[00:00:00] **Tamsin:** Hey Swathi.

[00:00:05] **Swathi:** Hey Tamsin.

[00:00:07] **Tamsin:** So I think we all know by now that the climate crisis is impacting pretty much every aspect of our lives. And that every part of our lives has an impact on the climate crisis. And that it's crucial for us to develop sustainable ways of doing things.

[00:00:20] **Swathi:** Like sustainable transport, sustainable agriculture, sustainable energy production.

[00:00:24] **Tamsin:** Exactly. But in this episode, we're going to be exploring another aspect of sustainability that I certainly hadn't considered before.

[00:00:33] **Dr Laura McCrimmon:** Hello, my name is Dr. Laura McCrimmon and I am an Aberdeen University medical graduate. I am a junior doctor currently training in public health. And I also continue to support the integration of teaching on sustainable health care into the medical curriculum at Aberdeen.

[00:00:51] **Swathi:** Sustainable health care? I don't think I'd realised that health care and medicine might be unsustainable.

[00:00:57] **Tamsin:** So Laura, tell me a little bit about what do you mean by sustainable medicine?

[00:01:01] **Dr Laura McCrimmon:** I think a good place to start with sustainable medicine is just about sustainability and the climate crisis in general. So the way I like to always think about it is that we're dealing with a triple planetary health crisis, which is an issue of climate change for one, of pollution for two, and for biodiversity loss for three. And so climate change is essentially mainly driven by greenhouse gas emissions. And it's a lot of the work that we do in moving towards net zero.

And you've got pollution, which obviously exists in terms of air pollution and water pollution, and then just plastic pollution, and all sorts of other kinds of pollution. And then you've got your biodiversity loss, which is the loss of all the amazing range of flowers and fauna that create all of the ecosystems that we share this planet with.

And really, these healthy ecosystems are what provide us with the temperate conditions, the clean water, the nutritious food, and the fresh air that we need as

the basic building blocks for our survival and for our good health. So when it comes to thinking about sustainability in healthcare, it really comes down to the relationship between how healthcare impacts that triple planetary crisis.

So how the healthcare system that we have influences greenhouse gas emissions, how it impacts biodiversity loss, how it impacts pollution and waste, but also the impact that that triple planetary crisis has on the health of us as people, but also the health of the ecosystems that we rely on to support us for our health.

[00:02:26] **Swathi:** Okay, so sustainable healthcare really goes in two directions. It's about the impact of our healthcare systems on the planet and the impact of the planet on our health?

[00:02:36] **Tamsin:** Put simply, yes, exactly. So how did you get into this?

[00:02:40] **Dr Laura McCrimmon:** It's been a very long time coming. I think where I first started really started to realize the interaction between not really maybe climate but the environment and health was when I was working as a healthcare support worker way before I did medicine, and I was working in Glasgow in a cardiovascular surgery ward, and I, really noticed that people who were living in unhealthy environments where they had a lot of exposure to unhealthy foods, they didn't have places to exercise, they were exposed to a lot of alcohol and drugs, and, and just general stress really, that these people were much more likely to A, come into hospital, um, but B, have really bad outcomes in the hospital. And when I saw that just at sort of 18, 19 years old, I thought, gosh, this medicine stuff doesn't really do the trick. Um, it's not really working. And I actually decided that I didn't want to do medicine at that point in time. And I went off and did lots of other things. And it wasn't until I eventually found myself doing a Master's in Exercise Medicine, where I learned a lot about the, influence of, you know, the cities that we live in and your ability to just feel safe crossing the road, your ability to access green space, and the influence of exercise on your cardiovascular health, that I thought, goodness, there really is a strong relationship between the environment and how people are living and how their health outcomes are. And that interest has just really got bigger and bigger from just the direct environment that we live in in terms of the little town or city and out into the global climate of the world that we're living in and how that impacts on health and what we can do to take care of people but also really take care of this beautiful planet that we have.

[00:04:26] **Tamsin:** So in terms of sustainable health care, what issues are we facing?

[00:04:31] **Dr Laura McCrimmon:** So I think sometimes it's good to break down the issues of sustainable healthcare into two parts. So first you've got what I spoke about, which is the impact of healthcare on climate. And then the second is the impact of climate on health.

So the healthcare system that we have globally emits five percent of global greenhouse gases. And if it were a country, it would be the fifth biggest emitter in the whole world. So the healthcare system that we currently have is contributing significantly to climate change. Obviously, anyone who's ever been in a hospital or been to a GP practice is probably also aware that we create a lot of waste. So we contribute very significantly to the pollution side of that triple planetary crisis that we spoke about. And not only that, but through the various manufacturing processes that we have to create all of the medicines and all of the resources that we need to provide healthcare, we also have a really significant impact on biodiversity as well.

So things that we don't even think about, like the way that drugs like ibuprofen are produced, they have a huge impact on the health of birds. And because we don't manage our waterways properly when we're making those drugs. Traces of those drugs can end up in waterways, which are really harmful to bird populations and can damage their kidneys as well.

So we really have to consider how we want future healthcare to look if we want to make sure that we can maintain our health, but also look after the needs of the planet.

[00:06:03] **Swathi:** I can't ever say that I've ever thought about how medicines are manufactured or what impact that might have on other species.

[00:06:10] **Dr Laura McCrimmon:** And then the second side of it is the impact of climate on health, and I think one of the things that we've forgotten about in this sort of busy-ness of life and the explosion of things that have just kept us very distracted is that we are completely reliant on the health of our planet to look after the health of ourselves. So we need ecosystems to keep our water clean, to keep our air clean, to provide the food that we eat that are just the basic fundamental building blocks of our health.

And so as our planet becomes sicker, we end up with changes in temperature which lead to significant weather events, which create a huge amount of physical harm. So whether that be drowning or burns from wildfires, the fact that people then become homeless and there's a significant psychological and mental health load that comes along with that, that can lead to, if you think of

people being moved out of their homes and ecosystems changing, there's That can change the kinds of bacteria and viruses that we're exposed to.

It can change the way that things like mosquitoes and ticks, how they behave in the kind of viruses and diseases that they carry, which put us at higher risk of getting all of these infectious diseases. And then all of this in itself creates a huge amount of conflict in terms of access to the resources that we need to be healthy and to prosper.

So we have to have a health care service which can look after our health needs now, but we have to have a health care service that can also look after some of the diseases that we're expecting in the future as well.

[00:07:43] **Tamsin:** With it being such a two fold situation, what are the health care services actually doing to tackle these problems?

[00:07:49] **Dr Laura McCrimmon:** So in terms of that first part that we maybe spoke about, which is climate change, the NHS has specific net zero targets that it's working towards. So we have a 2040 target and we have a 2045 target. So that 2040 target being net zero by 2040 is to bring down emissions that we control directly. So things like travel by and patients and visitors. And then other things that people don't maybe think contribute to the greenhouse gases from the healthcare system, but things like meter dose inhalers. So if you need to have a puffer for your asthma, other things like anaesthetic gases that we used to use that we're now moving away from and things like building energy and water waste.

So those are things that we can control directly, and we're aiming to meet net zero by 2040. And then we have net zero by 2045, and that's on emissions that we can influence, and normally the things that we can influence are our suppliers, so things that come under the supply chain, so that might be the supply chain of, um, medicines that we buy in for other medical and non medical equipment, um, that we use, so we try and influence our suppliers to be net zero in how they work.

In addition to those net zero targets that we have for 2040 and for 2045, we've also got the NHS Scotland Climate Emergency and Sustainability Strategy, which has a huge amount of recommendations that we wouldn't have time to go into today. But a lot of those focus on things like realistic medicine. So at the moment, sometimes we do a lot of interventions that we don't always need to do.

And that in and of itself is quite wasteful of time and resource. And so just practicing simple, realistic medicine makes a huge difference. Other things that we have are programmes like the Greener Theatres programme, There's a huge amount of waste in terms of the amount of energy that's used and the physical sort of pollution side of waste that comes out of theatres.

So that Greener Theatres programme is working alongside our anaesthetics and surgical colleagues to use their knowledge. And then we also have lots of programmes with regard to metered dose inhalers. So trying to A, just optimise the way that we manage asthma so that people's asthma is better managed so they use less inhalers, which creates less greenhouse gas emissions, but also to try and change the types of inhalers that we use so that instead of using inhalers that have quite a large amount of greenhouse gases within them, we have ones which use a powder and they don't have the sort of propellant that has that greenhouse gas effect.

So those are just some of the things that we are doing to try and influence and make the problem a bit better.

[00:10:29] **Tamsin:** Again, asthma inhalers, that's something I'd not even considered as having a climate impact.

[00:10:34] **Swathi:** And it makes sense that surgery generates a lot of waste. If you think about all the protective gear and equipment they need, a lot of that is single- use.

[00:10:44] **Tamsin:** So what can the experts and the patients do to help on both sides?

[00:10:50] **Dr Laura McCrimmon:** I think the very first step Is acknowledging that there is a problem. And I think that for a very long time, we have thought that worrying about the climate or worrying about the health of the planet was a problem for just hippies and tree huggers and people like that.

And we didn't think of it as a problem that actually everyone needs to be interested in, but it is, we all live on this planet. We all need to share it together and we all rely on it for our health and wellbeing and everything that we do has an impact on the environment, whether it's positive, negative, or neutral.

So I think really the first part of it is everyone coming on board, knowing why it's an issue, and feeling like they want to do something to help. Because sometimes that's the very first start is just going, I'd like to do something, even

if you don't know exactly what it is yet. And there's definitely a long way to go in terms of educating everyone within the healthcare system and educating all of the public.

So the first thing I think is asking the question and that's something that patients can do is they can go into their doctor and ask, "Is there something I can do with regard to my management of my condition that helps look after my health, but also helps to protect the health of the planet" and that could absolutely lead to a conversation about well Actually, we could change your inhaler or maybe we could consider doing some green prescribing rather than giving you this medication. So patients asking the question is a really great place to start. The thing that I am trying to do very much in public health and within my role as an educator within the University of Aberdeen in medicine is to recognize that there is so much diversity.

Just in a hospital in terms of the management of all the different kinds of patients across all the different kinds of specialties. So no one doctor is going to have the answer for everything, but what they can do is learn about the problem, look at that through the lens of the work that they do, and think what little thing might I be able to do in my little area of work that cumulatively, if everyone did that, would have a huge big difference. And it can be as simple as just changing a culture. You know, the number of doctors that go down at breaks and all of them get a cup of coffee and they all use their disposable coffee cups, sometimes just changing that. And now a junior doctor working within the NHS in Aberdeen, uh, did a project about changing that culture, and it had a huge impact because just that change of culture, if you're thinking about it, when you go and get your cup, you think about it when you're interacting with a patient, you think about it when you're putting stuff in the bin, and it makes a huge, big difference. So what we are trying to do is encourage doctors across the organisation to just have an awareness of the issue and to feel like they are empowered to start making little changes in collaboration with people who know more about climate and sustainability so that they can have a great impact.

It's being able to give people the education that they need. So that they know where to start, but also to understand that everyone has such a high level of expertise across the healthcare sector, that we need to really empower people to use that expertise and their knowledge that's specific to their clinical area to just start doing work to help reduce their emissions, to reduce their waste, and to just improve the general health and wellbeing of the people that they're looking after.

And so that happens in the health care service. And a lot of that is in terms of streamlining services to reduce impact. But most of health care happens outside of the GP clinic or outside of the hospital. That's where the vast majority of it happens. And that's one of the great things about if we start talking about the health co benefits of climate action and that means that if we start doing things to improve people's diets, so encouraging people to eat more plant based healthy diets, that has a profound impact on biodiversity loss and things like land use change, which has a really positive impact on the health of the planet, but it has a hugely positive impact on the health of that individual who's changed their diet and the culture that those people live in as well.

And that's going to reduce the impact on the healthcare service as well, because that means less people coming into hospital with cardiovascular diseases, gastrointestinal diseases. So that's a co-benefit of climate action. And then you have the same thing. If we start to create cities, which allow people to enjoy physical activity and improving the amount of green space that we have in cities. So that's hugely protective in terms of air pollution. It's also hugely protective in terms of it helps improve the amount of physical activity that people are doing, which again, reduces your risk of things like cardiovascular disease, different kinds of metabolic diseases like Type 2 Diabetes.

If physical activity were a medicine, we would describe it is one of the most incredible medicines of all time. It's going to help across every single system in your body, including your mental health. And so as much as we need to take action in the health care service, we also really need to reimagine how we live in the world.

So when we're able to have better https: otter. ai Physical activity in terms of people enjoying that for leisure. It also comes down to what do we want our roads to look like? Do we want to have roads that have bigger cycle lanes in them and more safe pedestrian zones so that people are better able to walk and cycle to work?

And instead of relying on cars and personalised vehicles to get around, can we encourage people to use public transport infrastructure like trains and buses. And can we influence governments to have more public transport infrastructure so that people can have better access to these things? And so not only does that have a great impact on physical activity, but that again is reducing your air pollution and all of the associated cardiovascular and respiratory diseases that are associated with air pollution.

So there's huge co-benefits to climate action.

[00:17:18] **Swathi:** It's amazing how connected everything becomes once you start thinking about healthcare in this broader sense. It's not just about going to the doctor when you're ill, but instead about living in a society that supports you to be healthy and supports the planet to be healthy as well.

[00:17:34] **Dr Laura McCrimmon:** The other thing is the term equity and climate justice, because one of the key points with climate action is that it is inequitable in that people who have contributed the least to climate change, and this is both at a local and global level. The people who have contributed the least to climate change and biodiversity loss and the creation of large amounts of pollution are generally the people who are affected by climate change the most.

And so that can happen in just a town, in that people who have the least access to cars, they're perhaps more deprived than other areas of the community, tend to be the most affected. exposed to greater levels of air pollution. They tend to be exposed to greater levels of noise and stress. And therefore they are paying the price of other people who are driving cars everywhere and creating a lot of air pollution.

Whereas generally the people who are more wealthy, they're able to live in quieter, more green neighbourhoods where they're not exposed to as much air pollution, and therefore they're not having the same kind of health effects, even though they are the people who are maybe contributing more significantly to the problem.

And it's the same at a global level. Us in the West, who have access to lots of personalised vehicles, who create lots of emissions from our very high tech health services, and industries generate a lot of air pollution and create a lot of waste. And then people living perhaps more in the global South are most likely to suffer from the issues of climate change and biodiversity loss and pollution in terms of these massive weather events that create huge amounts of devastation and fires and droughts and in floods and the increase in infectious diseases transmission.

So there's a huge element of, especially in countries like ours where we create a lot of emissions and we create a lot of waste and we influence a lot of biodiversity loss, particularly through the foods that we eat, that we have to take responsibility so that we can help look after our fellow humans and fellow animals and fellow flowers and fauna in different parts of the planet because we rely on them for our health too.

[00:19:50] **Swathi:** So, how does all of this actually impact students here at Aberdeen?

[00:19:55] **Dr Laura McCrimmon:** So, I think that students are coming into the university at a very exciting time. I have been thinking about these topics for a very long time, since I was 18, 19 years old, and that is longer ago than I care to think about sometimes. And I feel that we are now in a point of time where we're starting to see a lot more interest, a lot more funding, and a lot more action.

There's also a lot more understanding that young people are experts in a lot of these topics. where people who have been working in their particular small area for a long time aren't experts. And so there's a huge opportunity as a young person or a student coming in to influence at a much higher level, and we can see that in the medical school through the work that we've done with students who run the planetary health report card. They have been absolutely crucial in helping us audit our undergraduate curriculum to understand where there are areas that we can improve teaching of sustainable healthcare within the undergraduate curriculum.

And so as a student, you're not only just coming in to learn, but you're coming in to take action as well, which I think is a really exciting thing. The other reason I think it's a great time to be a student is because obviously my focus at the moment has largely been within the medical school, but as hopefully I've spoken to.

Medicine and healthcare is a tiny, tiny, tiny part of health. Health happens everywhere else. And so no matter what subject it is that you are studying at the university, I can absolutely guarantee that there is something that you can do within that subject that has a huge influence on the health of humans and the health of our planet.

And so, you know, my first degree that I did a long, long time ago was actually English Literature, and that gives you amazing skills in communication and writing and personal stories to be able to influence people's behaviour and understanding. If you're doing things like Chemistry, that's really important in terms of managing our water pollution, which has a huge impact on our health.

You know, you're doing Anthropology and understanding how people socialise, to help them move towards behaviours which support human and planetary health. There's no subject across the university that I can think of that does not

have an influence on human and planetary health. And the great thing is, nowadays, we're starting to work together.

It used to be that everyone thought of their little bit. So in medicine, everyone did their cardiology training, or their respiratory training, or their gastro training, or whatever it was, and they kind of stick down that little lane. But we're realising that that's not how the world works. We are incredibly complex, as the Helsinki Declaration has said in 2020, and as many Indigenous populations have said for thousands and thousands of years, nature is us and we are nature. We cannot divide it. And that needs to come across in how we work and how we do our research. And that's starting to happen. We are breaking down those walls between all specialties. And so if you want to work with someone else because you think that you can help influence what they do, or you want to learn more.

So particularly for me at the moment, I'm interested on the influence of economic systems on health. And you know, these very colonial systems that we used to have with economics and how we can start to change that to influence health. So you can just start sending people emails, trying to work across departments and have a much bigger impact than just working on your own in your own little specific area.

[00:23:21] **Tamsin:** So Aberdeen in our medical school, what are we actually doing to help with sustainable healthcare?

[00:23:28] **Dr Laura McCrimmon:** So we've got quite a few things going on at Aberdeen Medical School at the moment. For year one, we have our student-selected component. So if this is something you're really interested in, in your first year of medical school, you can decide that you're going to do a student selected component with a group of fellow students on sustainability in healthcare.

And you have a couple of weeks to do a project that you're interested in. The other thing that we have are medical humanities blocks, which happen a bit later on in your training. And again, you'll have the opportunity to do a more specialized project, particularly on sustainable healthcare. And then in your final year in year five in Inverness, we have a professional practice block, which is again, also got some information in it on sustainable healthcare.

And obviously it gets a little bit more complex as you go through the years. And as you become a little bit more familiar with. the realities of day to day clinical practice. But we're also in the process now of working to start integrating

sustainability teaching into everything that we do. So no matter what system you're learning about, you will get an element of teaching in every single one of your blocks, because sustainability isn't something that sits on its own, as we've said. It's something that permeates everything that we do, every decision that we make. I mean, obviously I'm biased, but. I think that Aberdeen is an excellent place to come right now. I actually think the size of the Medical School is just perfect for being able to get exposure to a huge hospital like ARI where you have all of the specialties on site, but to also be small enough that you really get to know people so that if there is something you're particularly interested in, you can find that person, latch onto them and start working alongside them.

And I know from working alongside people within the Medical School and developing the curriculum that students have been a real driving force in moving forward, and they have been key collaborators on the changes that we're making. We couldn't have done it without them. So I think it's a great place to come if, you know, you don't want to have to think of co -creating teaching and you just want to be able to experience good teaching.

That you can have, but also if you're someone who does really want to make an impact and you really do want to learn and you do want to collaborate with more senior colleagues, those opportunities are just so available to you in Aberdeen. So I'd highly recommend it as a place to come and study.

[00:25:52] **Tamsin:** Thank you so much to Dr. Laura McCrimmon for talking to us.

[00:25:55] **Swathi:** If you have been inspired to join the Boundary Breakers at Aberdeen University, you can come to one of our open days and see our historic campus. You can also download our digital prospectus at www. abdn.ac.uk

[00:26:11] **Tamsin:** And to hear more, check out the rest of the Beyond Boundaries podcast.

Each episode discusses the groundbreaking research of one of Aberdeen's academics.