00:00:05:07 - 00:00:51:22

Clare

Hello and welcome. I'm Clare, and you're listening to Microbe Talk, a podcast by the Microbiology Society. This year, the Microbiology Society is hosting FIS, the Federation of Infections Societies Conference in Edinburgh. It's all about working together. So what a better way to gear up to the event and a conversation all about collaboration. So for this episode of Microbe Talk, I'm joined by Professor Elaine Cloutman-Green, Microbiology Society member and Joint Trust Healthcare Lead, who represents over 700 healthcare scientists at Great Ormond Street. We're ready to get stuck into the topic of cross-disciplinary collaboration between clinicians, industry and academics.

00:00:51:24 - 00:00:53:01

Clare

Hello Elaine, how are you?

00:00:53:01 - 00:00:56:07

Elaine

I'm really good, thank you. Thank you so much for having me.

00:00:56:09 - 00:01:07:02

Clare

I'm very excited to have you here. So I suppose just the first question would be, could you explain what your role is and what you do? That's quite a big question.

00:01:07:04 - 00:01:09:18

Elaine

Yeah, I am. I get bored easily, so I wear quite a few different hats.

00:01:11:09 - 00:01:30:11

Elaine

Let's say I have a number of different roles, so I have a clinical role at Great Ormond Street Hospital, so I am a consultant, clinical scientist. Effectively I'm the infection control doctor for the trust. I try not to run around saying no all the time. I sometimes feel like I might as well just wear that on a T-shirt.

00:01:30:12 - 00:01:52:13

Elaine

Yeah. And then I have an academic hat. So I'm a professor at UCL and we have a research lab there with Professor Smith, who also is a member of the Microbiology Society, where we do research on the health of buildings really, and how we stop infection spreading in buildings, how we look at how people move about. And then I have a leadership role.

00:01:52:13 - 00:02:15:03

Elaine

So I am part of the Trust lead healthcare scientist team. So my job is to be a professional leader for all of those guys trying to get involved in research and education and outreach and basically bringing science to patients because, you know, we work in pediatrics patients so our future and say we need to have these conversations with them.

00:02:15:07 - 00:02:20:22

Clare

So you're excellently positioned to be able to talk about cross-disciplinary collaboration!

00:02:20:22 - 00:02:25:17

Elaine

Yes. Even in the healthcare side, there's about 52 different disciplines that I represent.

00:02:25:19 - 00:02:26:02

Clare

Yeah.

00:02:26:07 - 00:02:32:19

Elaine

So it's all about being willing to have those conversations and come together to make the best possible outcomes.

00:02:33:01 - 00:02:48:09

Clare

Yeah, definitely. Because I think what I tend to kind of come across is that perhaps maybe the general public has this concept of scientists as a group, collective group of people that all work in the same way, and there's such a variety in how people think.

00:02:48:09 - 00:03:15:10

Elaine

Yeah, even our language is so different and the problem is it's similar enough that we think we understand each other. And then actually when it boils down to it, you're like, Oh, you mean something completely that way, I tell you. And sometimes it takes quite a long time to get to that place. And sometimes I think that that means that we introduce barriers by because people think that we're not supporting each other or we don't understand each other and we're being really difficult.

00:03:15:10 - 00:03:20:04

Elaine

And actually it's just because we don't really get what the other person is saying.

00:03:20:15 - 00:03:44:07

Clare

Yeah, there's a lot of like, I suppose, psychological sort of barriers, especially when it comes to things. Like I said, jargon, for example, works really well because you need to be able to talk in shorthand to each other. Then as soon as that becomes a barrier to then be able to have conversations with each other, it needs to be strict back then, sometimes people may feel, Well, you're stripping it back and dumbing it down.

00:03:44:07 - 00:03:48:16

Clare

It's no, it's not totally not dumbing anything down, just explaining what you mean.

00:03:48:16 - 00:04:09:21

Elaine

Yeah, I have a really good one that happens to me all the time. So in my infection control world, HPV is hydrogen peroxide vapor. I was HPV, and overall as well, it is a completely different thing. And so actually I'll be using the term HPV, and then I'll suddenly realize that the person that I'm speaking to has no idea which context I'm using.

00:04:09:21 - 00:04:20:00

Elaine

Yeah. And they'll be like, What? What, what we did. And it takes me a little bit of a moment to go, Oh, yeah, No, I'm talking about cleaning now. No, I'm not talking about PCR.

00:04:20:22 - 00:04:26:16

Clare

That's so interesting. Yeah, because yeah, it's this concept of like science is a general thing and. Yeah, yeah.

00:04:26:23 - 00:04:32:04

Elaine

Yeah. Not so much human papilloma, what you have to say in pediatrics in general, but every now and.

00:04:32:04 - 00:04:33:15

Clare

Again that's in my mind. Yeah. Yeah.

00:04:33:15 - 00:04:46:14

Elaine

It's when you're talking about base things because we could be doing assays for one thing, or I could be talking about cleaning for the other. Actually, sometimes you have to really orientate people about which conversation you have in the moment.

00:04:46:19 - 00:04:52:24

Clare

Yeah. And it's not talking down or anything like that. It's just setting the rules, the rules of the conversation, basically.

00:04:52:24 - 00:04:58:04

Elaine

But I also think that sometimes as scientists we use jargon as armor.

00:04:59:03 - 00:04:59:14

Clare

Interesting.

00:04:59:16 - 00:05:19:08

Elaine

And when we're feeling uncomfortable, we move back to really tacky speech in order to almost own space in the room. When it's interesting, actually, most of the time when you're in that setting, what you need to do is go, I'm throwing that technical stuff out and I'm going to have a real conversation with the person that's in front of me.

00:05:20:01 - 00:05:40:18

Elaine

And I find that when people who are talking to patients go out and have a conversation or when they're nervous, it becomes science instead of becoming a line. And actually Elaine makes the connection. Science does not lie. And so we have to think about what face you're wearing and whether it's appropriate to the space that you.

00:05:41:19 - 00:05:55:23

Clare

Just got to apologize to everybody that there's we're not shutting the windows because it's currently so it's like 20 something degrees. So I do apologize for any background noise. And there was a plane going past, but it adds to the Oh, yeah, yeah.

00:05:55:23 - 00:05:57:11

Elaine

It means that we're talking real talk.

00:05:57:12 - 00:06:24:11

Clare

Yeah, I'm real in person as well. And so this podcast that is centered around collaboration and profits excellently into this, this is a huge question, so feel free to attack it however you like. But I suppose what does multidisciplinary collaboration look like to you? What would you say is a successful instance of multidisciplinary collaboration?

00:06:24:21 - 00:06:47:14

Elaine

So I think the one that means most to me, I don't know. I never know what success criteria, but the one that means most of my heart is that something called Project Nation, which we've been running, which is actually a collaboration in terms of Steam. So it's a collaboration with a playwright called Nicola Baldwin, who is the creative director, and I am the scientific director.

00:06:47:14 - 00:07:17:11

Elaine

But the thing that works really well but is really interesting is every piece of work within that portfolio is co-created by people. So the original text for the play Nice came out, which is how the project started out, came out of a bunch of scientists and medics and nurses coming into the room and telling stories about that experience of infection and how it feels to be the person that works in that space.

00:07:17:11 - 00:07:37:14

Elaine

And I think with COVID, it would be really interesting to do some a piece now, because when I'm in that space, I am the infection control doctor. I'm supposed to be controlled to know what's going on, but also especially something like a pandemic. Yeah, I also have an autoimmune condition and could get really sick if and you're controlling both of those things.

00:07:37:14 - 00:08:08:24

Elaine

And so it's a combination of talking about the whole identity, but because it was co-created by lots of different people telling their stories, it just has a lot more integrity to it. And then once you bring the actors in to that space and see how people who don't necessarily have all of the scientific understanding behind it respond to that work and then bring their creative side to actually how to tell their stories better, how to work on that language better.

00:08:09:10 - 00:08:40:21

Elaine

And you end up with a project that is just so far beyond what any single person could achieve that you couldn't even envisage it. And I think that is what Treme Multidisciplinary should be about. It's about giving something that no single person or no single discipline could achieve or even envisage

on their own. You just don't know where that journey is going to take you, and that just increases its relevance to anybody who then encounters it.

00:08:40:24 - 00:08:53:11

Clare

Yeah, so that sounds amazing. I love stuff like this. I love integration of science and arts because people think it's so separate because I suppose school makes you think it's separate.

00:08:53:18 - 00:09:16:08

Elaine

Yeah, it was actually reality. It is always fascinating when we sit down to do these pieces of work. I'm like, Oh, actually we plan and develop stuff in such a similar way. Yeah, like creative arts are still about iterative design and kind of bringing things together and going through a methods and then kind of evaluate them at the end.

00:09:16:08 - 00:09:22:24

Elaine

And actually that's what science is at the end of the day. And so there's so much more that links us than separates us.

00:09:22:24 - 00:09:47:19

Clare

100%. It's all about understanding. And like, like nature, I suppose, is a concept about the natural world. But I suppose when when I kind of hear about things with science and art working together, I suppose a cynic might say, Well, okay, you're doing art for science and all of that, but what does that actually mean in terms of and I'm quoting like scientific progress that doesn't contribute?

00:09:47:20 - 00:09:54:24

Clare

They might say, what's what's the point in doing that? I don't think that, by the way, I think it's. And what was your response to that kind of criticism?

00:09:54:24 - 00:10:17:24

Elaine

They say I would use antimicrobial resistance as a prime example for this, say antimicrobial resistance. It's just what is known as a super wicked problem, which, by the way, is the best, even though it's full of doom and gloom and it's about the fact that it's something that's so complex and has so many different aspects that no single agency is going to be able to manage it on its own.

00:10:18:09 - 00:10:42:20

Elaine

And one of the parts of that is that you have to change behavior and the people who are out there in the real world receiving antibiotics, getting up at the GP and asking for them and you are never going to change that by me being science face and didactic lead, talking at people. It also has a sense of fear associated with that.

00:10:43:14 - 00:11:14:18

Elaine

And so when you're talking about more people dying of antimicrobial resistance than cancer, by 2050, people shut down because that's scary. And it's so vague and they don't understand how they as individuals can impact that. If you have that conversation through the medium of a story where people can engage with it but in a way that isn't so personally threatening, you can actually start to talk and change people's behavior by including them in the process, but in a non threatening way.

00:11:15:00 - 00:11:36:03

Elaine

And that's why using something like theater or art can really start to change. And this is actually quite a lot published data about that that says like things like photography workshops where the people actually take photos over the course of a few months in community projects linked to that everyday engagement with antibiotics, whether that's tablets or tying up to the GP.

00:11:36:03 - 00:12:01:15

Elaine

And so that enables people to have conversations that actually changes long term, their behavior and response. And so I think that sometimes we're a bit intellectually snobbish about the fact that we're only special to do science. And actually science isn't special. It's owned by everybody. And one of my very first blog posts was about not sitting in an ivory tower.

00:12:02:06 - 00:12:26:18

Elaine

We can't be removed from the issue. We are living the issue, especially in terms of antimicrobial resistance. And so we have to break out whole selves to that to have the conversations to enable to really change things for the future. And that's not going to be based on data. People don't change behavior based on data we may do as scientists, but most of the world is not going to respond to data.

00:12:26:18 - 00:12:31:22

Elaine

If you look at the big news stories, they're always taken out because it's a personal tale.

00:12:32:03 - 00:12:32:16

Clare

Oh yeah.

00:12:32:19 - 00:12:45:05

Elaine

And so you have to orientate stuff if you really want messaging to work in a way that works for your audience that doesn't it's not about you, the person giving the message. It's about who you're trying to actually receive it.

00:12:45:13 - 00:13:18:12

Clare

That's so interesting and so well put. So it's like it's like about looking at the bigger picture, isn't it? And I suppose if if COVID has taught us anything and hopefully is taught kind the scientific community, anything is that science is owned by everyone, just like you said. And scientific progression is important and requires everybody like, for example, the modeling that Imperial College did completely relied on people sampling and sending in this model to help people save lives.

00:13:18:12 - 00:13:24:15

Clare

So hopefully there's a slight benefit that's come out of COVID is that it's more present in people's minds.

00:13:24:15 - 00:13:46:14

Elaine

Yeah, and I think actually there's a real onus on us as scientists now to really make the most of that opportunity. Yes, I kind of feel like if we don't, then people will become more distant to science than they were before the pandemic, because we have to acknowledge is quite a lot of trauma associated with what people went through in the pandemic.

00:13:46:23 - 00:14:01:04

Elaine

And the response to that is either to engage or to shy away. And if we're not out there being in a position where we can engage, then people will actually shut off from the science and the data and it will be more other than it was before.

00:14:01:10 - 00:14:12:03

Clare

Yeah, it would be too easy to say saving vaccine, for example, would be too easy. Say you don't understand this, just leave it to us. And that's where doubt comes in. And that's where.

00:14:12:03 - 00:14:42:13

Elaine

And conspiracy theories out there and people say you've got an agenda. Actually, if we want somebody to have something stuck into their body, which legally counts as a form of assault without consent, then actually fairness is upon us to get out there and talk about why it should happen and be really open and transparent about it and give people the right information to make an informed decision because if you don't, that information vacuum will get filled with all kinds of other stuff.

00:14:42:21 - 00:14:49:07

Elaine

And then we can't really criticize people for making the wrong choices on the basis of the information they have available to them.

00:14:49:08 - 00:14:49:19

Clare

Yeah.

00:14:50:04 - 00:15:12:06

Elaine

And it takes time and it takes energy. And I know that actually the scientific community will knackered. I mean, I am properly tired. Yeah, but if it's not us, then it will be the random person who is googling and working and making stuff up and putting out books that has all of this disinformation that will impact us for the next 20 years.

00:15:12:06 - 00:15:17:22

Elaine

And so I think we have to also know that this stuff does have value and not be dismissive of it.

00:15:18:16 - 00:15:43:13

Clare

Hundred percent since a scientist job is very much outside the lab as well AS Yeah, yeah, that's really, really important. So moving on just kind of slightly, we're talking about fears and specifically about collaboration within kind of clinical and academic settings and to collaboration in the clinical space. How does that collaboration.

00:15:43:13 - 00:15:44:09

Elaine

Kind of affect.

00:15:44:16 - 00:15:52:03

Clare

All such improved patient outcomes? That's a key part of your role. Yeah. What do you have to say about that?

00:15:53:00 - 00:15:57:02

Elaine

So silo working has been shown time and time again.

00:15:57:02 - 00:15:57:20

Clare

Silos.

00:15:58:05 - 00:16:20:09

Elaine

They work and so so it's really healthcare time, which I hadn't realized that today. And you know, one of my I, we were writing a paper on public engagement and actually a couple of the academic scientists like what is silo working? And I hadn't realized it was so health care. So talking about jargon, I remember that one. So it's basically working in boxes.

00:16:20:09 - 00:16:54:03

Elaine

I sit down, I don't necessarily connect to each other and it's been shown time and time again to increase risk within healthcare settings because that's when you get lots of people owning bits of information that they don't then put the whole picture together, which means you may not recognize that the patient is as well as they are, or they're actually you've gone down the wrong rabbit hole in terms of treatment or even that like this process is actually probably fundamentally flawed and because nobody's quite talking to it.

00:16:54:03 - 00:17:31:14

Elaine

Yeah. So it's really essential in healthcare. Health care in itself is a really challenging environment and to try to break down some of these barriers because a lot of the professional barriers have been there for like over a century. Right. And yes, the way that chefs work, the way that actually people sit in offices that are very disparate from each other, doesn't necessarily support that collaborative thinking and that sharing of information, because the most valuable thing that tends to happen is when you walk past someone in a corridor, you're like, Oh yeah, just well, I see you.

00:17:31:15 - 00:18:02:18

Elaine

Yeah, that will kind of discussion and say for me, if you really want to actually make things safer, you have to embed and process multi-disciplinary activity so that it's not something that happens by accident. It's something that is deliberately chosen to be valued. Yeah. So for instance, within my clinical world, we have a lot of the patients at Great Ormond Street are semi complex.

00:18:02:19 - 00:18:03:01

Clare

Yeah.

00:18:03:08 - 00:18:24:21

Elaine

Because we're attached, we feel, you know, usually there's quite a lot of things going on. So because of that, most patients are seen by multiple different teams. Yeah, I'd say that multidisciplinary approach has had to be embedded in how we work and it does mean that you just see the benefits of learning from each other. All the time.

00:18:25:03 - 00:18:33:04

Elaine

Every day I'll be like, Oh, oh yeah, that, that's yeah, I hadn't really thought about that. And so we left each other up.

00:18:33:09 - 00:18:34:23

Clare

Yeah, by working together.

00:18:34:23 - 00:19:04:05

Elaine

But again, it's not something that happens by accident and it takes time and investment to build the relationships to be able to do it. But the outcome is that we get better relationships that lead to better outcomes for our patients. We improve that patient safety because every time you look at these big reports about stuff that goes wrong in health care, almost always it's because actually the information wasn't shared in a way that support it.

00:19:04:05 - 00:19:06:00

Elaine

People to make better decisions.

00:19:06:00 - 00:19:11:19

Clare

Yeah, yeah, yeah. It's scary that there's so many of those reports, but the whole point of them is to learn from them.

00:19:11:19 - 00:19:12:21

Elaine

And move forward.

00:19:13:09 - 00:19:24:06

Clare

Yes, it's like, it's like each clinician has their own set of experiences, which then provides a valuable perspective to that. Think about it in a different way.

00:19:24:07 - 00:19:49:08

Elaine

Yeah, and I think it's all about valuing those different perspectives and understanding that you're bringing a specific lens to a conversation, but somebody else will have a different lens. So it's something that challenges me in a really positive way. And infection control all the time. So my job is to keep patients safe. My job is to make sure they don't get an infection.

00:19:49:18 - 00:20:14:08

Elaine

That could mean that effectively I put each patient in a bubble. No one goes in to see them. Nothing ever touches them. My patients are also kids who are learning to walk, who'll develop if I do that, I'm going to develop mentally really impact how they are in their first five years of life, which will possibly impact them for the rest of their lives.

00:20:14:08 - 00:20:36:00

Elaine

So where is the balance for that? So when I go into a conversation, I'm very much like, this is the safest thing that we could do. But actually where is the patient quality of life if someone's staying with me for a year? MM If I say they can't see their sibling for 12 months, what's that going to do to their long term relationship with that sibling?

00:20:36:09 - 00:21:00:15

Elaine

And so having that openness to that conversation about where is that balance of risk versus what it actually means for the patient for the rest of their lives or their experience of health and being open to being challenged about that? Because sometimes there will be periods where I'm like, No, absolutely. This is what has to happen for the next few weeks.

00:21:00:21 - 00:21:24:18

Elaine

The risk to others is just too great. And sometimes it's like, actually, I can be really inventive and find a way around this so that we are controlling the majority of the risk. But they still get to be kids. And so that's just one example. And this stuff that happens every day way, if you're open to that dialog, then you can change things in a really positive way.

00:21:25:06 - 00:21:38:22

Clare

Yeah, okay. Yeah, that makes it. So there's collaboration on this kind of almost like day to day level where would you say sort of the role as an academic might be able to fit in in that kind of collaborative framework that you're describing?

00:21:39:24 - 00:22:13:08

Elaine

I mean, there's a reason that I hold a professorship at UCL and my clinical role, and it's because it's so easy for academic pathways to be developed and really cool academic stuff to come out that will never work in my clinical situation, right? Yeah, it's really late and the number of times that I've been approached by somebody and they're like, I've got this amazing thing and I'm like, Yeah, none of that enables me to change my patient management decisions.

00:22:13:08 - 00:22:32:19

Elaine

Like it's really cool, but it's not going to change what I do in practice. Therefore we're not going to be able to bring it in. Whereas if you come to me two years before I could have got actually, let's not do it for this virus, let's do it for this virus that will completely revolutionize how I manage a patient.

00:22:33:00 - 00:23:10:05

Elaine

And so having that joint conversation about where my clinical challenges are and where there are opportunities, the things that are being developed to research, to actually address these conversations, these questions, and make it a dialog really changes things because then at least academically, we are working to answer the real problems that are out there. But also I can also opportunities to actually test those things in practice to really do that pull as well as a push from academia, some really cool translational stuff.

00:23:10:05 - 00:23:32:09

Elaine

Three And sometimes it's stuff that was designed for something completely different. Be easy. Like that would be super cool if we could work out how to make that work clinically. Like things like microfluidics, right? There's so much stuff that's going on in that will that may see people thinking of this being like an engineering and fluid dynamic. Problem was there's lots of stuff that I could envisage.

00:23:32:09 - 00:23:56:04

Elaine

If you use microfluidics in the clinical world, I could use to test drivers and having to do rapid viral detection so that I could see someone with vomiting with no virus so that I could put all of my interventions in more quickly. And so by having that constant dialog to be like, So this is my problem, what you go and back and forth, you get something that's just much more high quality.

00:23:56:14 - 00:23:59:03

Clare

I don't come across microbes with XP for what's.

00:23:59:11 - 00:24:17:06

Elaine

So it's all I'm not super smart and you're better with me if I make this a really bad conversation. So we've been working with some guys at the University of Hartford and basically they have got an entire molecular reaction down to the point where they can do it on a single drop of fluid.

00:24:17:12 - 00:24:18:03

Clare

Wow.

00:24:18:06 - 00:24:28:23

Elaine

And so they have sensors that you can put in. So they're often using them in like fields at the moment for detecting crop viruses or fungi.

00:24:29:17 - 00:24:30:12

Clare

A single.

00:24:30:12 - 00:24:52:05

Elaine

Drug. Yeah. So they sample and it all hits into this single drop and then it automatically extracts everything from it's using and picks up and then it sends a signal if there something like that, so that the people that are actually looking after the goats can come and make sure that they are all appropriately sprayed. It's like truly amazing stuff.

00:24:52:05 - 00:25:21:07

Elaine

And like I thought manipulating like 200 microliters was quite fancy. This is so much fancier than that. And you can really see that if you had a similar system that I could install in a patient bedroom, that when suddenly I have someone coughing instead of waiting for somebody to recognize they have a symptom and then taking a sample and then waiting for 24 to 48 hours to run the PCR, even if it told me I was present as I was not present, you could immediately put some in droplet precautions were airborne.

00:25:21:15 - 00:25:28:06

Elaine

Your cautions in terms of getting ahead of all of your other actions, I'd say it gives you a really different way of looking at it.

00:25:28:12 - 00:25:43:05

Clare

Yeah, well, I suppose then, because you're kind of on the ground, you're able to then advise academia and their cross-disciplinary actions that are happening with engineering and that kind of thing. Yeah, you were able to advise how that research goes forward. Yeah.

00:25:43:11 - 00:26:07:07

Elaine

And then having these dialogs, I think is just really exciting. And it inspires you, right? Yeah, I think a lot of the stuff that we also do talk about is like obviously this the quantitative stuff about, you know, patient bed days or all of the safety incidents. But there's also value for us to be inspired as individuals to see that vision and be able to see things in a way that you haven't seen them before.

00:26:07:12 - 00:26:16:13

Elaine

So you can address a problem that's in a way that you would never have thought of so that we're looking for where we could be in 20 years. Know where we could be in six months.

00:26:16:13 - 00:26:17:06

Clare

Yeah, and I.

00:26:17:06 - 00:26:18:21

Elaine

Think that has integral value.

00:26:19:01 - 00:26:26:11

Clare

Yeah. Science is just not empirical, is it? It's empirical elements to it as so much of it is about creativity. Yeah.

00:26:26:14 - 00:26:27:18

Elaine

Yeah, so much.

00:26:27:21 - 00:26:49:21

Clare

Yeah, yeah. It's like foreigners, but real. I'm going to have to. These are many. I love that so much and so much evidence that moves on quite nicely to your review in JAMA that you're working on in the moment. And so could you tell us a little bit about what you're planning on doing? I appreciate you.

00:26:51:01 - 00:26:59:00

Elaine

Will love it because she knows that I've downloaded many papers, but I have not read that many of them yet say the review is on pediatrics.

00:26:59:10 - 00:27:01:19

Clare

So. So what is this say?

00:27:01:19 - 00:27:29:20

Elaine

See, death is an anaerobic bacteria. It's part of a steroid is lots of people. Most people will have different cluster species and the guts it's mostly But knowing the difference with sea death is it has the capacity to produce toxins. And these toxins then can cause large amounts of water to be released because of the fact that they're losing cells.

00:27:30:03 - 00:27:40:02

Elaine

So causes significant amounts of diarrhea, huge amounts of discomfort, and then it can cause things like gut perforation where effectively the bowel lining.

00:27:40:02 - 00:27:41:21

Clare

Splits and is it causes.

00:27:41:21 - 00:28:06:17

Elaine

Lots of the crises. And then you get all of these organisms in your gut flooding into your bloodstream can cause massive sepsis and death or result in basically people having large chunks of their intestine removed in order to get rid of that dead tissue, which means you end up with steamers. So people not having normal function in terms of their bowel.

00:28:06:17 - 00:28:31:16

Elaine

So it can have significant effects. And what often happens is that patients with it can go through this period of kind of relapsing, say they take some oral antibiotics because you want to target the gut, you don't want to target the rest, and then they stop the antibiotics and then a few weeks later, it recrudescence and they get symptoms again and it can become completely debilitating.

00:28:31:18 - 00:28:54:07

Elaine

So people can stop being able to just even get to the shops because of the fact that actually you just keep meeting. If you have such profuse diarrhea, you can't actually function on it. The pain is and discomfort is really real. So and this can go on for years. And so it becomes something that in adults is really, really important to get hold of that.

00:28:54:07 - 00:29:16:05

Elaine

Obviously, it does happen. It just happens much more very children and see if there's a lot of speculation. It doesn't have the same capacity to bind to gut mucosa receptors in kids as it does in adults, but no one quite knows why in terms of the toxin so clinical is generally considered to be less of a significant organism.

00:29:16:18 - 00:29:25:05

Clare

Right. Okay. So is it then not as considered as a higher risk in younger children if it's present? Yes.

00:29:25:05 - 00:29:48:21

Elaine

So in terms of there is mandatory reporting that we have to do for specific organisms in healthcare, CDF, you have to report if you get seeds of disease. Yeah that because the under two are considered to not really be at risk of disease, you don't report it. And so that means that a lot of people just don't test in the entities.

00:29:48:21 - 00:30:07:14

Elaine

And so it's really interesting to understand whether that's the right decision within a pediatric hospital because we're all kind of looking at children who are interacting with their involvement in a different way. We treat it slightly differently to the way that they would do in an adult world.

00:30:08:01 - 00:30:12:19

Clare

And interesting. So can you tell me a little bit about your review in JAMA?

00:30:13:02 - 00:30:39:06

Elaine

This is a really important thing for me, actually, for me personally, because see, different kids is a real challenge. Say, national really not to offend anybody, but it's pretty much ignored as something that is significant. And in fact, I had a cup of tea with one of my senior virologists just before I came here to talk about he comes from an adult world and he was like, well, why does it matter?

00:30:39:09 - 00:31:13:05

Elaine

Because normally in terms of your mandatory reporting and stuff, you don't report anything in the entities. So it's like, so why do we test and why does it matter? And it matters because spores survive in the environment and the next person he goes into that room may not be entity. And so actually, knowing that they're there and as a source of contamination enables me to change the way they are clean, it means that I am changing my risk for subsequent people because the next person he goes in there could be 16 and they're biologically adult at that point.

00:31:13:05 - 00:32:03:13

Elaine

And so they could have consequences. But also this bit for me that are really important. So if I have a small neonates, they're getting all of their gut colonization from the environment right? If they are going to be lifelong patients within healthcare because they come to me because they have a complex condition. So they're likely to be going in and out of health care for kind of however many years, but probably decades, if I'm establishing their microbiome with see death versus a standard Clostridium, and that's going to be their microbiome for the next God knows how many decades, then actually I'm already putting them at a greater risk than somebody who didn't have that and

00:32:03:13 - 00:32:29:07

Elaine

say, yes, see, this works differently in kids. Yes, they're much less likely to get gut perforations, but you get the odd ones over here that you need to treat. But also, are we doing the best we can do by going well, it doesn't matter because of any entity when it's something that could actually impact them outside of that window are much longer and people don't understand that much about it.

00:32:29:14 - 00:32:55:12

Elaine

Yeah, so because a lot of the people would have said, well, we don't reporting the entity. So that's the test in the entities. How much do we really know about C tab in the entities. Right. A lot of the data came from a study that was done in the community well over a decade ago. Well, that's not the

same patient population that we have now, and it's not the same patient population as we have in a hospital.

00:32:55:23 - 00:33:28:17

Elaine

So really understanding at which point you should test because taking unnecessary samples is not great, putting patients in isolation who don't need to be in isolation and as we said, can impact how they interact with the world, especially if they're going to be long stays, who will stay for up to a year, but also understanding when we should treat because I don't know if anyone's got kids but getting drugs into a child, it's not you know, it's not always easy.

00:33:28:17 - 00:33:29:01

Elaine

Right.

00:33:30:03 - 00:33:32:22

Clare

And it case like the head boy that tastes so.

00:33:32:22 - 00:33:36:15

Elaine

Good trying to persuade your kids to take like lots.

00:33:36:15 - 00:33:37:14

Clare

And lots of cases.

00:33:37:14 - 00:34:01:02

Elaine

And you know they have to be all because you're trying to and you target the cat and you know it's it's not an inconsiderable task for people. So I think getting a review where we're actually looking at data all in one piece to help inform some of that decision making is really, really important. But also raising awareness that infection in kids matters.

00:34:01:08 - 00:34:01:17

Clare

Yeah.

00:34:02:07 - 00:34:22:13

Elaine

And it may be different to what you get in adults. You know, being an adult, you're much more worried about kind of the perforations, the C diff and MRSA bacteremia. It's like infection looks different in kids. Yeah, but that doesn't mean it's not important in kids. So we got lots of patients who have see death and have other gastric viruses.

00:34:22:21 - 00:34:41:10

Elaine

Well, if they see things into play and mean that you're shedding virus and you've got continued got information, then that can lead to things like HD and all those kinds of things, then actually, is it as benign as people talk about? And the way to do that is to do this with you get the data and actually see what it looks like rather than just speculating?

00:34:42:12 - 00:35:01:20

Clare

Yes. Amazing. And so I think that brings me on to my next question. Really. Well, is your collating this review and it's being published in J. And then with us, what's the important then of publishing to facilitate this interdisciplinary research?

00:35:04:07 - 00:35:29:15

Elaine

So when stuff kicks off on Friday night at 5:30 and everyone's gone home having somewhere where you can look at everything in one place to make a decision is a godsend, frankly, to be honest, because when stuff kicks off, I have to survive on a Friday night and you have to make a decision. You're not going to have time to read 40 papers in order to inform that decision.

00:35:30:11 - 00:35:56:13

Elaine

And so having stuff like reviews where it takes you through both the evidence space and the thinking associated with that is just really, really valuable. And I think it cannot be underestimated how

important evidence based decision making is in health care. So if I make a decision as infection control doctor, people will always come back and go, So where's the evidence for that?

00:35:56:13 - 00:36:19:01

Elaine

Yeah. And so the two things are so closely linked and I think it's one of these things that probably academics don't necessarily realize how much we appreciate work like this getting published because of the fact that it really enables us to be able to have that or where's the evidence base for this decision conversation so that we can pitch things appropriately.

00:36:19:16 - 00:36:25:14

Clare

Really, since you're doing the legwork so that would be repeated anyway. Yeah. So doing it once and sending it to the right.

00:36:25:14 - 00:36:32:03

Elaine

People and the authorship on the review is also multidisciplinary, which really pleases Elise. So I think that's really important.

00:36:32:08 - 00:36:55:16

Clare

Yeah. Yeah. Amazing. So this is my favorite part. I really want to ask you lots of questions about you've done a lot of kind of public engagement within science. You have your blog, which is the galley microbiology, so that's amazing. So I suppose that could you tell me what you do with regards to engaging with the public? Give me a bit of an activity.

00:36:55:24 - 00:36:57:08

Elaine

Oh, so I.

00:36:57:09 - 00:36:57:18

Clare

Have.

00:36:58:17 - 00:37:33:03

Elaine

Kind of been doing public engagement work for probably about 18 of my 90 years. I've been at gosh and I suppose very much because I have never been the smartest person in the room, Right. I'm not the person that was your typical scientist. I did drama and psychology as well as science. Yeah, my A-levels. And I've always felt like it's very important to get out there and have those conversations because for a long time I didn't see myself as a scientist.

00:37:33:03 - 00:37:55:16

Elaine

Yeah, And so, yeah, I'd say I wanted to just kind of gather you actually. You don't have to be the person that listens to classical music. He only watches BBC for documentaries. Should be a scientist. I watched trashy TV and I sing to Taylor Swift and he offers pretty badly.

00:37:55:19 - 00:37:58:20

Clare

Is that what you like? The wicked? Yeah, yeah, yeah.

00:38:00:03 - 00:38:27:19

Elaine

I'd say I you know, I am. I'm a really normal person. And also I was someone who spent a lot of time as a child in health care. And, you know, I was on ventilators a couple of times. I and I hate hospitals. I absolutely hate them. And I hate doctors. And it's really bad that I'm saying this on the podcast, but they still I have a visceral terror.

00:38:27:21 - 00:38:54:18

Elaine

Yeah. When I'm on the other side of the table. And that's because no one ever spoke to me. I'm like a person I was only ever spoken to and probed and like my tongue grabbed and people stuck things down one day in a really disempowering way. And I never want anybody that I interact with to think that that is how science and health should work.

00:38:54:18 - 00:39:18:06

Elaine

Yeah, you know, everybody in front of us is a person. Everybody in front of us, US. The time we take to have a conversation and say, I ended up doing the piece kind of many moons ago when the SATs were first on it. Yeah. Making chocolate mousse. Ooh. Yeah. And, and there was a whole I always thought Lupita was live back then.

00:39:18:06 - 00:39:32:03

Elaine

I don't know if it still is. It's still going. I think it's on CBeebies. I Yeah. I mean I, I don't generally watch it, but. Yeah, but this is when it was on standard TV and they wanted to not wear a white coat.

00:39:32:13 - 00:39:32:24

Clare

Yeah.

00:39:33:06 - 00:39:54:00

Elaine

And I was like, if you are lifting the plates that I brought up and showing them to camera, you are wearing the white coat like we don't do white cake science. I'm like, Well, you go live in 20 minutes, so you need to put on a white cape or I'm taking my stuff back to the office and you don't get to have it because there's some perception that somehow White Kate's.

00:39:54:00 - 00:39:55:11

Clare

Sort of uniform is. And there are.

00:39:55:11 - 00:40:17:16

Elaine

Other and like that stops us being approachable. Well, it's actually it's the person that needs to show that I'm approachable and the like. And I had exactly the same conversation with the Science museum, which was really disappointing when they were putting on their AMA exhibit. They featured a doctor, a nurse and the patient. They would not feature a scientist because they said they don't do white coat science.

00:40:18:19 - 00:40:36:22

Clare

That's really unfortunate then that there's this because it's it's not. I do want to say it's completely science is fault. But sometimes as a like you said earlier about there's this barrier up there and the coat is the uniform and it's the US and then but it's unfortunately is kind of biting science on the bone now.

00:40:36:22 - 00:41:06:24

Elaine

Yeah. And I think we have to be able to get out and show a weak case for protection if you're doing something right. Yeah. It is not the symbol of me as a scientist. I'm not less of a scientist without it. But there are times when you should definitely wear it. And it's I think some of that is because we sit behind these walls and we don't get out there and we don't have these conversations that we're not necessarily also getting the most appropriate people in to this amazing profession.

00:41:07:02 - 00:41:07:14

Clare

Yeah.

00:41:07:21 - 00:41:34:08

Elaine

That's like if you think that you have to fit into this box to be able to become a scientist, then we will lose a whole load of people who would have been absolutely amazing because they won't see themselves as part of that. And so to be honest, the blog started during the pandemic because I was so tired of having my voice filtered.

00:41:34:17 - 00:42:00:23

Elaine

Yeah, So we what should be there, how people should be seen. And I, like I say, TV and radio and stuff, but you could never have that full level of conversation. And I don't know whether the blog achieves it or not, but the blog basically gives me the capacity to just be like, This is what happened this week in terms of my leadership challenges and my science challenges and go, Yeah, yeah, I'm a professor.

00:42:01:07 - 00:42:06:06

Elaine

I screwed up my experiment so badly, like it has had to be. So, I mean, the been this way, right?

00:42:06:11 - 00:42:07:16

Clare

Your past. Yeah.

00:42:07:21 - 00:42:29:00

Elaine

Yeah. And it's not all about success, but yeah, I have made every mistake in the book and I will find new ones to continue to make. And I say to my students all the time, there will be nothing that you can do that I have not done. Yeah, So if you make a mistake, you make a mistake. That's where you learn and you learn not to do it again.

00:42:29:10 - 00:42:50:21

Elaine

And if you have a bad conversation, like how many of us as leaders have bad conversations with people and actually people try to almost bluff it off. I was actually just about to go actually all the time, and I didn't do that very well. Can you do it again? Yeah, and just a unit and try and do it better.

00:42:51:06 - 00:43:17:01

Elaine

And so I think in both science and leadership and just in terms of life, I want to have a voice that shows that it's okay to be vulnerable and it's okay to fail and it's okay to have these things happen and it's what we learn from it that is better because otherwise I think we put people off. Yeah, actually aspiring to get to be where you are.

00:43:17:01 - 00:43:34:14

Elaine

And yeah, I think so much say and discussing the stuff that doesn't go well is not tolerated when she reach a certain level. I don't make less mistakes now than I did before. Right. Yeah. And I'm just to own it.

00:43:34:20 - 00:43:45:11

Clare

Yeah. And that's so important when it comes to making science accessible to people. So science is about making mistakes or hopefully, yes, please do try things it not work. Yeah. And that's how progress. Yeah.

00:43:45:18 - 00:44:10:09

Elaine

I mean, I tell my guys all the time like it's 80% failure. Yes. I mean it is it's in terms of grant applications, in terms of papers, in terms of getting stuff to work. But you'll never get the 20% that completely revolutionizes how you see the world if you don't do the 80. Yeah. So buy yourself a tape allowance pancake schedule and just accept that that's the way it is.

00:44:10:09 - 00:44:13:16

Elaine

And then at some point you'll get to where you need to be.

00:44:13:16 - 00:44:24:11

Clare

Yeah, Yeah. And that's also sums everything up really nicely because then sharing that failure then also means that other people can learn from your mistakes as well, because.

00:44:24:11 - 00:44:29:18

Elaine

Otherwise we just repeat the same stuff over and over again and there's just no need for it.

00:44:29:19 - 00:44:42:12

Clare

Yeah. Yeah. Really interesting. Well, I've actually that's all the time I have at the moment. This has been amazing and yeah, thank you so much. People want to follow you online.

00:44:42:12 - 00:44:51:08

Elaine

I'm @girlymicro and just about everything. I have a TikTok channel. I still haven't worked out how to use it. So don't follow me on that.

00:44:51:16 - 00:44:55:11

Elaine

Or at least follow and then tell me how to use it because I’m not hip or cool enough...

00:44:55:11 - 00:45:17:07

Clare

Well I’ll say that I do enough research on TikTok, just sitting there... so I’ll let you know if i have some tips... I hope you enjoyed this episode of Microbe Talk. If you want to join the conversation about cross-disciplinary research, please visit our website for more information on the Microbiology Society's Journal of Medical Microbiology and FIS.