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Preparing people with special needs for emergencies: The Alabama Chemical Stockpile Emergency Preparedness Program (CSEPP) model

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ABSTRACT

A six-county region in northeastern Alabama put together one of the United States' most progressive efforts to assist the special-needs population in preparing for and protecting themselves against emergencies. The region is host to a US Army depot that stores and incinerates an aging chemical weapons stockpile, the release of chemical weapons agent from which could pose a threat to the surrounding area. Almost a decade ago, the counties collectively agreed to provide their most vulnerable residents—those with physical, medical, or mental disabilities or those lacking transportation who have no family, neighbors, or friends nearby—with emergency preparedness assistance equal to or greater than that provided to the general population. Due to their immediate proximity to the depot, two counties faced the greatest challenge in providing "maximum protection" to their residents. These counties made substantial adjustments to the protective-equipment distribution process and to the public training process for those residents with special needs. Self-sufficiency is sustained through repeated, empathetic contact between emergency management personnel and the special-needs population with additional specialized resources deployed on a proactive basis throughout the region.

INTRODUCTION

The 1988 signing of the Memorandum of Understanding between the US Army and the Federal Emergency Management Agency (FEMA) created the Chemical Stockpile Emergency Preparedness Program (CSEPP).[1] The agreement called for the establishment of an emergency response program to prepare for potential accidents related to chemical weapon storage and disposal operations.

Six counties ring the Anniston Army Depot (ANAD) in Anniston, Alabama. The Alabama CSEPP has aggressively prepared its citizens for the unlikely event of a release of a chemical weapons agent (CWA) at ANAD. A key component of the emergency preparedness effort has been to plan for the population of persons with disabilities and other special needs.[2-4] This article reports on the steps that were taken to protect them.

CHEMICAL WEAPONS STORAGE AT ANAD

Prior to the beginning of the ANAD CWA destruction program in August 2003, ANAD stored approximately 2,254 tons of CWAs in a variety of configurations. The CWAs present in the 2003 ANAD stockpile included the nonpersistent nerve agent GB, the persistent nerve agent VX, and vesicants (blister or mustard agents) HD and HT. These agents are being incinerated pursuant to federal law and international treaty, with completion expected around 2010. Meanwhile, although unlikely, a situation could arise wherein airborne CWAs could reach the surrounding population.

The magnitude of the impact of a CWA release depends on a number of factors, including the amount of agent released, the type of agent released, the type

of release (spill, fire, or explosion), weather conditions, distance from the accident, and the ability of the population to take appropriate protective actions. For all accident scenarios, the primary hazard to the population is agent vapor, because it can be carried downwind very quickly.

The primary objective of off-post ANAD-area emergency planning was to provide the general public with "maximum protection" from the consequences of a CWA release.[5] Maximum protection has been defined as taking preparedness and protective actions "to mitigate the effects of an accident to the maximum extent practicable."[6] In Alabama, this has been further defined as ensuring a risk of no greater than "one fatality in 2,500,000 years,"[7] which is one-tenth of 1 percent of the fatality risks to which the general public is exposed from other potential accidents such as automobile crashes.

IMPETUS FOR ADDRESSING THE SPECIAL-NEEDS POPULATION IN THE ALABAMA CSEPP

In 1997, the six counties comprising the Alabama CSEPP community—Calhoun, Cleburne, Clay, Etowah, St. Clair, and Talladega—committed themselves to providing a level of protection to persons with special needs that was equal to or greater than the protection being provided to the general population. This initiative was strongly supported by the federal government[8,9] and widely featured in the news media.[10-12] The measures taken by the CSEPP community in preparing its general population provided the framework for its outreach efforts to the special-needs population. These efforts are consistent with federal laws enacted as part of a burgeoning national campaign for public safety following the events of September 11, 2001. A federal appeals court ruled in 2000 that a public school violated Title II of the Americans with Disabilities Act (ADA)[13] when it excluded a disabled student from its emergency evacuation plan.[5] A Maryland state court held in 2004 that Title III of the ADA required the emergency evacuation plans of a privately owned department store to reasonably accommodate the needs of disabled customers.[14] Also in 2004, the President issued an Executive Order for Individuals with Disabilities in Emergency Preparedness,[15] and the US Department of Justice issued An ADA Guide for Local Governments.[16] The National Organization on Disability began its Disaster Mobilization Initiative

Mitigating disaster effects on persons with special needs

Emergency planners can do little to counter some of the effects of disasters, such as psychological distress and changed city environments, on people with disabilities. What can be done is to ensure that the most critical services and special needs are made a priority during the recovery phase. Major considerations include:

- making allowances at blockades, shelters, and other impacted areas for access by attendants, home health aides, visiting nurses, guide animals, and other individuals crucial to the immediate healthcare needs of people with disabilities;
- identifying the impact on the disability community of an interruption in utility services;
- planning for accessible shelter and appropriate temporary housing needs;
- addressing how people with disabilities who are employed by businesses will get to work; and
- involving representatives of the disability community in "after action reviews" or "hot wash reports" to capture the true impact of the disaster and to improve plans for the future.

The ability of emergency professionals to make informed, often split-second decisions for and about special needs issues during the response and recovery phases of an emergency is directly related to planning and preparation prior to a disaster. (Source: *Emergency Preparedness Initiative: Guide on the Special Needs of People with Disabilities for Emergency Managers, Planners and Responders.* Washington, DC: National Organization on Disability, 2005: p. 23.)

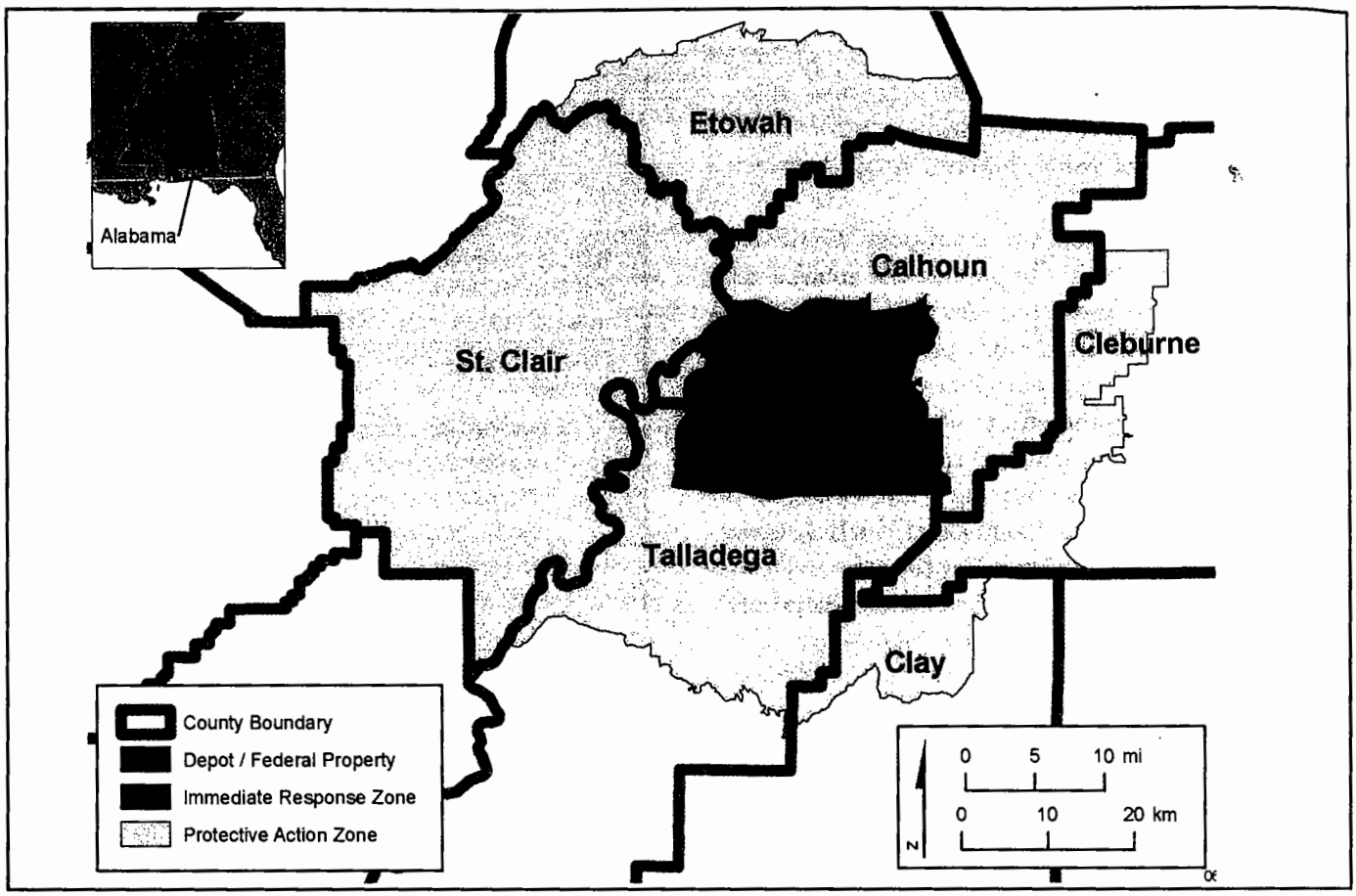

Figure 1. Emergency planning zones in the Alabama CSEPP community.

in 2001 and has issued a 35-page guide on the special needs of people with disabilities specifically for emergency managers.[17]

WAYS TO MINIMIZE OR AVOID CWA EXPOSURE

If a CWA release were to occur, protection from exposure to vapors could be accomplished in two ways: evacuating the area before the vapor plume arrived or taking shelter while the plume passes through the area (which may, in turn, need to be followed by evacuation). Evacuation has the advantage in that protection from exposure is complete. In areas where it is not possible to relocate before the plume arrives, sheltering in a building with little infiltration of outside air offers the best protection. However, the degree of protection offered by sheltering is affected by how long shelters are exposed to an agent, the methods used to reduce air infiltration, whether sheltering begins before arrival of the plume (e.g., in a predesignated safe room), and whether persons exit the shelters at the optimum time for avoiding unnecessary exposure.

Four levels of sheltering effectiveness have been defined[4]:

- Normal: closing all windows and doors, turning off heating and air-conditioning systems, and remaining in an interior safe room.

- Expedient: additions to normal sheltering that may be implemented quickly and easily at the time of an emergency (e.g., placing a rolled towel at the base of the safe room door; taping over air vents, electrical outlets, or other openings in the safe room; taping over door cracks; or taping plastic sheeting over windows and doors).

- Enhanced: measures taken in advance of

Table 1. Distribution of protective equipment to the general population		
Protective equipment	**Immediate response zone (IRZ)**	**Protective action zone (PAZ)**
Tone alert radio (TAR)	✓	✓
Shelter-in-place (SIP) kit for expedient sheltering	✓	✓
Portable room air cleaner (PRAC)	✓	
Respiratory protection device	✓	

an emergency such as caulking, sealing, or structural modifications that reduce the rate at which external vapors enter a building or safe room.

- Pressurized: using special filter-blower units to pressurize a tightly sealed safe room (the unit filters incoming air and produces an outflow of air through leakage points, keeping out contaminated air).

For the general population, the Alabama CSEPP community adopted a level-of-protection approach based on distance from ANAD. The surrounding area was divided into two emergency planning zones (Figure 1). The immediate response zone (IRZ) is roughly circular with a radius of 6.2 to 12.4 miles. The approximately 30,000 IRZ households would have less than one hour to respond to a CWA release, so sheltering in place is probably preferable to evacuation.[18] The second zone is the protective action zone (PAZ), which extends further outward with a radius of approximately 18.6 to 31.1 miles. Most people in this zone could respond either by evacuation or sheltering in place.[19]

IMPLEMENTATION OF THE ALABAMA CSEPP IN THE GENERAL POPULATION

In mid-2003, each of the six Alabama CSEPP counties received the funding necessary to begin the acquisition and distribution of protective equipment for the general population. Residents in the IRZ were required to travel to the McClellan CSEPP Training and Distribution Center to receive their zone-appropriate equipment and training. Equipment options included some or all of the following:

- respiratory protection devices providing a specially filtered individual air supply (can be donned for limited periods while sheltering in place or evacuating) for those in close proximity;
- portable room air cleaners (PRACs) with charcoal filters for use in conjunction with shelter-in-place kits to remove CWAs that infiltrate the safe room;
- tone alert radios (TARs) (special radios that can be activated by local government agencies to deliver hazard notification and protective action recommendations) out to 11.4 miles; and
- shelter-in-place (SIP) kits to reduce infiltration of outside air into the safe room of a building (kits consist of items such as duct tape, painter's tape, plastic sheeting, scissors, towels, and sealing instructions).

The six county emergency management agencies (EMAs) strove to educate the general population through a myriad of publications (calendars, flyers, and booklets) and media campaigns about the availability of protective equipment and what constitutes appropriate protective action. As a result, 39 percent of IRZ households received protective equipment, while those who reside closest to ANAD had a 50 percent rate of receipt.[20] Approximately 21 percent of the 138,000 PAZ households requested and received SIP kits.[21] When Warning Systems, Inc., an emergency-notification systems provider, was contracted to implement the counties' offer of free TAR installation, approximately 95 percent of households accepted.[22]

CHARACTERISTICS OF THE SPECIAL-NEEDS POPULATION

The term "special-needs population" is defined by the CSEPP as including sensory, mobility, or mentally impaired individuals; individuals with special equipment needs because of medical conditions; chronically ill persons; individuals who do not own or have access to a vehicle; and unattended children who would need assistance in the event of an accident.[23] The emergency planning literature shows clear differences between the ability of the general public to prepare for and respond to emergencies in contrast to the special-needs population. Parr,[24] for example, noted that both children and the elderly are especially vulnerable in disasters, and that their increased risk under such circumstances should be taken into account in disaster planning and preparations. Rahimi[25] echoed these sentiments, pointing out that the general preparedness guidelines provided for able-bodied individuals fall short of helping disabled groups. Van Willigen et al.[26] went on to state that the disproportionate impact from disasters suffered by the special-needs population could be mitigated by appropriate programs and policies. Jones[27] stressed that preplanning in matters of life safety can significantly boost the independence of the physically disabled.

Different types of impairments have varying impacts on the ability to take protective action. For instance, elderly and mobility-impaired persons may have considerable difficulty implementing expedient shelter-in-place protection because of impaired physical ability or lack of resources to seal a safe room properly.[28] Some conditions, such as back problems, may make it difficult to implement shelter-in-place measures without assistance but may have little or no impact on the ability to evacuate prior to plume arrival, seek shelter inside a building, or evacuate from an area after exiting a shelter. Other conditions, such as the inability to drive, may have no effect on the ability to shelter in place but may make it impossible to evacuate without assistance prior to plume arrival.[26]

In 1998, the Alabama EMA and the six CSEPP county EMAs took aggressive steps to identify and register persons with special needs who required assistance to prepare for and carry out instructions to leave or shelter in place.[3] This effort resulted in an annually updated voluntary registry of individuals and the disabilities causing them to need special assistance. To facilitate the emergency planning efforts, Argonne National Laboratory (Argonne, IL) developed the Special Population Planner (SPP), a computerized geographic information system.[2] Metro Services of Anniston, an Argonne subcontractor, used the SPP software to enter and geographically reference data on each person with special needs who chose to participate. Because few special-needs persons used post office boxes for mail delivery, the residences were relatively easy to map and geocode.

The first priority was to register those persons with special needs who did not have family or a circle of friends and neighbors nearby to assist them in preparing for and responding to emergencies. (Approximately 30 percent of persons with special needs had a guardian or other caregiver to assist in the registration process.) Because first responders would be unable to accommodate a large number of calls for assistance in an emergency, and since plume-transit time might not permit any response in some areas, this population needed to become more self-sufficient.[3]

The first major data-gathering effort took place in 1999, with annual updates occurring thereafter. The Alabama EMA and the six Alabama CSEPP counties decided that data would be voluntary and self-reported; i.e., no attempt would be made to assess or second-guess the accuracy of reports by persons who registered themselves as having special needs. The information that the special-needs population reported to Metro Services about their conditions and their ability to take protective actions became the basis for identifying special-needs households and assessing the measures that would be needed for each. It was soon apparent that many persons with special needs lacked support in preparing for emergencies due to a variety of circumstances, including living in high-crime neighborhoods where they did not trust those around them; not having established a support network with neighbors; not having family members or friends residing in the area; not having maintained church or social contacts because of health problems

Table 2. Registration turnover of persons with special needs in the immediate response zone (IRZ)				
Year of registry update	Total number of registered persons	Number of first-time registrants	Inactive records*	Turnover (percent)
2001	2,337	736	1,693	51
2002	2,859	998	1,092	37
2004	2,213	378	730	28

*Records were removed from the registry when previously registered persons stated that they were no longer living independently, stated that they no longer needed assistance, requested that their records be removed from the database, could not be reached, were reported as deceased, etc.

or a lack of transportation; or having spouses and/or companions who had become incapacitated or ill, requiring most of their time.

The SPP database of persons in the IRZ is repeatedly updated using a combination of saturation mailings, targeted distributions, referrals, record verification, and telephone contact.[3] Three full registry updates have been completed (Table 2) in which everyone in the database received his or her personal record for verification. All residences and post office boxes were sent self-registration packets in case unregistered occupants felt they now needed assistance. Each year, fewer inactive (unverified) records have remained as the process of updating has become more effective. The volatility of the SPP database has decreased over time as well, with some 40 percent of those records verified in 2004 continuing in the database since the March 2001 update. Registration turnover continues to be an issue, however. A nearly 30 percent turnover of the database resulted from the fourth annual data-gathering cycle.

An analysis of the data provided by those registering in 1999 as persons with special needs[3] revealed that the special-needs population in the IRZ consisted mostly of elderly persons; 62 percent of the population was 70 years of age or older, and 80 percent was 60 or older. Some 38 percent were married. The rest were either widowed (42 percent), divorced (10 percent), or had never married (10 percent). Women outnumbered men by a ratio of two to one. Members of the special-needs population resided in houses (79 percent) but also in mobile homes (8 percent) or in apartments, condominiums, or duplexes (13 percent). Eighty percent owned their residence. Of those who reported income, 68 percent stated they had incomes of $15,000 or less. Half had completed at least 12 years of schooling. Those with physical or mental impairments had generally experienced these problems for more than five years.

Table 3 presents the percentage of registered persons from the IRZ reporting various impairments at the conclusion of the 2004 registry update. At that time, 2,239 persons with special needs living in 1,993 households had registered. Many of them reported multiple disabilities. The term "general disabilities" refers to the inability to perform mental or physical functions required to take protective actions (for example, being unable to walk well or unable to drive).

Except for those designated as "children alone" or "mentally disabled," the persons with special needs were predominantly elderly. The average age of persons in the mentally disabled group was 57 years compared with 69 years for the rest of those registered.

CSEPP'S STRATEGY FOR PROTECTING PERSONS WITH SPECIAL NEEDS

Faced with the reality that first responders might not be able to assist all persons with special needs during a significant CWA accident, the Alabama CSEPP community decided that its best option was to enhance self-sufficiency of these residents in anticipation of emergencies.[4] Protective equipment was adapted for this purpose.

Table 3. Impairments reported by registered special-needs persons in the immediate response zone (IRZ), August 2004 (N = 2,239)		
Impairment		Reported impairment (percent)*
General disabilities	Mentally disabled	10
	Unable to walk well	54
	Cannot drive	49
	Child alone	3
Specific impairments	Sight-impaired	35
	Hearing-impaired	29
	Heart problems	37
	On oxygen	10
	Wheelchair-bound	13
	Back problem	34
	Confused	17

*Percentages total more than 100 because many individuals have multiple impairments and disabilities.

Table 4 compares the protective equipment distributed to the general population with the additional protective enhancements for persons registered as having special needs.

The first of the enhancements, alternate shelter-in-place materials, provides an easier way for persons with special needs to tape and seal safe rooms when sheltering in place is the only practical protective action during a CWA release. The Alabama EMA requested that Argonne National Laboratory conduct a preliminary assessment of commercially available alternatives to duct tape and plastic sheeting. Argonne concluded that painter's tape and self-adhering shelf laminate (contact paper) were more user-friendly and provided a level of in-leakage protection at least equal to conventional duct tape and plastic when placed directly over the air gaps around windows and doors.[4] Four counties included a roll of painter's tape in their SIP kits in place of duct tape because of the recommendation. Information on the easier-to-handle components was also provided to persons with special needs.

Second, in response to concerns by Calhoun County officials about the capacity of safe rooms to prevent inflow of potentially contaminated air in the homes of special-needs residents, FEMA contracted with the Mobile district of the US Army Corps of Engineers to furnish caulking, sealing, and structural modification assistance. Persons with special needs who resided in close proximity to ANAD had the option of receiving an assessment of the air infiltration characteristics of their safe rooms and free upgrades of the rooms if needed.

The Corps evaluated 218 residences, with 167 residents accepting the offer to have their safe rooms made more effective. A high percentage of those accepting enhancements had multiple impairments including vision problems, inability to walk well (many were wheelchair-bound or confined to bed), and mental disabilities. The Corps installed and replaced 76 doors and 48 windows in safe rooms, replaced and framed 30 window-mounted air conditioners, and repaired or replaced a number of damaged walls with painted sheet rock.

Table 4. Protective action enhancements for registered persons with special needs								
General population and person with special needs	Calhoun County		Clay County	Cleburne County	Etowah County	St. Clair County	Talladega County	
	IRZ	PAZ	PAZ	PAZ	PAZ	PAZ	IRZ	PAZ
Tone alert radio (TAR)	✓	✓	✓	✓	✓	✓	✓	✓
Shelter-in-place (SIP) kit for expedient sheltering	✓	✓	✓	✓	✓	✓	✓	✓
Portable room air cleaner (PRAC)	✓						✓	
Respiratory protection device (in close proximity)	✓							
Protective action enhancements for persons with special needs								
Alternate SIP kit materials*			✓	✓	✓	✓		
Offer of caulking, sealing, and structural modifications	✓							
PRAC user instructions modified and auxiliary features added, as necessary	✓						✓	✓
Home protective equipment delivery	✓						✓	✓
Special-needs-related training	✓	✓					✓	✓
Individual contact	✓	✓	✓	✓	✓	✓	✓	✓
TAR verification	✓	✓	✓	✓	✓	✓	✓	✓
Targeted outreach activities	✓	✓	✓	✓	✓	✓	✓	✓
Help network	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD

The Corps conduct an annual review of the upgrades and make adjustments as necessary.

Third, Calhoun and Talladega Counties modified the user instructions and provided auxiliary features for PRACs to better suit the requirements of the special-needs population. While members of the general population were instructed to keep their 39-pound, three-foot-tall PRAC wrapped in plastic and in its original container unless notified of an emergency, special-needs households were permitted to have their PRACs operational in their designated safe rooms. This alteration was made following research confirming that the PRACs' charcoal filters would retain their filtration capacity for more than 10 years even if opened to the air. In addition, the equipment vendor was authorized to add a remote on/off switch to PRACs in close proximity to those confined to bed or unable to move. Finally, small indicator lights were placed on top of PRACs for those who were deaf, so they could quickly determine whether their PRACs were on or off.

Fourth, the Calhoun and Talladega County EMAs recognized that it was difficult for some persons with special needs (except the parents of unattended children) to pick up their protective equipment at the CSEPP training and distribution center, as was required of the general population. These EMAs authorized an aggressive individual contact procedure to maximize distribution of equipment and training to their special-needs population. Metro Services contacted all registered persons with special needs residing in Calhoun or Talladega Counties who had not picked up or requested delivery of their assigned protective

equipment. In some instances, where telephone contact could not be made with a household directly, contact was made with caregivers, relatives, and neighbors in order to reach households. A registered letter was sent to each household that could not be reached by telephone, requesting recipients to call Metro Service's toll-free phone number if registered occupants wished to receive their assigned protective equipment.

Fifth, equipment vendors entering residences in Calhoun and Talladega Counties occupied by persons with special needs were trained to be sensitive to the residents' concerns and to promote self-reliance when training them in equipment use. Similarly, the Corps was advised of the interpersonal issues its contractors might face when entering the homes of the special-needs population and how to accommodate them.

Sixth, because of high turnover in the special-needs database and the importance of consistent, correct information dissemination to this population, the Alabama CSEPP community determined that a single expert point of contact was needed for the entire special-needs population rather than dispersing these interactions among the six county EMAs. Metro Services assumed this responsibility. The agency interacted daily with the special-needs population through its toll-free telephone line and a TDD (telecommunications device for the deaf and hard of hearing), daily fielding approximately 20 to 25 incoming and 50 to 75 outgoing calls related to changes in personal data, receipt of assigned equipment, equipment delivery requirements, equipment operation, physical improvements to safe rooms, transportation issues, protective actions, personal situations, and requests for hazard information. Each telephone contact required creating rapport with the person, an understanding of local etiquette, and a proper combination of deference, patience, and authority.

For example, the PAZ counties used the contact opportunity to enhance awareness among persons with special needs about the importance of obtaining SIP kits. Whereas the general population residing in the PAZ was sent postcards informing them that they would receive a SIP kit pending a reply, Metro Services took the extra step of telephoning each non-replying person with special needs to explain the importance of the kits and to accept requests by telephone.

Seventh, Metro Services performed a check on the status of TARs in the special-needs residences during calls. Approximately 20 percent of the contacted households reported they had not received a TAR or that it was not functioning. (This was in contrast to the 5 percent of general population households in the IRZ reporting that they did not have a TAR.) TAR installers followed up with visits to the special-needs households who reported malfunctioning TARs and found they were working in most cases but had been unplugged at some point or had not been reset after one of the monthly tests conducted by the county EMAs.

Eighth, in addition to ongoing public outreach activities geared to the general population, the Alabama CSEPP community provided persons with special needs and their caregivers with specific information on coping with emergency situations given their unique circumstances. Research has shown that, for outreach efforts to special-needs populations to be effective, disaster checklists and other training materials must be aggressively distributed through a variety of avenues, including social networks, community-based service organizations, healthcare providers, and friends and family.[29] Further, preparing persons with special needs, especially those with developmental disabilities, must include instructions, rehearsals, external reinforcement, and self-reinforcement.[30]

County EMAs have actively sponsored training for professional caregivers from public agencies and informal caregivers from volunteer organizations to convey and reinforce the preparedness message. Local caregivers and the target population helped in the development of the *Emergency Preparedness Resource Guide for Persons with Special Needs*, a collaborative publication that recognizes the distinctiveness of local cultures, personal situations, and the socioeconomics of the area. The Alabama CSEPP community also publishes a quarterly newsletter targeted specifically to the special-needs population. A 15-minute instructional video, "Alabama Caregivers Training: Emergency Preparedness for People with

Table 5. Outcomes of efforts to place protective equipment in immediate response zone (IRZ) households of persons with special needs, February 2005		
Action	**Number**	**Percent**
Picked up equipment	1,180	53
Equipment delivered	704	31
Received equipment	**1,884**	**84**
Unable to reach	269	12
Refused equipment	86	4
Total	**2,239**	**100**

Special Needs," has been produced in English, Spanish, and American Sign Language with participation from members of the special-needs and caregiver communities. Outreach has also included placement of information booths at senior health fairs and illustrated talks at senior centers and other locations frequented by persons with special needs. Finally, as part of the annual SPP data-gathering effort discussed earlier, persons with special needs are reminded via letters and print media advertisements to be prepared to take protective actions.

Finally, as of this writing, the community has begun working to create a "help network" for its special-needs population, recruiting public and private service-based organizations and agencies to enhance the abilities of persons with special needs to assume more responsibility for their emergency protection. Community support systems may enhance the ability of all persons with special needs to prepare for and respond to an emergency. Since the 1999 survey data suggested that many persons with special needs maintain a relationship with area religious organizations, one initiative is to recruit religious, social, and fraternal organizations to assist in training and support efforts.[3]

RESULTS OF THE SPECIAL-NEEDS CAMPAIGN

Although only an actual emergency would reveal the effectiveness of the Alabama CSEPP special-needs outreach effort, it is possible to measure the distribution rate of protective action enhancements. Table 5 lists the outcomes of the effort to place protective equipment in the residences of persons registered as having special needs. As a result of the program, 84 percent of this population residing in the IRZ received its county-offered protective equipment. In comparison, only about 50 percent of the general population picked up the protective equipment they were offered. Also shown in Table 5, about 50 percent of the special-needs population was able to get protective equipment by picking it up, while outreach measures and equipment delivery services resulted in placement with an additional 30 percent of this population.

The success of the initiative in getting SIP kits to the special-needs population is shown in Table 6. Whereas the general population in the four PAZ counties was notified of the SIP kit offer through postcards that had to be returned before SIP kits would be mailed back or through other public outreach activities, Metro Services took additional steps, attempting to telephone each special-needs household in the PAZ counties to make sure that occupants understood the value of making a request. Metro also accepted SIP kit requests from special-needs households by phone. The effectiveness of this more personal contact strategy is demonstrated by the fact that some 60 percent of the persons with special needs in the PAZ areas requested SIP kits, but only 29 percent of the general population did so.

Table 7 reveals some substantial differences in the percentage of people receiving protective equipment among subgroups of persons with special needs in the IRZ. While 84 percent of all registered persons with special needs received equipment, the rates were lower for those with mental disabilities and for

Table 6. Effect of enhanced awareness among protective action zone (PAZ) special-needs households on shelter-in-place (SIP) kit requests						
County	Number of general population households	SIP kit requests by general population		Number of households with special needs	SIP kit requests by households of special-needs persons	
		Number	Percent		Number	Percent
Clay	5,449	942	17	67	53	79
Cleburne	3,523	1,208	34	80	66	82
St. Clair	26,765	7,084	26	495	277	56
Talladega	11,186	4,225	38	476	276	58
Total	46,923	13,459	29	1,118	672	60

*Calhoun and Etowah County PAZ residents were also offered SIP kits. In Calhoun County, the distribution method differed differed sufficiently from the others that the results could not be compared. SIP kit request data were not available for Etowah County, although approximately 5,000 SIP kits were distributed to Etowah County residents.

children who might be alone during an emergency. Only 79 percent of the mentally disabled and 56 percent of households with unsupervised children received the protective equipment. In the case of the mentally disabled, the primary reason for not receiving equipment appears to have been their inability to be reached by telephone. (About 17 percent of registered households with a mentally disabled person could not be reached by phone; the rate was 11 percent for adults with other special needs.) Households with unattended children received the same number of follow-up calls (five, if needed) as individuals with other disabilities, but the program did not offer to deliver protective equipment to the families of unattended children because mobility was not an issue. Instead, they were asked to pick up their equipment in the same manner as the general population. This additional responsibility was associated with a reduced rate of protective equipment receipt among these families.

Few of those who registered with special needs refused the protective equipment that was offered. The reasons for refusal, in order of frequency, were that they (or their caregiver) did not feel they would be able to use the equipment; that the equipment was a nuisance; or that the equipment would be ineffective if an accident were to occur at ANAD. In addition, 9 percent of registrants asked to be taken out of the SPP database during the 2002 update because they reported no longer needing assistance. During the January 2004 update, 17 percent asked to be removed, as they considered themselves to be self-sufficient (either on their own or with a support network) after receiving their protective equipment and instructions in 2003.

The campaign to provide maximum protection to registered persons with special needs in the Anniston area has yielded a substantially higher level of protective equipment distribution to them than to the general population. A major part of the success of this effort can be traced to the personal attention these residents received to sensitize them to the value of requesting this equipment. However, the difficulty of communicating meaningfully with those burdened by mental disabilities and the requirement for parents of children who are unattended at times to pick up their

Table 7. Percentage of registered persons in the immediate response zone (IRZ) receiving equipment, by general disability category	
Population category	**Number receiving equipment (percent)***
Total registered persons with special needs	2,239 (84)
Unable to walk well	1,214 (87)
Cannot drive	1,096 (86)
Mentally disabled	228 (79)
Child alone	78 (56)
*Persons with special needs may have multiple disabilities.	

protective equipment may have reduced the program's success with these groups.

CONCLUSION

The Alabama EMA and the six-county community surrounding ANAD in northeastern Alabama have worked since 1997 to implement an extensive outreach program for their special-needs population in order to provide them "maximum protection" if confronted with a CWA emergency or other hazard. Part of a larger federal program to protect the entire area population, the goal of the endeavor was to make it possible for persons either to evacuate or to shelter in place in time to avoid contact with a dangerous vapor plume. This required a substantial effort to identify persons with special needs, to determine how to assist them, and to provide such assistance.

The strategy for supporting this population has been to recognize the personal difficulties they face and to enhance their capability to take protective actions themselves or with the assistance of a support network. The northeastern Alabama emergency management community developed an aggressive program to distribute nine varieties of protective equipment, structural enhancements, training, and outreach activities beyond what was being provided to the general population.

The process for registering persons with special needs continues to be a challenge. Although the total number of persons who have registered to be included in the program has stabilized somewhat over time, annual updates of the database still indicate a turnover of nearly a third of the registrants. Consequently, continuing efforts to maintain close contact between emergency managers and the special-needs population have been a key focus of the program.

Distribution rates for some of these enhancements are one way to measure programmatic success. While both the general population and the persons with special needs have been offered some of the same protective equipment, a higher rate of receipt success was achieved among persons with special needs by employing a personal, empathetic contact approach. By beginning to reach out to religious, social, and fraternal organizations, emergency planners anticipate that many help networks will be developed to assist persons with special needs prepare for emergencies.

The resources the United States is devoting to emergency preparedness continue to grow. Inclusion of persons with disabilities and other special needs in national, state, and local planning activities can be expected to occupy a more central focus in the future. The experience of this northeastern Alabama community offers some important lessons in how to make emergency planning efforts for this group more successful.

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