Kat - This is the Suffrage Science podcast: How women are changing science, brought to you by the MRC London Institute of Medical Sciences. I’m Kat Arney and over the coming series we’ll be exploring the journeys of women in science - reflecting on progress we’ve made and the challenges still to be addressed - through conversations with an incredible group of women scientific leaders, who have all received one of the Suffrage Science awards over the past ten years.

Over the next few weeks we’ll be hearing from inspirational figures from the world of science like computing professor Wendy Hall, and space scientist Maggie Aderin-Pocock, so make sure you’ve subscribed to the Suffrage Science Podcast through Apple podcasts, Spotify or wherever you get your podcasts so you don’t miss a single episode.

This time I was lucky enough to grab half an hour with Dame Sally Davies from her rather large - and slightly echoey - study at Trinity College Cambridge, where she is the first female Master.

Sally received one of the very first Suffrage Science life sciences awards in 2011. She was the Chief Medical Officer for England and Chief Medical Adviser to the UK government for the best part of a decade, stepping down in late 2019 when she moved to Trinity. Previously she worked as a doctor, specialising in the blood disorder sickle cell disease. She’s a powerful global advocate for research and action into antimicrobial resistance - one of the leading global health threats, and is the UK’s Special Envoy on the subject.

She’s been ranked as one of the most powerful women in the UK by Woman’s Hour, and as the most influential woman in the English NHS by the Health Service Journal. She’s a Fellow of the Royal Society, a member of the US National Academy of Medicine, USA, and in 2020 became the second woman (and the first outside the Royal family) to be appointed Dame Grand Cross of the Order of the Bath (GCB), for services to public health and research.

After such an illustrious career, I had to start by asking her where it all began.

Sally - It was the book, The Double Helix. My mother bought it for me, and it was just before the equivalent in those days of GCSE. And I read it and was just so fascinated by it. I was quite good at biology anyway. I mean, when asked at medical school interviews, "why do you want to do medicine?" And I said, because of the double helix, you know, I was just.. And in fact then my big subject as a physician was sickle cell disease, the paradigm molecular disease. And I played a big role in bringing genomics into policy and into the NHS. So the driving common thread of science has been about genomics.

Kat - I certainly also like you do remember reading The Double Helix and being really inspired by it, but now you sort of step and you look back and you go, it's a very blokey book.

Sally - I haven't, re-read it!

Kat - A lot of men doing amazing things, but not a lot of knowledge of women, obviously very famously, you know, Rosalind Franklin slightly being written out along the way, but it's, it is remarkable how much in the history, particularly of genetics and molecular biology, it's like, there were women there, but they never really came to the fore.

Sally - Yes. But that was kind of normal at that stage. Wasn't it? It was a great pity. I don't know whether you've seen the film Red Joan, which I watched because Judy Dench is in it and essentially she was playing a figure. And it's a real story of a young mathematics or physics student here in Cambridge who ended up helping people on the atomic energy development during the war and leaked what was going on to the Russians because she didn't want a nuclear war. So she had very good reasons. And then it came out when she was very old and her son was a barrister and found it very difficult. But eventually according to the film stuck by her and I watched it because my mother came to Cambridge pre-war and studied mechanical engineering before women here got degrees. She came back in the mid nineties with a whole, whole load of old ladies to get their degrees. And my mother joined the communist party - though didn't leak anything. And it is just wonderful watching how awfully badly the women were treated. They were treated as coffee makers and secretaries when actually they have the brains and knowledge and made major contributions.

Kat - Yeah, we've done quite a few episodes of another podcast I'm involved in called Genetics Unzipped, looking at the women in the history of genetics who were, you know, married to amazing people like the wife of Kornberg, the wife of Joshua Lederberg who did loads of the work and contributed to their Nobel Prize winning work. But somehow not room for any of them in the only three people that can win prizes. I mean, do you think this way that we recognise, the great men of science, the great figures of science in such a narrow way does leave out the way that many women do get involved in scientific research?

Sally - Well, it leaves out the teams and women, historically, have been in the teams and not leading. I think more and more women are leading, so Jennifer Doudna, for instance, leads her team. And I think we'll see more women there, but it's taking a long time to change the view, isn't it? And I've always felt throughout my career that I had to be better than the men to get the job, not as good as the men.

Kat - Because, you have become a fantastic leader. I think you were ranked as the sixth most powerful woman in the United Kingdom by Women's Hour back in 2013!

Sally - Yes, I was a bit surprised by that!

Kat - But let's talk a bit about that journey through you studying science, through then to becoming a doctor and then becoming a leader in the slightly more political side of things. What was that journey? Was it something you intended to go on?

Sally - Oh, no, it was all serendipity. I didn't even know I wanted to be a doctor and then, as I said, The Double Helix really inspired me. So I went off to medical school. I did a couple of years of medicine and found it quite brutalising. I think, in a way that some of our young are at the moment, because of COVID, the rationing, they call it sealing of care. But the fact that you could have someone who might just make it, if they went on a ventilator, but in our very bad moments, there aren't enough ventilators or around the world who could recover if they were given oxygen, but there isn't the oxygen. And I saw that for kidney dialysis and some of the new, exciting cancer treatments at the time. And I found it very, very difficult. So I gave up, I married a diplomat and went off to Madrid for four years and then realised I wanted to be a doctor so I came back and worked really hard, tried paediatrics - it was too general, ended up in haematology, specialising in sickle cell. So it was all kind of, you know, I fell into one thing and then tried something else and then moved on rather than a plan. But that gave me a very broad base. And when people say, well, what was it like taking four years out? I would say, well, I learned to cook, to ski, to speak Spanish, and I read a lot of novels and I did two clinics a week in Spanish. But what I also learned was how the civil service works and what diplomacy can offer. And I think that underpinned my successes politically within the civil service, both as the Director General for Research and as the CMO. So looking back, it isn't time wasted though, after a couple of years, I thought, Oh, I'm not doing the right thing. And is this, is this really for me?

Kat - Nice wine and chorizo though, presumably, along the way as well?

Sally - Absolutely. And some skiing and yeah, it was fun.

Kat - So did you want to go into the political side of, did you just sort of see the job and go like, "Oh, I think I can do that." Or did someone have to kind of kick you into it?

Sally - I had to be pulled. I mean, I was a political activist as a student, I demonstrated against Vietnam against anti-apartheid and things. So I had an activist background, but it was that I was rung up one day and asked to sit on a research funding committee for London and I went and quite enjoyed it. The story goes, and it's true, that I was very quiet for the first year. The second year I started to say things, and the third year I was quite articulate. So the fourth year they asked me to chair it and I said, I can't chair it - there are famous professors there! I mean, hang on a minute. And they all said, "you can do it, you've got to do it, we're going to support you". And I found I could. But then they advertised a directorship of R&D for the NHS region, the post doesn't exist anymore. And I thought, "Oh, I could probably do that". But they had headhunters and the headhunters didn't come to me. And I was asked by a number of people, have the head hunters talked to you. And I said, "no, so presumably I'm not what they want - well, that's fine, I think I could do it but, hey!" And they even interviewed a couple of times. And then eventually The Director of Public Health of the region rang me up and I knew her a bit. And she said," have the head hunters talked to you about this?" And I said, "no, so presumably you've found someone good, you know, happily getting on with my business. She said, "well, I think you'd be better than anyone we've looked at. Why haven't they talked to you?" And I remember saying - the director of public health was a woman - " Do you think it's because I'm a woman?" And she said "Yes, nine o'clock tomorrow morning in the boss's office." So I went home and I said to my husband, "I think I might be offered this job. What do you reckon?" And we spent the evening with a bottle of wine, doing the pros and cons. And I went in to see the boss who I'd never met before and said, “I believe you might be offering me this job. I'll take it on these conditions. And if you're not offering it, why am I wasting my time here?" I've never been scared of telling the truth to anyone. And he said, "yes, I now see, I am going to offer it to you. What was the list?" I told him. And he said, "done!".

Kat - Amazing. It's amazing what you can get when you just go and ask for it.

Sally - Yes, of course we then had to keep the head hunters in the loop. So I had to meet them and I did have to have an interview. And I said to the headhunters, "What did I do wrong?" And they said, "Oh, nothing, nothing you've asked for your list." And then he thought about it and said, "well, you didn't ask for a pay rise." So I went back to the boss and said, "I forgot to ask for a pay rise!" And he said, "yeah, you did forget so hard luck". I said, "okay, fair enough". I was on a medical salary.

Kat - That is frustrating.

Sally - Well, no, I'd negotiated another time or one of my jobs very hard, and it was very interesting because they offered me a salary when I became the Director General of Research, and I said, "that's not good enough". And the boss said, "what do you mean it's not good enough?" And I said, "well, just think how you're going to look when you pay the woman in this job this salary... I wouldn't want to be in your shoes". He said "oh". I said, "you better think about it". So, a week later I was back in his office and I said, "have you thought about it?" And he said, "Oh no, it's that." And I said, "Nope, you're going to look very bad. I'm not accepting that, you better think about it." And this went on for weeks until eventually he said," how about this, and I can't get you any more". And it was quite a significant pay rise. And I said, "done, I'll do it".

Kat - Excellent. And so from there, you know, were there any more steps between there and becoming the Chief Medical Officer?

Sally - Oh yes, so I was Regional Director and then they kept reorganising in the way that only the NHS does. And each time, there were fewer more senior posts and essentially I was given them and then I had to apply to become the Director General for R&D for the NHS. And at that point I hadn't intended applying, but I saw the men that were applying and I went to see the then Chief Medical Officer and said, "you know, I can see who you're about to shortlist and I don't respect them, so I'll put my hat in the ring ,and either I get it and then I stay, or you appoint one of these drips and I will leave because I'm not doing it for them to take the credit". And he said, "you're blackmailing me!" And I said "no", because I wasn't, "I just came to tell you the truth. I'm putting my hat in the ring and this is why", so I got the job.

Kat - And it's an incredible position to be in as the Chief Medical Officer, how did you approach that job? What were the things that you wanted to achieve?

Sally - So everything I've done, I've done because it was interesting, I thought I could make a difference and in the interest of the public, whether it's a group of patients or the public more broadly, so those are my drivers, the values. And I decided to approach being CMO as my USP being not only those values, but adding one, which of course was embedded, but about evidence-based. So I was very careful to stick to the evidence, to talk to the evidence, to say when we didn't know it, but also, one could argue perhaps a very feminine leadership style, of collaborative and facilitative. So when I didn't know, I'd ring people up or I'd bring them in and everyone really helped. And I still remember in Ebola, saying to people, thank you for your advice, I'm going forwards but if you think I'm getting it wrong, send me an email or ring me up. So I was always asking people to help me and they did. It was fantastic.

Kat - We’ll come back to Sally in a few minutes, but now it’s time to hear a few words of advice from longtime friend of the Suffrage Science scheme, activist and scholar Helen Pankhurst.

Helen - The best piece of advice that I was given was around parenting. So, you know, when you're a young mother, there's so many things you're told to do and not do and tell them this and do that and the other. But I was told quite early on, just communicate, just keep the lines of communication open with your kids and then everything else will follow. And I feel that that's been a really important statement for me in terms of how I parent, but also in terms of everything else that I do. Good lines of communications, caring about that means all the other pieces slot together quite well, quite easily.

Kat: Let’s return to our conversation with Sally Davies, to discover who have been her mentors along her journey.

Sally - Well, of course at the beginning, there was Professors Sir David Weatherall, who was interested in sickle cell though his big subject was thalassemia, and I never worked for him, but he always gave me good advice and support. He was fantastic. I worked with a woman consultant and I became the consultant second to her. Misha Brozovic, she was amazing, a workaholic, very bright. I mean, all the people that I've taken inspiration from have been pretty well men actually, because they're the ones in those jobs and I'm not gendered in the sense of needing a woman mentor and I understand the difference between mentoring, where you get advice or give advice and support and championing, where people say "this one's really good, you should get them on your project, that this person, this woman could do that role, why don't you give it to her?" and championing people coming up, and I was lucky to have some champions along the way.

Kat - So who are you championing now? Where do you look for people to, to elevate and to bring forward?

Sally - I did a lot when I ran that set up and ran the National Institute for Health Research, we put in place that leadership program, because, you know, some are born leaders, some have it thrust upon them, but most of us can learn something. I was lucky that I persuaded my first big boss in R&D to send me off to Insead, the European business school and I learnt a lot there. So we put in a big leadership program and I used to go to that and support many of the people on that. And a number of young women from students going up find their way to me for sessions and chat, I was talking to a student only yesterday, mainly now in the antimicrobial resistance field.

Kat - Yeah, I know that's an area that you've, you've really championed. And I have to say, you know, we are in a pandemic, it is keeping me up at night, but like antimicrobial resistance also really keeps me up at night.

Sally - It's a pandemic!

Kat - Yeah. How have you tried to influence people to take this seriously and to really make something happen because it still feels like it's a threat that is not being taken seriously at the very highest level it needs to.

Sally - Well, I think we are getting there. We were doing really well in 2016 and I persuaded Cameron to commission an independent review from the economist Jim O'Neill that went global and that was very helpful in getting awareness. We got a UN general assembly meeting on it, but then we lost momentum. A lot of that because the WHO wouldn't put in the effort they needed to, but with COVID, we're getting that momentum back and Britain, with the G7 presidency, is actually focusing on AMR along with pandemics more generally and health security, both in the finance track and in the health track. So I'm hoping we'll see more; the UN has just set up a global leaders group and I'm honored to be on that and it's chaired by the Prime Minister of Barbados, which is fantastic.

Kat - So going back to, when you received your Suffrage Science Award, you were one of the first, how did that feel? What was going on for you at the time? This is ten years ago now. So what was going on for you and how did it feel to be given this award? You must've had quite a few awards in your time now.

Sally - Yeah. But that one's special because it was given by women as a recognition of your leadership role or my leadership role at the time in science as a woman. And it was very special. And I remember going to that first party for it and being absolutely thrilled and looking at the other, thinking "oh, to be in this company is great". And I wore the brooch. I was given a brooch, you know, we hand them on to successors with great pleasure for the year and handed it on also with great pleasure. It felt wonderful.

Kat - So who did you pick to hand yours onto?

Sally - And then mine onto Nicole Soranzo, a professor at the Sanger who's done absolutely beautiful genomics work and she's fantastic. And, being in Cambridge, wasn't truly recognised because she was a woman.

Kat - One of the themes of the Suffrage Science Awards that very first night was: women in science then and now, and it was harking back to the era of the suffragettes, looking back a century to where we've come now, but also even thinking just in the ten years where we've come since then, how do you think things have changed and where do we still need to change?

Sally - Well, I think they're steadily improving, but you know, it is tough because I much prefer myself appointing sparky women to boring men. We like to appoint in our own image. So, as long as there's more men at the top than women, unless they're thinking very carefully about this, their unconscious bias is to appoint in their own image. So it's a slow process. I think it's improving, but we do have to keep pushing and reminding people, we have to think about diversity beyond gender as well. And that makes it even more difficult.

Kat - One of the things that has come up during the pandemic is that perhaps some of the decisions that have been made, some of the policies that have been brought in have not really taken that diversity into account. We see, for example, a lot of women coming under pressure in work-life balance, home, childcare stuff. And then also the way that COVID seems to be affecting black and minority ethnic populations more, and there's all these kinds of complex things tied up, but then the policies that are coming out of the government don't necessarily seem to reflect that. I mean, why do you think that is?

Sally - I think it's very difficult when you're in Whitehall to be anchored in reality, particularly as I know from the emergencies I handled, Ebola, novichok and things, particularly during an emergency when you're just trying to focus and keep it going. So it is difficult. I was always having my feet kept firmly anchored by having a husband and children. But then let's think about the women out there in the workforce. The data's clear: they're generally the ones doing the home schooling and trying to hold down their jobs and often doing the cooking and housework and all the rest of it. So how do we learn to ask our partners for a fair deal at home? Or are we bringing it on ourselves? I still think that many women, I know I had waves of it, though they didn't last very long because I intellectualised it, feel they want to be the perfect mum as well as great at work. And the perfect mum doesn't mean you have to do the homeschooling all the time. You can share it, but you've got to understand where you yourself are coming from before you can do the difficult, sometimes, debate with your partner and even worse for those who are single parents. I mean, just imagine. I would find it impossible to parent without child care and hold down a job and make everything work. It's an impossible job.

Kat - Some of the criticism has been that we have a very, very male-heavy government now, and that there's maybe not enough women, more diverse voices involved in policy-making. Certainly something I've always felt of needing more people with scientific backgrounds across all levels and all places of government, not just in the department labelled science. Do you think that would help? And also, how do we get to that? How do we get to these more diverse policy makers and decisions?

Sally - Well, we know there's a lot of literature actually. McKinsey's has done some of it about boards in the private sector that you need, not just one, the token, or two, you need three or more on a board or in a group to actually change the way it functions.

Kat - You need a gang.

Sally- Yes, nicely put, so we really do need to keep addressing it, but you've got to start from a recognition from those in power that diversity does improve decision-making. I think, looking round, everyone recognises that New Zealand, Germany, some of these countries with women leaders have done rather better. And that should lead to questions about how do we, how could we do better? And would diversity shift the decision taking, enough to get better outcomes?

Kat - Is there something that you are proud of having achieved perhaps as CMO or in your career to date?

Sally - It's very difficult to pick out. Of course I'm proud of having the idea and then realising the National Institute of Health Research. I'm proud of where I've taken us as Britain into a leadership role across the world and shifting the world on antimicrobial resistance. So I was proud that we've set up the Athena Swan award system as a hurdle for medical schools to get significant funding. They've all made a big difference to how we practice and what we do and that matters to me.

Kat - It's interesting with the Athena Swan, because I know that you made it compulsory for funding institutions that had to have a certain level of this commitment, a certain level of Athena Swan award, but I know that now that's starting to be wound back a bit. Is this concerning to you? You know, it also makes me feel that like these fights are never just won and done. Like we have to keep going,

Sally - It's being cancelled. And I understand that because actually it became very bureaucratic, it was generally done by women and the effort was not recognised in promotions. I was sad to see the baby thrown out with the bath water when there was a review going on about how to make it less bureaucratic and better. I would have preferred that we worked with the review and got a system where women were not doing it all, men were playing their role and that we had some real markers that institutions were caring about diversity.

Kat - And finally, you're working with students, you're working with people at Trinity. Do you have any advice for the next generation of young women girls going into STEM subjects? What would you like to see?

Sally - Well, you have to want to explore things and solve problems. So go for something you enjoy because then you'll do better, but opportunities will come up. The expression I've used for many years is: if there's an opportunity, hold your nose and jump, go for it. And I think I stand by that, when I said my career was serendipity, there were lots of opportunities, but I always took them and made something of them. And made another USP, which was: I delivered when I said I'd do something I delivered. I'm not one of those people who talks about something and then walks away and pretends I never said it. If I say I'll do it - I do it.

Kat - Thanks to Dame Sally Davies, and if I can have even half her guts and determination I’d be very glad.

Next time I’ll be chatting with climate scientist Tamsin Edwards about the challenges of communicating uncertainty and how it feels when not just climate skeptics but your own colleagues don’t take your work seriously.

Tasmin- Some people just couldn't believe that this kind of uppity young postdoc was going around telling everyone what she thought about climate change and how to talk about climate change. When there were all these various serious professors who'd been thinking about this for a lot longer than me and had it all figured out. And I made some amazing friends, but I also rubbed quite a lot of people up the wrong way.

And before we go, here’s a final word from Helen Pankhurst, about her hopes for the future.

Helen - Well, I'd like to see change in terms of science, is that it reflects society more broadly, more equally than it does at the moment. I think the wonderful array of issues that science will take out, I think the changes that it will provide for the world will be so much richer if it's more equally represented in terms of all the people that should be engaging in it and leading in it.

The Suffrage Science Podcast: Women Changing Science is presented by me, Kat Arney, with audio production by Georgia Mills. It is produced by First Create The Media for the MRC London Institute of Medical Sciences Suffrage Science scheme. Find out more and read profiles of previous awardees at [suffragescience.org](https://www.suffragescience.org/) and follow @MRC\_LMS on Twitter and the hashtag #SuffrageScience for all the latest news. Until next time, goodbye.