Emergency Preparedness and Assistive Technology in Shelters

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As a Responder

As an emergency or volunteer responder (fire, law enforcement, emergency medical services, emergency management, public health, emergency volunteer and public works) you should be able to:

- Recognize characteristics

- Understand the complexity

- Learn strategies

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In the past…

We have treated people with disabilities as medically ill, child-like (even if they are 50 years old), helpless, needy and not able to take care of themselves

But today…

Active, healthy, educated, employed, independent world travelers, spouses, partners, parents, tax-paying citizens, respected and valuable customers and colleagues

Assistive Technology

any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities

Federal Register, August 19, 1991, p. 41272

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AT and Functional Needs

During this session, we will discuss how assistive technology (AT) is typically used and how it can help address the functional needs of persons with disabilities during an emergency and/or evacuation.

What are functional needs?

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Defining Functional Needs

Functional needs, instead of the "special needs" label, reflects the capabilities of the individual.

Does not reflect the individuals condition, label or medical diagnosis.

Image courtesy of 211sandiego.org

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"Functional Needs" Defined

Before, during, and after an incident, individuals with access and functional needs may have needs in one or more of the following functional areas:

- Maintaining independence
- Communication
- Transportation
- Supervision
- Medical care

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"Functional Needs" Defined

Individuals in need of additional response assistance may include those who:

- have disabilities;
- live in institutionalized settings;
- are older adults;
- are children;
- are from diverse cultures;
- have limited English proficiency or are non-English speaking.

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What are Access and Functional Needs?

Individuals whose needs may not be fully addressed by traditional service providers or who feel that they may not comfortably or safely access and use the standard resources available for disaster preparedness, response, relief or recovery. This includes, but may not be limited to:

• People with visual disabilities, blind	• Low literacy / health literacy
• Hard of hearing, deaf	• People who are geographically isolated
• People with intellectual or developmental disabilities	• Older Pennsylvanians
• Limited English proficiency	• People with special medical needs
• Children	• People who use mobility aids

Things to Remember About Functional Needs

• People with similar disabilities may have very different functional needs.

• People may have multiple impairments.

• People may or may not use AT.

• People who do not identify as having a disability may still have functional needs.

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"End the Awkward"
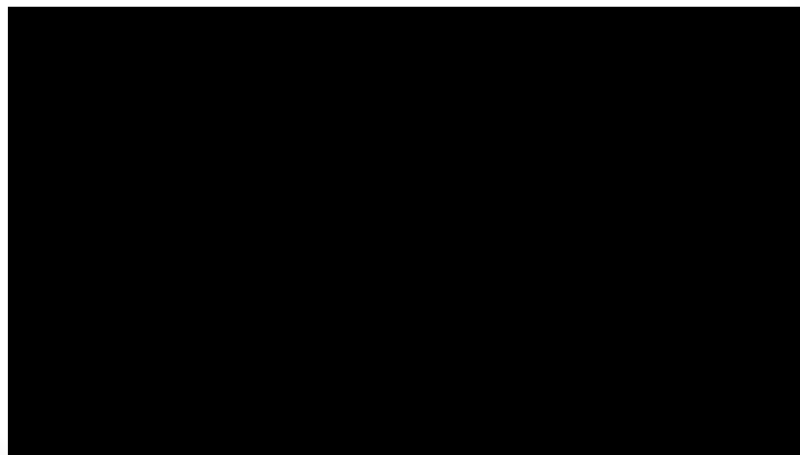
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How Is Assistive Technology Used?

What technology may be used by people with disabilities?
What might they bring to the shelter?
What questions might a shelter ask?

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Individuals with Access and Functional Needs

PEOPLE WHO USE MOBILITY AIDS

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'End The Awkward'
Bending Over To A Wheelchair User

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Individuals Who Use Mobility Aids

Mobility aids help people walk or move from place to place.

- Independently or requiring another person
- Includes: crutches, canes, walkers, wheelchairs, and motorized scooters (Medline Plus, 2012)
- XXX people in the United States (over age xxx) report they live with a physical disability (CDC, 2007)

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Individuals Who Use Mobility Aids

People who use mobility aids may hear, see, and understand standard emergency messages.

However, there are special considerations for this population such as the route of evacuation in an emergency (NFPA, 2007).

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Mobility Aids

- Walker

- Wheelchair (powered or manual)

- Scooter

- Cane

- White cane or guide dog

Individuals Who Use Mobility Aids

- Assistive Devices for Ambulation
  - Simple devices to help an individual walk (e.g. cane, crutches, and walkers)
    - Adjustable cane
    - Crutches (under the arm vs. cuffed to the forearm "Lofstrand")
    - Pick-up walkers (no wheels), sliders (small skis or tennis balls), rollator (four wheels),

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Individuals Who Use Mobility Aids

- Manual Wheelchair
  - Self-propelled or pushed along by a companion or attendant

- Scooters
  - Most are three-wheeled design, some four-wheeled
  - Power (electric) motor

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Individuals Who Use Mobility Aids

- Power Wheelchairs
  - Front, mid, and rear-wheel drive options
  - Joystick or alternate control device
  - Multiple seating options available

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Transportation Considerations

- Get to know the transportation needs of your community in advance.
  - Special transportation needs may include lift-equipped vehicle to transport the mobility aid

- Make sure that all facilities used as shelters are accessible

- **People who use electric powered mobility aids MUST have backup batteries**

People Who Use Mobility Aids

Questions to Ask
Individuals with Mobility Impairment

- Do you use a wheelchair or other mobility device?
- Do you have this device here?
- Do you have power and/or battery backup for electronic/battery-operated devices?
- Do you need help transferring from one place to another (e.g. from chair to bed)?

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Accommodations for People with Mobility Impairment

- Access to mobility devices, including access to AT reuse

- No-tech accommodations

  - Make sure that paths to emergency exits are clear

  - Make sure that emergency exits are wheelchair accessible (i.e. have ramps leading to/from)

Accommodations for Individuals with Mobility Impairment

- Low-tech AT accommodations

  - Patch kit for flat wheelchair tires

  - Heavy gloves for wheelchair users

  - Back-up batteries for motorized scooters or wheelchairs

Tell us what you see…

ENVIRONMENTAL CUES

The **Orange ribbon** is the symbol for kidney cancer awareness. The orange ribbon is also a symbol of leukemia, ADHD and self injury awareness
Kidney cancer information

The **Periwinkle ribbon** color signifies stomach cancer awareness, pulmonary hypertension, and eating disorders.
Stomach cancer information

The **Blue awareness ribbon** is a symbol for prostate cancer as well as Hydranencephaly, and child abuse awareness.
Prostate cancer information

A **Gold ribbon** signifies childhood cancer awareness and includes cancers such as the types of leukemia
Childhood cancers

Violet ribbon is the sign for Hodgkin's Disease or Lymphoma a malignancy starting in the lymphatic tissues.
Hodgkin's Disease

The Silver awareness ribbon denotes ovarian cancer (Australia) which can take four different forms.
Ovarian cancer

The **Purple ribbon** is awareness for Pancreatic cancer, Sarcoidosis, cystic fibrosis, Fibromyalgia, Lupus, and alzheimer's disease.

The **Pink ribbon** denotes breast cancer awareness. A cancer formed in the tissues of the breast.
Breast cancer

The **Gray awareness** ribbon is for brain cancer, asthma, and diabetes awareness.
Brain cancer

The **Pink and Blue** colored awareness ribbon is associated with inflammatory breast cancer.
Inflammatory Breast Cancer

The **Jade Ribbon** awareness is for hepatitis B and liver cancer in Asia and Pacific communities.
Liver Cancer

The **Teal Ribbon** awareness stands for agoraphobia, anxiety disorders and ovarian cancer.
Agoraphobia

The **Red Ribbon** awareness ribbon was created by the New York Visual AIDS Artists Caucus in 1991
HIV and Aids

The **Green Awareness ribbon** is the symbol for organ transplantation and Lyme Disease

The **Puzzle Awareness ribbon** is for awareness of Autism, a development disorder with impaired social communication

The **White awareness ribbon** stands for Multiple Hereditary Exostoses a rare condition when exostoses develop on bones.

The **Blue Purple ribbon** denotes childhood or pediatric stroke and rheumatoid arthritis awareness.

The **Cloud Colored Ribbon** denotes awareness for the childhood condition Congenital Diaphragmatic Hernia

The **Pearl awareness ribbon** is the color designated for lung cancer awareness.

The **Yellow awareness ribbon** denotes suicide awareness and Endometriosis Awareness

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Individuals with Access and Functional Needs

PEOPLE WITH
SENSORY IMPAIRMENT

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Individuals with Access and Functional Needs

PEOPLE WHO USE ASSISTIVE TECHNOLOGY TO AID HEARING

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"End The Awkward"

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Deaf and Hard of Hearing Demographics

Hard of Hearing or Deaf	Percentage of age group
< 5 years old	0.5%
5-17 years old	0.7%
18-34 years old	0.9%
35-64 years old	2.9%
65-74 years old	9.4%
> 75 years old	23%

(American Community Survey, 2010)

- 10,528,767 - 38,225,590 Nationwide have "Hearing Problems"
  (American Community Survey, 2010; Gallaudet University Library; 2010)

Hard of Hearing, Deaf

Individuals with Hearing Loss

May not hear standard emergency messages

Degrees of hearing loss:

- Age of onset: From birth or late deafened
- Communication methods: May or may not use sign language
  - American Sign Language (ASL) is its own language

- Degree: Does not hear at all or can hear with an aid
- Deaf-blind: hearing loss and vision loss

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Individuals with Hearing Loss

- Deaf
  - No residual hearing
  - Generally employ sign language and may identify with Deaf culture
  - Lip-reading, hearing aids and other assistive technology to aid in communication
  - Congenitally deaf
  - Adventitiously deaf

- Hard of Hearing
  - Any degree of hearing: mild to profound
  - Use residual hearing, hearing aids, lip-reading, and assistive technology to aid communication

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Communicating with Individuals with Hearing Loss

- It's good to use gestures and facial expressions!
- Notepad
- Typed pre-made words and phrases

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Technology Used by Individuals with Hearing Impairment

- Communication with others
  - Hearing aids
  - Cochlear implants
  - Assistive listening devices
  - Sign language interpretation
  - Typed communication
  - Picture / photo books or letter boards

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Technology Used by Individuals with Hearing Loss

- Communication with others
  - Hearing aids
  - Cochlear implants
  - Assistive listening devices
  - Sign language interpretation
  - Typed communication
  - Picture / photo books or letter boards

- Communication via phone
  - Texting
  - TTY
  - Relay services

- Communication about environment
  - Alerting devices with vibration or flashing lights

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Accessibility Requirements

- Deaf and hard of hearing people are entitled to effective communication with state and local government agencies. -Title II of the Americans with Disabilities Act (ADA)
- In the case of persons who are deaf or hard of hearing, emergency information that is provided in the audio portion of programming must be provided either using closed captioning <u>or</u> other methods of visual presentation, such as open captioning, crawls or scrolls that appear on the screen. –FCC Consumer Guide
- Accessibility of electronic and information technologies - Section 508 of the Rehabilitation Act

Hard of Hearing, Deaf

Reaching the Whole Community

- **TTY/TTD PHONES (Text Telephones)**
  - If you set up emergency hotlines during an event - include TTY/TDD numbers.
  - If TTY/TTD numbers are not available provide instructions. *Example: "TTY callers use 711 relay."*
  - People who are Deaf (ASL users) may use VIDEO RELAY – need video phone
  - People who are hard of hearing may benefit from amplified phone – or a phone that displays text for the incoming message – e.g. CapTel or CaptionCall.

Hard of Hearing, Deaf

Reaching the Whole Community

- **VIDEO : ASL INTERPRETER**
  - Use professionally trained interpreters.
    - Pennsylvania Registry of Interpreters for the Deaf
  - ASL is not a "manual" form of English. Some ASL users may read and write in a language other than English.
  - Camera operators and editors need to include the sign language interpreter in the shot.

c/o Bloomberg, 2012

c/o Kansas Health Institute, 2011

c/o Scripps Howard Foundation,

Accommodations for Individuals with Hearing Impairment

- Low-tech AT accommodations
  - Signs/maps
  - Pencil/paper available in rescue areas

- Specialized AT accommodations
  - Lighted fire strobes (not more than 5 flashes/second)
  - Alerting devices, vibrating paging devices, 2-way paging systems
  - Text messages
  - Real-time communication device

Accommodations for Individuals with Hearing Impairment

- Specialized AT accommodations

  - UbiDuo
    - www.scomm.com

  - Captioned Telephone
    - Captel 840

  - Pocket Talker
    - www.hearmore.com

  - Amplified Telephone

Organizations to Know

Hard of Hearing, Deaf

National Association of the Deaf
> The nation's premier civil rights organization of, by and for deaf and hard of hearing individuals in the United States of America.

World Federation for the Deaf
> Supports and promotes in its work the many United Nations conventions on human rights, with a focus on Deaf people who use sign language, and their friends and family.

PA Society for the Advancement of the Deaf
> Fighting discrimination and public misconceptions in our everyday lives by lobbying for the establishment of a deaf/hard of hearing bill of rights with local, state, and federal government through different agencies and organizations.

Hearing Loss Association of America
> provides assistance and resources for people with hearing loss and their families to learn how to adjust to living with hearing loss.

Questions to Ask
Individuals with Hearing Loss

- Do you use a hearing aid or other assistive listening device?

- Do you have these devices with you?

- Do you have power and/or battery backup for electronic/battery-operated devices?

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Questions to Ask
Individuals with Hearing Impairment

- How do you best communicate with others?
  - Sign language interpretation?
  - Lip reading?
  - Writing/typing?

- Do you use a service animal to alert you to noises?
- Is the animal here? Do you have food/water for it?

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General Tips to Consider for Individuals with Hearing Impairment

- It's good to use gestures and facial expressions!

- Keep a notepad on hand

- Typed pre-made words and phrases

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Individuals with Access and Functional Needs

PEOPLE WHO USE ASSISTIVE TECHNOLOGY TO AID VISION

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Demographics
Individuals with Vision Loss

Total in Pennsylvania	249,881
Age Under 5	2,338
5 – 7	14,114
18 – 34	19,895
35 – 64	98,318
65 – 74	33,527
75 and older	81,689

(American Community Survey, 2010, AFB, 2012

Age-related macular degeneration (AMD) is a leading cause of vision loss in Americans 60 and older. NIH: National Eye Institute, 2012)

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Mobility Considerations for
Individuals with Vision Loss

- Individuals with visual disabilities will be affected by schedule and route changes for public transportation.

- Individuals can travel with service animals.

- Individuals with visual disabilities can be disoriented by changes in physical environment.
  - Snow
  - Flooding
  - Wet roads
  - Curb location
  - Sound cues

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Technology Used by Individuals with Vision Loss

- Navigation
  - Glasses
  - Binoculars / monoculars
  - Canes

- Communication
  - Video magnifiers
  - Hand held magnifiers
  - Note takers
  - Book readers

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Special Note

Whether it is a natural disaster, community disturbance, major accident, an outbreak of hazardous chemicals, or some other emergency situation it is the responsibility of first responders to protect life, property, and return to their family safety.

Once an individual that is involved in an emergency situation is safe, then the following questions might be asked....

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**Questions to Ask
Individuals with Vision Loss**

- What do you normally use to improve vision, read, or identify objects?

- What do you normally use for navigation?
    - Glasses?
    - White cane?
    - Service animal?
    - Another device?

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**Questions to Ask
Individuals with Vision Loss**

- Do you have these devices with you?

- Do you have power and/or battery backup for your electronic/battery-operated devices?

- Do you have food/water for a service animal?

- Do you need someone to assist with navigation in addition to these devices?

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Accommodations for Individuals with Visual Impairment

- No-tech accommodations
  - Make sure that path to exit is free of obstacles
- Low-tech AT accommodations
  - Braille or tactile signage/maps
  - High contrast/glow-in-the-dark guides
- Specialized AT accommodations
  - Audible directional signals or pedestrian signals (also good in case of fire with smoke)

Tell us what you see…

ENVIRONMENTAL CUES

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Individuals with Access and Functional Needs

TECHNOLOGY USED BY INDIVIDUALS WITH SPEECH IMPAIRMENT

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Technology Used
by Individuals with Speech Impairment

- Speech generating device

- Communication board

- Voice amplifier

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Technology Used by
Individuals with Speech Impairment

Image courtesy of crotchedmountain.org

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Technology Used by Individuals with Speech Impairment

Image courtesy of autismspeaks.org

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Technology Used by Individuals with Speech Impairment

Free download available from disabilities.temple.edu

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Technology Used by
Individuals with Speech Impairment

Image courtesy of ipadforums.net

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Accommodations for Individuals with Speech Impairment

- Low-tech AT accommodations
  - Make sure paper/pencil available in rescue areas
  - Paper communication board
- Specialized AT accommodations
  - Alpha-numeric pagers
  - Simple battery operated communication device

Questions to Ask
Individuals with Speech Impairment

- Do you use an augmentative and alternative communication device (AAC) to communicate with others?
- Do you use a voice amplifier?
- Do you have this device with you?
- Do you have power and/or battery backup for electronic/battery-operated devices?

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Individuals with Access and Functional Needs

TECHNOLOGY USED BY INDIVIDUALS WITH COGNITIVE IMPAIRMENT

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Technology Used by Individuals with Cognitive Impairment

- Following instructions
  - Memory cueing device

  - Reminder alarms
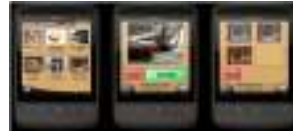
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Questions to Ask Individuals with Cognitive Impairment

- Do you have trouble remembering instructions or where you are?
- Do you use a device to record instructions or reminders?
- Do you have that device with you?
- Do you have battery back-up for electronic/battery-operated devices?
- Do you need assistance in understanding or following directions or finding things in addition to this device?

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Accommodations for Individuals with Cognitive Impairment

- No-tech accommodations
  - Frequent drills
  - Advance warning of drills
- Low-tech AT accommodations
  - Color-coding rescue areas or exit doors
- Specialized AT accommodations
  - Providing emergency evacuation plan in alternative formats
  - Include emergency plan how-to in electronic reminder devices

Tell us what you see…

ENVIRONMENTAL CUES

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Service Animals

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Image courtesy of Susquehanna Service Dogs

Service Animals

Images courtesy of avaxnews.com

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Service Animals

- As of March 15, 2011, <u>only</u> dogs are recognized as service animals under Title II and Title III of the ADA. However, miniature horses may also need to be admitted in public areas in some cases.

- Psychiatric Service Animal (PSA)
- Emotional Support Animal (ESA)
- Companion Animal / Dog
- Therapy Dog

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Identifying Service Animals

Two questions may be asked, but only when an individual's disability and need for the animal are not obvious.

- Is this animal needed because of a disability?

- What tasks or work has the animal been trained to perform?

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ASSISTIVE TECHNOLOGY IN SHELTERS

What additional items can shelters make available to people with disabilities?

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Effective Communication

- Shelters must ensure that people with disabilities receive necessary information

- People with disabilities should have access to information through the methods they prefer, unless it would impose an undue financial and administrative burden or fundamental alteration

28 C.F.R. § 35.160(b)(2), § 35.164

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Effective Communication: Alternatives

On-the-spot, as needed
- Magnification
- Qualified human reader
- Guides/greeters
- Written notes

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Effective Communication: Alternatives

Advance Planning

- Braille
- Large print (18+ font)
- Audio recordings
- Qualified sign language interpretation (on-site or via Video Remote Interpreting)
- TTYs (text telephones)
- Printed signs

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Staff Training

- Shelter staff and volunteers should be aware of availability and location
  - Any assistive technology that may be available on-site, including TTYs, assistive listening devices, magnifiers, other communication devices, etc.
  - Other disability-related spaces or elements, such as refrigerators, service animal relief areas, accessible toilet facilities, etc.

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Suggestions for building a kit for effective communication!

BUILDING AN EFFECTIVE COMMUNICATION KIT

Sample Kit for Shelters to Provide Effective Communication

- Captel 840 Caption Phone (www.captel.com)

- UbiDuo (www.scomm.com)

- Reizen Big Button Phone (www.hearmore.com)

- Pocket Talker (www.hearmore.com)

- AT Max Illuminated Magnifier (independentliving.com)

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Sample Kit for Shelters to Provide Effective Communication

- Video Hand Magnifier

- 20-20 Pens (independentliving.com)

- Signature Guide (maxiaids.com)

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Sample Kit for Shelters to Provide Effective Communication

- Multi Phone Charger

- Dry Eraser Boards and Markers

- Low-Tech Communication Picture and/or Letter Board

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Sample Kit for Shelters to Provide **Effecti**ve Communication

Free download available from disabilities.temple.edu

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Sample Kit for Shelters to Provide **Effecti**ve Communication

http://disabilities.temple.edu/aacvocabulary/e4all.shtml

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Sample Kit for Shelters to Provide Effective Communication

- **Tablet Technology (e.g. iPad or Android)**
  - Relay Services
  - Captioning
  - Augmentative Communication
  - "Notepads"
  - Text readers

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Sample Kit for Shelters to Provide Effective Communication

- Facetime (iOS only)
- Captioning and Video Relay Apps
  - Hamilton CapTel Apps for Smartphones
  - Z5 Mobile
  - Sprint® Mobile IP
  - P3 Mobile – VRS
  - Show Me for Emergencies (free for iOS and Android)

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Sample Kit for Shelters to Provide Effective Communication

- Augmentative Communication Apps
  - Proloquo2Go (iPad only)
  - Tap to Talk (iPad and Android)
  - Notepad or Memo
  - Many others

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Sample Kit for Shelters to Provide Effective Communication

- Text Reading and Magnification Apps
  - Zoom Reader (iPad only)
  - Text Detective
  - VoiceOver (iPad only)
  - Zoom Plus Video Magnifier (Android only)
  - EyeSight (iPad only)

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Staff Training

- Shelter staff and volunteers should be aware of availability and location
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  - Other disability-related spaces or elements, such as refrigerators, service animal relief areas, accessible toilet facilities, etc.

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Resources

Pennsylvania's Initiative on Assistive Technology (PIAT) at Temple University

disabilities.temple.edu

Association of Assistive Technology Act Programs (ATAP)

www.ataporg.org

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Resources

RESNA Rehabilitation Engineering and Assistive Technology Society of North America

Rehabilitation Engineering and Assistive Technology Society of North America (RESNA)

www.resna.org

RESNA Catalyst Program

www.resnaprojects.org

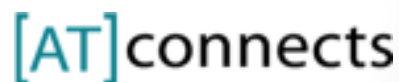*RESNA* **Catalyst Project**
Providing Technical Assistance to AT Act Entities

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Resources

Pass It On CENTER ... *the National AT Reuse Center*

Pass It On Center
www.passitoncenter.org

[AT]connects
www.atconnects.com

[AT]connects

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National Network of ADA Centers

Funded by the National Institute on Disability and Rehabilitation Research

1-800-949-4232 voice/tty
www.adata.org

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ADA Training Resource Center:
Your One-Stop for Courses, Events & Tools on the Americans with Disabilities Act
http://www.adacourse.org

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Question and Answer Time

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Institute on Disabilities at Temple University
1755 N 13th Street
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