

Transcript of 'The Net Zero Healthcare Mission'

Season 3, Episode 34, Transforming Tomorrow

[Theme music]

Paul: Hello and welcome to Transforming Tomorrow from the Pentland Centre for Sustainability in Business. I'm Paul Turner.

Jan: And I'm Professor Jan Bebbington.

[Theme music]

Procurement and waste might not be on your mind when you visit the doctor, but that's what we're talking about today.

How the NHS is aiming for net zero.

[Theme music]

Paul: When was the last time you were knocked out, Jan?

Jan: [laughs] Uh, I think I was about 15, 16 was the last time I was like...

Paul: ...fight in the playground?

Jan: Uh...

Paul: ...bigger girl decided to attack you with a stick?

Jan: [laughs] Why wasn't I ... No, no, no. That could be quite plausible given the school I went to.

No, I was doing long jump. I did a fantastic jump, but I completely snapped my ankle. And, uh, a couple of days later the medics decided that they would take an X-ray, uh, because I kept on saying, "I can't walk. There's nothing attaching one bit to the other."

And so that had to be, I had to go under anaesthetic to set that. Oh, and then I forgot, yes, I also broke my arm rollerblading, and I had to go under anaesthetic for that as well, I think.

Paul: The, the Jan of the teenage years is, turned out to be a very different person to the Jan of today.

Jan: Ah, the rollerblading accident, I think I was well in my 30s.

Paul: All right. Oh, well...

Jan: ...it's even worse, isn't it? [laughs]

Paul: If, if you'd have said the rollerblading accident was last week, then I would have been shocked...

Jan: [laughs] ...roller, rollerblading, grannies, hey? No, not me.

Paul: No. All right, okay. That's interesting.

Jan: Yeah, what about you, have you been under?

Paul: Um, only at the dentist. Back when they used to knock you out as a child, sometimes I had to have two teeth taken out and, uh, they knocked me out then.

And I remember the dentist was very surprised when I think he thought I was knocked out and I opened my eyes and looked at him [Jan laughs] and he said, "Oh no, he's still here." Uh, so obviously I needed a bit more anaesthesia before I got there...

Jan: ...terrifying...

Paul: ...yeah...

Jan: ...yeah, no, it's something that, because it's quite tough on your body, so I'm really, you know, relieved and touch wood, if there was any wood in this, uh, recording studio, that I don't have to do too much of it, but when it's needed, it's needed, isn't it?

Paul: Have you had a local anaesthetic at any point since?

Jan: Oh yeah.

Paul: Yeah, yeah. That's not quite the same thing, is it?

Jan: No.

Paul: No, no. You, you've got memories of what happens when you're under local anaesthetic. [Jan laughs] You don't when you get knocked out. I don't know which I prefer.

Did you consider at the time of going under general anaesthetic, the sustainability of you being done, having this done to you?

Jan: No. Although I have thought about it later on, particularly, um, if I make bad lifestyle choices and have to take drugs, I know that that's a, that has a carbon implication because drugs are, are made out of petrochemicals.

So, but I think, um, if you're going under because you've broken something, then I'm not sure I'm that worried about the carbon. I mean, I'd like somebody to sort it out but, if you like, it needs to be done. [laughs]

Paul: [laughs] They can sort it out as long as they sought me out first. That's...

Jan: I think that's a general...

Paul: ...you're more important than the planet. I *knew* this is how you felt for all these years, and now it's finally...

Jan: ...at a, at a moment of emergency, I would change my priorities on that basis.

Paul: Okay, okay. There's a reason I'm asking this. Uh, I'm sure you're aware. Um, I'm not just going into your medical history because the University's asked me to and they don't believe all the things you've told them previously.

We're gonna talk today about sustainability in healthcare systems.

Jan: Excellent.

Paul: Because I think there is more to it than just, um, whether you make a decision when you're about to be knocked out of whether you get the, the green gas or the greenhouse gas, so to speak.

Jan: [laughs] Oh, very clever. Well done.

Paul: I know. I'm writing that one down. I suggest our guests write it down too. It might be useful for you in the future. No, no, shake heads, never mind.

Um, yeah, because I think that healthcare isn't necessarily an area, it's probably almost certain, like you say, you're not considering the environmental implications of the healthcare you're receiving as you're receiving it because you need the care.

Jan: Yeah.

Paul: Yeah. So it's gonna be interesting to find out how healthcare systems are getting more sustainable.

Jan: Absolutely.

Paul: And we're joined today by two guests who will be able to help us with that. One of them is a consultant and professor in anaesthesia and perioperative medicine in the NHS, and here at Lancaster University Medical School. That's Dr. Cliff Shelton. Hello, Cliff.

Cliff: Hello.

Paul: And the other is the Senior Lead on Net Zero Research and Innovation in the Greener NHS Programme for NHS England, and that's Fanny Burrows.

Hello, Fanny.

Fanny: Hi.

Paul: Do you think Greener NHS is just painting the walls?

Jan: No.

Paul: No. Well...

Jan: ...and I, I suggest that you spend a lot of time listening in the next 40 minutes or so. You'll be fine.

Paul: Are you, are you worried that I've gone slightly doolally at this, uh...

Jan: ...yeah...

Paul: ...at this time? Well, we'll see. We'll see what happens.

Uh, welcome to both of you. Thanks very much for joining us. To start with, can you tell us a little bit about your roles and how you became involved in sustainability initiatives?

And we'll start with you, Fanny. Telling us a little bit about, I guess, what it is that you do within the NHS.

Fanny: Um, yes, absolutely, and it's a pleasure to be, to be with you today.

So I, um, as you said, I work for the national Greener NHS Programme, uh, and at NHS England. Um, and this programme is really here to set, uh, to deliver on the ambition we've got to become, uh, a net zero NHS, as is set out in, in a report that everybody can access called, uh, Delivering A Net Zero NHS, uh, report. Uh, and that was published in 2020.

Um, lots of work happened before, we didn't start in 2020, I just wanted to acknowledge that. Um, but this, this, uh, report and as a result the programme

is really here to, um, sort of follow on, on that ambition and, and, um, delivering those, uh, targets, uh, set out in, in the report and by the programme. Um, so that's just a, a brief introduction.

My role in the programme is to lead on research innovation and also, uh, lead on, on bits around supply chain. Um, and I guess it's, from a research and innovation perspective, is very much looking at opportunities for research and innovative interventions to help us meet those net zero targets.

Um, sometimes we know what we've got to do, so if you think of the things that everybody think about around installing solar panel and sort of moving away from gas, reducing energy consumption, so we kind of know that and we know what we've got to do. And we can come back to that a little bit later on.

But research innovation is very much helping us setting those things that we might not know that are a little bit like the grey area of, of the programme to some extent. Things that we don't know, um, things where we need more evidence, so then we can establish the change in practice, uh, to reduce emissions.

Um, and that could be from funding, uh, innovation, stimulating the market for sort of green products or green technologies and, and ways of doing things, or actually, indeed, funding research to support, um, the, the ambition we've got as a Greener NHS Programme.

Um, so that's, that's a, a little bit in a nutshell. And I also work on, on trying to support the decarbonisation of the supply chain. So that's something that we, we often refer to as Scope Three emissions. Um, and how we can work with our suppliers, whether at an organisation level or specific product level, um, that, uh, supply to the NHS, uh, to help us on our decarbonisation journey.

Paul: And what about you, Cliff? What is your role and how have you come to be involved in sustainability initiatives?

Well, um, I mean, to start, start at the start, I think my, um, interest in this was actually about this kind of discordance that I observed between what I tried to do in my personal life, where I tried to travel by public transport and recycle where possible and, and try not to waste things.

And then as you enter a career in healthcare, you look around and you see that there are things that go unused and an incredible amount of waste that is generated. And, and all of that is for good reason. Like you said at the start,

Jan, we're desperately keen to make sure that people have good quality healthcare and that patients are placed at the centre of it.

But when you take a step back from it, you can't help but think, I wonder if there's a better way of doing this and whether we could maintain that high quality healthcare whilst being, well, applying the same principles that we all try, try to apply in our personal lives.

And then as I've gone on through my career and developed interests in, um, research and become a, um, uh, an anaesthetist, I've found opportunities to kind of do what Fanny's described.

So where there's obvious things that needs to change, I'm really interested in implementing those in our Department of Anaesthesia at Wythenshawe Hospital, where I work. So I've been responsible for making some changes where there's already lots of evidence to say what we should do, but I'm also really passionate about trying to fill those evidence gaps and help the health service to make good decisions, um, to make, uh, greener and ideally cheaper, but not forgetting that it should be those patients at the centre of it.

I, I really wouldn't want an outcome of this agenda to be that we're making compromises to the quality or the equity of the healthcare that we deliver. And I, and I think we can achieve all of that. We just need to be, um, careful and smart about the way we do it.

Jan: And so about five years ago or so, um, the NHS committed to reaching net zero emissions, um, and I don't know who I'm sending these questions to, but I'm sure that you will agree between you.

For the NHS, what does net zero mean?

Fanny: Yeah. So, um, by, by net zero, I mean, it, it's difficult to think of a world that emits no gas, um, and no sort of green. So I'm gonna start by saying we, we're referring here as greenhouse gas emissions, but, you know, in the field we talk about, uh, carbon dioxide equivalent, we talk about carbon, but what we really mean is, is greenhouse gas emissions. And that's a number of different gases. Um, that, you know, obviously in, in anaesthesia we've got a lot of different gases that are really bad for the environment, um, and we've got carbon dioxide. So it's, it's just that kind of, just wanted to reframe that we're talking about green gas, uh, emissions here.

And, um, achieving net zero is kind of achieving a balance between what we emit and what we can actually capture or, uh, get rid of. Um, so we are not really able to sort of not produce any gas at all, um, that there's, uh, a certainty, uh, but it's just seeing how we can achieve that balance.

Paul: So Cliff, is it possible then, Fanny said there about the anaesthetics, the various gases, the fact that there's issues there, is it possible to anaesthetise someone in a more carbon neutral way?

Cliff: So, I mean, I think this, so the, the net bit, I guess, is the, is the, is the tricky bit, isn't it? So, there is, uh, an inevitability of there being some emissions, because you have to use some stuff, for example, pharmaceutical products that you can't, um, recycle or recapture.

Once most drugs have gone into a patient, that patient will metabolise them, break them down, and they'll end up in, you know, broken down in the sewage somewhere, and we can't get those back. So there's an inevitability of emissions. And so the, the, I guess the kind of net bit is around things like offsetting and, and capture, and so on.

But on a, a practical level in the healthcare setting, what we're trying to do is deliver the best care that we can, but whilst minimising waste, number one, so the amount of stuff that gets procured in the NHS and ends up going straight into the bin, um, or into other waste streams without even touching a patient is a big problem. And that's a real low-hanging piece of fruit to, uh, eliminate.

And then the other bit is, well, what strategies could you use, where options exist, to maintain the quality of clinical care, but doing that in a way that is as least environmentally harmful as possible?

So to use an anaesthetic example, Fanny mentioned some of the gases we use, we used to use a gas called nitrous oxide very commonly as part of, um, anaesthetic practice. It's got some desirable qualities, it's a painkiller, and it, um, also, if you, if you give enough of it, it will help somebody to go to sleep and stay asleep.

And when we had, uh, slower acting inhaled anaesthetic agents, those qualities made it useful because they helped those agents come on quicker and go off quicker. And in the meantime, we've invented other ways of getting someone to sleep and keeping them asleep that actually perform better. So for example, are less likely to make you feel sick after your operation, and that's

something that really matters to patients. And as we've brought those in more and more, the use case for nitrous oxide has tended to disappear.

And so opportunities like that, where you can swap from one way of delivering something which involves emitting a greenhouse gas at point of care, transition to something that doesn't involve doing that *and* is better for the patient, those are really good opportunities to focus on.

Paul: I've got a feeling that I was given nitrous oxide, when I talked about my trip to the dentist, uh, would that have been right, about 30, 40 years ago?

Cliff: I, I think that would have been a mainstay of pain relief in the dental chair, but also in anaesthesia about that, um, you know, that, that, those number of years ago, yeah, very likely.

Paul: So it turns out that I wasn't very carbon neutral at all when I had my teeth taken out.

Jan: [laughs] Well, well, um, we ought to watch out for terms though because net zero and carbon neutral are...

Paul: [sighs loudly] ...ah...

Jan: ...but I'm going to put them on the show notes. We're not going to talk about it now...

Paul: ...no, no...

Jan: ...promise, promise. [laughs]

Cliff: I think there's another point, actually, that relates to what you said that, this might be a good point to bring it up, which is, I think assigning responsibility to these emissions is actually really important.

And, um, I would say that you, as a patient, shouldn't worry about your carbon impact at all when you're a recipient of healthcare because you, you're not in a position to be able to dictate which options you have, um, given to you in most healthcare settings.

For example, you don't know what technologies that hospital has or the expertise of the person that's treating you. So I, I think actually if there's responsibility borne for the carbon impact of care, or the environmental impact of care more broadly, it should be borne by the system and it should be borne by the practitioner.

But I'm really clear that I don't think we should be wagging the finger at patients for this. I think they've probably got enough going on.

Jan: Except for perhaps that, that sense, because I've had the advantage of seeing the NHS, um, carbon equivalent footprint a few years ago. And one of the things that really struck me is that, um, they split it out by types of, um, care and like the emergency care, absolutely, I'm with you 100%.

But in terms of, um, drug use, et cetera, so prevented, a preventative health care approach will mean that there'll be less carbon emitted if people don't have to take, um, pharmaceuticals. And that's maybe a shared responsibility between a system and a patient as well.

Paul: I, I think that's a fair comment, um, and I think we could debate all day about exactly where the dial is on the sharing of that responsibility.

Most people don't decide that they want to end up on being dependent on pharmaceuticals. Most people would love to be in a state of health, and there's all these social factors and economic factors that influence how people end up where they are.

Um, but I think that's another example of where everything pulls in the same direction, preventative care or health promotion tend to result in cheaper systems, greener systems, and, and happier people. And I think we can all get behind that as a concept.

Jan: Oh, I'm with you.

Paul: I want to go back to something you said, Cliff, about waste. And when it comes to this, I'll, I'll direct this to you Fanny. When it comes to waste, are we talking about logistics in terms of better managing how many of things you order, or are we talking about the potential that maybe the wrong things have sometimes been ordered and need to order different things, and therefore the things that were wrong get thrown away? Or is it a combination of these things? Is it a combination of other things as well?

Fanny: Um, it's a real combination. So there's definitely something around stock management, um, and we know of, uh, medicine sitting on a shelf, and then they arrive at the expire date, and then they get thrown away. So there's definitely something around logistic, waste management.

Um, sometimes is, um, you know, reducing, you know, we've, we've got this approach where we've got to reduce first before we think about, you know,

recycling or, uh, moving, moving on. So I had a case where, um, a team in, in medicines and pharma was looking at, you know, if it's approaching the expiry date, how can we sort of move that on somewhere else in a system, that could be to another hospital, another team, um, and really sort of having that flow where the stock is, is appropriately managed.

Um, but there's also waste around another example is, um, often in surgery they would use procedure pack and those are ready made with, uh, all the equipment that is needed for surgery, um, with drapes as well that are used for surgery on the patient. And, and often we hear that not everything in that particular procedure pack is being used.

Um, and that can be sometimes, um, because there's variations with, uh, clinicians using different things, um, wanting different kind of, uh, uh, equipment. So, um, and that, that variation ultimately leads to waste.

So, um, there's a lot of different ways dealing with waste. There's also how waste is segregated, and then we're talking clinically here, for example, how we appropriately segregate the waste that is then ultimately processed in a certain way.

Um, and there's, there's huge, um, huge amount of work going on there to try to reduce emissions. So, um, yeah, there's, there's a lot, uh, into it from when we talk about waste.

Jan: And I'm really interested, um, from both of your perspectives, it's about the healthcare system as a whole. So do you have an insight as to why the, um, NHS decided that this was an ambition and this is something that they wanted to, you know, actually tackle? Because it's pretty, it's, it's not usual. It seems really quite special that the NHS is doing it.

Cliff: I, I think it is special and, uh, I think the NHS was the first healthcare system to commit to, um, not just carbon net zero, but a really concerted system-wide effort to dig into its, um, carbon footprint and its environmental impacts more broadly.

And I think that's something we should be proud of. Um, I'm sure Fanny will have a more authoritative answer than I will about what actually motivated the, um, NHS to make that, um, that decision.

But, uh, I think one of the things that is on my mind thinking about this is the interrelationships between, health, and therefore healthcare, and the changing state of the environment and the ecosphere in general.

So, for example, where I live in Manchester, we've got lots of built up areas and things like road traffic contribute to air pollution locally, and we see that in the hospital where I work, manifested as respiratory illness.

And climate change is a bit more complicated and can seem a bit more remote. The people globally who bear the brunt of that are not the people who are the constituents of the NHS in the most part. Although we are now starting to see, for example, diseases knocking on the door of the United Kingdom that we didn't used to have, um, years ago, and that's because the warming climate is changing the viability of, for example, vectors that might transmit those diseases.

So there is a, a complicated relationship between health and carbon. And because healthcare is a major industry, I think that I'm right in saying the NHS is the biggest employer in the UK, it's often said that about one in 20 vehicles on the UK's roads are on some sort of NHS business, that's consistent with the number of people who work for the NHS.

If we're bearing the impacts of climate change and environmental harms because of their impacts on healthcare, we also need to be making our contribution to, um, uh, to minimising our contribution to that problem, if you see what I mean.

Paul: So Cliff said there, Fanny, that the NHS led the way, the first healthcare system to commit to net zero. Are there others that have followed, is it now more usual to have this ambition?

Fanny: Yes, I mean, um, you know, we, we, obviously, we're really proud of being the first healthcare system in the world to make, to make those, those ambitions and those targets. Um, especially because, if you think about it, the government targets is 2050, the NHS targets is 2045. So, um, and, and that's really ambitious.

Um, yes, there's lots of work going on, um, across the world, and, um, there's actually, uh, a group of, uh, healthcare systems that group together to share learnings and to share, you know, work that they're doing, and how they're approaching it. And that's, um, through, uh, a group called the ATACH, um,

group, sort of bringing healthcare systems, uh, in the world, across the world to, um, to talk about that, um, specific subject.

Um, and we see things, uh, you know, sort of growing from, from what the NHS has done with, um, different approaches, different level of ambition, different ways of, sort of, tackling it.

But there's definitely a movement across the world, um, to, to tackle healthcare emission, which, um, I don't know if it's been said, but, you know, it's, it's represented around 4 to 5% of, of total greenhouse gas emissions, and in the UK alone is 40% of public sector emissions.

So it's, it really is a huge problem. So yes, this is, um, this is definitely something happening across the world with, uh, huge amount of collaborations across different healthcare systems, uh, and there's also, um, strong links with the World Health Organisation on sort of facilitating those discussions and, and, um, sort of being involved with, with the ATACH, uh, group on, on those collaborations and how other healthcare system, are making those, uh, those, those targets and ambition.

Jan: And so, in the conversation so far, we've had some examples that you've pulled out for us that have really brought the, the points to life. Are there other examples that you'd like to offer?

I'm thinking maybe, you know, um, buildings, energy, transport, some of those big categories that some of our listeners who are in any kind of business would also be worrying about some of those categories as well.

So I, I suppose it's an invitation for inspiring stories.

[Everyone laughs]

Cliff: I mean, I think, um, I guess you can split this into a, a few different categories. And one way of looking at, uh, NHS decarbonisation is a kind of very broad category based on the idea that the NHS uses lots of, lots of energy. There's lots of buildings that do lots of stuff, and there's been a concerted effort to transition from direct use of fossil fuels, so for example, gas boilers, through to, um, a transition to electricity, and also local generation of electricity.

So for example, the hospital where I work is now festooned with solar panels all over the roof, um, and that means, that our energy supply is cheaper, but it's also lower carbon.

And a big chunk of the decarbonisation process, progress that has been made to date in the National Health Service is through a combination of the grid, as a whole, decarbonising, so that's a national bit of work. Um, our strategic transition from, fossil fuel use to electricity use, and then, um, some of the great work that our estates and facilities colleagues have been doing to generate electricity onsite and there's a, onsite, and there's a resilience within that as well.

And that's complemented by an effort inside the buildings to make the energy that we do procure go further. So again, an example from the Trust where I work in Manchester is that we've almost completely transitioned to LED lighting and we've gone in, uh, to things like sensor-based lighting, um, switching.

And when you think about that scaled across an organisation the size of Manchester University NHS Foundation Trust, the results can be really impressive.

Fanny: And, and it probably goes further if I, if I may add, actually, you know, you, you're thinking about how we're moving towards more digital systems. Um, I mean, those have a carbon footprint on their own, but actually they really allow us to streamline care, deliver care, closer to home. So there's a huge amount in, in the digital space.

Um, as Cliff said, there's lots done clinically, but I think there's also a really interesting piece around education and awareness, at least at the Greener NHS programme, we're really involved with, you know, supporting the 1.2, 1.3 million staff, uh, in the NHS to, to actually understand what, what is, uh, a greener NHS, what are those net zero targets?

How you, how can you get involved, you know, where on your particular specialty and topic area, where can you get access to guidance and support and network, et cetera, to, to actually be involved? Because it's not just us that are really keen on, on sustainability and I've got the, the luck of, of having that part of our role, it's actually everybody being involved, uh, within the NHS, and actually sometimes outside, uh, it goes beyond, um, to, to do, um, to do what they can.

Paul: Now, key things within the NHS, things that always come up, patient safety, patient health, patient satisfaction, et cetera, things such as this. Is

there a balance to be had between achieving net zero and maintaining patient safety, patient health, or does one not necessarily affect the other?

Cliff: I mean, I, I think there's a, it's a relationship that's worth looking at in detail, actually, because if you're going to, target that high priority reduction, that first step in reduction of resource use, if you push it too far, there is a possibility that you'll start to affect the quality or the safety of care.

But that is not a given by any means. And all I'm really saying there is that we need to look before we leap. In general, the people who work within healthcare are extremely focused on patient safety and on, on quality. And a lot of the learning that we've done is to ask the question, well, what is it that we can reduce in a way that is, for example, unnoticed by patients or that would actually make patients' healthcare better?

So I'll, I'll give you two examples if, if you don't mind. The, the reduce without even being noticed thing is, is, I'm afraid, back to anaesthetic gases. I mentioned that drug nitrous oxide before, and there's a really important story associated with this, which is that, as I explained earlier on, we've moved away largely from using that in the operating theatre, but its supply chain, how it gets to the operating theatre is actually really complicated. And involves, for example, our colleagues from the pharmacy department who might be responsible for ordering the medicine, our, our colleagues from the estates department who might be responsible for the pipelines that take the medicine from one part of the hospital to another part, and then our gas supply companies as well.

And unless all of those people know that we've stopped using the drug, or mostly stopped using the drug, there's a risk that they might continue to supply it at the volumes that they always have. And indeed, this is what has been happening across the National Health Service.

Our colleague, Alifia Chakera, from Scotland was the first person to notice this, and when you look and compare consumption of nitrous oxide to procurement, you very often find that around 90% of the drug that is bought never even makes it anywhere near a patient.

And so we've been able to mitigate that problem across, you know, a, a large proportion of NHS trusts now, including my own. And all of that work happens behind the scenes. Nobody's changing the anaesthetic that's provided one little bit. We're just trying to align procurement of the drug with the, um,

delivery of the drug, and we're saving some money and we're saving a big chunk of greenhouse gas emissions in the process.

The other example, which will be very brief, is just around thinking about how patients experience healthcare and how some interventions or healthcare experiences which don't add any value are actually really problematic for patients.

So I've recently finished some research looking at healthcare service delivery, not to do with sustainability, but one of the things that it, um, emphasised for me is recurrent hospital appointments, particularly where everybody seems to be gathering the same information or collecting the same thing, uh, not only irritating for patients, but can actually be quite harmful to their mental wellbeing, particularly when they've got busy lives with lots of other stuff going on.

And if you can find those opportunities for reduction that actually make patients' care more efficient and their experience of it better, this is a win-win for, for everybody.

Fanny: Yeah, I mean, in my view, there's no compromise on, on patient safety and patient experience, quite the opposite. Um, and that's something that is really, really important when, you know, we, we establish, um, care redesign to some, to some, uh, extent where we think, you know, how can we deliver this care in a more sustainable way?

Actually, we have to think about it from a sustainability, environmental sustainability, but we also have to evaluate the financial impact and the clinical outcomes, as well as productivity and efficiency. And these are coming together. A decision is not gonna be made on the carbon impact.

Um, so patient safety is always at the core of any decisions that are being made. And actually, we've got lots of case studies. Cliff has got a few that he's mentioned, and, and we have a, a lot as well, uh, that demonstrate that.

I guess the other thing that is really important to, to also notice that we're doing a lot of work around adapting to climate change. You know, it is happening, there is evidence, clear scientific evidence that demonstrate this. And climate change is actually impacting the way we deliver care. Uh, you know, hospitals that have got to cancel appointments, heat waves, flood, all of that has got an impact.

Um, and we can also think about it from a more resilient perspective. So going back to having your own renewable energy provides you that kind of security of having your own generated electricity and that can be stored as well. So there's a resilience that brings additional benefits to, to the way we deliver care and to the patients, ultimately.

Jan: And I remember when I was doing some work in this kind of area, that some of the public health advice, so if there's a heat wave, fill up your bath with cold water, sit in it, but don't pull the plug. [Laughs] 'Cause from a, you know, a water system view, then if you like, you, you, you're not, you know, double dipping to use... oh, I'm sorry, that was most dreadful...

Paul: ...double dipping in a bath...

Jan: ...I was quite proud of that. You are, you are double dipping...

Paul: ...yes, you *are* double dipping...

Jan: ...which is the right thing to do. So I guess it comes back to the systems view, isn't it, of seeing all of these elements linking together and then quality of your local environment, if it's got trees to cool things down so you don't get heat stress, et cetera. Well, no, it's really mad.

But there was a phrase that I, I read in, in doing the, the research for this, net zero surgeries. And it was just so fascinating and so like, I wonder what that is? I feel sure will find out...

Paul: ...Well, it's surgery powered by a windmill, [Jan laughs] where it's done in a forest, where there's lots of trees all around you, and you operate using wooden, um, tools...

Jan: ...and badgers... [laughs]

Paul: ...badgers? Yes!

Jan: Attending on the side.

Paul: Yeah, stuffed badgers, uh, they're, they're decorating the wall. That's what it is. I don't think we need to ask the...

Jan: ...okay. Well, next, next question...

Paul: ...yes, next. Oh, do you want to let Cliff have his, uh...

Jan: ...I'll let you have a say...

Cliff: [laughs] ...I mean I, I can't comment on all the details, but I'm confident that badgers weren't involved in this particular case. [Jan laughs]

Um, I mean, this was, uh, something that was done a couple of years ago. It, it hit the press. It's something you can go and Google and have a, have a look at. And it was done by our colleagues in Birmingham. There's a surgeon called Aneel Bhangu who was part of the team that led that.

And, and I think, um, you know, what, what that particular scenario tells us about is, is kind of about the aggregation of marginal gains. So, you know, the anaesthesia was done in the greenest way, we know how to do, uh, a general anaesthetic. They used, I think, reusable, um, drapes, for example. I, I think there was energy generation was incorporated within that, um, as well.

And I, if I remember correctly, they finished the day by planting a tree in an attempt to offset the remaining, um, you know, uh, emissions that they couldn't design out through reduction. And...

Paul: ...in the patient...?

Cliff: ...and, and...

Paul: ...they planted a tree in the patient?

Cliff: I believe it was planted outdoors, but... [laughs]

Paul: ...okay, that makes far more sense.

Cliff: But I guess, I guess there's a point there about, you know, um, offsetting, and it will be a while before that tree sucks in enough carbon dioxide to truly offset that, um, that operation.

And, and whilst it, it certainly put all of those strategies on the map, um, I think, you know, when scrutinised, it also tells us about the relative value of those different things. And that the prioritisation of reduction of resource use, um, you know, is, is absolutely the right thing to do.

But it was a really big operation, done successfully in a way that maintained really high-quality patient care. And actually the bit that was really exciting for, for me is how they went through every little piece of the process and thought, well, how can we do this in the greenest possible way whilst maintaining that high quality care?

Paul: It sounds almost like it was an extreme kind of thing to show how you can do absolutely everything that way, but demonstrating at the same time, well, that's not to say you can't take three or four of these steps if you don't want to take all of them.

Cliff: I think that's an act of implementation, isn't it? You know, looking for things that are amenable to being deployed in your own environment, you know, quickly and without traumatising all of your colleagues, first of all, and then maybe down the road you can think about dealing with some of those lower yield or higher effort things. Um, and, and I think that's a good way of approaching it.

Jan: Now, what's exciting about this is a couple weeks ago, we had a colleague on the, the podcast talking about planetary health. That linked together, you know, the health of the, of, of individuals, the health of, um, the planet itself and how these things interact together.

And I suppose that's beyond decarbonising a healthcare system, but which is a much broader landscape on which some of these, these issues might, um, be played out.

I mean, is that something that's within your collective thinking for next stages of what to do with, you know, responding to not just carbon, but also biodiversity loss, et cetera, in a, in a broader sense?

Fanny: Yeah. I, I would say absolutely. Um, obviously we've got, uh, net zero NHS targets that we really measure on, on how we, uh, reduce emissions. Um, but all these other impact, environmental impact are really key to, to how we deliver care, you know, the, the water and resources that we use.

Um, in the context of pharmaceutical is the [inaudible] of ecotoxicity. Um, so there's lots of things we think about and sometimes they come case by case, but we're really aware of, of it. Um, and all of them have got different ways of kind of measuring. So it's kind of that matrix. How do we actually measure change and, and how do we baseline it as perhaps where the challenge is?

Um, but it's certainly really important. And in, uh, most of the Trust, there's, uh, a lot of work being done around improving green space that improves, uh, recovery, mental health, uh, and increasing biodiversity and natural habitats.

So there's huge amount of examples of, of this kind of work being done, um, uh, across, uh, healthcare delivery.

Cliff: I do think the planetary angle is, is tricky though. I mean, what, one of the things that we're dealing with is we have a system which is administered, sort of, locally or regionally funded nationally, but, you know, is a participant in a global, unfolding global crisis.

And it's one of the things that actually makes me interested in this, that we've got this kind of global equity problem that, you know, in the high-income nations, we emit lots of, you know, carbon, we're responsible for shipping things all over the world.

You know, we, in some cases, move our waste to other territories for its disposal. And we're essentially transporting some of the problematic aspects of our lifestyles to people who are less able to bear it.

And I think that's desperately unfair, and I guess that's one of the problems that planetary health seeks to deal with, but the systems that we inhabit don't work on that, uh, level, in the main.

But one of the things that I think we are trying very hard to do, and, and Fanny's already mentioned it, is collaborate with colleagues from around the world, for example, through the WHO, or through the ATACH scheme that's already been, um, discussed.

I've, I've just had the pleasure of, of connecting with colleagues from the World Federation of Societies of Anaesthesiologists. And, you know, although there is a sort of ethical dilemma about whether it was okay for me to get on an aeroplane to go see them in, in Morocco, which I thoroughly enjoyed, one of the things that I took from that was the ability to connect with them, learn about what, how they're feeling all of this, learn about the solutions they're developing in their own nations, and actually figure out what we can all be doing together.

So whilst there is compromises in that approach, I think it's really important that we try and tackle this as a global community because it is a global problem.

Jan: Yeah.

Paul: How do you feel, Fanny, that the net zero mission for the NHS fits within the overall mission to support the nation's health? Is it a natural fit within that bigger mission?

Fanny: Well I, I think yes, but I'm probably a little bit biased. Yes, certainly. Um, and I think that's growing more and more, that kind of seeing the fit and people understanding that it fits. Because a more sustainable healthcare is actually, you know, more sustainable financially. Um, you know, it, it can be cash releasing when we think of those big energy, uh, optimisation schemes and that money can be then reinvested in a Trust or used elsewhere for patient safety.

Um, so to me, it goes hand in hand. And there's also this kind of mission of trying to reduce emissions and, and I think we've touched on that a little bit before, but there's huge opportunities around rethinking about having a, a more preventative approach to care. And that reduces emissions and is better for the patients, prevent, you know, earlier diagnostic, earlier treatment, more efficient treatment, is better for the patient.

There's opportunities around better management of disease, uh, for patients at home or through, you know, um, uh, digital technology. There's this growth around community care and more, uh, neighbourhood care that, you know, fits around people's life and, uh, people can sort of manage their health better if it's closer to home, reducing emissions and, and, and improving, uh, experience.

So, uh, you know, we, we're very much sort of going hand in hand towards that, that, um, that sort of mission of, of delivering better health. And in fact, if we look at the 10-year health plan, the sort of relationship with reducing emission is, is there, is acknowledged and actually says that it, it comes together.

So it's acknowledged in, in many different ways and, uh, and there's huge opportunities, I think, to continue that mission whilst having a lower impact on the environment.

Paul: And, Cliff, you're on the operating room floor, as it were. What's the level of awareness and enthusiasm among medical professional staff who are there, towards this net zero and sustainability agenda?

Cliff: I, I think we've got a really high level of enthusiasm, and I think it's for the reason that Fanny's outlined. I think we've done a good job in the National Health Service, and actually in the UK more broadly, to link together, um, the sustainability agenda with other co-benefits. And it's widely recognised that,

you know, care that is better financial value and greener and better for the patients often tends to pull in the same direction.

I don't think there'd be any enthusiasm for it if it wasn't that way around. And I think that's good and proper. First and foremost, our job is to help people, and we don't want to stop doing that. The other thing that I think is maybe a bit of a commentary on how tough it can be to work in the National Health Service at the moment, is it can be quite hard to get things done in the NHS.

And one of the things that I've experienced, and I think a lot of my colleagues who work in this field of experience as well, is just how much of a breath of fresh air it is to be able to design and implement something and make positive progress in an organisation that can feel very unwieldy sometimes.

And I think when you're operating in a, um, I mean, the, the whole public sector's tough, the university sector's tough as well, as, as well. And, and having those opportunities to, to make positive change and be acknowledged for it is really professionally powerful. And I wouldn't go quite as far, as far as to say it's the thing that keeps us going to work.

You know, there's lots of other, you know, beneficial things about working in healthcare, but I think my colleagues and I have taken a lot from it.

Jan: Just one thing before we wrap up then. I, I was involved in a really interesting study at University of St. Andrews about whether or not people at the University would do, you know, energy saving things.

And they came, it was quite interesting because a lot of them expressed the, the sentiment that you did at the outside, Cliff, is that what they're doing at home, they want to be able to do at work.

And what we sort of uncovered is that people would be, you know, pro-environmental at home, but if they went to work and thought their workplace weren't serious about being pro-environmental, they just didn't bother...

Cliff: ...mm-hmm...

Jan: ...whereas if they thought their workplace was serious about it, they too would become serious about it. So it seems there's like quite a lot of social psychology in here as well, and the opportunity to pull together in the same direction, to be inspired by work, to be inspired at home and for these two things to be cognate with each other and not, sort of, at odds.

Cliff: Yeah, I, I completely agree. And I, I think that's, you know, um, the, the contribution that the part of the organisation that Fanny works for, which has kind of set that tone, which has come to, um, you know, come to us in the, in the acute organisations, I think is tremendously valuable.

And I, and I think coming back to the kind of international angle, I think this is an example that maybe other systems could follow, to help to think about how to implement things in their own settings.

Jan: Mmmm.

Paul: So just to wrap up then, you've mentioned the goal is for the NHS to be net zero by 2045. Fanny, do you think that that goal is achievable and are you well on target to be meeting that?

Fanny: Uh, I, I really hope so. I mean, you know, there's, there's this low hanging fruit to start with, and the more complex areas that we've got to tackle, and those are really challenging.

Um, but in a face of complexity, we, we've got even more burning desire to make it work. Um, we are on target. So, so within the 2045, there's actually a kind of subcategory of becoming net zero by 2040 for the emissions that we can, um, control. And those are around, you know, energy, the gas that we use on site, um, and, you know, anaesthetic gases, but also the, the sort of fossil fuel.

So, um, and we've got interim target in 2032, and we know that there's good trajectory that demonstrate that, you know, we, we are on good track to, to, uh, reduce those emissions. In fact, we've got 68% reduction against the 1990 baseline, um, that was published in the latest report in September 2025, in a progress report.

Um, so yeah, huge amount of work. And we're not letting aside those more complex, you know, supply chain, um, and evidence-based question that where the research innovation can support us. So, um, we're really trying to map that, that out to, to help.

Um, and then, you know, there's policy and, and government policy that will help us along the way, um, as, as we go. So I'm remaining really, really hopeful. We've got a lot of work to do. Uh, we've got to keep going and, and stay strong, um, but yes, I think we are on track.

Paul: Well, Fanny, Cliff, thank you so much for joining us today and giving us this really fascinating insight into the NHS and sustainability and net zero. Thank you.

Cliff: It's been a pleasure.

Fanny: Thank you. Great to be here.

[Theme music]

Paul: There was some really interesting stats there, Jan, about how the NHS working towards this 2045 net zero target has already achieved so much...

Jan: ...yeah...

Paul: ...like 68% reduction on the baseline from 1990. But then also some of the stats about the scale of the issue, where 40% of public sector emissions in the UK are related to the healthcare system. And one in 20 vehicles on the road at any time is somehow related to healthcare.

Jan: Yeah. And I suppose we encounter the healthcare service on a small scale when we go and see our GP or if we're maybe, you know, in, in a, a hospital, um, you know, heaven forbid, but we might be there from time to time.

But what you don't see is that replicated right across the country in different places, different scales, et cetera, and just realise what it adds up to. And so I think that's then one of the, the other things that came to me from, from how they, both Fanny and, um, Cliff talked about it is that it's both the whole system and customised.

So you've got both of these things going on at the same time and that seems really important as well.

Paul: Yeah. And the, you're talking about personal experience and your personal experience and how that's replicated, but then there's so much that patients or non-employees of the NHS will never come across...

Jan: ...yeah...

Paul: ...the stuff such as all of that waste that is there, such as 90% of the nitrous oxide wasn't being used because no one had taken account of the fact that it had been replaced in operations with other materials, and they're managing the supply chain aspect of it.

I know we've got lots of people who work here in Lancaster who work on supply chains and who've worked with the NHS on various issues around drug supply chains, 'cause drug shortages is a big thing...

Jan: ...yeah...

Paul: ...and you're talking about waste from drugs, but the fact that we can't get them in the first place sometimes. And there's so much for them to consider that it's easy to understand how it is making such an impact in terms of nationally on the size of the operation if they're able to cut it down.

Jan: And I suppose it's the same for us in our own lives. So I often think that, you know, if you're going to have low carbon electricity, lots of stuff happens behind the switch.

So people who are producing electricity or, you know, conveying it in different places or, or the energy mix, it all happens there, but I still have some control because I'm turning a switch on and off and, and when I'm doing it...

Paul: ...mm-hmm...

Jan: ...so it's that really sort of, you know, complex interplay about, about where the control rests. And I think that was exemplified really well here too.

Paul: Yeah. You have control at that level. And then if you're lucky enough to have a little bit more money, you've got control on the fact you might have solar panels or you might get a heat pump built into your house and change the way our house is heated and powered.

And yet, in the NHS, what Cliff said was really good, they're making those decisions and they're doing it...

Jan: ...yeah...

Paul: ...you shouldn't be worrying about it when you're going in to have your operation and say, "Can I just stop you? [Jan laughs] Can I check what the cabin impacts of uh, this procedure to remove my gangrenous leg will be?"

Jan: Yes. And I, I suppose, uh, the other thing, and, and of course you anticipate it, but it's always reassuring to hear it, is that people's health and wellbeing are just at the centre of the considerations...

Paul: ...mm-hmm...

Jan: ...you know, and, and that, that's not a, that's a non-negotiable point around which other things are assembled.

So you, you know it's the case, but it's always so reassuring and so uplifting to hear it from public, these public servants as well.

Paul: Well, next week then, shall we have a look at issues at a regional level, and see how that maybe shapes the way sustainability looks...?

Jan: ...oh, yes please...

Paul: ...we've got a, at an institutional level with the NHS, let's look at it at a regional level, take it in with entrepreneurship, regional development, and we'll bring in Professor Ellie Hamilton from Lancaster University...

Jan: ...oh, I'm there for that...

Paul: ...who knows so much about it.

Jan: I'm there for that.

Paul: Well, until then, thank you very much for listening. It's goodbye from me, Paul Turner.

Jan: And goodbye from me, Jan Bebbington.

[Theme music]