

MCHB/ EMSC Webcast

State of All Hazards Preparedness for Children

March 24, 2010

DAN KAVANAUGH: Good afternoon. My name is Dan Kavanaugh, the Senior Program Manager for HRSA's Emergency Medical Services for Children program. And I would like to welcome you all to our presentation today on "State of All Hazards Preparedness for Children, Partnerships and Models for Merging Emergency Department and Disaster Preparedness Efforts Nationwide."

Before I introduce to you our speakers for today I want to go over some technical information as it relates to this webcast. The first thing is that slides will appear in the central window and should advance automatically. The slide changes are synchronized with the speaker's presentations. You do not need to do anything to advance the slides. However, you may need to adjust the timing of the slide changes to match the audio by using the slide delay control at the top of the messaging window. Some computers may have more of a delay than others and the slide delay button may be able to help you with that in terms of making sure that your system is in sync with the speakers' voices and the slides you're seeing.

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state or organization in your message so that we know where you're participating from. The questions will be answered by the speakers at the end of all the presentations. If we don't have the opportunity to respond to your questions during the broadcast, we will email you afterwards. Again, we encourage you to submit questions at any time during the broadcast.

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I would like to now present our speakers, next slide, please. My name is Dan Kavanaugh, I'll be moderating this and I would also like to thank Sue Tellez from the

American Academy of Pediatrics who has helped us to bring all these folks together. I really think with this presentation we have some of the best and brightest minds in PEDS emergency care to talk to us today.

Our first presenter will be Dr. Steve Krug – next slide, please – from Childrens Memorial Hospital in Chicago. Next slide, please. Dr. Krug will be followed by Dr. Michael Anderson from Case Western Reserve in Cleveland, Ohio.

Next slide, please. Followed by Dr. Jeffrey Upperman from Children's Hospital of Los Angeles.

Next slide, please. Our presenter then will be Dr. and Major Daniel Fagbuyi from Children's National Medical Center here in Washington, D.C. – next slide please – who will then be followed by Dr. Sharon Mace from Case Western Reserve in Cleveland, Ohio.

Next slide, please. Lori Upton from Texas Children's Hospital in Houston, Texas. And then our final speaker will be Dr. Sarita Chung from Children's Hospital in Boston.

Next slide, please. And then after all the presenters are finished with their presentations we'll have time for questions and answers based upon questions that you send in during the broadcast. So now I would like to turn it over to our first presenter Dr. Stephen Krug. Next slide, please.

STEPHEN KRUG: Good afternoon, everybody. My name's Dr. Steve Krug, I'm the current chair of the American Academy of Pediatrics Disaster Preparedness Advisory Council and I'm a pediatric emergency physician in Chicago and I'll provide you with a brief overview of the current state of all disaster preparedness for children so you guys should be looking at my title slide but now we'll move on to the next slide.

It's fair to say that the development of federal, state and even local plans for disaster preparedness has not always considered children. In 1997, FEMA conducted a survey of state disaster plans and noted that not one state plan had pediatric considerations. In 2006 the Pandemic and All Hazard Preparedness Act was passed at the federal level and this was part of a sea change prompted by a variety of bad occurrences and within the PAHPA, as it's known as, all state plans were required to contain considerations for something called at-risk populations, with at-risk populations including children.

Unfortunately the content, scope and efficacy on these pediatric elements vary greatly on a state-by-state basis and in fact some have pointed out there are more references to pets and livestock in PAHPA than there are to children.

Planning aside, in our current state we have some baseline deficiencies in pediatric readiness and some are quite important. We have training and experience issues with disaster care providers. We have deficiencies in medical counter-measures, nerve agents, biologicals and radiation agents for kids and in key equipment. We have some

concerns regarding how children might be sheltered and/or reunified with family members and major gaps even on a day-to-day basis in terms of meeting mental health needs, and then finally the way we practice disaster drills. We don't sufficiently practice for kids because these drills may not include pediatric victims.

Next slide, please. In front of you now is a blueprint. This is a drawing of a house that's been designed to sustain a horrible level category 4 or 5 storm on the Gulf Coast. I use this as a model for a disaster plan. Consider the house to be the actual structure of the house, the disaster plan with the foundation of the house being day-to-day emergency readiness. If this house was built on the ground level it would wash away during the tidal surge. The same is true for a disaster plan. One cannot build a disaster plan on insufficient day-to-day emergency readiness because if you're not ready on a day-to-day basis to take care of kids, chances are your owe not going to be ready with large number of kids when they require care.

This is a great segue to the real reason why we're here on the phone today. We're here to talk about this important policy statement and in this particular conference call reflecting on how it translates to disaster readiness. Again, the foundation is day-to-day preparedness. And this webinar sponsored by EMSC is a dissemination and implementation strategy in response to this important statement co-sponsored by the American Academy of Pediatrics, the American College of Emergency Physicians, and the Emergency Nurses Association. Within this policy statement which was published this past fall, you'll find recommendations regarding personnel, training, equipment,

supplies, medication, support services, quality improvement and a variety of other resources necessary for optimum pediatric emergency care. It is an updated version of a document co-authored by the American Academy of Pediatrics in 2001 and is an applicable standard to be applied to any emergency department with 24/7 physician staffing. This policy is endorsed by 22 organizations ranging from the American Medical Association and the American -- the AAFP to organizations such as NACHRI and the joint commission. This updated version also has recommendations for patient safety and disaster readiness. This policy statement is available on the sponsoring organizations' websites and in their journals.

Next slide, please. Perhaps the most important predictor for day-to-day emergency readiness and disaster preparedness for children is the presence of a physician and nurse coordinator. This policy statement contains greater detail regarding the qualifications and the role of these important leaders and advocates but it stands to say if you have somebody in your organization that's helping your organization to think about kids and integrate the needs of kids within your process of day-to-day care and disaster care, you're going to be better prepared.

Next slide, please. As I mentioned the policy statement also offers some broad recommendations pertaining to disaster preparedness and my colleagues will be giving you greater detail. As you can see these recommendations range from having available medications, vaccines, equipment and trained providers -- children in disasters to considering pediatric surge capacity, considering decontamination,

isolation, quarantine of family and children and also a plan that minimizes parent/child separation including processes that might allow you to track children and reunify them in a timely manner with their family members. As you all recall this was a humongous issue during Katrina.

Next slide. Also important: access to medical and mental health therapies, social services, disaster drills. You can't get good at something you don't practice. And finally, thinking about within the special population of kids that even more special population of kids with special healthcare needs.

Next slide. The emergency preparedness 101 course and much of the planning that's been done to date assumes a single plan for all hazard will also address the needs of all victims. I think it's fair to say the answer is no to the first question. We can't really manage acutely ill and injured kids the same way we might small adults. The answers are obvious. Children are unique in too many ways to count and therefore your disaster plan must address their needs, the needs of the families and also consider what you would do as the disaster, as we're seeing in Haiti, involves a large number of children.

Next slide. It is now my privilege to pass the baton to my colleague Mike Anderson. He's also the vice chair of the national commission on children's disasters which is doing some very important work towards advising the nation in how we can be prepared to take care of kids. Thank you, Mike.

MICHAEL ANDERSON: Thanks, Steve, thank you, Dan for inviting me to be part of the webinar.

Next slide. You should see my title slide now. I think Steve did a great job of outlining the lay of the land. Suffice it to say the interim report in 2006 described our preparedness for children and for children in everyday emergencies and for children in disasters is uneven and I think the great work a lot of folks on this call are doing and folks on this webinar are doing highlights the fact we're starting to turn the ship around. That kids' needs are starting to be met. There is still a lot of work to be done but folks at the national level and regional level and probably most importantly folks at the local level are finally starting to take these issues seriously. My charge is to give you sort of a high-level maybe 10 to 15-minute overview of the national commission on children of disasters that I'm proud to serve as a vice chair in all the different areas we're looking at children and disasters.

Next slide. Children have been affected over the last 10 to 15 years by disasters in probably increasing numbers. September 11th involved both children being physically injured as well as serious mental health needs that probably continue to this day. I always show a slide of Oklahoma City, though, because that's really when terrorism was brought home to the United States. Timothy McVeigh in part targeted the Murrah Federal building because of a day-care center on the second floor. We as experts and

planners need to realize that unfortunately children are the targets of natural and manmade events.

Next slide. Steve alluded to the lessons of Hurricane Katrina and many folks on this call were primarily involved in taking care of patients either down in the gulf or as those patients were evacuated. One of the impetuses for both PAHPA and our commission was kids were really not represented well in the preparedness plans. I think while a lot of folks from across the country did literally heroic work to save lives, we can do a better job of planning for recovering from disasters as big as Katrina.

I know Dan will focus a lot on H1N1 and lessons learned in preparing for the next wave. Suffice it to say I think H1N1 was another wake-up call for us as planners and us as preparedness pediatric experts that kids were adversely affected, certain sub populations of kids were even more adversely affected such as kids with central nervous system disease. I think it really was a wake-up call. But to me as a public policy person it was also I think reassuring to see the Federal government starting to get it. For the first time in an event the CDC stood up a pediatric desk, that ASPHA was reaching out, the assistant secretary for preparedness and response was reaching out to the pediatric community. While the assessment is still we have a lot of work to do, I believe that folks are starting to get it.

Next slide. So the national commission National Commission on Children and Disasters. There is our picture and symbol is a ten member commission. You can see our pictures on the website if you'd like.

Next slide. The reason we're around is as Steve alluded to, kids are a great hunk of our populations between 22 and 25% of our population. But to say they've been overlooked in disaster planning and management is really an understatement. And yet the amount of presidentially declared disasters is really starting to increase. At the time that our commission was formed late 2008, early 2009 only seven states across this country had very tight plans for either schools or daycare providers to have basic emergency plan. We think as emergency department planners, I'm incenseiveist as Steve said we have to be prepared in so many different venues to take care of kids in disasters such as school systems and daycare systems as well.

Next slide. Once again while kids are a large percentage of our population and Steve alluded to it well, training, medications, equipment in either stockpiles or in the general emergency population are typically designed for adults. While I think it was a good thing that that legislation required states and regional areas to look at at-risk or vulnerable populations, sometimes I think kids get lumped in there and sort of taken aside and put in an annex of at-risk and we can have that discussion during the Q&A.

If you look at the rules, regulations and laws across this country there is a lot more regulations about what you have to do with pets and prepare for the needs of pets in a

disaster than you do taking care of kids. When we start to recover, we're not going to have a lot of time to talk about recovery. I think we'll more focus on disaster planning and disaster response but when communities and people recover from a disaster typically we think about rebuilding bridges and homes. Are we really looking at the needs of children and families? That's something that the commission is interested in looking at.

Next slide. So briefly background we were formed by Congress in 2008. We're a 10-member commission appointed by the president. Two from the White House, four from the Senate and four of us appointed by the House. It is not just pediatric expertise. We have experts drawn from disciplines across the country. We have a gentleman who runs a Center for missing and exploited children. Local EMA officials, we have government and non-government officials so we have a broad swath of people that make up our commission.

Next slide. Our charge is over a two-year period. We're currently approved for a two-year stay of the commission. We're to conduct a comprehensive study looking at the needs of kids in preparation response for recovery and mitigation from all disasters. Then we report to the president and to the Congress our findings. We issued our interim report. I'll show you a web link to that in a moment. We put our first report out last October.

Next slide. Once again the committee is made up of -- commission is made up of four subcommittees. Mark Shriver from save the children is our chairperson. We have folks looking at transportation and housing needs. I chair the pediatric medical care subcommittee which just met yesterday. A Committee on education and juvenile justice as well as a Human Services recovery subcommittee. Although we're not all pediatricians on the committee I'm proud to say that three AAP members are indeed proud pediatricians on the commission.

Next slide. As I said we had our first meeting in October. We issued our interim report in October of 2009. Just a couple months ago we had our long-term recovery workshop which produced a lot of good recommendations and then our next report will be due to the President in October of 2010.

Next slide. So once again I as a pediatrician tend to think about more on the left hand. You should see the circle of acute care. If we're going to be true advocates for children we need to look at case management at juvenile justice facilities, at schools being prepared and a very important point is to look at the mental health needs of kids during the disaster as well as during the recovery phase and also with long-term housing.

Next slide. You should see in front of you a web link to our interim report as part of my supplemental. I'll spend a moment of my time talking about one of our recommendations near and dear to my heart, building on the existing strengths that we have as Children's Hospitals, as pediatric facilities and as pediatric experts from across

the country. The map of America on the right shows in 2008 the NACHRI member hospitals. We have wonderful specialists, a great pediatric surgeon Dr. Upton will speak in a moment. They're not often tied into a Federal response. On a day-to-day basis they take great care of kids. One may argue we should regionalize better but we aren't tied in well to disaster medical assistance teams. There are some members of these Children's Hospitals that are part of DMATs, not a lot are tied into that Federal response. Here are six Children's Hospitals. Ohio is blessed to have six freestanding Children's Hospitals, myself at rainbow, Cincinnati, Toledo, Columbus and Akron. Can we take the expertise we have and form a disaster response team that could both be used regionally as well as nationally?

Next slide. And this is sort of a slide I show when I give this in a big group. This is oxygen delivery verse oxygen consumption. This webinar will not be a basic shock lecture but I put this up to remind myself I'm used to complex system, we're pediatricians and we understand complex pathophysiology. Tackling this stuff with disaster preparedness response with the government shouldn't be a big deal. Then you meet the Federal government. What we have here with all due respect to my colleagues from the Federal government on the call, this is the National Response Plan. The conflict of how we both plan for and respond to disasters and all the different emergency service functions, all the different groups. So while I think it's a motherhood and apple pie goal that we get Children's Hospitals more into this mix, more able to respond, I think we have to find advocates within the Federal government to help us navigate the system to get our people in. I'm really an optimist and I think the Federal

government is listening to us. We've made great strides starting to get people into the NDMS system. It is a very complex system. This is a proposal that we're kicking around for making people what I would call basic members of disaster medical assistance teams. If you're a wonderful orthopedic surgeon from Akron children's and don't have the full amount of time to devote to becoming a DMAT team member is there a potential way to get you trained, get you credentialed, get you in what I would call a reserve pool so if a big disaster hits we have these resources that are now able to respond and help our kids across this country? Stay tuned for more details on that. I think the Federal government has been supportive of this concept and we're working with great people to make it so.

Next slide. So we do once again not just look at medical care. Probably blow through a couple of slides so I give Jeff and my other great colleagues their due.

Next slide. We're looking at EMS care for children. I agree with Steve's point, we really can't plan for the disaster needs of kids if we aren't ready for day-to-day care. We're looking at the training of personnel who care for children in disasters, an important focus of the work we would like to forward is looking at regionalization of disaster care and Steve also alluded to the fact this country is woefully underprepared for medical counter measures. The President gave general counter measures in this country an F as far as a grade. I think that children's grades may be lower than that. We have a lot of great people looking at medical counter measures as well.

Next slide. We do want to look at primary care and recovery. It's not all about the glitzy stuff of jumping into helicopters and saving kids in intensive care units. We have to make sure primary care is ready for disaster as medical counter measures on there twice, I think H1N1 alerted us to preparing better for surge.

Next slide. I'm literally just going to blow through the slides. I hope it doesn't drive the webinar people nuts. We're looking at recovery also the important needs of mental health. Next slide. Physical health and trauma are the big areas, and training, access and equipment.

Next slide. EMS and transport I mentioned disaster case management making sure that kids are supported in a holistic environment during a disaster making sure childcare facilities are prepared for disaster and setting up appropriate childcare facilities. I think I talked about preparing schools both elementary and secondary schools and education. There is a cadre of kids that are very vulnerable. Kids in juvenile justice facilities are a vulnerable population to begin let alone are they prepared for a disaster? How do they evacuate and keep the kids safe and how do they keep the kids somewhat incarcerated during this. We're looking at juvenile justice as well. Sheltering and housing evacuation once again all important holistic areas to look at in disaster. Next slide. And thank you very much for both your commitment by being on this webinar as well as supporting our nation's kids during the disaster. I thank you for your time and attention.

Now next slide. I would like to introduce Dr. Jeff Upperman, a pediatric surgeon par excellence from Los Angeles and one of the national leaders in both looking at children in disasters as well as regionalization and disaster planning. Take it away.

JEFFREY UPPERMAN: Thanks for this opportunity and to the rest of the committee for inviting me for this opportunity to share some of our understanding. I will start, if we go to the next slide my resources and tools which should be my title slide. First off I would like to say all problems are local. I'm speaking presumably to the choir here but to draw your attention to that. In that context understand the resources and tools I describe today may or may not be applicable to your neighborhood but I really want to provide you with a framework for resource development, if you will. And the caveat is one size doesn't fit all.

Next slide, please. So we're going to talk a little bit about the disaster life cycle and talk to you about how information plays into that. We'll talk about a novel tool that we've developed to sort of harness those resources or identify the gaps in resources that we may have and we're going to also talk about some novel approaches. Some things really outside of the cube, if you will, that hopefully will spark your creativity and move forward to make your neighborhood safe. So first we start off with the impetus. The Institute of Medicine came up with a series of reports basically saying the system was broke as it related to children in emergencies and disasters. One of the items they underscored was that there was a lack of information strategy and evidence-based sort

of foundation as Dr. Krug pointed out earlier. Some of these things we believe are going to be the right way but we really don't know. So let's start off with a definition.

Next slide, please. And what is that. The science that underlies the academic investigation and practical application of computing and communications technology to healthcare, health education, biomedical research, etc. I put it up there to help us understand the context in which we're going the talk about the information during that life cycle.

Now, next slide, please. We look at information as being, you know, put into several buckets. First we have to gather it, then we have to manipulate it. Then we have to store it, retrieve it and then classify it. This is a matrix that you should use and take to your environment when you're doing everything from your planning exercises to your hazard vulnerability analysis, etc. We believe that previous approaches have probably fallen short in the gathering phase. They've dumped children in that other special needs, etc., when in essence they should have gathered more finite information. You need to do that in your community and you need to manipulate it in a way so that it makes sense for your community, your hospitals, etc. So please, please, please, if you've been through disasters before, look at that data and make sense of it and classify it appropriately so that you understand the next step.

So next slide, please. Let's look at this so-called emergency care system life cycle. Very busy slide but I'm going to walk you through this. If you start in the upper left-

hand bubble hopefully we're all in sort of that, you're always in some phase but we start off believably into the planning or preparation, mitigation phase. We do the what ifs. I'm in Southern California. We talk about terrorism or earthquake. So our contingency planning, if you will, is based upon those broad scenarios. But what are the consequences? How will it affect the hospital systems and the school systems, how will it affect just how people work, etc., throughout the Southern California region. The great shake-out was trying to do the what-ifying on a grander scale. A quarter million people living on the wrong or the right side of San Andreas Fault depending on your outlook. What would that mean to the recovery phase? What resources are needed if you have an auditorium full of students blown up and burned? What would you need in your hospital system to make it work? You need to think about these in real terms. If you move over to training scenarios. If you're what-ifying brings you to the scenario we'll have a lot of burn victims it would behoove your hospital, system, clinic, hospital office to understand how to take care of burn victims and train your first responder staff, those sitting in the front office, how to respond appropriately. Understand the resources that you have or that you may need, understand the environment, understand your neighbors. Then you get down to the response. Well, a lot of folks say you just need to get in there and do something. Well, you have to also gather some data because those people are going to help you in the next phase of things need to know where is Johnny's mom? What does Johnny have? What did you do to Johnny? We all know from Hurricane Katrina Johnny ended up in Iowa. Mom ended up in Houston and everybody said whoops. I guess we should have taken a picture or written some notes. You need to always be gathering data in any form

possible so you are making the appropriate steps. Finally in the recovery phase you need to look carefully at what happened. Not the simple after action. You need to understand how did the families cope. The families who survived and who were in special needs circumstances? What worked and what didn't work and then build it into your planning phase as we go around. I encourage you all to use the information appropriately as you go through this life cycle of the disaster. But now going to the next slide let's think about how some local resources may help you. Many of you may be a part of a trauma system network or you may be a part of a trauma center. Either a level one or level two trauma center and you say what does that matter? What does that have to do with disasters? Let's take the mass casualty event or an event involving huge numbers of injured children by debris or something of the like. Your trauma program is obligated to basically gather environmental data. What are the risks? What are the transportation times? What types of injuries are we seeing? They need to understand the response of that system and they also are probably tracking the outcome data. Now, today while you're in your planning phase you can understand what your pediatric trauma surgeons or adult trauma surgeons are doing and understand the robustness of their system. I've heard from a lot of trauma surgeons we don't know what they're doing. Now is the time to stop that, knock down the wall and talk to them about what they're capable of doing. Interesting enough as we have this national dialogue and debate we actually talk about using those resources that already exist. Many states already have existing statewide trauma systems. Some counties have regional-based trauma system. They need to build upon that model and work

with them in making for a more robust response system. So I encourage you all to do that. That's the local resource that you shouldn't push aside.

Next slide, please. Let's take the paradigm of trauma data and let's look at an example of an earthquake. There are published articles already in existence, the lessons learned, a list of articles and talk about what did they find. They had extremity -- you know what is needed based upon those injuries. In this particular model I have in front of you, you see after an earthquake it's been published you'll have extremity trauma. A head, chest, abdominal and renal failure from crush injuries. You need to think about that. Your resident resources, neuro and orthopedic surgeons need to be disaster ready. They say we'll get them when we get them. No, they need to be up front and involved in the training early on because if you what if that we could have a bad earthquake you know what the injuries will look like and you need to have the appropriate personnel out there. Once they're in the system you need to gather the data just like a trauma registry does and you need to know all the things that you've done. All the things you expect to happen and then you need to do the full circle of following their functional outcomes as they enter into the recovery phase. This is what we're already doing. This is an example that a person in Wisconsin has put together and trauma merges nicely with disaster care. Going to the next slide of how a trauma-driven approach to injury or disaster-related injury could help you in planning and conceiving how things work. In injury control or prevention we talk about sort of the injury happens and Johnny didn't have a bike helmet or Johnny wasn't wearing a seat belt. Well, the same thing could be said in Southern California if you haven't strapped

your bookcases to the wall or had all the appropriate implements in your house. When I moved to L.A. I didn't understand what all that stuff meant. You have to figure that stuff out. So when you look at the injuries that have occurred, then you start to look at how were the kids hit and what were the identified complications? Did it turn out that there was a huge problem related to these burn victims because the appropriate industrial constraints hadn't been made or the housing limits or zones weren't appropriately eye dent filed? -- identified. Look how their bodies responded to what happened to them. Figure out for the survivors why did they survive and build this into your understanding focusing in on the hospital-based care but it is injury prevention control model that one can use moving forward and thinking about how to gather the data and make for a better, more robust system.

Next slide, please. Now I want to shift gears. We always say that adults aren't small children but heck, maybe adults can be treated like children and we can provide them with some games and some activities that sort of trick them into behaving appropriately and thinking about children and disasters. First we'll start off seriously and then we'll lighten it up and talk about how we've used gaming technology to make a difference, we believe, the pediatric disaster preparedness.

Next slide, please. So my colleague Bob is over at the University of Southern California information sciences institute and I worked with a team of medical folks as well as emergency management folks in putting together a software-based decision support tool solely focused on pediatric disaster issues. And this device was an

accomplishment of an interdisciplinary team that recognized that for a community to effectively respond, you need all hands on deck. Now, this is a smart group of computer scientists who don't know how to take care of a bleeding spleen or a broken leg or somebody in acute respiratory distress but they understand how to move information around and build logistical tools. What we did with this piece of software was we stated the problem to them in a series of emergency positions, we sat around as well as critical care doctors and pediatric surgeons said this is the problem in a disaster involving an earthquake.

Next slide, please. If we look at our model we say the inputs into this system as our computer scientists broke it down would say you'll have this type of disaster, what ages are you looking for? If you look at the left demographics. A lot of little kids live locally here. What can your hospital do for them. The facility status and capabilities and supplies and you put all of that in the system and similar to TurboTax it spits out a recommended plan. What is the value in that? First of all, all plans are local. We know that there are a variety of resources around the country that say this is how you plan and these are the things you have. Let's imagine you're in a hospital or office that has thousands, tens of thousands of kids in elementary schools around your facility versus a place that has very little children? Clearly a disaster involving your region may involve more kids from one facility versus less from another. This approach, this software solution that we've come up with allows one to customize their plan and we think it's a valuable resource that needs to be developed. It's not the only logistical tool

out there but it is one that can hopefully be part of a solution in having a comprehensive way of solving these problems on the ground. By the way, we actually plugged in some Haitian numbers and found the obvious. There were a lot of things that were missed that could have been planned for up front in terms of the immediate response.

Next slide, please. So how do the various individuals fit into the response functions of this device? You have a disaster planner who can pick a context. You have supervising physicians and nurses who are important that can talk about the capabilities. They can identify the pediatric load and it gets all computerized on me and basically you define all these things that happen and at the end of it you have all these ways that your materials management people can figure out what they need and they can move forward with a plan that at least begins you at a logical space. Please look that up on the web. It is a very valuable resource and it's only in its emerging phases. Let's switch gears and slides now. Dr. Krug and his colleagues as they wrote the policy guidelines used the word surge. Any card carrying emergency room doctor will tell you if you're in an urban center they're existing in surge every day. The question is how do we take our E.D.s to the next slide when it gets ridiculous? Dan Fagbuyi will be sitting in a hospital and says all the kids from the eastern coast of America are in the mall and they all have you fill in the blank. How do we treat or train our hospitals to respond to the masses of people who would be involved in what we're talking about a mega surge response?

Next slide. We came up with a start to possibly a solution for folks to think about. We talk about that next -gen on their blackberries and we have an interactive software game available online and it practices triage and we set it inside of a hospital so you see those walls that are built up there, it is really there to demonstrate that it's inside of a hospital because we know our first responders are pretty good at all the triage stuff. What about our hospital personnel? This game takes them through the jump start and they're on the clock and have to make the right decision. Go play it and see how you do.

Next slide, please. What if you can't get the experts to your facility? Here is another example of we put some interactive robot technology to the test and we're trying to understand how robots may help us in this emergency response. It is not made nor all scenarios. We aren't suggesting it is. One of the people said can it swim? No, unfortunately it can't swim but it may be able to help and you may be able to get it helping you with the kid that comes in with the big, bad problem. The last example of a game. These are images from our disaster Olympics. This is basically an interactive team building communication event where challenged our staff to work together to solve disaster-related tasks. It's an example of waste management in the bottom right-hand corner. Do you know you produce a lot of waste on a daily basis? What will you do when your hospital is shut down for 72 or 96 hours. You need to deal with the waste. You know Earl the janitor dude is probably not at work or may not be available or there may not be a lot of people there to deal with it. Your staff is going to need to

learn how to deal with that. You need to use these items and other tools. We do the standard things as well.

Next slide, please. I encourage you all to train for real. You see here in the black T-shirts here, these are environmental professionals who work in the hospital. They have no patient contact at all. But we challenged them to help out because it is going to be all hands on deck. So they practice as well. We encourage everybody to have everybody participate in these activities.

Next slide, please. As I said, there are resources that are out there, please build your toolkit not just based upon what Jeff Upperman says but use all the best practices and customize it to your neighborhood. Without doing that I think you'll end up with a boat in a fire or a fire hose in a firestorm and you just don't have enough water so you need to be careful and make sure that you plan appropriately for your neighborhood. Like to thank a number of people who have helped us get here and knowledge the commission for all its trendsetting work and Mike Anderson for his leadership on the medical care committee. The pediatric disaster resource and training center is there to help you. It has a lot of this information. Next I would like to switch, change slides, please. And change slides to Dr. Fagbuyi. He's an emerging leader and proud to be introducing him as really the emerging generation of folks who are taking a system-based approach to disaster planning and he will amplify for us the H1N1 pandemic from a front line view of the lessons learned. Dan, take it away.

DANIEL FAGBUYI: Thanks, Jeff. I appreciate it. Next slide, please. I'm going to be talking about H1N1, the lessons learned.

Next slide, please. So our objectives we'll talk about the outbreak, the national impact of H1N1. We'll also look at the pediatric impact on the nation's capital from the front line view here at Children's National Medical Center. We'll also go over the lessons that we learned from the first and second wave of the pandemic and also discuss some of the possible solutions to address the noted gaps.

Next slide, please. We'll also look at what state administrators, emergency managers, healthcare workers, first responders, what everyone can do. Everybody has a part in this and lastly we'll look at the next steps and future directions in terms of disaster preparedness.

Next slide, please. So this won an award. Give it its accolades.

Next slide, please. So briefly to look back on 2009, the H1N1 outbreak. It occurred very late in the season. Very atypical. It showed remarkable hetero-- young children were disproportionately affected. It was a curveball for planners. It caused widespread illness, some severe and some fatal. It was very socially disruptive especially for schools and even for providers and different workers of all walks of life who had to make arrangements for who was going to take care of their sick child or if they were

going to get infected from their sick child. Tens of thousands of healthcare workers specifically and others responding worldwide so it really affected us.

Next slide, please. This slide basically shows the impact of H1N1 on Children's National emergency department and our patient volume. It has the time, the dates over the period of H1N1 that we were seeing in our emergency department. On the Y axis is the patient volume and the non-shaded bar or the zebra bar is the ILI volume and the non-ILA volume noted in the gray bars, solid bars, that is. It just shows that our normal threshold the dark bar that goes straight across is our normal threshold for volume. Our average volume. You can see there was an impact on the volume of patients that we saw. It does not mean that these were all patients who were sick with influenza but even the worried and sick were involved in the emergency departments across the nation where we were surging daily.

Next slide, please. What are some of the lessons? We'll go one by one and go through this. Some of this is straight forward, some of this we just have to really think of how to address it. Closing schools did not stop the spread of H1N1. It had significant down sides. What do I mean? Give you an example. The kids were dismissed from schools, where did they go? They didn't go home. They re-congregated. Went to the mall and their friends' house and shared the virus so that didn't really work. It wasn't as effective. There was confusion over who had the authority to open and close the schools. And some states it was the governor. Some states it was the mayor. Some it was whatever CDC said. It was not a good discussion on who made that decision.

Cohorting patients in the E.D.s was very helpful. It helped in rapid assessment, triage and infection control.

Next slide, please. Stockpiling of antivirals. It was planned ahead of time. The military was on the forefront of this. They've been planning for a pandemic for a while and our civilian world they started stockpiling that in light of thinking about the bird flu. So the stockpiling did work well and the pandemic planning was very prudent. Pre-printed antiviral prescriptions. We at Children's National had pre-printed Tamiflu prescriptions and the provider could check the script and educated our pharmacies on the scripts and what to expect. We got them involved. That helped our turnaround time. Also pre-scripted scripts with regard to medical screening. Limited physical exam and vital signs including respiratory rate to looks like a kid that could be discharged home. I'll talk about those in detail.

Next slide, please. Here is our treatment algorithm we developed at children's and we used it for the city in terms of planning for our children and how to respond with the treatment management for our patients that we saw. That's where our D.C. emergency coalition worked in handy. This is part of the three Ps of private/public partnership that was effective in engaging the other local providers and have a community-wide response. My colleague Sarita will be talking about a similar algorithm that we did with the CDC. You'll see that.

Next slide, please. We also realized that CDC reports lagged really the front line situation. They did a great job but they weren't as accurate as what we were seeing on the front lines. That's where the Intel from the front lines or intelligence from the front lines comes in very handy be it a provider or data that you're collecting and being able to forward that or share that with your state and that being forwarded to CDC. Having somebody in between there to be able to see what is going on on the front lines worked well and we realized we did some things before CDC actually mentioned it. On the age range of kids we know in the pediatric population everybody under five, all the kids, that's the volume of kids we say. When they say kids under five with a fever need to do the detailed work-up it presents a challenge for an emergency department that sees those volumes of kids sick all the time. The daily conference calls were very helpful so conference calling, using technology, information technology and methods of communication was very helpful. We were able to contact our local health department and healthcare coalitions in the area to discuss on a daily basis almost like war gaming where we give a brief update on this is what's going on. This is what we're seeing in our emergency department and this is what we're seeing in our hospital and what are you seeing on your front lines? What are you hearing from the CDC? Both the state and Federal government in this whole process and the local, which we found was very helpful. The public health system was limited in its ability to execute its mission. I think that's the understatement of the year. It's not that they're not willing, they're not well funded but our system needs to be more robust and be able to take care of these kinds of disasters.

Next slide, please. So stockpile anti-virals did not reach community pharmacies. That was an issue. They were supposed to get out from the SNS be pushed forward to get to the pharmacies. They didn't get there in time. What happened? They came to our emergency department. What did they do? Spread more virus? Those are some of the things that happened. That's a problem and we need to work with our pharmacies and private partners to be able to make sure the process goes smoothly and make sure all parties and hands on deck. The World Health Organization pandemic alert. This is one that was very interesting. It confused everybody. It didn't reflect the severity, just the spread. When it was at a high rate, everybody was worried and concerned but that was just a spread for something that was at least that we find out was not as fatal in terms of its virulence. Communication was a big deal with the media, with the public and healthcare workers. It was very difficult. The message kept changing. There was a dynamic of change in adaptability. That was the message that needed to go out. This is what we have and know at this time. It may change but we'll keep you apprised and have that true messenger that delivers that message. I'll talk about what we did. We engaged public radio, the national television stations, we got on twitter, on Facebook, we used all sorts of social media to be able to pass the message out and we actually invited them to our hospital to engage them so we could better educate the media on what is going on. Those are some of the strategies that are very important. If there is misinformation it's hard to tackle at that time.

Next slide, please. What are the outstanding challenges? We talked about the complex message. The intranasal vaccine versus the injected vaccine. Who is on first and who

is on second? That's the question and it was very confusing for providers also, not only providers. Providers were as confused and the public was definitely very confused. We needed to get that information out and try to reach them at their level. Distrust of vaccine. It has a historical reference from the autism associated with vaccines, false information but still was out there and that has been what has fueled the disinterest in vaccination. With this disinterest you have to start thinking of the future. For medical counter measures this raises a question. If your certain population will be distrusting the government on providing vaccines or providing medical counter measures, we have a lot of work to do and we'll need to talk about that later. So vaccine payment issues. This was difficult for the pediatric providers. I'll give an example. These aren't accurate figures but ballpark. Low pediatric versus adult providers. Pediatric providers getting \$5 to \$6 for giving the vaccine where an adult provider may be receiving \$17 to \$21 for giving the vaccine to a patient. There is a discrepancy there. Factor in overhead for the pediatric provider it doesn't encourage them. We need to give them incentives and reimburse them appropriately to be motivated to make these things happen especially in an emergency. What are the pragmatic solutions? For surge, they need to get Federal guidance on -- I know the IOM has put some documents out there. There needs to be a reflection on how it affects the pediatric population. So those things need to be discussed. The emergency departments, they all -- both adult and pediatric as my colleagues from mentioned and will be mentioning shortly need to be prepared for children. And be prepared to care for them effectively. Community organizations, both schools, childcare facilities, all should be able to plan for

emergencies especially when it comes to children with special needs, another challenge.

Next slide, please. So what other pragmatic solutions? With regard to communication the public health, hospitals, private health partners all need to collaborate. It's part of that PPP, the three Ps of public/private partnership that needs to be encouraged. It seemed like the government used a contractor to deliver the vaccines out and that's a relationship that we need to foster when we're starting to think of medical counter measures. That's an example of what worked well. Coordinating across all levels of government with stakeholder input. My colleague -- we'll talk about this also. The AAP partnered with the CDC to work on a guideline which was important. But that's not the only thing. As pir reached out for pediatric providers and experts in the field to try and do some work so there are many organizations reaching out and that's what we need to foster and need to continue to develop. with regards to take holder involvement and input. Pediatric experts should be included on all public health frame works and communications.

Next slide. With regards to education, there needs to be pediatric focused education, this is what Jeff talked about a little bit with regards to targeted providers and their communities, both the first responders, healthcare providers all need to be educated. Pediatric unique vulnerability and issues that arise with transport and focus on family-centered cares. You're not separating the families from their children. Then social media as a unique tool. We need to be consistent with the message. There are other

things you need to consider. Who is the messenger? If I have a Federal government agent who comes down to my community and says this is what we're going to do and how we're going to do it. Not that much credibility and probably some distrust there. We that live in the community that they see us daily need to be involved and we meaning the providers and the experts that do this stuff reach out back to your communities and be responsible. So what are the solutions? We need to build our community resilience by being involved in the community to relate to them. We need to offer psychological first aid beyond for children and families involved in disasters and also address the issue of scarce resources in terms of how we prioritize and the ethical considerations.

Next slide, please. We need to improve real-time surveillance. And response. Examples of these are to have the system that they've been working on in terms of tracking. We need to have situational awareness. Having some people on the front lines that can give information back to the feds and guide them on what we're seeing in the real situation. We need to weigh rapidly deploying medical counter measures. We need more pediatric counter measures. Those are issues we need to talk about. And then we also once again need to enlist our pediatric providers and experts.

Next slide, please. I would like to use this opportunity to thank everybody for your attention. I hope I didn't go too fast for you. I think these are important issues we needed to discuss and build upon what we learned and I would like to call on Dr.

Sharon Mace. My colleague from the American College of Emergency Physicians to come on next. Thank you for your attention.

SHARON MACE: Who are awesome and acknowledge their contributions as well as those of our people who are listening in and people on the medical response teams and disaster medical teams and DMATs who are responding even now in Haiti. We thank them for their outstanding contributions. I'm going to do a little different approach here and I'm going to kind of divide my part up into talking about resources and references. A disaster itself, surge capacity, some other considerations such as recovery and family centered care, special patient populations and then what are some barriers or impediments to healthcare providers becoming involved in disaster medicine?

So next slide, please. As mentioned, I am representing the American College of Emergency Physicians and I'm from the Cleveland Clinic. And I don't need to remind you that disaster medicine and emergency medical systems and EMS are components of emergency medicine and are training in practice and that many of our emergency physician colleagues are directors are emergency medical services.

Next slide, please. With that often we have multiply throughout the country post graduate training and disaster medicine. Fellowships in disaster medicine. Fellowships in emergency medical services. Even policy fellows, the assistant -- from the Health and Human Services department. Recently there is a CDC grant that is dealing with

blast injury training course and has as one of its components special patient populations including pediatrics. Next slide. I need to give credit to those who have done great work and one of the people is Dr. Richard -- who is an emergency physician from Massachusetts who developed the first course dedicated solely to pediatric patients in a disaster and I'm referring to the pediatric disaster life support course and I have to acknowledge the contribution from the people from the Emergency Medical Services for Children who is part of an EMSC grant, the first pediatric disaster life support course was developed that is ongoing. There are courses throughout the country and it is going through another revision this year.

Next slide. For those who are interested in additional resources and references, I need to note the many different textbooks of emergency medicine of which the comprehensive principles and practices is only one of many and there is the bursting text among many others as well as many peer review journals on disaster medicine that can be great sources for those who are interested in this topic. And I mention the prehospital and disaster medicine as one of the first American journal disaster medicine and note that -- have sections devoted to disaster medicine. This is not at all an inclusive list and I cannot include everybody and every textbook or journal but I want to give at least -- acknowledge those that are out there. Next slide. I would like to say something about pediatric patients in a disaster. First of all, pediatric patients are 25%, approximately, of emergency department visits. But they should be part of an all hazard comprehensive approach to disaster management. There are various phases of a disaster and I think very often we think about the immediate response, earthquake

happens or flooding or urgent disaster event and there is a quick response but we know that actually there are other parts to the disaster and some people divide a disaster into four phases, mitigation, preparedness, such things as training, stockpiling of supplies, getting antidotes ready. Transfer agreements, disaster drills, response, the actual response to the disaster or the mass casualty incident and then in recovery. I think this is an area that's often overlooked and we're looking at such things as sheltering of victims of the disaster, reunification of families of the children with their parents or guardians. We're looking at mental health issues because we know that many people in a disaster will have, say, post traumatic stress syndrome. How do we care for these people after the immediate disaster event? And I think we're seeing that in Haiti where as many of the victims or people affected in the disasters were amputees. How do they get rehab and care for the infections and other problems? The disaster is more than the immediate response. The other thing I would like to mention is family-centered care and looking at the child as part of family unit. And one of the principles of disaster care would be that we try not to separate children and their parents or guardians. This may be necessary because of illnesses or injuries that are suffered during the disaster event but really we would like to separate children and their parents or guardians as little as possible and I think you can think about this separating a 2-year-old from its mother is quite traumatic for the child. For example, who would give history of what happened to the child or their allergies or illnesses and so on so that keeping the family unit together and family-centered care is an important component of disaster management. Next slide. We should be aware that at least 80% of children are seen in general or non-pediatric E.D.s, so the majority of care, even

outside of a disaster, is not delivered in the specialty hospitals or tertiary care hospitals. In a disaster, we know from previous disasters, Hurricane Katrina and others, that children and their parents or caregivers tend to go to the closest or nearest emergency department or, quote, their usual E.D. for treatment. And if a disaster does occur, we know that our medical resources are often overwhelmed and another principle of disaster care should be that we need to preserve the tertiary care institutions for the sickest, most injured and youngest infants such as the neonates and infants. An example might be that instead of sending all pediatric patients to The Children's Hospital, we may need to not overwhelm them and may need to, for example, a teenager with an isolated femur fracture and no other injuries may be able to go to, say, a community hospital instead, leaving the infants, the young children, the multiple trauma for the tertiary care hospitals.

Next slide. So with that we see that what happens in a disaster may be quite different from what happens on a day-to-day basis when there isn't a disaster and that it is talked about to have a retrograde distribution of pediatric patients and even healthcare providers. What we mean is in the field during field triage, taking the sickest, most severely ill pediatric patients and triaging them to the tertiary care hospital, the pediatric specialty centers and then other less severe perhaps the walking wounded might be able to be seen at a community or non-pediatric hospital. The other thing when I talk about retrograde distribution is once we're in the recovery phase and the child has been appropriately treated at the tertiary care hospital. It may be for other reasons they may need to be retrograde transferred to a hospital or rehab facility

nearest their home so they can be near their family and reunited or for further care.

With healthcare staff we see also there may be some disbursement of healthcare staff such that we may need a pediatrician to leave the pediatric hospital and come help out at another, say, community hospital. So one of the goals may be some sort of reverse credentialing. If, for example, we have a surge of orthopedic injuries. Such as amputees as in Haiti we may need an adult orthopedic surgeon to help out and help with the urgent, Medicare of those children. The goal of all this is to preserve the pediatric tertiary care capacity so that there may be a reverse triage of stable pediatric patients to other hospitals with adapted or modified units and staff so we can decompress these tertiary care facilities. So surge capacity in a disaster and we all know that nowadays hospitals tend to be overwhelmed and overcrowded and that crowding is a major issue. But this is even increased multi-fold in a true disaster. So that surge capacity, we must think about or address at types of hospitals, both the pediatric and general hospitals so that we can allow these non-pediatric facilities to adopt and help out with surge capacities for pediatric patients. I want to point out that there is also, in talking about family-centered care, there are certain needs of special healthcare patients or special patient populations that we need to consider with unique issues. Some of these are children and infants. Some of them are older adults. We think about those who are, for instance, wheelchair bound or unable to ambulate. What do they do in a disaster? How do we get them to the shelters where we need? Think about the technology-dependent patients who are on oxygen or a ventilator and in disasters it's not unusual for the emergency departments to be overwhelmed by people who do not have say an acute illness or injury but ran out of their oxygen and now are

in the emergency department because they don't have tanks of oxygen at home or because they are on a ventilator and they have no electricity. So part of our pre-planning is how can we offload these patients so they don't end up in the emergency departments? So with those special patient populations I think we need to recognize the obviously the pediatric patients, the infants, the young children who may lack language ability and ability to communicate and what happens if they're separated from their parents or caregiver? This is probably similar to the elderly who may have some cognitive deficits such as Alzheimer's or others with medical conditions such that they may not be able to communicate such as the strokes. I mentioned the special healthcare needs patients and technology dependent. There are those who may have another language and not be able to speak the language of the caregiver. And what with about those with psychiatric and mental health issues? These are things we need to think about in all stages of the disaster. Another thing with disasters is sometimes we need to think outside the box and there may be non-traditional areas for treatment in the care of patients. Example might be schools which may provide shelter but also you might be able to set up a clinic to triage and treat patients in that school. We certainly know in post Hurricane Katrina some clinics and walk-in areas and offices were placed in trailers. So that sometimes it may be that we need other alternative sites than the traditional hospital to treat these patients.

Next slide, please. Barriers. I'm going to talk about barriers to healthcare providers becoming involved in disaster management and one of the things we have said and I know with the NCCD and Dr. Anderson is that we are looking to have more

involvement from the healthcare providers. So some problems that are encountered is credentialing. How can we have that pediatrician go to the general emergency department or general hospital and vice versa, how can we have that orthopedic surgeon help out at a Children's Hospital? Liability. We know if we stop at an accident there is a good Samaritan law and we know for the public health officials in the military there is some sort of waiver that is something that we should consider for those healthcare providers, be they physicians, nurses, respiratory therapists or whatever so they can feel free to help out in a disaster. We need some sort of immediate, meaning right away, reciprocal Internet-based cross credentialing of these healthcare personnel so they'll be available rapidly, immediately to treat pediatric and other types of patients and families. And again, as I mentioned, we need to allow pediatric practitioners to practice in general hospitals and vice versa and as mentioned by the last speaker, agreements for reimbursement for medical care in a disaster. We know that many hospitals say in Texas, for example, that took some of the Hurricane Katrina patients had a huge debt and trouble paying for all the services needed for the people who were transferred.

Next slide. So how can we improve pediatric disaster care? First of all we need to have more training for healthcare professionals and EMS. We need to expand the regional catches of pediatric equipment and supplies to expedite timely availability. We need to include pediatric patients in disaster drills. It should be mentioned that few disasters are purely pediatric so we want to have drills that include all ages, families, special healthcare needs patients and individuals and then all inclusive disaster plan. Even in

a school where one would think would be almost exclusively children, there are teachers and principals and aides that also are involved and may be there also, if not injured, able to help out in caring for these children and providing support.

Next slide. Improving pediatric disaster care. Now, this will probably relate more to the recovery phase of disasters where we need to reunify families. The children with their parents and we need some sort of mechanism for secure, integrated, nationwide traffic and reunification of unaccompanied minors, infants, children using some sort of biometrics. How do we identify these children who have been separated from their parents? We know it was probably a minimum of six months before some children after Hurricane Katrina were reunited with their families. This tracking needs to be across states and jurisdictions. Those who are in shelters caring for children need to be credentialed. We need to make it safe for children and that we had to be careful that people with a criminal background or child predators are not allowed or involved or near these shelters. There needs to be limited access to any data. We need to maintain some privacy in HIPAA regulations on these children but it should not allow for or interrupt the process of reunification. And so that the data should be to those who need to know but not to those who don't.

Next slide. Other things that we need to look at for improving pediatric disaster care are transport systems, special healthcare needs individuals that I mentioned, those with psycho social issues and what if they had mental health issues or behavioral issues beforehand? This is worsened after a disaster. Those who are healthy may

develop anxiety, depression, and we need to deal with those mental health issues. What are the recovery needs for the evacuation centers? How can schools that are impacted by a disaster, how do we -- what do we do with them and try to take care of the students and the faculty at those schools and schools can be used as a resource for sheltering or setting up clinics if not -- also public education. Families should have stockpiles of their medicines. Should have access to oxygen and supply tanks and equipment and if they don't, there needs to be a plan for getting them to the appropriate shelters that can give them those resources. I mentioned government, regulatory issues such as credentialing and liability.

Next slide, please. To summarize--

DAN KAVANAUGH: This is Dan. I'll ask the audience review your summary slides in order so that we'll have time also for the next -- we're running into the clock issue.

SHARON MACE: Okay.

DAN KAVANAUGH: Also for Q and A.

SHARON MACE: There are only two left.

DAN KAVANAUGH: Right. I'll ask participants to review the summary slides and if I could have Lori Upton from Texas Children's Hospital please come on now.

LORI UPTON: Thank you. This is Lori Upton. I don't want to belabor a lot of the same information that we've already discussed earlier but I would like to give some information on some of the local initiatives that Dr. Upperman alluded to earlier. Some of the local planning initiatives that are taking place in other areas throughout the nation.

Next slide, please. And this is my title page. I am the assistant director for emergency management for Texas Children's Hospital. I hold a masters degree in emergency and disaster management as well as a certification in emergency management from the International Association of emergency managers.

Next slide, please. We've already talked about 25 to 26% of the population are children with 20 million of them under the age of six according to the latest census reports. We've been working as emergency managers under the assumption for years that parents and caregivers would provide the care that was necessary, provide the safe evacuation routes and provide the sheltering that was going to be needed for children in the event of a disaster. What we've found out during in our area, at least, during evacuations, during unplanned events, children may not always be near their families. And so there does need to be a way that we can help plan for these and to help renew these folks after the event. In the past most of our current planning initiatives were always adult focused with many of our best practices brought forth from the military.

Next slide, please. Very briefly I won't go into each of these but we have had quite a long extensive history of pediatric-focused events that have left quite a few children dead. The latest in 2004 was the Breslan school attack and 156 children left dead. So I think it's important that we take a look at when we start doing preparedness and planning and mitigation we take a look at changing our assumptions that children are not going to be the secondary victims but could be an intentional target. Looking at the schools, daycare facilities. Getting them involved in the risk assessments throughout the community and region so they're eligible for some of the Federal grant funding that's coming available to harden some of these facilities so our children are safe when they're in the schools.

Next please. When we talk about surge capacity in our area, we don't mean how many more beds you can give. Are they the appropriate beds and spaces? If I'm going to move pediatric children to a general hospital, do you have five cribs? Do you have 15 cribs and the ability to get more? I don't want to put children into a facility that are not going to be able to be properly cared for. Is there a safe area designated either at your facility or the receiving facility for receiving perhaps or siblings. Perhaps they're -- the parent is the one that's injured or the parent is the one involved in the incident and the children aren't. So is there a safe place that has the appropriately-trained individuals to care for these children away from the initial reception in your emergency department. Do you have access to pediatric equipment supplies and personnel? If they don't have them on site do they have an appropriate vendor or a member of understanding with an outside facility in order to obtain this equipment, supplies and personnel? All of our

hospitals in our region, which is 120 hospitals in our region, have signed MOU's with each other to support each other in a disaster with equipment, supplies or personnel. Talking about the security. Is there a system in place to keep the families together? We've talked about that. We learned a huge lesson from Hurricane Katrina. We took in 250,000 evacuees from the State of Louisiana. Many of them came in through flights with unaccompanied minors. Very early on our VA liaison came to the Children's Hospital and said we don't know a whole lot about triaging pediatric patients. We would like to partner with your hospital and send out a team to help triage kids. We are now partners with our VA liaison for my reception to help do the triage for our children coming in on incoming flights. Do we have a way to track patients? That's what we learned in Hurricane Katrina. We would never again, if we could help it, keep a child separated from his parent. We've thrown out a statewide tracking system that gives a unique identifier. Links up a child to an adult similar to the way we're linking pets to the owners. It also is a controlled database that only has certain individuals allowed into it and the information can go statewide so we can find these children, has the ability to take a picture to that unique identifier as well.

Next slide, please. Staffing, we talked about staffing. Ensuring that our staff is also available for child life psychologists and social worker. These professional many times are left out. In response there are certain challenges that are very unique to pediatrics. I'll go into the main one I want to go into is the shelter management.

Next slide, please. Decontamination is your water temperatures. The best we can get is greater than 98 degrees, less than 110 degrees Fahrenheit but how do we plan to carry our children safely through a shower or do we carry them? Do we put them on a roller? What about if they are in a wheelchair? How do we actually move kids through? I think it goes back to the point made earlier when we do disaster plans and drills we need to include pediatric patients as well.

Next slide, please. Some other considerations are the fear of the PPE. When we've got healthcare personnel dressed out in level C suits with hoods it's a scary sight if the kids have never seen it. I think it would behoove us to take some lessons from our firefighters in the past where they went out to the schools and showed the kids what they look like in full turn-out gear in the case of a fire in their home so that the kids knew not to hide from these firemen. They knew what they looked like and sounded like. We hold a bridge event every year. Our Decon. Team signs autographs for kids and taking pictures with kids so our kids know what a Decon. person looks like and know they aren't the person that will be frightening to them. We need to address the cognitive abilities of the kids going through as well as age-appropriate responses.

Next slide, please. Transportation is a huge issue in the State of Texas we have finally gotten pediatric and neonatal transport services included in the state mutual aid agreement and can be activated from a state disaster declaration and covered under state reimbursement. Our issue still is in receiving locations there aren't enough pediatric facilities in the State of Texas to accommodate the large facilities being

evacuated. This goes to reaching across state lines in order to find that coordinating entity to find all of the available pediatric and neonatal beds in the nation.

Next slide. Shelter management. Most of us that do shelter management the first thing we purchase are cots. Cots are not the appropriate bedding for a child. If you look at the cot at the top of the picture you have so many injury and choking hazards associated with the cot but we don't buy cribs for shelters. Appropriate bedding should be a huge issue in those individuals and those agencies that are responsible for shelter management. The next one is nutrition. I'm not sure how many of us really know a lot of kids that will eat a lot of the shelter foods or the MRE foods. What do we do with children who have food allergies or infants on formula or rice cereal or breastfeeding babies? There aren't facilities in our shelters to store and secure breast milk. As well as maintaining the family unit and the privacy, security issues that Dr. Mace talked about earlier with potentially sexual predators or offenders walking throughout the shelters. Inclusion of our pediatric medical team. We're working now with the state and with our local Red Cross in developing pediatric medical response teams that would help support the medical aspects. We learned this lesson from Chapter Advocate -- from Hurricane Katrina. We learned we do need the pediatric medical support down there any time there is sheltering of a lot of children.

Next slide, please. Our goal will be recovery with reunification, mental health challenges and return to normalcy.

Next slide, please. Not to beleaguer this point but tracking parents with their children. Transporting and treating them together. Not only do general hospitals need to be able to treat pediatric patients but pediatric hospitals will need to treat adult patients. The central database to help relocate these folks together.

Next slide, please. Mental health challenges are a huge issue. Goes across all age spectrums. We know that young children's reactions are influenced by the parents' reaction. Bringing in the mental health professionals early. Being able to identify some of the inappropriate behaviors for that age group whether it's regression from a smaller child, withdrawal or suicide thoughts in the older child. We need to be able to identify these early and provide counseling for these.

Next slide, please. Then the ultimate goal is to return to normalcy. Return to where we were. They probably will never get pack to where they were. A return to normalcy. Finding an appropriate house. Reuniting the friends and families and ultimately getting back to school. Bringing their pets back into their family and getting back to their normal routines and regular activities. One of the joyous days in the shelter is when the yellow school buses pull up to take the kids to school for the first time after the disaster. It gives them a sense of purpose. It gives the parents the time to get what they need done following the disaster in order to get out of the shelter situation and into a normal life.

Next slide, please. We've already talked about some of the special needs children and with these types of disorders and diseases the shelter management is going to be even greater. Our goal in our region and state is not to put homebound special needs people, whether adults or pediatrics, into a hospital. Hospitals bear the brunt of it. They don't get reimbursement for any of the care they provided. Our goal is to provide special needs shelter with appropriate safe medical components to oversee the population in that shelter.

Next slide, please. Some of the current local initiatives that I've talked about. We have a pediatric disaster coalition which addresses the transport issues and our medical response teams. This covers our HHS six region, Texas, Arkansas, Louisiana and new next -- New Mexico. We have surge capacity and decontamination recommendations. We've included transport services in the state's mutual aid agreement and mission deployment. We have CACHES of pharmaceuticals in weight-based doses to cover the children of our healthcare workers and the Emergency Nurses Association has included in their rewrite of the emergency nurses pediatric course an entire chapter on pediatric disasters.

Next slide, please. The remaining challenges I think we've all talked about this. Still getting the training out there. Identifying who those special needs individuals are in our pediatric population. Developing our sheltering plans for families and technology-dependent children and identifying and having a common database of what pediatric transportation and capabilities are out there in the nation. Most of us in the nation have

been reporting systems that report locally, regionally or to the state but no way of reporting to -- I can't in Texas report to Arkansas and say electronically here is how many beds I have. So we need to be able to do some interstate bed report sharing as well. Then again the specialty teams, decontamination facilities. I appreciate your time this afternoon and like to turn this presentation over to Dr. Chung at this time. Thank you.

SARITA CHUNG: Thanks, Lori . Next slide, which should be my title slide. So I would also like to thank the sponsor of the webcast. I would like to thank all those listening in this webcast. There have been great ideas shared. I'm delighted to spend the next few minutes discussing the disaster preparedness within the American academy of pediatrics. There have been numerous natural disaster that show the results of inadequate disaster planning for children. As pediatricians we're in a position to address the specific needs of children and provide recommendations for caring for children during these times. The AAP has had a long history of advocating for the needs of children in all disasters. All phases of disaster planning. Starting with the task force on bioterrorism post 911 and pediatric disaster preparedness was declared a health priority and the advisory council was formed in 2007. Members of the -- they are disciplines from infections disease, emergency medicine and behavioral medicine and meet with the liaisons of Federal government to address the needs of children specific to those departments. Equally important there are many more members of the AAP who supported and insisted D pack more its mission. The overarching goals are as follows. Address disaster planning response rescue and recovery. Reflect an all

hazard approach. Prepare for all potential disasters, build systems at the medical home, community, state, regional and national levels through partnerships with public health and other systems and really not duplicate efforts but integrate its efforts with existing internal and external approaches.

Next slide, please. These are just the following of many activities and accomplishments of the DPAC. It's important to note in the AAP vision of the vision of 20/20 one of the trends they're focusing on is the impact of the disaster, natural, environmental and manmade. I'd like to highlight two recent activities that we've been involved with.

Next slide, please. Dan has talked about H1N1 and sometimes it's hard to remember that H1N1 actually just emerged a year ago today. But as Dan has pointed out we as pediatricians especially in the ambulatory setting recognized it as a pediatric pandemic. The CDC has been phenomenal and we were able to work closely with the CDC to examine evidence and recommend applicable changes to those guidelines, prepared documents to enhance communication and plans for a primary care office. Also Dr. David shown field spearheaded guidelines for children at risk in developing complications from H1N1.

Next slide, please. Develop an evaluation and treatment algorithm with children with influenza-like illness. It was helpful for providers with limited pediatric experience.

Next slide, please. Another recent activity is the disaster relief efforts in Haiti. With the help of Mike Anderson and NACHRI the AAP has been working to ensure a coordinated pediatric response working with the Haitian pediatric society assisting in long term recovery and getting a volunteer list of pediatricians. We're honored moving forward the former D PACC chair will help to address the needs of the children in Haiti.

Next slide, please. Information, educational resources and more can be found at the AAP children's and disaster website which the website link is on your slides. Currently with permission from the publisher for a limited time AAP members have access to the clinical pediatric emergency medicine journal's recent journal of disaster preparedness. For those interested in getting involved, there are many ways to get involved. This is a slide to give you some examples. As well as being involved with your AAP chapter.

Next slide, please. The AAP hosts a listserv for those interested in pediatric disaster preparedness and email is on the slide, disaster ready. In summary as you can see from the webcast I think there what be great strides in pediatric disaster preparedness but we still have a long way to go and more work to do at all levels including the national, state and local levels. Thank you. Now I would like to turn it over to Dan Kavanaugh for the question and answer session.

DAN KAVANAUGH: I would like to thank Dr. Chung and all our presenters for the great information that was presented today. I would like to encourage those that are listening to this webcast live if they would also share this information with your colleagues who

may not have been able to have seen it live or listen to it live. It will be available archived in a few weeks at mchcom.com, the same website you're on now. Please encourage your colleagues who couldn't be on this webcast to go to that site. As we are about 15 minutes over our time here, in lieu of the question and answer session, what I am going to do is I will be sending some of the questions that have been received to the presenters who will then be able to answer them and those questions will then be added to the hand-outs in a few weeks that are on the page so there were some good questions that did come in. And I will again put the answers to those together with the assistance of the presenters and we'll have that as an additional hand-out on the webcast site so again I would like to thank all our speakers for the wonderful job and the wonderful information that they provided and for those who are participated, I would ask you to again please take a few minutes to fill out the evaluation that will come up at the end of this webcast. Thank you very much. This concludes the webcast.