

Just Managing Mass Fatality Incidents

Introduction [00:00:01] RTI International's Justice Practice area presents Justice Science.

Voiceover [00:00:09] Welcome to Just Science, a podcast for justice professionals and anyone interested in learning more about forensic science, innovative technology, current research and actionable strategies to improve the criminal justice system. In episode four of our Unidentified Human Remains mini season Just Science sat down with Katharine Pope, a Research Public Health Analyst at RTI International, and Elissia Conlon, a Special Advisor to the New York City Office of Chief Medical Examiner, to discuss mass fatality incident management and disaster victim identification. A mass fatality incident includes any incident where there are enough fatalities to require the involvement of a special operation or organization such as a natural disaster, large transportation accident, or terrorist attacks. In the event of a mass fatality incident, significant time and resources are often needed to manage the situation and identify as many victims as possible. Listen along as Katharine and Elissia discuss methods for identifying disaster victims, agencies that assist mass fatality management, and developing best practices for disaster planning. This episode is funded by the National Institute of Justice's Forensic Technology Center of Excellence. Some content in this podcast may be considered sensitive and may evoke emotional responses or may not be appropriate for younger audiences. Here's your host, Jaclynn McKay.

Jaclynn McKay [00:01:27] Hello and welcome to Just Science. I'm your host, Jaclynn McKay, with the Forensic Technology Center of Excellence, a program of the National Institute of Justice. Today we will be discussing mass fatality incident management and disaster victim identification. Here to guide us in our discussion is Katharine Pope and Elissia Conlon. Welcome to both of you and thank you so much for joining us today.

Katharine Pope [00:01:49] Thanks for having me.

Elissia Conlon [00:01:49] Great to be here.

Jaclynn McKay [00:01:51] The phrase mass fatality incident management and disaster victim identification seem to be somewhat self-explanatory. But Elissia, would you mind explaining what those two phrases mean a bit more in depth?

Elissia Conlon [00:02:04] First of all, define mass fatality incident, which is any incident that produces fatalities of a sufficient number or complexity where there is a special operation or organization that has to be stood up. Mass fatality incident management is the overarching operation involving processing a disaster incident, which includes communicating with victim's families, search and recovery, processing and identification of the dead, and returning them to their families. Disaster victim identification, or DVI, is a component of mass fatality incident management and is the process or procedure by which we associate a name with human remains through the application of scientific methods. DVI procedures have been developed over decades and have been vetted through experience and various mass fatality incidents globally. The primary goal of the operation is to accurately identify human remains.

Jaclynn McKay [00:03:00] Thank you for that breakdown, Elissia. I appreciate it. Kat, I know we spoke about your previous involvement with DMORT, or the Disaster Mortuary Operational Response Team, in one of our previous episodes, but would you mind speaking to your experience a little bit more again?

Katharine Pope [00:03:16] Yeah. So, DMORT is the Disaster Mortuary Operational Response Team, and it falls under the National Disaster Medical System, which also falls under the U.S. Department of Health and Human Services Administration for Strategic Preparedness and Response. So this is a, clearly a very government focused organization that assists with any sort of mass fatality that's occurred on U.S. soil. And the response teams can be deployed to many different kinds of mass fatalities or mass disasters, including transportation accidents, natural disasters, pandemics, and terrorist attacks. And the teams will assist with really anything that the local jurisdictions need assistance with.

Jaclynn McKay [00:04:09] Just curious, how are the forensic specialists that join DMORT, how are they chosen? Is it just based on a voluntary basis or is there an application process?

Katharine Pope [00:04:20] Yes so it is a government position. So we do go through USAjobs.gov to fill out an application and we're vetted and go through a hiring process as well. Because it's an on-call kind of position as needed, we can be provided leave time from our current full time positions through the USERRA Act. It's the same kind of a leave that is afforded to military personnel. So when we are activated to go and respond to a mass fatality or an event that requires DMORT response, we are given that leave from our full time jobs.

Jaclynn McKay [00:04:57] Elissia, as the former chair of the Organization of Scientific Area Committees for Forensic Science Disaster Victim Identification Sub-Committee, could you speak to your experience with disaster victim identification?

Elissia Conlon [00:05:11] So my experience dates back to 2002 where I began my work assisting with the preservation and preparation of human remains following the World Trade Center incident in New York. In that role, I assisted with the final inventory and relocation for over 20,000 remains following that disaster. Maintaining an accurate documentation of those remains, identification, examining debris associated with that incident, and communicating directly with the families of the victims regarding the identification process and specific details relevant to their loved one's case. Several years later, I was a planning consultant for the Department of Health, working with the New York City Office of Chief Medical Examiner, conducting project management for disaster planning initiatives, including formalization of the New York City Pandemic Influenza Surge Plan for managing in and out of hospital deaths, and New York City's All Hazards Mass Fatality Plan. Most recently, I was the lead for the health care facility body collection joint task force during the COVID 19 response in New York City. In this time, since 2014, I have become a member of the OSAC Disaster Victim Identification Subcommittee, later becoming chair of that subgroup. And then in 2020, Disaster Victim Identification Subcommittee actually became a task group under the Medicolegal Death Investigation Subcommittee. I have seen great benefit coming out of that because the documents that the DVI subcommittee are developing impact the medicolegal death investigation community. And now that we have those documents being developed under the Medicolegal Death Investigation Subcommittee, the people who are benefiting from those documents are having the opportunity to weigh in on the documents as they're being developed. And presently, I'm the chair of the Medicine Scientific Area Committee overseeing standard development for forensic odontology, forensic nursing, forensic anthropology and medicolegal death investigation.

Katharine Pope [00:07:30] I don't know if you noticed this either, Elissia, but I think sometimes people, local agencies would get nervous that, you know, the government was coming in or to call and actually ask for assistance when their facilities couldn't handle such an influx. And so actually letting them take the wheel kind of, as it were, to produce these documents and actually create the standards, you know, now they have a vested interest and it's when individuals come in to assist, they're actually calling for that assistance and asking for that in a way that makes them feel empowered. Not so much, oh, we can't handle this or we need your help, you know, does that sound right?

Elissia Conlon [00:08:10] No, I absolutely agree. And part of the standard development process is not only having consensus building and having a wide range of the different types of stakeholders and consumers involved in the development process, but public comment period. And so, you know, these documents get out to a wide range of the forensic science service providers and stakeholders that have the direct ability to provide their input and direct the development of these standards and best practices. So I'd agree with that.

Jaclynn McKay [00:08:50] We have talked about there being various mortuary response teams across the country and OSAC's mission to develop standards in the DVI world, are there any standardized guidelines in which these mortuary response teams are based on or that they follow in regards to how they operate?

Katharine Pope [00:09:11] I know from my experience working with a local medical examiner who had a plan for any sort of mass event, a statewide mass fatality plan, but also would, if needed, rely on something like DMORT to come in and assist if we had something major happen. The really interesting thing is that they are heavily relying on plans that already been developed from places like the OSAC so that no one's reinventing the wheel, but then they're actually able to take those documents and fatality plans and apply it to a local jurisdiction, you know, because every area, every region is a little bit different in their needs. Something that works for New York City, is it necessarily going to work for a small Eastern Shore agency like the state of Delaware where I worked. But, the baseline fundamentals of disaster victim identification is still there. We still need to have a robust antemortem record system from the decedents. We have to have a proper family assistance center running so that we can assist and support the families of the decedents. We have to have a place to review and examine the remains so that we can gather postmortem information, so that we can do a comparison. We have to have properly trained individuals to do those comparisons. We have to have people to handle the personal effects. So kind of the foundation, the baselines, are all the same and it's very nice to have this multi-jurisdictional coordination to lay that groundwork, and then you kind of apply it to what you need. And depending on the disaster as well, things change depending on what exactly is going on.

Elissia Conlon [00:10:58] I would agree with Kat in that regard. There are some standards that have been developed. I mean, in 1984, Interpol produced the first guide for disaster victim identification, and it's basically globally accepted as the standard for disaster victim identification protocol. But I don't think a lot of people in the United States really have much awareness of it or follow it, and quite frankly, it's not necessarily always applicable in the U.S. but I do want to recognize that, you know, in the United States, you know, first of all, this discipline is already quite underfunded and desperately becoming short in qualified personnel. And so it is a significant challenge for jurisdictions at any local level to have funding to put toward development of standards for disaster victim identification and mass fatality incident management. So, you know, it was first the

SWGdVI and then subsequently in 2014, OSAC that kind of recognized this challenge. And I'm really happy to report that to date, between the original SWGDVI documents and subsequently the OSAC DVI task group, they've drafted 14 documents to support medicolegal operations following a mass fatality incident. Seven of them have been published by ANSI and the American Academy of Forensic Sciences Standards Board, or ASB, which is the standard development organization that OSAC uses for DVI work. And there's an additional two proposed standards on the OSAC registry with a third, which is the standard for mass fatality incident management, which was recently approved by the Forensic Science Standards Board for it to be posted on the registry actually this month. One of the great things about the way that these documents have been developed is that there's kind of an overarching standard, which is the standard for mass fatality incident management, which gives kind of the objectives for a successful operation, as well as the considerations for policy decisions that have to be made at the beginning of an operation. And so that kind of sets the standard and is the umbrella document for the rest of the documents that are coming out from the DVI task group, which are a compilation of best practices and standards. And quite honestly, the reason why most of the documents have been drafted as best practices is, like Kat said, one, you don't know what the type of incident is going to be, and folks don't have a lot of funding in this area and so we needed to write documents and best practices and standards that are achievable but are appropriate to the incident.

Jaclynn McKay [00:13:57] When thinking about disaster victim identification, I think the scenarios that come to mind most prominently are terrorist attacks or plane crashes or natural disasters like wildfires or hurricanes. But with the wake of mass shootings in the United States, could the mass fatality incident management or DVI guidelines apply in these scenarios?

Katharine Pope [00:14:22] That's a really valid question, and I think it was raised a few times in past school shootings with similarly aged decedents who, you know, all basically look alike, are the same height, may have the same type of dentition because they're the same age and the level of injury that they had due to the types of firearms used in the incident, and so traditional methods of identification are not possible in those incidents, and the individuals are not going to be visibly identifiable or viewable by their parents and their loved ones. So the scientific methods of ID would be required. It is true that the mass fatality occurs at the local level, no matter where it occurs. The local jurisdiction is going to have to handle the processing and identification of those decedents. So a mass fatality for some agencies is going to be a different number of decedents for different agencies. So, for example, in the state of Delaware, we could really only handle five decedents at one time, and anything more than that for us, for a small office, was technically a mass fatality. And so depending on the jurisdiction handling those school shootings, yes, absolutely. It fits the qualification of needing additional support from disaster victim identification or the emergency management folks.

Elissia Conlon [00:15:55] Yes, to expand on that, I will say that one of the recommendations from the DVI task group and the standard for mass fatality incident management is the establishment of an operational definition for what a mass fatality incident is in your jurisdiction. Because I think generally speaking, it's kind of recognized to be any incident that overwhelms your local jurisdiction. But, you know, sometimes having a definition that's that general can be stymieing because it's hard to kind of say, yes, I'm overwhelmed and it's not really very operational. Like, there is no trigger there. And then sometimes it's difficult to put a number on a disaster because one of the surest things that, you know, in the first hours of an incident is that you're going to be getting bad

information or misinformation or at the very least, that the information is certainly going to change because the operation is dynamic and you are getting different pieces of information as the operation unfolds. And so in some jurisdictions, like New York City, for example, we have an operational definition where that includes a possibility of zero decedents. It's the potential for up to ten decedents, that way, if there are other parts of the definition that are triggered, we go out the door because it's much easier to respond to an incident and then pull back than if you wait to respond until you've had a trigger of a particular number and then roll out and engage with the incident command on scene. And then with regard to the identification, I think certainly with mass shootings, like I said before, life safety obviously is a priority. But as soon as the scene is declared safe, and I would say that with any type of incident, that as long as the operational policy decisions are considered, then the medical examiner or coroner or JP or whoever is running the incident will have the opportunity to consider what the incident is and define the policy recommendations to support the mass fatality operation that has to be developed. One of the recommendations is that there be an instant characterization that is performed early and regularly following an operation which speaks to the type of incident. Is it natural? Is a terrorist? Is it an operation that is going to require complex and protracted recovery, or is the recovery going to be quick? These things all will feed into the type of operation that will unfold back at the medical examiner or coroner or JP's office.

Jaclynn McKay [00:19:03] Switching gears a little bit, could either of you explain some of the ways in which disaster victims are identified?

Katharine Pope [00:19:10] In a mass fatality or a major disaster, one of the issues is that there can be extreme fragmentation of individuals and their remains. There can also be significant burning or degradation of the bodies, making it very difficult to establish identification in the traditional means, which generally is a visual way. In these cases, we need to use scientific methods of positive identification, and those would be with antemortem comparison of dental records, fingerprints, any other sort of medical records such as X-rays. If the individual had surgical implants, very specific tattoos or scars and we can also use DNA to identify decedents based on comparison with next of kin, family reference samples or direct reference samples. So those are the formal, positive scientific methods of identification. But like I mentioned a little earlier, we have to have a very robust system of antemortem records to refer to. So sometimes that can get a little tedious or confusing when you can't locate family. If you have an open population of missing persons in a major fatality or a major disaster, we might not exactly know who is missing. So we don't know exactly who we have to find as far as family or who we have to look for medical records on. And so that can get a little complicated. So kind of the beginning of this procedure and the process is starting to figure out who exactly are we missing. But when you have a nice, closed population, for example, an aircraft disaster, and we know exactly who was on that aircraft.

Elissia Conlon [00:20:59] I think the only thing I would really add is that victim identification really begins during scene recovery. And so, you know, kind of one thing to consider is depending on the incident, it could take a number of days or weeks for all of the remains to be recovered and processed and brought back to the morgue. So really kind of disaster victim identification is kind of an apex of the scene examination, the postmortem examination of the evidence of human remains recovered in the field and those forensic analyzes that are performed that Kat just described, in order to basically compare that information with antemortem data, which would be collected from families usually in a family system center, which the component of which the medical examiner or the medicolegal authority would be working out of is called the Victim Information Center.

And so you have all of that scene information, that postmortem data, the antemortem data and all of that then gets reconciled in order to achieve a victim identification and associate the name to those remains. I will say that the rate limiting factor or the ability to actually make an I.D. can often be your ability to acquire antemortem data. And so, like Kat was saying, if you have a closed population incident where you know exactly who was on board that plane, for example, then you have the manifest and you're basically attributing remains to names on a list. It's incredibly more difficult when you don't know who's involved. And in that way, you really have to have an ability to have a central reporting system of people who are missing or possibly involved in the incident in the area so that you can start assembling a list of names who are potentially involved in the incident and then confirm that they are, in fact, involved and then attribute the remains to those names. So it can become extremely complex. But ultimately, that's kind of the four-prong approach that disaster victim identification really is.

Jaclynn McKay [00:23:17] I'm just curious and I know you said it's a lot easier with a closed case of individuals who could be involved, but about how long does that whole process take?

Katharine Pope [00:23:28] There's a lot of moving parts to any mass fatality. And I think that what Elissia just described are activities that are occurring concurrently with also the care for the living and handling of infrastructure and making sure more people don't perish. So there are so many moving parts that requires all of these things to kind of come together to assist with the identification of decedents. And to be perfectly blunt, sometimes that activity is the last activity that will take place when you have to take into account all of the other things that we need to pay attention to. One of the important tasks of a forensic anthropologist is to be able to really identify when we have human remains on board, when there is such a huge amount of debris, we can assist with actually identifying human remains, skeletal remains, and bringing that to a specific point so that an analysis can occur.

Elissia Conlon [00:24:34] That brings up a really great point, because I think one of the most important things that any entity that's managing a mass fatality incident can do is manage the expectations of not only the families of the folks involved in the incident or potentially involved in the incident, but also the executive leadership in the jurisdiction and the media so that people understand what the operation is and the complexities of it so that when the victim identification process takes several days, several weeks, several months, and sometimes several years, that there's an understanding of why that's happening and that people haven't stopped the work, but it just is incredibly complex. So I think that would be something I would really drive home to the audience of this podcast is that you do need to manage the expectations of the folks that you're working with and for so that there is a real understanding of the time frame and that it is clearly presented and consistent across the different agencies that are supporting the operation.

Katharine Pope [00:25:52] I was just thinking about within the Family Assistance Center as well, we have to be sure to be very transparent with families who are going through this and the early times of the event there will be a representative who will speak with them at noon every day and sometimes at 5:00 also every day to make sure that they understand what's going on, why, you know, what's the next step, what they should expect, just to be able to be as transparent as possible, so they really feel a part of the process, so that they're not afraid or don't feel like there's a cover up. Families do play an integral role in the disaster event, and they are important part of being able to identify the decedents.

Jaclynn McKay [00:26:40] In thinking about the future and continuing to progress in the field moving forward, are there any other areas that need to be explored or researched more heavily?

Elissia Conlon [00:26:52] Yes, there are a couple of areas that I think are worth exploring going forward, and certainly the DVI task group has kind of pushed these up to NIST, but one of those is the development of composite quantification of contextual decedent identification criteria. There's currently no means to quantify individualistic values of contextual identifiers and therefore no measure of confidence associated with contextual decedent identifications. So there is a need to develop population level likelihood values for these human characteristics and circumstances that are regularly used to support identification methods. Another is development of modeling for mass fatality incidents, missing person and victim data. Currently, there is no means to anticipate the volume and variety of data that result from and need to be managed following a mass fatality incident and existing assumptions are anecdotal and based on a small number of incidents. And so the volume of data that's collected during incidents and available from after action reports could be potentially used to systematically kind of develop reliable expectations for medicolegal operations following an incident and then honestly understanding cognitive bias and DI operations, kind of. There's a lack of understanding of the degree of cognitive bias that may be associated with disaster victim identification operations, where you're dealing with a large number of remains. And so, you know, it's beneficial to look at determining if cognitive bias exists in current DVI operations in addition to, if it does, developing effective mitigation strategies. Finally, I do think it would be wonderful to finalize development of an app given the current way that the public interacts with technology to interact with the Medicolegal Death Investigation Authority following a mass fatality incident, reporting loved ones missing and then communicating back and forth. So those are just some areas that I think have some value to consider.

Jaclynn McKay [00:29:15] Are there any final thoughts you would like to leave with our listeners?

Elissia Conlon [00:29:18] I think it's really important that folks in the medicolegal death investigation community leverage the standards and best practices that are available and develop a plan now versus waiting until an incident happens. I think it's really important to recognize that all mass fatality incidents are local. You know, a study conducted by the New York City and Harris County, Texas, between 2020-19, they documented 168 mass fatality incidents in that time frame, which is about eight a year nationally. And, you know, it's interesting because of that number 17 resulted in a DMORT deployment, which is only 10% of the incidents that happened. And then of those incidents, the average number of deaths was about 72. If you remove the outliers like 9/11, Hurricane Katrina, Hurricane Maria, the average number of deaths per mass fatality incident was then 27. And so it's really important to kind of recognize that an incident could happen in your jurisdiction that far exceeds your ability to respond, either maybe in terms of number of folks involved or the type and complexity of the incident type itself, but that you're not necessarily going to have DMORT support. So you're going to have to find a way to force multiply and acquire the resources that you need to manage that operation. It's important to note that the legal authority for conducting the disaster victim identification and recovery resides solely with the medicolegal authority in the jurisdiction where the disaster occurred. So you may not have the resources on hand to manage the operation, but you're going to need to know what you need, where to get it, and how to get it, particularly if it doesn't meet the standard of bringing in DMORT. So develop a plan and plan for what you should do, not what you can do, and establish a plan for what's likely to happen in your area. Like, are you in an

area that is prone to hurricanes? I also think it's important to work with local emergency managers and partners in fatality management. First, I think it's critically important that everyone understands their roles and where their jurisdiction begins and ends, and that you guys know who you are in advance, so that when you come together during an operation, it's clear who's working where and who's responsible for what. No matter how well you plan, you're going to have errors. You need to expect them. Plan for them. Set up quality assurance measures to prepare and document them and learn from them.

Jaclynn McKay [00:32:15] Kat and Elissia, thank you so much for speaking with us today and for sharing your insight. This discussion has been very informative.

Katharine Pope [00:32:23] Thank you, Jaclyn.

Elissia Conlon [00:32:24] Thank you.

Jaclynn McKay [00:32:25] If you enjoyed today's episode, be sure to like and follow Just Science on your platform of choice. For more information on today's topic and resources in the forensics field, visit ForensicCOE.org. I'm Jaclynn McKay and this has been another episode of Just Science.

Voiceover [00:32:46] This episode concludes our Unidentified Human Remains mini season. Tune in next season to learn more about the people and programs supporting the medicolegal death investigator community. Opinions or points of views expressed in this podcast represent a consensus of the authors and do not necessarily represent the official position or policies of its funding.