STRATEGIES FOR ACCESSIBLE EMERGENCY COMMUNICATIONS ADOPTION

ICADI

Newcastle, UK
**September 9, 2010**

Helena Mitchell, PhD

CACP

Strategies for Change

➢ Promote universal access to and use of mobile wireless technologies.

➢ Explore innovative and new applications of wireless technologies for people with disabilities.

➢ *Ensure critical and accessible emergency alerts are reaching people with disabilities.*

  ➢ utilizing the most optimal means and methods.

The BIG Picture: U.S. National Alerting

- Emergency Broadcast System 1950's-1994
  - Technical and operational overhaul.

- Emergency Alert System 1994-present
  - Flexible architecture for future expansion.
  - Activated more than 10,000 times per year.

- 2004 next-generation EAS rulemakings
  - Commercial Mobile Alert System (CMAS).
    - Wireless phone penetration at 84%.
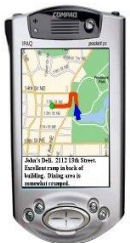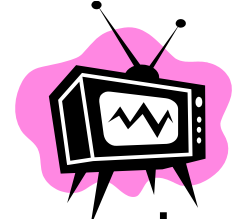
Why Wireless Accessible Alerting Matters

- **American Red Cross responded to more than 70,000 disasters in 2009.**

- **54 million** people have some type of disability.
  - Wireless devices that can receive accessible emergency alerts can increase independence and save lives.

- Accountability of Federal Government.
  - Fed rules and regulations seek citizen responses.
  - State and local entities need input in planning and training.

Research Agenda: Understanding User Needs

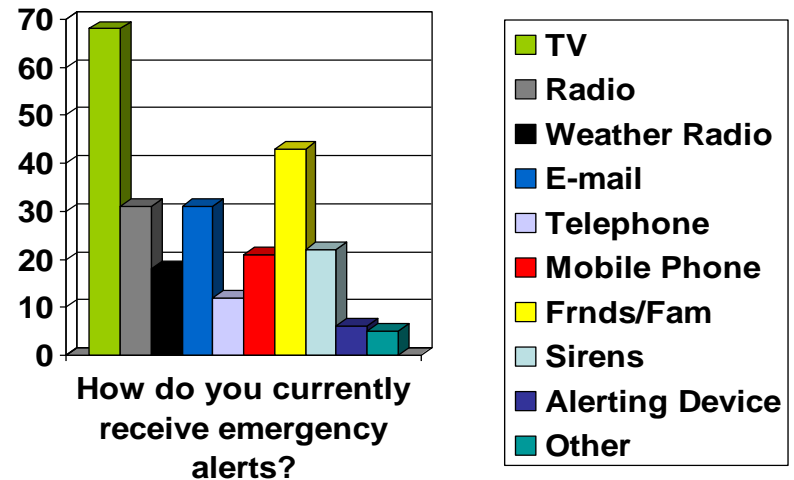**RERC Consumer Advisory Network**
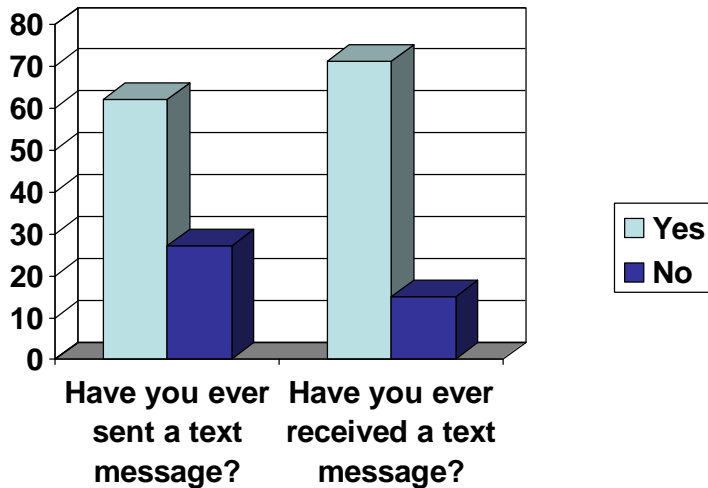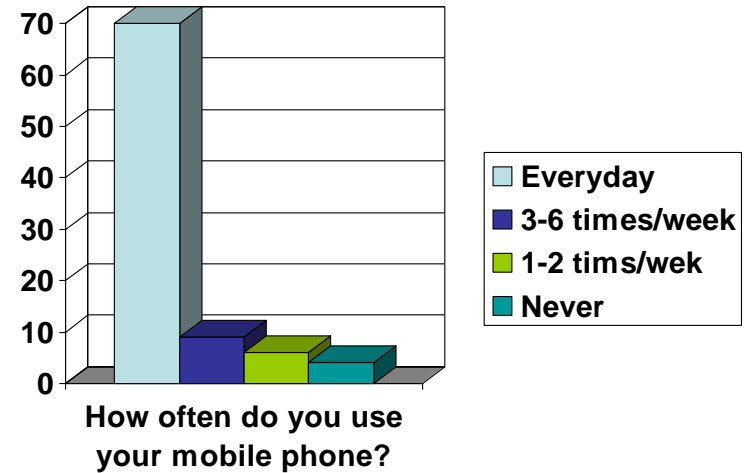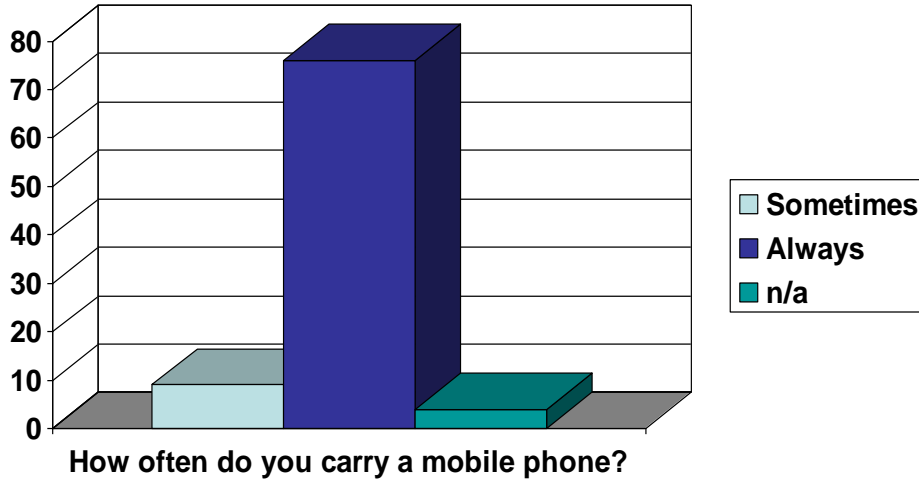1600 plus people with disabilities

Survey of User Needs
2009:

- ➢ **85%** use wireless products.
- ➢ **77%** state access to wireless important.
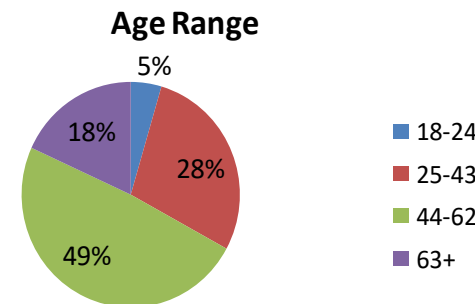- ➢ **65%** state a wireless device was important for its role in emergencies.

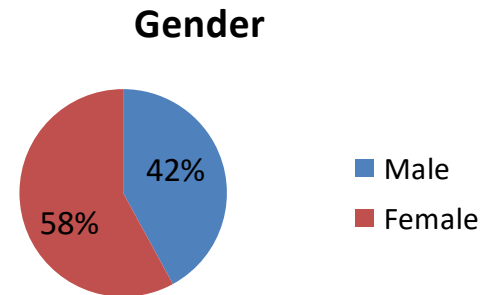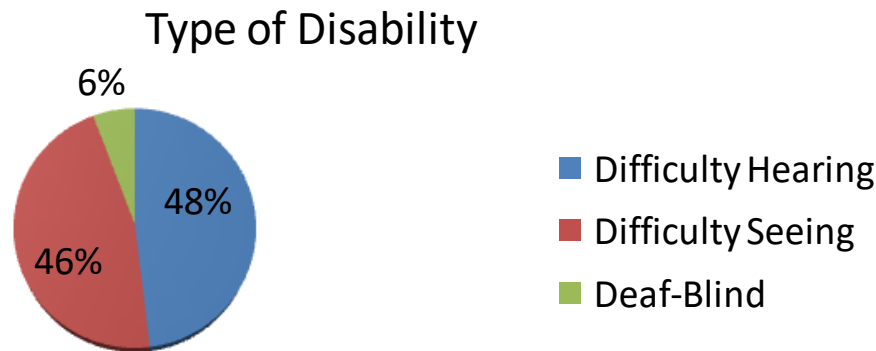# Development Agenda: Access to emergency alerts

R&D: Accessible alerting field trials

Over 100 participants. 12 field trials. Pre and post-test questionnaires. Reported findings and recommendations.

Type of Disability

6%

48%

46%

- Difficulty Hearing
- Difficulty Seeing
- Deaf-Blind

Gender

42%

58%

- Male
- Female

Age Range

5%

18%

28%

49%

- 18-24
- 25-43
- 44-62
- 63+

The Testing Begins

➤ Level of experience with wireless devices varied.

➤ Some testers used mobile phones with custom software, others used standard Blackberry devices.

Deaf & hard-of-hearing

■ Technically Savvy ■ Some Knowledge
■ Infrequent User ■ Unchecked

10%
50%
38%
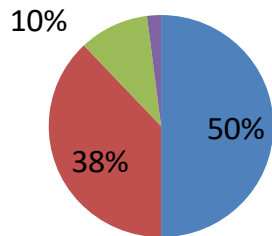
Blind and low-vision

■ Technically Savvy ■ Some Knowledge
■ Infrequent User ■ Unchecked

16%
53%
24%
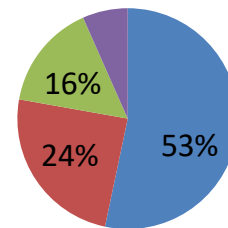
92% of field test participants with hearing impairments own a mobile phone or pager.

98% with vision impairments own a mobile phone or pager.

Emergency Alert System Trials

➢ **EAS Trials** (Nine groups at three sites): "wireless emergency alerting system client software was an improvement over other methods currently used for receiving emergency alerts"

  ➢ **Site 1: 94%** majority blind, low vision.

  ➢ **Site 2: 81%** of deaf and hard-of-hearing and deaf-blind.

  ➢ **Site 3: 92 %** persons with sensory limitations.

➢ **EAS Post-field tests: 83%** of all participants stated receiving emergency alerts via wireless devices was highly desirable.

Findings of CMAS Trials

➢ **Commercial Mobile Alerting System**
  ➢ Followed 2008 FCC rulemaking CMAS parameters.
    ➢ reduction in number of characters, no URL's, vibrating cadences.
    ➢ included improvements from previous trials.

➢ Of those who participated in previous tests **77%** stated the accessible CMAS was an improvement.

➢ **70%** of persons with hearing limitations found alerts to be an improvement.

➢ **83%** of persons with visual limitations.

Participant Comments - Positive

➢ Improvement over my current system, information more direct with no advertising.

➢ Being alerted by cell phone was great because I always have it with me.

➢ I would have had to rely on my husband contacting me on my cell or wait until I watched television at home. When the 9/11 bombing occurred I was clueless and my cousin was killed so it was a very traumatic experience.

Participant Comments - Constructive

➢ **24% stated it was not an improvement**

➢ Vibrate is working, however, we need special code light on pager.

➢ Text messages would alert me to check conditions, unless holding phone or BlackBerry wouldn't know it was vibrating and there was a message.

➢ Need stronger vibrations - several times.

➢ I felt the alert but couldn't get to the messages.

Participant Recommendations

- ➢ I suggest it needs to vibrate 5 or more times.

- ➢ Have a sound - I don't hear it, but my service dog would, make sure it is persistent.

- ➢ Attachment light that would catch my eyes - Buzz ok, but I carry the pager in my purse.

- ➢ Since I am a cochlear implant user I am only totally deaf when I am sleeping.

  - ➢ Linking mobile to home alerting system with bed shaker would help.

Strategies for Adoption

- ➢ Promoted inclusion of people with disabilities in R&D and field testing to better inform stakeholders on early universal design elements.

- ➢ Reported/worked with industry partners to verify wireless devices can offer accessible solutions.

- ➢ Impacted regulations by providing reports to policy makers and Federal agencies on accessibility solutions for alerting people with disabilities.

In Conclusion

Equal Access Benefits Everyone

Strategies for Accessible Emergency Communications Adoption

Helena Mitchell, PhD   helena.mitchell@cacp.gatech.edu
Salimah LaForce,   salimah@cacp.gatech.edu

Georgia Institute of Technology

http://www.wirelessrerc.org/about-us/projects/development-projects