

**National Healthcare Preparedness Programs
Pediatric Preparedness for Healthcare Coalitions
Teleconference & Webinar Summary**

June 19, 2014

I. Welcome & Overview

— Dr. Cynthia Hansen, Senior Advisor, NHPP (Cynthia.hansen@hhs.gov)

Dr. Hansen welcomed participants on behalf of Dr. Nicole Lurie, Assistant Secretary for Preparedness and Response, Mr. Don Boyce, Deputy Assistant Secretary and Director of the Office of Emergency Management and Ms. Jennifer Hannah, Acting Director of the National Healthcare Preparedness Programs to the second *Pediatric Preparedness for Healthcare Coalitions (HCC)* webinar, hosted by the Assistant Secretary for Preparedness and Response (ASPR) National Healthcare Preparedness Programs (NHPP). Dr. Cynthia Hansen is the Senior Advisor to the NHPP Division Director and a clinical child psychologist with decades of experience in public and private sectors as well as disaster response.

As Dr. Marcozzi said at the conclusion of last year's webinar on pediatric preparedness, we are committed to strengthening pediatric preparedness in all of the capabilities for disaster preparedness and response. This call is a follow up to last year's call and builds on that foundation. We are starting exactly where we left off and have focused our speakers and topics on the issues that were raised by the audience in last year's call. You will hear about updates, resources, products underway, and lessons learned from real world events. To access the information and resources covered in last year's call, go to www.phe.gov/ABC for a webinar replay and other materials.

Our partners throughout HHS, the federal family, and state, local, tribal, jurisdictional healthcare coalitions are working together for these two goals:

1. That all healthcare coalitions include members with pediatric expertise and that all healthcare capabilities incorporate pediatrics.
2. That all hospitals have pediatrics included and exercised in their disaster plan.

As laid out in the HPP-PHEP FY2014 Continuation Guidance: Joint Requirements, a key joint requirement is to develop preparedness and response strategies that address the access and functional needs of at-risk individuals and at-risk groups, including children. Awardees are required to do specific tasks related to ensuring that structures or processes are in place to meet the needs of children and other at-risk individuals. One way to do that is to engage with the Health Resources and Services Administration's (HRSA) Emergency Medical Services for Children (EMSC) program managers. Because EMSC works on the daily delivery of medical services to children and disaster preparedness builds on the daily delivery of care, it is an obvious partnership. More information about grant requirements can be found at <http://www.grants.gov/view-opportunity.html?oppId=252658>.

This session picks up where the Pediatric Preparedness webinar from June 2013 left off. The 2013 webinar replay and other resources can be found at <http://www.phe.gov/Preparedness/planning/hpp/>. Questions posed during last year's session will be answered by our speakers in this call.

We would like to thank today's speakers for their great work and generosity in preparing for this webinar and for sharing a wealth of information and resources.

II. Federal Policy & Efforts to Address the Needs of Children in Disasters

- Daniel Dodgen, Ph.D., Director, Division for At-Risk Individuals, Behavioral Health, and Community Resilience (ABC), HHS/ASPR/Office of Policy and Planning (Daniel.Dodgen@hhs.gov)
- Cheryl A. Levine, Ph.D., Team Lead for At-Risk Individuals, ABC, HHS/ASPR/Office of Policy and Planning (Cheryl.Levine@hhs.gov)

Dr. Daniel Dodgen

Others will present the great work being done through coalitions and at the state and local level. This portion will provide an overview of the legislation that drives the guidance that Dr. Hansen mentioned and available pediatric preparedness resources.

Dr. Cheryl Levine

ASPR's authorizing legislation, the Pandemic and All Hazards Preparedness Act of 2006 (PAHPA) requires that ASPR provide special attention to children and other at-risk individuals with access and functional needs during disasters or public health emergencies.

In 2013, ASPR's legislation was reauthorized. The Pandemic and All Hazard Preparedness Reauthorization Act includes the establishment of a new National Advisory Committee on Children in Disasters (NACCD). Members of the NACCD will include representation from state, local, territorial, or tribal agencies with experience in pediatric preparedness planning, response and recovery activities. Although members of the NACCD have been selected, the official announcement is forthcoming, pending leadership review and approval.

Dr. Daniel Dodgen

ABC released a report (<http://www.phe.gov/Preparedness/planning/abc/Documents/2011-children-disasters.pdf>) a couple of years ago that summarized all the work that HHS has been doing for children up to 2011. The report for 2012–2013 is in the final review and comment process. It is a lengthy report at 75 pages due to the amazing work being done. Notification will go out as soon as this report is through clearance and posted. Although some tools and resources will be described in this presentation, there are many more in the report that will be useful at the state and local level, both in terms of internal planning tools as well as potential partners that can help with this work and multiply resources.

All of the resources posted following the June 2013 webinar are still available at <http://www.phe.gov/Preparedness/planning/abc/Pages/webinar-resources-130620.aspx>. This includes

information on how to identify local Academy of Pediatrics and Administration for Children and Families contacts and provides contact information for EMSC grantees, HRSA Emergency Medical Services for Children, etc.

There are two recent documents that may also be useful in your planning activities:

- Post-Disaster Reunification of Children: A Nationwide Approach (<http://www.fema.gov/es/media-library/assets/documents/85559>): This is the new national approach for post-disaster reunification of children that was recently released by FEMA.
- ACF Children and Youth Task Force in Disasters Model (http://www.acf.hhs.gov/sites/default/files/ohsepr/childrens_task_force_development_web.pdf): This is an HHS tool that describes how to set up a task force following a disaster to address the needs of children in your community.

CDC tools include:

- Caring for Children in a Disaster (www.emergency.cdc.gov/children)
- Coordinating Pediatric Medical Care During an Influenza Pandemic Hospital Workbook (http://www.cdc.gov/phpr/healthcare/documents/hospital_workbook.pdf)

PEDPrepared (<http://resources.emscnrc.org/pedprepared/>) from the HRSA EMSC program is a good resource for community members and clinicians as well as for healthcare planners. The Resource Guide for Disaster Medicine and Public Health (<http://disasterlit.nlm.nih.gov/>) from the National Library of Medicine provides much good information. There is also a page of disaster-related apps that can be accessed through this site, such as the mental health and behavioral health app from the Substance Abuse and Mental Health Services Administration (SAMHSA). These apps provide everything from local service providers to tool kits and questionnaires, etc.

It is important to remember that a lot of the children in our communities have additional special needs over and above being children. A recent webinar on preparedness tips for family caregivers (<http://www.phe.gov/Preparedness/planning/abc/Pages/caregiver-webinar.aspx>) provides additional information on this population which includes parents of children with special medical needs.

These are some of the many helpful resources available that we hope listeners will find useful. EMSC is also creating a checklist for pediatric domains related to hospital preparedness that can be used to strengthen or build pediatric capacities at hospitals. The checklist is expected to be completed by the end of 2014.

III. Superstorm Sandy Lessons Learned

- Michael D. Maramba Espiritu, MD, Assistant Professor of Pediatrics, NYU School of Medicine, Attending Neonatologist, NYU Langone Medical Center & Bellevue Hospital Center (Michael.Espiritu@nyumc.org)
- Michael Frogel, MD, FAAP, Co-Principal Investigator (PI), New York City Pediatric Disaster Coalition (mikefrogel@gmail.com)

Dr. Michael Frogel

Thank you to all who support pediatric preparedness in the New York City metro area, including my co-Principal Investigator, George Foltin, Dr. Arthur Cooper, and the New York City Department of Health with leadership by Marisa Raphael, Jenna Mandel-Ricci and the people we work with closely including Wanda Medina, Katherine Uraneck, Emily Raisch and Nora Caplan. There is a cast of thousands in the Pediatric Disaster Coalition who have all worked together to form an effective coalition.

Superstorm Sandy hit on October 29, 2012, making landfall in New Jersey and devastating the entire upper East Coast. Although it was no longer a hurricane when it hit New Jersey, there were substantial winds and, most damaging, extensive flooding.

Images show the massive destruction. The first house and second house in every block near the beach were absolutely demolished. It resembled a warzone with houses destroyed by water and others that caught fire as a result of hundreds of transformer fires. Luckily, hero firemen and other people helped save many, many individuals. Twenty-three thousand people sought shelter and 8.5 million customers lost power for very long periods of time, often two or three months and sometimes even longer. There was \$50 billion in damage, 97 people died in New York and only because of the fire department and EMS did we not have more casualties. Rescuers did an amazing job using boats and other vehicles to save people. There were 88 shelters opened, including eight for special medical patients manned by the Medical Reserve Corps, who did an absolutely fantastic job.

Children are not simply small adults. They are different in hypothermia and very many other anatomical and physiological issues. Kids also cannot possibly understand at their age what is going on. Kids have very significant psychological impacts from disasters. They often are dependent on their parents and will reflect their parent's mental status. We need to look at how the parent is doing psychologically and make sure we are prepared for psychological first aid and all the other outcomes that may develop in kids.

Dr. Michael Espiritu will now discuss the evacuation at NYU Medical Center of the neonatal unit.

Dr. Michael Espiritu

This section will focus on the experience inside the New York University (NYU) Neonatal Intensive Care Unit (NICU) during Superstorm Sandy and the ensuing blackout and evacuation of the unit. This

picture of one of our babies being put into an ambulance captures the amount of teamwork and coordination that was involved in taking care of our patients during this disaster and the good outcome of the evacuation with all 21 of our patients surviving.

The NYU NICU was affected by a power outage due to flooding at around 8:00 PM on October 29, 2012. The NICU lost light and electrical equipment, but also other systems that were necessary for continued clinical care, such as electronic health records, incubators, monitoring equipment, ventilators, medication lockboxes (which are electronically controlled), telephones, and even unit access, as entry is controlled by electronically secured doors and the elevators leading to the ninth floor unit were inoperable.

The first challenge was establishing a clear command structure within the NICU. It had been decided beforehand that the person in-charge in any sort of emergency would be the senior medical clinician onsite. That night, the senior medical clinician happened to be the division chief, who had a direct line to the hospital incident command center that coordinated everything that was happening on a local level.

Continuing medical care was the next challenge. It was fortunate that this happened around the change of shifts so there was twice the complement of nurses and other ancillary staff who could continue scheduled feedings and medication administration and who could also ensure thermoregulation of our premature babies. NICU staff also had to cover the labor and delivery service, including one delivery that was done by flashlight.

The command center used walkie-talkies to establish communication within the hospital and personal cell phones to call units outside of the hospital to find alternate beds for the 21 babies in the NICU that night. Staff utilized a resource directory of the various NICUs in the region that the disaster coalition had put together the year before.

Transferring key medical information without electronic medical records was another challenge. Residents used their notes from the day, creating handwritten patient summaries to go with each patient. Residents also talked to doctors at different hospitals via cell phone, giving them essential sign out and arranging the transportation not only from NYU to other hospitals, but also from the ninth floor to the ground floor.

Determining how best to get the babies in isolettes to the ground floor without elevators was a challenge. The hospital had large Med Sleds, but did not have the individual infant inserts at the time. It was determined the best way was to hand carry the infants which would ensure proper motion stability, thermoregulation and safety of equipment like endotracheal tubes and IVs. Each baby was carried by a nurse from the ninth floor to the ground level, step-by-step in flashlight-lit stairwells, accompanied by

anywhere from two to six other people, depending on the amount of equipment, monitoring and IVs that were necessary.

It took approximately five to ten minutes to go from the ninth floor to the ground floor where ambulances were waiting. Because there were no transport isolettes, infants were held by nurses that were secured to gurneys. Patients were tracked at the exit points from the unit and from the ground floor.

One of the lessons that we learned from this experience is that there are several big rate-limiting steps in an evacuation like this. One is arranging the transportation which, thankfully, was taken over at the hospital level and the regional level. On the local level in the unit, the biggest challenge was finding available beds, calling each hospital and working through the varied procedures for accepting patients. In some cases, the on-call neonatologist said, “Sure, I’ll take these patients.” In other cases, they would tell us that our command center had to talk to their command center. It was a laborious process, as there was no central clearing house of beds.

Planning for a power failure and knowing what other hazards might affect your hospital is important. Having backups, not only in terms of equipment and power, but also contact lists for parents, is essential. Using checklists is very helpful in this regard. Make sure there is adequate staffing and a clear command structure and communication coordination, not only within the hospital but outside of the hospital to provide coordination among regional agencies. Also flexibility will be essential for success.

Dr. Michael Frogel

Dr. Espiritu described the experience of an individual NICU at one hospital, but the entire city’s medical infrastructure was devastated by the storm. The Pediatric Disaster Coalition responded by getting its members together – the hospital, the disaster medicine experts, physicians, nurses, governmental agencies, Office of Emergency Management, fire, the Department of Health, and community groups. The coalition provided a forum for people to discuss what to do acutely and start to collect the lessons learned for the future.

The New York City (NYC) Pediatric Disaster Coalition (PDC) presented on its activities during this disaster at a key conference with all the major players, including Dr. Marcozzi from the federal level, the Commissioner of Health, etc. The conference materials are available on the PDC website at www.pediatricdisastercoalition.org.

The PDC also produced a report of the lessons learned including:

- Bi-directional Communication (Hospitals, agencies, community) – Communication has to go both ways. The NICU needs to be able to communicate to the hospitals and to the citywide agencies that they need ambulances to transport patients. The hospitals need to communicate with their clinical people in the field to be able to help mobilize them. Some places are recommending getting Ham Radios for every hospital. Within the hospital it may be necessary to use runners between the incident and command centers if nothing else is working.
- Information Sharing/Situational Awareness – This is key so you know what is coming in order to prepare for it.
- Pre-disaster Risk Assessment – This looks at the infrastructure – where the generators are, where the fuel source is, etc. – and plans for a future storm or other eventuality.
- Electrical Failure Planning (backup systems, equipment, personnel, individual light sources) – Backup systems are key and there needs to be battery backup systems. In a NICU, suction units and ventilators are required and these need to be prepositioned and preplanned.
- Paper (patient records, plans, action sheets, resource manuals, phone numbers) – It is important to have paper records. Patient records, action sheets, manuals, resources, parent’s phone numbers, etc. all should be available on paper.
- Coordinating Aid (pre-plan receiving sites, utilize evacuation personnel at receiving hospital, transport vehicles/EMS) – This is essential between the site that is transferring the children and the accepting site. It may be possible to utilize the receiving hospital’s personnel in arranging appropriate transport.
- Transportation (access for providers, fuel, pediatric-specific ambulance) – Individuals need to have fuel in their cars at all times. NYC has pediatric-specific ambulances with available expertise, which is recommended, if possible. NYC has two major centers that provide pediatric-specific transport for neonates and PICU patients. Resources like this should be included in the response.
- Mental Health Issues (psychological first aid, triage, assessment and referral) – Mental health issues are paramount. Thankfully, there were few medical casualties during this storm, but psychologically, there were thousands and thousands of people. Everyone involved needs to know about psychological first aid and how to triage the kids who need further help.
- Sharing Resources (hospital, governmental, community health care, CBO’s, MRC) – Of course, we all need to share resources between all the different agencies, including the community-based organizations, who did an amazing job and were willing to take care of the population before the federal and citywide resources arrived.

It is evident that a true event is more than a drill. During the incident, you do the best you can, but, most importantly, you learn for the next time and try to rework your plan as you would during a drill. The lessons learned can then be put them into an operationalized plan for the future.

The NYC PDC has developed a Neonatal Planning Committee to enhance our neonatal planning. The lessons learned through the Superstorm Sandy response have been included and were utilized during a pediatric neonatal exercise at Maimonides Hospital, which is a very large center with 7,000 deliveries annually. We believe it is important to do this nationwide. The NYC PDC is also developing a plan for obstetrics for women in labor and newborn babies along the same guidelines as our neonatal planning. Details on these activities and other items presented can be found at www.pediatricdisastercoalition.org. You can also email us for further information at info@pediatricdisastercoalition.org.

IV. Putting the Pieces Together on Pediatric Response Planning

- Kevin M. McCulley, Healthcare Preparedness Program Manager, Bureau of EMS and Preparedness, Utah Department of Health (kmcculley@utah.gov)

As with many other states, Utah has some pretty strong pieces in place for pediatric preparedness, but is still in the process of putting all those pieces together. This discussion will focus on the state-level Department of Health perspective, including how to incorporate pediatric concerns into the overall management of the HPP program and how to start to leverage our regional coalitions to address some specific pediatric concerns.

Utah has two state-level priority threats: earthquake and pandemic. Approximately 80 percent of Utah's population is in close proximity to the Wasatch Fault area, which runs from north of Salt Lake to south of Salt Lake just to the east. Thirty-three percent of Utah's population is age 18 or under as compared to the United States overall pediatric population, which is about 25 percent. That equates to almost 950,000 kids age 18 or under. There are approximately 314,000 kids within Salt Lake County alone, with some Salt Lake County zip codes being up to 44.5 percent children. It is also significant that 58 percent of Utah schools were built before 1975, which is when seismic regulations were introduced into building codes in Utah. It was determined through a rapid survey/rapid visual screening that over a third of schools have a 10 to 100 percent chance of collapse in a large earthquake. So Utah recognizes several significant vulnerabilities.

Two events in the southeast corner of the state where there is limited healthcare capacity on a day-to-day basis highlighted some of these vulnerabilities. One occurred at a school in Montezuma Creek when 43 children were sickened. Fortunately, only three required hospitalization, but this occurred 350 miles from the pediatric trauma center in Salt Lake City.

The second was a ski bus crash in Mexican Hat that resulted in nine fatalities and over 40 people that were thrown out of the bus into the snow. The mix of adults and children were distributed to 13 medical

facilities in the four corners states. Again, this was over 350 miles from the pediatric trauma center and air transport was not possible due to weather conditions.

Utah has limited pediatric surge capacity in the state. There are two children's hospitals in Utah, both of which are in Salt Lake County:

- Shriners's Hospital for Children – 45 beds with a focus on orthopedics, burn, and spinal injuries
- Primary Children's – 289 licensed beds, Level 1 trauma center for children and all major services are offered

Primary Children's catchment area includes all or part of seven states in the Mountain West region.

Even with surge beds for these two facilities, there are only about 400 children's hospital beds for over a million kids. Including pediatric beds in the general hospitals in the state brings the total to about 900 beds for a million kids which is about one hospital bed per 1100 children. This makes the limit to the surge capacity quite evident.

To combat this concern, Utah has put in place pediatric EMS Strike Teams. These are based on the Disaster Medical Assistance Team (DMAT) model utilizing three teams of 9 to 12 individuals – including pediatric trained physicians, nurses, EMTs, paramedics, respiratory therapists – that can be activated as state employees if deployed. Utah has also prepositioned Strike Team trailers, which are stocked to care for up to 100 pediatric patients. They provide equipment for basic and advanced life support, splinting, suturing, and other minor to moderate care. The trailers are prepositioned around the state with a goal of being no more than three hours from any scene.

Strike Teams can augment hospital staff in caring for children, provide on-scene support during an event involving pediatric patients, and assist with any burn surge events that might take place. All of the Strike Team members receive a great deal of training in order to be eligible to be on the team including ABLS, BDLS, ADLS, and PALS courses along with frequent participation in activation drills and in functional and full scale exercises.

Utah continues to work on a crisis standards of care plan, but has recognized that the general plan may not be as effective for special or unique populations, such as pediatrics. During the H1N1 outbreak, a team developed hospital and ICU triage guidelines for pediatrics as a result of a pandemic. Those guidelines are being used in the development of the pediatric annex to the base crisis standards of care plan. The needs are extremely different for children and we have also seen through the EMS for Children Pediatric Readiness survey conducted last year that there are certainly gaps that remain in general hospitals in terms of their ability to provide care for kids.

The pediatric annex rollout will be based on a burn surge crisis standards of care plan that was completed in 2014. It was a very successful model that has a lot of similarities to the pediatric challenges, including limited capacity and a multi-state range. The activities for this burn surge plan and for the pediatrics annex will be planning, equipping, training, and exercising addressed at the hospital and healthcare facility level with EMS partners.

Utah is very thankful that CDC and the ORISE Institute selected Primary Children's Hospital for a pediatric medical surge workshop that will be held in July 2014. The goal of this workshop is to advance planning between pediatric and general healthcare systems to address the delivery of healthcare in a pediatric surge event. The intent is to develop tools to inform other community plans, inform policy organizations, drive additional work with partner agencies on pediatric medical surge, and begin engagement with surrounding states on regional coordination. The hope is also to increase the engagement of medical providers and other sectors, such as schools, in surge planning. There is an opportunity to start putting the pieces together for a coordinated response model to address the needs of kids in the state and in the Intermountain West.

Utah has seven regional medical surge coalitions. The regions focus on various tasks required to implement the HPP Capabilities each year. Each grant year, each region chooses a special population on which to focus. Several of the regions have chosen children as the focus of their planning, training, equipping and exercising this year. The regions have an opportunity to collaborate with their local child service agencies and to identify gaps and needs that might be unique to their region.

Requirements for the care of pediatric populations is included in each of the regional response plans and communication is a principle component to ensure that entities that provide care to pediatric populations can understand and be a part of a coordinated response. A tabletop exercise focused on evacuation and sheltering was conducted in the Salt Lake Summit Tooele Region with a school for children with disabilities. This exercise identified critical gaps to be met, not only with the healthcare facilities, but also between the coordination of healthcare, EMS and fire.

Please contact Mr. McCulley via email at kmcculley@utah.gov if you have questions or would like any of the materials developed.

V. Los Angeles County Pediatric Surge Plan

- Millicent Wilson, MD, Disaster Training Specialist, Pediatric Surge, Program Manager, Disaster Healthcare (DHV) Volunteer Medical Adviser, Emergency Medical Services Agency, Los Angeles County EMS Agency (milwilson@dhs.lacounty.gov)

- Bridget M. Berg, MPH, FACHE, Administrative Manager, Pediatric Disaster Resource and Training Center, Trauma Surge Coordinator, Trauma Program, Children’s Hospital Los Angeles (BBerg@chla.usc.edu)

Dr. Millicent Wilson

The Los Angeles County Pediatric Surge Plan was developed to address how we would handle an event that disproportionately impacts children. Three key areas essential to this plan were:

- Use of existing systems and structure to develop a plan that would double pediatric inpatient capacity
- Engaging of partners in the development and vetting of the plan
- Development of tools and resources that may be applicable and useful to areas or facilities

The first cases of H1N1 were seen in March 2009. Early on in the pandemic, cases of flu were being seen in young children with the first confirmed case in a 10-year-old boy from San Diego County. Cases of this novel flu were later confirmed as H1N1 in a 9-year-old girl and a 4-year-old boy from Mexico. The H1N1 pandemic disproportionately impacted children. A review from the CDC showed that children age 0 to 4 years old were hospitalized at a rate of 4.5 times that of the adult population aged 25 to 49. There was a lot of discussion regarding surge at that time, particularly related to the shortage of ventilators and the capacity at our children’s hospitals. Following that pandemic, Kay Fruhwirth director, and Dr. Jeffery Upperman, Trauma Medical Director, from Children’s Hospital in Los Angeles were reviewing the H1N1 situation and quickly recognized the need to address situations where children were disproportionately impacted. This review, in addition to the CDC funded task force for pediatric emergency mass critical care, was the impetus for this plan.

Los Angeles County is a vast geographic area of approximately 4,000 square miles. The 88 cities and 140 unincorporated areas that comprise the county vary in population density, but overall there are approximately 10 million people. Similar to the United States, the proportion of children within LA County is about 2.8 million or roughly 25 percent of our total population.

Hospital resources in LA are centralized in the metropolitan areas of our county. Thirty-one percent of the pediatric beds are located in the metropolitan service planning areas, although the county has larger numbers of children in the eastern and northern areas. Los Angeles County is serviced by 107 acute care hospitals. Currently, 82 of these hospitals participate in the HPP program. To leverage existing resources, we relied upon all of our Hospital Preparedness Program partners, the existing trauma system, which includes 13 trauma centers, and the emergency departments approved for pediatrics (EDAP).

The Disaster Resource Center (DRC) program was developed to assist our healthcare community to work together regionally on emergency preparedness and response. Thirteen of our hospitals are designated as DRCs working within ten geographic regions located throughout the county. Each DRC

region is assigned eight to ten umbrella hospitals that they work with in planning, training, exercises, and facilitating a regional disaster plan.

One of the key elements in operationalizing this Pediatric Surge Plan is the coordination by the Medical Alert Center (MAC) at the Los Angeles County EMS Agency. The MAC would be responsible for directing pre-hospital providers to different tier-one or tier-two hospitals as well as coordinating secondary transfers should this plan be activated. On a daily basis, the MAC serves as a sort of mission control or communications hub to coordinate the transfer of patients from private hospitals to county hospitals and to track bed availability and the diversion status of 911 receiving hospitals 24 hours a day. This communication nexus is the linchpin that allows the system to work every day and is especially needed to facilitate regional communication in a potential disaster.

Ms. Bridget Berg

LA County began this project with three goals:

- To determine the pediatric capabilities and capacities within the county
- To double the pediatric inpatient bed capacity
- To use a tiered system approach to support this plan and also support hospitals by providing supplies and associated training

The process began with an assessment of pediatric capacity and capabilities including a 38-question survey focused on pediatrics capacity, staffing, training, equipment, supplies, and existing pediatric surge provision. The survey was sent to the HPP participating hospitals and there was a 94 percent response rate. Information on licensed and staffed bed capacity available throughout the state was also collected. This data was used to create a tiered system that would leverage our existing resources.

A key element to this plan development was the engagement of our emergency managers and clinical representatives from the hospitals. There were three focus groups which were used to solicit input on the training and supplies that each tier would need to support a surge of children and to also solicit feedback on the creation of the tiered system.

The strategy of the tiered plan is to send the youngest, most critically injured or critically ill patients to our Tier 1 and Tier 2 hospitals. The plan then allows for decompressing those hospitals so that they can accommodate that influx.

The six tiers are:

- Tier 1 – Providers that offer full pediatric services including pediatric intensive care, pediatric acute care and neonatal intensive care
- Tier 2 – Adult trauma centers that normally care for critically injured children

- Tier 3 – Providers that offer pediatric inpatient care, most having emergency departments approved for pediatrics
- Tier 4 – Hospitals that have emergency departments approved for pediatrics but may not provide pediatric inpatient care
- Tier 5 – Hospitals that do not provide inpatient pediatric care and do not have emergency departments approved for pediatrics
- Tier 6 – Providers that either do not have emergency departments or are specialty hospitals, for example, a cancer center.

The focus groups really discussed the link between age and the types of patients that could be seen in each of these tiers and elected to use the age of eight years old as a distinguishing age for hospitals that do not normally provide care to children. In the plan, children over eight years of age who are stable, such as a nine-year-old with an isolated fracture, would be sent to a Tier 4 or Tier 5 hospital. This plan would be activated by the Medical Alert Center which would be involved in the primary and secondary transfers of these patients between tiers.

The Pediatric Surge Plan was approved following presentation at our countywide Pediatric Advisory Committee and Medical Advisory Group meeting. Following approval, the Los Angeles County EMS Agency sent commitment letters to the chief executive officers of the hospitals describing the plan and their role in supporting this pediatric surge. These commitment letters were separate from their Hospital Preparedness Program contract.

To support the implementation, among those hospitals that do not provide care for children we provided equipment and supplies including Broselow carts and C-spine collars and we developed a training and medical refresher course and a pediatric surge quick reference guide, which is a quad-fold that highlights the clinical values for children. The training itself included an overview of the plan, a section on safety and security of children and a medically focused-course on the key differences in caring for children. The courses were taught by hospitalists or surgery fellows from Children’s Hospital Los Angeles. Six training sessions were conducted with 326 staff members participating. This training was also provided to hospitals in a DVD format that will soon be available online. Because the activation of this plan necessitates a waiver on the destination policy currently in place, it is essential to train EMS providers. Continued support of the frontline clinicians and emergency managers will be necessary to make this plan functional. Over the next year, hospitals will develop facility-specific surge plans that align with this overall system-wide plan.

The plan is currently being evaluated. A tabletop exercise and a functional exercise will be conducted in June 2015 to test the plan. It will assess the hospital capability to accept the surge of children, testing the medical alert center in terms of being able to distribute patients and evaluating the reunification and

safety of children in this overall countywide plan. This information will be used to update the surge plan based upon the after action report.

There are many resources available on the LA County website (<http://ems.dhs.lacounty.gov/>) and the Children's Hospital website (www.CHLA.org/DisasterCenter), including links to the full Pediatric Surge Plan, the Pediatric Surge Quick Reference Guide, and other tools.

Three important elements that are critical in developing a plan like this are:

- Understanding existing systems and resources
- Engagement – The partnership between the local EMS Agency and hospitals is essential to developing this plan. Call upon primary providers for children to partner with your medical and health coordinator or your local EMS Agency in developing something specific
- Utilize available resources

Thank you on behalf of the Los Angeles County EMS Agency, Dr. Wilson, Roel Amara, Kathleen Stevenson, our Emergency Manager, and Trauma Medical Director, Dr. Jeffrey Upperman.

VI. Pediatric Lessons Learned: Alaska Shield/Hale Borealis 2014 National Capstone Exercise

- Merry Carlson, Chief, Section of Emergency Programs, Division of Public Health, Department of Health and Social Services (merry.carlson@alaska.gov)
- Andy Jones, Program Manager, Health Emergency Response Operations, Division of Public Health, Department of Health and Social Services (andy.jones@alaska.gov)

Ms. Merry Carlson

Alaska Shield 2014 was Alaska's National Capstone Exercise. It was an exercise so large that it involved thousands of people from over 600 agencies. The health and medical component of the exercise was known as Hale Borealis, or "Healthy North," to distinguish it from all the other Capstone activities.

The scenario was a catastrophic 9.20 earthquake, like the one experienced in 1964, that would require Alaska to respond with its own resources while waiting the 72- to 96-hours for federal support to arrive. The primary abilities assessed were hospital decompression (specifically the ability to stand up the Alaska Medical Station), in-state patient movement under state control, and out-of-state patient movement. This was a huge effort that involved eight hospitals, four healthcare coalitions, multiple federal partners, including United States Transportation Command (USTRANSCOM) and HHS, both of which have critical roles in patient transport. It also involved non-governmental organizations, such as Samaritan's Purse. The Alaska health Emergency Operations Center (EOC), the Department of Health and Social Services, Alaska RESPOND (Alaska's Emergency System for Advance Registration of

Healthcare Professionals (ESAR-VHP) capability), and many citizen volunteers participated in this exercise.

The everyday challenges encountered due to the vast size of Alaska and the limited areas accessible by road will be greatly multiplied in a disaster. Any shortages of staff, staff, space and information would be worsened by a disrupted infrastructure. The already limited medical air and ground transportation would be even more compromised. Having only one Level 2 facility, with the remainder being Level 4 facilities, and the nearest Level 1 facility being in Seattle limits options for patient allocation. This exercise focused on finding the balance between holding patients in-state and moving them out-of-state.

The Alaska Medical station is the first federal medical station that was transferred to a state. The medical station provides the capability to hold low acuity patients whose needs fall somewhere between hospitalization and a congregate shelter. It became evident that Alaska's pediatric capability was determined by a combination of staff, training, equipment and supplies and that significant effort would be required to match skills to volunteer assignments. The staffing plan included using the Alaska-1 DMAT team, Alaska RESPOND Licensed Healthcare Professionals and other resources.

During the exercise, some children arrived with families while others were unescorted so arrangements had to be made for non-medical volunteers to attend children who did not require medical treatment. By providing medical staff with two to four non-medical assistants to act as scribes or runners, the capacity of the medical teams was multiplied, allowing medical personnel to focus on patient care. Alaska's pharmaceutical supply largely mirrors the federal cache, with increased doses of pediatric medications to reflect the slightly higher pediatric population than the U.S. average. This proved to be a good strategy.

It was helpful that the exercise took place over two days because it allowed participants to reset at the end of the first day and incorporate lessons learned into the second day. The medical station was operated for a seven-hour period over two days, processing 356 patients for triage and treatment.

The medical station provided low acuity care and a field hospital operated by Samaritan's Purse, an international disaster relief agency, was located adjacent to the medical station to provide higher acuity care. This was helpful, but required some adjustments to address patient flow. Teams learned a lot from these international partners about working in austere conditions and crisis standards of care. The knowledge gained through this collaboration will be used to finalize the Alaska models. One great success was the ability to immediately license the medical teams through Alaska Disaster RESPOND as allowed by statute in a disaster situation.

Mr. Andy Jones

Alaska has limited capabilities and is geographically displaced 1,500 miles as the crow flies to the nearest Level 1 trauma care facility. In the past, there has been local patient movement that shifts directly to federal patient movement. A state patient movement process has been developed over the past two years and its capability was tested during the Alaska Shield exercise.

An Aeromedical Coordination Group has been established that follows the federal model with tweaks to fit Alaska. It is made up of flight surgeons, validating flight surgeons, trauma nurses, dispatchers, local air medical providers and hospitals. When a list of patients is received, they are prioritized as to whether they should go to in-state or out-of-state facilities. This relationship bridges the gap between private and federal activities. One of the unconventional methods employed was taking a C-130 aircraft and outfitting it with hospital equipment.

Out-of-state patient movement is not an easy process. Federal partnerships bring added capabilities, but also increased complexities, requirements and limitations. Up to 245 patients were moved in two days. It was helpful that Alaska had built its own state process, as states understand their own unique needs and capabilities better than a federal agency can. If you build a systematic, streamlined state process in collaboration with healthcare facilities, the federal agencies will most likely support it.

Understanding the NDMS federal system is critical so that a lack of knowledge does not limit your movement. It is also essential to understand

- Federal concepts of operations (HHS, TRANSCOM, etc.) and what they can do
- Your in-state capabilities and gaps

Flexibility is also essential. During the exercise, 245 patients were moved with two ambulances, an AmbuBus, and a VA bus.

Alaska has also had some actual events involving vulnerable populations, especially children. Last year there were big floods in a rural community and there were two foster children who could not be located right away. To remedy this, Alaska has worked with the Office of Children's Services and the Attorney General's Office to develop a process whereby the EOC receives information on vulnerable population children around the state when there is even a small likelihood an event is going to occur. For example, during recent wide-spread fires, foster families were tracked and decisions were made in advance as to how to proceed should an evacuation be ordered.

Ms. Merry Carlson

Alaska is also working with its tribal health consortiums and coalitions to further develop pediatric capabilities. Additionally, all funding streams are being modified so that they prioritize pediatric care and a regulation is in process that requires pediatric training for EMS providers.

More information and resources can be found at <http://dhss.alaska.gov/dph/Emergency/Pages/default.aspx>.

VII. Questions & Closing Comments

Dr. Cynthia Hansen

All of today's speakers are very passionate about sharing their expertise and their resources, so please e-mail or call them for additional information. There are even more ideas and resources than we could squeeze into our allotted time today. We plan to have another call next year and to highlight activities currently in development. A replay of this webinar will be posted at <http://www.phe.gov/Preparedness/planning/hpp/meetings/>. Please email me at Cynthia.hansen@hhs.gov with any comments, questions, suggestions or promising practices.

- Q: (for NYC) Where at the state level does the neonatal committee live? Is there a certain department such as a maternal/child services?
 - A: (*Dr. Michael Frogel*) The New York City Disaster Coalition is centric to New York City. Our neonatal committee is a New York City Committee, but there is state-level leadership and participation. The statewide neonatal committee is responsible for setting the different levels of the neonatal units and ensuring that the needs match the resources that are available in the city and in the state.

- Q: (*Dr. Daniel Dodgen*) As a child psychologist, anytime I have been in a NICU or a PICU or just a regular ED, there are always a lot of parents and adult figures around whenever you have a child. How do you plan for accommodating the needs of parents that are so often accompanying children? How are parents included in planning?
 - A1: (*Dr. Michael Frogel*) George Foltin did a lot of work on the need for a family information center to be setup immediately if there is a major disaster involving children. That would be a place where the parents would be able to go to for appropriate care and communication. There would be social workers and a medical team because the adults could get sick as well. Parents can be screened and then be reunited with their children.

A concern highlighted in recent drills is the kids who come in alone. It is very important to have a babysitter function because you cannot send a two-year old in a crib to CT scan and then just leave them there. This function was lacking in almost every drill.

If possible, taking digital photos of all the victims can be very helpful for reunification. Images can be posted on a hospital website or a statewide system could be developed.

The other main point is security. You need to control your hospital and your situation. You need to have one entry point. You need to be able to triage patients, parents, the press, and the walking well and security needs to be there, otherwise it creates havoc in these situations.

Many of the PDC members have also been involved in an initiative with a grant from AmeriCares to set up a pediatric disaster mental health initiative. We feel very strongly that first responders and anyone dealing with kids or adults needs to know psychological first aid and needs to be able to triage patients who are just having normal acute stress reactions or reactions that are perfectly okay versus those who need further psychological support. We also believe that the entire infrastructure needs to be able to respond to psychological issues as well as medical and environmental needs. This was evident during Sandy where certain populations had very severe problems for weeks and months afterward.

- A2: (*Andy Jones*) For the Alaska Medical Station, there were actually more pediatric patients than adults. And one of our lessons learned was we did not have enough staff and we were outnumbered. When there are a lot of pediatric patients, it really increases your staffing needs just to manage the situation.

The other thing we do at the state level is to rely on our other sections and agencies. We have developed Strike Teams or task forces that have behavioral health specialists and children's services teams that can be deployed anywhere.

- A3: (*Merry Carlson*) Some of the best practices in Cordova were that they stood up a family information center simultaneously with their staff recall. They also had the capability to provide daycare for their staff in addition to the resources for survivors and their families.
- Q: Do you use live "victims" in your exercises?
 - A1: (*Bridget Berg*) Los Angeles is currently discussing this topic, as it does take a tremendous number of resources to manage children and ensure their safety and security. During our functional exercise we expect to use live "victims," however, due to liability

concerns related with movement, the children will be at the hospital sites instead of convening at a central location and then being transported to the hospitals.

- A2: (*Andy Jones*) Alaska used live pediatric “victims” throughout the event in many areas and it really tested our capabilities. It is a more effective test than having adults act as pediatric patients. We conducted a massive outreach campaign to get pediatric volunteers. We reached out to the Girl Scouts and established a contractor-managed website where people could sign up to volunteer. In the case of the Girl Scouts, there may be 30 girls arriving with one troop leader. Many members of the Office of Children’s Services staff who were not working brought their kids to participate.
- A3: (*Dr. Michael Frogel*) New York had success in obtaining pediatric participants by reaching out to local schools. It is also helpful to have some pediatric patient actors. To further push the envelope on testing the capabilities of caring for a really sick kid from the ED through PICU placement, we have used a simulation mannequin with a real scenario. Using a mixture of real kids, actors and simulators is the ideal scenario.
- Q: California has a pediatric disaster resiliency workgroup that is helping state and coalition leadership facilitate dialogue and share resources. How can we access additional resources to help in this effort?
 - A1: (*Dr. Daniel Dodgen*) There is a lot of good pediatric information on the www.phe.gov/ABC website.
 - A2: (*Dr. Michael Frogel*) New York would be happy to share any of our expertise with any committees or groups about neonatal and women and infants obstetrical planning. We are starting to do drills and already have in place templates and guidelines for hospitals that are being installed in all the units in the city.
- Q: What parameters or guidelines did LA County use to find out what type of patient is appropriate for each tier in your system?
 - A: (*Bridget Berg*) We really used the focus groups to provide input into what types of patients could be seen where. The age of eight was selected as the threshold because everybody came to consensus around Pediatric Advance Life Support (PALS) guidelines. At age eight, children are starting to become more similar to an adult and we wanted to ensure that hospitals were receiving patients they are used to caring for.

Dr. Hansen thanked the speakers for their presentations and informed the group of the following upcoming NHPP webinars:

- July 17, 2014 – Healthcare Systems Recovery
- September 18, 2014 – Coalitions in Response
- November 20, 2014 –Rural Healthcare Coalitions and Preparedness (part 2)

- January 15, 2015 – Linking the National Disaster Medical System with the Hospital Preparedness Program

VIII. Post Call Responses To Questions

There was not sufficient time to answer all questions received through the webinar chat function during the call. Additional questions received and responses from the speakers are provided in this section.

- Q: What have the States done to prepare or develop Disaster Behavioral Response Teams?
 - A: (*Kevin McCulley*) The Utah Division of Substance Abuse and Behavioral Health received a small grant through the HPP. With these funds, they conduct a yearly crisis counselor certification course. They also enroll licensed counselors in a group through our ESAR VHP function. Finally, an offshoot of this group has developed an independent Coalition, the Utah Disaster Mental Health Coalition, with whom we have not fully engaged but plan to this year.
- Q: Are we able to attend that workshop at Primary Children's?
 - A: (*Kevin McCulley*) Per the CDC/ORISE it is an invite only event. We can include a cross sector of Utah – including general hospitals, legal, schools, childcare, LEO, EMS etc. – and it is limited to 60 participants. There will be proceedings and a report produced as a template for other states to use.
- Q: How are you exactly going to test the (LA County) plan in Phase 3? Are you actually mobilizing and moving patients or in a discussion based format?
 - A: (*Bridget Berg*) We will conduct a tabletop exercise about one month prior to a functional exercise. The tabletop will include pre-hospital representatives, the LAC EMS Agency Medical Alert Center (MAC), and select hospitals. Each hospital will be requested to recruit their child volunteers locally for the functional exercise.
- Q: Have any of you included use of Medical Reserve Corps volunteers (or other types of volunteers) in your planning to strengthen medical surge capacity or other pediatric response capabilities? I am particularly interested in the use of MRC volunteers at hospitals.
 - A1: (*Kevin McCulley*) Absolutely! We offer each MRC Unit in Utah a chance to indicate if they are interested in medical response, public health response, or both. Nine of thirteen MRC Units indicated that they are interested in the medical response piece. We insist that MRC Units (funded through HPP) and Regional Medical Surge Coalitions work together and have leveraged MRC Units in hospital exercises. Finally, Primary Children's Hospital hosted an MRC Day at their facility and provided an opportunity for the Salt Lake City MRC to understand the facility, its pediatric patients, and the basics of care for peds.
 - A2: (*Dr. Michael Frogel*) In NYC the Pediatric Disaster Coalition has a very close relationship with the MRC. The MRC volunteers have participated in numerous pediatric full scale exercises and drills as moulage victims. They have included lectures from the PDC on pediatric-specific topics during their MRC seminars to enhance their knowledge and response to pediatric disasters. The MRC has been actively involved with the PDC in planning for a virtual reality Pediatric Intensive Care Response Team (PIRT) that will be utilized to assist the Fire Department EMS system in triaging and prioritizing critically ill

patients for secondary transport. It is proposed that the PIRT members who are hospital based will be activated as members of the MRC during a citywide disaster. We greatly appreciate their dedication to pediatric disaster preparedness.

- Q: Now that regional coalitions are coming into focus, how is the multidisciplinary coordination being operationalized when bigger cities such as NYC or LAC work with neighboring counties which have much more limited capacity and capability?
 - A1: (*Kevin McCulley*) We have a similar (yet much smaller) situation in Utah. The SST (Salt Lake, Summit, Tooele) Region includes our largest county (Salt Lake) and two very small counties. We have found some challenges in engaging the providers in these smaller counties (at least through attendance at Regional meetings), so we have encouraged the Regional Coordinator to conduct outreach visits to healthcare entities in the small counties, to both share planning and receive gap analysis information. We also strongly encourage the LHD Emergency Response Coordinator (funded through PHEP) to represent their counties in the Regional meetings and take information back to partners.
 - A2: (*Bridget Berg*) LAC, as in all California counties, operates under the Standardized Emergency Management System. Resource coordination between counties will be done through the Regional Disaster Medical and Health Coordination Program.
- Q: During Hurricane Sandy, how did you triage/manage/place patients that presented to a pediatric ED for minor/no complaints or stable patients with chronic diagnoses in order to appropriately manage/utilize limited resources available during that critical period?
 - A: (*Dr. Michael Frogel*) During Super Storm Sandy in New York City there were a small number of unfortunate pediatric deaths due to drowning caused by being swept away in the storm surge. Due to the courageous work of first responders there were not, however, significant numbers of pediatric patients requiring acute ED medical care secondary to the storm. Therefore, there was no need to implement surge plans. If implemented there would be pre-designated areas for critical patients as well as secondary areas for non-critical patients and the walking wounded. Triage would be established at a central area by well-trained experienced triage officers. A family center for mental health related problems staffed by both medical and psychological/social work services is also recommended for victims and families.

There was a need to provide pediatric care for routine Pediatric ED patients in unaffected Pediatric EDs adjacent to closed Pediatric EDs affected by the storm. This did cause an increased volume of patients to deal with for prolonged periods.

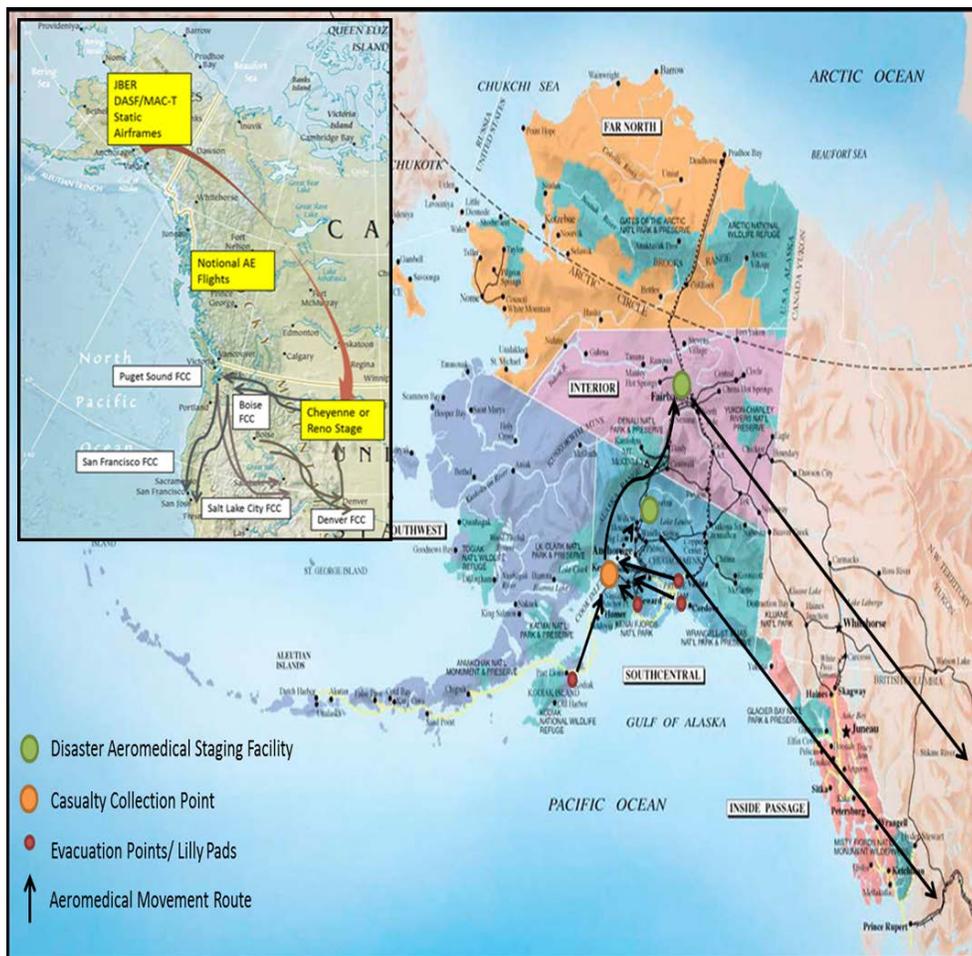
Many families were displaced from their homes and required public shelters. Other significant problems were reestablishing outpatient care in the affected areas, providing local shelter and reestablishing community access to electrical power, utilities and housing. There were also significant disruptions to day care facilities, schools etc. in the flood zones.

At least three hospitals with Pediatric Programs required evacuation. Some successfully evacuated before landfall, however, some PICU and NICU patients required evacuation during the storm and subsequent electrical failure. Miraculously all critical patients were

transferred without mortality or significant morbidity to other PICU's and NICU's that surged to accommodate them.

- Q: Alaska presenters -- how would you deal with the transportation of patients from the large area where roads are not available and weather could affect air transport to those areas?
 - A: (*Andy Jones*) The State of Alaska has develop multiple catastrophic task forces (Medical, Debris Management, Search and Rescue, Mass Care, etc.). These task forces are made up of private, local, state and federal experts that provide operational guidance and prioritization of missions. When weather and debris limits movement of patients there are multiple things that would happen:
 - Task forces would be activated and courses of actions would be developed and executed.
 - Medical movement is of the highest priority to local, state, and federal entities within the State of Alaska. During a catastrophic event the debris task force would work with the medical task force to prioritize secure routes for patient movement operations.
 - Rotorcraft assets (DOD) have the capability and capacity to fly in IFR (bad weather) conditions.
 - In remote coastal communities, one of the state's courses of actions is to have military naval LHS ship provide near medical support (stabilization and limited holding) until patients are able to be transported to a higher level of care.
 - In the event there is no way patients can be moved due to debris and weather, the healthcare facility will have to hold the patient until the weather clears and assets arrive.
 - In Alaska, when weather is below minimums to have civilian transport, either the 611th Air Force Rescue Coordination Center or the United States Coast Guard District Seventeen Rescue Coordination Center may provide patient movement support. These partnerships have been in place for many years which builds a capability that is extremely valuable when a disaster strikes.

This image depicts the course of action developed for patient movement.



- Q: Is your Burn Surge plan available to download?
 - A1: (Kevin McCulley) The Utah Burn Surge Plan, training materials, and video training segments are available through a password protected website hosted by the University of Utah (where the Utah Burn Center is housed). If anyone wants access, simply request it through <https://crisisstandardsofcare.utah.edu/>.
 - A2: (Bridget Berg) The LA County Burn Surge Plan is available at <http://ems.dhs.lacounty.gov/policies/Ref1100/Ref1100.htm>. It is a tiered model system. The Burn Manual is available at <http://ems.dhs.lacounty.gov/Disaster/Disaster.htm>.
- Q: The Peds "strike teams" you are speaking about: are those set up as a "Medical Mission Ready Package"? Would they ever be deployed outside of the state? WA state is considering setting up such team as well and it would be good to collaborate.
 - A: (Kevin McCulley) We are actually working out the details for making them EMAC compliant, but have not gotten there yet. We would consider using them for out-of-state deployment, likely by enrolling in EASR-VHP. The limiting factor at this time for MRP typing is that our Strike Teams do not have transportation assets (vehicle purchases are prohibited by HPP), so we must rely on Strike Team member vehicles to tow the trailers to a scene or facility.

- Q: Have your respective states adopted crisis standards of care? If so, were you able to integrate your activities with those standards or at least make them consistent?
 - A: (*Kevin McCulley*) From Utah we are developing the core elements of the CSC plan, but do not expect acceptance/adoption of the full plan until 2016. We have completed the base clinical plan for CSC, but have a long way to go for full adoption and completion. The Pediatric Surge plan and Burn Surge Plan will be annexes to the base CSC plan when complete, likely 2016. There is a password protected website hosted by the University of Utah (<https://crisisstandardsofcare.utah.edu/>) that has templates, videos, and the plan components. You just need to register to request a password. We are going to base the pediatric CSC on the Burn Surge plan and the lessons learned from H1N1. Information is also available at <http://www.utahhospitals.org/education/disaster-preparedness.html> at the bottom of the page.

- Q: Does anyone know or use any existing facial recognition app or software, including use of wearable devices such as google glass for family reunification process during a disaster? San Diego County uses Finding Rover App for Animals but I'm not aware of similar app for humans that may be used during a disaster or surge.
 - A1: (*Andy Jones*) The State of Alaska is working with Arlington Fire Department and George Washington University to beta test an application call Fling. This is an iPad application that allows you to take a picture of an individual and input information that you send to a secure server. If you are out of cellular or wifi range it will put the information into an outbox and the information will be sent once you are in range. When the patient or individual gets to a point where their picture is taken, it pulls the information stored and sends it to the receiving iPad. This is a great tool for patient movement/ tracking. We also plan to use this tool in our medical shelter. The administrator is able to set up an account so they receive all the information. Weblink: <http://www.flingtrack.com/>