Disabilities in Disaster Situations:

How a Rescuer Handles What They Encounter

Daryl Schaffer,

University of Alaska Fairbanks

Author Note

Daryl Schaffer, retired USCG Captain; Certificate in Instructional Design, Masters in Human Resource Management, Marymount University; Masters in Homeland Security and Disaster Management University of Alaska Fairbanks (Aug 2022); and Military Wounded Warrior.

Correspondence regarding this paper should be addressed to dschaffer2@alaska.edu.

Abstract

Individuals with disabilities are often disproportionately affected by disaster. With little research focused on rescue operations impacting individuals with disabilities during large disasters, three themes are reviewed: re-leveling expectations; misunderstanding of triage and crisis medical protocols; and light switch fallacy by responders and individuals with disabilities before, during, and after rescue operations.

Keywords: Disaster, responders, disability

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In this discussion, we will examine the effects of natural disasters and how this effects people with disabilities. People with disabilities are often left behind during a natural disaster. This could lead to pain or death to the person with a disability. Most disaster shelters are not designed to support people with physical disabilities. The disaster shelters are also often staffed with volunteers who do not know how to provide support. This discussion will examine a literature review of research done on effects of natural disasters on people with disabilities. The major argument of this essay is that there is not currently enough supports for people with disabilities during a natural disaster. There needs to be more supports for people with disabilities in the aftermath of a natural disaster. This is a topic on which the disability community needs to come together to help the public. The disability community needs to be included in the planning process of how a city will react to natural disasters. In Hawaii, we are faced with the threat of the effects of a natural disaster on a yearly basis. If a large natural disaster were to hit Hawaii, many with disabilities would not be supported. This is a topic that should be important to those with a disability and is clearly a topic that we in the disability community need to do more work on.

In the effects of a natural disaster, some people are impacted by disasters more than others. The research states that people with disabilities are often more severely affected by the aftermath of natural disasters (Fjord & Manderson, 2009; IOM, 2009; Stough & Mayhorn, 2013; Alexander, 2015; Twigg et al., 2018; Ton, et al., 2019; Pyke & Wilton, 2020). Many factors play into this matter including individual disability, physical location,

regional evacuation and recovery planning, community social structure, emergency notification, responder capabilities, medical protocols, recovery center accessibility, the immediate personal desire to be rescued, and even assumption of expectations of preferential treatment during the actual rescue. Individuals with disabilities were not involved in developing preparatory information during planning (Priestley & Hemingway, 2007; Twigg et al., 2018), lacked proper immediate emergency notification during response (White, B, 2006); White, G, et al., 2007; Stough & Mayhorn, 2013), and experienced inability to access facilities in recovery (Jones, 2010; Leong, et al., 2020; Pyke & Wilton, 2020). In their literature review, Stough & Mayhorn summarized "[t]he bulk of the limited research literature on disability and disaster has focused on evacuation" (Stough & Mayhorn, 2013, p. 390). While the Americans with Disabilities Act (ADA, 1990) does not specifically address disasters, the Congressional Research Services found the nondiscrimination provisions can be applied to the mitigation efforts of emergency preparedness and disaster response efforts (Jones, 2010). The National Council on Disability has additionally provided guidance on emergency preparedness and disaster relief efforts (Jones, 2010). While progressive research, guidance, and improvements have been made in both the planning and recovery phases, a lack of research was noted on impact in the actual functions of rescue operations of individuals with disabilities during large mass-casualty events, in particular after passage of the ADA 2007 (Stough & Mayhorn, 2013; Stough & Kelman, 2017; Pyke & Wilton, 2020).

The Congressional Research Service referenced the Conference Report on the DHS Appropriations Act of 2006 which said progress and substantial improvements to state and large urban contingency plans had been made (Jones, 2010). Research has reviewed the continued progression of disability awareness and involvement by advocacy groups for the planning and recovery phases of a disaster (Jones, 2010; Stough & Mayhorn, 2013; Ton, et

al., 2019; Leong, et al., 2020; Pyke & Wilton, 2020) with a noted lack of research on the actual rescue operations of individuals with disabilities during large mass-casualty events (Alexander, 2015; Stough & Kelman, 2017; Pyke & Wilton, 2020). This paper will focus on three themes addressing the impact in rescue operations during disasters on individuals with disabilities not previously noted in research literature. Theme 1, the re-leveling of expectations for incident-driven relationships on assumptions of preferential treatment before a predictive disaster and actions during a no-notice disasters. Theme 2, the misunderstanding in application of triage and crisis medical protocols during disaster situations for any victim with or without disabilities. Theme 3, how to recognize and mitigate the light switch fallacy, an immediate gratification attitude, by responders and individuals with disabilities before, during and after disaster rescue operations.

Literature Review

It is estimated between 10 percent (Stough & Mayhorn, 2013, p. 387) and 15 percent (Leong, et al., 2020, p. 1) of the world population have some form of disability. Alexander (2015) describes a wide range of afflictions and conditions as forms of disability while Stough & Mayhorn expressed disability "is not consistently defined" (Stough & Mayhorn, 2013, p. 385) noting differences within psychological and mobility impairments. Ton, et al., defined disability as "a deviation from biomedical norms or limitations in functioning" (Ton, et al., 2019, p. 12) attributed to impairments. While old age is not specifically a disability, it can be accompanied by frailty and lack of mobility substantially limiting a major life activity, thus creating a vulnerability during an emergency event (Alexander, 2015). The definition of a disability accepted within the disaster and emergency management professional field is directly taken from 42 U.S.C. §12102(1)(A) as "a physical or mental impairment that substantially limits one or more of the major life activities of such individuals." (ADA, 1990;

Jones, 2010, p. 40).

One approach to view how different people are negatively affected by disasters is the notion of social vulnerability (Morrow, 1999; Hewitt, 1983, 1997; Lewis, 1999; Wisner, et al., 2004, as cited in Kelman & Stough, 2015). In viewing the social vulnerability of a community, Lewis (1999), Edwards (2000), Van Willigen, et al., (2002), and Pyke & Wilton (2020) each noted disasters do not discriminate against any group of people but expose pre-existing inequalities of chronic community conditions. Societal practices and attitudes placed socially vulnerable populations at greater risk through advertent or inadvertent interaction of the impairment, institutions, and the physical environment (Kelman & Stough, 2015; Twigg et al., 2018). Hurricane Katrina in 2005 exposed this vulnerability profoundly "as seventy-one percent of the 1,330 known fatalities" were over age sixty with disabilities a correlating factor (Alexander, 2015, p. 389).

This social vulnerability aspect in both the planning and recovery was highly influential in the creation of the Post-Katrina Emergency Reform Act of 2006 and spurred amendments to the Americans with Disabilities Act which required state and local emergency management systems to ensure both disability inclusion in disaster planning and disability compliance in recovery efforts were addressed (Post-Katrina, 2006; ADA, 2008). In *The Federal Response to Hurricane Katrina Lessons Learned*, only a few passing mentions were noted of various "disparate citizen preparedness programs" recommending combining them and establish specialized preparedness programs "for those less able to provide for themselves during disasters such as children, the ill, the disabled, and the elderly" (Townsend, 2006, p. 80). Regional disability organizations and advocates coordinated with local jurisdictions to include greater engagement by individuals with disabilities during disaster incident planning phase (Twigg et al., 2018) which resulted in some changes to

afford equal access of post-disaster event shelters for individuals with disabilities (ADA 1990, 2008).

While the major event of Hurricane Katrina in 2005 profoundly changed the entire emergency management process from planning to recovery, improvements have not been realized equally across all communities. The Congressional Research Service noted local emergency preparedness and response programs are required to be made accessible to individuals with disabilities in accordance with the ADA but cited "few plans recognized the legal obligations imposed by the ADA." (Jones, 2010, p. 5). In the post-Katrina era, advocates for disabilities made significant inroads by gaining inclusion of initiatives specific to vulnerable populations in the Sendai Framework for international disaster management (UNISDR, 2015) and several scholars (Jones, 2010; Twigg et al., 2018; Pyke & Wilton, 2020) cited advancements domestically in the preparatory stages with the inclusion of individuals with disabilities in the planning process and improvements in emergency notification systems. Leong, et al., (2020) noted an ongoing need for information sharing throughout the three main phases of an emergency (planning, response, and recovery) from individuals, disability service providers, academia, and practitioners. Other research reflects some improvements on accessibility changes to recovery facilities and challenges of long-term assistance (Stough & Mayhorn, 2013; Pyke & Wilton, 2020) however many efforts remain deficient (Twigg et al., 2018; Pyke & Wilton, 2020). Fifteen years post-Katrina, Pike and Wilton recognized "[d]espite the high visibility of Katrina, subsequent U.S. studies suggest that planners have been slow to learn from the failures in New Orleans." (Pike and Wilton, 2020, p. 2).

Theme 1

Identify steps individuals with disabilities can take on re-leveling of expectations for

incident-driven relationships on assumptions of preferential treatment before a predictive disaster and actions during a no-notice disaster. How one prepares for a disaster is just as important as how rescuers prepare to respond to a disaster.

Evidence Theme 1

The definition of a disaster could be as simple as an event that has unfortunate consequences; or this may be expanded to a sudden calamitous event bringing great damage, loss, or destruction; or complex to include functional, temporal, theoretical, and societal aspects in professing a disaster as "an accidental or uncontrollable event" (Neal, 1997, p. 242). A clearer contextual disaster definition is "when a community intersects the path of an event which creates a disruption to their society and requires resources beyond their capability" (Kelman, 2019, p. 1; Schaffer, 2021, p. 246). Categorization of a disaster can be expressed from either their formation as natural, such as a tornado or tsunami, versus human-made, such as a cyberattack or failure of a structure (Schwab, 2010). A more impacting and beneficial classification can be made according to their progression as a predictive disaster which is forecasted and can provide several days advance planning, such as a hurricane or snowstorm, versus a no-notice disaster which may occur instantly with zero or only a few minutes warning, such as an earthquake or explosion (IOM, 2009; Grajdura, et al., 2011; Golshani, et al., 2019; Kelman, 2019; Schaffer, 2022). If no preparatory action is taken in advance of a predictive disaster to alleviate the impacts, the situation will become a no-notice disaster (Schaffer, 2022).

Under either progression, each disaster can impact a community in a similar manner by disrupting regular activities and personal safety. Ensuring personal safety is the key for resiliency from a disaster which is realized in the recovery mode (McEntire, et al., 2002). Recovery to bring the community back can range from self-contained efforts to utilization of

community resources to assistance from beyond the local capability. With self-safety efforts at the core, Alexander noted among the recommendations made by FEMA was that individuals with disabilities "should estimate their own capacity to respond with self-protective actions in the event of a crisis." (Alexander, 2015, p. 393). Self-sufficiency would be foremost by having an emergency kit and evacuating before a predictive disaster or by knowing self-survival skills within the capacity of an individual with disabilities in order to survive a no-notice disaster (Fugate, 2009; Schaffer, 2022).

A goal of emergency management professionals is to reduce vulnerability (Fjord & Manderson, 2009; Schwab, 2010; Smith, 2011) yet this inclusive manner of all people in a community has remained a "neglected concept for both scholars and practitioner" (McEntire, et al., 2002, p. 273). The World Health Organization recognized "while all populations remain vulnerable to catastrophic events particular populations remain more vulnerable than others. These populations … should be given particular attention to make sure their unique needs are considered in disaster planning and response efforts." (IOM, 2009, p. 90). Twigg, et al., specifically noted exclusion from emergency planning of individuals with disabilities "particularly at local levels." (Twigg et al., 2018, p. 4). Examining the premise on what emergency planners should do when all residents in a disastrous event are affected by the same barriers and impairments, Fjord and Manderson (2009) asked, "Why not place disability-centered approaches at the core of disaster planning and ensure that the probable needs of most residents are accommodated?" (Fjord & Manderson, 2009, p. 65).

The basis for re-leveling expectations begins with the overarching authorization from the ADA in terms of what a direct threat risk means which establishes its clear points of purpose:

A public entity must make an individualized assessment, based on reasonable

> judgment that relies on current medical knowledge or on the best available objective evidence, to ascertain: the nature, duration, and severity of the risk; the probability that the potential injury will actually occur; and whether reasonable modifications of policies, practices, or procedures or the provision of auxiliary aids or services will mitigate the risk. (USDOJ, 2010, 28 CFR 35.139(b))

Risk mitigation is a significant recipient from this section of the ADA with the poignant identifiers expressed as individualized assessment, reasonable judgment, current knowledge, best available evidence, probability, and reasonable modifications. Response plans have been implementing this ADA language in updated disaster planning and recovery efforts (Jones, 2010; Fugate, 2011; Stough & Mayhorn, 2013; UNISDR, 2015; Ton, et al., 2019; Leong, et al., 2020; Pyke & Wilton, 2020) but language in the ADA is specifically lacking on its application during rescue operations (Alexander, 2015; Stough & Kelman, 2017; Pyke & Wilton, 2020) which is actually a benefit for individuals with disabilities. This lack of language in the ADA does not imply preferential treatment nor condone discriminatory decisions during large mass-casualty events, rather it affords responders to conduct triage using reasonable judgment under crisis standards of care when on-scene during a disaster event (IOM, 2009; Jones, 2010).

Discussion Theme 1

When reviewing preparations before the Hurricane Katrina landfall in August 2005, Priestley & Hemingway (2007) recognized very little involvement from individuals with disabilities in the planning process, White, B, (2006) and White, G, et al., (2007) found inaccessible emergency notification systems, including radio or television, for individuals with disabilities, and Fjord & Manderson identified the inclusion of “vulnerable populations” during emergency planning exercises was “putting an able-bodied participant in a wheelchair

or placing a blindfold over their eyes" (Fjord & Manderson, 2009, p. 67).

Rescue and recovery actions can be dramatically different depending on the type of incident, length of incident, location and breadth of the impacted area, and range of victims involved. Responder skills are honed by training and experience but not all rescuers know, nor have been trained, on how to specifically handle every single variable of disabilities (Fay, 2022; Schaffer, 2022). The lack of involvement from individuals with disabilities was not limited to the planning or recovery efforts, but training as well (Fjord & Manderson, 2009). It is a completely different situation to have a simulated victim who actually has no sight to make the responder not assume visual directions or to have somebody without feeling in their legs so responders have to strap non-responsive limbs onto a stretcher (Fay, 2022; Schaffer, 2022). Realistic training helps both responders and individuals. The same disaster situation when approached by different responders can result in immensely different actions which can also dramatically affect the outcome of that rescue. When progressing after the rescue operations, "The disaster recovery process is typically more complex and lengthy for individual with disabilities and required negotiation of a service system that is sometimes unprepared for disability-related needs." (Stough & Mayhorn, 2015, p. 391).

Alexander summarized three recommendations from the FEMA emergency preparedness guide for individuals with disabilities: Assess the types of hazards they encounter in work or home; create a support network of cohorts at each site; and estimate their own capability to take action during a disaster (Alexander, 2015). Understanding one's own functional capabilities and being able to relay that best available objective evidence greatly increases the knowledge for the responder to conduct triage and make a reasonable accommodation during a rescue event.

Summary Theme 1

Individuals with disabilities can re-level expectations for incident-driven relationships based on knowing their own capabilities, adequately preparing for a predictive disaster, and knowing how to relay information to responders during a no-notice disaster (Alexander, 2015). Personal preparation for a disaster is just as important as how responders prepare for a disaster to include getting involved with local emergency training (Fay, 2022; Schaffer, 2022). The ADA does not grant preferential treatment nor specifically mandate reasonable accommodations during rescue operations, but it does afford for decisions by on-scene responders based on a risk assessment from available information using triage under crisis standards of care (IOM, 2009; Jones, 2010; USDOJ, 2010).

Theme 2

The misunderstanding in application of triage and crisis medical protocols during disaster situations for any victim with or without disabilities can cause more harm. Responders want to save as many lives as quickly as possible so they assess a situation and problem-solve to get people safely out of a dangerous situation (Fay, 2022; Schaffer, 2022). They have to make a reasonable judgment based on the best available evidence to figure out the potential for injury (IOM, 2009; USDOJ, 2010; Stough & Mayhorn, 2013). This is normally done based on their experience in training to standards of care (IOM, 2009).

Evidence Theme 2

Responders and hospitals are guided by medical standards of care which "describe the type and level of medical care required by professional norms, professional requirements, and institutional objectives" (AHRQ, 2005b; Hick, Barbera, and Kelen, 2009; Pegalis, 2009, as cited in IOM, 2009, p. 45). This is balanced with the legal standards of care which guides

what a responder would do in a current situation "based on what a reasonable and prudent practitioner would do in similar circumstances" (Mastroianni, 2006; Dobbs, 2000; Hood v Phillips, 1977, as cited in IOM, 2009, p. 45). Together, these guidelines lead to crisis standards of care which the Institute of Medicine defined as "the level of care possible during a crisis or disaster due to limitations in supplies, staff, environment, or other factors." (IOM, 2009, p. 112).

Individuals with disabilities may have conditions which need particular attention not covered in a broad disaster risk recovery plan and may even need special preparations by both the individual and responder. "In an emergency situation it is comparatively easy to fail to recognise the type of handicap experienced by a particular individual, and thus to offer the wrong kind of assistance." (Alexander, 2015, p. 390). Special consideration of treatment options may be needed during a disaster which could also be different between a predictive and no-notice disaster. In establishing medical and ethical conventions for crisis standards of care regarding individuals with disabilities, the National Academy of Sciences specifically states, "[t]he needs, challenges, and barriers to caring for [individuals with disabilities] must also be considered for integration into the overall disaster response effort prior to the implementation of crisis standards of care" (IOM, 2009, p. 42).

Crisis standard of care involves triage of a situation (IOM, 2009; Clarkson & Williams, 2021). Triage is "the process of sorting patients and allocating aid on the basis of need for or likely benefit from medical treatment" (IOM, 2009, p. 117). Triage makes an assessment of the patient's condition and available resources and can occur multiple times in the field, in the emergency room, and in other treatment areas (IOM, 2009). Triage and crisis medical protocols are used to provide fair and equitable resource allocation within the elements of incident management (Hick, et al., 2009, as cited in IOM, 2009). This triage is

done when weighing the option of the chances of survival where "one critically ill patient may consume the resources that could save several other patients" (Christian et al., 2006, as cited in IOM, 2009, p. 84).

During a disaster, a color-code system has become a standard of use to triage people as they are moved away from the incident and towards a care center. Green are people who are okay or have very minor injuries; Yellow are serious injuries but not immediately life-threatening; Red signify immediate with severe injuries yet high potential for survival with treatment; Black are deceased, near death, or have injuries so severe the likelihood of survival is minimal (Clarkson & Williams, 2021).

Responders use the same check for injuries, called the primary and secondary assessments, for everyone during a disaster as they would in a normal response - this is triage (IOM, 2009). They will be sensitive to individual needs but a mass-casualty disaster, whether predictive or no-notice, may preclude reasonable accommodation. Thus, an individual with disabilities will likely not be the only victim in a major disaster and, depending on the triage, may not be the most critical in need of immediate care from the responder (Schaffer, 2022).

Crisis standards of care is "a substantial change in usual healthcare operations and the level of care it is possible to deliver, which is made necessary by a pervasive (e.g., pandemic influenza) or catastrophic (e.g., earthquake, hurricane) disaster" (IOM, 2009, p. 3). In looking at a continuum of care from conventional to contingency to crisis (Hicks, et al., 2009 as cited in IOM, 2009), during a disaster response the medical system is normally forced into crisis standards of care due to resources insufficient to meet the needs (IOM, 2009) - the same language in the definition of a disaster.

Discussion Theme 2

Individual actions can dramatically change a rescue operation whether it is the same

disaster with a different responder or a different disaster with the same responder. Disasters affecting a large area will bring responders from across the country and those teams may have developed different methods for an extrication than local teams for individuals with disabilities (Schaffer, 2022) or as Alexander states, "no single emergency response strategy is valid for all types of disability" (Alexander, 2015, p. 392). This was recognized overall in the formal Hurricane Katrina Lessons Learned report when it expressed inequities in existing incident management plans at every level noting they "fell short of what was needed" (Townsend, 2006, p. 19) which included the breakdown between what was planned and what trained resources were able, or not able, to execute.

Responders train regularly to maintain their skills. Training is a way to hone individual techniques and does not need to be encompassed or combined in a larger-scale formal exercise. Firefighters train on putting out fires so that when they respond to an actual fire they know ways to address it and also work with standardized equipment; in turn, most of their firefighters can then be interchanged with another crew (Fay, 2022). Medical responders walk through simulated patient scenarios to assess what treatment might be necessary; this is also how triage and the crisis medical protocol are applied (IOM, 2009).

Personal readiness should not wait for higher levels of governments to implement crisis standards of care. The federal government and every state or territory provide varied authorizations between a declaration of emergency versus a declaration of disaster which can impact crisis standards of care (IOM, 2009). This can create challenges in rescue operations when a disaster impacts adjoining states and authorizations are not similar thus restricting responder access and capabilities to execute rescues (post-Katrina, 2006; Townsend, 2006). Individuals with disabilities and the general public are not expected to be legal or medical experts to interpret these declarations just as they are not expected to be highly trained in

specialized extrication techniques. In many cases, family and neighbors are the first ones to respond in a disaster, especially for individuals with disabilities, before the organized responders arrive (Fugate, 2009; Alexander, 2015). And regardless of the type of declaration, in learning to cope with a disaster Alexander noted from Lathrop that individuals with disabilities who live more independent lives may have greater resiliency and ability to face disaster than able-bodied people in the same affected community. Officials should not assume this resourcefulness will allow individuals with disabilities to make their way from a disaster (Lathrop, 1994 as cited in Alexander, 2015, p. 390). However, officials should support the position of personal readiness as vital since "every family that fails to take even the most basic preparedness actions … is a family that will pull responders and critical resources away from those who truly need such assistance, such as persons with disabilities" (Fugate, 2009, p. 10). However, this effort to change the community mindset is not an immediately implementable solution and will not produce instant results.

Summary Theme 2

Responders want to save as many lives as quickly as possible during a disaster based on crisis standards of care (IOM, 2009; Fay, 2022; Schaffer, 2022). They must make a reasonable judgment based on the best available evidence to figure out the potential for injury (USDOJ, 2010; IOM, 2009; Stough & Mayhorn, 2013). Responders and the medical support system are forced to use triage and crisis medical protocol due to resources insufficient to meet the needs (IOM, 2009) - the core definition of a disaster. Individuals with disabilities may have conditions which may need special attention, but they may not be the most critical in need of immediate care from the responder based on triage and crisis medical protocol. The presumption of need for immediate care is a light switch fallacy.

Theme 3

There is a way to recognize and mitigate the light switch fallacy, an immediate gratification attitude, by responders and individuals with disabilities before, during, and after disaster rescue operations. In a mass-casualty or wide-spread disaster event, responders cannot reach every incident victim at the same time or even right away. Rescue, transport, or recovery do not happen instantaneously, and this false expectation of immediate results can be termed the light switch fallacy. "The light switch cannot just be turned on, everything is solved, and life goes back to normal" (Schaffer, 2021, p. 250; 2022). A recognition and readjustment of the light switch fallacy to get instantaneous results is needed to ensure the safety and success to all parties involved in a disaster situation.

Evidence Theme 3

In one of his first statements to Congress, former FEMA Administrator Craig Fugate stated, "Business as usual will not work in a catastrophic disaster" (Fugate, 2009, p. 7). An expansion of this expression is a disaster will impact all ways of life from food availability, infrastructure, cell phones and electrical power, and everyone, including the local first responders, will all be hit by the same catastrophic event (Townsend, 2006; White, B, 2006; Priestley & Hemingway, 2007; Fugate, 2009, May 2011; Schaffer, 2021). The old disaster recovery adage was to be self-sufficient for about three days then either the conditions would return to normal or higher levels of government would be able to assist (Townsend, 2006; Fugate, 2009). "If every family maintained the resources to live in their homes without electricity and running water for three days, we could allocate more Federal, State, and local response resources to saving lives" (Townsend, 2006, p. 80). But in the technology-driven age, people want the answers and recovery immediately (Tauberfeld, 2017; Ackerman, 2018; Schaffer, 2021). Disaster situations spotlight and magnify the light switch fallacy at all levels including victims, responders, emergency managers, local to federal executives, politicians,

news media, and the public.

The modern world has become impatient and consumed with immediate gratification, the tendency to obtain more immediate benefit (Ackerman, 2018), which has continued to grow as more people want the gratification of immediate internet and social media information (Tauberfeld, 2017). “The expectation of rescuing 30,000 people from their rooftops in one day…was not possible due to the lack of helicopters and boats - and even then, once on dry land, there were no buses to take people to a recovery center” (Schaffer, 2021, p. 249). In 2020 during vaccine development for the COVID-19 response, not enough volunteers from diverse backgrounds were enrolled to provide proper population balance delaying one clinical study to which their executive replied, “You can’t fix that overnight” (Steenhuysen, 2021).

Everyone wants an immediate solution, but not everything can be fixed right away, and most people do not understand the multiple integrated, parallel, and serial steps required. People at all levels no longer comprehend the actual time needed to have a situation fixed; they need to understand most disasters take time to resolve and how a situation resolves is affected by many factors outside of their control (Schaffer, 2021). For a predictive disaster, the light switch fallacy was nearly continuous at all levels during the response to Hurricane Katrina - which from the planning, rescue, and recover aspects was widely considered by many scholars to have been highly deficient (Post-Katrina, 2006; Townsend, 2006; White, B, 2006; Priestley & Hemingway, 2007; White, G, et al., 2007; Jones, 2010; Stough & Mayhorn, 2013; Alexander, 2015; Stough & Mayhorn, 2015; Twigg et al., 2018; Leong, et al., 2020; Pyke & Wilton, 2020). Higher levels of government do not always secure a fix, quick or otherwise, as Keating noted regarding a June 2001 unrehearsed pandemic exercise, “Dark Winter quickly punctured the myth that every level of government would work

together because each knew its role and that state and local officials would salute smartly when the feds walked in the room" (Keating, 2020).

Resolution of issues and reduction of the light switch fallacy involves each individual understanding their role and responsibilities. Reducing the light switch fallacy begins with re-leveling of expectations (Theme 1) of a direct threat through risk assessment. A public entity or individual can make a risk assessment based on reasonable judgment and best available evidence of the probability of injury and if reasonable modifications will mitigate the risk. (USDOJ, 2010; Stough & Mayhorn, 2013).

Discussion Theme 3

Regardless of the type of disaster incident, the goals of and resultant interactions between responders and victims can be defined in relatively simple terms: From the responder view, save as many lives as quickly as possible; from the victim view, *save me now!* (Schaffer, 2021, 2022; Fay, 2022). Everyone is not always on the same wavelength of thinking which can be the source of many problems, mainly a "Why has this particular person not been rescued yet?" inquiry. Media and now social media play an ever-increasing part to informing people, thus instead of hyperbolizing a disaster, "efforts should be made to sensitize the mass media to their potential role as purveyors of emergency information to people with disabilities." (Alexander, 2015, p. 392).

The public entity emergency manager can explain the end goal, what products or achievements are needed along the way, potential setbacks, provide a reasonable timeline to reach the end goal, and provide the wide range of possibilities from the best to worst case scenarios from an emergency response and recovery perspective (post-Katrina, 2006; Townsend, 2006; Schwab, 2010; Smith, 2011). Planners for the emergency manager look at

the nature, duration, and severity of possible disasters to determine the practices and procedures needed to safely mitigate or respond to the event. This includes the recovery element to ensure reasonable modifications of provisions will accommodate all victims, develop the strategies for progression from the current moment to the end state, and how to address concerns along the way (post-Katrina, 2006; Townsend, 2006; Schwab, 2010; Smith, 2011; Schaffer, 2021). The developed plans guide how the first-on-the-scene emergency responders triage or react with an incident victims and how prioritization or crisis of standards care are implemented so they can save as many lives as possible (Post-Katrina, 2006; Townsend, 2006; IOM, 2009; Schaffer, 2022).

Personal preparedness is vital to survival, so an individual has a great deal of responsibility. Disaster response plans should address what public information is available on self-awareness, self-readiness, self-survival, and advocacy groups for unique needs or challenges (USDOJ, 2010; Fugate, 2009, Oct 2011; Stough & Mayhorn, 2013; UNISDR, 2015; Leong, et al., 2020; Schaffer, 2022). Have an emergency kit and evacuate before the disaster is foremost as “personal disaster preparedness is and must be a national priority, and every elected and appointed official at every level of government must make it a priority” (Fugate, 2009, p.11).

Planning is conducted by emergency management services in anticipation of predictive and no-notice disasters (Schwab, 2010; Smith, 2011) and a no-notice disaster exposes a typical light switch fallacy reaction. On March 22, 2014, near the town of Oso in Snohomish County, Washington, a landslide of 18 million tons of earth struck at over 40 miles per hour, covering an area about one square mile. In less than one minute, over 40 homes were demolished, one mile of a state highway was blocked, and the Stillaquamish River was dammed. Light switch fallacy: Just go in and pick the people up. Reality: Initial

response crews were only 15-30 minutes away, but full rescue and recovery operations including helicopters took extra time due to the location, access, and the instability of the area from floodwater, mud, and debris. The immediacy of operations focused on the likelihood of finding anyone alive which took into account the conditions, crisis standards of care, triage and crisis medical protocols, and the safety of all responders. The last of 15 persons rescued was 5 hours after the incident, the last of 43 victims was recovered after 115 days, and the road opened six months after the incident (Lombardo, 2014; Benda, 2020; Schaffer, 2021, 2022; Fay, 2022).

While the actual process is considerably more complex (Schwab, 2010; Smith, 2011), emergency planning comes down to a basic if-then concept: If (fill-in an incident) occurs, then (figure out) response options are possible. Once a plan is developed, an exercise is conducted to see how the plan works, improvements are made, and the process begins again (Townsend, 2006; Schwab, 2010; Smith, 2011). For many plans, responders rely heavily on technology from hardwired electricity at a command center to battery powered cellular, satellite phones, and even drones when doing remote field work. In a disaster, good technology works…until it does not. Social media notifications, hearing aids, mobile voice-to-text, voice translator, wheelchairs, and remote controls all work well until the batteries run out or the cell towers are down (White, B, 2006; Grajdura, et al., 2011; Fay, 2022). Even writing on an e-notebook is not the same as having an interpreter speaking sign language (Schaffer, 2022). As a contrast to the days to months without phone service after Hurricane Katrina (Schaffer, 2021), the cellar infrastructure after the 2010 Haiti earthquake returned quickly allowing information to be passed to the responders (Fugate, May 2011).

Overall, technology has its benefits and when appropriately integrated “is frequently considered a serious way to involve people with disabilities” (Hans and Mohanty 2006; Fu et

al., 2010, as cited in Alexander, 2015, p. 392). In directing a shift of governmental policy, former FEMA Administrator Fugate noted social media can be used to immediately disseminate vital information to the public while also receiving specific, real-time, first-hand updates (Fugate, May 2011). Responders can now make decisions from on-scene drone video to pinpoint victims which can quickly facilitate more efficient rescue operations. The challenge for the emergency operations center is that many drones, social media videos, and 911 calls coming in identifying victims in various locations can potentially add more delays when prioritizing the deployment of one asset to rescue multiple diversely located victims (Schaffer, 2021, 2022).

The light switch fallacy is a contrast to reality. Even the idea of recovery operations integrating into long-range mitigation efforts takes time to enact (Townsend, 2006; UNISDR, 2015). While the economy, living conditions, and infrastructure in Haiti were poor due to multiple natural disasters before the 2010 earthquake struck, subsequent disasters plagued even short-term recovery efforts in the ensuing years. Functional earthquake-resilient infrastructure and facilities could have been constructed in Haiti, but who will fund it, what facilities are a priority, how quickly can it be done? (Kahn & Pierre, 2020; Schaffer, 2021).

Summary Theme 3

To wallow in the light switch fallacy and ignore the necessary parallel and serial steps will significantly erode all rescue and recovery efforts. Reducing the light switch fallacy begins with re-leveling of expectations (Theme 1) of a direct threat through risk assessment. A risk assessment can be made based on reasonable judgment from best available evidence of the probability of injury and if reasonable modifications will mitigate the risk. (USDOJ, 2010; Stough & Mayhorn, 2013). Victims, responders, emergency managers, local to federal executives, politicians, news media, and the public can be educated on how mitigations,

rescues, and recoveries happen to learn how their role plays a part in reducing the light switch fallacy (Schaffer, 2021). Technology has its place and time in a disaster but is only good if it works (White, B, 2006; Grajdura, et al., 2011; Fay, 2022).

Summary and Conclusion

Individuals with disabilities are often disproportionally or more severely affected by a disaster than others in the same area, and while some improvements in the planning and recovery have included individuals with disabilities, progress still remains (Fjord & Manderson, 2009; IOM, 2009; Jones, 2010; Stough & Mayhorn, 2013; Alexander, 2015; Twigg et al., 2018; Ton, et al., 2019; Leong, et al., 2020; Pyke & Wilton, 2020).

With a noted lack of research on the actual rescue operations for individuals with disabilities during large mass-casualty events (Stough & Mayhorn, 2013; Alexander, 2015; Stough & Kelman, 2017; Pyke & Wilton, 2020), this paper focused on three themes addressing the impact in rescue operations during disasters on individuals with disabilities not previously noted in research literature: Theme 1, the re-leveling of expectations before a predictive disaster and actions during a no-notice disaster; Theme 2, the misunderstanding of triage and crisis medical protocols during disaster situations; and Theme 3, how to recognize and mitigate the light switch fallacy before, during and after disaster rescue operations.

How rescuers prepare to respond to a disaster is just as important as how individuals with disabilities personally prepare for a disaster, including getting involved with local emergency training (Fay, 2022; Schaffer, 2022). The statement by Fjord and Manderson, “Why not place disability-centered approaches at the core of disaster planning and ensure that the probable needs of most residents are accommodated?” (Fjord and Manderson, 2009, p. 65) is the foundation of what planning should be considering. Responders want to save as

many lives as quickly as possible during a disaster based on triage under crisis standards of care (IOM, 2009; Fay, 2022; Schaffer, 2022) and they must make a reasonable judgment based on the best available evidence to figure out the potential for injury (USDOJ, 2010; IOM, 2009; Stough & Mayhorn, 2013). The ADA does not grant preferential treatment nor specifically mandate reasonable accommodations during rescue operations (IOM, 2009; Jones, 2010; USDOJ, 2010), but it does allow for triage decisions by on-scene responders based on a risk assessment from available information using crisis standards of care (IOM, 2009). Language should therefore not be added to the ADA restricting the decision-making abilities of on-scene responders.

Individuals with disabilities can mitigate threats by conducting a personal risk assessment, participating in local emergency management training exercises, evacuating before a predictive disaster, and preparing for a no-notice disaster. Re-leveling of expectations (Theme 1) of a direct threat through risk assessment and understanding priorities in triage crisis medical protocols (Theme 2) can reduce the light switch fallacy (Theme 3). People with or without disabilities can make a risk assessment based on reasonable judgment and best available evidence of the probability of injury and if reasonable modifications will mitigate the risk (USDOJ, 2010; Stough & Mayhorn, 2013). “Personal preparedness among the individuals, families and communities we serve is one of the most important keys to our [FEMA] success” (Fugate, May 2011, p. IV).

Postscript

Continued research is needed to ensure the functional application of the concepts and understand the benefits of greater inclusion of individuals with disabilities in the preparatory planning phase as well as the recovery operations phase of disaster planning. Due to the near zero research found in the specific realm of the rescue phase of disaster response, this area would be recommended for greater effort of inclusion.

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