

## Just Lending a Hand During Autopsy Exams

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

**Voiceover** [00:00:08] 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 two of our Supporting Medicolegal Death Investigators mini season, Just Science sat down with Lindsey McNaughton, founder of the National Association for Forensic Autopsy Technicians, to discuss the importance of forensic autopsy technicians and her efforts to create more resources for this community. When someone dies unexpectedly or of unnatural causes, performing a full autopsy examination can be an extensive process that requires many steps and close attention to detail. To make more autopsy examinations go as smoothly as possible, forensic pathologists are assisted by forensic autopsy technicians who complete tasks ranging from photographing remains, prepping tools, and much more. Listen along as Lindsey describes the many unexpected roles of an autopsy technician, the training required for the position, and why she created the National Association of Forensic Autopsy Technicians. 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 is your host, Kelly Keyes.

**Kelly Keyes** [00:01:23] Hello and welcome to Just Science. I'm your host, Kelly Keyes, with the Forensic Technology Center of Excellence, a program of the National Institute of Justice. I was a medicolegal death investigator for over 20 years, but I started my career as a forensic autopsy technician. And joining me today to talk about the role of a forensic autopsy technician, also known as an autopsy assistant, is Lindsey McNaughton. Thanks for being here, Lindsey.

**Lindsey McNaughton** [00:01:49] Thanks for having me, Kelly.

**Kelly Keyes** [00:01:51] How did you get involved in this field, Lindsey?

**Lindsey McNaughton** [00:01:53] I never really knew the path. I didn't even know that this role was like a real career. It's just what you see on TV and it's like, oh, morgue people are creepy. But I decided, oh, you know what? I'm going to go back to college. I want to get a degree in forensics and I want to be able to, you know, understand the death field more. I don't know what I'm going to do, but that's where I want to go. And the Denver office actually had a mass fatality preparedness program at the time that took volunteers, so I came in as a volunteer on October 23rd, 2013, saw my very first autopsy and was hooked. I went to my school the next day and declared my major in biology. Every single project I had was catered toward - if I'm working at that morgue, what would they like to see? So I did DNA degradation experiments, decomposing tissues, and just found my passion and graduated and magically there was an opening. And at first it was really scary because I had never done an evisceration, and it's just - it's blossomed. The more I get to teach our interns, the more I get to learn with my coworkers, the more I love this job.

**Kelly Keyes** [00:03:10] Let's just start talking about what an autopsy technician is and maybe what it is not.

**Lindsey McNaughton** [00:03:15] Autopsy technicians vary in their roles depending on the location in which they're serving their communities. For my office, we help perform the

evisceration, remove all the organs, forensic photography, radiography, a lot of cleaning. So much cleaning. We do advanced fingerprinting techniques such as rehydrating fingers or maybe using a casting material. A lot of other offices, the technicians may not do as much or be as involved in the postmortem examination. Some offices, the technicians are simply doing the photography or assisting with body transport. But most offices these days, or the more modern autopsy technician, is doing a vast array of all of the examination processes.

**Kelly Keyes** [00:04:04] You mentioned you did the photography, and that wasn't something that we did at my office. Another thing that we did a lot of was specimen processing in a custody, helping to collect specimens, process the specimens, transporting to the lab. Is that fairly common as well?

**Lindsey McNaughton** [00:04:21] Yes. We actually collect, retain and dispose of our biological specimens here. We collect blood, urine, sometimes gastric contents, occasionally trace evidence. We maintain our chain of custody, and we work closely with the Denver crime lab with collecting that evidence.

**Kelly Keyes** [00:04:40] I've heard that in some offices, the forensic autopsy technician also does transportation, is that correct?

**Lindsey McNaughton** [00:04:47] Yeah, my supervisor just got out here from Florida. And at his office, he would say that they did transportation, which I can't imagine doing transportation and eviscerations, and then you have somebody call out and now you're in two places at once. Just blows my mind. But I also like the idea of more self-sustainability within the office where you know that you have the right people doing the transport for you and maintaining those remains.

**Kelly Keyes** [00:05:13] And maybe talk a little bit about the evisceration a little bit more.

**Lindsey McNaughton** [00:05:17] So in performing the evisceration, we do organ by organ method, but there's also the en bloc, the bloc method where you take everything in one unit and then the pathologist kind of dissects on the cutting table. For us, we start with taking off the chest plate, removing heart and lungs, and then systematically taking out each organ independently so we can see any kind of pathological significance that we can point out to the doctors.

**Kelly Keyes** [00:05:45] Is that a part of the autopsy? Is that with the doctor or are you doing that prior to the doctor?

**Lindsey McNaughton** [00:05:50] So our typical day, we start off by processing our decedents. We inventory anything that they come in with. We photo document any of their personal property, any kind of medical intervention we leave in place, but we photo document it. And then once the pathologist has determined what kind of exam they want to perform, if they want to just do an external examination or if they want to do the full autopsy, sometimes there are some modified examinations in there as well, such as just a cranial evisceration. It all depends on their medical history and their background as to how much we already know and how much we can actually find out by performing that exam. Once we are ready to do the examination, we'll bring our decedents into our main suite. We have five stations. We usually have them all active at the same time, and then the pathologist will document any of the medical intervention. We'll photo document an identification series, and then we'll go through and photo document any tattoos, scars or

identifying features. I know some people get like silicone implants. That's kind of a significant thing that can help us identify the individual. Once we've photo documented those, the pathologists will point out any kind of specific photos they need, such as trauma. They may need a negative if it's like, oh, we think they may have had some head trauma. And then we open the head and we see there's no trauma. They may want a negative photo showing that there was nothing there. Now, once all of the photos are completed, at our office, at least the technician will begin with the Y incision and we perform the full evisceration, placing the organs next to the doctor. And then the pathologists will examine the organs and do a final look over of the hollowed out cavity.

**Kelly Keyes** [00:07:41] I think also I remember weighing organs as well is that -

**Lindsey McNaughton** [00:07:44] Yeah, we weigh organs. Occasionally we might need to place the organ on a clean background and do a high powered photo series.

**Kelly Keyes** [00:07:54] You mentioned modification of autopsy procedures. Is that something that's always driven by the forensic pathologist or the circumstances of the case, or is it something the family can have a say?

**Lindsey McNaughton** [00:08:05] So the modified evisceration is led by the pathologist. They're going to look at all of the medical history that our investigators are able to find for them, and based off of that, they'll maybe do just the cranial evisceration if it's just that like high trauma in the head region or if there's like significant medical history indicating that, yeah, we need to look at this brain, but we don't necessarily need to do the full evisceration. We also do religious consideration, modified examinations. We like to respect anyone's religious preference, if possible. Occasionally, I mean, a homicide, we have to do the full examination, but we can do dry autopsies or sometimes we just use X-rays. We'll do radiographic imaging to maybe avoid doing an autopsy altogether.

**Kelly Keyes** [00:08:54] That's awesome. I love that there's different ways to accommodate these religious and and cultural offences. And I love that you guys are able to do that and that you can help with that.

**Lindsey McNaughton** [00:09:05] Well, caring for our community is our number one goal here.

**Kelly Keyes** [00:09:08] What about fingerprinting? You kind of mentioned fingerprinting, is everybody that comes into the office fingerprinted?

**Lindsey McNaughton** [00:09:14] Yes, all of our decedents are fingerprinted, given that they have fingers to print. And sometimes we get decedents who are more decomposed and we can't necessarily get a digital print because there's too much grease or not enough detail of the ridging. That's when we'll bring out, we use this product called Mikrosil. And it's a silicone casting agent. We'll put it on the fingertip. We'll sometimes do like a white powder first and then the silicone, if it's like a darker color silicone and it makes it pop and you can actually see the details of the fingerprint. Occasionally we might use a saline solution and inject it underneath the finger pad to kind of plump up the finger and then we could get it a digital print. And then occasionally we might have to remove the finger and rehydrate it in hydrochloric acid.

**Kelly Keyes** [00:10:08] I'm wondering, you mentioned that you got your degree in biology with one class and training your interns. Is there any sort of official training program for forensic autopsy technicians?

**Lindsey McNaughton** [00:10:18] At the moment, there is not. I think we're working towards that. There is a community college, I think small community college that I found has an autopsy program, but it doesn't seem to be as much of what we need in the field.

**Kelly Keyes** [00:10:36] Is it focused?

**Lindsey McNaughton** [00:10:36] Yeah, it's more of like a couple of anatomy classes, which are great. But this is such a diverse role that there is so much training that needs to be done. But no, there's nothing really official. Most of it's just experiential learning. The longer somebody's a tech, the more they're going to know, the better their skills are going to be at cutting an organ out or getting that fingerprint.

**Kelly Keyes** [00:10:58] What sort of education or even, you know, experiences would be helpful to somebody interested in becoming a tech?

**Lindsey McNaughton** [00:11:04] Most offices hire a really diverse group of people with varying backgrounds. Like at our office, I've got biology and chemistry and I'm doing my master's in entomology. My coworkers have - one of them has forensics degree, one is criminal justice.

**Kelly Keyes** [00:11:20] What about, like, mortuary backgrounds?

**Lindsey McNaughton** [00:11:22] Oh, yeah. A mortuary background would be really beneficial as well.

**Kelly Keyes** [00:11:27] Lindsey, when you say cut, what do you mean? Is that -

**Lindsey McNaughton** [00:11:30] Oh, that would be performing the autopsy. Yeah, so we just say, we cut today. That means that we did a full examination, full postmortem, versus just like an external.

**Kelly Keyes** [00:11:40] You generally autopsy seven days a week or do not on Sundays or the weekends?

**Lindsey McNaughton** [00:11:45] At our office, we do examination six days a week. We are closed on Sundays. The investigators are still here. They're here 24/7. But we don't perform any examinations on Sundays.

**Kelly Keyes** [00:11:58] How many forensic autopsy technicians are there at your office?

**Lindsey McNaughton** [00:12:02] At the Denver office, we have five full time technicians and our supervisor. And then we usually have anywhere between 2 to 8 autopsy interns as well.

**Kelly Keyes** [00:12:13] Wow. That's awesome. Is there a particular story about your job that can really illustrate to the audience its importance?

**Lindsey McNaughton** [00:12:19] Oh, man, I don't know. There's so many different applications of what we do. You know, you have the homicides. You have missing persons that you're identifying. It's so vast that there's not really just one specific case. There are emotionally damaging cases where afterwards we have to just hug each other. Yeah, there's just so many and they're so impactful because every single case that comes through our office is used in statistical analysis. And we use that data to send off to the Department of Public Health and Environment, and they use that to implement better resources for our community based off of what we're seeing. So if we're seeing increase in drug use in a specific area of town, then they can reach out to the community there and make an impact.

**Kelly Keyes** [00:13:14] I love that you have an understanding of the importance of that public health role of a medical examiner, coroner office. I don't think that was something that I fully comprehended for many years, and it is such an important role for the medical examiner coroner's office. And I love that your office even instills that in all levels of the office. That's great. Switching gears a little bit, can you talk a little bit about I've been hearing about pathologist's assistants. Can you talk a little bit about how your role differs from that of a pathologist's assistant?

**Lindsey McNaughton** [00:13:46] Yeah, so a pathologist assistant is a licensed medical professional who can actually, they can perform the external examination without a pathologist supervising. Whereas the technicians, we have less formal training. Some offices only require a high school diploma, some require bachelor's degrees. So the autopsy technician is more of a hands on trained professional, and pathologist assistants tend to do a lot more of gross dissection of specimens. So they might be working in a hospital and prepping the same kind of organ or same specimen on a repeat. Or they might try to get a pathologist assistants in to assist with extensive caseload. The pathologist assistant could do external examinations while the pathologist focuses on the full autopsies.

**Kelly Keyes** [00:14:38] I think I've heard of a couple offices that are even using the pathologist assistants for some of the more non forensic autopsies.

**Lindsey McNaughton** [00:14:46] Yeah. Yeah, like hospital patients who have extensive medical history.

**Kelly Keyes** [00:14:51] It's not going to go to court.

**Lindsey McNaughton** [00:14:53] Yeah, it's not going to go to court.

**Kelly Keyes** [00:14:54] On that note, do you find that you have to testify very often?

**Lindsey McNaughton** [00:14:57] No. We are very much kind of hidden from the public eye as much as possible, at least here in Denver. They do anything they can to make sure we do not testify in court.

**Kelly Keyes** [00:15:09] We talked a little bit earlier about the newly formed National Association of Forensic Autopsy Technicians. Can you talk a little bit about the association and how it came to be?

**Lindsey McNaughton** [00:15:19] Sure. I started as an autopsy technician in 2018, and when I first started, I had never done any kind of full evisceration. And I was I was asking,

do we have any training material? Do you have any books or videos or any kind of training materials that I could be studying to make sure that I'm learning this job as adequately as possible? And the answer was always, no, no, no, we don't have anything. 2020 actually inspired it. I got to a point where I was working on our internship program and trying to restructure it so that it was more aligned, just like a collegiate program with training materials and everything that I wish that I had when I started as a tech. And I think that IACME was going to be meeting that summer and I really wanted to go but couldn't with COVID and everything. I was like, you know, we should have an association for technicians with training material specific to what we do because everything that we can find is modifiable and we can make it relevant to what we do, but it's not specific to what we do. Well, I'm going to do it. My admin friend was, well, what are you going to call it? I don't know, National Association of Forensic Autopsy Technicians, NAFAT. Sure, yeah, let's call it that. And she's like all right, well, you do. You and I went home and started researching what it would take and was able to get state incorporation with the secretary of state. So I did that and then found a platform where I could build a website and then started reaching out to as many offices as I could to see who wanted to help build it. And there was a lot of interest, but technicians, we don't really have a lot of time to invest in building the things that we need training wise. So lucky for me, I lived out in the middle of nowhere and had absolutely nothing to do. And I would get home from work and just get on the computer and start networking and creating as many avenues as I could to get us to connect. And by connecting, we started to have the discussions on, well, what do we need, what do we want? And certification of our work is something that technicians really want. We want to have some sort of official training that we can take to show that we have the skill set. And so working toward building training materials is going to help us lead into certification of our work. I want to find a way to promote more employment standardization, such as setting caseload limits for the year so that we're reducing burnout. We saw a lot of burnout over the past couple of years with morgue surges and just seeing all the struggle that we've gone through, being able to talk about that between technicians. I think we'll be able to actually build exactly what we need to really innovate the field.

**Kelly Keyes** [00:18:01] Wow, I love - you followed your passion and created something to help so many. How many members do you have so far?

**Lindsey McNaughton** [00:18:08] So far we have 177 official members, and that includes over 70 offices in the United States. And then we have a few members in other countries. We have a Facebook page where we have like a private group for just technicians to connect and talk.

**Kelly Keyes** [00:18:26] I've met a number of investigators who also act in the role of autopsy assistant as one of their duties on cases. Are they included as eligible for your membership?

**Lindsey McNaughton** [00:18:36] Yes, we have our membership kind of tiered. So you can have like a student membership, maybe an intern wants to start to network. They could do student membership. We have affiliate membership where maybe an admin staff member who doesn't really do the autopsies or go on scenes, but wants to learn more about what we do and be a part of that and be trained in that, they could do like an affiliate membership. And then we have the professional membership where pathologists and investigators and autopsy technicians, all of us that are working on the death investigation. I see it as the more cross-training you can have and the more communication and understanding of what your peers are doing in their roles, even if it's not necessarily your

role, if you understand how their role functions, then you can work so much better together through collaboration and collaboration leads to innovation.

**Kelly Keyes** [00:19:27] I love that holistic approach, and I love that you even include forensic pathologists. That's a great idea. You know, it's a new organization that has to have had a number of challenges to go with it. What challenges has the association had to face?

**Lindsey McNaughton** [00:19:39] Well, one of the initial challenges is we're all over the place time zone wise and trying to connect regularly with virtual meetings or even written communications, it's kind of a challenge. Another challenge; pathologists buy-in. So a lot of times a technician might say, oh, there's this association for autopsy techs and they're looking to certify the work and training and I want to be a part of it. Some offices the pathologists might see that as, oh, the technicians just want a pay raise and not be as invested in it. So just getting that the message clearly communicated to pathologists and managers of operations is kind of - a bit of a challenge. I've created some fliers and I think I put on the website like a frequently asked questions page to try to help technicians have that conversation. Many offices have a lot of budget for training or staff development, and very, very often that goes toward investigations or the pathologists or medical students and the technicians kind of get overlooked. So I'm really hoping that over time, as we build our momentum and we get those materials and the training and certification rolling, that offices will begin to budget training for techs and would be able to pay for technicians to have NAFAT membership.

**Kelly Keyes** [00:21:02] What sort of timing are you thinking realistically as far as developing things like an in-person training or even an online training and certification program? Do you have any sort of estimation of what sort of time frame?

**Lindsey McNaughton** [00:21:16] Currently, official members in the professional tier can access some online training materials such as training evisceration videos. There's one that starts with an anatomy review, and then here's how we do it. A video of how to do the evisceration with as many resources as we're able to find, and then goes into significant pathological findings. We have the cranial evisceration and I believe the pelvic evisceration available on our website for our official members. Those are still in development and it's again, with creating those, it all depends on how many unicorn days we get. That's a day where we don't have to cut anything. We don't have any cases, and we can focus on making those materials. We're hoping to reach out to our members at the beginning of this year. We've gotten a lot of interest from various offices of members who want to be part of development committees, and we're going to start putting those together to have committee meetings to maybe help with that communication challenge that we're facing. We'll have smaller committees working on employment standardization and what does that look like? Or certification, what does that look like? And then we can meet from there to discuss any developments or bullet points that have come up. And I'm hoping, it might be a little optimistic, but I'm hoping by 2025 we'll be ready for some sort of certification.

**Kelly Keyes** [00:22:42] Well, I love how much you are doing to promote excellence and professionalism in what's often an ignored profession, but such a crucial and important part of the medical examiner corner office of a medicolegal death investigation, so thank you for that. What is the future of the organization look like?

**Lindsey McNaughton** [00:23:01] We are hoping to start applying for grants this year. I spoke with my manager of operations. He thought it was a really good idea, but I was

thinking that if we could get some grant funding, we could put that toward physically going to other offices and helping them with process improvement. Or maybe we can come up with a standard internship program that trains professionals and we could go physically to different offices to work together to build those internship programs or training programs.

**Kelly Keyes** [00:23:35] Well, that sounds like you have a lot of amazing goals and a lot of great momentum going, Lindsey. Again, just thank you so much for the work you're doing to professionalize the profession. You know, with that, do you have any parting thoughts that you want to share either about the organization or the role as a forensic autopsy technician?

**Lindsey McNaughton** [00:23:52] Forensic autopsy technicians are really amazing and really skilled professionals. They definitely don't always get as much credit as they deserve, but they are definitely - they're worth it. So hopefully NAFAT can promote that and build successful professionals and help innovate the field.

**Kelly Keyes** [00:24:11] Having been one myself, I can't agree more. Thank you for the work that you do and I'd like to thank our guest Lindsey, for sitting down with Just Science to discuss autopsy technicians. Thank you so much for being on the show.

**Lindsey McNaughton** [00:24:23] Thank you, Kelly.

**Kelly Keyes** [00:24:24] If you enjoyed today's conversation, be sure to like and follow Just Science on your podcast platform of choice. For more information on today's topic and resources in the forensics field, visit [ForensicCOE.org](http://ForensicCOE.org). I'm Kelly Keyes, and this has been another episode of Just Science.

**Voiceover** [00:24:42] Next week, Just Science sits down with Rebecca Reid and Meghan Clarke to discuss family care programs within medical examiners and coroner offices. Opinions or points of views expressed in the podcast represent a consensus of the authors and do not necessarily represent the official position or policies of its funding.