

Family Reunification after Disasters

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Until every child is well™



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Conflict of Interest Disclosure

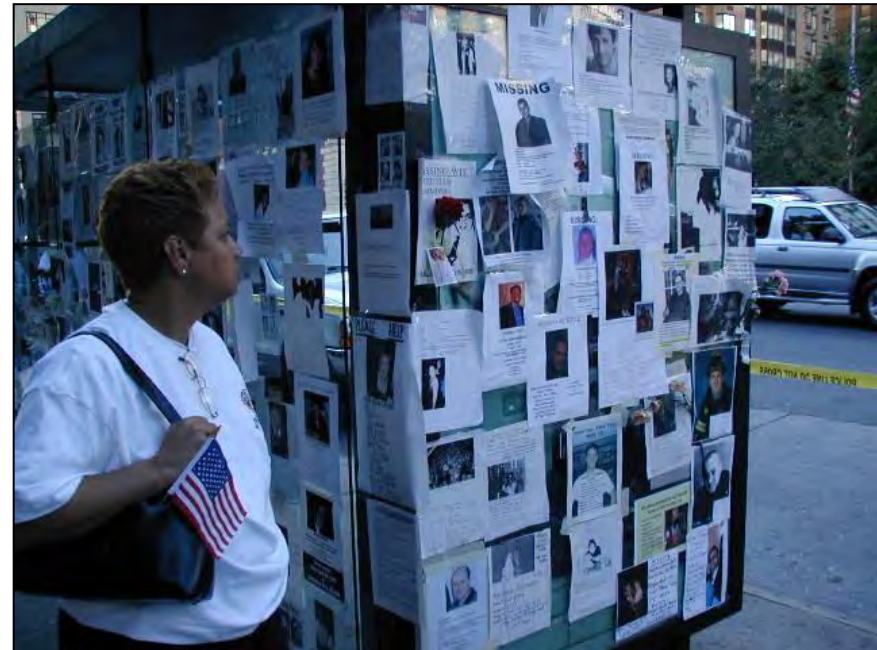
- I have no financial relationships with a commercial entity producing healthcare-related products and/or services.
- Images used in this presentation were obtained from the public domain of the internet.

Objectives

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

New York City: September 11th, 2001

- Nearly 3,000 dead
- 2,814 missing.
- Today, there are about 90 still



<http://news.bbc.co.uk/2/hi/8510900.stm>

http://www.unicef.org/publications/files/UNICEF_HAR_2010_Full_Report_EN_020410.pdf

Hurricane Katrina August 2005



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

Would we do a better job today?

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

A grid of eight small, square photographs of young children, arranged in two rows of four. Each photograph has a red, semi-transparent stamp with the word "REPORTED" written diagonally across it. The children are of various ethnicities and are looking directly at the camera.

Overlooked: The Littlest Evacuees

Oct 6, 2008

Within hours of hurricane Ike's landfall in Texas, San Antonio, officials had compiled precise statistics about their evacuee situation. They knew the city would need to care for 5,303 people (561 of whom had special medical needs) and 642 pets, including a turtle named Nibbles. But there was one key group for which they had no figures: children.

"No one knew how many", says a staff member.

Need for School Reunification Plans

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



Closer to Home- Boston Marathon Bombing

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

How do hospitals work with local and regional emergency planners in reunification?

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

2013 Boston Bombing Infographic

**21,583
CALLS
ANSWERED**

April 15 - 26

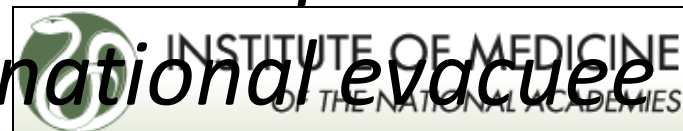
2,498

CALLS LOOKING *for*
LOVED ONES

(April 15-16)

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”*



DEDICATED TO THE HEALTH OF ALL 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



Parents after Disasters

- May disregard everything until reunited with their family
 - 63% of parents would disregard an evacuation
- **FASTER FAMILY REUNIFICATION = EARLIER RECOVERY**



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
 - 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



National Level- NGO



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

← → C <https://umr.missingkids.com/umr/reportUMR?execution=1s1> ☆

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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

State Level

- New York State Operation Safe Child



- Louisiana – Phoenix Tracking System
 - Coded arm bands



Local Level

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

DD FORM 877 (Rev. 10-1-68)

REQUEST FOR MEDICAL-OPTICAL RECORDS

REGISTRATION NO. 1149

NAME: DINA S.M. MONTGOMERY

ADDRESS: 9700 FAIR BLDG ST LOUIS, MO 63133-5100

NAVAL HOSPITAL

Name Parks
Classification 28 MO 28 MI

No. 79521 Color C. Sex Female

Imprints taken by [Signature]

Finger searched by Rosa L. Parks

Social Media

What's currently available?

- Facebook, Twitter, etc
- Local News (Google, CNN, etc)

The screenshot shows a Facebook page for the group "MISSING PEOPLE IN HAITI'S EARTHQUAKE". The page header includes the Facebook logo, a search bar, and a "Sign Up" button. Below the header, there is a profile picture of the Haitian flag and a "Like" button. The main content area features a post from "MISSING PEOPLE IN HAITI'S EARTHQUAKE + Others" with a link to a CNN report. The post text reads: "A major earthquake struck southern Haiti on Tuesday, knocking down buildings and power lines. If you have missing loved ones, upload pictures with full names." Below the post, there are several "People Like This" with their profile pictures and names: Denise Galan, Karine Muhammad Morin, and Christina Rodriguez. At the bottom, there is another post from "MISSING PEOPLE IN HAITI'S EARTHQUAKE" with a link to a news article about looting: "MISSING PEOPLE IN HAITI'S EARTHQUAKE Stop calling quake victims looters".

The screenshot shows the Google Person Finder website. The header features the "Google person finder" logo with the tagline "a google.org project". Below the header, there is a search bar and a "Person Finder: Boston Marathon Explosions" link. Two large buttons are visible: a green button labeled "I'm looking for someone" and a blue button labeled "I have information about someone". Below the buttons, there is a "PLEASE NOTE" section stating: "PLEASE NOTE: All data entered will be available to the public and viewable and usable by anyone. Google does not verify the accuracy of this data." At the bottom, there are links for "About Google Person Finder", "Developers", and "Terms of Service".

Shortcomings

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

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 *Am J Disaster Med* 2007 May-Jun;2:113-117

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

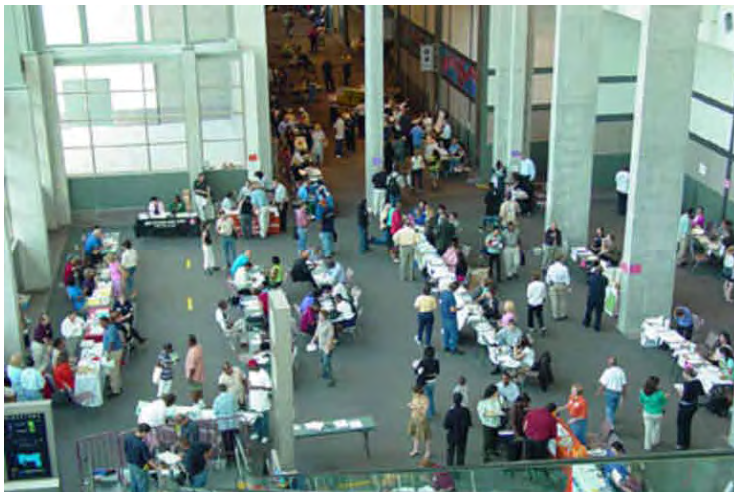
Where Can this System be Accessed?

Hospitals

Healthcare Centers

Relocation Shelters

more



Emergency Responder Survey (n= 129)



System Design Features

Selecting which pictures to show parents (N=129)

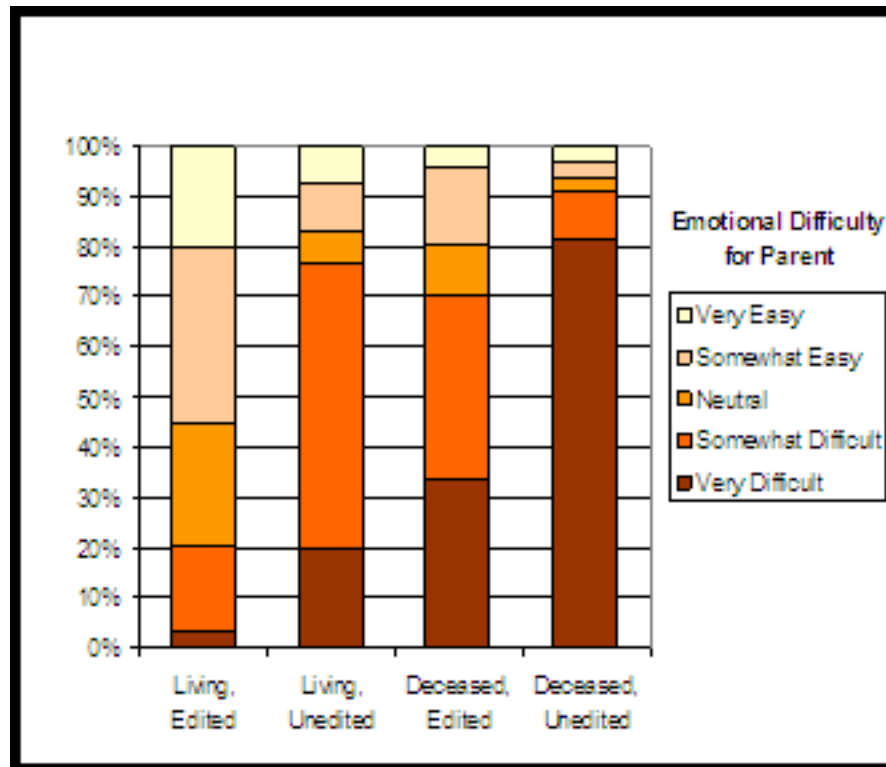
Only show if all search characteristics match	23	(18%)
Show if most characteristics match	70	(54%)
Show if some characteristics match	23	(18%)
Do not attempt matching; show all pictures	13	(10%)

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

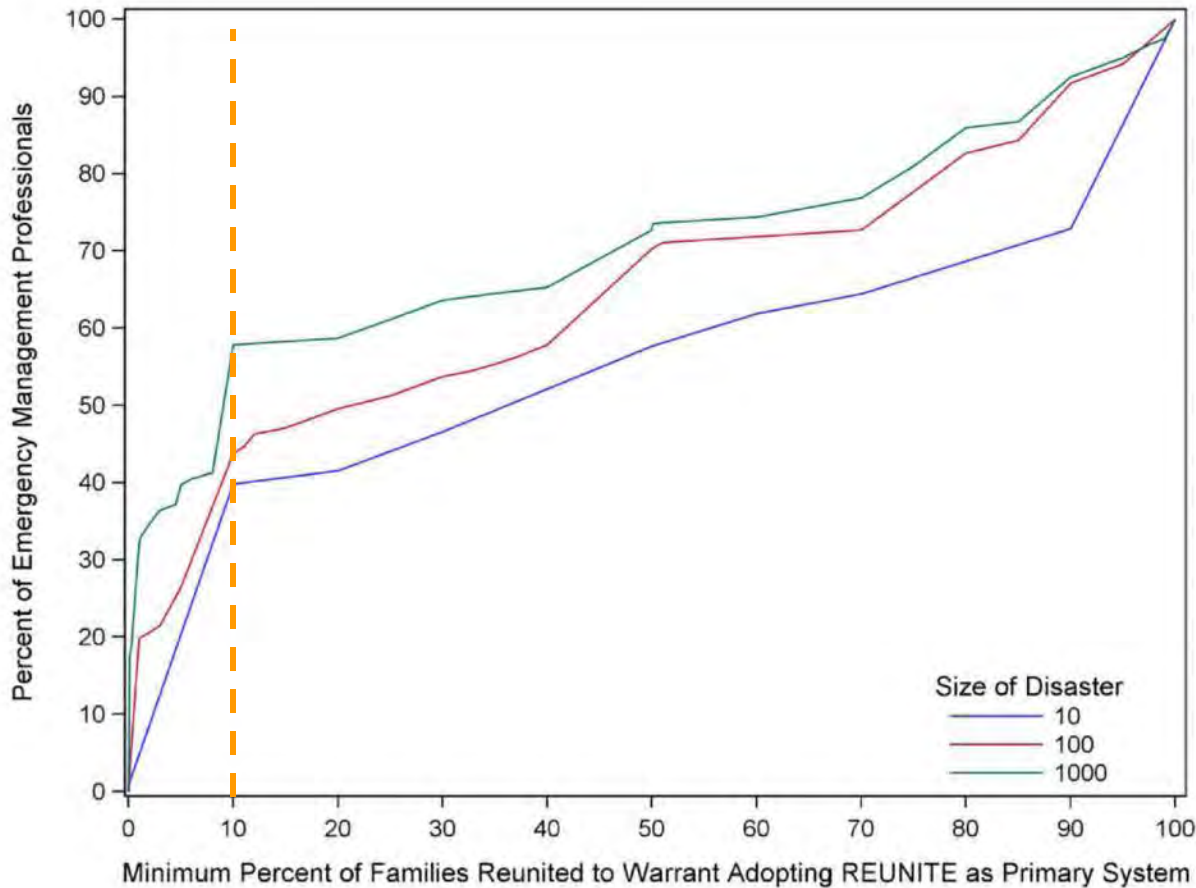
Unedited pictures of living and deceased	58	(46%)
Unedited pictures of living; edited of deceased	50	(39%)
Edited pictures of living and deceased	19	(15%)

Emotional Difficulty for Parents in viewing child's photographs

Emergency Responders



Minimum Number of Reunifications



In a large scale disaster, If REUNITE could reunify 10% of families, over half of Emergency Responders would adopt REUNITE 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



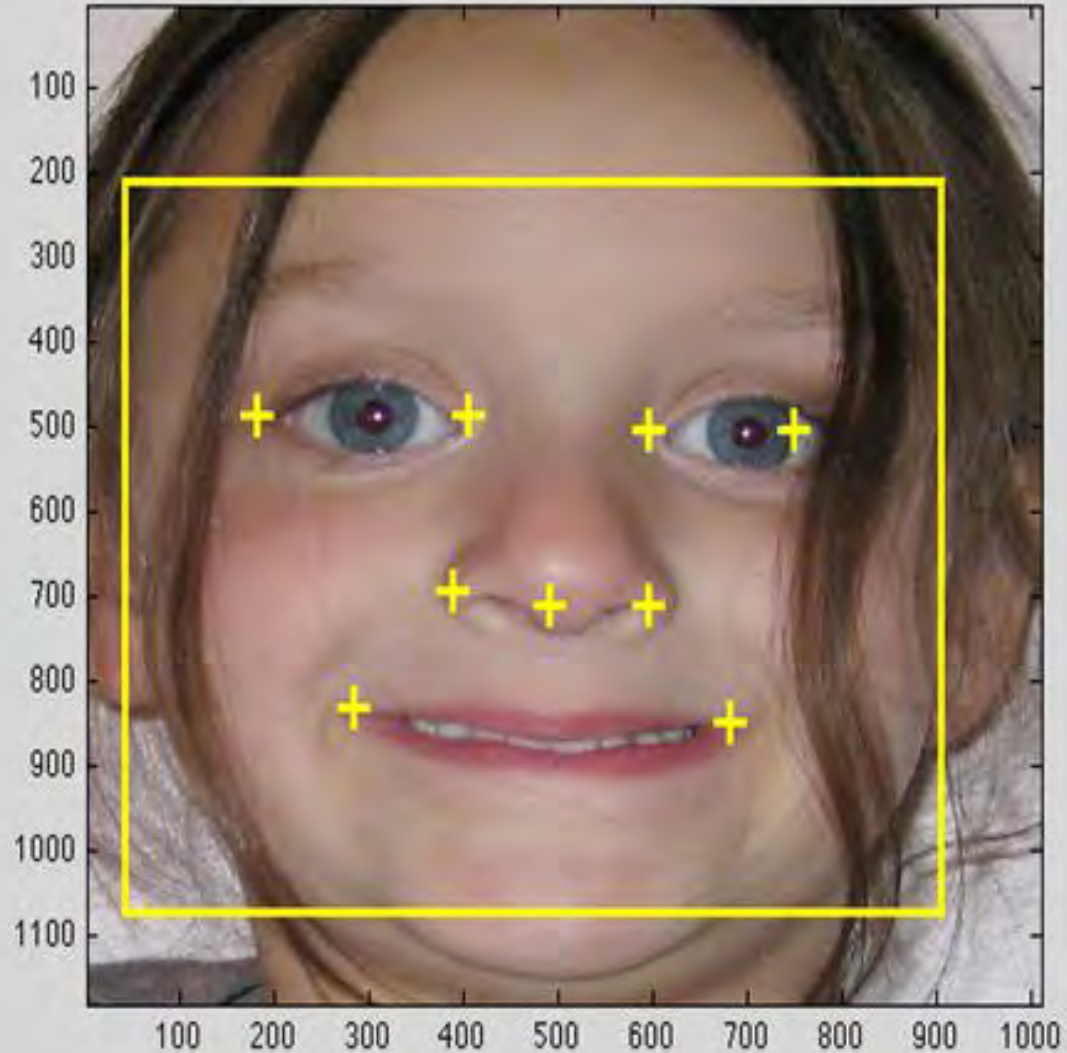
GENDER

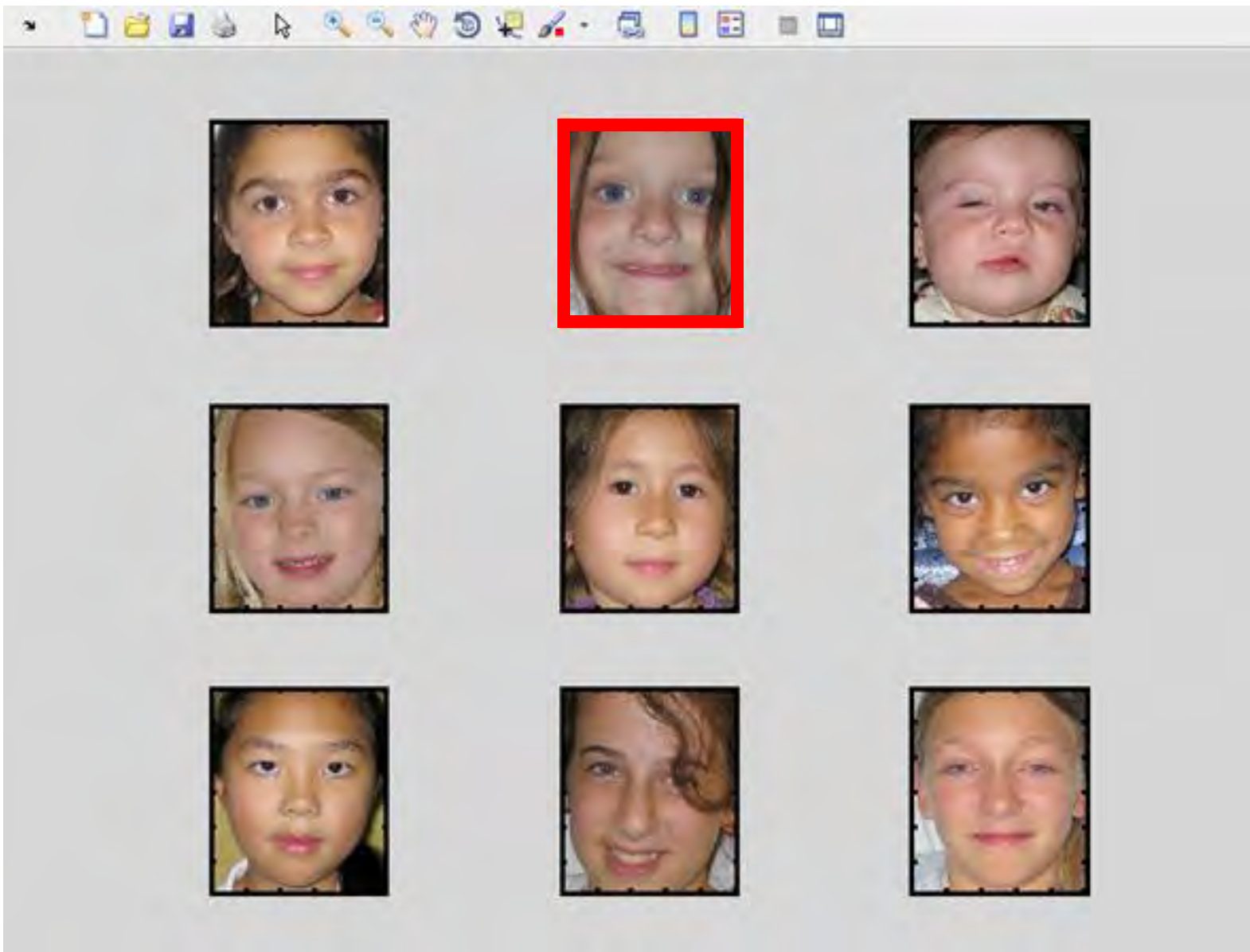
- Male
- Female

Similarity (Browsing) Function

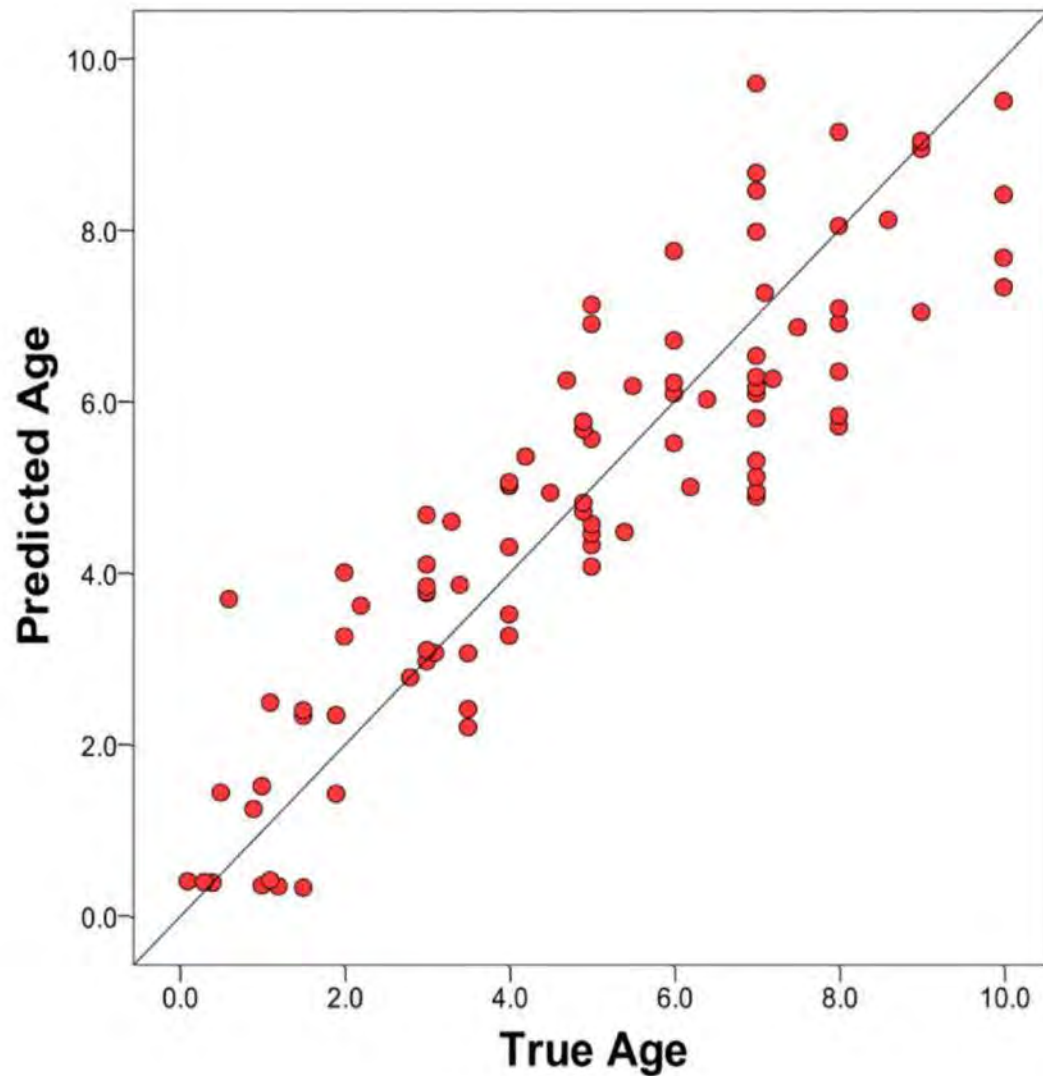
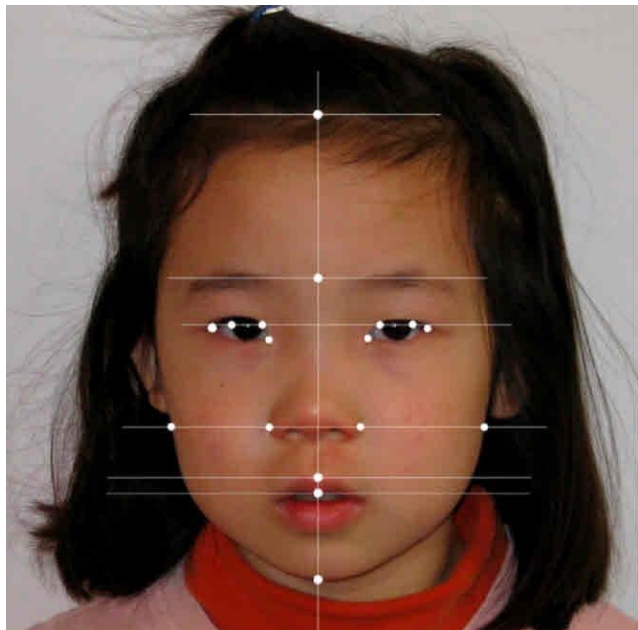
- Parents can choose photos that look their child
- Database is reordered to display photos that have similar features (facial shape, hairstyle)
- Advantages
 - Large scale disaster
 - Homogenous populations

Missing Child





Estimation of Age



Boston Children's Large-Scale Disaster Drill



Drill Scenario

- **Scenario:** Category 4 Tornado in MA impacting several schools and one day care, all in session. About 1,200 children affected and are being transported to different area hospitals.
- **Drill Assumptions:** Children were brought to the hospital without their parents; were medically evaluated and discharged to the Pediatric Safe Area. Children participating were unable to provide any personal information



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 CAUDER 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@ARTRU)
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

Participant Characteristics

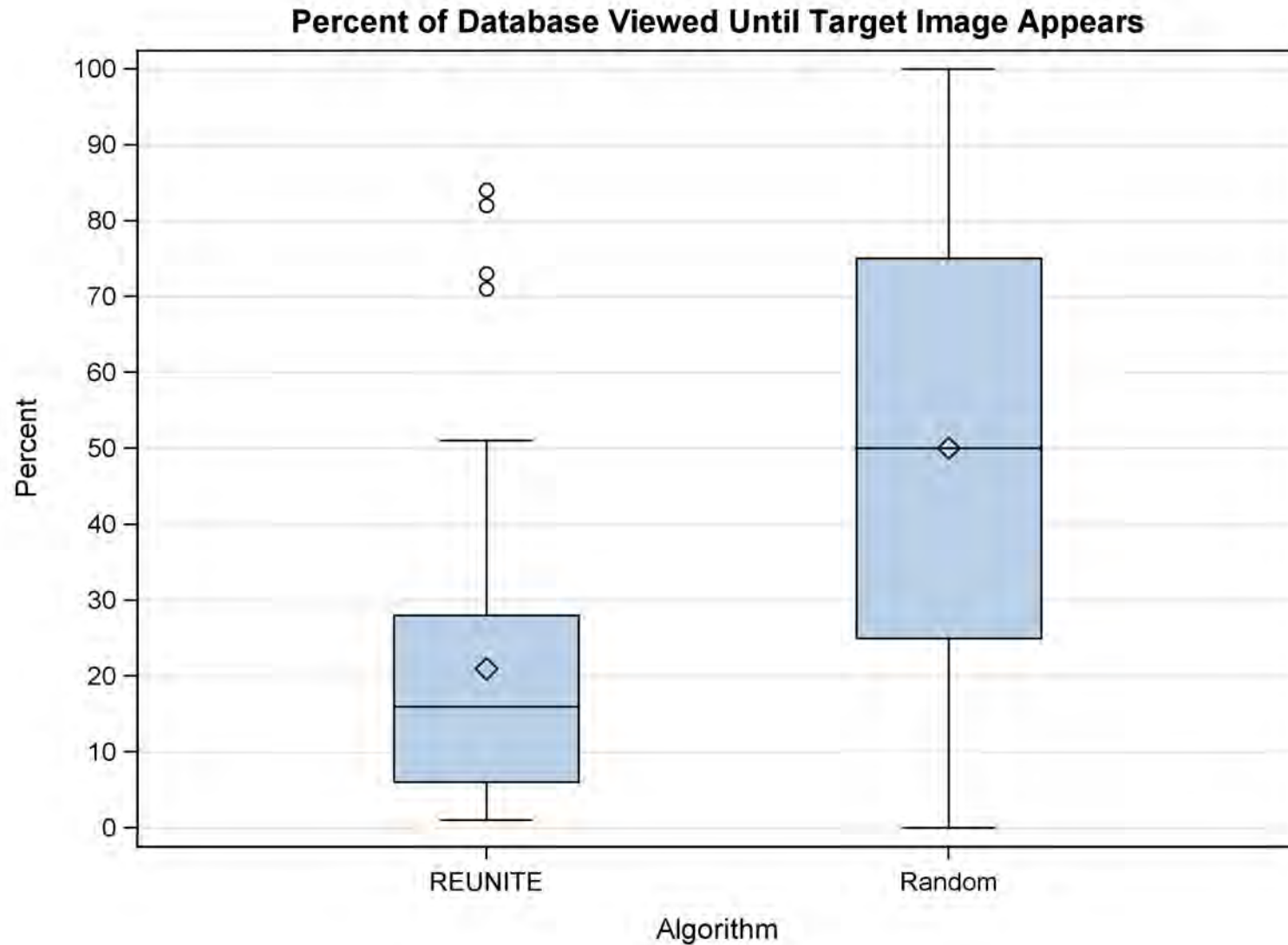
- 22 Families
- Parents
 - 28 Parents/Guardians
 - 97% 4 year college degree or more
- Children
 - 49 children participated
 - 41% searches for children <5 years of age



Accuracy of Facial Attributes

	Concordance between Parent and Tool (%)	Kappa
Skin Color	95%	.64
Eye Color	71%	.39
Age	60%	.39
Gender	75%	.44

Performance



Time to Identification

- Time until child appears on the screen(minutes): 5.6 (± 5.5)
- Time to reunite parent with their child (minutes): 46(± 12)
- However, **parents missed identifying their child 9.5%** of the searches!
- In addition, parents were stressed



Next Steps



Let's Talk: Planning for Family Reunification

- Encourage individual and family preparedness
- Develop/enhance reunification plans: who is at the table?
 - Emergency Management and EOCs
 - Child Welfare Agencies
 - Law Enforcement
 - School System
 - Corners/Medical Examiners
 - Healthcare (Pediatricians)
 - Volunteer Organizations



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
-



Thank You



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Until every child is well™



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