

ICARE



Interagency Collaborative Animal Research Education

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ICARE Dialogues: Optimizing Animal Welfare During the Pandemic Crisis

Presenters: Interagency Collaborative Animal Research Education (ICARE) Project faculty members: Bill Stokes, Carolyn McKinnie, Eileen Morgan, Ernie Prentice, and Tracy Thompson

A record of this meeting will be posted on the OLAW website (<https://olaw.nih.gov/home.htm>) on the ICARE Project webpage (<https://olaw.nih.gov/education/icare-interagency>).

Silk: Today it is my pleasure to introduce Bill Stokes. And Bill will introduce you to his team.

Stokes: Welcome to this **ICARE Dialogue: Optimizing Animal Welfare During the Pandemic Crisis**. Clearly in the last four months, the COVID pandemic has caused, to say the least, enormous disruption and increased demands to animal care and use programs, and unfortunately it appears we're going to be continuing in an altered environment for some time to come. I do want to begin by extending a huge thanks to all of you and your staff members for your commitment to working hard to ensure the welfare of animals in your facilities in the face of very difficult operating conditions and often at great personal sacrifice. The effort to ensure continuity of operations and to support critical animal research at your facilities has been extraordinary. Especially research directly related to finding therapeutics and preventatives for COVID virus, SARS-CoV-2. Obviously, this crisis has created huge challenges in assuring ongoing optimal animal welfare for IACUCs as they seek to fulfill their responsibilities relating to overseeing and ensuring animal welfare, as well as challenges for the animal facilities working to provide a high level of care throughout this period. Facilities have faced challenges in personnel staffing to ensure adequate husbandry and enrichment, and in logistics to ensure they have the food, bedding, medicines and other supplies necessary to support good husbandry and veterinary care.

So today we want to dialogue with you, and we're particularly interested in knowing how you're doing as you deal with the day-to-day challenges. We'd like to hear from you about issues you are facing in maintaining a high level of animal welfare for your animals, and as a community want to share experiences, ideas and thoughts on how to address current issues as well as future issues that may arise. I especially want to thank all of those who responded with issues that you would like to have discussed and those will be what we will initially focus on. So today I am pleased to share with four other ICARE faculty members the facilitation of this

discussion. They all have an incredible depth of experience, and I think this will help them address the questions and offer helpful advice during the session. I'll ask each of them to now briefly introduce themselves and we'll start with Eileen.

Morgan: I'm Eileen Morgan, I'm the director for the Division of Assurances at OLAW. Here's a little bit of my background. I've come from the research program, although I've been in OLAW fifteen years. I, like you, have been involved at the program level supporting research in both the NIH Intramural Program.

McKinnie: Good morning, everyone. I'm Carolyn McKinnie with USDA. I'm a supervisory veterinary medical officer, primarily for the Pacific Northwest region. I've been with Animal Care for about nine years. Prior to that, I was attending veterinarian at a couple of facilities including a chimpanzee facility and have worked in academia at St. Matthews University. Welcome. Glad you're here.

Thompson: I'm Tracy Thompson. I'm a veterinarian that started out in small animal exotic practice and worked my way into captive and wild animal veterinary service. I was with the USDA Animal Care program from the Western Region for almost 12 years before I was fortunate enough to find a position with the National Parks Service as the attending veterinarian, IACUC chair, as well as wildlife health veterinarian for that program, and I hope to be able to help you guys, especially those of you that may have aspects of wildlife research in your programs today, and specific questions related to the COVID crisis there. And thanks for having me.

Prentice: Thanks, everybody, for tuning in. I'm Ernie Prentice, I'm a professor Emeritus in the Department of Genetics, Cell Biology, and Anatomy at the University of Nebraska Medical Center. During my 45-year plus academic career, I was a basic scientist, and IACUC chair for a very long time, and an IO. So, again, we're looking forward to all of your questions and hopefully we can find some good answers for you.

Stokes: There is a resource and reference handout: **ICARE Dialogues: Resources and References Animal Welfare August 4, 2020**. This included OLAW, USDA and National Park Service. Additionally, VA resources have been added. I would just like to go through and ask each of those who prepared these if they have any additional comments they would like to highlight about those resources. Eileen, anything on the OLAW resources you would like to add?

Morgan: I just wanted to add that I went through them prior to this session - I went through the OLAW pandemic website and read through all of the flexibilities and all of the documents and Guide Notices we posted there. For those of you who haven't done it, there really is a wealth of information. And the majority of the questions that were posed, that Neera answered, have been answered on the website. So there really is a wealth of information and I'd recommend, when you're developing some things for your program, that you take advantage of that, and

just take a look through there. Also, there's webinars and the webinar transcripts are another -- obtain another wealth of information. Thank you.

Sokes: Okay. Thanks, Eileen. Carolyn, do you have any comments about the USDA resources?

McKinnie: Well, we have links, conveniently, to the OLAW website where there were joint webinars done with Dr. Bob Gibbons and Pat with OLAW, Pat Brown. I think that OLAW is a great resource. There are also links to the USDA website. It's a good resource. Please make sure you subscribe to Stakeholder Resources, if you haven't already done so. They will let you know as new things come up.

[https://www.aphis.usda.gov/aphis/newsroom/stakeholderinfo/ct_stakeholder_announcements] For example, an announcement was sent out when we were getting ready to resume inspections - so make sure you check that out. Thanks.

Prentice: I think that the resource lists are absolutely fantastic. I've downloaded an awful lot of them and read them. They are really great guidance, so I encourage everybody that's on the phone call today to go ahead and look at those resources. They're really, really helpful.

Stokes: And then finally, Tracy, do you have any additional comments about the National Park Service's resources?

Thompson: I just wanted to share these with the folks that are participating today, and encourage you all to share these at your institutions or others that you're aware of that are involved in wildlife research, especially if they're involved in public lands through the Department of Interior, like Fish and Wildlife Service lands or National Park Service lands. This is all guidance that myself and my colleagues within the science community and the wildlife health community have put together as we learn more and more about COVID, and the risks not just to the humans that might be in close contact or working together in wildlife research, but also to those species that we have particular concerns about as being potentially impacted by exposure to COVID-19, and so these are just examples of what we have drafted. Obviously, things will change over time, so you'll definitely check back (970-829-6084) or with other colleagues to find out if information is altered over the next couple of months as we continue to learn more about what impacts we're seeing and whether or not field research will even be moving forward, particularly for high risk species like bats and felids, and so these are just things you all can take and modify to your own needs or share with colleagues that might be going out and wanting to conduct field research during this crazy time.

Stokes: Thank you very much, Tracy. If you know any colleagues that are doing work, especially with bats, there is excellent research guidance on using bats, and obviously there's interest, as Tracy mentioned, in finding out if they might be serving as reservoir or have a potential to serve a reservoir role. [Comment added by Tracy: we are more concerned about the possibility of bats contracting SARS-CO-V2 from humans, particularly those species already vulnerable from White-nose Syndrome; not that bats are a reservoir for human infections (this has been disproven).] On to the issues that we heard from you all about. The most common issue that we

received comments on had to do with animal care and research staff. There were three different areas here. The first involves challenges in supervision and keeping staff engaged and focused. Obviously, a lot of staff -- animal care staff particularly - find themselves working in isolation, and this can be emotionally challenging.

A second area is compassion fatigue. One of our participants noted that they have seen attrition and decreased morale in research and animal care staff during the pandemic. And they noted the importance of ensuring and enhancing the welfare of staff. I think it's clear that the welfare of our animal care staff is inextricably linked to the welfare of our animals. You've got to have good welfare of the staff to have good welfare of the animals.

And then finally, another challenging area is communications, where some of the employees may not have computer access, so they can't do Zoom meetings. There are restrictions on group meetings and other face-to-face interactions. And then there's limited supervisory interactions as well as limited staffing, so the camaraderie that's usually very strong within animal care staffs has certainly been challenged during this time. I'll start with our panelists, to see if you have any comments based on your experience, that might help address some of these areas.

Morgan: I just wanted to note that when I looked at these, Bill, the first thing that came to mind on many of these was communication and recognition for the animal care staff. What we've seen across the news for the healthcare workers in this country that are supporting our huge COVID effort for the health of our human population, this is also true for our animal care personnel [that are supporting the research effort], and the folks that are coming in at all stages of research. They're there serving the animals to help support us in the big picture. So what came to mind for me was signage and, you know, sure it's in posters and banners and I saw that the AALAS Foundation just put up another sale of the superhero's masks, and I thought that was such a great idea. So, you know, the rainbow, I was out there with chalk putting rainbows on my driveway thanking folks that were going to fly over in helicopters and see it, but, you know, there's just a lot of things we could do to make those folks know how the rest of us are supporting them.

Prentice: Okay, thank you, Eileen. If I could add a little bit to Eileen's comments. One, I think there has to be very clear safety protocols. If we don't protect our humans, it's going to be hard to ensure appropriate animal welfare.

Secondly, it's already been mentioned. You've got to communicate. You've got to be a team and that requires effective communication across all members of the team, which include not only the animal care staff, but also the researchers and their staff.

Another key point, I think, is ensuring that there's adequate training, so that all five of the members of the team understand the elements of the disaster plan that should be in place at the institution.

And then finally, I can't emphasize enough what Eileen said about appreciation and recognition, but also these are tough times. People have tough times at work. They have tough times in their own personal lives, and I would suggest that consideration be given to providing counseling to individuals who might need that.

Thompson: I'd like to add a little bit to that as well. I think what we're seeing within some of the federal programs that lack of connection that we often have when we go to our workplaces and do the work that we all have pride in, and I think having the recognition and appreciation as both Ernie and Eileen have mentioned has been critical within any circle of work companions and having an opportunity to recognize that everybody is dealing with those other things, like child care and health of their families that they may not be able to visit because of risks, and especially if they're working as essential employees, and therefore not being able to get together with those people that would normally provide the love and support that they also need and vice versa. So I think we do need to see ways to build into whatever communications we can foster within our workplaces to recognize those individual challenges, and support people through whatever it might be that works in your environment, so for us, we've started through our director, he's facilitator for One Nice Thing, so somebody can submit anonymously a thought, a kudos, a recognition of an employee that gives some positive feedback to that person, and it can be brought to that individual anonymously by our director, so that nobody has to be out there or feel like they're doing something that could be perceived as gaining advantage over somebody, but still providing a mechanism that allows for those positive feedback opportunities, and recognizing that folks are there doing the work that maybe not all of us can be there doing.

So that's one thing that we've tried to do, and the other is my own little internal group, we've started a Thoughtful Hour, which kind of started as a journal hour, where we would review journals, scientific journals. But in these times of all of these difficult topics where racial and social justice issues, as well as our limitations with COVID restrictions and the challenges with our work situations, to have a topic that we can all come together and discuss openly and safely and support each other in whatever those particular discussions might be to, again, give people an outlet that they might not have right now because of their restrictions of seeing other people.

So Teams and Zoom and these other formats that, you know, I can't imagine doing this a year or two ago. With COVID, if we didn't have these forums to help see each other and communicate in a way that might really be beneficial for those of us that have the computer access, and the ability to connect this way.

Stokes: These are really good comments. I think some of the other things that I've heard from other groups is that it's really important for the supervisor to provide empathy. I mean, people have some extraordinarily challenging personal situations, many have been mentioned, and just having somebody that will ask about how they're doing, and listen to them, and perhaps even offer advice, and perhaps having access and to counseling services that can be used. Even having a counselor attend a team meeting could also be helpful, having people just be able to

talk about their feelings about what's going on, because typically they are trying to work very, very hard in the face of challenging circumstances. Do we have any other comments, Susan?

Silk: A participant wants to know what some of the topics are you've discussed during the thoughtful hour.

Thompson: It's varied from week to week what as to what each of us has been feeling at the time, so some of it around COVID and around the stress, around the risk to our families from those folks that were essential workers, and maybe being isolated from their families. We've had discussions about those stresses and challenges and risks. We especially have been looking at the Black Lives Matter movement and particularly some podcasts and articles that have been brought to each of our attentions that we wanted to discuss particularly with regard to science and those often discrepancies or injustice within our own field and the lack of equality or a lack of racial justice in some of those fields. So for instance, we listened to or read Dr. Neil DeGrasse Tyson's piece [<https://freespeech.org/stories/neil-degrasse-tyson-perfectly-explains-why-blacklives-matter-exists/>] that he wrote following the Black Lives Matter first riots and protests and had some discussions about those issues, and how they are challenging us as people and scientists to look into what we can do better and where we all have our own biases and racist views, especially from those of us that are not people of color. So, we've had broad topics. Everything from about the pandemic and the impacts on research and impacts on our own personal lives, to what's happening with regard to social justice issues right now.

Silk: Tracy, I've heard of groups that are doing more social type things and I think that what you're doing is terrific. Ivonne [ICARE faculty member Ivonne Chand O'Neal] was telling me about a very large company that hired a chef, and everybody in the group brought the ingredients and they all cooked the same dinner together under the guidance of this chef, and then they ate dinner together.

Thompson: I love that.

Silk: My point is a meeting could be very serious and very important, or it could also just be for some fun.

Eileen: On a different topic, Bill, I wanted to know if anybody in the group could address -- we talked about communications and recognition, but there's a note, a comment under communications, lack of computer access by some staff. So I wondered if anybody in the group that's out there besides the panel has some suggestions for that one? I had actually almost forgot that there are some animal care, or there are some folks that still don't have computer access, so how do you enhance communications with them?

Prentice: Eileen, I can perhaps comment as to what I would have done if this had happened on my watch a few years ago. I would have provided computers or laptops to the animal care staff, trained them how to use them if they didn't know how to use them. Ensure that they have access to the internet at the UNMC. Basically, that's what I would have done.

Jarrell: Hi, everybody, this is Donna Jarrell. We have about a hundred front line employees, most of them do not have access to computers at home. At the time of the shutdown, there were not a lot of laptops to purchase, even organization as big as ours [Mass General Hospital]. So we actually started recording messages, and so if we had a meeting - we did a lot of updates to the staff - nobody liked reading them. They were getting like thousands of e-mails coming at everybody, every single day, so by making a recording and - it had to stay under ten minutes, and that way when people came on site in their rotation, they could then sit down and get caught up on what had happened either that week or the week before. And that helped a lot with the messaging.

And I also say on the well-being and compassion side, something that was extremely well received is that we had weekly and monthly meetings at leadership team, manager, veterinarians, et cetera, and then every single one of those meetings, we asked to have a ten-minute well-being session and we did meditation. We did flexibility in the chairs. Everybody did it on their own. And we did it at the end of the meeting so that they were sent out mindful. When you're mindful, you have clarity about the stress that you're under. It doesn't relieve the stress, but you have more clarity.

So I'll say that we have a lot of positives. We did a survey on what we could do more, and for the staff themselves, taking care of their needs was the most important thing for them. We were able to get donations for lunch and making sure the animal care staff were included in that, so the nurses weren't the only ones getting it. They created parking opportunities so that people didn't have to take public transportation, in Boston, as you can imagine, that's a very scary situation, and for those who could not drive in, we actually provided them PPE to wear home and come to work. When we tried to decrease these benefits, they reacted very strongly. They knew they were hanging on to that. What Bill said about making sure you use your employee assistance program (EAP). I had a ton of people who were stressed up, at any phase of this, and they needed somebody to talk to. And so we really, really, really encouraged please use the employee assistance program. The hospital put out a lot of well-being information based on the overwhelming contacts to EAP.

Stokes: Thank you very much, Donna. Really appreciate you sharing what you've done to support your employees. We have a couple of comments. Most of you should be able to see them on your chat box. Wayne Barbee mentioned that if libraries are open, that resource could be used, if they have computers within the library. And then Carolyn McKinnie said to also consider sending texts to encourage staff. Do FaceTime, assign strong team members with those struggling as extra support or someone to call. So those are really good suggestions. I think just frequent communications can be really, really important to people that are working in jobs where they don't or can't have those frequent interactions anymore, and certainly, I like the comments that we've heard about that our employees are animal research heroes. It's important for them to know how important their role is, particularly in finding and testing the therapeutics and vaccines needed to solve this pandemic.

Jackson: [Tanise Jackson, ICARE faculty member] Some of the comments that were made about the Black Lives Matter movement and race relations - we do have another webinar similar to this one coming up. We're going to have some amazing conversations concerning those and how we engage our IACUC animal care and use programs in those conversations.

Stokes: Well that's good news and thank you, Tanise, for bringing that up. I believe you're leading those sessions. I think we'll move on to our second major issue. This related to post approval monitoring [PAM] related issues. And these included challenges with maintaining PAM programs due to restrictions associated with COVID-19. Obviously, a lack of PPE and the amount of PPE that would be required to go into multiple different laboratories could also impact that. One issue was how to reestablish and sustain better animal welfare practices by researchers, and that's assuming that there was some decrease in the level of animal welfare practices that needed to be improved that either might have been detected by previous PAM and then somehow worked its way back to the animal care and use community.

Another issue is how to ensure compliance among researchers during a time of less monitoring. There are institutions where there was regular monitoring and a person that went around and interacted with the researchers, and now that interaction is no longer occurring. Many times those post approval folks would provide helpful advice and encouragement to researchers, and that is no longer being provided in many cases.

And then there was an issue brought up about not providing protocol-related treatments, such as analgesics, that could be related to a logistics issue where the analgesics might not be available, or staff may not be able to be present when those analgesics need to be administered.

And then lastly, the impact of postponed or modified semiannual facility inspections on animal welfare, where, again, normally there's that sequence every six months of a review, a walk through the facility, and oftentimes aspects that impact animals and their welfare are detected that need to be corrected. So that self-correction process is either being postponed or modified, such as with remote video used for inspections as we talked about in the previous session. I think there has to be consideration by the IACUC about whether postponed or modified inspections could be having impacts, and discussion and a plan to make sure that those delayed or different processes are not resulting in adverse impacts.

Prentice: You know, COVID-19 is a moving target. We know that. Consequently, institutions have to adapt on the fly to what is happening in terms of the numbers in the community, state requirements, et cetera. So I think it's extremely important that all of the researchers, as well as the animal care staff, be on the same page. They need to understand what's going on. What the requirements are at the time. I know that some institutions have these weekly rather detailed bulletins, that articulate exactly what the requirements are at that particular time, because some institutions have phases, depending upon the virus counts in the community and in the state. There might be a Phase I, a Phase II, and a Phase III, and, depending upon what phase

you're in, that determines exactly what the requirements are going to be. So I think that everybody has to be on the same page. So that would be my first point.

But my second point is we're all on the same team. We want to ensure human safety and also animal welfare. We need to make the requirements unequivocal so that all investigators, all research technicians, all animal care staff understand exactly what those requirements are. You can't take advantage of a situation that we're facing now to cut corners, and I would hope that there are no investigators out there that have done so. If you have noncompliance, it's got to be addressed immediately with appropriate education. But again, I think that the requirements have to be supported by the senior administration at the highest level. Everybody needs to understand that we're all in this together, this is a very, very difficult time, and we've got to work together. There's no time to cut corners in any way.

Stokes: Okay, thank you, Ernie. I like your comment about the Institutional Official being involved and making sure that they're putting out communications to the research staff, just as friendly reminders, shall we say.

Morgan: Issues relating to not providing protocol-related treatments such as analgesics, so failure to provide scheduled post-op analgesia, or some other necessary treatment that is in an approved protocol may be considered noncompliance. There's certainly an animal welfare issue, and if that appropriate veterinary support was not provided, that may be a reportable incident to OLAW. So a better occurrence would be to not start an activity that would require those things during this time if you're not sure that there's going to be personnel available to do that, so that way you can ensure the animal welfare. If you have any concern about this happening at your facility, you can always contact the OLAW Division of Compliance Oversight [olawdco@mail.nih.gov or (301) 496-7163] and ask, just have a question, have a conversation with them, or discussion, discussing what occurred. And they will be happy to tell you whether or not that will be a reportable incident. But in general, it's best if you just avoid that, and there's also an FAQ on this - on the OLAW pandemic page.

Thompson: I'd like to weigh in on that in that this is a great opportunity. We knew that when the door shut on folks having access to facilities and research maybe moving forward even because of the restrictions and the issues around COVID, this is a perfect time to get the attending veterinarian or another veterinarian on staff involved with these researchers that have ongoing experiments or that have animals that might require oversight for pain and distress. Looking at what's approved in the protocol versus what might need to be adjusted that could still provide what is best for those animals to relieve pain and distress. And being able to submit an amendment to the IACUC to say we're going to modify and give this range of options that will help us address what staff access, what training, and what appropriate treatments are available to help with this without impacting the research, but with putting animal welfare at the forefront. So, having those conversations as early in that process when either research starts back up again, or there's a recognition that there's a need for these types of treatments that might require staff that may not be as available as they were, getting the attending veterinarian, and then getting that information approved through the IACUC as soon as possible

so that you're minimizing the risk for not only pain and distress, but for noncompliance as Eileen pointed out.

Stokes: Certainly, by providing a reminder to the research staff and a facility, I like what you said, Eileen and Tracy, about making sure, reminding them that they make sure that they have all the reagents including analgesics, as well as staff support, before they start a procedure or a new round of experiments. This also might be a good time for the researchers to check with their attending veterinarian about the use of sustained release analgesics that might be able to decrease the number or the amount of staff involvement in giving those, and they can be given less often. These longer acting analgesics are becoming increasingly available and there's considerable literature out there about their efficacy.

McKinnie: All great comments. Just from a USDA perspective as well, adding on to what Eileen said - we would consider not giving analgesia a noncompliance. Addressing all of their basic needs including husbandry, alleviating pain and distress, these are crucial. At the same time, we understand how challenging everything is right now, in addition to trying to take care of your staff.

Silk: I guess they should also, when they're checking, do they have the supplies and the medicines they need on board, they should be checking dates too, shouldn't they? Because time has been sliding by.

McKinnie: Yes, that's a really good idea.

Prentice: Yeah, to add to that, you know, and the unfortunate circumstances where some institutions have actually had to shut down a lot of the research projects, and as they recover from the pandemic, they've got a phased-in approach to what they're going to allow to be reactivated, and clearly, you've got to look at the complexity of the protocol. For example, you know, post-op care, analgesics, the species, et cetera, and decide which projects you can activate during various phases of reopening. So that's just another thing to throw into the mix here when we're talking about this.

Participant: Hi, Bill. What we did was our university started a website, some of it was public, and some of it was behind a firewall, that accumulated all of the COVID-related information and guidance. They had one link for researchers for human research, and another link for researchers for basic research, and we actually directed that link to the IACUC web page, and so we kept all of the guidelines accessible for what people can and cannot do in the labs and the animal facilities. We also were able to keep up to date our announcements on what we were doing on the IACUC, some things regarding our inspection schedule. Also genotyping was another thing affected, rodent genotyping for people who couldn't get into the facilities for an extended period of time. So, we had to work with several groups on that. We made sure people were being redirected to the IACUC website to get information on what we were doing to make sure that there was compliance as much as possible during this time.

Stokes: Participant, do you all have a program of regular communications with your researchers just to remind them of their responsibilities and obligations?

Participant: Yes, we do. We have a list serve, it's monthly. So, once a month, we send out updates to everybody involved in the animal care and use program, all the researchers, everybody - for us, that's a few thousand people. And the animal facility group, they maintain lists specific to the individual facilities as well as PIs, but the IACUC one is much broader because we include administrators, other people in other departments. One thing that I got feedback from some PIs, depending on the campus where you're at, some folks felt like they were being given all of these guidelines, and same time didn't feel very helpful, so we made sure, the IACUC is here to help you be successful with your research. We want to partner with you. We want to be helpful. And we want to get the best outcomes possible. And really putting forth a positive message really helped us on that.

Stokes: Thank you. I think that can't be stated often enough, that it's a team effort, and the IACUC is an integral part of the research enterprise and ensuring the success of animal research.

Silk: We have a comment that I think this is going to be relevant to our regulators. "If your quality assurance department is performing regular audits on GLP studies, could the IACUC utilize those audits as PAM activity? And then focus on the non GLP studies for PAM by the IACUC. This could reduce the volume significantly while ensuring that some sort of post approval monitoring is being performed throughout the whole animal care and use program."

Stokes: I think that's a very useful comment. Those of you that are not involved in GLP [FDA Good Laboratory Practice] studies, GLP studies are audited to make sure that they comply with very detailed standard operating procedures, and obviously those would specify any humane endpoints or the use of analgesics or other interventions that would be provided to ensure animal welfare. Eileen or Carolyn, do you have any comments on that?

Morgan: Well, that would be a yes from OLAW. That would be a good thing to do. It might be something that you would also want to document in your emergency preparedness plan as part of your program for your disaster plan, so in other words, you may not be using this measure regularly, but I'd also say why not? Why not include it in your flexibility and count these people in as part of your continuing review, or post approval monitoring? Sounds like a win-win situation from my perspective.

McKinnie: I concur with Eileen/OLAW.

Participant: In these times of limited staffing and only a few people being allowed back on campus, we have had some cases where some of the tasks have been done by whoever is available. For example, if the PI is the only one who is allowed in the lab, they may be doing the animal work, and it may have been a few years since they've actually done the procedures. And so maybe just as part of that reminder, make sure that people are current on how things are

supposed to be done. For example, we had one instance where a PI brought a frog into a procedure room, didn't have everything he needed, so he left the room to go get some instruments, and then came back and the frog had disappeared from the uncovered container. Some of our PIs don't normally do a lot of hands-on work, but they may be doing more of that because we don't have a lot of undergraduate workers that are allowed back on campus yet. So just be aware.

Stokes: Thank you for bringing up that point and example.

Jarrell: I wanted to ask the participant a question. We also had a lot of PIs being asked to come in and do work that they hadn't done in a while, and we had to hold their hands. So, I agree with you. Because of the COVID restrictions of who can be in, did you have people being shared across protocols that they weren't on?

Participant: I'm not sure. I would expect that we probably did have some of that. Our process for adding people to a protocol is just a nonreviewed change, and so I don't monitor that very closely, but I know people have been helping one another out like crazy. So yeah, I would expect that's happening, and if we looked extremely closely, we might find some instances of that, where the protocols haven't been updated to include the helpers.

Participant: Yeah, when you talk about adding staff, and making sure that everybody is captured, and we had people who may not be familiar, that was the time to make sure that they had the skill set and they were familiar with the protocol, and not just doing a procedure because they knew the procedure. So there was a lot of back and forth when that started, and it made the PIs back off from just trying to pursue who has somebody coming in and let's have them do everything. That's a lot of pressure on that person.

Stokes: Those are really good ideas, so thank you. I think we'll move on to the third category of animal welfare related issues. This had to do with ensuring adequate supplies, such as food, bedding, veterinary drugs, such as analgesics, but also euthanasia drugs and agents, such as CO₂, if that's being used. And certainly PPE. We mentioned that a condition of protocol approval and/or animal ordering could be an assurance that all of these things are already available, or some other assurance that they will be available when they are needed. We have seen that the supply chain has been interrupted from the manufacturer through distributors and transporters, and that has resulted in further delays from what we're normally used to, so I think there needs to be awareness of this impact on creating and dealing with shortages. It's also important to assess the animal welfare impact of IACUC approved departures from the *Guide*, such as decreasing the frequency of bedding changes to conserve bedding and address staff shortages. Certainly, we've had discussion about that already, but if anyone else has comments about that or any other departures that you have made and how you have assured animal welfare in light of that departure, we certainly like to hear from you.

Morgan: I've heard of several institutions that offered help to some smaller ones, with some supplies. I haven't heard of that widespread, but that is something to consider - other facilities, if you ever get in a certain spot or that you're having issues.

Stokes: That's a great suggestion and having a good network with other nearby facilities where you could share if you got into a pinch would be a really good way to address that. And that's another key area for your disaster plan to include networking with other organizations to have agreements to share supplies or other equipment, or to house or to transport animals as necessary.

We talked about adequate supplies and staff as a condition for a protocol approval. I know of some IACUCs who accept all protocols for review. They complete the review, but they're not allowed to be implemented until the IACUC can be assured that there are adequate supplies relative to what they need to do, we're talking about analgesics or euthanasia drugs, et cetera. So that way you're not backlogging the IACUC in the future because they've already performed the review, and with conditions approved, it's a lot easier then to implement the protocol when all the other conditions are met.

Thompson: Right. And I also think this goes to ensuring that there's some flexibility in some of what's approved in a protocol, for instance, the choices of analgesics, euthanasia, drugs, options that can be assured that they're appropriate and approved by the IACUC before they would be instituted, but to give flexibility. So for instance, anesthesia protocols that we use for wildlife, knowing that there's sometimes drugs that are going to be a little bit harder to get, or utilize in certain situations, for instance, the opioids, because of restrictions and concerns around human health and safety. Have a backup plan for alpha 2s, and combinations that would allow you to still have an effective anesthesia protocol available to conduct that research without having to deal with the shortages or the other hoops that would need to be jumped through. So part of the condition of that protocol approval ordering again having some flexibility that the veterinarians have consulted with the PIs to allow for different types of options for treatment to relieve pain and distress.

Stokes: Thank you, Tracy. Any other comments? Participants? Wayne, would you like to talk about your comment?

Barbee: Sure. You can use your PAM program via vets or others in your program to look at these stockpiles immediately after approval, but before ordering animals or before you do certain procedures which are supply intensive to make sure that this is current.

Stokes: Excellent reinforcement of that point. Thank you, Wayne.

Participant: Hi. I would add something fortuitous that has come out of these times which is watching how many undergrads have stepped up to help our intergenerational workforce. So, we have several PIs that are not as familiar with the technologies that are facilitating these activities that we've been describing, and it's just been very heartwarming to see them set up

Zoom meetings to show their PIs and senior lab member, how to operate things, how to make things more efficient. That is something I've witnessed in the last few months that brings a smile.

Stokes: That's wonderful. Thank you for sharing that.

Participant: Sadly, we had an older caretaker die recently. The infection went through his whole family, but he was hospitalized for about four months on a ventilator before he died due to COVID-19 complications. So, everybody is mourning that. We have had some online events, trying to serve the family, do things for the family, but we also have COVID-19 research going on, and we have care staff that are afraid to go in that room. So it's just a tough time, and it seems like a lot of places don't know people that have died of COVID-19, but it's definitely out there and really severe for specific groups of people. I didn't know if any other programs have dealt with loss due to the virus and how you might have handled that.

Stokes: We're certainly sorry for your loss, and also recognize the really important work that you're doing there at the FDA Center for Biologics Evaluation and Research. We are really, really appreciative of the work that they're doing, and please convey that to your workers that are exposing themselves.

Silk: I think all of us increasingly, whether in our professional or our personal lives, are familiar with the sadness of this situation, and have lost people that we love during this time. That's a very solemn note to end on, so I would like to mention how happy and joyful I feel to see all of you and to hear from you, and to talk to you, and to have the opportunity to thank you for doing what you've always done, which is promote good science and take good care of the animals and now you are also taking care of each other, and we hope that we can be available to help you do that. You can write to me at ICARE.SERO@gmail with questions, and I'll get those to the right people. Thanks to the ICARE faculty who spoke so eloquently today, for all the preparation they did to bring you this program, to OLAW for continuing support, to USDA, for their support, FDA, NSF. All of the agencies that work together with us, National Park Service, VA, BARDA, our private sector partners - all of you, thank you. Good job, everyone.