

MRC Talks: Career Inspirations, Caroline Relton June 2019

Presenter:

Welcome to the MRC talks podcast. I'm Hasina Sacranie.

In our 2019 'career inspirations' series, we're bringing you stories from inspiring scientists who are working to improve lives through medical research.

Each month, we talk to a different scientist to find out how they got there and what makes them tick.

This month, Debs Barber talks to Professor Caroline Relton, who's a Professor of Epigenetic Epidemiology at the MRC Integrative Epidemiology Unit at the University of Bristol.

Caroline Relton:

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Interviewer (INT) introduction:

Although Caroline has always loved science, she didn't originally plan to be a scientist.

Caroline's first degree was in Applied Biology and Nutritional Science at Oxford Brookes University. But before beginning her research career, she first pursued her passion for teaching and trained to be a secondary teacher. After completing her PGCE, Caroline taught at a comprehensive school for five years before having a change in direction and doing a PhD in Molecular Genetics at Newcastle University.

After over a decade of being an academic in Newcastle, an opportunity arose at Westlakes Research Institute. It was there that Caroline first connected with Bristol University to recruit pregnant women and their babies for a biobank. The Bristol-based Avon Longitudinal Study of Parents and Children (ALSPAC), also known as Children of the '90s, was the largest study on this population at the time.

Although she kept in touch with Bristol academics, Caroline moved back to Newcastle University to research children's health at a population level, with a special interest in the vitamin folate. To tackle the challenges she faced, Caroline tried something different – blending the disciplines of epidemiology and epigenetics.

This approach looks at how often and potentially why diseases occur in large populations alongside research into the different ways genes are used, or 'expressed'.

In 2012 Caroline was invited to lead one of the new programmes for the MRC unit in Bristol. Initially she split her time between Newcastle and Bristol universities, but later made Bristol her full-time base – a move she credits as being "the biggest factor that has catalysed" her career.

Today, Caroline's research group focuses on the causes and consequences of epigenetic changes in normal development and diseases like cancer

INTERVIEW;

INT: Hi Caroline, lovely to be with you here today. So, first, I just want to ask a little bit about your research. If you were talking to your friends and family about your work, how would you describe it?

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CR: My research interests lie in epigenetics, and my particular interests are around how epigenetics as a phenomenon can contribute to health and normal development. When I say epigenetics, I mean the mechanisms that turn our genes on and turn our genes off, and they're involved in regulating how the genome works.

INT: That sounds really, really interesting. Out of all the research you've done in your career to date, what would you say is your most interesting or perhaps unexpected finding?

CR: I guess what is gradually being increasingly revealed to me and the group that I work with is that we embarked on studying epigenetics because we thought it could be a really important mechanism in disease processes. But what we're finding is that epigenetics, actually, is just a really good predictor. It's a really good biomarker, or index, of exposures such as smoking and health behaviours, alcohol intake, age, and so forth. And so this could have really useful applications in clinical medicine, and a range of other situations as well. I guess the surprising thing to me is that although we started off trying to understand epigenetics and disease mechanisms, our attention has been gradually more pointed or focused towards using epigenetic measures to predict things.

INT: You didn't start off in your career as a scientist, you initially went to university and studied something completely different. So, at what point did you decide that you wanted to become a scientist?

CR: Well, I was always very interested in science subjects at school and did have a desire to do something in science. But once I'd completed my degree in applied biology, I wasn't quite sure that I wanted to do a PhD. One of the factors contributing towards that was the fact that I'm an identical twin, and my identical twin sister decided to do a PhD, so I thought I can't really do exactly the same thing, I ought to really do something a bit different. So I opted to train as a secondary school teacher and did a postgraduate certificate in education, and taught in a comprehensive school for five years. Which, in fact, in retrospect was really good training, it taught me how to deliver, how to work in a pressured environment, it taught me all sorts of things about working life, and I think set me up in a very positive way to then go back into academia and into research.

INT: Was it an easy process for you to go from being a teacher, then back to studying for a PhD?

CR: Not especially. I think I was very lucky at the time, because I rooted in a particular region, which I think often when you're looking at trying to identify opportunities for PhDs you're quite mobile and you can look at different opportunities in different regions of the country. Whereas I was, at that point, rooted in the North-East, so I was limited in terms of the opportunities to do

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something that was medically related or biomedically related. So, I think I was very lucky to get the opportunity that I did, to go back to Newcastle University and do my PhD there.

INT: Okay. Talking more about your career at the moment, what would you say a typical working day is like for you?

CR: At the moment I have quite a lot of management responsibilities alongside my research activities. My work is almost, well, exclusively office based. A lot of my working day is spent in one to one or small group meetings, some of that is very much research focused, some of that is management focused. But prior to that, my research has transitioned through a phase, during my PhD I was fully lab based, and then I moved into doing some lab, some more statistically related work, and then I've gradually transitioned into being more office based.

INT: What would you say is the best decision you've made so far?

CR: I think moving to Bristol University. I was previously at Newcastle University, where I spent about 12 years, and that was fantastic for me at that time in my career. It was at Newcastle where I was able to make that transition from predominantly lab-based activities into more epidemiological research. But although Newcastle has some strengths in public health research, it isn't a big centre of gravity for epidemiology, whereas Bristol is world leading in that area. It's innovative in terms of the methodologies that it applies and develops, and I was able to bring something to Bristol that Bristol didn't have at that time. There was no epigenetics research here when I joined, although very little in the university more broadly, and none in the context of population health sciences.

I felt like I'd brought something, but I benefited hugely from the methodological expertise that was here. I think that was probably the single biggest factor that has catalysed my career. I think in terms of people making career choices, thinking about where to go and what might be a good move for them, I think thinking carefully about the interdisciplinary mix and the opportunities that a particular organisation might afford them. But also thinking about what they can bring, that's slightly different, to an organisation because that helps that synergy.

INT: Yeah, I think that's really good advice. Focusing on something a little bit different, is there a time in your career that maybe things didn't go so well, that you failed to do what you had set out to do? And, more importantly, also how did you bounce back from that?

CR: I think I'm not unusual in that the transition from having a postdoctoral position to getting a secure academic position was a time that was quite unsettling. The short-term contracts that one has during postdoctoral life

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can be very stressful and quite unsettling, and one's always trying to prove one's worth and to secure a permanent academic position. That has perhaps got a little bit easier in academia, but not hugely, I think it's still a challenge; there are many, many postdocs and not many academic positions. I think really having a lot of resilience, being really tenacious, and having an idea of where you want to go and what you want to do is really, really important. You just have to keep trying and keep trying.

INT: Great. Is there any advice that you would give to yourself right back at the very beginning of your career, that you know now that you didn't know back then?

CR: I did have one piece of really good advice that one of my PhD mentors, Professor Doug Turnbull, gave me. It was after my PhD, when I went back to chat to him about various career opportunities, and he said to me, "Just do excellence science, and if you do excellent science that will shine through." The conversation had evolved from me morphing into an epidemiologist in a very lab based setting, and he was saying, "Don't worry about it too much, if what you do is really good, then people will notice and you'll get recognised."

INT: Finally, if you had a magic wand, if you had superpowers and you could change anything, what major challenge would you address, what would be your solution for it, and why?

CR: In terms of career paths in science, I think I would like to see more opportunities for allowing early and mid-career researchers to flourish and feel confident and secure in their positions at that career stage. I still think that it's super-challenging for people who are really, really good, really good to have to have an environment that's so competitive. It would be really nice to have more fellowships, more longer-term positions, so that early and mid-career researchers can really grow into their own space at that point in their career.

And it's a really interesting part of the career path actually, because I really, really enjoy mentoring early and mid-career researchers, not everyone is on the trajectory to be a PI or a group lead, and that doesn't suit everyone. But there's still huge value that people who aren't PIs or on track to be PI that they bring to an organisation, so finding ways to recognise that and secure those individuals within an academic environment, without them feeling like second-class citizens, like they haven't quite made the cut, I think is really important. I think there is a growing recognition amongst funders, and other bodies in the academic setting, that team science is really, really important. I think we're at a point now where we're thinking creatively or defining what we mean by team science, and how we can use that opportunity to help secure the careers and support the careers of these talented individuals who aren't necessarily going to be group leaders in the future.

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INT: Okay, great. Thank you very much for speaking to me today, it was fantastic.
 Thank you.

Presenter:

For more information about other biomedical career options check out our map at:
mrc.ukri.org/interactiveframework

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Tune in to next month's episode to hear how computational biologist Chris Ponting is solving biological puzzles by bringing together people from different disciplines.

This episode was produced by Debs Barber, and presented and edited by Hasina Sacranie.

Thanks for listening.