

Family Reunification after Disasters: Have we made any progress?

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Boston Children's Hospital
Until every child is well™



HARVARD MEDICAL SCHOOL
TEACHING HOSPITAL

Conflict of Interest Disclosure

- I have no financial relationships with a commercial entity producing healthcare-related products and/or services.
- Images used in this presentation were obtained from the public domain of the internet.

Objectives

- Discuss the importance and challenges of family reunification planning
- Present the current systems/resources available
- Describe results from family reunification research
- Think about next steps

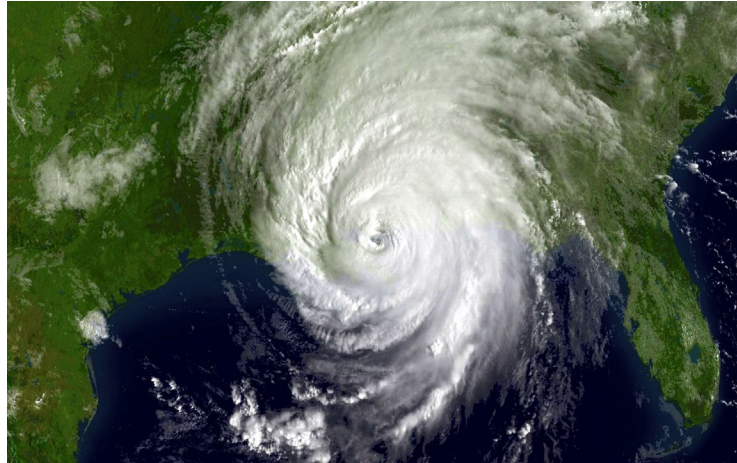
Children in Disasters



Mohammed Badra (EPA-EFE)



Hurricane Katrina August 2005



- Over 5,000 children separated from their families
- Final reunification 7 months later

These children are looking for their parents. If you recognize any of these children, please contact the Louisiana Clearinghouse at **1-225-342-8631**. If you are unable to contact the Louisiana Clearinghouse, please call The National Center for Missing & Exploited Children at **1-800-THE LOST(1-800-043-5678)**

[Click on the photo below for information on the child](#)

 RESOLVED	 RESOLVED	 RESOLVED	 RESOLVED
 RESOLVED	 RESOLVED		 RESOLVED



Need for School Reunification Plans

- Estimated 55 million children in schools and child care facilities during the day
- Integration in local emergency management planning



Ice storm 2014 Atlanta Georgia

Hospital Reunification Planning

HOME / NEWS / LOCAL / MASSACHUSETTS

The Boston Globe

Boston hospitals confronted challenges in identifying patients after Marathon bombing

Chief among concerns: accurately identifying patients amid chaos



- One hospital, family led to the wrong patient
- One mother had walked to 3 different hospitals before finding her child

MAYOR'S 24-HOUR Hotline • 617-635-4500

2013 Boston Bombing Infographic

**21,583
CALLS
ANSWERED**

April 15 - 26

2,498

CALLS LOOKING *for*
LOVED ONES

(April 15-16)

Michigan: Challenges for Family Reunification



- Natural Hazards
 - Floods
 - Severe Weather
- Rural
- Urban
- Nuclear



Reunification is Needed



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Reunification is Needed

- *Improved methods for reunifying separated children with their families”*
- *Develop a standardized interoperable national evacuee tracking and family reunification system that ensure the safety and well-being of children”*



Challenges of Children regarding reunification

- Developmental
 - May not self-identify
 - Immature Cognitive Skills
- Mental Health
 - Increase risk of mental health disorders
- Safety
 - Child safety and protection
 - Escalation of staffing
 - More space



Family Expectations

Assumptions

- Families will obey evacuation instructions
- Families expect all hospitals have a plan to reunite families
- Families expect immediate identification and reunification of all survivors

Reality

- 63% Families would disregard evacuation instructions
- Peds Ready Data:
 - Only 47% EDs report having a disaster plan that address children
- Hospitals will not have that information
 - Identity of deceased victims may take days, weeks



<https://academiccommons.columbia.edu/doi/10.7916/D8NG50CK>

Gausche – Hill , JAMA Pediatr. 2015;169(6):527-534

Hospital Expectations

Assumptions:

- My hospital will not be affected- we are not a trauma center
- My community has a family reunification plan
- My hospital already plan



Reality

- Scope and Run
 - “Siri”
- Families will head to hospitals first
 - 54% of Families expect hospitals to help even if their love one is not in the hospital
 - Community family assistance centers take time to set up
- That’s great - but make your spaces bigger. Drill to failure.

Current Systems and Resources Available



National Level- Federal Resource



Post-Disaster Reunification of Children: A Nationwide Approach

November 2013



FEMA



American Red Cross



- Support overall reunification processes and procedures
 - Identifying roles of lead and supporting agencies
 - Enhance/develop reunification elements in emergency preparedness plans
 - General approach for schools, shelter and hospitals

National Level –Federal Resources

- Federal Emergency Management Agency
 - National Emergency Family Registry And Locator System
 - National Mass Evacuation Tracking System (radio frequency identification)
- Department of Health and Human Services
 - Joint Patient Assessment and Tracking System
 - ASPR TRACIE

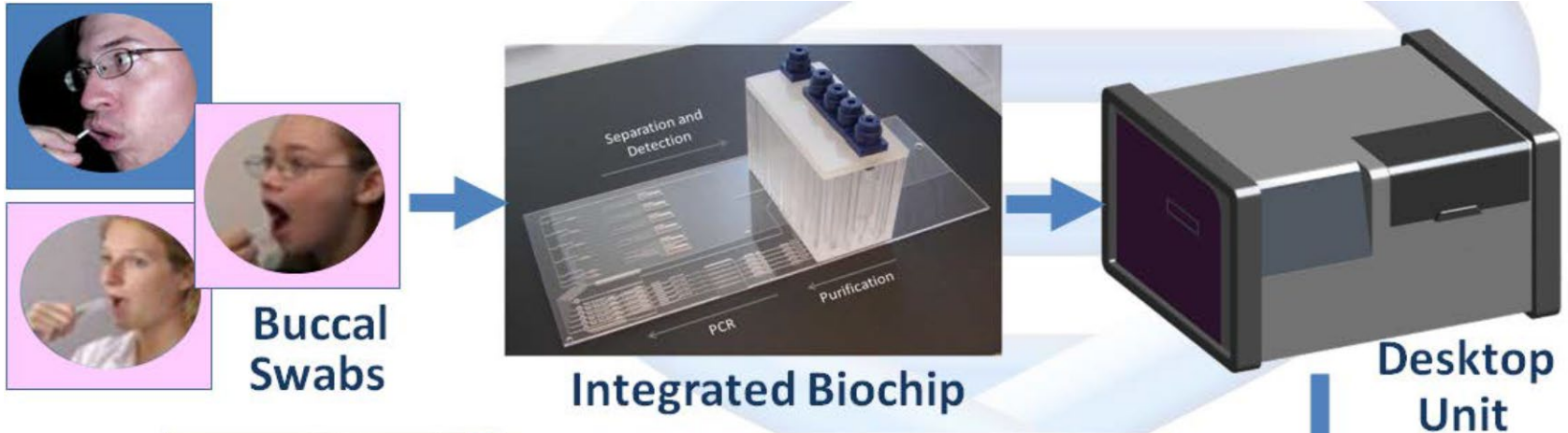


<https://files.asprtracie.hhs.gov/documents/aspr-tracie-family-assistance-center-fact-sheet.pdf>



TRACIE
HEALTHCARE EMERGENCY PREPAREDNESS
INFORMATION GATEWAY

Rapid DNA




National Level- NGO



- National Emergency Child Locater Center
- Unaccompanied Minors Registry
- Team Adam
 - Deployment of retired law enforcement officials

← → 🔍 <https://umr.missingkids.com/umr/reportUMR?execution=e1s1> 🛡️ ☆

(English | español) | Global Network | Contact Us | Media Room | Publications

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[UNACCOMPANIED MINORS REGISTRY](#) [CONTACT US](#)

Welcome to the Unaccompanied Minors Registry

If you locate an unaccompanied minor, **please call your local law enforcement agency immediately**. Then complete the following.

The Unaccompanied Minors Registry supports the National Center for Missing & Exploited Children (NCMEC) by allowing the public to report information related to children who have been separated from their parents or legal guardians as a result of a disaster. This tool will enable NCMEC to provide assistance to local law enforcement and assist in the reunification of displaced children with their parents or legal guardians. If you experience any trouble reporting online, please contact NCMEC 24-hours a day, at 1-800-THE-LOST (1-800-843-5678).

An unaccompanied minor is a child who has been separated from parents, legal guardians, and other relatives and is not being cared for by an adult who, by law or custom, is responsible for doing so.

This site is a secured site. UMR uses Secure Socket Layer (SSL) technology to encrypt information on this application over the internet.

[Start Reporting](#)

National Level- NGO



**American
Red Cross**




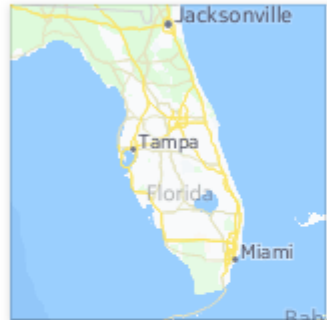
- Safe and Well website
- Communicate with law enforcement and child welfare agencies
- Track movement through Unaccompanied Minors Report Form
- Designates 2 people to supervise an unaccompanied minor

Social Media

What's currently available?

- Facebook, Twitter, etc, Apps
- Local News


 **Rita Hsing Chavez** marked herself safe during Hurricane Irma in Florida.
September 11 at 1:26p



 Like  Comment

 8

 Write a comment...

 **bree**
@Breeanna_xoxo

[Follow](#)

This is Breeanna Best Friend! I'm actively tweeting on her account bc I have direct contact with her. Her cell phone has died. They're alive and currently still stuck in the attic. 611 Watson Ave, New Bern NC

2:28 AM - 14 Sep 2018

317 Retweets 296 Likes 

 36  317  296

Carrier 4:12 PM
[About](#)

ReUnite®



ReUnite is an R&D project of the Lister Hill National Center for Biomedical Communications, a division of the National Library of Medicine, part of the National Institutes of Health.



U.S. National Library of Medicine



Burden Statement: OMB# 0925-0612, EXP:07/31/2016

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V 6.3.1

[Burden](#)

[Privacy](#)

State Level

- New York State Operation Safe Child



- Louisiana – Phoenix Tracking System
 - Coded arm bands



Local Level

- No standardized approach
 - Consider photographs
- Need for the whole community involvement for planning
- For the deceased
 - Local dental records
 - Local Police Department DNA/finger printing programs

REQUEST FOR MEDICAL/DEENTAL RECORDS OR INFORMATION

PATIENT'S NAME: MARVEDA, CA

ADDRESS: 3700 JACOB BLD, ST LOUIS, MO 63132-3100

DATE OF BIRTH: 8/27/14

DATE OF REQUEST: 12-18-46

NAVAL HOSPITAL, Patient Administration, FPO AP 8533-1620



Shortcomings

- FEMA national systems are not in use unless a Federal disaster is declared
- Social Media require that you are alive, have internet access, and are literate
- Local system may not be scalable or remotely accessible

Does not address

People who can not access the system:

- Young Children (pre-verbal)
- Children with Special Healthcare Needs
- Severely Injured
- Deceased



Family Reunification Research



Funded by HRSA (EMS-C Targeted Issues) Grant #H34MC10575-01-01



REUNITE: Image Based System



Chung et al. *Am J Disaster Med* 2007 May-Jun;2:113-117

Chung et al. *Acad Emerg Med* 2012;19:1227-34

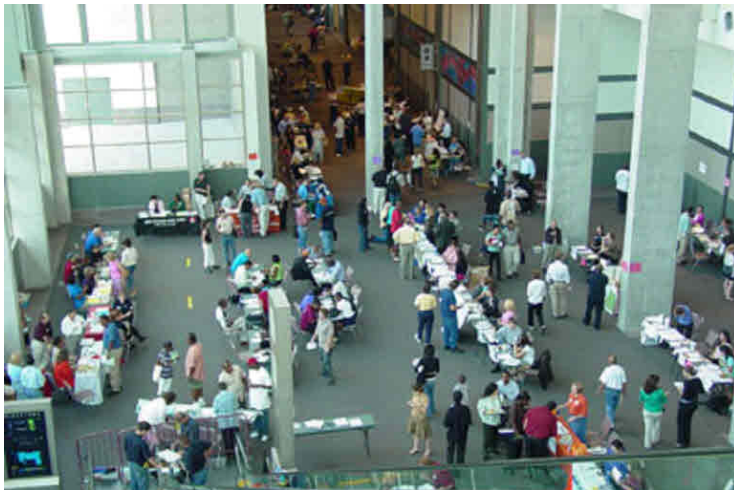
Where Can this System be Accessed?

Hospitals

Healthcare Centers

Relocation Shelters

more



Emergency Responder Survey (n= 129)



System Design Features

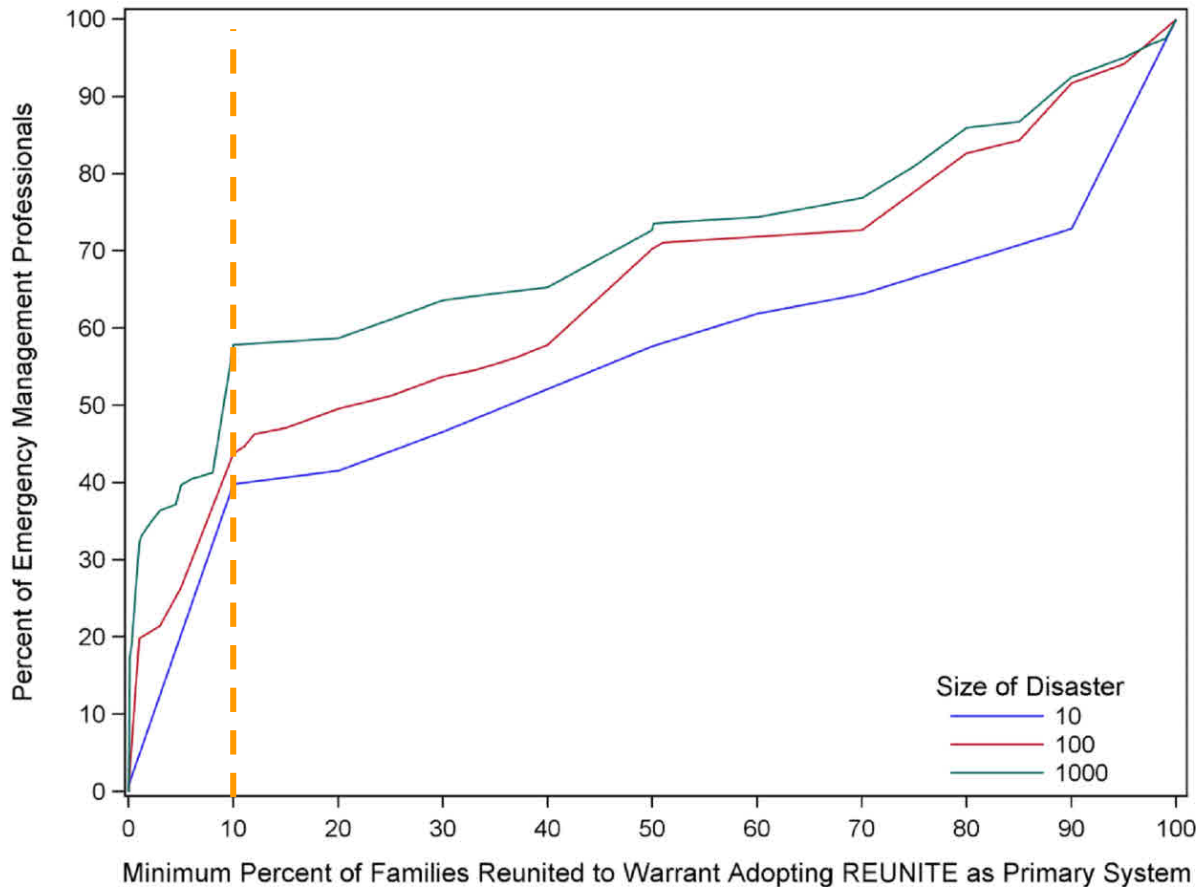
Selecting which pictures to show parents (N=129)

Only show if all search characteristics match	23	(18%)
Show if most characteristics match	70	(54%)
Show if some characteristics match	23	(18%)
Do not attempt matching; show all pictures	13	(10%)

What system would be most useful? (N=127)

Unedited pictures of living and deceased	58	(46%)
Unedited pictures of living; edited of deceased	50	(39%)
Edited pictures of living and deceased	19	(15%)

Minimum Percentage of Reunifications



In a large scale disaster, If a system could reunify 10% of families, over half of Emergency Responders would adopt it as a primary system.

Development of the REUNITE Prototype



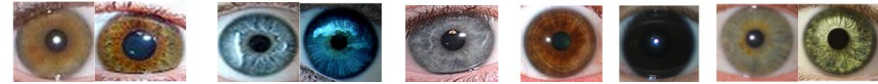
REUNITE Facial Feature Extraction

Skin



- Divided in 2 categories
- Grouping of Light/Dark

Eyes



- Divided in 2 categories
- Grouping of
 - Blue/Green/Grey &
 - Hazel/Lt & Dk. Brown

Age

- 0-12 month
- 13-23 months
- 2-4 years
- Over 5 years



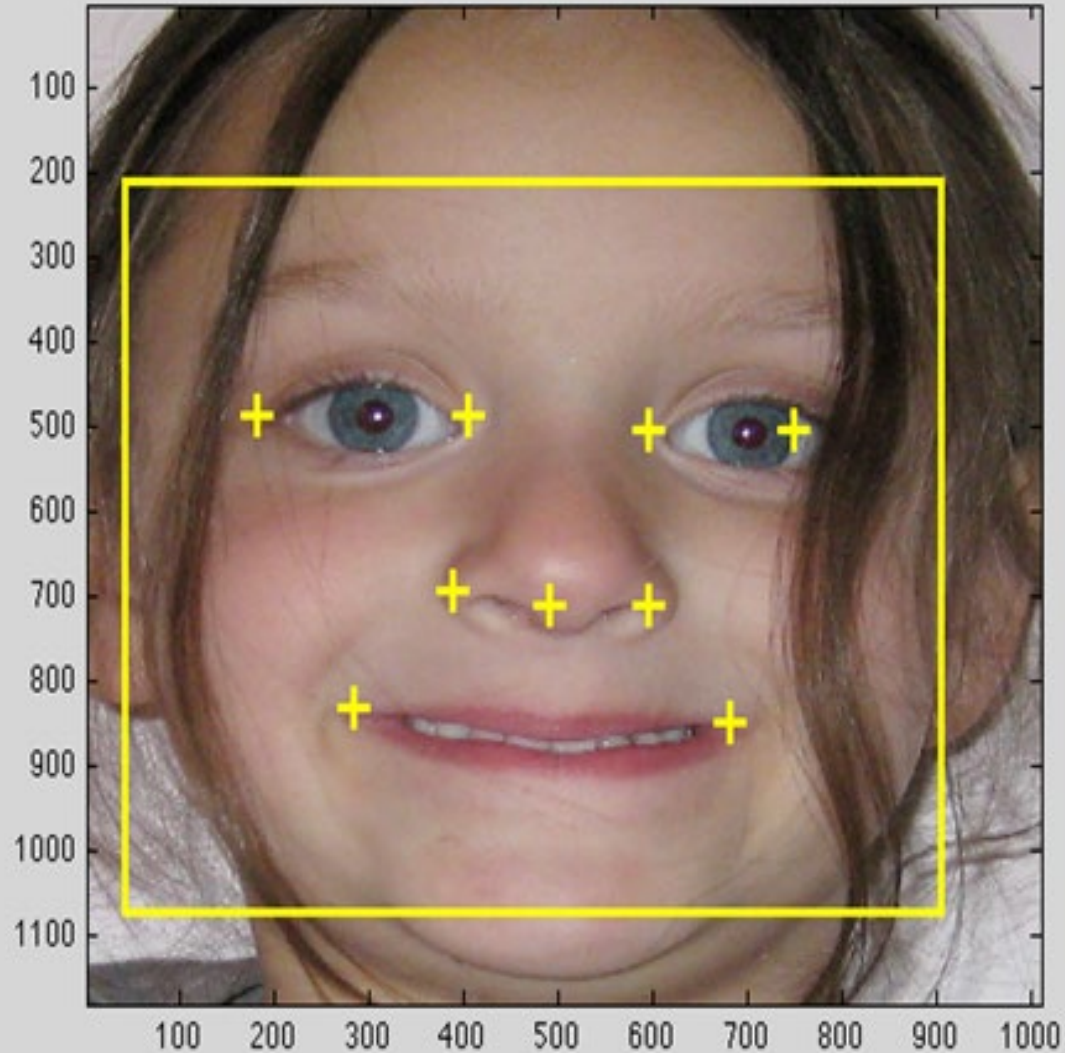
GENDER

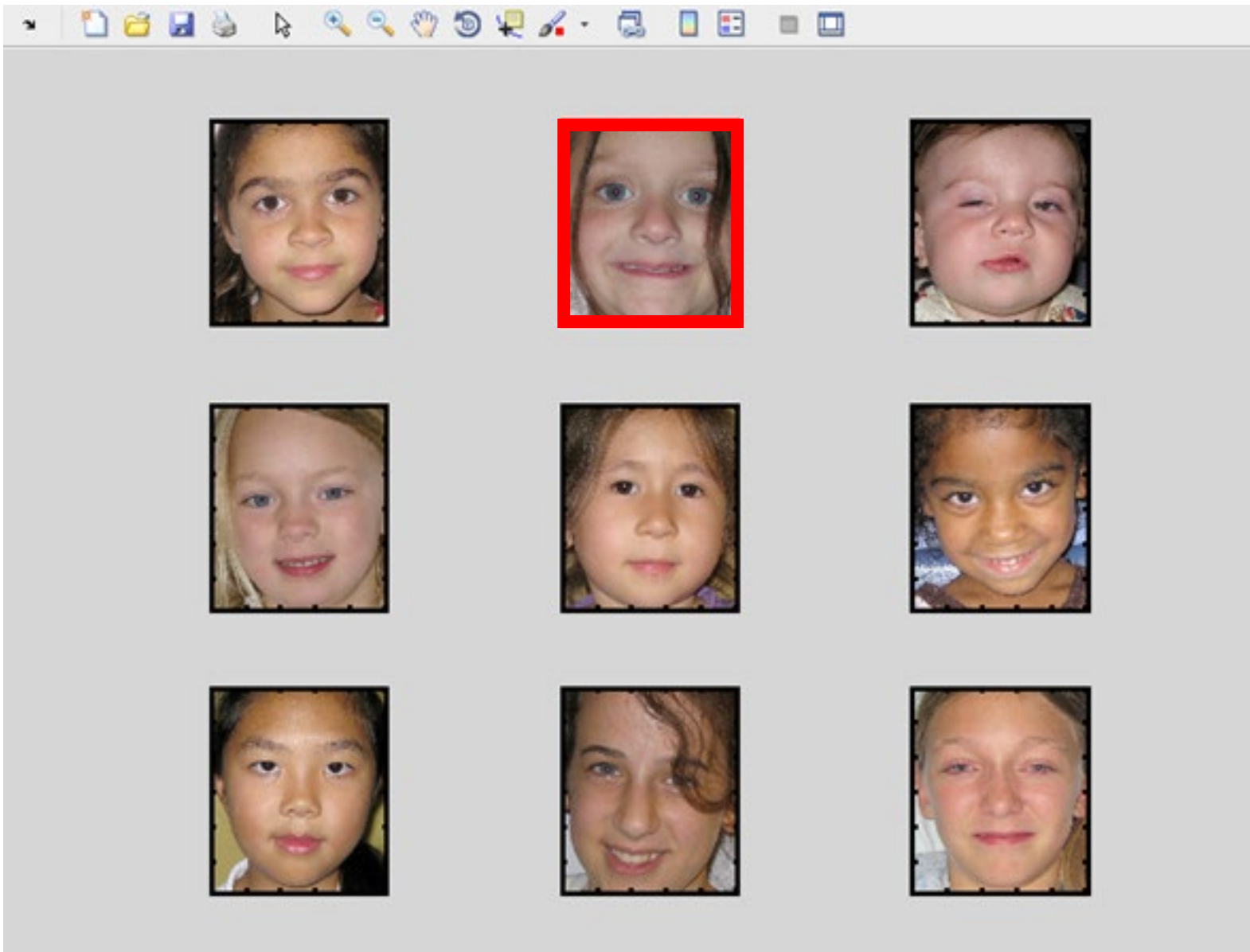
- Male
- Female

Similarity (User Feedback) Function

- Parents can choose photos that look their child
- Database is reordered to display photos that have similar features (facial shape, hairstyle)
- Advantages
 - Large scale disaster
 - Homogenous populations

Missing Child





Boston Children's Large-Scale Disaster Drill



Drill Scenario

- **Scenario:**
 - Category 4 Tornado in MA impacting several schools and one day care.
 - 1,200 children affected and are being transported to different area hospitals.
- **Drill Assumptions:**
 - Unaccompanied Children
 - Children participating were unable to provide any personal information



Participant Characteristics

- 22 Families
- Parents
 - 28 Parents/Guardians
 - 97% 4 year college degree or more
- Children
 - 49 children participated
 - 41% searches for children <5 years of age



Large Scale Drill: Boston Children's Reunification Protocol



Pediatric Safe Area- converted conference room

Success

- Multidisciplinary roles in creation of protocol- emergency management, social work, child life, psychiatry, emergency department
- Age appropriate “pediatric safe area”
- Established parent/child verification process

Gaps Identified

- Needed dedicated pediatric “quiet space”
- Further training needed

Family Vetting Forms

Contact number:	617 869
Family's address:	BROOKLINE, MA 02446
Child's Name(s) and MR# (or Drill ID#):	RENATA SHEN CALDER SHEN
Patient Identifiers:	
Hair Color	BLACK
Eye Color	BROWN
Clothing	T. SHIRT/SHORTS - RENATA KIDS DRESS - CALDER
Shoes	
Jewelry	NONE
Other	RENATA WEARS GLASSES CALDER HAS A DBL BRAID
Name of School and/or Grade:	DRISCOLL SCHOOL K-8 RENATA 3RD (GOING ON 4TH) CALDER (GOING ON TO KINDER@ARISU)
Name of Teacher:	PHOEBE JONES ALEX CAMPBELL
Pets - Type of Animal(s) and Name(s):	

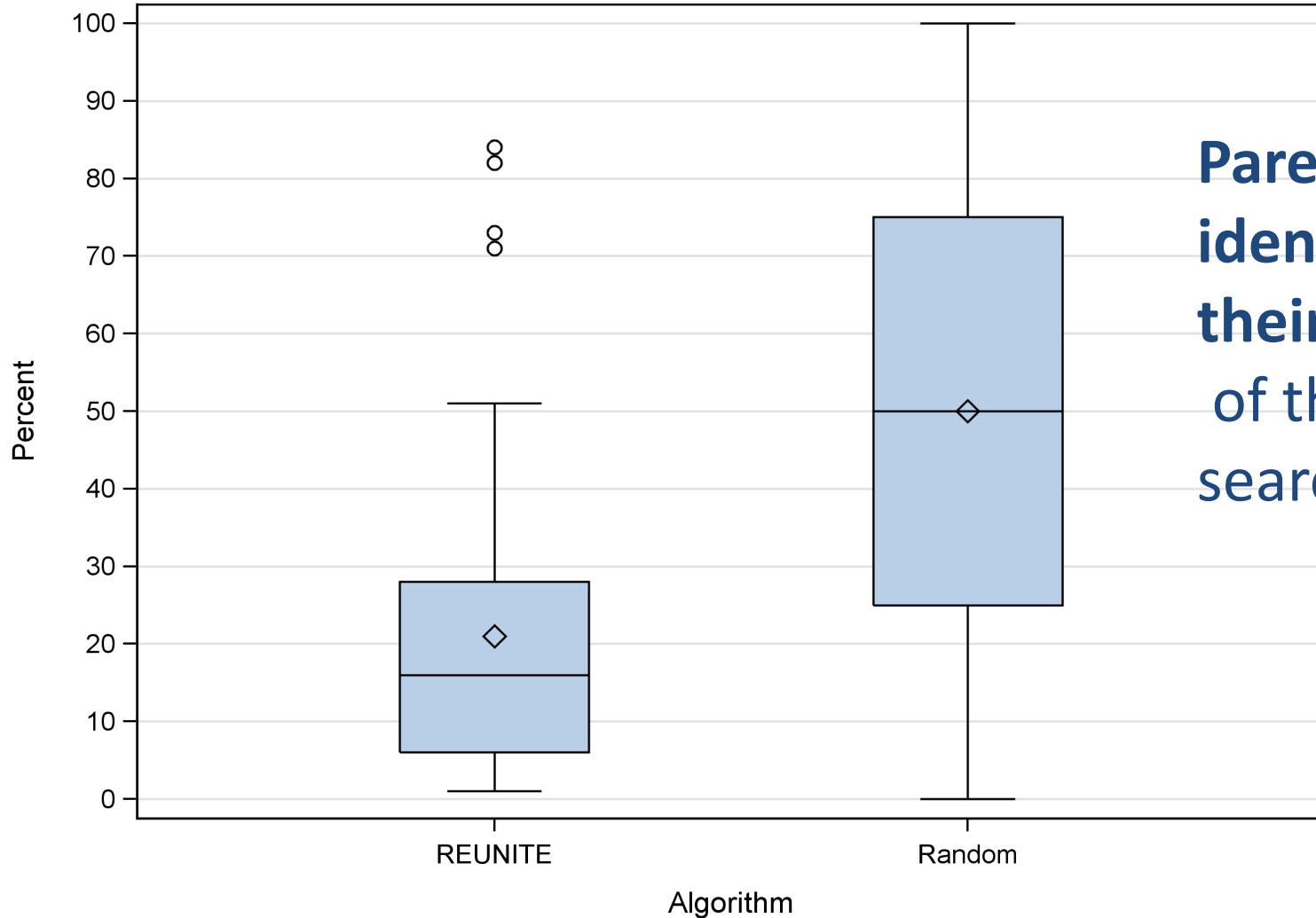
Name: Renata	Age: 8
Mother's Name: Sarita	Father's Name: How
Brother(s) and/or Sister(s) Name(s) and Age(s): Caitlin/Calder - 5	
Pets - Type of Animal(s) and Name(s): ∅	
Name of Town: Brookline	Name of Street: 000 James St
Name of School and/or Grade: Driscoll - 3rd - 4th infall	Name of Teacher:
Phone Number: 617-869-	Child's Drill ID (for staff): ✓ 3B

Name: Calder	Age: 5
Mother's Name: Sarita	Father's Name: How
Brother(s) and/or Sister(s) Name(s) and Age(s): Renata - 8	
Pets - Type of Animal(s) and Name(s): ∅	
Name of Town: Brookline	Name of Street: Jam
Name of School and/or Grade:	Name of Teacher:
Phone Number: 617-869-	Child's Drill ID (for staff): ✓ 3A



Performance

Percent of Database Viewed Until Target Image Appears



Parents missed identifying their child 9.5% of the searches!

What about Parents?

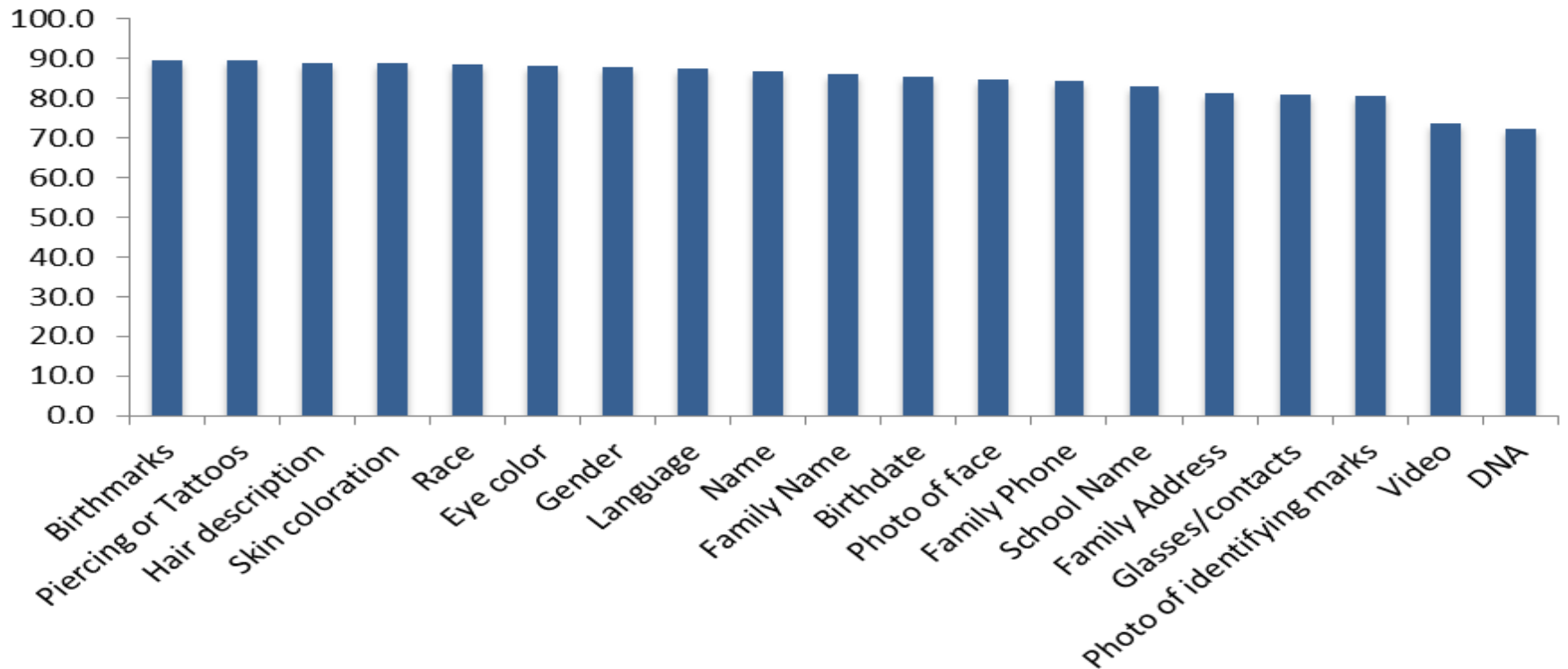
What information are parents/caregivers willing to share and with who during an disaster in order to facilitate family reunification?

- Convenience sample of adults presenting to 2 pediatric EDs
- N = 363 (52% Boston)
- Electronic survey
 - Willing to share
 - Trust



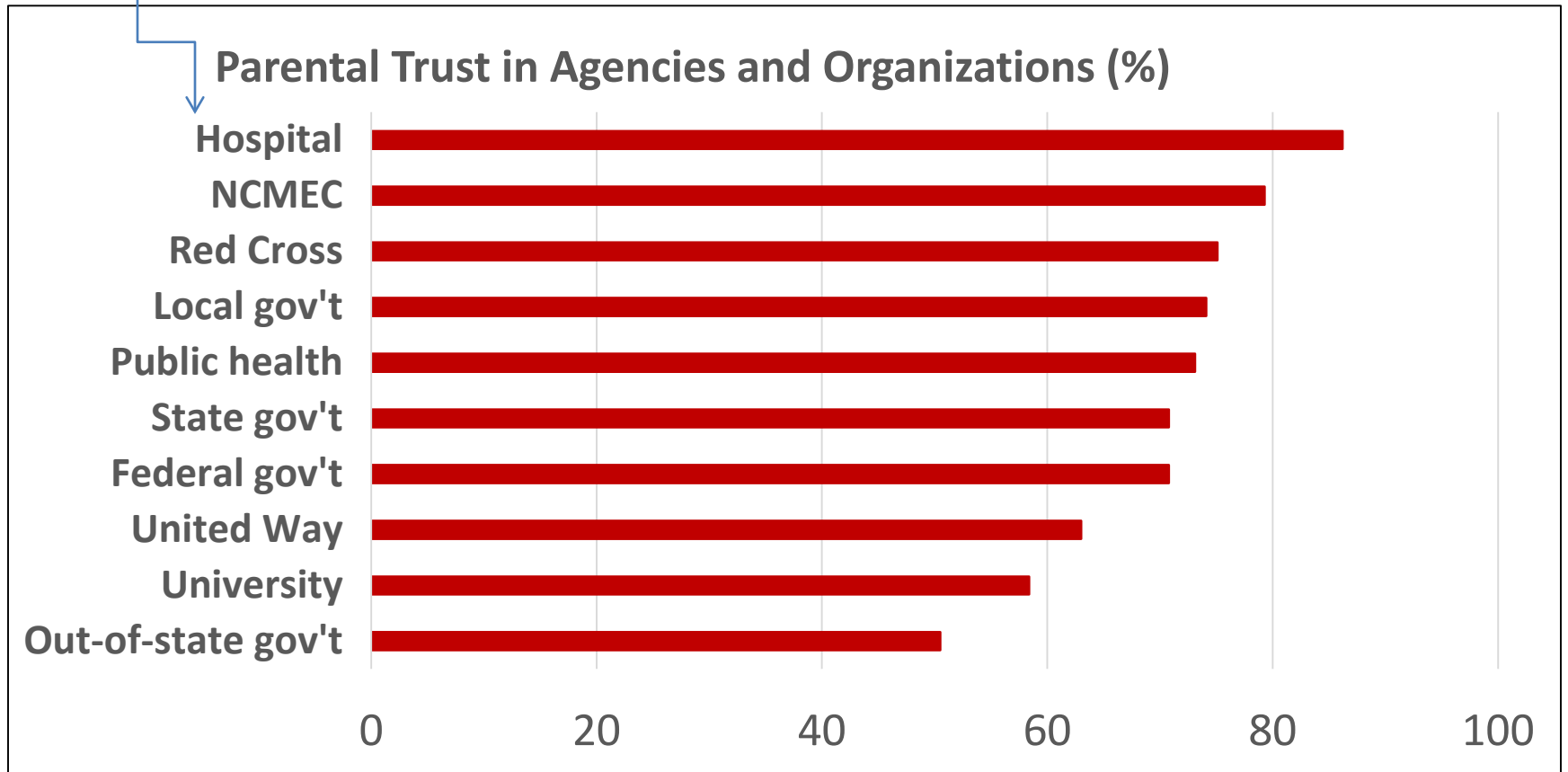
Information Sharing

Percentage of Parents Willing to Share Each Piece of Personal Information



**You are
it!**

Parental Trust

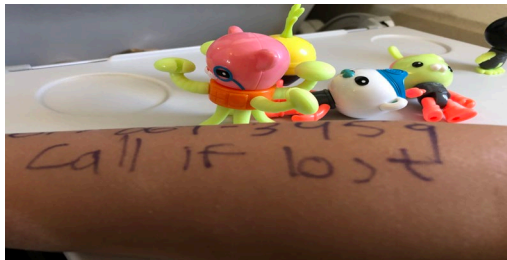


Next Steps



Family Preparedness

- **Communication plan**
 - Memorizing phone numbers
 - Out of area emergency contact person
 - Text
 - Evacuation plan local and out of state
- **Young, nonverbal**
 - Events
 - Picture, Written Info
 - ID Card/info
 - Bracelet, Necklace



Hospital Family Reunification Tool 2018

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CENTER FOR
DISASTER MEDICINE



Family Reunification Following Disasters:

A Planning Tool for Health Care Facilities

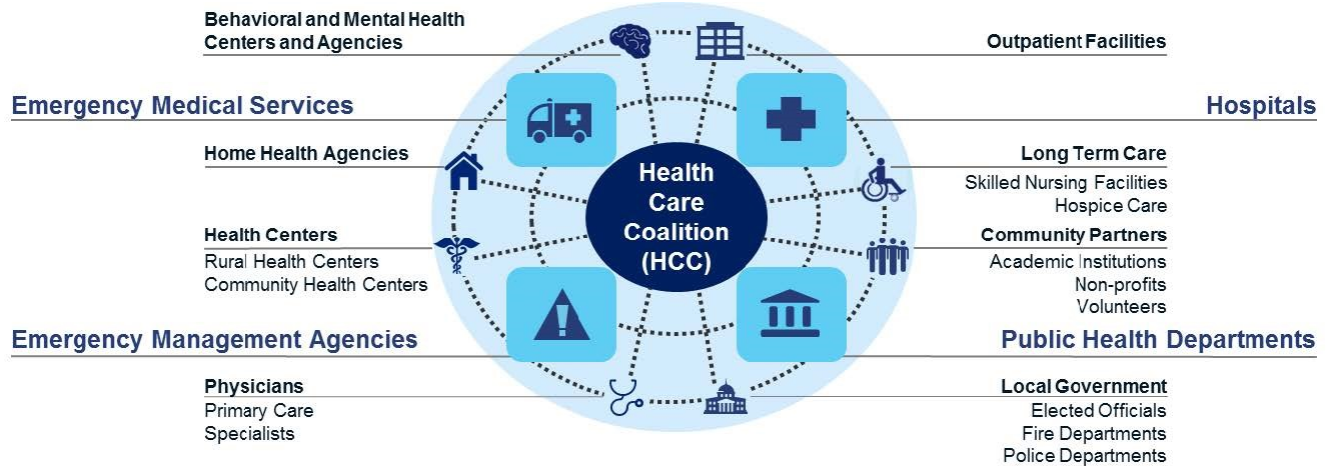
Version 1: July 2018

- Sponsored by a CDC-AAP State Preparedness Grant
- Vetted by 2 stakeholder groups in Missouri and Massachusetts
- Currently, pilot testing in community hospitals in MA and MO

Let's Talk: Planning for Hospital Family Reunification

Key Hospital Family Reunification	Adjunct Hospital Departments for Family Reunification Planning	
<ul style="list-style-type: none"> • Pediatrics • Family Medicine • Child Life • On-site • Security 	<ul style="list-style-type: none"> • Public Affairs / Media Relations • Risk Management • Psychiatry / Behavioral Health • Telecommunications • Health Information Management 	<ul style="list-style-type: none"> • Front Desk / Greeter Staff • Nutrition / Food Services • Chaplaincy • Interpreter Services • Patient Relations / Family Advisory Group

External Stakeholders



- *Goal is to prevent duplication of effort*

Registration, Intake and Tracking of Unaccompanied Children

- Modified Registration
 - EMS → Hospital
- Hospital Tracking system
 - Health Information Management
- Tiered Process to get extra data
 - Visible identifiers for unaccompanied children



Data Elements to Support Reunification Efforts

1. Patient's full name
2. Parent/guardian name(s)
3. Nicknames for child and parent/guardian(s)
4. Date of birth (or approximate age if unable to obtain)
5. Weight
6. Height
7. Race/ethnicity
8. Cultural, linguistic (languages spoken), and other special needs (e.g. allergies, medical conditions, medications, etc.)
9. Hair color and length of hair
10. Eye color
11. Gender
12. Distinguishing marks on the body (may include tattoos, scars, missing teeth, etc.)
13. Clothing worn on initial arrival, along with significant belongings (stuffed animal, etc.)
14. Location and mechanism of arrival/presentation to the system
15. Photo (if system is capable)
16. Association with disaster event (to aid in reporting all patients associated with incident)

Definite Patient Identification

- Usual hospital procedures
 - Majority of children will be able to self identify
 - Confirmation
 - Identifies self or has identification
 - Photographs, biometrics or trusted person can confirm
 - Match to answers to questions
- Example of Questions

Parent's Name(s)
Contact Number
Family's Address
Child's Name
Child's Medical Record Number
Child's Birth Date
Child's Age
Patient Identifiers
Hair Color
Eye Color
Clothing
Shoes
Jewelry
Other
Name of School/Grade
Teacher's Name(s)
Pets – Name, Type of Animal(s)

Information Sharing

- Establish close partnerships with external response organizations
- Consider the following:
 - Impact of HIPAA and other laws, regulations, & policies
 - Pre-messaging
 - Message coordination for consistency
 - Staff messaging and preventing inappropriate information leakage
- Social Media
 - Control the message with families and children



Let's test: Family Reunification Plans

- Use children in drills
- Understand and mitigate barriers
- Drill the entire process from separation to reunification in the whole community
- Don't be afraid if your assumptions were wrong



Future Research

- Leveraging social media for child identification
- Better image based family reunification system using voice and video recognition
- Best practices family reunification plans
- Other biometrics systems
-



Summary: Have we made any progress?

These children are looking for their parents. If you recognize any of these children, please contact the Louisiana Clearinghouse at [1-225-342-8631](tel:1-225-342-8631). If you are unable to contact the Louisiana Clearinghouse, please call The National Center for Missing & Exploited Children at [1-800-THE-LOST\(1-800-043-5678\)](tel:1-800-THE-LOST)

[Click on the photo below for information on the child](#)



Hurricane Katrina, 2005

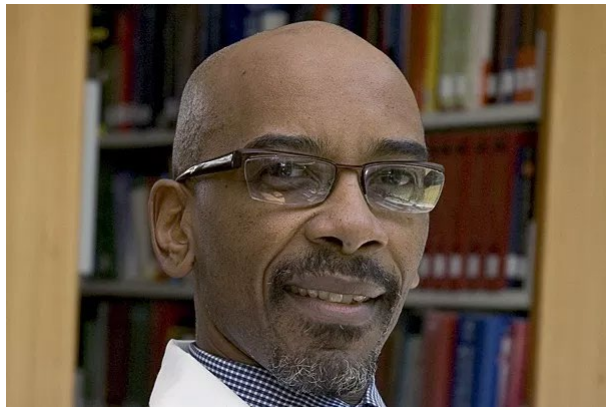


Border Crisis, 2018



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- Boston Childrens Hospital
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Michael Shannon MD
1953-2009