



NATIONAL ACADEMY OF MEDICINE

NAM Embedding Environmental Sustainability into Your Daily Practice Webinar Unperfected Transcript

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00:00:45.690 --> 00:01:13.619

Jonathan Slutzman: Good day, everybody. Thank you. To everyone who's joining us today. I'm Dr. Jonathan Slutzman. I am the director for the Center for Environment and health and medical director for environmental sustainability at the Massachusetts General Hospital in Boston. It's my privilege to welcome you. Thank you to everyone who's joining us by attending this webinar, you're showing an interest or a commitment to improving the care we deliver to our patients and our communities.

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00:01:13.790 --> 00:01:30.110

Jonathan Slutzman: You probably know that the Us. Healthcare system is responsible for around 8 and a half percent of all Us. Greenhouse gas emissions plus similar fractions of other health harming environmental impacts, such as smog formation and criteria air pollution.

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00:01:30.850 --> 00:01:36.090

Jonathan Slutzman: It's our responsibility as an industry with a mission to protect and improve human health.

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00:01:36.170 --> 00:01:39.189

Jonathan Slutzman: to minimize our negative environmental impacts

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00:01:39.220 --> 00:01:42.439

Jonathan Slutzman: and healthcare pollution starts at the bedside

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00:01:42.610 --> 00:01:48.140

Jonathan Slutzman: with clinical care. Not surprisingly, the single greatest driver of healthcare pollution.

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00:01:48.640 --> 00:01:57.940

Jonathan Slutzman: We cannot reduce our negative environmental impacts without considering the hows, whys, where's and what's of the care we provide to our patients.

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00:01:58.330 --> 00:02:16.179

Jonathan Slutzman: So with that key background, it's my pleasure to welcome you to the 1st webinar in the key actions for the hospital and healthcare workforce pathway brought to you by the healthcare delivery and policy, financing and metrics, working groups of the National Academy of Medicine's Action collaborative on decarbonizing the Us. Health sector.

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00:02:16.310 --> 00:02:21.820

Jonathan Slutzman: Today, we're talking about embedding environmental sustainability into your daily practice.

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00:02:22.020 --> 00:02:24.830

Jonathan Slutzman: I'm joined by 3 amazing leaders in the field.

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00:02:24.960 --> 00:02:33.930

Jonathan Slutzman: Dr. Noe. Copley Woods is Assistant Dean of Sustainability, and Assistant Professor of Obstetrics and Gynecology at the University of Pittsburgh School of Medicine.

12

00:02:34.160 --> 00:02:40.869

Jonathan Slutzman: Dr. Wendy Levinson is Professor of Medicine at the University of Toronto, and Chairperson of the choosing wisely Canada Program.

13

00:02:41.830 --> 00:02:55.249

Jonathan Slutzman: and Dr. Brian Cheesborough is Assistant Professor of Anesthesiology and Perioperative Medicine at the Oregon Health and Science University and Portland Va. Medical Center, as well as a medical advisor for the Providence Environmental Stewardship program

14

00:02:55.620 --> 00:03:00.149

Jonathan Slutzman: without further ado. I'd like to welcome Noe to get us started.

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00:03:04.580 --> 00:03:06.219

Noe Copley-Woods: Hello! From Pittsburgh.

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00:03:06.340 --> 00:03:23.469

Noe Copley-Woods: Thank you to the National Academy of Medicine and to Dr. Schletzman for giving me the opportunity to participate today, and also thank you to everyone on this call for the work you do to improve our planet and therefore our patients home.

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00:03:23.650 --> 00:03:37.650

Noe Copley-Woods: I have no disclosures to report, but a salient point that I want to make in the next 5 min is that I do, in fact, get a portion of my income from the work, the academic work I do for the planet.

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00:03:37.680 --> 00:03:39.740



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Noe Copley-Woods: And that

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00:03:40.260 --> 00:03:59.060

Noe Copley-Woods: structure is what enables me to be effective. And so if we think about ways that we want to incorporate sustainability into our everyday practice. My chief and 1st point is that, having a structure that enables you to do that is what will make you most effective at

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00:03:59.300 --> 00:04:04.180

Noe Copley-Woods: pushing the envelope of sustainability at your institution next slide.

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00:04:05.390 --> 00:04:18.570

Noe Copley-Woods: So everyone on this call is at a different point in their sustainability journey, and sometimes it does feel like, as my fiddle teacher once said, like you're running towards the horizon. But

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00:04:18.970 --> 00:04:46.920

Noe Copley-Woods: part of the reason this path is nonlinear and non-established is because it hasn't been traversed before, and so it ends up feeling sometimes lonely, sometimes disorganized, and the purpose of the National Academy decarbonization plan is to make this path a best practice to make it scientifically based, and to make it less tortuous for those of us on this pathway, no matter where we may be on it.

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00:04:46.920 --> 00:05:07.660

Noe Copley-Woods: And I think about our medical training. So most people on this call have medical training or some similar type of advanced training, and these are linear, pre-established paths. I knew before I became an obgyn, exactly what steps I would have to take. There was accreditation. There were specific requirements, there was recertification.

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00:05:07.670 --> 00:05:08.620

Noe Copley-Woods: And

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00:05:08.700 --> 00:05:36.189

Noe Copley-Woods: and I would argue, and I'm sure you agree, being on this call, that the care we take for the planet should be commensurate with the care we should take for our patients. So when we think about where we are on this journey as an obgyn, I compare it. We're not in the embryo stage. I do think we're about midway through the pregnancy. We're reaching viability, but we have not birthed this baby. We have a long way to go to make this path more established, and that's what this journey is about next slide.



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00:05:37.816 --> 00:05:47.409

Noe Copley-Woods: So so sometimes it helps to look at journeys that have been taken already to help us make this more productive.

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00:05:47.420 --> 00:06:15.749

Noe Copley-Woods: So the National Health Service in England is the largest single payer system in the world. They're the largest employer in all of Europe, and for the last 20 years they've been trying to. They've been successfully decarbonizing. And on this slide I just want you to see the general categories. So you, as a clinician at the bedside. Sometimes these things feel like they're not your lane, but in the next 3 and a half minutes. I hope to convince you they are so. This 1st category is the green.

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00:06:15.950 --> 00:06:39.220

Noe Copley-Woods: and that's travel. So that's you, your staff and your patients traveling to the hospital. The biggest section is this blue chunk here, which is your supply chain, and that feels like almost invisible to a physician. Right? As I put out my hand, and I say I need a uterine manipulator and a magic person hands it to me, and I feel like I don't have that much to do with the supply chain.

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00:06:39.380 --> 00:07:04.400

Noe Copley-Woods: But I really do right. I have the choice of what equipment to ask for. I have the choice to ask for reusable equipment instead of disposable equipment. I have the choice to not do the hysterectomy, and instead to treat the patient with a mirena iud, or some other medical treatment that keeps her out of the operating room. So the supply chain is our biggest chunk there, and if we look at that, the biggest chunk in there is pharmaceuticals and medical equipment.

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00:07:04.720 --> 00:07:29.260

Noe Copley-Woods: The yellow box is irrelevant for our health care in the Us. And then that red care is what they call the red section is what they call delivery of care. We're going to hear about anesthetic gases, because this is a carbon footprint of their entire healthcare system and anesthetic gases which are who knows what percentage of the care we give, but vanishingly small but very important Dr. Teesborough. You can still see it on our entire footprint.

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00:07:29.260 --> 00:07:47.559

Noe Copley-Woods: So that's a notable area for intervention. And then the rest of these are considered. So building energy is considered sort of direct delivery of care, I think, as a doctor, what do I have to do with



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the building energy? Well, I have to do with? So the operating room turns over air 20 times an hour. That requires a great deal of energy.

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00:07:47.560 --> 00:07:55.510

Noe Copley-Woods: What if I had a system where it turns off when my, when my, when my patient isn't in the operating room that would save building energy next slide.

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00:07:55.860 --> 00:08:23.100

Noe Copley-Woods: So when you look at this as A in the Uk, so they did this over 20 years, and what they found is over that period of time they were able to reduce their greenhouse gas emissions about 64%. My chat is blocking my thing. Let me move it 64% per admission. But during that same period of time the absolute reduction was only 26%, and that is because during those last 20 years in the Uk the provision of care doubled.

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00:08:23.100 --> 00:08:48.289

Noe Copley-Woods: the patient population got older, their population grew, and they got sicker, and despite that they were able to do some decarbonization. But it points to the fact that the absolute size of the healthcare pie has to be reduced as well. So if we have a patient population that is unhealthy, that is requiring a lot of acute care that's going to be environmentally unsustainable. So we need to think about

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00:08:48.620 --> 00:08:56.229

Noe Copley-Woods: steering the ship towards primary prevention and promoting value-based care which we're going to hear about. Also, during this webinar next slide, please.

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00:08:58.290 --> 00:09:09.289

Noe Copley-Woods: This is an editorial. I will just draw your attention to the very last sentence here which says, we need to do a lot, and this will mean changing clinical practice. What does that mean next slide?

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00:09:11.090 --> 00:09:36.040

Noe Copley-Woods: So this is the carbon footprint. Where does changing clinical practice fit into this? So if we look at the biggest chunk there we see pharmaceuticals. Well, we're the ones who write the prescriptions right? So you can use your Emr to change your formulary for lower carbon prescriptions, medical equipment, I can decide to use reusable equipment. As I already mentioned, I could decide to do my surgery

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00:09:36.040 --> 00:09:45.250



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Noe Copley-Woods: an outpatient center rather than an inpatient, or which we know uses less trash and less energy. I could decide to

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00:09:45.250 --> 00:10:07.529

Noe Copley-Woods: to advance preventative care for my patient right? That's going to reduce my medical equipment. Use there under food another big chunk. I can promote plant-based eating, both at the hospital and for my patients. That's going to reduce the carbon footprint of my care, and so on and so forth. Patient travel there. I can use telehealth. I can maximize telehealth next slide.

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00:10:08.940 --> 00:10:33.549

Noe Copley-Woods: So here's just another way of looking at sort of all those little ways that a clinician can notch away at their footprint. But what this doesn't show. You are 2 or 3 very important things. So one is we're going to hear about very shortly. Low value, care or care where the harm outweighs the benefit. This is thought to be almost 30%. So right off the bat, you would take 30% off of this if we really

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00:10:33.550 --> 00:10:52.619

Noe Copley-Woods: focused on absolutely the highest value care. Preventative medicine is also going to just shrink this entire structure. And then we know that when we do procedures about 20% of the supplies we don't even use. So those are ways that we would overlook if we were just looking at this carbon footprint next slide.

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00:10:54.220 --> 00:11:21.520

Noe Copley-Woods: So we can. So we have a lot of power at our fingertips. This is my chief weapon, so to speak, in the healthcare sustainability, because this is my main instrument that I use, and I as a clinician, I can evaluate what routine orders I'm using for my inpatients. Maximize telehealth, as I said, formulary changes changes to the Emr. We are the ones who drive the amount of health that's being healthcare that's being delivered next slide.

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00:11:24.347 --> 00:11:39.059

Noe Copley-Woods: In order to do that most effectively. If you are on that journey all by yourself, like that runner I 1st showed you. It's very hard to be effective. And and one thing I've learned over the over the decade that I've been doing this is, it is a lot more fun

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00:11:39.060 --> 00:12:03.819

Noe Copley-Woods: with more people, and it's a lot more effective. And so you may be farther on your journey. You may already have an entire team and an entire sustainability center enacted at your institution. This is what we did at ours. We now have a center for sustainability. You need



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engineers, you need program directors, those things need to be baked in. And we need to take it very seriously. So if you're feeling lost or not sure where to start.

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00:12:03.820 --> 00:12:17.449

Noe Copley-Woods: and you're at the beginning of this journey, I would encourage you to consider creating a structural change that embeds sustainability into your institution, so that there are employees who have reserved time for this as sort of your 1st task. Next slide.

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00:12:18.930 --> 00:12:44.030

Noe Copley-Woods: One thing to keep in mind when you do this, when you look at how people are motivated to change their behavior regarding the planet, there are various interventions, education, feedback, commitment, etc. The thing with the most effect. Size in this study was social comparison, and we have found this to be highly effective at our institution showing leaders and leadership what other institutions are doing

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00:12:44.140 --> 00:13:08.150

Noe Copley-Woods: is highly effective way of getting your plan for a structural system in place to get engagement from leaders next slide. And finally, you want your sustainability journey to look like this. You want everybody running in the same direction with a purpose and a similar goal that requires agreeing on your commitments.

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00:13:08.150 --> 00:13:18.359

Noe Copley-Woods: Having shared metrics. And in order to do that, you need to have a structure in place where you have the time and the space to talk to one another. So with that I will turn it over to Dr. Anderson. Thank you.

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00:13:22.260 --> 00:13:27.920

Wendy Levinson: Okay. Hi, everybody. I'm Wendy. I think I'm up next. So

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00:13:27.970 --> 00:13:55.019

Wendy Levinson: there was a perfect background. Noe to set this up because you already alluded to decreasing low value care and I run choosing wisely Canada. And I'll tell you right at the beginning. It's now choosing wisely is in about 35 countries in the world. So it's spreading. And what I'm going to tell you is sort of in many countries. I'll use Canada as my example. So next slide.

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00:13:56.250 --> 00:14:05.489



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Wendy Levinson: When we started choosing wisely 2 years later than the Us. In 2014, we worked with Canadian information services

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00:14:05.490 --> 00:14:29.950

Wendy Levinson: to look at unnecessary care, and we had 8 indicators in this report, which we published in 2017, that showed up to 30% of tests and treatments were unnecessary. That's like imaging for low back pain when there are no red flags present. That's all the antibiotics we prescribe when there's a viral infection

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00:14:29.950 --> 00:14:38.270

Wendy Levinson: antipsychotics in long-term care, etc. So we had 8 indicators that showed to up 30% that same number that Noe mentioned.

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00:14:38.270 --> 00:15:03.219

Wendy Levinson: and that created a bit of a burning platform for us in Canada because no one was talking about low value care at the time. Parenthetically, we did repeat the report 5 years later, and you can see that 8 of 12 indicators. So we increased. The number of indicators had had seen some improvement, not just because of choosing wisely, but efforts across the country.

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00:15:03.570 --> 00:15:14.009

Wendy Levinson: But I want to underscore that if 30% of tests and treatments we do do not add value or can even harm our patients.

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00:15:14.590 --> 00:15:19.090

Wendy Levinson: and if it's true that everything we do has a carbon footprint.

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00:15:19.340 --> 00:15:30.159

Wendy Levinson: then really just stopping unnecessary or decreasing. Unnecessary care gets us a long way towards the journey of also decreasing harm to our environment.

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00:15:30.210 --> 00:15:37.839

Wendy Levinson: So the next slide we use this slogan now in Canada less, but better.

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00:15:38.640 --> 00:16:01.409

Wendy Levinson: because if we do less, that is low value, it's better for patients. We avoid all the complications that you all know about of unintended consequences, of tests that lead to downstream other tests and complications. It's better for our healthcare system, because no country



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in the world is going to be able to afford the aging population with chronic disease.

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00:16:01.740 --> 00:16:12.840

Wendy Levinson: and it's better for the planet, and we often use the language co-benefit because I want to underscore something that already came up in a question.

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00:16:13.050 --> 00:16:18.380

Wendy Levinson: which is that I believe that we don't talk to patients about what's best for the planet

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00:16:18.400 --> 00:16:27.159

Wendy Levinson: at the beginning, that always our conversation, and when we shape choosing wisely in the Us. And Canada. It was patient first.st

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00:16:27.180 --> 00:16:41.409

Wendy Levinson: What is best for this patient, because we are not in the business of rationing at the bedside, but really we are in the business of caring for the individual in front of us. But there can be a co-benefit on the environment.

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00:16:41.510 --> 00:16:42.950

Wendy Levinson: So the next slide.

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00:16:43.830 --> 00:17:04.820

Wendy Levinson: So we did something that recently, because we have many, many societies involved in choosing wisely, like about 90 of national societies, just like in the States. We have pharmacy, dentistry, nursing nurse practitioners. It's many, many medical specialties. We went out to the societies we had relationships with.

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00:17:04.819 --> 00:17:14.590

Wendy Levinson: and with a pretty quick turnaround we asked them to create a choosing, wisely type recommendation they always start with, you know. Don't do blah blah

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00:17:15.025 --> 00:17:28.120

Wendy Levinson: based on the environment. And actually, we we hoped we'd get 10 recommendations, but in a very short order we got 50 and or more. I'm still growing and underscore this because I think

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00:17:28.140 --> 00:17:50.100



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Wendy Levinson: people care health care. Professionals are starting to care. We know the benefit, the problems for our patients, but we don't quite know what to do about it. We're sort of in a learning phase like, okay, this is a huge problem. What can I do? So we tapped into the societies and they created recommendations. I'll show you an example on next slide.

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00:17:51.945 --> 00:17:54.680

Wendy Levinson: I think. Just click here. So

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00:17:54.940 --> 00:18:23.810

Wendy Levinson: here's 1 that came from the Canadian Critical Care Society. Don't use gloves when hand hygiene is sufficient. So again, we learned from the Uk. As we heard, they're ahead of us in Icu. They use a approximately an average of 100 pairs of gloves per patient per day, because we walk into the room, put on a pair of gloves, press a button, and walk out, and so there's a big campaign in the Uk called gloves off.

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00:18:24.120 --> 00:18:27.840

Wendy Levinson: and we are emulating that in Canada. Next click.

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00:18:28.180 --> 00:18:52.389

Wendy Levinson: here's another one. Don't continue an intravenous medication when clinically appropriate to step down to oral therapy. This came from a Canadian Pharmacy Association, because, of course, you're still using a medication with the supply chain. But think of all the stuff we do in terms of hanging Ivs plastic plastic waste, etc. So that's another example. Click again.

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00:18:52.550 --> 00:18:56.009

Wendy Levinson: And of course we have the example that

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00:18:56.030 --> 00:19:10.190

Wendy Levinson: you heard about before a little bit, which is that the Mdi meter dose inhalers are highly toxic to the environment because of the propellants, and when we can use dry powdered inhalers. They have a lower carbon footprint.

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00:19:10.650 --> 00:19:26.710

Wendy Levinson: This is one that, of course, relates very much to working with patients who might be switching from a meter dose inhaler to a dry powder inhaler. I would add to something that came up earlier in the conversation between the anesthetic gases

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00:19:26.710 --> 00:19:41.800

Wendy Levinson: and the Mdi inhalers in the Uk. These 2 items account for 5% of the carbon footprint from the healthcare sector. So they are very significant, these 2 particular medications

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00:19:42.470 --> 00:19:43.630

Wendy Levinson: next slide.

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00:19:44.070 --> 00:20:00.019

Wendy Levinson: So what I'm saying in the last one is that we have, you know, over 50 and growing. And you can take a look at our website. So all of these specialties are adding recommendations. So I'm just going to walk you through. How I think about the actions we could take. So the 1st is

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00:20:00.020 --> 00:20:16.220

Wendy Levinson: what we've talked about. Consider whether tests or treatments are really necessary. Do I need to take that patient to the operating room? Can I treat the patient in a simpler way, without tests or treatments. And that's the 30% that we have talked about. Next click

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00:20:17.850 --> 00:20:28.300

Wendy Levinson: substitute treatments. That's the des Fluorine that you're going to hear about, and the Mdi inhalers and other things that have a lower carbon footprint next click.

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00:20:29.070 --> 00:20:35.680

Wendy Levinson: implement quality improvement. You know, this can. Often we think this has to be big, but

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00:20:36.326 --> 00:20:37.579

Wendy Levinson: think about

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00:20:37.690 --> 00:20:47.270

Wendy Levinson: just recycling at home and waste. So in the operating room, for example, the operating room accounts for a 3rd of the waste in a hospital.

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00:20:47.390 --> 00:20:50.259

Wendy Levinson: and we can look at using

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00:20:50.270 --> 00:21:04.160



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Wendy Levinson: linens instead of paper materials, paper gowns, and decrease waste, and even though you have to autoclave them. There's good research that shows that these are still a benefit to the carbon footprint.

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00:21:04.560 --> 00:21:17.219

Wendy Levinson: Next slide change routine practices. This is the easiest way to make change is try to bake it in. If we collectively say, well, in our unit, we're gonna

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00:21:17.490 --> 00:21:40.679

Wendy Levinson: offer patients virtual visits whenever we have normal lab tests. And or we're going to not order routine laboratory testing when it's not necessary. And we're going to change our order sets because anything that's already automatic and doesn't have to be thought about by every clinician is going to be more effective

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00:21:41.230 --> 00:21:42.865

Wendy Levinson: and last click.

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00:21:43.790 --> 00:21:54.540

Wendy Levinson: not all of us feel like we're advocates. I would say that I've never seen myself as an advocate in the healthcare system that feels a bit too big for me. But some of us

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00:21:54.540 --> 00:22:23.289

Wendy Levinson: can feel empowered by this to step forward and help our healthcare systems make significant changes, either locally or in our region. An example is that in one of our provinces in Canada, Newfoundland, they decided to eliminate Desflurine that you're about to hear about. And so they reached out to every anesthesiologist that ran a hospital unit and stopped it being purchased.

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00:22:23.440 --> 00:22:26.289

Wendy Levinson: And that has happened in Scotland and other countries.

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00:22:26.560 --> 00:22:37.059

Wendy Levinson: So I'm suggesting these are types of actions that we can all take. And if you look at our website, you can see, you know, specific recommendations in different specialties.

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00:22:37.080 --> 00:22:42.920

Wendy Levinson: So I will just make one more comment, and then I'll turn it to Brian, and that is that



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00:22:42.950 --> 00:23:04.680

Wendy Levinson: this is resonating around the world. I think we, as clinicians, are worried about the healthcare consequences of climate change. But we haven't felt empowered to make changes ourselves because it feels like too big a problem. How do I influence it? So I think that we're on that journey towards making change, so I will stop and hand it to Brian.

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00:23:07.520 --> 00:23:23.389

Brian Chesebro: Thank you so much, and those are great lead-ins to discussion now of a topic that's a bit more specific in terms of opportunity to engage clinicians to mitigate a specific source of healthcare. Related emissions

96

00:23:23.610 --> 00:23:25.219

Brian Chesebro: next slide, please.

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00:23:26.700 --> 00:23:35.580

Brian Chesebro: So Doctors Levinson and Copley Woods mentioned low value care the importance of preventative care in terms of

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00:23:35.670 --> 00:23:43.990

Brian Chesebro: actions that clinicians can take to not only improve the care we provide to our patients, but also reduce the environmental impact.

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00:23:44.000 --> 00:24:01.999

Brian Chesebro: I'm going to talk a little bit more about principles number 3 and 4 in reference to the center for sustainable healthcare. Looking more at lean service delivery with respect to nitrous oxide and low carbon alternatives with respect to inhaled anesthetics.

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00:24:02.500 --> 00:24:04.109

Brian Chesebro: All right, next slide, please.

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00:24:05.570 --> 00:24:12.840

Brian Chesebro: So just in terms of foundational level setting here, I think it's important to understand that

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00:24:13.120 --> 00:24:31.830

Brian Chesebro: all inhaled anesthetics that we use in medicine are greenhouse gases. If you look at the little table on the top, they're all



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quite potent. They differ in their potency as measured by global warming potential over a hundred years. Desflurane, on the far left at the Gwp. Of

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00:24:31.840 --> 00:24:44.160

Brian Chesebro: 2,500, whereas sevoflurane, the lowest carbon intensity, potent, inhaled anesthetic, is 144, where and nitrous oxide is 273, and

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00:24:45.970 --> 00:25:11.199

Brian Chesebro: kind of I'd like you to kind of take from this slide and apply to the slides to follow that when you see the color blue blue is bad in terms of environmental impact in anesthesia. And really it's a matter of how do we shift practices to encourage clinicians to use lower carbon intensity, anesthetics, and improve the efficiency of nitrous oxide delivery.

105

00:25:11.760 --> 00:25:13.379

Brian Chesebro: Next slide, please.

106

00:25:14.280 --> 00:25:42.079

Brian Chesebro: We always like to identify where our areas of opportunity are in our various hospitals and health systems. And with respect to direct scope, one emissions. These medical gases, anesthetics, and nitrous, can contribute up to 40% of scope. One emissions in any given hospital. Here in this figure every bar is an individual hospital. In the Providence health system.

107

00:25:42.170 --> 00:26:07.310

Brian Chesebro: In the Western United States the bars are are percent contribution to to direct scope one. So you can see there's a lot of variability here. Anesthesia is certainly an opportunity, but it's a much larger opportunity for those sites located off the figure. Really, it's important to to do your own practice assessment to see if this is an opportunity for you as well.

108

00:26:07.490 --> 00:26:09.100

Brian Chesebro: Next slide, please.

109

00:26:10.620 --> 00:26:24.730

Brian Chesebro: if it is an opportunity. These are kind of the levers that you can pull to mitigate these anesthesia related emissions, and they differ by by class. So if you start on the left, looking at the potent, inhaled anesthetics that are used



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110

00:26:24.920 --> 00:26:36.049

Brian Chesebro: to maintain a state of general anesthesia, the environmental impact of those drugs stems directly from clinical management decisions that are made in operating rooms

111

00:26:36.050 --> 00:26:55.230

Brian Chesebro: across Earth right? So as a result, the mitigation lever to pull is engaging clinicians through, in my opinion, clinical quality, improvement, and changing clinical practice to drive toward lower carbon care, whereas nitrous oxide on the right side of the figure

112

00:26:55.360 --> 00:27:09.789

Brian Chesebro: we and others across the world have discovered that while clinical use is important, the much larger driver is the integrity or the efficiency of the supply systems that distribute nitrous throughout the hospital.

113

00:27:09.810 --> 00:27:21.979

Brian Chesebro: So, as a result, this clinical engagement is important, but this is a multidisciplinary project. Looking at improving the efficiency of supply delivery and re-engineering the supply system.

114

00:27:22.660 --> 00:27:24.090

Brian Chesebro: All right, next slide, please.

115

00:27:25.200 --> 00:27:28.189

Brian Chesebro: So with respect to the potent, inhaled anesthetics.

116

00:27:28.360 --> 00:27:37.759

Brian Chesebro: it's important to look at individual clinician clinical management, as I, as I mentioned earlier, and and if you recall back, blue is bad.

117

00:27:37.790 --> 00:27:42.420

Brian Chesebro: This might be hard to to get from the figure, but these these are bar graphs.

118

00:27:42.460 --> 00:27:59.899

Brian Chesebro: Right? So you look at the bar graph on the left for 2017. That's 1,300 anesthesia clinicians in the Providence health system and their proportional use of different inhaled anesthetics. And you can see at our baseline in 2017. There's a lot of blue in that figure.



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119

00:28:00.220 --> 00:28:23.240

Brian Chesebro: and we are trying to. We're trying to engage clinicians to to shift their practice to a Sibio floor. In the yellow version. We can certainly talk about how we did that. But through an iterative, data-driven quality Improvement project by the time you know, we're wrapping up 2024, it looks like the figure on the left, and I can show you what that translates to in a bit.

120

00:28:23.700 --> 00:28:25.260

Brian Chesebro: Next slide, please.

121

00:28:25.480 --> 00:28:34.910

Brian Chesebro: With with respect to nitrous oxide, the take home message here is that our central piped nitrous oxide supply systems are incredibly inefficient.

122

00:28:35.380 --> 00:28:40.990

Brian Chesebro: Here again, every bar is and is a different hospital in the Western United States.

123

00:28:41.540 --> 00:28:49.100

Brian Chesebro: The little white tips on the end of the bars represent the annual clinical consumption of nitrous oxide.

124

00:28:49.270 --> 00:28:59.899

Brian Chesebro: whereas the large blue sections of the bars are the are the volumes of nitrous per year in each hospital that are lost to waste and inefficiency of the central system.

125

00:29:00.050 --> 00:29:05.449

Brian Chesebro: There's a lot of blue on this figure, too. And blue is bad. So we're we're gonna try and get rid of that blue

126

00:29:06.280 --> 00:29:08.250

Brian Chesebro: next slide, please.

127

00:29:08.820 --> 00:29:15.430

Brian Chesebro: So starting, this is a bit more specific description of the problem with nitrous. If you look at the figure on the left.

128

00:29:15.510 --> 00:29:21.640



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Brian Chesebro: we've made serial weights of our central supply system. Those are the blue dots

129

00:29:21.780 --> 00:29:35.940

Brian Chesebro: comparing it to over the same time period, the actual clinical consumption from the from that system, and see those curves diverge, do not overlap much at all, indicating a large degree of waste.

130

00:29:36.000 --> 00:29:51.169

Brian Chesebro: There is an alternative which is to shift to portable supply system using smaller micro oxide cylinders on the back of the anesthesia machines. You do the same assessment, and you can see those curves are now overlap are nearly

131

00:29:51.510 --> 00:30:00.629

Brian Chesebro: right on top of each other. As a result of this transition you can reduce your facility wide consumption of nitrous oxide by over 90%.

132

00:30:01.560 --> 00:30:06.539

Brian Chesebro: Next slide, please. And the take home here is that if you do both of these projects.

133

00:30:06.560 --> 00:30:17.760

Brian Chesebro: Mitigation is entirely possible of these. So this is a composite figure of 10 hospitals in Oregon and Montana, who have completed both of these projects.

134

00:30:17.810 --> 00:30:21.349

Brian Chesebro: and you can see in the figure on the left the

135

00:30:21.650 --> 00:30:27.290

Brian Chesebro: annual green and anesthesia related. Greenhouse gas emissions have been reduced

136

00:30:27.330 --> 00:30:31.460

Brian Chesebro: by 93%. As a result of these 2 projects.

137

00:30:31.882 --> 00:30:40.570

Brian Chesebro: We, we always look at other facets of value. When we do our when we do these projects. So you you can look

138



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00:30:40.580 --> 00:30:51.490

Brian Chesebro: for the business case or the financial case of of this work as well, and see that that this work has also led to a significant financial savings of over 70%.

139

00:30:54.330 --> 00:31:04.929

Brian Chesebro: Stepping one step back, we don't just look at environmental cost. We don't just look at financial cost. We look at value, and we want to make sure that whatever change we're advocating

140

00:31:05.120 --> 00:31:14.239

Brian Chesebro: improves the overall value of of the care that we provide, there are a lot of when you look at it this way, and you deliberately

141

00:31:14.670 --> 00:31:30.659

Brian Chesebro: and carefully consider these 7 facets of quality, these 3 facets of cost. Quantify them where you can. You can see that you can often find that these projects provide win-win-wins for the health system. And while we're

142

00:31:30.700 --> 00:31:39.329

Brian Chesebro: while we all are coming to these projects with a priority of environmental cost reduction. I think it's important that we also understand. We recognize

143

00:31:39.510 --> 00:31:42.896

Brian Chesebro: that stakeholders that we're trying to recruit

144

00:31:43.400 --> 00:31:52.120

Brian Chesebro: may not share that as their priority. So it's really important to identify and emphasize wins in these other categories, to expand

145

00:31:52.793 --> 00:31:59.429

Brian Chesebro: your stakeholder engagement, and at the at the best build an army of advocates.

146

00:31:59.470 --> 00:32:08.130

Brian Chesebro: and at the least at least they won't block you going forward if if they know that their priority isn't being undermined by the change that you propose.

147



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00:32:08.709 --> 00:32:16.290

Brian Chesebro: So with that, I'm gonna I'm gonna stop chatting and turn it back to Jonathan and see what questions have come up.

148

00:32:17.220 --> 00:32:22.820

Jonathan Slutzman: Thank you so much. Noe, Wendy and Brian. That was really a great

149

00:32:22.970 --> 00:32:52.419

Jonathan Slutzman: start and kind of layout of the challenges and the opportunities that we face. So let's ask. Let's ask some questions. Anybody in the audience. If you have any questions, please put them into the Q. And a. It is unlikely we will get to all of them, but we're going to do our best, and some will answer, live. Some will answer by typing. So I want to start with with one from the audience, and maybe, Brian, you can start with this one in the perioperative space.

150

00:32:52.420 --> 00:33:09.429

Jonathan Slutzman: But Nathan asks FDA. Regulated medical device. Reprocessing is proven to dramatically reduce carbon emissions, waste and cost from the supply chain. It's also recommended by Nam and the key actions. What can we do to advance greater use of reprocessed devices.

151

00:33:10.970 --> 00:33:18.369

Brian Chesebro: That's a good question. We've approached that a lot in in Oregon, in the Providence health system, we found that it was.

152

00:33:18.540 --> 00:33:27.420

Brian Chesebro: Really, it's absolutely critical to engage the clinicians, 1st and foremost, to identify what their

153

00:33:28.360 --> 00:33:33.019

Brian Chesebro: where their sticking points might lie. And it, and

154

00:33:33.070 --> 00:33:38.599

Brian Chesebro: shifting to reprocessing needs to be done, in my opinion, on a on a

155

00:33:38.730 --> 00:33:40.950

Brian Chesebro: specific to the to the given item.

156

00:33:41.270 --> 00:34:09.839



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Brian Chesebro: We did a large survey of all the all our proceduralists in in Oregon and said, Well, what are you? Are you comfortable? What's your level of comfort in using a reprocessed device? This device, or this device, or this device and the ones where we had broad acceptance. We just switched them right, the ones that there were some questions we we returned to them and follow up and said, Well, why are you concerned? And then you? I found that it's it's really effective to come back with with data.

157

00:34:10.199 --> 00:34:31.060

Brian Chesebro: Not only to reassure them about the quality and safety of these devices, but also the impact, the goal and and and projecting what you anticipate the benefit to be in making that switch so that they know it. It. It provides inspiration for them to say, Oh, okay, I see why you're asking me to do this.

158

00:34:32.010 --> 00:34:43.870

Brian Chesebro: it makes sense. I'm willing to do it. Quality is the same, safety is the same. Let's go for it. But really engaging the clinicians and understanding their perspectives, is.

159

00:34:43.900 --> 00:34:46.559

Brian Chesebro: in my opinion, the 1st and most important step.

160

00:34:47.659 --> 00:34:59.297

Jonathan Slutzman: Great. Thank you. Thank you, Brian. Another question. And and this one i i think I wanna direct to to Wendy and others might want to chime in afterwards. That's totally fine.

161

00:34:59.759 --> 00:35:12.479

Jonathan Slutzman: Say, I'm a particular specialist. Say, maybe a dermatologist, maybe a physiatrist any any specialty that you can think of where it's less obvious how sustainability can be incorporated into my work

162

00:35:12.479 --> 00:35:30.329

Jonathan Slutzman: or how my work is connected to climate change and its impacts. Obviously anesthesiologists. There's a lot of work that's been done. There's a lot of kind of obvious target opportunity. What would you say to those folks in the specialties where it's maybe a bit less obvious.

163

00:35:30.330 --> 00:35:54.409

Wendy Levinson: That's a really great question. Well, first, st I think you know, I want to underscore. I think we're in an early awareness



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phase. Lots of clinicians. People on this call already thinking about it. But lots of clinicians really haven't had the light bulb go off that there is a role for them. So I think raising awareness is important. But that's where I think the specialties come into play. And you know you, said Jonathan. You brought up

164

00:35:54.430 --> 00:36:17.989

Wendy Levinson: rehab medicine, he said. Well, maybe not so obvious. But our rehab doctors actually have a recommendation in the list related to prostheses and reusing prostheses instead of ditching them. So I think there are things in every specialty, and it is good for the societies to help create them. So we don't each have to invent our own wheel.

165

00:36:18.130 --> 00:36:34.550

Wendy Levinson: So you know, I think that that's a starting point is getting our national societies engaged in articulating exactly what you said. So here's some guidance to you. If you're a dermatologist, I don't actually think we have dermatology in yet, but we do have rehab medicine.

166

00:36:35.630 --> 00:36:59.980

Wendy Levinson: maybe I can just answer one quick question. That's in the chat, too. Someone asked about talking to patients about this. And I do actually think that's a super important question. I don't think there's good research yet on how to talk to patients about these issues. There's growing about things like the Mdi inhalers. And often patients don't really ask about the Desflurine brand. That's kind of invisible to patients.

167

00:36:59.980 --> 00:37:09.979

Wendy Levinson: but I think it's always patient. First.st I don't think you can talk to patients and say I'd like to do this because it's better for the environment. But you know, if you offer me

168

00:37:09.980 --> 00:37:18.900

Wendy Levinson: an opportunity to see my doctor, my family doctor. Virtually I jump at it, not because of the environment, but because I don't have to make a trip and park.

169

00:37:19.140 --> 00:37:27.319

Wendy Levinson: And so that's good for me and has the co-benefit on the on the environment. So I really like that kind of co-benefit language.

170

00:37:29.170 --> 00:37:30.634

Brian Chesebro: I will say that



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171

00:37:31.140 --> 00:37:59.039

Brian Chesebro: One of the best days of my career was having a patient in pre-OP. Ask me to please provide the lowest environmental impact anesthetic possible. I was like, Whoa, are you kidding? This is great. So I think, while they didn't know the word they do, patients are starting to understand and appreciate the the environmental impact of healthcare delivery. And and we should be prepared to to receive those questions. And and

172

00:37:59.170 --> 00:38:02.460

Brian Chesebro: because it's it's a priority of our patients as well.

173

00:38:05.563 --> 00:38:29.190

Jonathan Slutzman: Great. I think we're gonna try and get to a couple more questions. And I want to ask one to Noe. And it's 1 that I get from colleagues, and I want to see how you might answer them essentially what we're hearing. And and Wendy presented less but better. And I think that's a really good framing. I definitely have colleagues who would say

174

00:38:29.190 --> 00:38:35.889

Jonathan Slutzman: that. And and I work in an emergency department. We have a lot of uncertainty. We have a lot of undifferentiated patients.

175

00:38:35.890 --> 00:38:58.809

Jonathan Slutzman: What would you say to your colleagues or to my colleagues who are going to continue getting more advanced imaging or more testing, because they don't want to miss things, or their patients really just need answers for their concerns, or they fear litigation. What do you say to those clinicians who are not maybe ready to be on the less but better

176

00:38:59.020 --> 00:39:00.190

Jonathan Slutzman: bandwagon.

177

00:39:01.510 --> 00:39:02.540

Noe Copley-Woods: Oh, boy!

178

00:39:04.540 --> 00:39:15.909

Noe Copley-Woods: I think that you have to think about that problem from a couple of different directions. Right? So there's the individual clinician who has virtually no investment in the planet

179

00:39:16.060 --> 00:39:19.519



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Noe Copley-Woods: directly at that moment that they're ordering the test.

180

00:39:19.640 --> 00:39:27.959

Noe Copley-Woods: So there's and that's 1 of the problems with sustainability. Right is that all of the environmental consequences happen to other people downstream at a later date.

181

00:39:28.340 --> 00:39:43.170

Noe Copley-Woods: and the only way to incentivize environmental sustainability into your practice, in my opinion, is to incorporate it into the process. So if, for example, it came to ordering tests

182

00:39:43.170 --> 00:40:05.040

Noe Copley-Woods: for individual clinicians, you would want a system whereby there is a process that monitors, what different physicians are selecting for their radiologic studies, and that there's a consequence to that physician if they're ordering Mris for every patient with back pain. There needs to be something that regulates us. I really think in that situation

183

00:40:05.190 --> 00:40:17.850

Noe Copley-Woods: I don't always recycle. This is so. So here I am spending all this time trying to improve the planet, and I'll be upstairs in the recycling bins downstairs, and I go. Oh, no way, I'm not walking downstairs to to recycle this. That's

184

00:40:18.020 --> 00:40:27.509

Noe Copley-Woods: human nature. We are always going to act in what is in our interest at that moment, where evolution designed us to do that. That's why we're such a prolific species.

185

00:40:27.740 --> 00:40:31.170

Noe Copley-Woods: So we have to use our own inner nature to our advantage.

186

00:40:31.660 --> 00:40:32.400

Noe Copley-Woods: Hmm.

187

00:40:34.740 --> 00:40:37.080

Jonathan Slutzman: Yeah, it's a hard problem. Thank you. Noe.

188

00:40:39.200 --> 00:40:56.709



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Jonathan Slutzman: all right. Another question. And I'll just throw this out there to anybody who might want to answer, although I have a suspicion that maybe Brian might be the best person thinking about clinical supply chain and helping to support your supply chain professionals

189

00:40:56.710 --> 00:41:13.979

Jonathan Slutzman: in choosing better products. So your supply chain is there, making sure that we have what we need to take good care of our patients, and they're out in the marketplace trying to figure out, okay, do we get product? A or product? B, and maybe they're clinically equivalent. Is there any kind of resource? Or how can they

190

00:41:14.110 --> 00:41:26.590

Jonathan Slutzman: best be able or be empowered to make those decisions of of which products might be better or worse? Environmentally, when they're making purchasing decisions.

191

00:41:30.380 --> 00:41:34.929

Brian Chesebro: You really want me to, I'll I'll answer that one. That's a hard question.

192

00:41:34.930 --> 00:41:35.250

Noe Copley-Woods: To you.

193

00:41:35.250 --> 00:42:01.660

Brian Chesebro: Okay? Good. That's a really challenging question. And I think for some, for some facets of healthcare, it's easier. Anesthesia is the most straightforward pharmacy or supply chain decision to make. I think inhalers is the next one that one's far. It's still quite murky. It's difficult to make clinically equivalent

194

00:42:01.660 --> 00:42:17.370

Brian Chesebro: transitions all the time you need. There's a lot of people and a lot more people involved than just the anesthesiologist or Crnas when you're looking at supplies and equipment, I think, on general principle, you can say, Well, reusable is, is usually the best

195

00:42:17.490 --> 00:42:31.219

Brian Chesebro: reprocessed is usually the next best, and then single use is the worst, I think, within the scope of single use it. I personally, I like to look to see what is it made out of right? So the materials

196

00:42:31.220 --> 00:42:44.430



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Brian Chesebro: we're not gonna be able to do a detailed lifecycle assessment of every widget in healthcare. I mean, a lot of them have been done, and we know a lot of concepts that we can apply.

197

00:42:44.430 --> 00:43:03.320

Brian Chesebro: but waiting for a specific Lca for every widget we're going to wait forever. And so I like to think about. Well, what can we understand to kind of point us in the right direction when we get down to that level? And I like to look at. Well, what is it made out of? Because the carbon intensity of different materials

198

00:43:03.330 --> 00:43:05.280

Brian Chesebro: can vary, you know.

199

00:43:05.510 --> 00:43:13.679

Brian Chesebro: by many factors. And so something that's made out of nylon has a really high carbon intensity as opposed to something that's made out of

200

00:43:15.080 --> 00:43:44.530

Brian Chesebro: you know other plastics or paper, or or linen or whatnot but in general, I think falling back to say, Well, reusable by and large is is the best reprocess, single use. There is. A resource called the L healthcarelta.org. That is kind of the the library repository of healthcare specific life lifecycle assessments. And that would be my 1st stop to look to see.

201

00:43:45.940 --> 00:43:56.330

Jonathan Slutzman: Great. Thank you so much, Brian. So first, st I want to thank our panelists here. Dr. Noah Copley Woods, Dr. Wendy Levinson, Dr. Brian Cheesborough for really

202

00:43:56.570 --> 00:44:01.560

Jonathan Slutzman: making this webinar possible by sharing their expertise, their skills, their knowledge.

203

00:44:01.730 --> 00:44:17.280

Jonathan Slutzman: I want to thank all of you for joining and attending and a preview. The Webinar series will continue in 2025. Please stay tuned for an announcement on the dates which will be set soon, but we look forward to seeing you more in the coming year.