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Disaster Mortuary Operational Response Teams in Action: The Role of DMORT in Natural Disasters, Pandemics, and Beyond

Disaster Mortuary Operational Response Teams (DMORT) were created in 1992 to assist federal, state, local, tribal, and territorial entities with identifying and reuniting human remains with their loved ones after a mass fatality incident. When there are more fatalities than can be managed with local resources after a natural or human-caused disaster or during a public health emergency, DMORTs can be requested to support the identification and return of victims to their loved ones. ASPR TRACIE interviewed Patricia Kauffman, MD, who has been with DMORT since 2001 and currently serves as a team commander to understand the impact of DMORTs over time.

ASPR TRACIE

Could you tell us about your background and your role with DMORT?

Patricia Kauffman (PK)

I'm a physician trained as a forensic pathologist, which was my initial position when I joined DMORT almost 21 years ago. Eventually I became team commander of the mid-Atlantic team. My first DMORT deployment was to Flight 93 in Shanksville, Pennsylvania on 9/11.

ASPR TRACIE

How big are the DMORT teams and how are they organized?

PK

Each team is associated with one of the ten standard federal regions. Although there are ten individual teams within the ASPR National Disaster Medical System (NDMS), we work together and share resources.

It is said an average of seven loved ones will appear for each decedent. DMORT VIC Team members are trained to communicate with families to ensure they know their loved ones are being treated with dignity.

ASPR TRACIE

Who can join a team, and what are some typical roles?

PK

Teams include forensic dentists, forensic pathologists, forensic anthropologists, and DNA specialists, as well as funeral directors and medical-legal investigators. We also have safety officers, chaplains, and mental health professionals to

support our personnel. We are intermittent federal employees, and most DMORT staff have other jobs when they are not deployed.

Team members are highly skilled at interfacing with families and often work with our Victim Information Center (VIC) Team, asking families questions about their departed loved ones' unique characteristics such as tattoos or surgical scars and other questions helpful for identification. We also have medical-legal investigators with law enforcement backgrounds, who gather records and documentation. We draw on each specialist depending on the mission and the skills needed, always towards the goal of identifying and returning decedents to their loved ones.

Before the portable morgue is set up and the VIC Team is activated, a small advance team of subject matter experts may be sent to get a feel for the incident and discuss with the medical examiner or local jurisdiction what support is needed. Sometimes there's a lack of awareness about what DMORT can offer, so we work together to ensure everyone has a good understanding of our capabilities.

ASPR TRACIE

Can you describe the portable morgue unit?

PK

Our Disaster Portable Morgue Unit (DPMU) is typically housed in a tent in the open air, or in a large, unused warehouse, if available. Each profession has its own dedicated space in the DPMU. While one of the regional teams alone can potentially staff a DPMU, we typically work together to provide "backfill" to each other when more specialists are needed or when a mission goes on for an extended time.

The DPMU consists first of a triage and admitting area. Human remains may be intact (for example during a pandemic), or extensively fragmented after an explosion or plane crash. Each human remains, no matter how big or how small, is assigned a personal escort through the DPMU. To ensure that we are focusing on the human remains, we have triage stations staffed by our forensic specialists who play a critical role because during the recovery process a tooth, for example, can look a lot like a small rock, animal remains can resemble human remains, and medical devices can be mistaken for plane parts. In this area, personal effects are collected, and are ultimately cleaned and returned to families.

Our main mission is to identify the remains accurately and respectfully. In the DPMU the documentation process continues at the photography and x-rays stations. Remains are then examined, and post-mortem information is meticulously documented by a fingerprint specialist, a forensic dentist, and a forensic anthropologist. The forensic pathologist performs an autopsy, though it differs slightly from one done in a hospital, since our primary goal is identification rather than diagnosis. Finally, remains go to a DNA specialist. The entire process may be long and painstaking, but it is very important, because it is critical to be certain that the identification is completed accurately and that each family receives their own loved one.

The VIC Team, who interfaces with the families, sets up operations a respectful distance from the disaster site to ensure privacy and because it could be potentially distressing for family to be in close proximity to the site of the disaster. It is at the VIC that ante-mortem information is gathered from the families. Our final step in the process is matching ante-mortem information from families with post-mortem information collected at the DPMU together to accurately identify the decedents.

ASPR TRACIE

Do you use any available community infrastructure, or do you prefer using the tent? How do you keep the area secure?

PK

Since the morgue footprint is very large (from 5000 to 8000 square feet) the decision about where to place it is important. We can use an open-air location or an unused structure such as a warehouse. We're flexible about where we set up as long the location provides ample room for each of our specialties and can assure privacy and security. We always have security on-site, typically provided by local or regional law enforcement. There is often keen interest from the press, and we have had incidents in which people have tried to enter the DPMU posing as chaplains, for example, so we must be very careful.

ASPR TRACIE

How do you support family members in such a challenging situation?

PK

Support for family members is vitally important and the VIC Team, who interfaces with them, is part of everything we do. At the Victim Information Center families' needs are met and they are briefed regularly to ensure that they receive updates first rather than later from media sources.

Families often understandably want their loved ones' remains back right away, and sometimes request to visually identify their loved ones. However, after a person is deceased, they often don't look exactly like they did before, making visual identification challenging. Our forensic specialists play an important role in explaining this to families and emphasizing that their loved ones are being tended to in the DPMU with the utmost respect and professionalism at every step throughout the entire identification process.

ASPR TRACIE

What is typical length of a DMORT deployment?

PK

The conventional deployment is two weeks, but disaster timelines are a big unknown. The DMORT response is often measured in days, but at the time we start a mission we never know if we'll be there for a few days or for months. We had personnel deployed to Hurricane Katrina for a year, almost to the day.

For a long mission personnel from many teams will deploy with some of them returning for several repeat deployments. I'm always amazed at how supportive and understanding our team members' employers and coworkers can be. Especially when the disaster is affecting a state or entire region, our co-workers at home can feel like they are contributing to the response effort in their own way by covering for DMORT members while we are away from our regular jobs. It is quite moving.

ASPR TRACIE

How are you requested and activated? Does NDMS determine how to fill the need, or do they work with the Federal Health Coordinating Official to do so?

PK

DMORT can be requested following a presidential declaration of a disaster or public health emergency. Commonly, a governor, tribe, or territory makes a request for assistance to FEMA as the coordinating agency. Once the President declares an emergency or major disaster, FEMA will coordinate the deployment resources. A mission assignment is generated and directed to the ASPR, where it makes its way to the HHS Secretary's Operations Center. The setting and circumstances of the individual disaster will influence the selection of DMORT skill sets and personnel that are ultimately needed, a conclusion that is the culmination of input from the SOC, the Federal Health Coordinating Officer, and the DMORT team commander.

The Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 amended the Disaster Relief Act of 1974. The Stafford Act provides the authorization for the federal government to assist state, tribal, territorial, and local governments in response to disasters.

ASPR TRACIE

How do you recruit members? Is it done the same way in each region?

PK

In the three decades DMORT has been around, we have thankfully always been able to recruit people who can rise to the occasion. I tell my team members when hiring and recruiting that while we're not looking for workers who will be overly affected by a disaster, we're also not looking for individuals who are case-hardened. We look for experienced, compassionate professionals.

We have a staffing roster with defined numbers of specialists. When DMORT was a volunteer program years ago, we recruited based on word of mouth. We still operate that way to some extent since many of our staff know people who are knowledgeable, qualified, and want to contribute to the greater good in this distinct way. DMORT didn't start under HHS, rather it started as a community and grassroots response organization. In fact, in the early years, we were called volunteers, but folded into HHS and are now known as "intermittent federal employees," meaning we become federal employees whenever we are activated.

Now that we are federal employees, whenever we have an opening, the position is posted on USA Jobs. Individuals submit their application there, and then go through the formal hiring process. We also post links to these openings to listservs and social media to expand our reach.

After a mission that receives national attention, there is often a spike in applications because people witness what we do in the media, and they are inspired to be part of it.

ASPR TRACIE

Did COVID-19 pose challenges for recruitment? For example, were people reluctant to travel or risk exposure?

PK

In any mission there are some individuals who aren't available for personal reasons. In this case some were reluctant to venture out because of the unknowns associated with COVID-19. But those who come to DMORT and the VIC team do it because they are special people. They are used to working in unpredictable environments, wearing personal protective equipment, and working with human remains and family members in distress. They know we have embedded support, including our chaplains and mental health specialists, safety officers, and NDMS medical strike teams to take care of us, all of whom deploy with us, so whatever the mission, most are usually up to it.

ASPR TRACIE

Tell us about the missions you've been on, and how they have changed your approach to these events. What have you learned in different roles?

PK

Each response is different, but no matter the scenario—an airline crash, cemetery disinterment, terrorist attack, or other incident—the result is the same; we work together to identify and return the remains to the family, or to the local jurisdiction if no family comes forward.

Flight 93 on 9/11 was my first deployment, and I was apprehensive because I had joined DMORT not very long before that and had not yet met the rest of the team or been through orientation. Since my region is the mid-Atlantic, my team deployed to western Pennsylvania in response to the crash site of Flight 93. I was distraught from the national tragedy, as was everyone else.

As it turned out, I found that others were experiencing the same thing. The DPMU was set up at the nearby National Guard Armory, and our team, many of whom were new to each other, worked exceptionally well together. Everyone focused on the mission and on supporting each other. We worked with FBI personnel who were there because it was a crime scene. Residents from the local community of Shanksville were incredibly supportive. It was a gratifying mission for all these reasons, and further because in the end we were able to positively identify all the 40 passengers and crew.

We can contrast this response with the Georgia crematorium incident in 2002. At the Tri-State Crematory in the Noble community of Georgia, a crematorium operator, instead of cremating decedents was leaving the remains in a field. In that case, DMORT was requested to deploy and identify and the almost 350 human remains. That was a different kind of crime scene. Again, our VIC team was indispensable in interacting with a devastated community.

In 2003 there was a nightclub fire in West Warwick, Rhode Island which I found particularly tragic because most of the 100 victims were young. We assisted the medical examiner's office during that response, documenting injuries and causes of death.

Flooded cemeteries present a uniquely challenging mission. The 1993 Hardin Cemetery flood in Missouri in which over 700 graves were washed away was one of DMORTs first missions. After a cemetery flood, human remains are brought to our portable morgue just like other missions and our VIC team is also activated to interface with the families, who are

now contending with burying their loved ones not only once but for a second time. Because of the widespread extent of flooding, some remains in cemetery floods may not be able to be recovered, while others from an earlier era, as in the Civil War, may not have family members come forward and after a time are respectfully reinterred.

ASPR TRACIE

How did DMORT respond to COVID-19 in New York City?

PK

COVID-19 was different because our core mission is to identify unidentified deceased following mass fatality disasters, and in the case of the pandemic the deceased were almost universally known. So, this was not a conventional mission because we were not identifying the deceased; instead, we were augmenting the city in its efforts to account for and tend to the deceased until such time as their families could come for them.

At the height of the pandemic, the City of New York requested DMORT's assistance as the death count was approaching 600 a day. The dilemma in such situations is that no one knows at any given time whether the death toll has reached its peak or will continue to rise.

Members from every regional team in the nation came to New York City to help. The New York City Office of Chief Medical Examiner, the largest in the country, constructed a temporary morgue in a secluded location at Brooklyn's 39th Street Pier where DMORT was a presence for several months to assist in the respectful care and documentation of the deceased. At that point, we didn't know how long this would be necessary—it was possible that it could last years—so the facility was set up to last that long if needed. We were there to help them through the worst part. Throughout the time we spent there we were gratified to work together with the New York City Fire Department, and the New York Army National Guard.

COVID was an unusual mission and provided some unprecedented deployments elsewhere in the country where NDMS medical teams were extensively committed. DMORT personnel were able to augment them in certain instances, at quarantine sites and on vaccination teams where our dentists, for example, were well able to assist.

ASPR TRACIE

How does DMORT work to recognize stress and maintain the mental health of their members?

PK

I tell my team members that whenever we respond to a disaster, we carry a little piece of it with us for the rest of our lives. This work affects all of us. Emotional and psychological factors are never far from the surface in this work.

Spending weeks on a DMORT mission, and perhaps cycling back multiple times during a long mission, can be very demanding for our staff. When responding to a disaster in which we are affected by those events just as others are, I make sure our team members have all the resources they need, and they can avail themselves of assistance confidentially and without hesitation.

I've mentioned that chaplains and mental health professionals are embedded with our teams. Some of our staff are more comfortable talking with chaplains, and some are more comfortable talking to a mental health professional, while others will seek out a teammate. Part of our training addresses how to support each other in the field. While all information about who is availing themselves of support or what is discussed in those sessions is completely confidential, I am invariably made aware later that those resources are consistently and freely utilized, which is reassuring.

ASPR TRACIE

What have you observed about different jurisdictions and their preparedness for mass fatality events? What do you recommend jurisdictions do to ensure they are prepared?

PK

You never know what tomorrow will bring. The small town of Shanksville, Pennsylvania, couldn't have predicted they would become the site of a terrorism-related plane crash. There's a great variation by state and jurisdiction in preparedness for a mass fatality disaster. It takes time, but if a jurisdiction is better prepared it can make a huge difference. One example of many is the State of Florida which over time has become increasingly well prepared for hurricanes.

The actions that are taken at the very start of a disaster response can have an influence over the success of the entire mission. Focusing on some basics can ensure that a response gets off to a good start. Factors such as giving some thought as to where a DPMU could potentially be placed, suitable facilities available to serve as a VIC team center, and how best to support families (and a concerned public) in the interim while necessary identification efforts are underway.

This work truly is a calling. We deal not only with the care and identification of the deceased, but also with interaction and support for the families. Thankfully, there's a dedicated and abiding interest in what we do by some very special people, many of whom become inspired to join us. Hopefully this article has helped to shed some light on a unique mission capability that is deployed only intermittently, but always earnestly and compassionately.

What "Counts" as a Disaster Fatality?

John Hick, MD, ASPR TRACIE Senior Editor, Hennepin Healthcare

A man drowns in a hurricane storm surge. A woman dies from a heart attack she had while moving damaged furniture from a friend's home a few days later. A month after losing his medications in the storm, a man dies from diabetic complications. Would each of these cases be counted as disaster deaths?

Unfortunately, categorization of disaster deaths is inconsistent between states. In some, all these deaths would be categorized as disaster related. In other states, only the drowning (i.e., "direct death") would be counted. "Indirect deaths" (e.g., the woman who had the heart attack helping her friend move) that would not have occurred without the disaster are counted in some states. Those that are only partially attributable (e.g., the diabetic death) are usually not counted. Thus, the exact same deaths from the exact same hurricane will be counted differently in different states.

In many cases, the information available to those who fill out the death certificate is incomplete (e.g., the physician who pronounces the individual dead may not be aware of the circumstances surrounding the death). The death may also not be coded as disaster-related, resulting in many disaster deaths being missed. Sometimes, the only way we can estimate disaster deaths is to look at the period after the disaster and compare it to the period before the disaster struck to identify those excess deaths that otherwise would be missed.

These are just a few of the problems with our current disaster death reporting processes. Potential solutions range from standardized data collection, standardized state reporting of disaster deaths, and improving consistency of death investigations, to creating/providing additional resources for gathering information on deaths that occur around the time of a disaster.

These issues and potential solutions are explored in depth in the National Academies of Medicine report A Framework for Assessing Mortality and Morbidity After Large-Scale Disasters.

If we are to assess the impact of disasters and the effect of mitigation and response strategies in a meaningful way, we must prioritize collecting death and injury information in a consistent manner. Otherwise, most of these deaths will be missed, along with the opportunity to prevent them. It is important to understand your facility and jurisdictional death reporting process as well as the role that you might play in gathering or reporting disaster injury and death information accurately.