BEYOND THE 3 RS: AN INNOVATIVE APPROACH TO CARE AND WELFARE IN AN ANIMAL FACILITY

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This is a very different area from which many are currently working in or have experience with, and there is inclined to be considerable negative opinion attached to animal facilities and institutions conducting animal based research.

I am grateful for the opportunity to explain what we do in an Institutional Animal Facility, and the innovations that we are implementing to try and improve the way animals are used in scientific research, and make sure the animals' needs are met.

I wanted to begin by going through what an animal facility actually is, as I'm not sure that this is really understood. A lot of people have visions of crush cages and animals being restricted; having horrible experiments forced upon them and the like. This is not the case.

It is a growing industry – biomedical research is increasing throughout the world, and it's important that we make sure that we have stringent standards, legislation and enforcement., Our animal facilities here at Griffith University are a good example of how standards and best practice can provide research facilities that not only comply with research requirements to produce meaningful outcomes, but also ensure a high standard in animal welfare and care. That is what I am here to talk to you about today.

An animal facility is a specialised lab exclusively for the purpose of holding, housing, and/or breeding specific animals for scientific purposes. Here at Griffith, the only animals that we breed are mice, but we hold mice, rats, guinea pigs, rabbits, chickens, toads and other species that may be required in ethically approved and justified research and teaching. We don't have the facilities for any large animals here at Griffith University and therefore only laboratory-based small animal research takes place.

My position as the Animal Facilities Technical Manager is to look after all animal based laboratory operations, animal care, staffing, technical requirements and to facilitate the physical research. At Griffith University we are a little bit different to most other institutions. Up until recently, I think we were unique in our structure, as I actually work for the Office of

Technical Services, which is in the administrative element of the university. Our funding and line management is not associated with any research centres, schools or other academic areas. Although their input is regarded, it is not up to the researchers as to how the facilities are run or what the staff are required to do. That's my job and all animal facility staff is under the technical Manager's direct supervision.

We provide services to all academic schools and research centres in the University; however they have limited input into operations. The best analogy I can give is that the animal facilities are like the library. The academics need us and they use our facilities, but they don't run any of it, or control how these services are provided.

Griffith University's animal facilities have a centralised structure. We have absolutely fabulous staff that has specialist skills, knowledge and attitudes. I manage the employment process and in conjunction with senior academic staff select Animal Facility staff to ensure that the staff in our animal facilities has the right attitude and is capable of saying to a researcher, "No, that's not acceptable," or "That's not in our policy and procedures." We have brilliant staff who are personable with high standards of customer service, who are deeply committed to ensuring the best possible care is afforded animals held within the Facilities, while maintaining an understanding of statistically viable outcomes for the scientific research undertaken

Our animal facilities, because they're run and facilitated by myself and the animal facility team, are able to have very limited access. Access is controlled to the point where some academics may not even need to come into the facility and everything is done by trained, competent people with the animals' best interests at heart.

What we're trying to do is achieve best practice. We are trying to not only follow the principles of the three R's and follow the Code of Practice, but to take it a step further and make it the best that we can— our motto is making the little things really count.

To develop the best practice – and this is partly how this presentation fits in with humane education, is training and communication. We are striving, all the time, to have improved animal welfare strategies. The two areas that I am going to concentrate on to showcase what can be achieved with a) appropriate training are b) environmental enrichment and c) our animal adoption program.

Training

Training is absolutely essential. Anyone working in an animal facility – anyone working with animals, needs to be able to know the animals at hand and possess the skills to handle the animal correctly. The more training you have, the better you're going to be at what you're doing, and therefore the better it's going to be for the animals. Animal facilities are such specialised areas with numerous animals. We want to make sure that the animals are healthy. We want to make sure that they are free from all sorts of viruses as well, not only to make sure that the animals are getting the best care possible, but so that, if we're going to use animals for research, we make sure that the results that we get are damn good.

To do that, we need to make sure everything is done in a precise and proper manner. This begins with the staff. It is obviously essential that they're trained properly, but that flows on to academics, students, or anyone who visits the animal facility for any reason at all. They all need to go through some sort of training before they are even given entry. We do that in a way that combines hands-on application and theory.

A recent example is the case of some particularly esteemed academics who wanted to use the animal facility without the assistance of technical staff. They were required to come and change the cages and care for the animals in place of my staff; they even had to do the dishes (cage washing)! They weren't very impressed, but I thought it very worthwhile for them to learn that in order to utilise animals for research, the animals must be cared for appropriately first and foremost.

The training for our staff is paramount. Anyone who actually wants to work in the facility and physically handle the animals has to have some experience with animals and/or training. I do take people in as volunteers, but I make sure that people have experience with animals first. This ties in with the attitude of the rest of us at the facility, i.e. making sure that people really care about animals before they come in. It's a really difficult area to work in. All of Griffith University's animal care staff loves animals and we are all very passionate about what we do. We understand that what happens to animals is not always nice, so it is a very difficult area. It takes special people to do this sort of work and I think not very many people understand that.

We go through a lot of theory that incorporates understanding the anatomy of the animals we are dealing with and identifying animals that are in distress and pain; species specific requirements and local and national standards and legislative requirements. The technical skills taught incorporate basic pathology, health checks and things like that, so that people

understand how the animals work. The better you understand that when you do have to take a blood sample for example, i.e. knowing how to handle an animal properly and knowing you have the right technical skills is going to minimise all pain and distress that that animal would suffer if the procedure was performed by someone who doesn't know quite as well. So that's really important to us.

Having knowledge of welfare and how to make animals more comfortable, anaesthetics, analgesics, etc, is also very important, and we go through a lot of that in our training with staff.

The other component that we focus on, that I don't think happens at many other institutions, if at all, is to make sure that all staff understand the research protocols. Staff is not there just to change cages and look after the animals. I actually give them the protocols and say, "This is what's happening to these animals, and this is the outcomes that we're trying to achieve. And by doing that, our staff understands what's going on, and they can use their initiative to assist researchers and help make a difference in other ways.

Formal qualifications of staff are so vast and varied; they range from degrees to vet nursing backgrounds, health and safety, etc. I was a wildlife researcher. I have Bachelor of Science, majoring in Zoology. And I started off looking after temperature controlled rooms for native reptile species in Townsville. From there, I accepted a position at another institution working in animal facilities, and realised it's an area of work that I didn't really know existed. I remember thinking that the work was just really hard. Then, the more I worked in it, the more I realised, "I can make a difference here, because I care". If more people like me care, and I train more people to care as well, even though it's a hard job, people who care are going to do it, which is going to make it better for the animals." These jobs are out there. This is what happens, whether we agree with animal research or not.

A lot of our staff comes from vet nursing backgrounds. Every single one of them, without fail, feels that they treat animals better in this position, rather than when they were vet nurses – without fail. I think this is because they actually have some control over what happens to the animals.

Additional training that we have, on top of our internal training initiatives is the Department of Primary Industries and Fisheries animal ethics training for the Category Cs and Ds on Griffith University's Animal Ethics Committee (AEC). All staff, regardless of what level they are or what position they hold, attend this training so that they have a good understanding of animal ethics and how it actually works. Staff is given the opportunity to gain an

understanding of the animal research process, from the ethical approval of projects through to our assistance with aspects of the actual research. I have a post-graduate Certificate in Animal Welfare, which Griffith University supported me to obtain. I did this by Distance Education at Monash and found it fantastic. I was actually able to study Animal Welfare and bring that knowledge back and use it in industry.

We also ensure that Griffith University animal care staff is represented at key conferences such as ANZCCART and ANZLAA[1]

Participation in the animal ethics process is essential. All research utilising animals is thoroughly scrutinised by an animal ethics committee (AEC) to ensure a justified outcome is achieved and that every care has been taken to reduce, refine or replace animal use. I ensure that every single animal facility staff member attends at least one animal ethics meeting at Griffith University, so they can observe the process first hand. That doesn't happen at other institutions and I think it makes such a big difference, because I think it gives staff some ownership of the facility; they understand why things occur and they're involved. It is excellent that we're able to do it here, and we have a wonderful AEC that allows us to do that.

We subscribe to relevant literature. I have a science background, so I'm reading the literature all the time, and I'm passing it on to our academics and to my staff

Researchers – they are the hardest to train, but they can also be the most important. They have to undergo the full range of training before they have any access to the facilities. That access can be cut at any time if they breach any of our policies or procedures. So, it's a bit of carrot and stick. Although this is somewhat a hard line to take, it works really well and our researchers, I must say, on the whole, are brilliant and really try to work with us.

I go through theory with them. I go through their responsibilities and the Code of Practice, and I make sure they really understand that they're using animals. It's not growing a sample. It's not things that they're just able to have on tap. They may be taking an animal's life to be able to do their research, and that's a really significant thing. They have to take responsibility for that. So when animals are euthanased, I make sure that the researchers are involved. Whether they are personally carrying out the euthanasia or not, they have to take responsibility for such action. It is important to note that not all experiments take the animals life. However, it is impressed upon all researchers that the use of an animal regardless of outcome is to be taken very seriously.

[1] ANZCCART Australian and New Zealand Council for the Care of Animals in Research and Teaching
ANZLAA Australian and New Zealand Laboratory Animal Association

All scientific research must go through experimental design considerations with the Technical manager. Therefore prior to submission to the AEC, all researchers wanting to use our animals have to bring their protocol(s) to me, to go through whether we have the space, the staff, the knowledge, the equipment etc., to be able to facilitate their program. We all work together to see if there is anything in the protocol that we can do better. And often, if a protocol is rejected by the AEC, I work with the researcher to change their experimental designs, to take into consideration environmental enrichment, sample numbers, etc., to improve the design and to ensure it is in line with animal care requirements

Animal handling is also included. Technical skills, taking samples and actually handling the animal in question are all aspects of the training. So they are, again, taking responsibility. Animal welfare and health knowledge is covered in 'hands on' training by teaching how to identify whether there's something wrong with their animal, what is normal behaviour and what is not, and when to come and talk to us.

All staff, student and researcher training commences through orientation week training sessions. These are information sessions that all staff and postgraduates are able to attend if they want to find out about how to use our animal facilities, and we go through all the generic information. Regardless of whether they have attended that or not, they have to have one-on-one animal handling training; group training is not available. Everyone gets trained individually, and they only get trained in what they need to know.

For example, if they need to do no more than behavioural testing in one room, their one to one training does not go beyond this. This prevents an overload of irrelevant information and works on the principle that the more straightforward the exercise, the more likely they are to follow the rules.

There are also inductions for our general areas and our clean areas. General areas are designated common use space within the facility that is essential for operations. For example the surgery, storage space, sterilising and wash-up rooms within the facility are all general use areas. Clean areas are animal holding rooms and work areas that use barriers (physical and chemical) to reduce the entry and exit of particular pathogens. As there are specific requirements in each area all users are required to go through an induction process, tick it all off and sign it. For example, they have to tick and say, "Yes, I've read the Code of Practice," and then they sign it. So, if policy or procedure is breached there are signed records that facility users were aware of their responsibilities.

I go through the Code of Practice[2] with everyone entering the facility and particularly emphasise the need to consult with the technical staff. They are there to help, and research is undertaken in a more efficient manner if everyone works together.

So that leads me into our excellent involvement with the AEC. I think it makes all the difference. I'm currently the Category E member (representing animal care staff) on the Griffith AEC and it is fantastic, being able to be there.

And I'm an active member. Category E members are optional on AECs throughout Australia at present. Institutions are not required to have the animal care staff on the committee. Griffith has always included animal care staff on AECs. If I'm unavailable, another staff member will attend and their opinion is just as valued as mine. It's an excellent arrangement.

All Animal facility staff knows that they may contact the AEC and our Chair in particular, if they have a problem, either with or without me. That is brilliant, because it means that all levels of staff have contact with the AEC. Additionally, this adds transparency. Monthly reports are provided to the AEC regarding what's going on in our Animal Facilities, what's happening with our projects, and what researchers are doing. I believe that to be valuable for the AEC as well as for the Animal Facility.

Environmental Enrichment

The Animal Facility staff goes a long way to make sure that our animals get the best possible environmental enrichment. With most lab animals, there are so many different things that affect them that need to be taken into account. It's not just making sure that they have the right food. Additional considerations include the research factors, animal care and handling, environmental temperature and humidity, etc. It is important that all of these things are taken into consideration, while ensuring that the animals' needs are met. That balance is the aim.

Environmental enrichment involves modifying the environment to make sure that animals are able to express natural behaviours.

Our environmental enrichment programs are based on providing social opportunities. We have a policy not to house animals singly. If we absolutely have to house animals individually, we make sure we have cages where animals can still interact in some way with a conspecific. For example, if rats must be housed individually (i.e. if they've had surgery), it

[2] Australian code of practice for the care and use of animals for scientific purposes, 7th edition.

is ensured that high top cages are utilised and positioned next to another so they can still stand up and 'talk' to their neighbour. Animal care staff makes sure there is sufficient space, the right types of cages, etc. A cage for a mouse isn't the same as a cage for a rat or a guinea pig, and each species has different requirements. If the right cages or space are not available, the associated research does not commence – it is as simple as that.

The number of animals per cage is limited and nesting materials, nutritional rewards, etc are provided. Music is played in all of our rooms at all times, so that loud noises that sometimes happen in the corridor do not scare the animals and there's always noise of a low level going on. The lights are all on timers and incandescent to ensure we have the right photo periods. We adjust the humidity and temperature to control all aspects of the environment so that the animals have the most appropriate surrounding that we can possibly provide them.

Other examples of things that we do include providing PVC pipes and putting paperclips on all the wires for the mice to hang off and play with. It's more than just the traditional wheel in the cage! We put sunflower seeds in the bedding so that they forage for them. We give them shredded paper, nestlets,[3] tissues, cotton buds – different types of nesting materials. Basically, it goes as far as your imagination can go and the animal care staff at Griffith University has been very innovative in designing new types of enrichment items. We don't have a lot of money and a lot of the commercial items are really quite expensive. When some enrichment objects can cost up to $5.00 per item and we've got 5,000 cages, it's really hard to find the money to acquire them, let alone have the most appropriate cages across the university. One staff member actually went to the cafés on campus and organised to get all the empty milk cartons that she could, washed them out and then cut them up to make igloos for the mice and rats. Such initiative and innovation is just wonderful for both the animals and the staff.

For our rabbits, we buy toys, scratching posts and things to chew on. My staff constantly rings up and says, "I've just been to the shop and I found this. Can I buy these for the guinea pigs?" Or, "Can I do this?" And it's endless, always trying to find new things to do.

Environmental enrichment is essential for the animals' health. Breeding is more successful and as a result we require fewer animals for breeding. In our breeding programs, we have fewer pups die now than when environmental enrichment was not incorporated. Better things happen when we've got environmental enrichment. We have really been able to prove to the researchers that, "Hey, this is actually making your animals healthier, which

[3] Nestlets: commercially available environmental enrichment

means you're getting better results and we're using fewer animals." So that works for everyone, all round.

Natural behaviours are expressed, so we don't have animals over-grooming each other and performing other stereotypical behaviours that indicate that there's a problem. But it is important to remember that we have to fit this into experiments and ensure that they can be replicated. This is extremely important. So we go as far as we can to make sure that animals have the most environmental enrichment possible, while still meeting the scientific requirements, because it's all about getting the results, and if we don't get good results, we're wasting animals. So let's get it right. So I guess the moral of that is that little things make a huge, huge difference.

Animal Adoption

One of the unique programs undertaken at Griffith that I really want to share is our animal adoption program. And, as far as I know, it's a unique policy to us at Griffith, in relation to lab animals. We actually re-home any lab animals that haven't been altered in any lasting way metabolically, physically or genetically. The outcome of the programme is that we find a home for any animals that don't have to be euthanased. It is very difficult and it takes a lot of working out what can be done and what can't, but despite this we've managed to re-home numerous rats and mice, I think five guinea-pigs and we've even been able to re-home quite a few rabbits, which, in Queensland, is no mean feat!

But we've taken it even further. For any animals that we've identified as not needing to be put down, but we can't adopt out because they're not allowed to leave the facility for legislative requirements, etc, we have established a small collection of training animals that remain in the Facility. It all began with Oscar the rabbit, who I couldn't bear to put down when I first started here, and I thought, "Well, why do I have to? If I don't have to then I'm not going to!"

So Oscar has a whole pen that is set up as an enrichment display. The cages used for rabbits 5 years ago were cramped stainless steel banks of cages that were not appropriate for housing rabbits. When housed in them the rabbits would develop behavioural issues (growling, aggression, bar chewing, etc). Fortunately, we don't house very many rabbits, but when we do— for example if we only had one, it was horrible, because it was on its own. Oscar then became the companion rabbit. Whenever other rabbits come in, they are put in a pen with him, and he shows them the ropes. How to rattle the bell to get pats and food is an important trick! The available space is quite big for a rabbit pen, and it really endears

environmental enrichment to the animal facility users. It is difficult not to think of the animals as individuals and important beings when people see the animals behaving naturally in a rich environment. No-one can resist saying hello to Oscar and giving him a pat - it cracks that barrier.

We have also just acquired Moppet and Benjelina, two rats that had the right temperament for handling. When researchers and new staff are brought in for hands on training, instead of getting animals that aren't used to being handled to try and train people, we have Moppet and Benjelina. We can demonstrate how to hold an animal correctly with animals that are conditioned to handling and stay calm. This reduces stress for both the animal and the person. Our two training mice are Chup-a-chup and his son Junior.

Returning to the adoption of declared pest species, which rabbits are in Queensland, we obviously can't re-home these animals legally in this State. The majority of rabbits that come to us are utilised for raising antibodies. This means they receive a series of injections (inoculations) and have regular blood samples taken to assess the antibody levels. At the end of this process a large blood sample is taken and the antibodies produced are utilised in the research protocol. In the past these rabbits were usually terminally bled and put down. However, I discovered that this is not always required and was only carried out as the animal would have to be put down regardless, due to policy and inability to release the animal or re-use them for other procedures.

To get around the legal requirements in Queensland we went to New South Wales (NSW) to find homes and farms that would take the rabbits as pets. The animal facility staff then personally drove the animals down to their new home on their weekend. This was cleared with the Department of Primary Industries & Fisheries (DPI&F) in Queensland and the equivalent NSW department to ensure all actions were had approval. Since beginning this program five rabbits have been re-homed in NSW.

With our adoption programs, though, we make sure that the individuals who are taking the animals have the appropriate knowledge and skills to look after the animals that we're giving to them, and they also have the appropriate resources at hand. We provide information and make sure those taking the animals know how to feed and look after them correctly. Many students adopt animals that might have been used for a class where rats are given different types of water to drink and students take a urine sample and so, but nothing invasive happens to the rats. When, the students ask what is going to happen to the prac lab animals we can offer them as the student's new pet.

Ultimately all of these innovations tie into communication, which is so important. At Griffith, we're able to achieve these improved welfare strategies and training because we work with the researchers and with each other to refine experiments. We talk to each other. There's communication there. It's all transparent, and we pass on the information. We devise new means to make things better. We make sure that all our reporting is transparent. And we report to management, to the DPI&F and the AEC - anyone who will listen to us, really, to tell them of what we do. . We are all very proud of what we've achieved at Griffith University in our Animal Facilities and it has been valuable to be able to share this.

In conclusion, we still have a lot of work to do and education is obviously essential. Not just educating the people who are using the animals, but people in the community as to what we're doing and how they can help to make animal research transparent, and improve the image of animal based research. Public opinion has an incredible influence on animal use and people are becoming more aware and more interested in what happens to animals in our society. Everyone working together has been a theme for this day and this is brilliant. Small changes can have a really big impact, and I think we've proven that.

Q – Delegate:

I'm just wondering how you avoid the inherent conflict of interest when the handlers or the researchers themselves are given that responsibility of deciding when the animal is in so much pain or distress that it has to be either euthanased or—?

They don't. That's my decision. I consult with them, but I'm the Animal Facility Manager and basically, the AEC supports me 100% in that, and that really makes a difference as well. The AEC basically says to researchers, "You have to follow the Animal Facility procedure," and if they find an animal that they think, "Ooh, there's something not right," or my staff finds an animal about which they are concerned, we consult with the researcher and say, "We think that the animal needs 'x'," but the end result is basically with me. I make that decision.

Q – Delegate:

When animals are in pain, is any painkillers administered?

Absolutely. Any research that happens in the facility is ethically approved through our AEC, and as part of that protocol, the researcher has to stipulate exactly what they're going to do to the animal, what analgesics and pain relief they're going to provide, how they're going to do that, who's going to do that, is there going to be pain and distress? What could go wrong? What will we do if it goes wrong? So, all of those details are nutted out in specific detail before they even speak to me about coming in to the Facility. I have all that information on hand, which my staff has available to them as they have access to the protocols, and we know exactly what's there.

But we also have drug licences and the like, so I have appropriate analgesia available in the Facility, and if I think an animal is in serious distress or pain, I can override a researcher and say, "No, we really need this," and I'll talk to the AEC, and attempt to not ruin the research. However, in serious situations if the animal really requires something regardless of the outcome to the research it will still be administered.

Q – Delegate:

And when you say that there's 24 hours music, how do you go about choosing what music is peaceful to them? Because today, I mean, what's peaceful to one person can be hell for another! So I just wondered, seeing they are captive and can't get out or away, what happens with that?

Well, I personally have a lot of problems with some of my staff playing the bebop FM commercial channels in some of the facilities. We try to see what's happening in the literature and find out what's the best music to have. I usually go for just the normal radio, turned down low, making sure we've got the right decibel level. But because there are voices and people speaking on the radio and that mimics the sounds that enter the facility when people come in and are likely to disrupt the animals the most, it just seems logical to me to put the radio on quietly to accustom such interruption.

For some of our experimental animals that undergo a lot of behavioural testing, such as for Parkinson's disease research, we do play a lot of classical music, just so it's all standardised. Because you don't know what you're going to get on the radio. But there are always noises. There are going to be noises regardless. So it's better to have – in my opinion and according to the literature - it's better to have a constant low level of background noise, rather than have it dead quiet, and then they all sort of go, "Oh!" when someone makes a noise and then it stresses them even more.

Q – Delegate:

I was concerned at the start of your talk, when you said that the animal testing industry is a growing industry. But then, at the end of your presentation, you said that Griffith was pro-active in reducing animal testing and finding alternatives, and I'm just wondering how those two positions can actually co-exist.

Yes, a valid question. The mouse is the most genetically known species and the most widely used in biomedical research. Internationally, bio-medical research involves considerable use of transgenic animals, including transgenic mice. So, with the number of transgenic species that are being produced, and the different models you have for animal research that are available within those species, it is growing in that way. But research at Griffith is not increasing in that way.

Q - Delegate

What is Griffith's position is on increasing animal testing, involving increasing numbers of animals, that is occurring elsewhere?

Basically, our position is that we can only take so much research, we only have so many animal facilities and we are building additional animal facilities. But that's more to improve the research that we're doing as the existing facilities aren't necessarily the best for caring for animals. So we are improving our facilities. But we're also obliged, and it is the responsibility of all the researchers, to

use an alternative if it is available. They must reduce numbers if they can. And if they can replace animal use at all, they do.

In our AEC, we've had teaching that's gone on for years and years, and then we've said, "Hang on, we don't need to do this anymore. We have computer simulations." And things are changing a lot. I don't know how we can go about reducing, for example, the amount of research that's coming through the university, but I know that whatever research does come through, we take great pains to make sure that it's as minimal as possible. If it's not valid, it doesn't happen. And we have a very effective AEC that goes through all requirements quite stringently.

Q – Delegate:

I was just wondering about the unique quality of the animal adoption program that you have. I have tried to adopt a rat from Sydney University, because I have a friend that works there, and got knocked back and told, no, it just can't be done. Do other Universities know that you run this particular program?

Oh, look, I tell them when they'll listen. It's difficult. It's a lot harder at other institutions, because they don't have the luxury we have, where I make these decisions, and can push these things through. At most other institutions, the Lab Animal Managers and the technicians are paid by the School, so if the academics don't like what's happening, they can really put a lot of pressure on them and take away a lot of that discretion. They have the responsibility but not the authority is, I guess, what I'm saying. The policy was already initiated at Griffith and I've just taken it and run with it, because we can.

So, at every conference I go to, I try and tell people about it. And some places just— "No, no, no, you can't, PC2 and the containment levels…" but you know, it's up to the individual, and I'm just really fortunate that I'm able to have that sort of authority.

And one good thing I will say that is quite positive is that most other universities are now going towards our model and making it more centralised and taking the authority away from the researchers so there is that degree of separation. So hopefully, these innovations will be implemented at other universities.

Q – Delegate:

Thank you for coming here, because it's a very hard environment to come into. What I'm trying to say is that a lot of our concerns are because we don't understand actually what happens behind closed doors. And Corinne has come here and has shown us initiatives and made it pretty explicit how animals are treated. And for that, I congratulate you, because it's a very hard thing to come and do.

Thank you. I've been so apprehensive, I must admit, all week. I want to tell people what we do because it's important, but you don't know how you're going to be received and at a lot of our conferences, we do have a lot of animal activists who are quite aggressive, and from what they yell at us, I can tell they don't understand what we're really doing and they have a pre-conceived idea. And I thank you, and I'm sure, on behalf of Alysia as well, thank you all for being such a great and receptive audience to something that's different and that you might not agree with.

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