/con evaluation that we are doing and redoing that

1 is essential to the Health Belief Model.

2 Perceived benefits, a parent's belief that an action  
3 will increase the safety of their child, but there are other  
4 benefits too and many of them have been mentioned already. For  
5 example, a parent may be more comfortable with a child in their  
6 own seat and maybe a child will be better behaved too.

7 And perceived barriers, a parent's evaluation of the  
8 obstacles of having a child in their own seat properly restrained.  
9 Cost is probably a factor, but so are some of the other  
10 inconveniences I mentioned earlier.

11 Finally, we know the calculus of mandating their use is  
12 not simple. In other words, requiring them may shift mode of  
13 transit that may actually put children at greater risk in cars.  
14 Not surprisingly, our role is to extenuate the benefits and  
15 eliminate or minimize the barriers. We understand the benefits  
16 and barriers deliberately and target them directly in our  
17 research.

18 For some researchers, sticking hard and fast constructs  
19 in one theory and one theory only in message and program design is  
20 critical. I'm not one of those researchers. We know the value of  
21 mixed model programs. As I prepared for the talk, I thought about  
22 showcasing the theory of planned behavior or social cognitive  
23 theory in greater detail too.

24 Because of lack of time, let me highlight two constructs  
25 from Bandura's Social Cognitive Theory that I think are salient

1 for our discussion. First, outcome expectations is what you think  
2 it is, a parent's expectation of how their child will do if  
3 properly restrained. Second, outcome expectancies. This is the  
4 value a parent places in that outcome, for example, the importance  
5 of protecting their child.

6 In CDC's work in child injury prevention, we made a  
7 deliberate decision to leverage this in all of our messaging.  
8 This amounts to a parent's core value of seeing their child reach  
9 their full potential. Again, my overriding message here is that  
10 theory works, even when you pull from multiple theories.

11 Because I wanted to put a lot out there to talk about, I  
12 created this list of 10 things to increase the likelihood of  
13 behavior change. These items are supported by the academic  
14 literature and my own practice, and they're listed in random  
15 order, although, I think all are essential.

16 Tailoring. It is important to tailor our messages to  
17 unique audiences. A young 20-something parent in California may  
18 respond to a different message than a grandmother traveling with  
19 her granddaughter in Arkansas. And the message targeting a parent  
20 will be different than the message we use to engage healthcare  
21 providers.

22 Culture. It is not enough to have messages in multiple  
23 languages. As we heard, different cultures may respond  
24 differently to different messages. Know that going in, especially  
25 as we become more diverse as a country and we also need to be

1 mindful about the literacy level of our materials.

2 Fear. Fear appeals rarely work. When they do work,  
3 they will not likely lead to sustained behavior change, especially  
4 with those who need to hear our messages the most.

5 Multi-channel. As we heard in the last session, gone is  
6 the era of the brochure or fact sheet. We need to be creative  
7 with our messaging using new technologies like Facebook, Twitter,  
8 texting, among others.

9 Multi-level. I've already spoken at length about  
10 thinking broad of the etiology of an issue.

11 Theory. As I have shown, theory can inform and  
12 strengthen our programs. There is no substitute for evaluation  
13 before, during and after a program to identify what is working and  
14 what isn't. And of course, changing key messages as needed.

15 Needs assessment. It is critical to start where people  
16 are. The best outcomes are achieved when those who are targeted  
17 by the message are involved in its design.

18 Latency. I'll hold off to talk about latency in the  
19 next slide, using -- building on an example that's been used  
20 already today.

21 Finally, knowledge. Knowledge may be power, but it  
22 won't necessarily result in the behavior change you want. In many  
23 instances, we need to create environments, whether through policy  
24 change or not, that support the behavior you want to see. But  
25 change, big change is possible. We have seen big gains in the use

1 of age appropriate child passenger safety seats, especially among  
2 our youngest children, as we just heard, and in seatbelt use in  
3 the 1980s.

4           As you know, seatbelt use from -- rose from 15 percent  
5 in 1984 to 85 percent in 2010 in the United States and in some  
6 states like Michigan, it is even higher. Progressive legislation,  
7 including enforcement, education and technological change all had  
8 a role in changing this norm. For the most part, putting on a  
9 seatbelt is just what we do before starting our car. Who would  
10 have imagined in 1984, a 70 percent increase was possible?

11           I just finished reading *Switch* by Chip and Dan Heath.  
12 This is the book about how to change things when change is hard.  
13 I want to use four of their ideas of how we make -- how we can  
14 make change succeed to pose a few questions for us.

15           They argue that change succeeds when we script the  
16 critical moves. Not everything we do is going to move the needle.  
17 What are our critical moves that must happen to increase child  
18 passenger safety seat use? Focus on bright spots. I'm a big  
19 believer in replicating what other successful people or programs  
20 are doing. What are our bright spots that we can replicate and  
21 scale up? We heard one earlier this morning from Virgin Atlantic.

22           Tweak the environment. As I mentioned, sometimes it  
23 takes environmental change to support the outcomes we are looking  
24 for. What, if any, are big environmental changes that we need to  
25 see? And finally, rally the herd. There is a silent majority of

1 parents who can help us change this behavior, building on a  
2 parent's natural instinct to protect and support their child, how  
3 can we use their voice and actions to change this norm?

4           Mark Twain once said a habit cannot be tossed out the  
5 window. It must coaxed down the stairs a step at a time. After  
6 all the presentations, I look forward to hearing your ideas about  
7 the steps we must take together; parents, air carriers,  
8 manufacturers and the federal government, to make the right  
9 choice, it goes without saying and easy to make.

10           Thank you very much.

11           MS. DAVIS: Thank you, Dr. Baldwin.

12           Our next present is Dr. Dennis Durbin. Dr. Durbin is a  
13 pediatric emergency physician and clinical epidemiologist. He is  
14 a professor of pediatrics at the Children's Hospital of  
15 Philadelphia and the University of Pennsylvania's School of  
16 Medicine. He is an attending physician in the emergency  
17 department at Children's Hospital and the co-scientific director  
18 of the Center for Injury Research and Prevention at the Children's  
19 Hospital of Philadelphia.

20           Dr. Durbin, if you would please begin your presentation.

21           DR. DURBIN: Thank you.

22           Chairman Hersman, members of the Board, it's a pleasure  
23 to participate in this panel today, representing the American  
24 Academy of Pediatrics. The Academy is a nonprofit, professional  
25 organization of more than 60,000 board certified pediatricians

1 dedicated to the obtainment of optimal physical, mental and social  
2 health, safety and well-being of infants, children, adolescents  
3 and young adults.

4           Okay. There we go. The AAP maintains 50 expert  
5 committees focused on specific aspects of child health and  
6 development which draft academy policy and advise the AAP Board of  
7 Directors in leadership on timely issues. I have served on the  
8 committee on injury, violence and poison prevention which is  
9 charged with drafting and executing the academy's policies on  
10 child restraint systems, automotive safety, aircraft safety and  
11 many other injury prevention issues.

12           The AAP is proud to have led a long-term, sustained  
13 campaign starting in the 1980s to bring attention to the tragic  
14 rates of preventable injuries and deaths due to the lack of proper  
15 restraints for children in motor vehicles. This effort, now  
16 supported by dozens of other organizations and buttressed by  
17 numerous state laws has saved thousands of lives and prevent  
18 untold injuries.

19           Although AAP is not a testing or standard-setting  
20 organization, the academy publishes official recommendations and  
21 best practices for child restraint system use in both automobiles  
22 and on commercial aircraft in the form of policy statements.  
23 These have been referenced a number of times already so in the  
24 interest of time, I'll just paraphrase. They're on the slides.

25           The academy currently recommends that all children ride

1 in rear-facing car seats until the child reaches the maximum size  
2 limits for the seat. At a minimum, children should ride rear-  
3 facing until they are at least 1 year of age and 20 pounds. Then  
4 children shall be placed in forward-facing car safety seats until  
5 they outgrow the limits for the seat, which, for currently  
6 available seats, is at least 40 pounds, the average weight of a 4-  
7 year-old.

8           The AAP releases an annually updated car seat guide to  
9 help parents make informed decisions on car seat selection and  
10 use. The guide includes information on the importance of child  
11 restraint systems and highlights a number of child passenger  
12 safety issues, including LATCH, airbags, recalls and installation  
13 tips.

14           For the year 2010, products highlighted in the guide  
15 included 13 of 27 infant seats that could accommodate children up  
16 to 30 pounds, which is the 75th percentile for a 24-month-old,  
17 meaning that 75 percent of children at that age would be lower  
18 than that weight. Twenty-eight of 33 convertible car safety seats  
19 could accommodate rear-facing children up to 35 pounds, which  
20 exceeds the 95th percentile for a 24-month-old. And 19 of 34  
21 convertible seats could accommodate forward-facing children up to  
22 50 pounds, which exceeds the 95 percentile for a 5-year-old. So  
23 as you can see, the marketplace does provide families with many  
24 products that allow them to meet or exceed the AAP's current  
25 recommendations for usage.

1           Additional AAP recommendations for older children  
2 indicate that children should use a belt positioning booster seat  
3 until a child is able to properly fit and use the vehicle safety  
4 belts. And again, there's been much discussion about size limits  
5 already today.

6           Finally, the AAP recommends that all children under age  
7 13 should ride in rear seats of an automobile and all older  
8 passengers must use both lap and shoulder belts at all times.

9           Now, as we heard this morning, under current federal  
10 regulation, children younger than 2 years of age are the only  
11 aircraft occupants who are not required to be restrained or  
12 secured during takeoff, landing and conditions of turbulence. The  
13 current practice of allowing infants to be unrestrained on an  
14 aircraft is inconsistent with all of the occupant protection  
15 recommendations of the American Academy of Pediatrics. And the  
16 Academy recommends that all children, including those under age 2,  
17 should be restrained in the appropriate child safety seat for  
18 their weight and size during takeoff and landing, as well as  
19 during turbulence.

20           In order to protect children from potential injuries or  
21 deaths, the academy has recommended aircraft restraint  
22 requirements comply with automobile requirements, including  
23 requiring a rear-facing seat for children under age 1. And  
24 finally, the academy encourages airlines and the FAA to strictly  
25 enforce the current requirement that children over the age of 2

1 are restrained in their own seat.

2           The policies I've discussed so far today were published  
3 nearly a decade ago and in the intervening time, a number of  
4 studies have been published on child passenger safety in  
5 particular and this wealth of new evidence has prompted the AAP to  
6 revisit our policy statements. The committee on injury is  
7 currently in the final stages of revising recommendations for  
8 automobile and aircraft restraints for infants and children.

9           Early in 2011, the AAP will publish one combined policy  
10 statement outlining our recommendations for both aircraft and  
11 automobile safety. The statement is still in the approval  
12 process, so I am unable to share our new recommendations with you  
13 at this time. However, the AAP fully intends to share our  
14 recommendations with the NTSB, the FAA, NHTSA and safety advocacy  
15 organizations so that we may all work together to implement these  
16 new recommendations.

17           I was also asked to speak briefly about how the AAP  
18 communicates with our member pediatricians, parents and the public  
19 about issues like child passenger safety. The AAP makes  
20 significant efforts to help pediatricians educate parents and  
21 provide up-to-date, appropriate information regarding car seat  
22 choices and use. As the academy prepares to release revised  
23 recommendations, our top priority is ensuring that these messages  
24 reach parents, pediatricians and the public.

25           Almost exactly a year ago, the academy launched

1 HealthyChildren.org, a public information website with  
2 recommendations and information to help parents and the general  
3 public understand and promote child health and development. The  
4 site features information tailored to a child's age and  
5 development, starting with infancy and extending through  
6 adolescence and young adulthood.

7           Child passenger safety articles are the most visited  
8 pages on the site. Searches for the term car seats alone account  
9 for 10 percent of total traffic to this site. As I noted earlier,  
10 the academy releases an annually updated car seat guide to help  
11 parents make informed decisions on car seat selection and use.  
12 When the academy released its car seat guide for 2010 last  
13 January, HealthChildren.org's car safety page received almost  
14 100,000 page views that month. And the car seat guide averages  
15 over 63,000 individual visits on a monthly basis.

16           One of the most significant opportunities pediatricians  
17 have to share recommendations with parents and families is through  
18 anticipatory guidance at well-child visits. The AAP recommends  
19 discussing child passenger safety with parents at every well-child  
20 visit from birth through a child's teenage years. It is the only  
21 topic that is recommended to be discussed at every well-child  
22 visit. Studies have shown that this type of direct counseling has  
23 proven to increase car seat use.

24           Finally, the AAP reaches out to pediatricians through a  
25 range of channels to provide updated information about child

1 passenger safety. This includes our publications, educational  
2 sessions at our annual conferences and other venues, continuing  
3 medical education courses, online materials and much more. And  
4 you may be sure we will be utilizing all of these tools when the  
5 new child passenger safety recommendations are released.

6 Thank you.

7 MS. DAVIS: Thank you, Dr. Durbin.

8 Our next speaker is Mr. Larry Decina. Mr. Decina is a  
9 senior associate for TransAnalytics LLC. He has over 30 years  
10 experience in highway safety research and over 20 years of  
11 research in child passenger safety.

12 Mr. Decina, if you would, begin your presentation.

13 MR. DECINA: Thank you, Stephanie. Thank you very much  
14 National Transportation Safety Board. I would also like to thank  
15 the National Highway Traffic Safety Administration who funds many  
16 of -- much of the research that I do.

17 My presentation will primarily be about the strategies  
18 to reduce a percentage of unrestrained young children. I want to  
19 first start with, we did some misuse studies for NHTSA in 1996 and  
20 the child safety seat misuse rate was 80 percent. A few years  
21 ago, we did the child safety seat misuse project again with 4,000  
22 vehicles in 7 states and the child safety seat gross misuse rate  
23 was 72.3 percent. So misuse is still high, but the caveat is,  
24 seats were much different in 1995 versus what they were in 2004.  
25 So that's a little bit of a caveat, but misuse is still high.

1           Many of the slides are a little bit redundant on  
2 information that was provided in the last session. I did these  
3 slides before that session, by the way.

4           Sandy talked about this slide. This is basically  
5 saying, this is the unrestrained young children out there on  
6 NHTSA's annual survey and there is difference in nonuse with the  
7 three types of race and ethnicity groups out there. Remember on  
8 this NHTSA data, though, the ages 4 to 7, this is not 93  
9 unrestrained properly. That 93 percent of the white population,  
10 that also includes children who are not in booster seats and are  
11 just restrained a little bit.

12           I want to talk about -- a little bit about, as what's  
13 out there and what we know about why children are unrestrained.  
14 Some of the studies that we've done for NHTSA and some of the  
15 literature reviews on other studies out there have shown that  
16 there are many reasons and characteristics of folks on why their  
17 children are not restrained. Socioeconomic demographic variables  
18 come into play, income levels, race, ethnicity, driver age and  
19 sex, the age and weight of the child occupant. These are factors  
20 that many studies, through observation studies, through asking  
21 parents, through focus groups, have come up with reasons why their  
22 children are unrestrained and these are primarily booster seat age  
23 children.

24           There are other perception, awareness and behavior  
25 factors as well. This information was also brought up by some of

1 the previous speakers here and in the last session. There's a  
2 perception of risk. If mom wakes up and the alarm clock says you  
3 will be in a serious car crash today, then maybe -- and she's not  
4 normally putting her booster seat aged children in seats, maybe  
5 she will. There's a little bit of what some colleagues call an  
6 immortality perception going on. They just don't think anything  
7 is going to happen to them.

8           Knowledge of child restraint laws plays a factor.  
9 Awareness of the best practices. Some folks that the child  
10 restraint law is the best practice and they might know the child  
11 restraint law, but it's not the best practices that the American  
12 Academy of Pediatrics mentions.

13           Unrestrained driver, many studies have shown, when the  
14 driver is unrestrained, the chance of the child being unrestrained  
15 is higher. There are vehicle issues, the type of car, lack of  
16 space, seat compatibility, the belt system as well. There's also  
17 driver excuses: It's a pain in the neck; I'm too busy; child's  
18 uncomfortable, and there's a litany of all these sorts reasons for  
19 why people are unrestrained.

20           All right. I want to cut to the chase and give  
21 recommendations from the studies that I have done through NHTSA  
22 and through what other groups have said.

23           Let's start with laws and enforcement related issues.  
24 Enforce existing child restraint laws. Make sure the officers  
25 actually track the citations by the age of the child. The Click

1 It or Ticket program does a great job of doing child restraint law  
2 enforcement, but they don't track the age of the child, so we  
3 really do not have a grasp on how many of those tickets are  
4 related to the booster seat age child. And it's not their fault.  
5 They have never been instructed that they need to write down the  
6 age on the ticket.

7           Publicized child restraint law enforcement activities,  
8 this has worked marvelous with just Click It or Ticket seatbelt  
9 activities. It can work with child restraint law enforcement.  
10 Use designated child restraint law enforcement details. Many law  
11 enforcement agencies just cannot really do it on their regular  
12 routine time in the community. They need -- like the Click It or  
13 Ticket model, they need, over time, periods where they can do  
14 designated officers to run the child restraint law detail. And  
15 studies that we have done have shown, it works.

16           Train the officers in the best practices. Obviously  
17 some of the officers who have children under 10, they're well  
18 aware of the child restraint issues out there, but many officers  
19 don't have children and they're not aware or attuned to that  
20 issue. So they need to be trained on best practices and the laws  
21 and it doesn't hurt to educate the judges and the prosecutors  
22 about the CR laws. Some officers in focus groups have told us  
23 that the judges think it's trivial to come into their court with a  
24 child restraint law violation.

25           The other thing that needs to be going on in the

1 enforcement world is evaluating the effects of stronger child  
2 restraint laws. That's important because maybe -- there's a  
3 recent NHTSA study that is showing higher seatbelt fines increase  
4 seatbelt use. Maybe the same things work for child restraint  
5 laws.

6           Recommendations for education. Let's see. There we go.  
7 All right. This has been mentioned in the previous session; focus  
8 on best practices for properly securing children. Many folks do  
9 not know the best practices. Increase the perception of risk of  
10 injury. I'm not saying it needs to be to the level of Dr. Baldwin  
11 and the fear factor, but certainly, some studies have shown,  
12 showing crash tests with inappropriately restrained children gives  
13 the people -- gives parents an idea of what could happen.

14           Some focus group studies have used -- have recommended  
15 testimonials. Have a story showing the parent with a child who  
16 was injured or killed because they weren't in a booster seat.

17           All right. For diverse groups, and some of these  
18 comments were made in the previous session, accessibility to  
19 education is critical for the diverse groups who are less likely  
20 to restrain children. Message delivery, the education role should  
21 be filled by healthcare providers and child safety advocates.  
22 This was also brought up for diverse groups. Use culturally  
23 sensitive bilingual messages within the reading level.

24           In Philadelphia, there are many faith-based operations  
25 going on to increase safety in the City of Philadelphia, faith-

1 based -- there are even some studies that are showing faith-based  
2 seatbelt studies have been effective in increasing the seatbelt  
3 use in a congregation. This could work with child restraints as  
4 well.

5           Seat giveaways work. There are studies that show seat  
6 giveaways combined with education do increase booster seat use.  
7 Low cost seats, in-store coupons as well. These things have been  
8 shown to work.

9           And the last slide, and again, some of this stuff has  
10 been brought up in the previous panel, who are the messengers?  
11 Who are the people that should be delivering all of this  
12 information?

13           In the enforcement side, obviously, the officers, and  
14 officers -- there are many officers in focus groups, will tell you  
15 that enforcement is education. Some people, you know, moan at  
16 that, but it is. It is an education.

17           Other messengers for education, child passenger safety  
18 technicians, healthcare providers, seems the obvious, child care  
19 providers, preschool or elementary school teachers. I know a lot  
20 of studies have shown it's tough to get into the elementary  
21 schools because their curriculum is so packed all the time, but  
22 it's perfect for booster seat age.

23           Community groups, there are mothers of preschooler  
24 groups. Law enforcement officers in a non-enforcement setting do  
25 well at this education. EMS and fire fighters do well giving the

1 message and of course, the media, TV, radio and billboards.

2 In Pennsylvania on the northeast extension of the  
3 turnpike, there are several billboards on getting the kid in a  
4 booster seat. I can't be the only one that notices that. And  
5 that's it.

6 MS. DAVIS: Thank you, Mr. Decina.

7 Our next presenter is Ms. Lorrie Walker. Ms. Walker is  
8 the training manager and technical advisor of Safe Kids Worldwide.  
9 She has more than 20 years experience in the traffic safety field,  
10 predominantly in the areas of child passenger safety, bikes,  
11 school buses, children with special healthcare needs, teen  
12 drivers, teen passengers and pedestrian safety.

13 Ms. Walker, if you would please, begin your  
14 presentation.

15 MS. WALKER: Thank you. Thank you, Madam Chairman and  
16 members of the National Transportation Safety Board. We  
17 appreciate this opportunity to be here.

18 I'm representing Safe Kids, Buckle Up, which is a  
19 program of Safe Kids Worldwide which began in 1996 under the  
20 sponsorship of General Motors and for the years since they have  
21 begun their partnership with us and sponsorship, we have 600  
22 coalitions and chapters operating around the country at the grass  
23 roots level our coalitions and chapters do a fabulous job of  
24 determining what works in their communities.

25 So what works in Tucson may not work in Tallahassee and

1 our coalitions are fine-tuned to know what works in the schools  
2 there and the faith-based communities there and the with the law  
3 enforcement communities where they work. And we rely on them  
4 consistently to do the messaging that we want them to be able to  
5 share with messages about child passenger safety.

6 In that time, since 1996, we've checked almost 1.3  
7 million car seats. That's million, with an M. Twenty-one million  
8 people have heard our messaging and we've donated more than  
9 450,000 car seats to low income communities.

10 I want to talk a little bit about the practical elements  
11 of child passenger safety both in the airplane -- I just have one  
12 slide on this -- and again, at the grass roots level in the  
13 community.

14 We want kids in car seats for a number of reasons on  
15 airplanes and one of them is that we want those kids riding to and  
16 from the airport in their car seats for when they arrive at their  
17 destination, they will have the car seat there and it's likely  
18 that they will use it. Traffic crashes do not take a vacation.  
19 Many families think they do, but traffic crashes do not and we  
20 want kids to be able to have their seat that they're familiar with  
21 when they get to their destination and then, returning back to  
22 home.

23 We want them secure in turbulence. I've been on many  
24 flights where young children are just sitting on someone's lap.  
25 They're not even held tightly as the rest of the airplane is

1 bunkered down and is using their seatbelts quite consistently. We  
2 want the kids comfortable on the airplane in a familiar seat and  
3 when you put a little 2-year-old in the seatbelt, they swim in  
4 that seat. Their legs don't bend. They're curled up. They fall  
5 asleep. They get up. They stand up. They pull hair of the  
6 people in front of them. They kick the seat behind them. They're  
7 doing all the things that make it uncomfortable for the child and  
8 uncomfortable for the traveling public that share the seats with  
9 them. And we have seen better behavior on the airplane with kids  
10 who are in car seats.

11 I fly a lot and I can tell you that I would much rather  
12 sit next to a child who's in his car seat than a child who is  
13 wrestling with his parent the entire five hour flight as they're  
14 standing up and giving the parent great agitation.

15 So some of the things that I want to talk about are what  
16 happens at our destinations where families show up to find out  
17 what they're doing right and wrong with their car seats, and  
18 that's at an inspection station. Every single one of our  
19 inspection stations uses a checklist form and last year, we did  
20 over 67,000 car seats just in one year and we have documentation  
21 on that. Actually, TransAnalytics is now summarizing that data of  
22 us and we'll have a report on that data next year.

23 And what we're looking for when parents come in is the  
24 selection of the car seat that they've chosen for their child.  
25 You've already heard about the number of seats that are out there.

1 You've heard about the variables of, is it an infant seat, is it a  
2 convertible seat, how long should the child ride in the infant  
3 seat, how long should they ride in the convertible seat. And what  
4 parents don't know is sometimes they're picking the car seat based  
5 on the fabric, because it matches the nursery theme or matches the  
6 interior of the car, not necessarily what's the best product for  
7 the child.

8           They don't know which direction to place the child in  
9 and oftentimes, we find that child who should be rear-facing, is  
10 forward-facing. Our technicians can, on a one-to-one basis,  
11 communicate with parents and let them know how important it is for  
12 them to have the child facing the correct direction.

13           We heard earlier about parents not wanting to see the  
14 backs of their children's heads and we know that, as a fact, they  
15 put mirrors up. They do all sorts of things. They do child care  
16 while the child is rear-facing. We don't want that. We want them  
17 to be safe drivers, paying attention to the road, not necessarily  
18 looking at a mirror.

19           The location of where the child is seated in the vehicle  
20 is very important. We are seeing children in the back seat, but  
21 what many parents have heard is that there's only one safe seating  
22 position in the vehicle and that's the middle of the back seat.  
23 That's wonderful if you have only one child, but when you have  
24 three children, who gets the best seat? We know that the back  
25 seat is best, regardless of that location and we want parents to

1 feel comfortable not creating a middle back seat, which, some cars  
2 only have two back seats and they're creating a third seat by  
3 switching belts around and doing all sorts of jury-rigging to make  
4 the seatbelt work.

5           Installation of the car seat is a problem in a lot of  
6 cases, because parents do not read instructions. And there are  
7 labels on the car seats themselves that make it pretty easy to  
8 follow, but they need some help with that and that's what our  
9 technicians do at a one-to-one basis. And then the harness system  
10 for the child needs to be tight. It needs to be in a position  
11 where the child can be comfortable, as well as secured.

12           When we want to talk to new parents, one of the best  
13 places to go is child birth education classes. This is when  
14 parents are most receptive to learning about the new baby. When  
15 they -- if they make it to the hospital and they haven't actually  
16 learned about car seats yet, there's an opportunity there for the  
17 discharge nurse to talk to them about using a car seat. And if  
18 there were a discharge policy available in every hospital that  
19 needed a check mark that the child was seated in a car seat before  
20 they left and the nurse talked to the parents about the importance  
21 of car seats, we might see better usage.

22           We like to talk to parents, children's groups that are  
23 attended by moms and we have found that parents have to be aware  
24 that something's wrong with their seat after the child is a year  
25 or so old before they come to a car seat inspection station. We

1 get their attention when they realize that, when they turn the  
2 corner and the car seat rolls over, maybe that's not such a good  
3 thing. And we can then talk to them about what they've done  
4 incorrectly without scolding them or making them feel inferior.  
5 That's a really important part of what our technicians do.

6           So in 2009, at our inspection stations, this was an  
7 average that came out of our quarterly reports. We had 514  
8 stations going at the same time in 2009, with 34,520 hours of  
9 service, 2,847 technicians who checked 54,440 seats just at our  
10 inspection stations. This isn't big events with tents that are in  
11 the parking lot of the Walmart or Target, but these are actual  
12 inspection stations.

13           Inspection stations can be two types. There's a mobile  
14 fitting station, and we have 137 of these mobile vans that can  
15 travel to rural and urban populations where there are no fixed  
16 stations. Fixed stations can be those places where firefighters  
17 are, police departments, hospitals, health departments, but these  
18 are mobile. These can pick up and go on a dime and reach  
19 populations that really have not heard the message about child  
20 passenger safety and we're grateful to have those 137. Again,  
21 these came from General Motors.

22           So what are some of the barriers to this proper child  
23 restraint use? I would like to point out a concept that I have,  
24 which is the take a minute concept, where parents are just so  
25 distracted, they don't want to stop and even pay attention when

1 they're at the inspection station. They're talking on the cell  
2 phone as they pull up into the check lane. They don't want to get  
3 out and actually spend time learning how to do their car seats in  
4 some instances. They want someone else to do it for them, in  
5 which case, they'll be back because, if they don't learn how to do  
6 it -- and I have to admit, that's a mistake we made in the early  
7 days when we had our inspection stations.

8           It was step away from the car, ma'am, let us take care  
9 of this for you and now our whole emphasis is on the education,  
10 not installation. We want parents to understand how to do this  
11 when they're at the car wash so they don't panic that they don't  
12 know how to take care of their children. And parents have these,  
13 sometimes, wrong priorities. They are spending so much time and  
14 they're in such a rush to get to Jamboree that they haven't spent  
15 time paying attention.

16           I just wanted to bring attention to the fact that we  
17 lost 49 children last year in 2010 because children were left  
18 unattended in cars or the they entered cars that were unattended  
19 by adults. This is a topic that we talk about at our inspection  
20 stations to make parents aware of that so that they're not caught  
21 in that bind of making a decision to run into the store, meeting a  
22 friend and forgetting that they've left a child.

23           So we look at kids of all ages and we already talked  
24 today about kids of older ages and how important it is to not just  
25 focus on kids who are in the car seats and booster seats. We have

1 a program for kids who are 7 to 10 for -- with our Cub Scout Patch  
2 program, the Safest Generation program that deals with kids 11 and  
3 12 and our soon to be released program called Countdown to Drive  
4 for kids who are 13, 14. Our coalitions are promoting these  
5 programs day in, day out in their communities around the country.

6           So what I would like to see in the future is more  
7 inspection stations. You know, right now, there are about 62  
8 million kids who are under the age of 14, and while NHTSA has on  
9 their database 4,300 inspection stations, it's certainly not  
10 enough and they need to be in areas that are underserved and  
11 minority populations. We would like to see continuing education  
12 for our technicians. They do a great job. Many of them are  
13 volunteers. Continuing education for the public, ongoing,  
14 consistent, easy messaging and it's not easy because these  
15 messages are -- they're complicated.

16           We would like to see a continued effort to make vehicles  
17 and child restraints more intuitive for consumers and I have to  
18 admit that that's happening on a more frequent basis where we're  
19 grateful for that. And then, better national data to measure our  
20 success. So thank you.

21           MS. DAVIS: Thank you, Lorrie.

22           Our final presenter is Mr. David Campbell. Mr. Campbell  
23 is a principle at David Campbell and Associates, a firm consulting  
24 in the areas of infant and juvenile products, including car seats.  
25 Mr. Campbell is also president of Angel Guard Products,

1 Incorporated, a manufacturer and distributor of an infant car bed  
2 for premature and low birth weight infants. Prior to these  
3 positions, Mr. Campbell served as the vice president of  
4 engineering, research and development at Graco Children's  
5 Products, Incorporated for its Century Products brand.

6 Mr. Campbell, if you would begin your presentation.

7 MR. CAMPBELL: Thank you and it's a pleasure to be here  
8 on behalf of JPMA, the Juvenile Products Manufacturer's  
9 Association, who are representing the companies that actually  
10 manufacture these child restraints that we're looking to provide  
11 the protection for children that we're talking about today.

12 I was asked to talk about three different topics; one,  
13 innovative child restraint designs and features that enhance  
14 protection for children. The second being changes manufactures  
15 are making to make the installation of child restraints easier for  
16 caregivers and parents, challenges with the compatibility of child  
17 restraint systems and automobiles.

18 So as I do that, we'll start out with the first one,  
19 innovative child restraint designs and beginning with that, it's  
20 helpful to look at the -- what's happened over the past few years  
21 to set a perspective because, a lot of what's going on is building  
22 on the work that's already been done and adding further  
23 enhancements to what's there. And recognizing this, we have a  
24 recommended practice, J1819, which is an SAE recommended practice  
25 that we've worked with the vehicle manufacturers for a number of

1 years to address known compatibility issues that were leading to  
2 installation difficulties for parents. That was developed and  
3 implemented and both child restraint manufacturers and vehicle  
4 manufacturers have been using that.

5           Secondly, rear-facing to 30 pounds, that something that  
6 we heard the call. To keep children rear-facing to a year, that's  
7 what we had to do. We had to raise the weight rating to 30  
8 pounds. Fifty percent of the children who are 1 year of age  
9 exceed 22 pounds and at that point in time, the common, rear-  
10 facing child restraint was rated at 22 pounds. So the industry  
11 went to work and started to raise the rear-facing weight rating to  
12 get -- accommodate those children that are 12 months of age and  
13 brings along with it, the benefits they also accommodate some  
14 older children who are not yet 30 pounds.

15           If you look at the smallest 3-year-old will be 33 pounds  
16 and can still sit rear-facing. However, that's a much taller  
17 child, so that enters into some of the issues. We talk about the  
18 needs for keeping rear-facing, but we can't ignore, not just the  
19 physical -- the weight, but also, the physical size and the needs  
20 that we have for both.

21           Harness weights have increased from 40 pounds to 65  
22 pounds or higher. Children are getting heavier at younger ages.  
23 In order to keep them in harnessed seats, we had to raise the  
24 weight rating. Forty pounds, children are 2-1/2 years of age can  
25 outgrow a harness at 40 pounds and what did they have left but a

1 booster seat or a vehicle seatbelt. So the industry, again, heard  
2 the message and made changes to raise the weights to 65 pounds and  
3 even higher for some children.

4 LATCH and tether has been implemented. The use of LATCH  
5 with dedicated anchorages has been a real benefit. And then the  
6 emphasis and the addition of the tether, both with the LATCH and  
7 with a lap belt -- lap and shoulder belt is also a benefit to the  
8 children. Rear-facing recline adjustments, another feature that's  
9 been added to make installation easier and enhance performance.  
10 That allows you to get the best practice recommended recline angle  
11 for children rear-facing. So those are some of the things that  
12 have been done in the past few years.

13 Recent engineering improvements and emerging  
14 improvements are improvements in belt fit. We've heard about the  
15 IIHS belt fit evaluation. Manufacturers have taken that  
16 information and have responded to that range of anchorages and are  
17 working hard to accommodate that broad range of anchorages within  
18 a system.

19 Harness design. We're now seeing improved and easier to  
20 use harnesses for children. There are now harnesses out there  
21 that will readjust themselves each time you put the child in and  
22 snug up the restraint system. It will automatically position the  
23 shoulder belts on the child.

24 Energy absorbing design and materials. We now have  
25 seats that have steel components that are bending under the loads

1 of the crash which reduce the forces transferred to the child.  
2 We're using energy absorbing materials in side support surfaces  
3 for the head and in the seating area of the child restraint,  
4 again, reduces the loads transferred to the child. Side impact  
5 protection has been a big area of focus. Increasing the size of  
6 the side support available to children, again, changing the  
7 material so they're between the child and incoming vehicle.

8           Providing rotating seats for loading the child and  
9 infant. We have infant seats that you can rotate toward the door  
10 so that you can place the child in, secure the harness, then  
11 rotate him back into the riding position. That's also been  
12 expanded to forward-facing restraints.

13           Portability is something that's important, having a seat  
14 that you can take with your child. I think it was Kristy that  
15 said seeing those booster seats in the office at the school was a  
16 real positive and a success story. Being able to move that  
17 restraint with the child -- there are travel vests now that can  
18 actually be moved with a child. Mom drops the child off, dad  
19 picks the child up. The restraint stays with the child. So we're  
20 promoting that ability to use that, recognizing lifestyles.

21           Appearance to entice children to use. Lorrie talked  
22 about, you know, I might want to buy a particular child restraint  
23 because it looks great in my car, but that doesn't necessarily  
24 mean my kid wants to use it. I might buy a licensed character,  
25 Dora, SpongeBob or whatever, but there's also new seats on the

1 market that you can see here that actually create and use those  
2 characters and entice these older children to want to be in the  
3 seats because they don't want to be in a baby seat. They want to  
4 be in something they like.

5 Other recent emerging initiatives are in testing. Side  
6 impact testing, many manufacturers are doing some side impact  
7 testing. It may be something that they have developed and begun  
8 to implement on their own because there is no side impact  
9 standard. There's been a significant amount of effort going on in  
10 this area, including the additional energy absorbing materials.  
11 And we also have manufacturers who are testing in higher severity  
12 crashes, actually simulating an NCAP test. So the much more  
13 severe test than regulation because they want to know and offer a  
14 seat that's structural -- the structural integrity is going to  
15 withstand that crash.

16 Changes are being made so installation of child  
17 restraints can be easier for caregivers and parents. Again, I'm  
18 going to start with some of the things that have happened in the  
19 last few years because, again, we're going to build upon this. A  
20 stay-in-car-base for infant car seats so that you could put that  
21 base in, the car seat's not there. You would have complete access  
22 to the belt path. You then can click the car seat in and out and  
23 take it with you because it's also used as a travel system.

24 An adjustable foot for the rear-facing child restraint  
25 to provide the best practice recline. That makes it easier for

1 parents. They don't have to roll up a towel or a newspaper and  
2 put it under the seat to get the right recline angle.

3 NHTSA ease of use requirements. NHTSA has looked at the  
4 child restraints and they have identified a number of things in  
5 their ease of use requirements that make it easier for parents to  
6 utilize a child restraint. They're asking for more information on  
7 the product to show correct use and how to install the seat.

8 Color coding is another thing. For rear-facing, we use  
9 a blue to identify for the infants, similar to what Europe does.  
10 Forward-facing, we try to use red, which is, again, similar to  
11 Europe. So red and blue, I use things that are identified with  
12 blue for that rear-facing installation. I use red for the  
13 forward-facing installation. And then, for a booster seat, maybe  
14 a darker burgundy, but using color coding to help communicate and  
15 call parent's attention to the correct elements to be using.

16 Built in shoulder belt lockoffs for lap and shoulder  
17 belt. That's something that's been added to child restraints and  
18 when you're installing the lap and shoulder belt, makes it much  
19 easier than using a switchable retractor. Tension indicators on  
20 the tether and shoulder belts, there are new designs out there of  
21 elements that allow you to put them in the system and when you  
22 tension it, it changes color from red to green so parents have a  
23 visual indication of that.

24 And then, finally, use of LATCH on belt positioning  
25 boosters is something that's beginning to be seen within the

1 industry. It secures the booster seat to the vehicle so that it's  
2 always secured. It keeps it in position when the child egresses  
3 and ingresses into the product and makes it much more easy to use  
4 from that standpoint.

5           Recent and emerging improvements. From a design  
6 standpoint, the convertible car seat with a stay-in-car base is  
7 one enhancement that's come along fairly recently. LATCH and  
8 tether storage accommodations. When LATCH first came out, there  
9 was no place to put these belts. They were hanging from the child  
10 restraints and when you went to use it with a vehicle seatbelt,  
11 you've got all these extra belts. Now we're seeing accommodations  
12 built into the product where you store them. You snap them,  
13 they're secured; they're not hanging around.

14           Accommodating vehicle seat contours. We all like to  
15 have a nice, comfy seat. The contour of the vehicle seat with the  
16 side bolsters has an effect on child restraints. The child  
17 restraint needs to sit down inside that flat area of the cushion,  
18 not upon the side bolsters or it may tip sideways. It may not be  
19 as easy to secure if you've got that, so manufacturers are paying  
20 attention to that.

21           On the LATCH system, LATCH compatibility, we're looking  
22 how do -- how does the LATCH connector interface with the vehicle  
23 seat and the surrounding upholstery and how do you put it on and  
24 disengage it from the anchor bar that's in the vehicle. We have  
25 an SAE group that's looking at compatibility, much as we did on

1 vehicle seatbelts and trying to -- and working to address those  
2 interface issues so that it makes it easier and we know that  
3 they're going to work together.

4 Attachment systems. We have new attachment systems.  
5 You see most of the attachments that are on the U.S. products  
6 today are tether hooks. We have some push on connectors and we  
7 recently had a company that went to work and actually created a  
8 new push on connector that has an automatic retractor built into  
9 the belt. So you attach the connectors, push down on the car seat  
10 and the belt automatically tensions and you're tight. A very nice  
11 system.

12 Higher weight on LATCH systems. We have some  
13 manufacturers that are recommending higher weights for the use of  
14 their LATCH. Single pull, LATCH adjustment systems. We have a  
15 company that made a better mousetrap. They attached a LATCH  
16 system. They have a belt in the center of their infant car seat  
17 base. They pull on it in one place and it tightens everything  
18 down for the parent, so it's a nice improvement.

19 Other recent emerging improvements are parental  
20 interface, electronic monitoring and feedback. We have a company  
21 that recently introduced a car seat and an infant car seat with a  
22 base. It tells you when you have the proper recline with an  
23 electronic digital screen. It tells you when you have the proper  
24 belt tension and so it gives you that feedback on when you've done  
25 it right.

1           Belt tensioning, we have some built in belt tensioners.  
2 We -- there have been belt tensioners in the past where you could  
3 add to a child restraint to allow you to tighten the belt to get a  
4 tight fit. We're actually seeing those built into child  
5 restraints now to assist the consumer and being able to get that  
6 tight fit, you had to put your knee in it, pull on the belts.  
7 This actually takes the place of that.

8           Belt path design, making it easier to adjust the belts,  
9 have them slide through easier, paying attention to how that belt  
10 fits and we've seen that occur and it does make a big difference.  
11 And then, finally, we have an (indiscernible) industry activity on  
12 LATCH anchor strength recommendations. The -- we're working with  
13 the vehicle industry to look at the LATCH anchorages and what can  
14 we do in terms of the ability to increase the weight rating that's  
15 currently specified for LATCH.

16           Challenges with compatibility on child restraints in  
17 automobiles. Again, I'm going to start with what's been done in  
18 the past few years. J1819 with vehicle seatbelts was a very big  
19 element of that, dealing with the compatibility issues that we  
20 were aware of. LATCH and tether has contributed. It offers a  
21 secondary method of attachment. Believe it or not, in some cases,  
22 parents find they can't get a secure installation with LATCH and  
23 tether. They actually move to a vehicle seatbelt.

24           Car seat tether length and vehicle tether location, it's  
25 again, something the inter-industry committee is working on,

1 looking at how long does a child restraint tether need to be  
2 because of some vehicles, the anchorage may be further away and  
3 the parent doesn't have a solution for that, so we're working in  
4 that area of compatibility.

5           Current challenges, tether anchor locations and tether  
6 length, I just talked about. The tethers are located, in some  
7 cases, up over the rear hatch and may be too far and too -- longer  
8 than the distance that the child restraint can accommodate. LATCH  
9 or anchor or CRS connector access, getting the anchorage on the  
10 child restraint into the anchor of the vehicle and separating the  
11 upholstery and getting into it to visually be sure that you're on  
12 is a challenge.

13           The center line of the LATCH seating position relative  
14 to the center line of the adult seating position is something  
15 that's an issue for us and we're looking into that. It can end up  
16 with a child restraint unsupported on one side because the vehicle  
17 seat cushion is higher on one side with a side bolster and lower  
18 in the center. It can be an issue with booster seats when you try  
19 to secure them with the LATCH attachment system. It then  
20 positions the child off center of the vehicle occupant seating  
21 position. So again, it's an area of compatibility that we're  
22 looking into.

23           Vehicle shoulder belt anchorages and the D-ring --

24           MS. DAVIS: Excuse me, Mr. Campbell --

25           MR. CAMPBELL: Yes?

1 MS. DAVIS: -- could we ask you to wrap up your  
2 presentation soon? We want to make sure we have enough time for  
3 questioning.

4 MR. CAMPBELL: Sure. The D-rings. We talk about the  
5 IIHS belt fit. Backless boosters really don't have a lot of  
6 opportunity to change that position, so that's something that's an  
7 interface issue between the booster seat and the vehicle.

8 Head restraints is a new emerging issue with 202 head  
9 restraints. Vehicle seat contours and the roof line can be an  
10 issue with these larger child restraints because the roof line is  
11 going to be coming down on the outside of the vehicle and it may  
12 interfere with the child restraint.

13 Thank you very much.

14 MS. DAVIS: Thank you, Mr. Campbell.

15 I would like to turn questioning over to Dr. Braver.

16 DR. BRAVER: Well, I am very grateful to everybody on  
17 the panel for coming today. We really appreciate your taking the  
18 time to come down here.

19 I think I'll direct my first question to Dr. Baldwin of  
20 the Centers for Disease Control. Now, you talked to us about  
21 components of an effect of health education program. I wanted to  
22 ask you to talk about, well, what is -- what are your views about  
23 the importance of evaluation of those programs?

24 DR. BALDWIN: The CDC sees evaluation as an absolutely  
25 essential element and an effective program design and

1 implementation. As I mentioned, certainly before, during and  
2 after, we have adopted, at CDC, a number of best practices that we  
3 think are important. So for any program that's administered with  
4 CDC dollars, it's our -- a benchmark of ours to have at least 15  
5 percent of those program dollars go to evaluation and in some  
6 instances, we're beginning to externalize that evaluation.

7 CDC Director, Dr. Tom Frieden, is very interested in the  
8 issue of scalability and to a certain degree, a third-party  
9 evaluator evaluating programs across multiple intervention sites  
10 allows us to think more broadly about lessons learned and broad  
11 scalability and applicability.

12 So there certainly are best practices out there about  
13 how to do that. It was mentioned in the earlier session about  
14 long-term follow-up, so evaluation, not just at the end of a  
15 program, but 6 months, 12 months after, I think, is absolutely  
16 essential.

17 DR. BRAVER: Well, thank you. We talked to FAA today;  
18 we asked them about how they were looking at the results of their  
19 educational programs. They mentioned web hits and so forth. So I  
20 wanted to ask you if you could comment on what you see as the  
21 essential components of an evaluation. Will web hits do it or  
22 what should agencies be trying to do when they want to see whether  
23 their programs are accomplishing their objectives?

24 DR. BALDWIN: Sure. Materials distribution, web hits,  
25 those are considered process evaluation metrics. They're

1 absolutely essential to evaluate a new program, but in terms of,  
2 does it constitute a gold standard in whether or not the education  
3 activities are being effective? No, it does not. So I think it's  
4 a necessary but not sufficient element of a successful evaluation.

5 DR. BRAVER: And I wonder whether you could -- you  
6 alluded to this briefly, but I just wonder whether you could  
7 expand this a little bit. You could talk a little bit about  
8 conventional measures of trying to do mass outreach, such as  
9 posters, brochures, websites, public service announcements. How  
10 effective are they and how effective are they compared with other  
11 approaches?

12 DR. BALDWIN: I think they're -- I think design is  
13 absolutely essential in program -- in material design and  
14 distribution. So -- and we have to -- you know, just turning to  
15 consumer products, the better designed products typically have  
16 better reach and market penetration.

17 I think separating ourselves, using new technology,  
18 social media, Facebook, Twitter and others, Text 4 Babies was  
19 mentioned earlier, a very successful HHS program using texting. I  
20 think those are promising practices to distinguish ourselves given  
21 the number of messages that consumers are receiving these days.  
22 So I think using those new technologies, taking advantage of  
23 things like blogging, Mommy Blogging, Moms Like Me, those types of  
24 blogging sites, I think, are absolutely essentially given the  
25 interconnectivity that they engender.

1 DR. BRAVER: Okay. Well, this raises another question.  
2 To some extent, the kinds of people that go to a website or go to  
3 a blog for parents: in some ways, you're kind of preaching to the  
4 choir. So I wanted to turn our attention to the fact that we have  
5 a lot of adults in this country who have low reading skills and  
6 also, we have a lot of parents with low educational levels. So I  
7 wanted to hear your thoughts on how to reach those groups.

8 DR. BALDWIN: Health literacy is a major public health  
9 challenge and I think any time we can spend the time to develop  
10 materials that are -- target low literacy audience, I think it's  
11 absolutely essential that we do that. I think it's good practice  
12 for all of us, regardless of our reading level.

13 It was mentioned earlier about the need to be culturally  
14 sensitive. I think that's absolutely critical. One target  
15 population that wasn't mentioned earlier is the disproportionate  
16 burden that Native Americans and Alaska Natives have in motor  
17 vehicle injury deaths -- injuries and deaths and I think that's  
18 another population that we need to think about targeting that  
19 disparate and vulnerable.

20 DR. BRAVER: I'm now going to turn this over to  
21 Dr. Price.

22 DR. PRICE: Thank you.

23 I would like to ask, I think, in particular, Dr. Durbin  
24 a question, but I'm open to other responses. As the -- I am the  
25 mom of three children, two of who are ages 6 and 4 and I can tell

1 you that my 4-year-old is just dying to get into a booster seat  
2 and my 6-year-old is just dying to get out of her booster seat.  
3 And I think that we talked earlier today about how the older age  
4 groups, tweens and teens are the groups that may be particularly  
5 at risk and ones we want to focus on.

6           So I guess my question for Dr. Durbin is, are  
7 pediatricians speaking directly to children or is that part of how  
8 you work or do you have innovative ideas about how we can go  
9 directly to children to try to influence them?

10           DR. DURBIN: That's a great suggestion. In my own  
11 practice in emergency medicine, I would say I routinely begin to  
12 take a history from a patient at age 3, mostly for the  
13 entertainment value because the way they describe themselves and  
14 why they're in the emergency department is entertaining. But  
15 clearly, at that age, children can -- you can have a conversation  
16 with a child and I would assume that most pediatricians in primary  
17 care practice engage their patients as part of their routine  
18 anticipatory guidance.

19           As part of the Partners for Child Passenger Safety Study  
20 that you heard about in the prior panel, for a period of time, we  
21 asked parents a question about, at what age did they allow their  
22 child to determine where they sat in the car, you know, meaning  
23 front seat, rear seat. And the median age at which parents said  
24 they have essentially deferred decision-making for safety in the  
25 vehicle to their children was 4 years old, which we found

1     stunning.

2                     But it's clear that parents begin to have a negotiating  
3 relationship with their kids at about that age, but I would say  
4 that safety is something that is non-negotiable and in my own  
5 practice and what -- my own house, in my practice and what I try  
6 to encourage my colleagues to do is to convince their parents that  
7 safety is a non-negotiable factor, particularly safety in the  
8 vehicle.

9                     There are lots of other things we can negotiate with our  
10 children, but that's one that is not and there is new data coming  
11 out that parents who can establish clear rules, in particular,  
12 around safety, and do it in a way that's sort of supportive tend  
13 to have better health outcomes for their children. A lot of that  
14 data comes from older kids, young adults and teens, but that type  
15 of parenting practice gets established at a younger age.

16                    DR. PRICE: I'll turn it over to Ms. Davis.

17                    MS. DAVIS: Ms. Walker, we were just talking about  
18 reaching children and kind of giving them the safety message. I  
19 wonder if you could just talk a little bit about some of the  
20 programs that you have specifically geared towards the tweens,  
21 which I believe, are specific to kind of giving them the safety  
22 message.

23                    MS. WALKER: Yeah. I would be happy to do that.

24                    Our coalitions have a network in their communities  
25 which, oftentimes, are made up of their boards and their board --

1 their local board can have on it, police officers, firefighters,  
2 nurses, doctors, UPS, FedEx, you know, you name it. Anybody in  
3 the community that has an interest in children is on that board.  
4 We found that these people at the local level can get their foot  
5 in the door at the local schools.

6           If I were to call from Washington and say I'm interested  
7 in coming to your school and doing a presentation on X, I would  
8 have difficulty and I would be met with a stone wall, generally  
9 telling me, well, we don't have time for that. We're focused on  
10 other programs. But our coalitions have a unique responsibility  
11 and an accountability to their communities. Many of times,  
12 they're working out of trauma centers at the local level and they  
13 have to do education to kids of this age and they look for  
14 materials that are crafted and tested to be used with those kids  
15 in schools, at church groups, at sports camps, at boys and girls  
16 clubs. There's a whole variety of places where we meet kid right  
17 where they are and do the education.

18           So oftentimes, with our older kids, we have a program  
19 called Safest Generation. That's for 11 and 12-year-olds and we  
20 launched that during the summer programs where camps were trying  
21 to find things to do with these 11 and 12-year-olds who didn't  
22 want to be there, number one, didn't think they needed child care,  
23 but parents didn't feel comfortable leaving them at home. And  
24 just as an example, there were five stations that were set up  
25 around a parking lot and we brought in people to run those

1 stations.

2           The first was a relay race where kids had to take two  
3 teams and they ran to the car, scanning all around the car,  
4 looking for kids, toys and pets to make sure that the car -- the  
5 environment around the car was safe. They approached the car.  
6 They had to get in the car, put the seatbelt on, wear it  
7 appropriately. Anybody that put it under their arm or behind  
8 their back had to stop, go back and start over again and it turned  
9 into a fun game for kids to practice doing it the right way.

10           Another station was one where myths and facts were  
11 talked about and kids got to guess what was the right answer, what  
12 was the wrong answer and tell us why they thought that this was a  
13 good practice for kids to use a seatbelt or to be ejected from the  
14 car. You know, was it safer to be ejected or to fall into water  
15 or that type of thing. And one of the best ones that we had was a  
16 station on figuring out how many airbags were in the car. Each  
17 kid got a clipboard and they had to read the owners manual. They  
18 had to read the visor. They had to look for symbols in the car  
19 and find the airbags.

20           We have to be really creative when we're reaching these  
21 kids, 11, 12, 13, 14. They're not reading our brochures. They  
22 don't want to watch a video and we have to be clever in how we do  
23 that. So we use our coalitions. They get into the schools. They  
24 get into the camps. They're invited into those schools and camps,  
25 by the way. It's not that they have to beg to get there, but we

1 have to come up with materials and games and ways to do the  
2 education that are fun for kids and tested on kids and you know,  
3 evaluated so that we know that we're doing the right thing with  
4 kids.

5 DR. BRAVER: Okay. Well, I'm going to ask a question  
6 and ask Mr. Decina to start off with the answer, but I'm going to  
7 invite the other panel members to please chime in, which is how we  
8 feel in general about this panel. We would like people to feel  
9 free to weigh in.

10 So I guess I'm going to ask you, if you ran the United  
11 States, what is the optimal allocation of funds aimed at  
12 increasing child restraint use? What would you like to see done  
13 and how would you like to see the funds allocated?

14 MR. DECINA: Okay. As you probably can guess, I really  
15 think enforcement is a key proponent to increasing child restraint  
16 use in the United States. Those funds can be part of other grant  
17 programs that are out there or there could be slight increases in  
18 the amount of enforcement dollars that goes to each state. You  
19 want an amount. You want an amount.

20 DR. BRAVER: No. I'm not asking for amount. I'm more  
21 trying to think about priorities. We heard from Dr. Baldwin about  
22 the need for a multi-pronged approach and so we need a variety of  
23 different approaches.

24 MR. DECINA: Okay.

25 DR. BRAVER: So you've mentioned enforcement. What are

1 the other effective counter measures that you would like to see as  
2 high priorities?

3 MR. DECINA: I also think education with healthcare,  
4 pediatricians and in the hospitals is very, very important and in  
5 the community, especially in the diverse groups, in those  
6 neighborhoods that have community centers where diverse groups can  
7 get that education.

8 DR. DURBIN: If I could just add to that, and maybe just  
9 to borrow Dr. Baldwin's earlier concept, I mean, I believe -- I  
10 strongly endorse the approach that the CDC uses for the way they  
11 approach public health policy, relevant research starting with  
12 surveillance to define the nature and magnitude of the problem,  
13 risk factor evaluation, intervention, development, dissemination  
14 and evaluation.

15 I would say, from my perspective as a researcher and  
16 from -- with having some experience at establishing large scale  
17 surveillance systems that are child focused from scratch, there is  
18 a disproportionate amount of resources have to be invested up  
19 front to ensure that you have the sufficient quantity and quality  
20 of child specific data on which to base the rest of the program.

21 So I would encourage the establishment of effective  
22 surveillance systems that then would lead to all the rest of the  
23 downstream research and intervention, development and  
24 dissemination and that same surveillance system would be emplaced,  
25 presumably, to measure impact.

1           So without -- I mean, I don't know how to create the  
2 budget for this, but I would emphasize the allocation of  
3 appropriate resources to establish child specific surveillance  
4 data sources with sufficient quantity and quality of data on which  
5 to base the entire system.

6           DR. BRAVER: Well, I am going to ask a follow up  
7 question. This is something that has been weighing on my mind.  
8 People keep talking about pediatricians and the importance of  
9 healthcare providers and it's a really great model. It gives you  
10 a chance to really individualize health education, but I keep  
11 thinking about how busy pediatricians are and how many barriers  
12 they face. They're taking care of sick children. They've got  
13 time constraints. They've got resource constraints.

14           And I know that AAP is trying to get the word out to  
15 pediatricians and I wonder, well, has AAP had a chance to do an  
16 evaluation of how well its efforts work to get pediatricians to  
17 give the counseling to parents? Do you know what percentage of  
18 pediatricians are doing this counseling and so forth?

19           DR. DURBIN: I don't know that I have the specific  
20 answer to that now. I will say the following, that with the  
21 development of the revised policy statement, it's being done in  
22 the context of a program within the AAP to try to maximize the  
23 effective implementation of that policy when it's available.  
24 There is anecdotal and some small scale survey data from the AAP  
25 available to suggest that, while pediatricians are viewed as an

1 important source of information, particularly with child passenger  
2 safety for their patients, there is practice variation in the  
3 manner in which that information is delivered to families.

4 I mentioned in my prepared comments that child passenger  
5 safety is the only topic that is recommended to be addressed at  
6 every health supervision visit throughout childhood. So it is  
7 clearly viewed by the academy as a principle priority for  
8 pediatricians to address with families. As I mentioned, as the  
9 new policy statement is issued next year, there has been  
10 substantial effort expended to date, that I'm aware of, in trying  
11 to consider the most effective dissemination means and evaluation  
12 is part of that conversation.

13 So I'm optimistic that as the new requirements are  
14 released, we'll be able to get a better sense of measuring how  
15 effectively pediatricians are delivering that information to their  
16 families.

17 DR. BALDWIN: Can I weigh on the previous question real  
18 quickly? I want to offer up a suggestion that, one of the things  
19 that I think we can do within vehicle safety in the near term, and  
20 it was mentioned twice in the previous discussion about the  
21 rainbow patchwork across the United States and booster seat laws  
22 is focusing in the short-term on normalizing best practices in  
23 those laws.

24 It seems uneven to me and unfortunate that children in  
25 State X -- a child in State X versus a child in State Y are

1 exposed to different risks based upon differences in laws.

2 MS. DAVIS: That concludes the panel's questions.

3 CHAIRMAN HERSMAN: Thank you very much.

4 And Vice Chairman Hart will lead the final panel.

5 MR. HART: Thank you, Chairman Hersman.

6 I would like to start by thanking all of you on the  
7 panel for taking time out of your -- such enormous amount of time  
8 out of your obviously busy schedule to come here and help us with  
9 this enormous problem. That's extremely helpful to hear from the  
10 people who live it and breathe it and do it every day. And so  
11 thank you very much for that.

12 We're hearing about a need for some enormous improvement  
13 and the -- we heard the amazing success story about increase in  
14 overall belt use from 15 percent to 85 percent in, I forget how  
15 many years, but I would submit that getting that 70 point increase  
16 is amazing enough, but I would submit that getting that last 15  
17 points is going to be far more difficult than getting that first  
18 70 points.

19 There are a couple of dimensions of this change that  
20 occur to me. One is relatively easy, a challenge to be sure, we  
21 heard a lot from Mr. Campbell today on the technology and the  
22 improvements in technology. I have enormous confidence in the  
23 ability of a lot of very smart, innovative people to come up with  
24 the technological improvements we need to attack this challenge.

25 One of the tensions there is how do we encourage

1 standardization in a way that makes the seats fit better in the  
2 different kinds of cars and parents understand how to do that  
3 without compromising the innovation because sometimes,  
4 standardization and innovation are in tension with each other.

5           But the big challenge I see is the cultural change.  
6 That's the one that I see as the huge challenge, how do we  
7 accomplish the cultural change. It's going to be difficult, but  
8 doable. An example that comes to mind is drunk driving. It  
9 wasn't that many years ago that drunk driving was not  
10 considered -- well, let me put it this way. Today, drunk driving  
11 is -- there is a definite downside that people see to drunk  
12 driving. It's not considered cool any more to drive drunk and  
13 that was a huge cultural change that came about because of Mothers  
14 Against Drunk Driving, NHTSA and NTSB and lots of people did lots  
15 of things at many levels to accomplish a huge cultural shift so  
16 that it's not only not popular, but it's really a bad thing to do  
17 as a whole.

18           But having said that, this is like anything else in  
19 safety, it's a journey and not a destination and it will continue.  
20 And we heard today about some of the laws that are out there that  
21 people are trying to repeal today. So we know it's not -- it's a  
22 continuing activity. It's a journey. It's not a destination.

23           We also know that what Einstein said was, you keep doing  
24 things the old way, what you've been doing, you're going to keep  
25 getting what you've been getting. So the challenge that I would

1 put to the panel in my questions is going to be, without  
2 denigrating on the amazing effectiveness of what we've done so  
3 far, what -- how can we think out of the box to go after this last  
4 accomplishment to reach where we want to be in a way that is not  
5 just more of the -- more of what we have been doing, which has  
6 been amazingly successful, but we may be reaching the end of the  
7 marginal effectiveness of some of those things? What kinds of  
8 things can we do?

9           So let me start with a question tailored to the  
10 automotive side. What approaches are -- thinking out of the box,  
11 what approaches are going to be most effective in increasing age  
12 appropriate use of child seats and seatbelts in automobiles? And  
13 I pose that to anybody on the panel who would like to ask it.  
14 Again, taking advantage of all the amazing things that have been  
15 done so far, but let's -- I think it's going to -- it's time to  
16 think out of the box and try to see how we can get those final,  
17 more difficult points and reach further improvements, especially  
18 in the cultural area.

19           MR. CAMPBELL: I think there's several things that need  
20 to be recognized as you begin to think about that point. One is  
21 that your audience is always changing because parents are a first-  
22 time parent once and then they have all their children. Their  
23 children grow out of it and you've got, constantly coming, new  
24 parents into the marketplace that need that education. So  
25 whatever you do, it needs to recognize the fact that your audience

1 is always changing.

2 Giving them a message and recognizing, I think also, in  
3 some cases, it's not the young family with that first time child  
4 that's actually buying the new vehicle. We talked earlier about  
5 why aren't built in restraints successful. Because young families  
6 often buy that secondhand vehicle because they're not ready to buy  
7 the new one and so they're not having that chance. And the people  
8 buying a new vehicle don't have appreciation. They don't have a  
9 need for that seating, unless it's for their grandchildren.

10 So designing whatever you do to be a constant message,  
11 to always pick up those new parents coming into the marketplace,  
12 recognizing, where are they getting their vehicles and then trying  
13 to target your education through that. You know, I've looked at  
14 dealerships. Should dealerships be there while parents are buying  
15 a new car, a dealership may be able to offer some education, but  
16 if parents are buying a secondhand car, they may not be buying it  
17 from a dealership and then they don't have the advantage of that.  
18 So is that an effective way?

19 So I would say look at the needs and design the best  
20 solution.

21 MR. HART: Thank you.

22 One of the ideas that comes to mind when you talk about  
23 the new audience is something that I didn't hear much about today,  
24 but I'm thinking of the mass media appeal. I'm thinking of -- I  
25 can remember times when my son would, if I forgot to buckle my

1 seatbelt, my son would remind me and where did he get that? He  
2 got that from Sesame Street, okay? That may be why the teens  
3 aren't as reachable because they don't have, sort of, a Sesame  
4 Street type of mass media outlet, but that's one of the things I  
5 would challenge us to take more advantage of is the mass media  
6 outlets like Sesame Street that really does have an amazing  
7 influence on our kids in terms of their behavior.

8 Continuing that question with the rest of the panel,  
9 anybody else?

10 DR. DURBIN: Well, I would just add, just building on  
11 your thought, as long as the message that's being delivered via  
12 the mass media is tailored to whatever the desired outcome is.  
13 You know, we always have to remember that there's not a one-size-  
14 fits-all kind of sledgehammer approach here. We have to be  
15 thinking about the specific target and the specific behavior we  
16 want them to do under specific circumstances.

17 And then, target our message, our intervention to that  
18 scenario because it's likely that what sounds like it might have  
19 greater reach, a mass media campaign with a simple message will,  
20 in fact, most often times, be ineffective because it's not exactly  
21 what the right people needed under the right circumstances to do  
22 the right thing.

23 So again, just building on what -- the model that Grant  
24 proposed, I mean that sort of behavior change model is critical to  
25 ensuring that the limited resources that we have to innovate and

1 try to do something and get that last 15 percent is going to have  
2 the greatest chance of being successful.

3 MR. CAMPBELL: And I would like to say just one more  
4 thing. We have to evolve the message. We now have children who  
5 have been through infant seats, convertible seats and booster  
6 seats and they knew nothing different. They were restrained with  
7 that -- with a child restraint their entire life until they  
8 graduate into the vehicle seatbelt.

9 And so as that becomes the norm, your message now needs  
10 to change and that's the norm, so now we've got to build on that.  
11 So you need to evolve it with the -- with time.

12 DR. BALDWIN: I would like to offer up that, especially  
13 getting that last few percentage points on the automobile side, I  
14 don't believe, it's at least my personal opinion, that media  
15 education and outreach is going to get us there. The individuals  
16 who will be hearing those messages, who need to hear those  
17 messages and get their children in age appropriate seats, I don't  
18 believe, will be responding effectively to mass media campaigns.  
19 I believe the route ahead, as I mentioned earlier, is improved  
20 best practice laws across the country and then something, building  
21 on what Mr. Decina said, enhanced enforcement.

22 MR. HART: Any other thoughts from the panel on that  
23 one?

24 MS. WALKER: I just want to mention that we would like  
25 to see parents take back the reins. You know, a lot of times, as

1 Dennis has said in his presentation, we know that kids, at a very  
2 young age, are dictating where they sit in the car, whether  
3 they're going to use a restraint and we would like to give parents  
4 the tools to be able to feel confident that they can speak up and  
5 give their older kids direction and as Dave had said, these are  
6 kids who are used to using the restraint.

7           So it's not a stretch for them to know that this is  
8 going to be a continued behavior that parents will expect, but for  
9 some reason, parents are just not doing it and I think we need to  
10 do a little more work with parents as opposed to just, you know,  
11 doing an advertisement somewhere and thinking we've done our jobs.

12           MR. HART: And what would you say is the mechanism for  
13 delivering that message? That's a fascinating concept.

14           MS. WALKER: Well, you reach parents where they are and  
15 that means at the pediatrician's office, it means at the DMV when  
16 they're going to help their child get their learner's permit. It  
17 means going to the schools. It means going to where their kids  
18 hang out. Maybe it's at the mall. I don't know.

19           I mean, if I had the answer to that, you know, I would  
20 rule the world and I could tell you exactly what it would cost,  
21 but at this point, it's the type of thing that, we've seen parents  
22 who, I think, are a little afraid of their kids and they don't  
23 want to make them angry and they want their kids to like them.  
24 And maybe we've got to do just a better job of giving them  
25 permission to be parents.

1 MR. HART: Thank you.

2 Anybody else on that question? That's very  
3 illuminating. Thank you very much.

4 Let me shift modes now and say -- and ask whether we can  
5 learn from the very successful automotive experience. I mean we  
6 still, as I said, have a long way to go, but how can we learn from  
7 that huge success story that we've enjoyed in the cars and build  
8 on that to create approaches for increasing use of child seats  
9 among children under age 2 on airplanes?

10 DR. DURBIN: Well, I might kick this off. As a  
11 researcher, as well as, maybe, as a spokesperson for the AAP, and  
12 I've already mentioned it once already. I think our experience in  
13 child passenger safety, particularly over the past 10 years would,  
14 to me, illustrates the critical importance of having the proper  
15 data to infuse into the conversation. And I think there's a  
16 notable lack of that, specifically when it comes to children's  
17 safety on commercial aircraft.

18 And in the absence of evidence and data, we get opinion,  
19 well intentioned, but it's never as good as clear, hard evidence.  
20 And so, again, I think the experience that was highlighted in the  
21 last panel of when we had sufficient quantity and quality of child  
22 specific data on which to base decisions, really good things  
23 happened in a relatively short period of time.

24 And I can't emphasize enough, the importance I heard in  
25 this morning's presentations, that there might be data sources

1 available that could simply count the number of young children  
2 that are getting on airplanes. It's -- I must admit, as a  
3 pediatrician and as a research, it's unconscionable to me that we  
4 can't even simply count the number of children, reliably, who are  
5 getting on and off commercial aircraft in this country. And it  
6 seems to me that any short-term or long-term solutions in aircraft  
7 safety must begin with collecting good quality, child specific  
8 data.

9 I believe, based on the experience in child motor  
10 vehicle safety, that a lot of the rest of it will happen because  
11 data is also what brings the many stakeholders together who often  
12 have competing interests. My own tenure experience being in the  
13 middle of the child passenger safety stakeholder community was  
14 that it was the data that provided sort of the voice of reason and  
15 a common denominator that could bring regulators and companies and  
16 safety advocacy groups and researchers together to inform a  
17 constructive conversation.

18 And I think, until we have that, we're going to have the  
19 situation we have now, which is people looking at the same data,  
20 drawing polar opposite conclusions from it. That just tells me  
21 something about the quality of the data because there are very  
22 smart people that are drawing opposite conclusions from looking at  
23 the same data and in my experience, that usually says something  
24 about the quality of the data.

25 MR. HART: And that's an excellent point and an example

1 that comes to mind when you mention that is how quickly and  
2 comprehensively the industry responded when airbags were starting  
3 to injure children, how quickly the response -- how quick and  
4 complete the response was to that to redesign the airbags to stop  
5 that problem and that started with the data.

6 DR. DURBIN: That's right. There was a count of how  
7 often it was happening and there was good information on the  
8 mechanism by which it was happening, what its consequences were  
9 and so that could lead to interventions.

10 MR. HART: Thank you. That's very helpful.

11 Any other thoughts on that point about how we can take  
12 our automotive successes to another mode of transportation?

13 DR. BALDWIN: I would like to offer up a suggestion.  
14 I'm very interested in this issue of how choices framed and  
15 default choice stopping short of mandating the -- or requiring  
16 children under the age of 2 to be in an age appropriate seat in on  
17 an aircraft, it was actually something that Chairman Hersman said  
18 that sparked my thinking in this area. It's an empirical question  
19 that's worth answering and I think that we've had some success in  
20 other venues using -- changing the default option.

21 So right now, we are using an opt in option in air  
22 travel. That is to say, you as a parent have to choose to  
23 purchase a seat for your child to fly. There's been success in  
24 organ donation by changing the default option to yes, you are an  
25 organ donor or you know, would you like to donate your organs. If

1 the default option is yes, the percentage of people who choose to  
2 donate their organs is quite high, actually. If the default  
3 option is no and you have to choose to donate your organs, don't  
4 hold me to this number, but I think that individuals choose around  
5 12 percent.

6           There's an analogous example even in something as simple  
7 in our daily lives when we travel in hotel chains. The default  
8 option now for when we're in hotel rooms and are in the same room  
9 for multiple nights initially was, please put this card on your  
10 bed if you would like your sheets not to be changed. Now the  
11 default option is please put this card on your bed if you would  
12 like your seats -- if you would like your sheets changed.

13           It strikes me, and again, it's an empirical question  
14 worth pursuing, that perhaps, when purchasing a ticket, stopping  
15 short of requiring a child -- age appropriate child passenger  
16 safety seats to be used, perhaps the default option would be, you  
17 would have to choose, as a parent, not to purchase a ticket.  
18 Again, it's an empirical question. I would be interested to have  
19 a dialogue with others about that.

20           MR. HART: That's a fascinating concept. Thank you.

21           Any other thoughts on that issue?

22           Well, recognizing that this panel is what is the only  
23 thing that's left between folks and their dinner, I don't want to  
24 go too far, but let me just ask in a very macro sense, what are  
25 some of the biggest barriers to improving child passenger safety

1 today and how can we overcome those barriers? This is a little  
2 bit repetitive to what has already been said, but I would like to  
3 sort of close -- wrap it up by looking at some of the barriers,  
4 some of the obstacles and how can we overcome those obstacles?

5 MS. WALKER: Well, I know for us, we're seeing a  
6 shrinking workforce and larger responsibilities for those folks  
7 who we've relied on in the past to do our outreach in the  
8 community. And because they are asked to do far more things, you  
9 know, volunteering to go out and check people's car seats or do  
10 community education or programs is a bit more of a stretch. So  
11 people are not quite as capable of volunteering the hours that  
12 they once did because of that.

13 So you know, I'm not sure how we fix that, but I think  
14 it's something that we recognize as a problem and hospitals are,  
15 you know, downsizing, workforce is downsizing and those are the  
16 people we've relied on in the past to do great education in their  
17 communities.

18 MR. HART: Thank you.

19 Any other thoughts?

20 MR. CAMPBELL: I had one additional thought on that and  
21 that's -- I just lost my thought. You know, there's a -- parents  
22 want to ignore the fact that they may be the parent who is facing  
23 a child who's been injured in a crash; it's not going to happen to  
24 me. It's ignoring the fact that it does happen on a daily basis,  
25 but it's not going to happen to me. And when they walk into a

1 store, they look at all the child restraints. They're all  
2 regulated by, you know, the federal laws and so they're all  
3 equally safe, so they're buying it based on the fabric that's  
4 there. They're buying it based on price.

5 If you're offering innovative features that make it  
6 easier to use, they may not buy that seat anyway because it's more  
7 expensive than the next seat. But I think it's the denial part of  
8 it. They really don't put the value on the car seat in having it  
9 and installing it correctly, taking the time to do it correct  
10 because it's not going to happen to them.

11 MR. HART: Well, that's a good point. In fact, it also  
12 relates to the issue of whether there is some denial in the  
13 aviation side because people figure that it's -- (A) it's so safe  
14 that I'm not likely to have a problem, and (B) if I do, we're all  
15 going to die, so why -- so I just wonder if that's, you know,  
16 consciously or subconsciously a factor that plays a role in  
17 people's minds when they're thinking about what to do on an  
18 airplane versus what they're so used to doing in the car.

19 Any other thoughts on barriers and how to overcome them?

20 MR. DECINA: Yes. Might there be liability issues for  
21 some of the messenger groups, maybe some of the messenger groups,  
22 I'm not naming any particular group, might have some hesitation in  
23 wanting to get the message out to new parents, parents with kids.  
24 So maybe there's -- I don't know if that's a law thing with  
25 states, but maybe there's a liability issue component out there.

1           MR. HART: Well, as a lawyer, I was fully expecting we  
2 wouldn't get through this whole day without blaming lawyers  
3 somehow for this, but that's a good point though. I mean, that's  
4 a lot of reason people are afraid to make innovations is exactly  
5 that, because making innovation is a tacit admission that  
6 something was wrong with it before. So that's a very good point.

7           DR. DURBIN: I might just offer one note about, to the  
8 extent that economics are a barrier, and they are for many  
9 families, there is some published research suggesting that if  
10 child seats were made available as like durable medical equipment  
11 from Medicaid, it would be cost savings to society in general and  
12 the actual cost per life saved or injury averted is on par with  
13 that of vaccine programs, which, nobody questions Medicaid  
14 covering.

15           So the extent to which the NTSB could render a  
16 suggestion or an opinion that child seats be viewed as durable  
17 medical equipment and covered by Medicaid, I think it would be an  
18 outstanding expenditure of limited resources and we would likely  
19 see benefit in one of the hardest to -- they are in that last  
20 group. And this is probably one of the most promising ways to get  
21 that hardest to reach group to actually change their behavior  
22 because there's plenty of evidence that if you make the seat  
23 available, people use it. So this is one key mechanism by which I  
24 think seats could be made available to large segments of the  
25 population where economics are a significant barrier.

1           MR. HART: Well, that's certainly an interesting notion.  
2 An example that comes to mind was that there was a very high  
3 fatality rate in aviation in Alaska and the FAA decided that, if  
4 airplanes were equipped with GPS driven equipment that helped  
5 pilots know where the terrain is, where the weather is, where the  
6 other airplanes are, know those kinds of things that they wouldn't  
7 otherwise know, and if the FAA paid to equip those planes that  
8 have it, they would save a lot of money in turn to the societal  
9 cost by preventing those crashes and had an amazing result which  
10 reduced crashes significantly in Alaska. So that's a fascinating  
11 point.

12           Any other thoughts on that question?

13           Last but not least then, addressing the barriers, the  
14 question is who are the key players who need to be involved in  
15 helping with those barriers and some of your answers suggested  
16 that, but who are the key players and what role would they play in  
17 helping to overcome some of these barriers we're talking about?  
18 And don't everybody jump up at once.

19           MS. WALKER: I would like to say that NHTSA has done a  
20 fabulous job with the technicians. We have 34,000 who are active  
21 and working in the field right now. Chairman Hersman is one of  
22 them, so we're grateful to have her work. I'm sure she's out  
23 there checking car seats at every opportunity.

24           But I think NHTSA has done a fabulous job with their  
25 grant programs, making monies available to states to allow

1 development of programs that are state specific that work with the  
2 communities that are most at need and I would like to see NHTSA  
3 continue to have funds to be able to offer incentive programs to  
4 states to do the right thing.

5 MR. HART: Thank you. Anyone else on that one?

6 DR. BALDWIN: I think a lot of people need to be  
7 involved. I think I tried to make the argument that it's sort of  
8 a multi-sectoral solution across federal, state and local  
9 government, manufacturers, et cetera. It strikes me that perhaps  
10 an action plan, if you will, of bringing those sectors together to  
11 sort of come up with a mutually agreed upon game plan may make  
12 some sense to make sure we're all working off the same sheet of  
13 music.

14 MR. HART: Thank you.

15 DR. DURBIN: Again, I would just say, again, borrowing  
16 from the experience in child passenger safety, some of my most  
17 favorite professional moments over the last decade has been  
18 sitting around a table or in a conference room with government  
19 industry, the auto manufacturers, the restraint suppliers, the  
20 safety advocacy groups, other academic researchers, pediatricians,  
21 behavior scientists looking at information and together, trying to  
22 ponder, what do we do with this information because it is -- these  
23 are complex problems that no one organization or stakeholder group  
24 is going to solve. We all know that.

25 I'm not as familiar with the airline industry, but I

1 assume that there are similar types of organizations in the  
2 airline world, as there are in the motor vehicle safety world. I  
3 don't know to what extent those organizations routinely come  
4 together. I gathered from some of the earlier presentations today  
5 that there are natural alliances between some of them and some of  
6 them have potentially, adversarial relationships.

7 But that's the same as in the motor vehicle safety  
8 world, but again, we've overcome a lot of those barriers in motor  
9 vehicle safety when it comes to children's safety in the last 10  
10 years because we've had something with quality to look at and  
11 react to.

12 MR. HART: Right.

13 DR. DURBIN: So perhaps the data could be the glue that  
14 brings everyone together. I'm like hopelessly a research nerd so  
15 like, that's -- to me, that's what brings people together because  
16 it's real and it gives us something constructive to talk about.

17 MR. HART: Thank you.

18 Well, before I hand over the mic, I want to thank the  
19 panel once again for a very illuminating discussion and answer  
20 session that helps inform us as we move along in this difficult  
21 process. Thank you very much.

22 Chairman Hersman?

23 CHAIRMAN HERSMAN: Thank you.

24 Member Rosekind?

25 MR. ROSEKIND: Just one quick comment. With full

1 attribution to Dr. Durbin, and this was raised in regards to  
2 parents talking to their kids, but I think the NTSB should take  
3 his line, safety is not negotiable, and that's not just parent to  
4 kid, boy, that's talking to a lot of other folks. So I'm going to  
5 get a bumper sticker or something made with full attribution. I  
6 think that's a critical -- for all the technology and everything  
7 else, this gets the human part of it and I think that's the place  
8 you have to start. Safety is not negotiable. Thank you.

9 CHAIRMAN HERSMAN: Well, I'm the meanest mom in our  
10 neighborhood because it is not negotiable in my car and I do think  
11 that we have had a culture change when it comes to 6-year-olds and  
12 their booster seats, that they're very comfortable carrying those  
13 in to school or daycare, but I have a 10-year-old and he's still  
14 in a booster seat because he's not 4'9".

15 And I'll tell you, the cultural acceptance is not there  
16 because even my 8-year-old -- I took some kids to the movies last  
17 weekend and my husband and I were rounding up all of our booster  
18 seats and I'll tell you, the 8-year-old and the 10-year-old who  
19 were my boy's friends, they came into the car and said I don't sit  
20 in a booster seat anymore. And I said, in my car, you do. And so  
21 they strapped in and they put their booster -- they put their  
22 seatbelt on and they sat in the booster seat.

23 I mean, I agree with you, it's not about the kids. It's  
24 about the parents. You know, my kids know it's not negotiable and  
25 I think having the job that I do gives me a little bit of

1 credibility with my kids because they know I'm annoying about  
2 safety on everything and so it's not as if I'm picking on them  
3 when it comes to sitting in a booster seat. But, you know, my 10-  
4 year-old's in fifth grade and I bet he's probably going to still  
5 be in a booster seat in sixth grade and that's not too cool with  
6 his friends. And so I do think we need to raise the bar on what's  
7 acceptable.

8           Dr. Baldwin, you talked about portability and I think  
9 there was a discussion about making it easy. You talked about the  
10 airport. We had, on the previous panel, a discussion about people  
11 who don't own their own cars and trying to carry car seats around  
12 to other things.

13           I'll tell you as a parent who's traveled with children  
14 on an airplane, trying to carry child seats through the airport,  
15 it is hard and you cannot do it by yourself. And so, just as I  
16 think we provide assistance to senior passengers and they get on  
17 the little people mover type things, I think we have to think  
18 about, if you want to ask a parent to carry a baby and a car seat  
19 and a diaper bag and all of that and maybe if you have two kids,  
20 you have two of them or you're trying to hold somebody's hand and  
21 have somebody else in the carrier. I don't -- you know, I could  
22 not do it. If my husband did not travel with me, we could not go  
23 because I could not carry all the stuff by myself.

24           And so I do think that, in addition to having a  
25 requirement, we have to think about, how does that requirement

1 affect people as they try to operate in their real life. And so  
2 we do have to do better with design.

3           You know, we talk about the effect on the child, the  
4 lap-held child on the airplane, but there's a reason why we  
5 restrain things on the airplane and it's not just to protect the  
6 coffee pot or your baggage. It's to protect the people around you  
7 from not getting hit by the coffee pot or the baggage. And so  
8 restraining a child on an airplane isn't just about the child.  
9 It's about the people in the environment around them too. And so  
10 there -- I think there's a lot of complexity associated with these  
11 issues.

12           I think I heard today that our biggest concerns are a  
13 lack of restraint, improper restraint and out of position  
14 restraint use. And so, understanding some of those other issues  
15 and how we get to the solutions, I think Vice Chairman Hart really  
16 pulled that out, but I do think there's a lot of practical work to  
17 be done and I think that this forum is a jumping off point. It's  
18 not a culmination. I think we're going to need to talk with some  
19 of you in an ongoing way about what's next.

20           I think we heard that we have older children and tweens  
21 that are a problem. I think we need to understand why they're a  
22 problem and we need to get better data about that before we can  
23 figure out what to recommend to address that issue and so, I think  
24 we're going to need to have some more discussions and get some  
25 more information, but this has been very helpful to me to have

1 this conversation with you all. And I know that our staff have  
2 been working very hard over the last few months with you to try to  
3 make this a good a use of your time. We look forward to following  
4 up with you.

5           If there are no other comments, on behalf of my fellow  
6 Board Members, I would like to thank the speakers for their  
7 participation in today's forum and their commitment to child  
8 safety. And this goes for all the panels. I know we still have  
9 some who are out in the audience with us. Today's discussion has  
10 been excellent and I know that everyone in the audience  
11 appreciated it and I did want to let you know that we had about  
12 100 to 50 to 200 participants on our webcast watching today's  
13 proceedings. And it's going to be recorded by C-SPAN for  
14 broadcast at a later time.

15           I would like to recognize the NTSB staff, and I think we  
16 have a slide, who -- the staff who participated in this event. In  
17 particular, our co-managers, Dr. Elisa Braver and Dr. Jana Price,  
18 who worked with over two dozen staff from our agency, as well as  
19 all of the participants. Thank you all for your hard work and  
20 your commitment.

21           For some, it may seem like the Safety Board thinks about  
22 things as a glass half empty, but for us, there's no such thing  
23 that's good enough and that's a label that we're fairly proud of.  
24 There's always more that we can and should do when it comes to  
25 making transportation safer.

1           It was in December, 6 years ago, that I took a course to  
2 become a certified child passenger safety technician and  
3 unfortunately, after my second day in class, I realized that I  
4 needed to go home and reinstall the car seats in our family cars.  
5 And it was kind of a surprise to me because my husband and I are  
6 both college educated, well intentioned parents. We thought we  
7 had read the manuals, but we still had made some mistakes. It  
8 shouldn't require a 4-day course to learn how to properly install  
9 a car seat.

10           To that end, child seat manufacturers, automakers and  
11 aircraft seat designers need to work together with the child  
12 safety community to make sure that seats are more compatible with  
13 vehicles and aircraft and that the installation is more intuitive.  
14 We know that education can improve use rates, but it has to be  
15 carefully designed and we have to be realistic about what we can  
16 achieve. And to be effective, education needs to be targeted and  
17 not a one shot deal.

18           For example, we can't do a public service announcement  
19 and assume that everyone has received the message. We can't put  
20 up a website and assume that people will visit it. We need to tap  
21 into all of the sources of education: pediatricians, mass media,  
22 as well as industry and public service organizations since  
23 thousands of babies are born each day in the United States.

24           Some of the best ways to get out the message are  
25 programs that deal not only with perceptions, but address the

1 barriers that get in the way of people doing the right thing every  
2 time. We need vigorous enforcement of child seat laws in  
3 vehicles, particularly since we know that these laws improve child  
4 seat use rates and they influence behavior.

5 NHTSA has done an impressive job of implementing and  
6 then evaluating child safety interventions. We encourage the FAA  
7 to be similarly proactive to take a look at what NHTSA has done,  
8 consider what the speakers have said today and make educating  
9 parents about child safety a high priority. Safety for our  
10 smallest travelers should not be considered optional or a luxury.

11 This concludes our forum. We stand adjourned.

12 (Whereupon, at 5:30 p.m., the hearing was adjourned.)

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CERTIFICATE

This is to certify that the attached proceeding before the

NATIONAL TRANSPORTATION SAFETY BOARD

IN THE MATTER OF: PUBLIC FORUM: CHILD PASSENGER SAFETY IN  
THE AIR AND IN AUTOMOBILES

PLACE: Washington, D.C.

DATE: December 9, 2010

was held according to the record, and that this is the original,  
complete, true and accurate transcript which has been compared to  
the recording accomplished at the hearing.

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Timothy Atkinson  
Official Reporter