

CDC *Vital Signs* Town Hall Teleconference

Preventing Motor Vehicle Crash Injuries and their Associated Costs

October 14, 2014

2:00 pm (EDT)

Coordinator: Welcome and thank you for standing by. At this time, all participants are in a listen-only mode until the question and answer session. If you would like to ask a question, please press star 1. Be sure to record your first and last name clearly when prompted.

Today's conference is being recorded. If you have any objections, you may disconnect at this time.

Now I'd like to turn the conference over to your host Dr. Dan Baden. Thank you may begin.

Dr. Dan Baden: Thank you, Jovanhanna. Good afternoon everyone. I'm Dr. Dan Baden, the associate director for External Partner Outreach and Connectivity in the Office for State Tribal, Local, and Territorial Support here at CDC.

Welcome, I'm glad you could join us today. We'll be discussing the latest *Vital Signs* report on Preventing Motor Vehicle Crash Injuries and their Associated Costs.

Before we get started, let's go over some housekeeping details. You can go online and download today's PowerPoint presentation, so you can follow along with the presenters.

The web address is [www.cdc.gov/stltpublichealth](http://www.cdc.gov/stltpublichealth). That's S-T-L-T public health.

There's a link directly to the *Vital Signs* Town Hall Web page under highlighted products and resources on the right side of the page.

On this town hall web page, you can also view bios for the presenters and this is where we'll put the audio and transcript recording for today's teleconference. They should be available by next week.

Back to our topic, Preventing Motor Vehicle Crash Injuries is an important public health issue, because more than 2.5 million Americans went to emergency departments for crash injuries in 2012.

On average, each crash-related emergency department visit costs about \$3,300 and each hospitalization costs about \$57,000 over a person's lifetime.

The best way to keep people safe and reduce medical costs is to prevent crashes from happening in the first place. Crashes occur though, but many injuries can be avoided through proven interventions, such as wearing a seatbelt.

The federal government is evaluating and encouraging the use of proven programs and policies and tracking the nation's progress in reducing crash injuries and deaths.

State officials can consider using proven interventions to reduce crash and crashes and injuries such as seatbelts and restraint loss and by linking medical and crash data to better understand why crashes happen.

On today's call we're going to hear from three colleagues. First, we're going to hear from David Ederer a contractor with McNeal Professional Services working as a researcher in the Division of Unintentional Injury Prevention at the National Center for Injury Prevention and Control here at CDC.

He will provide a summary of this month's *Vital Signs* report. David will hand the call over to Mark Kinde, the Director of Injury and Violence Prevention Unit at the Minnesota Department of Health.

Mark will discuss using linked crash and hospital data to support passage of primary seatbelt law in Minnesota. He will then hand the call over to Jenny Johnson the Unintentional Injury Coordinator and Public Information Officer for the Violence and Injury Prevention Program at the Utah Department of Health.

Jenny will discuss the “Don’t Drive Stupid” campaign and using data to keep teens safe on Utah roads.

There will be time for questions after our presentations, but you can get in queue at any time to ask a question during the conference, just press star 1 and record your name when prompted.

And now I’ll turn the call over to David.

David Ederer: Thank you for the introduction Dr. Baden and thank you for everybody who’s tuning in to our town hall.

So I’m going to give a brief overview of CDC *Vital Signs* and also talk about a few interventions that you may consider in your state.

So we’re starting on slide 4 and could you please transition to slide 5? The motor vehicle crashes are a common and costly event. Crashes result in over 30,000 deaths and millions of injuries every year in the United States, causing people to spend over a million days in the hospital, spend time away from family and work and billions of dollars in medical costs over the course of a lifetime.

Motor vehicle occupants, meaning car drivers and passengers, account for most of our traffic injuries and death in the US. The average American takes six car trips every day. There are few public issues that most people encounter on a daily basis over the course of a lifetime.

Motor vehicle injuries are costly, but preventable and there are numerous effective interventions. Last, motor vehicle injuries have been highlighted as one of CDC's winnable battles, because of the magnitude of the problem and our ability to make significant progress.

Please turn to slide 6. So the purpose of this study was to quantify the health and economic burden of non-fatal motor vehicle crash injuries among motor vehicle occupants.

This includes the number of emergency department visits, hospitalizations, and the lifetime medical and work loss costs. We also wanted to highlight interventions that can prevent injuries and costs.

Please go to the next slide. We used data from the National Electronic Injury Surveillance System All Injury Program, known as NEISS-AIP. NEISS-AIP is a source for CDC's web based Injury Statistics Query and Reporting System or WISQARS Non-Fatal Injury Reports.

Length of Stay Data is from the Agency for Healthcare Research and Quality, Healthcare Costs and Utilization Project nationwide in-patient sample or HCUP-NIS.

All cost data were extracted from the recently updated WISQARS' Cost Module, which is available online. The full cost methods are in a detailed report on WISQARS' web Page or at the link at the bottom of this slide.

Please go to slide 8. In our analysis, we calculated counts, rates, and confidence intervals for all non-fatal motor vehicle occupant crash injuries, hereafter referred to as crash injuries, all injured persons receiving care in the emergency department or ED, the number of persons and hospitalized, the number of days spent in the hospital, the nature of injury and the lifetime medical and work loss costs associated with those injuries.

We calculated rates and counts by age group and sex and the percentage of injuries by nature of injury, for example, an open wound or fracture. We include crash injuries occurring in 2012.

Please note that this study doesn't include information about other road users, such as pedestrians, bicyclists, and motor cyclists.

Lifetime medical costs include the cost of the initial ED visit and hospitalization for crash injuries. Lifetime medical costs also include follow-up ED visits and hospitalizations, prescription drug costs, rehabilitation, and other attributable costs.

Lifetime work loss costs include the cost of loss wages, fringe benefits and the value of household work. All costs were in 2010 US dollars and were inflated to 2012 US dollars and we compared rates of injuries and costs by age and sex.

Please go to slide 9. So over 2.5 million motor vehicle occupants visited the ED for non-fatal crash injuries in 2012. This equals 806 visits per 100,000 population, or about 7,000 people reporting to the ED every day.

The visit rates did not vary by sex within any age groups, but did vary by age group. Young people age 15 to 29 had the highest rate of injuries with 1,048 ED visits per 100,000.

Of those injured in the crash, over 188,000 were people were subsequently hospitalized. The average length of stay for those hospitalized was 5.6 days, totaling over a million days in the hospital.

We found few significant differences by age or sex, however, young people age 15 to 29 accounted for a disproportionate share of injuries and costs. They accounted for 21% of the population, 38% of ED visits, and 38% of lifetime medical costs.

Please go to slide 10. Crash injuries in 2012 resulted in over \$18 billion in estimated lifetime medical costs. Most of these costs were incurred within the first year and a half after the crash occurred.

Persons treated and released from the ED had an estimated \$3,362 in lifetime medical costs and hospitalized persons had \$56,674 in lifetime medical costs on average. Overall, these crashes resulted in \$32.9 billion in lifetime work loss costs. Please go to slide 11.

The good news is, that these injuries are preventable and we know what works. The Community Guide and Prevention Center Supports outlines several of these interventions.

I'll detail a few here and note the age groups and risk factors that these interventions are relevant to. States in particular can adopt Safety Practices and Policies to encourage safe behavior on the road and prevent injuries and costs.

Please go to Slide 11. I'm sorry slide 12. Children should always be properly buckled in age inside appropriate car seats, booster seats, and seatbelts. When states increased the age of coverage for car and booster seats to seven or eight, restraint use increases and injuries and medical costs are prevented.

In addition, a \$30 booster seat is estimated to save \$245 in medical costs, on average. Always wearing your seatbelt and encouraging everyone else in the car to do the same, will help prevent injuries if you are in a crash.

States with primary seat belt laws, where police can stop you for not wearing your seatbelt, have the highest rates of seatbelt use. The most comprehensive laws cover everyone in the car.

Please go to slide 13. Young drivers are the most at risk for injuries on the road. Although the rules vary, Graduated Driver Licensing systems, or GDL, where young

drivers are granted more driving privileges as they gain experience are present in every state.

GDL's associated with reduced injuries and deaths among teen drivers. Please go to the next slide.

Alcohol Impairment is a major risk factor for motor vehicle crashes. Approximately one third of all motor vehicle crash fatalities in the US involve an alcohol impaired driver.

Publicized Sobriety Checkpoint Programs have been shown to deter alcohol impaired driving and have a high benefit to cost ratio, meaning they can be a good investment.

Drivers with a DWI conviction are more likely to be involved in a fatal crash and emission interlocks can reduce this risk when installed. Please go to slide 15.

Last, data can be used to make informed decisions and evaluate prevention strategies. The data sets we used did not allow us to calculate how many injuries could be linked to specific risk factors, such as seatbelt and alcohol use.

Data sets are most useful when they include risk factor and medical outcome and cost of crashes, but our data can help government employers and health and traffic safety organizations better understand how to prevent crash injuries.

Please go to the next slide. Last, released in conjunction with this month's *Vital Signs*, the CDC's new interactive calculator called the Motor Vehicle PICCS, short for Prioritizing Interventions and Cost Calculator for States.

This tool will help State decision makers prioritize and select from a suite of 12 effective motor vehicle injury prevention interventions. It is designed to calculate the expected number of injuries prevented and lives saved at the state level, as well

as, the cost of implementation while taking into account the state's available resources.

Please go to slide 17. Pictured here is the Interface for the PICCS tool. You see that displays injuries, deaths, and costs prevented for specific interventions. The tool is very interactive. The model takes into account interventions already implemented and those that you might implement in conjunction with one another.

Users can also conduct their own sensitivity analysis, inputting their own estimates for costs and effectiveness.

A fact sheet for each intervention and a final report with methodologies and cost effectiveness analyses are included. The Motor Vehicle PICCS is available online at [www.cdc.gov/motorvehiclesafety/calculator](http://www.cdc.gov/motorvehiclesafety/calculator).

Please go to slide 18. Thank you to everyone at the Injury Center and the Division of Unintentional Injury Prevention at CDC who helped create this *Vital Signs*, especially everyone who is listed here.

Please go to the next slide and thank you for listening. I will now kick it off to Mark to speak about his experience in Minnesota.

Mark Kinde:

Well, David, thank you so much. This is Mark Kinde with the Minnesota Department of Health, Injury and Violence Prevention Unit and thanks for this opportunity to share Minnesota's experience with the power of linked crash and hospital data.

We're on slide 20. In the *Vital Signs* MMWR, the Minnesota seatbelt success story is described in shares in part the following. The 2009 passage of Minnesota's primary seatbelt law is estimated to have increased seatbelt use and saved \$45 million in hospital charges for an estimated \$36 million in hospital costs over a two year period.

And you'll read about that in detail as you work through the *Vital Signs* MMWR. People in a variety of agencies, organizations, and across disciplines with passion work together to link, analyze, interpret and understand data, costs, and cost savings.

Now, the presence of good data does not ensure a great policy in program decisions, but it does reduce the risk of bad decisions. Minnesota had struggled for years to move our needle or to bend our curve on our traffic fatality and injury experience.

In 2003 our Toward Zero Deaths Collaborative was birthed and we began to see some rather immediate payoff. We knew, however, from the experience of other states and in some countries in Europe, that primary enforcement of seatbelts would improve Minnesota's safety experience significantly.

However, Minnesota remained independent, not wanting to be told what to do or forced into doing it. Let's move onto the next slide.

The goal from the outset was to use all of the tools at our disposal to craft a compelling argument and to make the case for Minnesota to move from secondary to primary enforcement.

Our state agency partners included Co-Towards Zero Death leaders, the Departments of Transportation and Public Safety. Our Seatbelt Coalition was led by the Minnesota Safety Council, which included a variety of advocates from across the state.

Slide 22. We used linked, crashed, and hospital both inpatient and emergency department treated data to educate and inform decision makers about the association between seatbelt use and injury outcomes and we'll explore what we found over the next several slides.

We imputed missing links and missing values and for my colleagues on the line who are epidemiologists or statisticians, amputation is that procedure for entering a value for a specific data item where that response is missing or unusable, and so it expands the number of cases that we can include in our analysis.

Our legislature was dealing with some intense state budget shortfalls and the projections were that things would be getting worse. Recall, this was 2009.

Slide 23. So what we wanted to do was determine the impact of seatbelt use and injury outcomes on hospital charges, especially public pay and actually ideally, we would have preferred to capture the costs straight up, versus the charges, as the cost concept is more easily understood by the person on the street.

However, hospitals share with us their charges, so we used a charge-to-cost ratio, that's published for each hospital, to estimate costs. And lastly, we wanted to estimate the injuries prevented if the seatbelt law were to upgraded from secondary to primary.

Slide 24. So what we saw, these were some of the outcomes from our analysis. Those belted were half as likely to have a serious or severe injury as the unbelted, 17% to 35%. We had fewer traumatic brain injuries, 10% to 23%, a shorter hospital stay, 5.6 days versus 6.7 days and lower charges for the belted versus the unbelted.

Slide 25. The Kathryn Swanson Seatbelt Safety Act was signed on May 21, 2009. Kathy was my colleague to served as our state's director of the Office of Traffic Safety in our Minnesota Department of Public Safety.

She was diagnosed with ALS in early 2007 and died in March of 2008. Before she passed, she shared with family and friends and colleagues that notes and flowers when I die just pass primary.

And in 2009, May 21, Governor Tim Pawlenty, signed the Kathryn Swanson Seatbelt Safety Act and let's see if I can go here to slide 27.

So why did primary pass in 2009? Why not years earlier? Many factors came together at the right time to provide policy decision makers with the data they needed to answer their questions in order to support primary enforcement.

Several families testified at the legislature and the media spots as to family members lost or permanent injuries sustained because seatbelts had not been used. "Had there been a law," pined several, "my family member would have been belted and they'd still be with us."

We had some trauma surgeons and emergency department physicians who shared specific stories of trauma resulting from persons in unbelted crashes. The legislature read the reports about the state paid portion of healthcare costs, they saw the impact of the state general fund.

It was the Link to crash and hospital data that allowed us to calculate the real costs and the cost savings. Interestingly, 2009 also happened to be the last year the federal government was offering several million dollars as incentives to states that moved to primary enforcement.

Slide 28. The effect of primary in Minnesota since adopted in June 2009 and extending through 2012 is an estimated savings of \$67 million, including \$16 million to Medicare and Medicaid. You'll note that this is different from the amount I mentioned at the beginning.

We were able to use again all the way through 2012 linked data and we just completed these - this updated calculation in April or May of this year, so \$67 million.

Our seatbelt use rate is statewide is 95%. We've saved 136 lives, prevented 434 severe injuries, and 1,270 moderate injuries. We calculated a preventable fraction, which is a calculation that helps us understand the impact of a particular intervention and in this case, we calculated the preventable fraction of charges, versus injuries and calculated a 9.4% preventable fraction attributable to adopting the primary enforcement seatbelt law.

The Injury Program in Minnesota is supported by a mixture of funding sources for which we're grateful and to whom we are indebted. With co-Injury support from the National Center for Injury Prevention and Control that helps to support our epidemiologic and statistical analysis, funding from the National Highway Traffic Safety Administration through Minnesota's Office of Traffic Safety, and a State Special Fund that emanates from our DWI reinstatement fees and this supports our Minnesota Statewide Traumatic Brain Injury and Spinal Cord Injury Registry Program.

My contact information is here and I'm eager to speak with folks via phone or email and I'm happy to answer questions as we go along.

Now my colleague Jenny Johnson will share with us from Utah.

Jenny Johnson: Thanks, Mark. Well as many of you already know, the age group that was shown to have the highest injury rate in the recent MMWR article was teens. We have seen a similar pattern in Utah and today I will share a few examples of how we rely on the use of data in traffic safety efforts in my state.

If you'll turn to slide 31, please. Utah is fortunate to have a wealth of data to help target teen driving safety efforts in our state. We are also very fortunate to have many state, local, non-profit, and private sector partnerships have been in existence for many years.

Our partners share resources, data, and a common goal of zero fatalities on Utah roads, which makes our work not only successful, but enjoyable as well.

Specifically with regard to our teen driving effort, we would not be successful without the help of our Teen Driving Task Force. In 2006, traffic safety professionals from across our state recognized a growing number of teen motor vehicle crash deaths.

A small group of committed partners attended a National Roundtable on Teen Driving sponsored by the Safe States Alliance. The result, was the creation of the Utah Teen Driving Task Force in 2007, which is chaired by myself at the Department of Health and a colleague at the Department of Public Safety.

Members of the Task Force include local health departments, our AAA, the State Office Education, Highway Patrol, Primary Children's Hospital, Driver's License Division, the Safety Council, and the Zero Fatalities Program, among others.

And as you'll learn in a few minutes, the Task Force has used available data to achieve many successes.

If you'll turn to slide 32, please. We often use data from our state's Crash Summary Reports, Vital Records, hospital discharge and emergency department data, Seatbelt Observations, focused groups surveys, such as the Behavioral Risk Factor Surveillance System, and the Youth Risk Behavior Surveillance System.

Community Assessments which are done through our Safe Kids efforts and our Child Fatality Database. These data sets help us identify priority areas, target interventions to those communities at highest risk, plan and evaluate programs, develop media campaigns, and help with State and local level strategic plans.

The Department of Health is also fortunate, in that we were able to look at data, the neighborhood or zip code level, which is called Utah Small Areas. Our state is

comprised of 63 Utah Small Areas and this data has been extremely helpful in planning targeted interventions to communities at greatest risk and utilizing limited funding and resources to make decisions, to ensure those that are most in need are receiving the services and programs that we develop.

We often provide data fact sheets, reports and other requests to our partners and legislatures on a regular basis. So what did the data tell us and what are some examples of how we have used this data to make our roads safer?

If you'll turn to slide 33. Data from the Highway Safety Office have shown that teen drivers age 15 to 19, have the highest crash rates per license driver in 2012 in Utah. They represent about 8% of all licensed drivers in Utah, but 20% of crashes and nearly 14% of all fatal crashes.

And in 2013, 18 families were devastated to learn that their teenager had been killed in a motor vehicle crash, 73% of these teens killed were not wearing a seatbelt.

Teen drivers were also 1.3 times more likely to have a contributing factor, such as speeding in a fatal crash than drivers of other ages. In addition to speeding, the most common contributing factors that we've seen in fatal crashes, were failing to stay in the proper lane, overcorrecting, and driving distracted.

If you'll turn to slide 34. Based on this data, our state has made great strides in teen driving. For example, the Utah Teen Driving Task Force created the "Don't Drive Stupid" Program, which is the teen component of our state's Zero Fatality's Program.

This program educates tens of thousands of high school students and their parents on safe driving behaviors each year. YouTube videos, posters, public service announcements, etc., had been created to help with messaging.

After a view of data and other evidence-based programs, several focus groups were conducted with parents of teens and a telephone survey with high school driver's education teachers was conducted.

The result was the development of what's called a Parent Night Program. In Utah the majority of teens take driver education through public high schools. While members of the Task Force have been involved in presentations to these students in the classroom for several years, it wasn't until a few years ago when we looked at the data more closely, that we realized there had not been a strong parental component to the driver education curriculum in our state.

A one-to-one and a half hour presentation for parents was developed. This presentation teaches parents about our state's Graduated Driver Licensing Program, dangerous driving behaviors and how to teach their child to drive safely.

It is taught by staff from the Zero Fatality's Program and local Health Departments. The Parent Guide called, "Be Smart, Be Safe", a parent's guide to smart teen driving was also developed to supplement the class, and feedback from the program, from driver's ed teachers and parents have been exceptionally positive.

The second largest school district in our state now requires driver education students to take the Parent Night Program in order to pass the class, and thus receive their Driver License.

We also worked closely with the State Office of Education to update our Utah Core Standards for driver education to include a mandatory parent involvement in the driver's education classes.

And this past January, we released a new media campaign, which included a YouTube video, radio ads, and online media campaign ads targeting parents of teens ages 15 to 17 to help them better understand our state's Graduated Driver Licensing laws.

Finally, we have used data on cell phone and texting use from the Youth Risk Behavior Survey and Crash Summary reports to create fact sheets which were used by advocates and legislatures to pass legislation banning the use of texting or cell phone use while driving for teens.

These pieces of legislation came in several waves with the texting ban for all drivers, no matter their age, passing in 2009, followed by a cell phone restriction for teens only in 2012 and then in 2013, a law prohibiting drivers of all ages from using their cell phones for anything without the use of a hands free device.

If you'll turn to slide 35. But perhaps the most interesting use of our data in our teen driving efforts, is a project in which we put the data aside and try to help people see those who are impacted the most by crashes on Utah roads to give this issue a face.

For the past seven years, we have collected stories of teens killed on Utah roads. The stories as told by grieving parents, family, friends and first responders are compiled into a memoriam book each year and distributed to driver education teachers throughout the state.

The motivation behind the memoriams was the data itself. We wanted a way to make the numbers real to people. While the memoriams do include a data section at the end of the book, which details the circumstances in these fatal crashes, use of seatbelts, age of teens killed, and a map showing where these deaths occurred, this data only becomes meaningful and incites change when you read the emotion and heartache of those left behind.

We will release our seventh memoriam on October 20 at a press conference, followed by a family remembrance and grief education event for all families who have ever participated in the project.

Survey results show that students are more committed to driving safely and following driving laws after reading these books and 95% of the students who read the books, have said, “Other teens learning to drive should be required to read them as part of their driver education training.”

If you’ll turn to slide 36. We know our efforts are making a difference. Since Utah’s GDL law was passed in 1999, there has been a 62% decrease in the rate of teens, ages 15 to 17, killed in motor vehicle crashes.

We believe increased parental involvement will have an impact on teen driving behaviors as research has shown teens who have parents who are involved in their driving are twice as likely to wear seatbelts, 70% less likely to drink and drive, half as likely to speed, and 30% less likely to talk on a cell phone while driving.

In addition, in the year before the Utah Teen Driving Task Force was created, 44 teens ages 13 to 19 were killed on Utah roads. In 2013 the number of teens killed had dropped by more than half to 18. Injuries from these crashes have also decreased.

With the extraordinary commitment, dedication, and innumerable hours of paid and voluntary staff time, our committed partners the goal of zero fatalities in Utah is within reach.

If you’ll turn to slide 37. And even though our state has a wealth of data sources to draw upon, having that much data can also be a downfall. Sometimes it’s hard to get our partners to think outside of their silos. Public health truly is a convener and has the ability to analyze multiple data sources to paint the big picture on an issue such as teen driving.

When we analyze our state’s GDL Law, it quickly became apparent that the Driver License Database had some gaps in it, making a comprehensive analysis of the law extremely difficult, if not impossible.

As a result, we analyzed vital records data to give us some idea of how the law may have impacted the number of teen deaths and as most of you can relate, many of the data requests, especially those from legislatures have very quick turnaround times, making analysis difficult.

Finally, finding the right stories, such as those included in our memoriam books, to help someone understand what the numbers are trying to say and move them to change can be hard.

In summary, data has always been a critical step in our teen driving efforts. Data drives what we do, how we do it, and if we would do it again. If you'll turn to the next slide.

I just want to say thank you to everyone who's helped us in our state accomplish the many things that we have seen. If anyone has questions, please feel free to reach me by email or phone and I'm more than happy to help.

I'll turn this back to Dan. Thanks.

Dr. Dan Baden: All right. Thank you very much. Excellent presentations. I thought those went really well.