



## THE KNOWLEDGE SESSIONS

### Research in practice: easier and more rewarding than you think

Podcast transcript, January 2020

**Lara Carim (LC):** Hello and welcome to this podcast on tour from RCVS Knowledge, where our mission is to advance the quality of veterinary care for the benefit of animals, the public and society. I'm Lara Carim and today I'm at the University of Nottingham for a discussion on research in practice – more rewarding and easier than you think.

I have the pleasure of being here today with three highly knowledgeable figures in this area, all from the university's Centre for Evidence-based Veterinary Medicine. Dr Marnie Brennan, the Centre's Deputy Director, has kindly agreed to chair the podcast, in which we'll cover what research in practice actually is, why you should get involved, what makes for a good researcher, how and where to start – and if we have time, we'll finish with some inspiring examples of research in practice to fire people up to take the plunge. So without further ado, let's get going with some introductions. Marnie, could I please ask you to start?

**Marnie Brennan (MB):** Sure, thank you, Lara. So my name is Marnie Brennan. I'm Deputy Director of the Centre for Evidence-based Veterinary Medicine and I'm Assistant Professor in Epidemiology at the University of Nottingham. So I'm a mixed practitioner by background. I trained in Australia and I've worked in the UK and Australia in practice. I worked for the government during the foot and mouth disease outbreak in 2001 in the UK, which is really where my epidemiology journey began, it's probably safe to say.

I did a PhD at the University of Liverpool in veterinary epidemiology before starting at Nottingham in 2009, which is 10 years ago now, quite scary! I'm a recognised board specialist in epidemiology with the Royal College of Veterinary Surgeons and also the European College of Veterinary Public Health. And just a bit of background about the Centre before we start I think would be useful for people who haven't heard of us before.

I guess the role of the Centre is to try and create a sort of closer link between veterinary practice and veterinary research. And I guess my focus is really the approaches you can use to facilitate this, such as carrying out structured reviews of the literature, generating research evidence directly from practice, and also gathering much needed opinion from the profession to bridge the knowledge gaps that we have.

I've got a special interest in preventive medicine, specifically biosecurity and vaccination in all species and obviously importantly I teach our final-year veterinary students on rotations about evidence-based veterinary medicine and I run a CPD course that I developed, soon to be part of a CertAVP module about evidence-based veterinary medicine in practice. I think there's lots more to say, but I'm going to stop there I think [laughs]. So, Zoe, if we can hand over to you that would be great.

**Zoe Belshaw (ZS):** OK. So I'm Zoe Belshaw. I have a background of being an internal medicine specialist, so an RCVS and a European recognised small animal internal medic. I first of all graduated from Cambridge Vet School in 2003, spent time in mixed practice, then

did an internship then went back to small animal-only practice before doing my residency back at Cambridge Vet School. After that, I moved to Nottingham as a lecturer in small animal medicine and spent a couple of years here at the university doing that, before switching to do a PhD within the Centre for Evidence-based Veterinary Medicine, which looked at how vets and owners make welfare decisions about dogs with arthritis.

Subsequent to that I went on to do a postdoc looking at preventive health care and understanding vets' and owners' perspectives around vaccination consultations specifically. And I'm now splitting my time between doing clinical practice back at the PDSA in Nottingham and doing my own kind of private consultancy-type work for a range of different people, as well as doing some independent research.

**Hannah Doit (HD):** I'm Hannah Doit. I graduated from Liverpool Vet School in 2010. And while I was there I did an intercalated degree, so I did a Master's in veterinary infectious disease control as well. I then went into practice. I was in mixed practice for two years and then I was in small animal practice for another two years. And then I came to Nottingham University to be a research assistant working in the Centre for Evidence-based Veterinary Medicine, and that role was primarily expanding the network of veterinary practices that the Centre was working with and liaising with practitioners. And then following on from that I started a PhD, which I'm currently doing part time, and that's looking at clinical trial methodologies.

**MB:** Thank you very much to both of you. So I think to start off with, we might talk about some sort of general points about research generally, and also research in practice.

So I think a good place to start is what do we mean by research when we talk about research? I guess there's lots of different definitions of veterinary research and there's a bit of debate perhaps about what fits into that currently. The one I really like is actually from Wikipedia (however evidence-based Wikipedia is, of course), but I think it really focuses more on all of the elements I think are important. So it covers not only research that's, you know, specifically about the diagnosis, treatment and control and prevention of animal and human diseases, but it also highlights the research on the care and the welfare of animals, which brings in the owner element under the same umbrella, which it absolutely should. So that's a really good way of thinking about what research is.

And I think it's important to clarify this to start off with, because I think lots of people talk about carrying out research in their practice, meaning sort of looking up information about cases to help them kind of inform what they're doing – which is absolutely what people should be doing – but in terms of, I guess, structured research, it's a little bit different to that in terms of, you know, really digging down into a topic and finding out new things about it.

So I guess the next thing to think about is, is how we might carry out research, or what different forms research could take. So if I talk to Zoe and Hannah here, when I say someone says research to you, what does that mean?

**ZS:** I think traditionally, wearing like a member of the public hat, you might think that research is all about kind of test tubes and pipetting, and that kind of stuff – and certainly there are elements of veterinary research when you can dig in and get involved in all of that kind of stuff.

But actually there's a much, much broader range of different ways that you can be a researcher, whether you're still a practitioner or whether you're moving into more formal kinds of research. So things like completing surveys absolutely counts as research as well as designing them. Doing structured reviews of the literature, for example, evidence syntheses, critically appraised topics such as, you know, the BestBETS for Vets and the

RCVS Knowledge Summaries, the other critically appraised topics at other universities, through to really comprehensive systematic reviews where you're looking at lots and lots of literature on the same subject and trying to pull together actually what is all of this collection of literature saying, to draw some kind of big picture themes from that really.

There's also kind of collecting samples and doing the lab work as I've discussed, but things like contributing to expert opinion, to structured studies like Delphi groups (we'll go on to talk about what that is later on) and consensus processes are all other really good examples of research.

**HD:** Yeah, and I think when you're in practice as well, there's other ways you can be involved in research without realising you are. So yeah, things like sending in samples, but also reporting adverse reactions. And even when you're talking with yourself and the other vets in your practice about cases that you're seeing, or reading more into different things that you're seeing or unusual things that are coming up, I think that still counts as research – it's just you probably think of it more as part of your daily job.

**MB:** I think kind of more recently as well there's been a move by researchers I think to think about, you know, the role of owners in clinical decision-making, and also too in terms of what might be best treatment options or avenues of management for particular cases, by bringing in owners and their thoughts and experiences with their animals. So you know, things like interviews and focus groups and discussing ideas with owners and kind of coming up with summaries of all of those discussions, sort of more from a social science research methods perspective, can absolutely bring huge amounts of value to other programmes of work. So I think that's a really exciting area that that hasn't been totally explored very well in the veterinary profession, which I think could absolutely do lots with.

**ZB:** There's starting to be more research about vets as well, isn't there, and about nurses and about why we do what we do, what motivates us, how we're coping in the current potentially, sort of, challenging environment. And that again often uses those kinds of social science methodologies and they're absolutely valid and really, really important ways of doing research; finding out opinions to understand experiences is hugely, hugely important alongside the more traditional numbers-based research.

**MB:** Yeah. It's really digging into the 'why people do what they do' or 'why things happen the way they happen' as opposed to just what people are doing, which is obviously incredibly important. OK. So that's the different forms that research can take and hopefully people can take from that, that actually there's really broad ways of getting involved in research and lots of different ways of doing research, which is great.

So if we think about maybe why we want to do research, so what are the benefits of research? And just to signpost a bit, the BVA put out a policy brief a few years ago about the relevance of research in the veterinary profession. For all of the references that we mention across this discussion, we'll provide a list of those that can accompany the podcast so people don't need to worry about furiously Googling while we're talking. OK, if we're talking about this, what would be the benefits of research perhaps that you guys can think of?

**HD:** For me it comes back to why we become vets in the first place, why we kind of entered this profession in the first place, I think we have inquiring minds, we care about the animals we look after, we care about the people that look after the animals and we want to make things better. And all research I think has the potential to contribute to improving animal health and welfare, to improving practice, to doing things in new ways that are potentially better than the ways we've done things before – and just pushing the science into new and evolving fields, and that really scratches an itch for me anyway.

And I think it's quite empowering to feel like you're part of something that's maybe changing things for the better, and part of increasing the body of knowledge – and that feeds back into teaching, and I think that's really exciting.

I think on the flip side of that though – we're talking about how new things can be really exciting – when we do research well, we're also keeping an eye on things and making sure that any harms of new procedures or new things are being carefully monitored. And that just means that the stuff we're doing really is for the benefit, and not just because it's new and exciting, but stuff that really does benefit animal welfare.

In terms of things like collecting samples and reporting adverse reactions – in the bigger picture that helps to identify new and emerging diseases and new patterns perhaps, or reactions to pharmaceuticals or to treatment methods. And it just helps us keep abreast of what's going on really and then be best placed to treat new and emerging diseases.

**ZB:** Definitely, I agree with all of that. I think for me as well, it's a lot of the motivation is sort of coming across things where you think, 'Huh, I wonder why that's happened' or 'I wonder if that's the best way of doing something'. So definitely as Hannah said, having that satisfaction of really having a clinical question in your own mind from your own experience and then trying to find out a way to answer that – checking whether it's been answered already? If it has been answered, has it been answered well? Does the answer fit your clinical context? And if not, thinking, well actually maybe I can, you know, do that myself and find that out.

And it's super interesting and you meet all sorts of different other people that are also doing research, and become part of this really interesting community and learn lots of skills that are also very transferable as well back into your day-to-day life. There's lots of sort of transferable benefits for sure of doing research.

**MB:** I think for me, being a veterinary researcher allows you to still be involved in veterinary practice, but it just allows you to go much further with ideas than perhaps you can manage in a practice environment as Zoe said – which, you know, from a satisfaction perspective, job satisfaction is huge I think. It allows you to really sink your teeth into something that maybe you don't necessarily get a chance to do, which can be quite empowering actually. So there's lots of personal benefits I think that also come about as a result of getting involved in research projects, and that's whether you're driving research yourself or whether you are being part of a much bigger study.

So we talked about the benefits of research, so now if we think about the sorts of people that might do those bits of research and, and perhaps talk about the traits of somebody who's doing research and, and what makes a good researcher, what do we think about that?

**ZB:** I think almost anybody can be a good researcher as long as they find their niche really. Because there are some people who really don't particularly love talking to clients for example, but are really good at maths so would find it really interesting to sit in front of a computer and do loads of mathematical modelling, which might really fulfil them, whereas other people might run for the hills at the prospect of having to deal with multiple spreadsheets. So I think any attribute that you have that led you into being a vet or a vet nurse in the first place, actually you can draw on that.

But things like, you know, having an inquiring mind is really important, because you're going to be probably working on quite a focused area for a long period of time and you really need to be motivated to be caring about the research that you're doing, otherwise you just stop wanting to do it. Because there's loads of fun in doing research, but a lot of the day-to-day, minutiae is a little bit less fun, I think it's fair to say. So having lots of questions in your mind,

an inquiring mind, being good at observing stuff – like just noticing what's going on around you and having the ability to think 'Huh, I wonder why that is?' but also other attributes like having good attention to detail and being really good at problem-solving, having great communication skills – all of those sorts of things are also really important because research doesn't exist in a bubble.

There's no point doing research if you can't communicate that to the public in general, to the profession, so you also need to be able to articulate both in written forms and ideally at conference presentations about the research that you're doing and do that quite passionately really, so that you can sell your idea to people you might want to get money from, but also to inspire people around you to understand why that research is important and why they should care about it.

But I think really importantly, you don't have to be all of those things, like you'd be superhuman. Well, Marnie kind of has lots of those things I think it's fair to say [laughter] but I absolutely don't! Like I have an awful attention to detail and I'm really scatty sometimes, but I'm quite good at the big picture stuff and I'm all right at communicating stuff sometimes. But then if I can work with somebody like Marnie who keeps me on message with making sure that I fill things in right and I'm not skipping through things that actually are quite important.

That's the great thing about research: often you're working in a team and you can draw on skills so you don't have to worry about being the perfect person that knows how to do everything because you can just team yourself up with other people, or build the skills, build on those traits. If you're aware that you've got something that you're not very good at, you can try and work to improve that, which is a life's process for me, I think it's fair to say

**HD:** I think the only thing I'd add to that is it helps to have a plan when you set out on any research project and be quite structured about where you think you're going and how you think you'll get there – and then be very kind to yourself if, and often it is the case, things don't quite go to plan, and things change, and things can end up looking a bit different at the end. Certainly myself and colleagues have found that in their PhD journey it doesn't always quite look the same at the end as you thought it would at the beginning, but it's always better. So planning but being quite flexible to change I think is quite helpful.

**ZB:** Yeah I think as Hannah says, one of the really important things to realise is that, you know, the definition of traditional success where you find the answer and it all goes perfectly doesn't necessarily really fit in a research context. And you might spend years and years doing a PhD where you're trying to find the underlying cause – you know, is there a virus that causes hepatitis, for example, from one of my colleagues' PhDs and the answer was well, we screened for loads of viruses and we didn't find it, but actually you found loads out because it wasn't any of those things you're pretty confident.

And so part of it is kind of reframing what might be perceived as failure and actually what we learn, we need to learn a lot more from the negative findings, but it still can be tempting to feel like, 'Oh God, I haven't found anything', when actually you always have. Like doing a fine needle aspirate in practice and you don't get many cells out, well it's a pretty low chance of being a lipoma, you know, that kind of thing. You have to think about it in a different way round.

And I think you then have to have that kind of mental resilience really and support structure around you to be a good researcher, to be able to walk away at the end of the day knowing you've done a good job, trust your findings and think, well that's OK, because it's all part of a bigger picture. And if it doesn't work, to know that it is still worth carrying on and that everybody around you will have had the same sort of problems with equipment failure or you



know, you think you've done something perfectly and then you get feedback from a colleague or a supervisor that actually maybe that wasn't the best way of doing things.

And you learn about yourself a lot while you're doing this, but you have to be open to the fact that it's not necessarily going to be plain sailing and you're in it for the bigger picture. So having lots of hobbies outside work I think is quite good as well. Having a set of supportive colleagues around you that can just kind of pick you up when you're having a bit of a crappy time and buy you a coffee and talk about something daft or you know, help you through it.

**MB:** I guess I'm very conscious of the fact now that throughout this podcast we've talked about all the positive things about research and as with anything you do as a vet in practice or other kind of allied work, there's always going to be challenging bits, always, and that is absolutely part of that challenge I guess. And also being able to keep going, being resilient, to keep going even when things don't feel like they're very good.

But I would say, doing research is just that – we're finding out things we didn't know; if we knew what the answer was and we knew it was all going to work perfectly the first time, we wouldn't get involved. So part of that research journey is working out what works and what doesn't. And so it is very, very likely that at some point across a research journey that will happen, but that's fine, otherwise there's no point in doing it if we knew that already.

OK, so now we're moving on to, OK, well that sounds amazing, I'm really interested to get involved in this but I'm not really sure where to start. So we've sort of broken this down into areas perhaps where you're going to be the person leading and driving the research, and also maybe for people who don't necessarily want to go down that route – if I want to be involved in research but I don't want to drive it myself, what are some of the options? So we'll cover all of those things.

I discovered a really good article by Louise Buckley and Steven Mansbridge published in the *Veterinary Nursing Journal* that focused on this, so I would recommend going and having a look at that because I think there are some good points in there, but there are some other points here I think that we've got through our experiences that might be useful to talk about.

So if we're, if we're wanting to drive our own research project, you know, based in practice, what do we think about that? Where do we need to start? What's our starting point?

**HD:** I think initially it's helpful to be quite specific about what it is you're interested in and what you want to do, because that will help with structuring the whole project that you're doing and it'll help the findings and the data of any form you try and collect to actually be something you can analyse and something that you can then do something with.

I think a lot of us have interest in quite broad areas, but I think it's quite helpful to narrow down to a specific research question sometimes for some projects 'does this treatment improve or not improve this particular parameter – so, does this improve or not improve blood pressure or something? And that, that can seem quite detailed, but I think the detail at this stage is quite important, when you set out on a research project. I mean obviously not everyone's going to immediately have a very specific question in their mind. So you might want to read around a subject, you might want to look and see what other research other people have done in the area before you narrow down to something that you feel hasn't been answered yet. I think knowing where you want to go is quite helpful at the start.

**MB:** I think maybe, you know, discussing it with colleagues and bouncing ideas off of other people, I think I've always found that quite useful, you know, if I think I really want to maybe tackle this area, then talking to other people about their experiences is good. And there's lots of ways of doing that: talking to colleagues in your practice, talking to friends, there's lots of

social media ways to go, Facebook pages, etc. The Vets: Stay, Go, Diversity Facebook group is quite useful for bouncing ideas around.

You could potentially talk to staff at universities who are working in the area that you're quite keen on maybe doing some work in, and talk to them about it might be possible you can contribute to stuff that's already going on, or perhaps they've got undergraduate or postgraduate students or residents or interns or something that can get involved in some work with you, and also potentially help with the analysis side of things. Certainly in the Centre we support a lot of people out there doing research in practice just by helping them come up with ideas about what to look at, how to go about the process from a study design perspective, and then also looking at the analysis as well. So, yeah, and obviously also special interest groups. So I know Zoe you were saying about SAMSoc having lists of questions maybe, you know, that might be useful to answer perhaps.

**ZB:** Yeah, definitely some of the BSA divisional groups will have a research component often in the meetings that they have often as a pre-satellite day and may have other meetings during the year. And quite often there will be people in those groups, because they're diplomates working at a specialist level who are potentially involved in ongoing research, that you may be able to get involved with bigger projects.

And you may be inspired also by talks that you hear and lots of those guys are going to be super approachable and will be able to help you think through really in more detail what it is that you think it is that you want to want to find out to make sure, as Hannah said, you have that really good structured research question – because unless you're really sure what your research question is and you know what specifically, as Hannah was saying, what outcome is you're interested in, so if you're comparing X versus Y, what is the thing that you're wanting to look for in terms of success really?

It can be super tempting to, when you're in practice, be aware that you've all these animals in front of you and all this data that you can gather, to just kind of dive in headfirst and think, yeah, I'm going to go ahead and answer this question about dogs with weepy eyes, or, how often, I don't know, certain types of dog will bleed after you've done a nail clip in a different way – because there's loads of questions out there we don't know the answers to. And it's absolutely valid to look at questions that are that not even mundane really, that just you wouldn't ever see in an academic paper – that's properly useful, valid research. But it can be really easy to collect data that just unfortunately isn't very useful.

You really need to have a good chat with somebody before you start data collection to just be sure that you're not wasting your time really collecting data that unfortunately you can't subsequently use. So we'll come on later to some of the people that you can talk to, to get that kind of help really with that, but the special interest groups definitely around BSAVA could potentially be a really good starting point to help find the right people to kind of hook you up with really.

I think the other thing to be just really aware of before you start, it's just how much time you've got, and how you're going to make sure you claw back the time. Again, if you're expecting colleagues or hoping that colleagues will help you collect data with practice-based research – really important to make sure that they're on board, that you know how you're gonna do that, that they can access the right kind of tools.

If you're putting things on the spreadsheet, making sure that you've got GDPR compliance, all of that kind of minutiae really. Again, before you dive in, do you need to get some different skills? For example, there's loads of different training courses that are available. Do you perhaps need different materials or equipment? Do you need to form a relationship with a laboratory? Maybe you could ask somebody, if you're going to process loads of a specific

type of sample, if you could get a discount on that – all of those things that you need to lay in place really before you just dive in.

And at this point it may be really useful to just go back to your aim and potentially say, 'God, you know what? I thought I was going to be able to find out the answer to *this* question. And actually, and this is totally the case when you're doing a PhD, you think you're gonna like totally solve the world and you end up feeling like you've just done something microscopically small, but hopefully done it quite well because it can be quite challenging to actually do a very, very big project well.

So it might be a case of revisiting your aim, refining that and doing multiple iterations of that – and that is time so well spent, because the worst thing is to spend hundreds of hours and get loads of colleagues' buy-in and collecting data and potentially getting owners involved, and then you take that to somebody to help you analyse it and they say, 'I'm really sorry, but you know what? That's pretty useless.' And I've had personal experiences of having done that when I was a vet student. So definitely worth having a chat sooner rather than later.

**HD:** It's worth looking as well to see, because I think often we might be interested in something very specific, but we're not the only person who's interested in that, and you may find someone's already answered the question somewhere or answered part of the question. So it's good to have a look online, do maybe some literature searches or have a look perhaps on our BestBETS website or look on the RCVS Knowledge website and just see, because it may well be that somebody has already answered the question and you didn't know, or gone part of the way. So it's useful to look and see what other people have done.

**MB:** I think also with that, obviously we're quite appreciative here that not everybody has access to the scientific literature, and that's one of the challenges I think particularly from an evidence-based perspective.

So obviously RCVS Knowledge has an amazing library resource that can be totally tapped into if you're based in practice, if you have access you know. The librarians there are amazing, they can be really helpful. They can help in terms of things like searching for particular topics and also maybe setting up alerts for finding out the new stuff as it comes in if you've started to work and do a bit of research in a particular area.

And again, as we said before, contacting people who are researching in the area that you also want to be doing some stuff in is useful as well, just to see what they're working on at the moment to see if there's any commonalities there. Because again, as Zoe said, you don't want to spend a whole bunch of time doing things and then getting to the endpoint and realising that somebody else has done something quite similar, where if you've done that already, you can do stuff that's complementary maybe to the work that's out there already.

**ZB:** I think equally though, when I was doing my residency programme I needed to publish some research, and one of the questions that I got obsessed with was wondering what's really the difference in the ability to culture bacteria from a urine sample with whether you put it straight in the fridge or leave it on the bench. Like how much of a difference does it make?

And I had a look on PubMed and found actually there was a paper already that had been published on that subject. It was in Germany and it was in German. And my understanding at that point in time was, oh well somebody's already published it', even though I couldn't read it because it was in German, and therefore probably most people that didn't speak German would be in the same situation. I was under the understanding that, once research has been done once, then it never needs doing again.



And we do quite a lot of critical appraisal work of published literature in the Centre for Evidence-based Veterinary Medicine, similar with the RCVS Knowledge Summaries, that sometimes demonstrates that even if there is research that has been published, maybe it's not particularly high quality, maybe it doesn't necessarily look at the specific patient population you're interested in.

So if there are big studies that have been done, then absolutely great to do something complementary. Always build on the research that's already been done, so have a look at it. Is there stuff you can learn from it? Critically appraise it yourself – is there something that you could do better? But don't feel that just because it's been done once, you can't touch that subject – because that was quite a revelation to me, that that was the case. Without having multiple studies looking at the same thing, then we can't do these systematic reviews where we put together lots and lots of evidence and actually work out what best practice looks like. So I think that's just another thing to consider.

I also wear a different hat that I didn't mention earlier, which is I'm a member of the RCVS ethical review panel. And I think having ethical approval is something that increasingly we really need to be very aware of, with the new GDPR rules in the UK about what we can do with data, what data we can collect, how we need to store it, how long we store it for, and what consent we get for those data – as well as just making sure that we are doing research that is ethical in terms of the study design: making sure that we're answering a realistic research question, are we getting enough people or enough animals involved to actually make sure we've got a statistically representative results. Because doing a small study where you're never going to get statistical significance can also be defined as a form of research waste: you're wasting your time, the animal's ability to be in another study and the owner's time potentially as well.

So the RCVS has a really great, obviously I'm a bit biased, but I genuinely think it is really, really good ethical review process, which is completely free of charge. The paperwork's available for it on the RCVS website and I would really recommend even having a look at the paperwork when you're thinking about doing a research project, because the structure of the questions on the forms that you're asked to fit in really represent the questions that you need to be considering when you're designing a research project, and would maybe help to prompt you to think about some of those things that you haven't done otherwise.

But even for things like, you know, if you'd want to run a survey or just, you know, even in house, if you want to just get some owners' experiences, you really should be getting ethical approval for that. And increasingly now, you know, when you want to publish anything, more and more journals are really asking to see the statement from an external body that you've had ethical approval. So even if it feels like it's something minor or even if you think at the time when you're starting, I don't really necessarily want to publish this, it's always worth going through that final step of getting ethical approval, because it's likely you'll also get some really helpful pointers I think about how you might be able to improve your study or maybe be made aware of other research that you hadn't been aware of, other collaborations, all that kind of stuff. It's definitely a really, really useful step.

**MB:** I guess if you're partnering with somebody at an academic institution, the universities also have their own ethics panel. I think if you're doing your own work then absolutely ask the RCVS ethics panel is the way to go. But obviously if you're working with others or someone else is leading the work, then that side of things might have already been talked about or discussed or the process been completed – but it's definitely worth checking with the people you're working with I think.

So I guess if you want to go down this route and you're not really sure where to start, there's more formal ways of obtaining the research skills that you need. A lot of the summary of what we've just talked about there is actually recognising that there's a specific set of research skills that you're going to need in order to do some of this stuff or at least be able to go and find the expertise in others in terms of study design and how you structure your work.

So again, there's lots of options. I know BSAVA has a research Master's programme that you can go and do to learn about these things. The Royal Veterinary College offer veterinary epidemiology Master's which you can do remotely, I think. And obviously at the Centre we do training courses quite a lot on various things. We have one at the moment which is quite an extensive course about evidence-based veterinary medicine, which touches on quite a lot of these things. So it's just a question of looking around and finding out what other organisations are doing. Our course is starting in February, if anyone's interested you can have a look at our website.

And I suppose along the same lines as those in terms of looking at more formal ways of doing this, there's also lots of funding opportunities out there for maybe getting some money to support the work that you're doing, and that might be paying for consumables or it might also be paying for your time a little bit – it depends on what it is you're doing. But again, lots of options: PetSavers obviously have a fund each year, a number of funds actually; the Animal Welfare Foundation; MSD have some research bursaries for vets in practice; Dogs Trust; The Horse Trust; the UFAW – there's many organisations that have small pots of money you can dip into. As I said at the beginning, I can put all those links onto a document for everybody.

**ZB:** I think it's also fair to say that quite a lot people will do research without funding. Quite a lot of the applications that we see coming through the RCVS ethical review panel are just using clinical cases that people are already working with and actually they're happy to build in the time to do that (the research) into their working lives or into their free time really.

So again, don't feel that – depending on the question that you want to answer, obviously, and the scale of that – you may or may not need funding. Certainly if you're wanting to partner with an academic, it may be that they will need some funding to be able to buy their time effectively to allow them to work on the research project, and then things can unfortunately get relatively expensive, just because of the way university funding works.

So again, if you're thinking about doing that, have the conversations early on and have a realistic think about whether or not you actually need any money towards it; I think it's variable between those different funding bodies as to exactly what kind of money they will give you. Some of them are tiny pots, some of them are pretty sizeable. Sometimes they're very focused on resources, so they wouldn't necessarily buy your time. They're not going to pay your salary to have half a day off a week from clinics, but they might compensate your travel for example, or they might be able to buy a specific bit of kit that you need or to be able to pay for lab samples to be processed.

So it's definitely not, you know, a one-way ticket to be able to write up in the Seychelles or something like that when you've done your research, but it certainly can give you a bit of a helping hand. And again, many of these funding bodies have quite rigorous forms that you need to fill in, application processes, they can be quite competitive. But again, that's another really good way of getting feedback on your research idea – usually you get really nice structured feedback to say, well brilliant, you've done really well, or unfortunately you didn't get the money this time, but if you want to come back again, here's some other pointers to think about.

**MB:** Writing up in the Seychelles sounds amazing, doesn't it?

**ZB:** I would love that, yeah, that would be really nice. [laughter]

**MB:** OK, so we've done quite a lot of discussion around if you're driving your own research projects. I guess we've touched on this a little bit in terms of doing your own research projects you want to lead, you know, maybe working quite closely with a research institution or university is kind of a step on from that. And I think all of these things we've just discussed really fits with that.

I suppose there are more structured ways of doing that. And when you apply to do research programmes like a Master's or a PhD, there's some new type of degrees that are around now called DVM programmes, which can allow you to do part time in practice and then part time research, which is quite nice because it still means you can keep that link with clinical practice going alongside your research. And obviously, internships and residencies have a research element to them, so there are ways of doing, you know, little bits of research as time goes on as well as saying, right, I'm going to finish this and actually then start a specific programme of research.

So the ways you can find out about research programmes that are going on, there's lots of different ways. Just out of interest, how did you two find out about your programmes?

**HD:** And so when I came to Nottingham University, I was working in practice at the time, but I saw the research assistant post advertised in the *Vet Record*. And because I'd done research as part of my Master's and my undergrad degree, I'd always been interested in the idea of getting back into research and it was a practice-based research assistant post. So it ticked all the boxes for me. I've seen things advertised as well through the Vets: Stay, Go, Diversify careers group. There's often things that go in there or some of the other online groups. So it's just worth keeping your ear to the ground and seeing what kinds of things come up.

**ZB:** Yeah, the jobs.ac.uk website is a really good one to sign up to. You can be quite specific about what it is that you want, what type of jobs you want. You can put a geographic region on there if you want to, and you can sign up for alerts there to keep a broad breast of all sorts of different academic-based opportunities. Individual universities may sometimes just put things up on their own website as well. And I think also there's the opportunity to sort of co-apply for funding with somebody. So if you know a researcher or somebody working, and again I think it's probably quite important to say actually that, you know, not all research is being done necessarily in universities. Some of the big charities for example, the Dogs Trust will have their own in-house researchers. And so coupling up with some of those people if you're interested in something, it may be that there's an opportunity they will actually be able to tell you about or potentially even that you can work with them to apply for a pot of money that's really bespoke to what you want.

The lead-in time for that is potentially going to be quite long, up to a couple of years even actually, from thinking about the first contact with that person to actually getting the pot of money if you're successful. But don't be limited to just seeing a job and thinking, 'Oh yeah, you know, I need to wait for something', because you can actually make things for yourself sometimes – increasingly so actually, with some of the new ways that the research councils are funding. So have a chat with a friendly academic or friendly researcher and they may be able to give you a broader breadth of things, but *Vet Record*, *Vet Times*, Stay, Go, Diversify, jobs.ac.uk probably covers a lot of the bases.

**MB:** So the last point to talk about is if you are interested in participating in research, but you don't necessarily want to lead it, you just want to work as part of a bigger group of people. I think there's lots of opportunities here. There's plenty of universities and other institutions who have researchers looking to partner with clinicians and nurses and people in practice.

So it may be that you don't actually have to do anything. So there's lots of research now using records based in practice management software systems that can be extracted for research. So you can go about your daily recording of information that goes on in consultations and all the other things and somebody else is doing work with what's being recorded – it could be completing a survey, it could be contributing samples you've collected already.

There's all sorts of ways of doing that. Again, start by contacting people you know working in the area to see if there's opportunities there and also all the other ways we talked about previously in terms of if you're leading it yourself.

I think one of the really important things to say is, as I said before, if you're going to be doing work with researchers who are leading the project, just making sure that they've gone through that ethical approval process, particularly if you're sharing information and things like that.

And also too, I think making sure that you know they're going to talk to you about the results of the work that's been done. I think, you know, sometimes people get involved in these things and then never hear about what goes on, and I think that's really disappointing and I think it encourages people not to get involved in things moving forward, so absolutely make that part of the agreement that you have with the person you're working with, that you know you want to hear about the results after the work's been done.

**ZB:** I think pharmaceutical companies can sometimes be the other group that will ask individual practitioners to get involved in research as well, when they're trialling any product or they want to just get some opinions back on something, which can be another useful way of participating in research. But again, do ask them if you know what they're going to do with the data and whether or not you're going to get to find out the answers. The person in front of you may not know, but this is how you should have somebody that they can go back and check with. Really important if you're getting in owners, I think, involved in research, especially delegating the research experience into somebody else – don't sign up your clients or encourage them to do something that you haven't really checked out yourself, that you're already happy with what it is, because that wouldn't be great.

**MB:** So that's a whistlestop tour through how you might start and make a start and get involved in research. What I really wanted to do now is move into talking about some specific examples of really nice research that's been carried out, very much focused about veterinary practice, and that's why we really got Zoe and Hannah involved today because they've got some really great projects that they're working in or have worked in, which I think might be quite useful for people to hear about, as well as some other types of projects not carried out by people within the Centre, which I think are worth mentioning just at the end if we have time. So we're going to spend a bit of time talking about those now. Hannah, did you want to start maybe?

**HD:** So one project as part of my PhD research, which I feel is quite relevant to discussing about vets in practice being involved in research is something we're doing looking at cats with chronic kidney disease. And it's work that came out of a systematic review that we did looking at treatment for cats with chronic kidney disease. And we looked at all the different ways that success of these treatments was measured in these papers. So we looked at all the different outcomes that people are using, so things like quality of life or blood pressure or appetite or coat condition. And when we drew all the papers together that were looking at treatment for this condition and we looked at all of the outcomes, we had over a hundred different unique things that people were looking at and measuring and recording in these papers of as ways of measuring success of these treatments, which makes it difficult as a

practitioner if you're going to say, OK, this particular cat, we've diagnosed chronic kidney disease, we're interested in proving this cat's quality of life, but maybe only five of these 20 papers actually look at quality of life.

So what we don't know about these other treatments is whether they do or don't impact quality of life, because not all blood pressure, or whatever it is we're interested in, because not everybody is looking at the same outcomes. So one concept they use in human medicine is the idea of a core outcome set, so that's where you create a set of outcomes which are recommended for use in all future research. And the idea is then if people, researchers can look at as many different outcomes as they want, but if they include things from the core set, it makes future research much easier to combine and compare. And then hopefully you've got a lot less research waste, so you end up with researcher that is really usable on the front line for these patients.

So what we've done in my PhD research is – and it's still a little bit in process – but we are creating a core outcome set for cats with chronic kidney disease. So what we did, we took all the outcomes from our systematic review of treatment that we used. So we found over a hundred different outcomes. And then we invited a group of stakeholders that are involved in decision-making, all parts of the cats with chronic kidney disease treatment journey. So we've got owners of cats with chronic kidney disease, vets that are treating these patients, nurses that are treating these patients in the clinics and at a research and referral level. We've got clinical pathologists, people working for the regulatory agencies such as the VMD, journal editors that are helping to publish this research and people working in industry, so for pharmaceutical and food companies that make the products that we are giving to these patients.

And we had a large stakeholder group that represented all of these different areas and we gave them, online, a series of questionnaires where presented different outcomes to them and asked them to tell us what they thought was important. And all they had to do was to rate that outcome on a numbered scale and then tell us if they felt like anything was missing.

And we collected all that together and then we re-presented back to them and said, 'OK, well as a group, everybody said that it's seven out of nine, and you said five out of nine. Do you agree with everyone else or do you want to keep your answer the same as previously?' And that's not something we've just created, that's a structured recognised process. It's a Delphi process and it's a way of achieving group agreement or group consensus on a topic. So doing that we've narrowed our group of over a hundred outcomes down to less than 30.

And the next stage of that research was we then had a meeting where we brought people representing all the groups together under one roof for a day, and we were able to say 'Is everything that's in this shortlist stuff that should be there? Is there anything else that we haven't got there that we need there?'

And then we've been able to finalise and sort of streamline that even further. So we've now grouped those outcomes into a smaller list of less than 10 main kinds of outcome areas with sub-outcomes, so that it's a little bit more usable, because what we don't want to do is give a massive list back to researchers. What we are now creating is something that we think is hopefully going to be a really usable core outcome set, so that future research for cats with chronic kidney disease can use these outcomes and then in the future research is going to be really relevant to vets in practice and to the owners as well. I think this is really, really key in this research is that we've involved owners as part of this – these are the people that are giving these medications to the patients, these are the people making the decisions about which treatments to pay for, which treatments to use.



So the idea is, if we use this core outcome set in the future, the interests and the priorities of the people at all of the decision-making levels in this treatment process for these cats are represented in some way. So hopefully it's going to reduce research waste and make sure that the research that we have and the evidence that we have for our treatments is really, really relevant.

The beauty of this for me from a veterinary practitioner point of view is that it didn't involve people travelling. We didn't have to go anywhere apart from that one day. And we were really fortunate to obtain some funding from for the meeting, and that helped to cover the cost and covered all of the travel costs and expenses for people attending the meeting.

So I hope that's helped it from an owner and a vet point of view to really not be too onerous and OK, people have had to give their time, but it hasn't cost them financially to participate. And we've been really fortunate actually that's facilitated a really international group. We've had people from all over the world join in at all levels of this research, which is really exciting. But the earliest stages of research really were just questionnaires, and it was something you could do in your own time when you had a good bracket of several weeks to do it, and we were able to give time for people to respond. So I really think it's something that's not been too time onerous, hopefully, and it's something that people would be able to do in bits and doing their own time and still contribute remotely to research. So I think that's a really nice example really.

**MB:** And I think that one of the beauties of what you've done there, Hannah, is that, like you said, you are talking to all the stakeholders who have a say in this and how this works, so hopefully the outcome is going to be suitable and applicable to lots of different environments and to lots of different people – and, as you said, as well as being able to have a list of things maybe to discuss in a consultation room, you know, with a client who has a cat with chronic kidney disease as well. So there's lots of different ways of looking at that, the outcome from the work and saying, 'How can this be useful as well?' Brilliant.

**ZB:** So my example is around the preventive medicine front of healthcare research that I was involved in after my PhD. And this is a really nice story, I think, of a finding that originally started with Natalie Robinson, who is one of our colleagues who used to work at the Centre for Evidence-based Veterinary Medicine, who did a PhD that involved standing in the back of consulting rooms and writing down what happened in intimate detail and what happened during the consultation in terms of what was discussed, who brought up the topic and what happened, in really thousands of general practice consultations in a range of small animal practices.

And when she was analysing her data, one of the really striking findings that she came up with was that actually preventative healthcare consultations – so predominantly those involving a vaccination and discussion of worming and flea products, for example – appeared to be just quite different to the ones where somebody was coming in to discuss a specific problem, so to see whether or not their dog's eye was normal or not, or to check out the cause of a lump that they'd found.

And she determined from her research that actually these preventive healthcare consultations were a lot more complex. They involve discussion of a lot more topics. They were more likely to involve a complete clinical examination and more likely to involve multiple pets. The pets are more likely to be weighed. They were more likely to do further tests such as ophthalmoscopy or an otoscopy in that type of consult. And that very fortunately led us to a collaboration with MSD animal health to provide some funding to look into those preventive healthcare consults in a bit more depth to try and understand, well,

what, what's going on, why is this, why is this happening and what can we learn from that? With a view to ultimately potentially developing some guidelines for vets in practice.

And so that's what we did over the course of probably about three years of work, with the two of us working on it side by side. We started off with a systematic review looking at how do we define success in a small animal preventive medicine consultation? Is there already research out there that says what a good outcome looks like? And we found that there wasn't really very much, certainly from the owner perspective, that told us what a good preventive healthcare outcome was. We then started an online survey, and again similar to Hannah's description, lots of vets all over the world were able then to get involved in this research, where we were asking them 'What would you do in a typical, you know, booster adult pet vaccinating consultation?'

And we've got loads of great data from a whole range of different vets that really nicely described the fact that actually lots of vets did lots of different things, and so we found that actually these preventive medicine consultations are hugely variable – some vets will always check the temperature and some vets will never do that. And so I'm always interested in what the owner's perception of veterinary medicine is. And from the owner's standpoint, you can then imagine that actually if you're going for an annual booster, what the vet did last year may be totally different to what the vet's done this year, and the priorities that they pick up on. And so we understood what vets were doing, but we didn't really necessarily understand why they were doing that from the survey.

So the next step in this research was then to do some interviews over the phone with vets working in clinical practice that had been involved in the survey, and also with pet owners whose pets had recently been involved in a preventive medicine consultation, to start asking them, 'Well, what happened? What did you think about that? Why do you think that happened? What was good about it? What was bad about it? What might you like to change?' And that's led to a really nice series of publications which describe really the big themes that we found. This is qualitative research, not numbers-based, but words-based.

And we found, for example, that time pressures are huge in these consultations. Again, something that Natalie found in her original PhD work, that these consultations are complex and often overrun the scheduled time available for them. And it really found that actually from both the owner's perspective – and that was very novel, that owners are also aware of these time pressures – and also from the vet's perspective, that sometimes important questions weren't being asked. We found that different vets maybe had different levels of interest in preventive healthcare, different focuses.

And some owners thought that preventive healthcare consults that they'd had were absolutely fantastic, they answered their questions. Others maybe found them slightly more disappointing for a range of reasons: some of them related to the pet, some of them related to their own attitudes about vaccination preventive healthcare. And some maybe, it just didn't quite match up with what they thought one of these consultations should be about.

So off the back of that, we then worked with owners and vets who'd been involved in the interviews to then put together something called a Delphi panel, so a group of vets and owners to try to then look at, 'Well here's all the findings from this research, actually which of those should we prioritise? We're going to create a set of guidelines for general practitioners involved in vaccinating pets. Are there a set of things that actually maybe they should consider?' And we went through the process of putting together a series of some suggestions and then put those out to this panel of vets and owners with all the suggestions coming from our research.

And we had a really nice three iterations online of this Delphi process and honed down to actually produce a nice series of guidance, which is very evidence based, which has been put together by a group of vets who are doing this work and owners who are experiencing these consultations, that have now been published in the *Vet Record* and are available for practitioners to use, if they just want to think about how to restructure their preventive healthcare consultations, maybe how they can improve the service that they're offering, how they can improve the satisfaction to the vets that are working in the clinics.

It's by no means prescriptive, but certainly something that's worth having a look at, and MSD animal health are also using that as part of their marketing materials now, I think in terms of encouraging vets to think about vaccination in a different way in this current climate where we know that the number of vaccines being given is progressively reducing year on year.

So it was a really nice example, I think, of some research that, you know, we did some research which led to a finding that led to a question and we were able through a big series of quite different research methods to come up with an outcome of actually producing something which is hopefully valuable for general practitioners and for owners right back at the source, where we started. So quite a satisfying kind of story.

**MB:** And just remind me, Zoe, the outcomes from the work is open access, isn't it, so people should be able to get access to the recommendations from that work?

**ZB:** Yes, yeah, absolutely.

**MB:** OK, thank you very much. Hopefully everyone will agree that both of those examples you know, are really good examples of where you can get broader groups involved in work to make it as relevant as it possibly can be to, as Hannah coined the phrase, people on the frontline doing work with the cases. That's the point, I guess of hopefully all of the research that goes on that's relevant to research practice.

Maybe in the last few minutes we have, I'll just briefly talk about lots of other great examples out there where people have conducted research that's really clinically relevant and can be literally picked up and used straight away in practice. I'm going to touch on a couple here again, I'll put references there so people can have a look in more detail about these.

One of them is called the Recover initiative, which originally sort of aimed to create consensus guidelines, so looking at the best way to go about all things veterinary CPR essentially. And this process involved many, many specialists over a hundred across the world, appraising a huge number of research papers both from veterinary and human fields in combination with discussion and expert opinion divided up across a number of different domains all around veterinary CPR and the amount of work is enormous that they've managed, and it's just been amazing. So the outcome was a list of things that perhaps practices could do to make the outcomes for their patients as best as they can be.

The second one to talk about is a study that was done by the Pet Blood Bank. So Pet Blood Bank UK is a charity. They provide a national canine blood bank obviously, blood's collected from donors all around the UK and the guidelines that they used to work with was that whole blood needed to be processed within six to eight hours after collection – otherwise there was some indication that quality wouldn't be quite so good, which obviously if you're collecting samples from all over the UK, really tricky then in terms of making sure all of the things that need to happen get done in time. So it meant, you know, unavoidable delays sometimes, staff having to stay back at all sorts of hours of the night and day to process everything, which is really tricky.

And they had a change to the human base recommendations in terms of saying, actually maybe as long as you're processing within 24 hours of collection, maybe things are fine. So

they wondered whether this might be the same actually for canine samples. So they got some funding externally to do a little project looking at this. And it turns out that actually, processing up to 24 hours is absolutely fine and the quality is still absolutely good. So it meant lots of relaxation about how many hours people needed to spend at work, and being able to collect within a certain timeframe meant less waste of product and all the rest of it. So I think a really great example of nice evidence-based work which has led to a change in process and how things work, which has obviously improved everything for people.

The third thing to say, and this is the last one really I'll mention, is there's lots of work going on out there using information collected from practice management software systems in practice. We mentioned this briefly before. So you know there's some, some big hitter players such as SAVSnet, the small animal veterinary surveillance network who are based at the University of Liverpool and VetCompass, who are based at the RVC.

So these guys extract data from veterinary practice management software systems and do lots of different work with that data – so looking at prevalence studies, other types of observational study and you know, have answered lots of questions that everybody has had about all sorts of things. VetCompass have recently expanded into the equine field as well, I think. We're also doing similar work in the Centre along slightly different lines, but I think a few years ago where we didn't have access to so much information and ways of being able to work with data, you know, none of this would've been possible, so that's one of the good things that have come out with everyone being slightly more digitalised.

There are many other examples out there of people doing great, clinically relevant research either practice-based or otherwise, particularly in other species as well. The REACT campaign based in Nottingham (without making it the Nottingham show) looking at colic in horses and hopefully working on strategies for quicker identification of critical cases of horses with colic. But, like I said, there's lots of examples, we could go on and on and on and make another whole podcast on that. But there's just a flavour of some of the things out there that I think have made a massive difference to how people work in practice and, and hopefully might inspire you a little bit to get involved in maybe work moving forward.

In the last sort of few minutes we have, is there any comments that, or things that people want to talk about that we haven't covered already?

**ZB:** I think maybe just worth really emphasising that, albeit the list of authors on the papers that are being put out by SAVSnet, by VetCompass, by ourselves, by the REACT group, you know, is relatively small and focuses on the people that actually were involved in the analysis of the data that's been collected (which absolutely is a huge amount of work and obviously conceptualising the fact that that research needs to be done – all of that is the reason that their names are on there), none of these projects, including all of the research that we do, would be possible without the general practitioners engaging in the research, being willing to fill in surveys from SAVSnet, being able to, you know, contribute to the clinical coding required to do some of VetCompass work, to be interviewed in their tea breaks, lunch breaks by us on the end of the phone when we want to find out 'What exactly did you do in the last vaccination consultation that you did?'

You know, we're all, everybody that's in practice is doing this in their free time and you can really see certainly with the VetCompass work (which is, you know, incredibly prolific and has really helped expand our understanding of the prevalence of a range of difference diseases), you can really see the power of what happens when we all get engaged in research and start working together. And actually I think most people that have been involved in that would say, 'Well, actually it hasn't been too onerous'. And yet, you know, now we've got these new ways of working, it's super exciting to see the opportunities a) to

be involved but b) you know, what a big picture you can make when we all kind of pull together, which is super cool really, and the more prevalence data that comes out, the more excited I get, because it's telling us what happens but not *why* it happens and not what vets think about it and not what owners think about it. So every new one of these prevalence papers that comes out leads to a whole raft of more research questions that there's loads and loads and loads of room for more people to get involved in answering.

**MB:** So yes, I think we've reached the end of the time that we have. I just want to say thank you very much to both Hannah and Zoe for participating in the discussion as much as they have.

**ZB:** Thanks very much for inviting us, it's been fun.

**HD:** Yeah, thank you.

**LC:** I'd just like to add a final note from RCVS Knowledge. It's been an absolutely jam-packed session with information and encouragement and inspiration, I've found, so many thanks to you all for sharing your thoughts and experiences today, Marnie, Zoe and Hannah.

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