

# Pediatric Points of Preparedness

February 27, 2014

Tia Dalrymple RN BSN

# Objectives

- Pediatric vulnerabilities in disaster situations from a health care providers perspective
- Improving everyday care of the pediatric patient
- Accessing state resources
- The CHIRP program
-

# Disasters in Utah

- Landslides/Earthquakes
  - 2003 Idaho-Utah boarder 6.0
- Snow Storms
  - 2003 Salt Lake Valley, 4 ft of snow, 9ft in mountains
- Wildfires
  - Yearly
- Floods
  - St George/Hurricane areas
  - Flash Flood in Price swept away two children, one fatal
- Tornadoes
  - SLC 1999
    - 150 million in damage
  - Manti
    - damage d 1 block wide by 10 blocks long



# Children in US Disasters

- Oklahoma City Bombing
  - Six children dead, over 100 injured
- Columbine Shooting
  - 11 children dead, 24 injured
- Hurricane Katrina
  - 1,436 Dead, 500 still missing
  - Officially 4 child deaths
  - 1220 children on the missing persons list
  - >7000 in the Louisiana parish school district alone



# Vulnerabilities of Children to Disaster

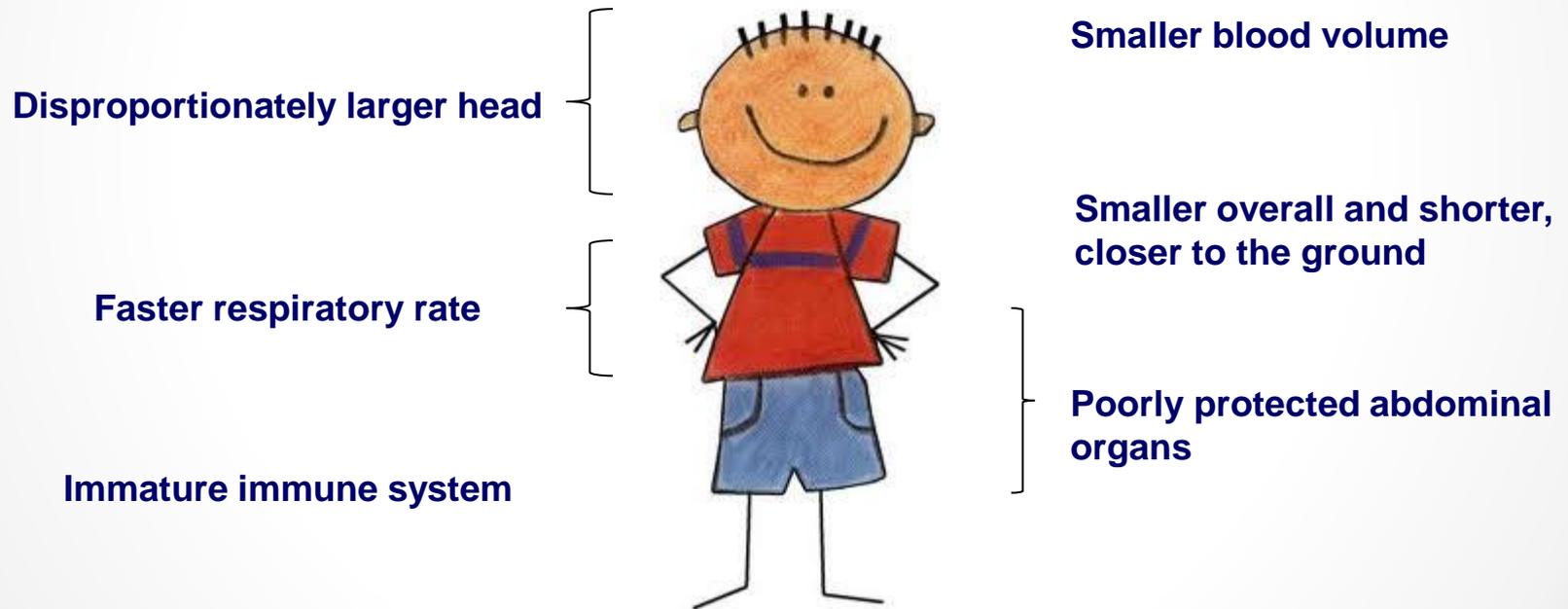
- Number or proportion of children likely to be involved and types and severity of injuries will be determined by...
  - Type of disaster
  - Season, time of day
  - Localized vs. widespread
  - Location within disaster site



There ARE more kids in Utah  
45% of the Utah's population is under the age of 18  
(2012 Census)

# Kids, not just little adults

## Perception differences



Larger body surface/mass area

# Children in Utah Disasters by Type



Wells, NV 2008 6.0 earthquake

- **Earthquake**

- Less likely to be able to position themselves safely
- More likely to be trapped in small spaces, less likely to be found
- Greater impact of force of falling objects given smaller mass

# Children in Utah Disasters by Type



Outside of Park City, Utah 2013

- **Fire**
  - Less likely to escape
    - May require someone to get them to safety
    - More likely to be trampled if running to safety
  - More vulnerable to burns and smoke inhalation
    - If on fire more likely to run than drop and roll
    - Young child increased risk of infection secondary to burns

# Children in Utah Disasters by Type



St. George, Utah 2010

- **Flood**
  - Greater risk for drowning
  - Curious around water
  - Less likely to know how to swim, tread, float
    - Less mass, strength, stamina to negotiate, get out or hold on to objects

# Children in Utah Disasters by Type



- **Environmental Hazards**

- Heat --> dehydration, shock

- Greater body surface area to mass, greater fluid loss
- Less fluid reserve, may be difficult to get children to drink

- Cold --> hypothermia

- Body surface area, larger head = greater heat loss

# Children in Utah Disasters by Type



- **Environmental Hazards**

- Decreased supervision, inability to recognize hazards, unsafe environment
  - Debris, downed power lines, dangerous roads, stray animals, poison plants, pollutants
  - Limited, contaminated food, water
  - Medications not safely away
  - Equipment, generators, power tools, fuels
- Disruption of environment, routine
  - Shelter, food, clothing
  - Medications, health care supplies, equipment not available
  - Unrecognized psychological trauma

# Disaster Planning

- The most important difference between disaster medical care and day-to-day medical care is the number of patients who must be assessed and managed

# Day to Day Response

*“Readiness for pediatric disaster medical care is best accomplished through readiness for pediatric day-to-day medical care”*

1. Medical oversight
2. Provider training
3. Proper equipment and medications, in all appropriate sizes and dosages
4. Practice
5. Performance improvement programs that address pediatric issues



# 1. Medical Oversight

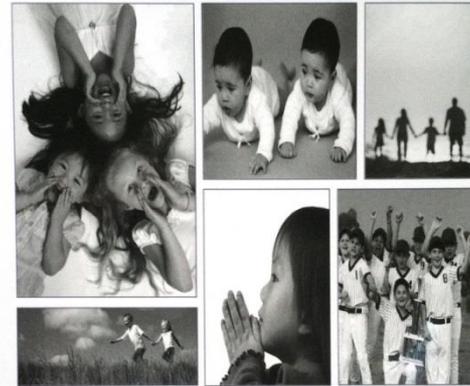
## PCH Volume/Referral Base

- The hospital serves the states of [Utah](#), [Idaho](#), [Wyoming](#), [Nevada](#), and [Montana](#) yielding an enormous geographic catchment area of approximately 400,000 square miles.

# Off-line Pediatric Protocols

- Incorporate Pediatric Protocols
  - [https://health.utah.gov/ems/emsc/pediatric\\_protocol\\_guidelines.pdf](https://health.utah.gov/ems/emsc/pediatric_protocol_guidelines.pdf)
  - Google : Utah EMSC
  - Utah Telehealth Network (UTN)
    - Training videos and CME offerings

## Utah Pediatric Off-Line Medical Direction Protocol Guidelines



Version 1.0 — March 2009



Utah Emergency Medical Services for Children (EMSC) Program

Utah EMSC is a collaborative program between the Utah Department of Health  
Bureau of EMS and Primary Children's Medical Center

# Pediatric Strike Teams

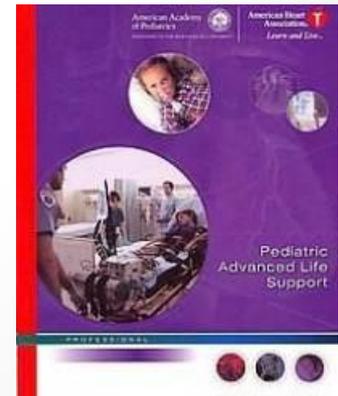
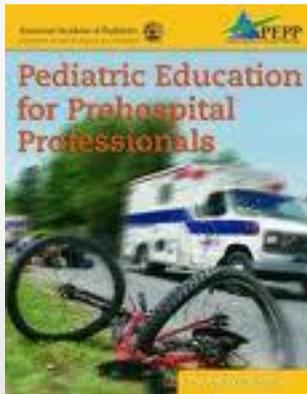
- Three Regions
- Four Teams with 9 members
  - State certified/licensed MDs, NPs, RN, Paramedics, EMT-IA, EMT-IS
- Three Pediatric Strike Team Equipment Trailers
  - Each has pediatric specific equipment to take care of 100 kids
- Requests for assistance go through the state Emergency Operation Center ESF-8 desk



# 2. Provider Training

*Education in the absence of exposure, leads to expertise*

- Pediatric Advanced Life Support (PALS)
- Pediatric Education for Prehospital Providers (PEPP)
- Broselow Training/Tourniquet Training
- CME Training

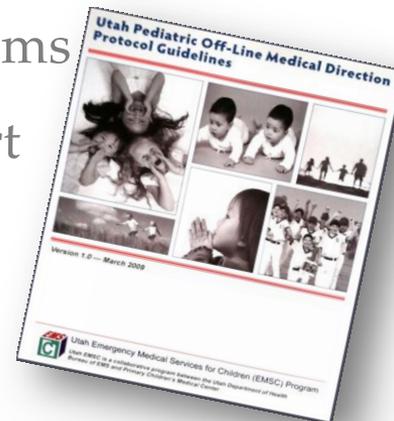
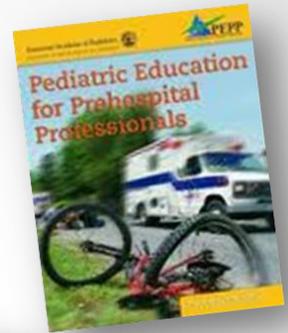




# EMSC

## Emergency Medical Services for Children

- ✓ Pre-hospital Provider Education
- ✓ Injury Prevention Programs
- ✓ Provision of Pediatric Equipment
- ✓ Statewide Needs Assessments
- ✓ CHIRP Program
- ✓ National Performance Measures
- ✓ Pediatric Strike Teams
- ✓ Conference Support



# Written for You

## EMSC Connects

Volume 2, Issue 2 February 2013

Emergency Medical Services for Children  
Utah Bureau of EMS and Preparedness

### A Word From Our Program Manager

Greetings and a special shout-out to our first three hospitals to complete the pediatric readiness survey!

**Way to go Mountain View Hospital, Sevier Valley Medical Center, and Uintah Basin Medical Center!**

I know the other 43 hospitals are probably in process of completing it as well and I'm happy to answer any questions that come up. Just email me at [wjohnson@utah.gov](mailto:wjohnson@utah.gov)

Aside from this pediatric survey, do you have a spiral bound flip book in your ambulance that has pediatric protocols for a number of pediatric emergency situations? Well,

these protocols are being updated, simplified, and combined with the adult protocols. We are now looking at the possibility of

protocols and how they would be most useful to you, by clicking below and answering the 5 multiple choice questions. There is also a box where you can type in any other opinions you have.

<https://docs.google.com/spreadsheet/viewform?form=true&formkey=dFNfZThQcmJqUjNNAzHhRjFPNkIBY2c6MQ>

I want the protocols to be useful to you, so I appreciate your feedback!

Thanks,  
Whitney



### Special points of interest:

- Child maltreatment
- Child abuse by burning
- Reporting suspicions

### Inside this issue:

Pediatric Points	2
The Doc Spot	2
From the Field	4
Expert Input	5
Peds Preparedness	6
Meet Our Coordinators	6
Calendar	7
A Parting Shot	8

Page 1

### EMSC Connects

#### Pediatric Points

##### The Ballypalle RN, BSN

When looking into the smiling face of a child, it's difficult to imagine that anyone would hurt these little ones. Tragically it is a reality in our world. In 2009, Child Protective Services confirmed more than 700,000 children were abused or neglected. These represent only a fraction of actual cases as most are not reported. Some studies estimate that 1 in 8 U.S. children experience some form of child maltreatment.\*

EMSC providers have an important role in protecting these innocent children. You have eyes on the scene, situation, and environment that other healthcare providers do not. I will always remember a case in the ER at Primary Children's Medical Center. The parents told us that a TV fell off a dresser onto their child. The story fit the severe head injury and we would have "bought it", if it were not for the EMS responder who reported to the doctor that he did not see a single dresser or bureau in the home. After an investigation, an arrest was made.

First responders, please be vigilant. Know how to identify the signs of abuse and always follow through with the proper reporting procedures.

\* Centers for Disease Control [www.cdc.gov](http://www.cdc.gov)



Child abuse is always the only cause the parent never has, much more well, than abuse well. (Unknown)

Child Abuse Cases Reported in Utah	2143
Total Pediatric Injuries	4,428
Shooting	67
Child Molester	22
Firearm Abuse	8
Page	7

\* Child Abuse Cases Reported in Utah



#### The Doc Spot

##### Bruce Herman MD, PCMC Emergency Department Attending Physician

### Child Maltreatment in the 21st Century

Child maltreatment or abuse is responsible for 2000 deaths per year and this is likely a huge underestimate since many cases are unreported. It is the leading cause of traumatic death in children <6 yrs. This is as many deaths as from all childhood cancers combined.

EM Responders should keep the possibility of child maltreatment in their mind on all pediatric calls.

Ask yourselves,

- Does the history provided by the caretaker adequately explain the injuries?
  - o Look for inconsistencies or changes in the history provided.
  - o Is the story vague?
  - o Are the physical findings inconsistent with the child's developmental age?
- Can the history be corroborated?
  - o Was there someone to the event?
  - o Does the environment validate the story?
- Is there any medical condition that may confuse the assessment?
  - o Osteogenesis imperfecta

#### Red Flag in Your Physical Findings

- Certain findings are pathognomonic (a sign that is so specific that it can be used to make a diagnosis).
  - o Human bite marks or retinal hemorrhages
- Multiple injuries of different ages.
  - o Old (yellow and new purple) bruises
  - o Old and new fractures



Mark: white = fracture fracture. Yellow: some = old bone injury with

# Current trends in peds Program Happenings

# Prevention Info Peds Protocols

Page 1

### EMSC Connects

#### The Doc Spot -Continued

### Red Flag in Your Physical Findings

- Peculiar injury locations
  - o Accidental bruises are usually anterior over bony prominences like knees or elbows.
    - o Bruises on shins and foreheads of a toddler learning to walk.
  - o Inflicted bruises often occur on "protected" areas.
    - o Ears, abdomen, back of the legs, buttocks or perineum
  - o "Those that don't bruise, don't bruise": children that are not crawling are unlikely to bruise themselves.
- Patterned/shaped injuries are always concerning, especially without a correlating history.

The skin is the most common site of injury so a full inspection is important. Injuries to the brain and abdomen are less likely, but they account for the majority of death and disability associated with maltreatment. Minor injuries precede major ones, early recognition saves lives. If you don't look for them, you won't find them.

#### Inflicted Traumatic Brain Injury (ITBI)

Formerly known as Shaken Baby Syndrome, ITBI is a leading cause of serious head injury in small children. There are 25-30 reported cases per 100,000 children every year. For every 1 reported case there may be 150 unreported. Usually the victim is very young, under the age of 1 yr. The median age is 4-6 months, but they can range from 1 month to >10 years.

- Physiologic factors predisposing infant to shaking injury
  - o Large heavy head
  - o Increased extracerebral spaces
  - o Loose attachments of meninges
  - o Weak neck muscles
  - o Thin pliable skull
- Presenting symptoms that may indicate a shaken baby
  - o Lethargy/decreased muscle tone
  - o Extreme irritability
  - o Decreased appetite, poor feeding or vomiting
  - o No smiling or vocalization
  - o Rigidity or posturing, seizures
  - o Difficulty breathing
  - o Head appears large or soft-spot bulging
  - o Inability of eyes to focus or track movement

Subdural Hemorrhage



Retinal Hemorrhage



Skeletal Injuries



Subarachnoid Hemorrhage



Pneumothorax



Skeletal Injuries



## March 2013

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1 ENPC, Delta UT EMSC workshop	2 Safe Kids For So Touame Elgo SEC
3	4 PEPP, West Jordan Pine	5 PALS recert MVH Poysom UT	6	7 PDR	8 EMS Recertifiers Conference St. George	9
10	11	12 PALS recert MVH, Poysom UT	13	14 PDR	15	16
17 	18	19	20 TRC	21 PDR	22 ATLS U of U	23
24	25 PEPP, Salt Lake go Springs	26	27	28 PDR	29 PEPP, Tooele	30
31						

Pediatric Grand Rounds (PGR) are education offerings webcast weekly (Sept-May) by Pediatric Education Services at Primary Children's Medical Center. They offer CME credit for watching live, Thursdays 0800-0900. Archived presentations are also available. Visit [www.primarychildrens.org/grandrounds](http://www.primarychildrens.org/grandrounds) for more information.

EMS Grand Rounds (TGR) Feb 21, at 0700 This offering alternates with Trauma Grand Rounds every other month, it is geared towards EMS. Mar 20th, Robert Hoesch, TBA, go to <http://healthcare.utah.edu/trauma> to watch live and earn CME.

#### Upcoming Peds. Classes, April 2013

For PALS and ENPC classes in MVH and Delta contact Kris Shields [DK.Shields@frontier.net](mailto:DK.Shields@frontier.net)  
April 4th 0900-1300 physician ACLS recert

For PEPP and PALS classes throughout the state contact Andy Ostler [Aostler@utah.gov](mailto:Aostler@utah.gov)  
April 8-9th, UVU PEPP  
April 12-13th, Fillmore PEPP  
April 15-16th, U of U PEPP

#### Save the Date

**April 27, 2013** Northern Utah Trauma Conference, Logan to register go to [loganregional.org/traumaconference](http://loganregional.org/traumaconference)

**April 22-23, 2013** EMS Leadership Conference, Moab UT

**June 13-15, 2013** Annual EMSC Coordinators Retreat , Bryce UT, Ruby's Inn

**July 1-3, 2013** The Western Pediatric Trauma Conference [www.Westemtpc.org](http://www.Westemtpc.org)



- It includes a calendar of peds education around the state
- It's free, it's digital, it's printable and it's archived on our website.  
<http://health.utah.gov/ems/emsc/>
- I'd also LOVE to have you submit articles and highlight your activities. Being "published" looks great on a resume. 😊

# EMSC Website and Twitter Site

- Check us out live  
...<http://health.utah.gov/ems/emsc/>
- Follow us on Twitter: EMSCUtah



# 3. Proper Equipment and Medications

- The Federal EMSC Program periodically revises a recommended pediatric equipment list for ambulances and hospitals, as do the American College of Surgeons and the American College of Emergency Physicians, who jointly produce a similar document at regular intervals
- Have it, know how to use it



# 4. Practice

- Evaluate and educate on daily pediatric cases
  - M&M
  - Staff training
- Drills
  - Tabletop exercises
  - Disaster drills
  - Functional exercises
  - Field exercises

# 5. Performance Improvement

*"Plans are nothing. Planning is everything."*

- Planning is a constant
  - Recruit Help
    - Child health professionals expert in both physical and psychological trauma, peers, parents, religious leaders, and civic leaders.
- Review and revise
  - Keep it current, realistic, sensible, and flexible
  - Most importantly make it easy to remember and easy to implement

# Children with Complex Health Histories

- First and foremost is knowing who and where they are

## Introducing...

Children's Health Information Red Pack

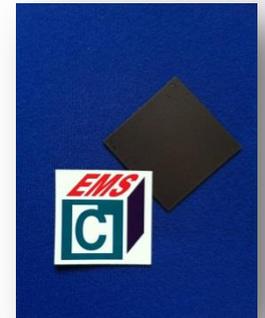
CHIRP



# Case Study



You get a call, an infant with mental status changes. You arrive to the home and see this baby, she seems lethargic and appears dusky. The only other person in the home is an older woman and she speaks only Spanish.



You look around the room and notice the baby's diaper bag and attached an EMSC Red Pack!

You know that means that inside should be a vial with this baby's current medical information. You may see a sticker or a magnet on the door indicating a similar vial can be found in the fridge.

**Demographics (Demografía)**

Name (nombre) Jane Mary Doe

Birthdate (fecha de nacimiento) 01/01/2011 Age (edad) 2  M  F

Primary Language (idioma preferido) Spanish

Parent/Guardian (nombre de Padre/Tutor) Tia D Dalrymple Phone 801-707-3763

Emergency Contact (contacto de emergencia) Dad Doe Phone 801-455-4555

Preferred Hospital for Transport (hospital preferido) Primary Children's Medical Center

# Demographics

**Baseline Status (condición normal)**

Vital Signs (los signos vitales)

HR 126 RR 30 BP 80 / 40 O2 Sat 84

Weight (peso) 10 lbs Height (altura) \_\_\_\_\_ ft/in Best IV Site (mejor IV sitio) Hand-Left

Neuro Status/Your Child's Developmental Level (condición neurológico del paciente)

Will make eye contact

Nonverbal (no puede hablar)  Hearing Impaired (no puede oír)  Visually Impaired (no puede ver)

# Baseline Status

**Medical History (historial médico)**

Allergies/Reaction (alergias/reacción)

1. Latex: (Hives) 3. \_\_\_\_\_

2. Medication: Amoxicillin (Rash) 4. \_\_\_\_\_

Medical Conditions (condiciones médicas)

Epsteins Anomaly

Hospitalizations/Surgeries (hospitalizaciones/cirugías)

Heart Surgery -repair Of Anomaly

Medications (medicinas)

1. Toprol xl -beta blocker 5. \_\_\_\_\_

2. Lasix -diuretic 6. \_\_\_\_\_

3. \_\_\_\_\_ 7. \_\_\_\_\_

4. \_\_\_\_\_ 8. \_\_\_\_\_

# Medical History



# Who can be enrolled?

Children with...

- Frequent seizures
- Tracheostomy
- Ventilator dependency– CPAP / BIPAP
- Congenital heart disease
- Complex respiratory and cardiology needs
- Neurologically compromised and requires suctioning for airway patency
- Severe asthma with past admittance to ICU
- Severe Autism
- Brittle diabetes



# What does this mean to EMS and EDs?



- It satisfies the HIPPA requirements to allow the EMS provider access to medical information on a particular child in your service area, a child that you will likely have to respond to.
- And it promotes easy access to current key information in the moment you need it.

# What does it mean for parents?

- Once enrolled, a parent can easily update their child's changing medical needs, medications, and recommendations online.
- Knowing that their child has up-to-date information available to anyone caring for their child can give them peace of mind



# What does this mean in times of disaster?



- We are working to link the registry to all the dispatch agencies in the state. Flagging homes with special needs children.
- Working to link to preparedness in times of evacuations, early warning, etc.
- Mobile “low tech” way of communicating medical history.

# How to enroll:

[www.health.utah.gov/ems/emsc](http://www.health.utah.gov/ems/emsc)



<http://chirp.utah.gov>



# Go to the EMSC home page

- Click on the **General Public** Page

- Click on the **Children's Health Information Red Pack (CHIRP)**



# Follow the instructions and fill in the blank boxes

Utah Dept of Health, Bureau of EMS

https://health.utah.gov/ems/emsc/cshcn/?user\_type=parent\_guardian

Log In Email.Utah.Gov Personal Banking fr... AT&T Account Man... Sign in to Comcast Salt Lake City Public... Questar Gas - delive... Mountain America ... Bank of America | H... Utah Dept of Health... Home: Rocky Mou...

### Fill out an emergency health information sheet

This Emergency Health Information Sheet System for Children With Special Health Care Needs is being implemented to help you communicate clearly with your EMS providers about the care that your child may require when you call 911 for a medical emergency for your child.

Many times as parents we are faced with the task of informing NUMEROUS care providers about the needs of our child. This sheet will be a helpful tool that can be completed by You, Your Doctor, and Your child's care Providers.

The purpose of this form is to allow you to document your child's specific health needs before an emergency arises

Medical conditions that qualify a child for this program are:

- Frequent seizures
- Tracheostomy
- Ventilator dependency: CPAP/BIPAP
- Congenital Heart Disease
- Complex respiratory and cardiology needs
- Neurologically compromised and requires suctioning for airway patency
- Severe asthma with past admittance to ICU
- Brittle Diabetics

**Please note:** If you know your child has a medical condition that will cause you to call 911 frequently, you should enroll your child in the system.

If the child you are completing the Emergency Health Information Sheet for has any of these above conditions, please complete the information requested below.

By completing this information we can get you started on completing a new Emergency Health Information Sheet, and if you have already completed a sheet for the child we will locate it for you.

What language would you like to use to complete the sheet?

Child's Name First  Last

Child's Birthdate m/d/y

Maiden Name of the Child's Mother

Questions? Contact Robert Jex at [rfjex@utah.gov](mailto:rfjex@utah.gov) or 801-273-4161.

Updated June 30, 2011

### Step 3

# Select “Create a new sheet for my child”

Utah Dept of Health, Bureau of EMS for Children

UTAH.GOV SERVICES | AGENCIES

Utah Dept of Health > Bureau of EMS > EMS for Children

### CSHCN: Enroll a Child with Special Health Care Needs (CSHCN) in the Emergency Health Information System for CSHCN.

Utah Department of Health | EMS | UTAH FAMILY VOICES

- We did not find an existing emergency health information sheet for your child. If you have previously filled out a sheet for your child, please double-check the name, birthdate, and mother's maiden name that you provided. Make sure they match the name, birthdate, and mother's maiden name you provided when you previously filled out the sheet. If we still can't find your child's sheet, please contact EMS staff. If this is your first time using this system to fill out a sheet for your child, please see the instructions below.

#### Fill out an emergency health information sheet

What language would you like to use to complete the sheet?

Child's Name First  Last

Child's Birthdate m/d/y

Maiden Name of the Child's Mother

If this is your first time using this system to fill out a sheet for your child, and they have one of the following medical conditions, please click "Create a new sheet for my child" at the bottom of this page.

[Conditions...]

Questions? Contact Robert Jex at [rfjex@utah.gov](mailto:rfjex@utah.gov) or 801-273-4161.

Updated June 30, 2011

- The system will first look for previous submissions on this child.
- If none are found the red statement will appear.
- If one is found, the option for updating the form will present itself.

# Complete the form and save it

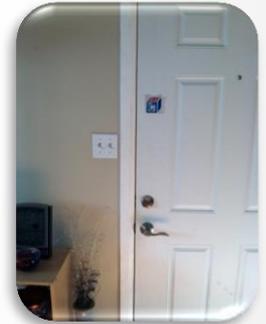
## Step 4

- Each blue bar opens a portion of the form. Instruct parents to fill it out each as completely as possible. They can select each bar individually or advance by clicking the “next” button.
- Items on the form in **bold** are necessary before submitting.
- Once all areas have been addressed click the “Save Emergency Sheet For the Child” bar.
- Once saved the child has been enrolled.

The screenshot shows a web browser displaying the "CSHCN: Emergency Health Information Sheet" form. The browser address bar shows "https://healthutah.gov/ems/emsc/cshcn/#tabs". The page header includes "Utah Dept of Health, Bureau of EMS" and "AGENCIES". The form title is "CSHCN: Emergency Health Information Sheet". Below the title are logos for the Utah Department of Health, EMS, and Utah Family Voices. The form has a navigation bar with tabs: "Instructions", "Child", "Medical History", "Baseline Condition", "Equipment", "Treatment", "Parent/Guardian & Emergency Contacts", "Primary Care Physician and Specialists", "Pharmacy and Insurance", "Special Needs", and "Information About This Sheet". The "Instructions" tab is selected. The instructions text reads: "The information provided on this sheet will help emergency responders provide better medical care to your child. Please fill out the sheet as completely as possible, but if you don't know the answer to a particular item, you can complete it at a later date, since this information will be saved in our database for you." It also includes a "Need Help?" section and a "Save Sheet" button. At the bottom, there is a "Save Emergency Sheet For the Child" button and contact information for Robert Jex at [rfjex@utah.gov](mailto:rfjex@utah.gov) or 801-273-4161. The page is updated as of June 30, 2011.

# Once enrolled, what happens?

- Their information will be reviewed by the EMSC Pediatric Clinical Consultant RN.
- The parents will be sent the following;
  - A letter explaining the program
  - Two document vials to store current copies of the Health Information Sheet
    - One to be kept in the “red pack” with the child at all times
    - The other to go in the door of the refrigerator where the child resides.
  - An EMSC sticker that the family can place on the inside of their main door as a signal to EMS to look in the fridge
  - An EMSC Magnet to go on the fridge containing the information sheet



# How can I help get CHIRP off the ground?

- Help to “capture” kids and get them enrolled
  - Currently enrolling ...
    - Out of PCH emergency room
      - All that's required is staff training and internet access
    - Out of the inpatient units
      - Discharge planners and case managers give out CHIRP materials
    - At health fairs and conferences
  - Plan to enroll...
    - From the school systems
    - Through special interest parent groups
- Help to educate my community healthcare providers



# Questions ?



# References

- 2010, Cooper Arthur M. *Pediatric Disaster Preparedness: A resource for planning, management and provision of out-of-hospital emergency care*
- 2009, Henning RN, EMT-IA, Susan. *Disaster/Mass Casualty Incident, Utah EMSC Off-Line Protocols*
- Archives located at [www.utahtelehealth.net](http://www.utahtelehealth.net)