



## **John Maddox Prize 2023**

*with*

**Tracey Brown, Sense About Science**

**Nancy Olivieri, 2023 Maddox Prize**

**Chelsea Polis, 2023 Maddox Prize for Early Career Researchers**

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**KENNEALLY:** Since 2012, the John Maddox Prize has recognized individuals who stand up for science and advance public discussions around challenging topics. Past winners include journalists, scientists, and public health officials from around the world. In 2020, Dr. Anthony Fauci won for his efforts to communicate the science behind COVID-19. Last year, the prize went to Eucharia Oluchi Nwaichi, a Nigerian biochemist and academic, for her work engaging communities to explore solutions for pollution in the oil fields of the Niger Delta.

Welcome to CCC's podcast series. I'm Christopher Kenneally for Velocity of Content.

The John Maddox Prize is a joint initiative of the charity Sense about Science and the leading international scientific journal *Nature*. Velocity of Content will feature interviews with the winners of the 2023 John Maddox Prizes when they are announced October 24<sup>th</sup>, with the main prize going to an established researcher, and a second prize for an individual at an early career stage.

Tracey Brown, the director of Sense about Science, joins me from London with more about the Maddox Prize. Welcome to Velocity of Content, Tracey.

**BROWN:** Chris, thank you very much. What a wonderful introduction.

**KENNEALLY:** Tracey, we're looking forward to learning more about the John Maddox Prize. The prize is open to anyone who has stood up for sound science and evidence in the public interest. Why is standing up for sound science and evidence important?

**BROWN:** Well, I think it's important for two reasons. The first reason is, of course, for the individuals who are doing research in difficult areas that we recognize that they do that under duress sometimes, that they are willing to bring their findings into the public



domain, even if they buck a trend or they upset some people – that we recognize the effort of those individuals to do something which is ultimately in public service.

But what's also very important for all of us – because we're protecting the space. We're talking about protecting the space where we can discuss research openly, even when it makes us uncomfortable. Research always makes us uncomfortable, because it's asking the questions that we're debating, that we may be even quite polarized about, or which are potentially going to open up established areas and make us think again. So it's so important we protect that space. I think we all feel that we would want to know the answers to key questions of our time. And we want to make sure that the researchers feel able to talk about those.

**KENNEALLY:** What harm is done, Tracey Brown, when low-quality research drowns out the sound science? Who loses when misinformation catches on with the public, and does anyone win?

**BROWN:** We all lose. And I think that it makes it all the more important that we champion the efforts of people who draw us back to where the evidence sits. That's something that's really important. And one of the things that I've noticed – since you've mentioned that the start of the prize of 2012 – as a judge on that prize, I've really noticed that we've seen more effort around the world among scientists to try to help the public navigate that sea of stuff that you've just referred to.

**KENNEALLY:** Can you share a profile in courage of a previous Maddox Prize winner who stood up for sound science and strong research?

**BROWN:** I think I'd like to draw attention to someone like Riko Muranaka, who in Japan challenged the stories that were flying around that the HPV vaccine was causing damage to the brain.

But she did her work well. She investigated thoroughly. She did a piece of research. She is a journalist with very strong medical training. And she bravely did that. She was hit with lawsuits. Her book was pulped – she couldn't publish. Really, really awful things to happen to somebody who was fairly early on in her career, in fact. So I think the bravery of that – and she was exonerated. She was exonerated in court. The publisher reneged on their decision to pulp her book, which is a good thing. And in the end, the professional body really stood up for her. But that was all following the award of the Maddox Prize.

**KENNEALLY:** What are the risks involved in standing up for science, Tracey Brown? Do those dangers, too, vary from country to country?



BROWN: They do. We've seen situations where we've had people who have been nominated for environmental monitoring work in countries like Iran where they've been accused of spying. That's obviously a life-and-death situation. A former winner was an Indonesian fire forensics expert who withstood the pressure to join with palm oil companies to portray science that would make it seem as though fires were naturally starting in the rainforest, when in fact they were being started purposefully. So I think the kind of courage you see in that situation, where life and limb is at risk, is important.

I would also say a word, Chris, for people just speaking out on controversial topics, because scientists are not trained to do that. That's not what they bought into. So the fact that they do it is something that we should applaud and protect and recognize.

KENNEALLY: Tell me about John Maddox, who was editor-in-chief of *Nature* and frequently confronted what he believed were pseudoscientific ideas, including that AIDS, for example, was not caused by the HIV virus. What kind of example did he set as a scientist and a publisher?

BROWN: John Maddox was on my board and was one of the founding trustees of Sense about Science. And I would say in short, John kept everyone honest. That was his job. He would ask questions about everything. I think he just made everyone reflect on whether they were taking an easy argument or not. He was able to bring people together around the need to investigate outlandish claims and was a really big advocate of extraordinary claims need extraordinary evidence.

KENNEALLY: Thank you for speaking with me today, Tracey Brown.

BROWN: Thank you.

KENNEALLY: Nancy Olivieri, a hematologist from Toronto, has received the 2023 Maddox Prize for her communication of the importance of being open with patients about medical research. Since 2009, Olivieri and a researcher colleague have raised concerns over research integrity arising from trials conducted in Canada on an experimental drug for a rare blood condition. Nancy Olivieri, congratulations and welcome to Velocity of Content.

OLIVIERI: Thank you very much, Chris. It's great to be here. Thank you for having me.

KENNEALLY: It's good to have you with us, Nancy. In your view, how vulnerable is medical research to concerns over research integrity?

OLIVIERI: It's very vulnerable. This was a problem many years ago, but was recognized by people who were thought to be eccentric, essentially. The problem fundamentally is that



currently, research is done in clinical trials, and clinical trials are run by industry. That is, they're run by pharma. Pharma has a stake in the game. This did not use to be the case 25 or 30 years ago when my saga began, but it rapidly became so. Federal funding on all continents has gone down, and pharma funding has gone up. Therefore, we have a situation in which pharma directs the trials, designs what's studied, how it studies, how it's reported, if it's reported, what toxicity and effectiveness is reported. It's kind of an echo of my story, but it is regrettably very common.

This is something I believe deeply. I think it's not hysteria. It's not eccentricity any longer. We're faced with a real problem. The problem is that patients are vulnerable, because patients are the ones that take drugs that are tested in these trials. So you may not care whether it's academic freedom or research integrity, but you should care if you think you're ever going to take a drug in your life.

KENNEALLY: You began research, as you say, in blood diseases many years ago, almost 35 years ago. Over that time, treatments in the field have evolved significantly. You started to tell us about the way, too, that the relationship of hospitals and drugmakers has also changed. Tell us more.

OLIVIERI: The issue is that it's always said, oh, well, we don't have money from taxes, so we have to take money from pharma. Universities and hospitals take billions – or let's just say millions in terms of individual institutions – millions. The University of Toronto takes pharma money in terms of all forms. Now, how does this influence things? People are who heavily funded by pharma, and it's most doctors in research, are pharma-friendly. They will not say no as we did – no, this is an highly inadequately ineffective drug, and we think we need to stop and see what's happened.

KENNEALLY: Nancy Olivieri, winner of the Maddox Prize for 2023, what price have you paid for your own commitment to research integrity?

OLIVIERI: I would say I paid the price most whistleblowers pay. Of course, there are tangible prices. I don't even want to talk about how much money we spent defending and asking for recourse to research misconduct, which was rampant throughout our story. But what you end up doing is you end up being alienated from the field that gave your life's work meaning. So I don't work in hematology except in emerging countries anymore. I don't work down at University Avenue, because I was excluded from that. That is what happens when you step out of line with the dominant narrative and say I think we need to challenge this. I think we need to stand up and say this is not working. This is not right. These people are committing research misconduct.



That marks you as, for better or for worse, the term whistleblower. Most whistleblowers don't even end up with their own homes. The typical whistleblower is a 55-year-old fired guy living over a Radio Shack. That's not my line. That's a famous line from a famous book called *Broken Lives and Organizational Power* by Fred Alford. But it outlines what happens to people like me. It sounds a bit whiny and self-pitying, but it's absolutely factual. It's a suicide mission, these kinds of disclosures. And you end up being alienated from everyone except those who really understand.

KENNEALLY: Nancy Olivieri, recipient of the 2023 John Maddox Prize, congratulations again, and thank you very much for speaking with me.

OLIVIERI: Thank you.

KENNEALLY: Chelsea Polis, epidemiologist at the Population Council's Center for Biomedical Research in New York City, has received the 2023 Maddox Prize given to early-career researchers. Congratulations, Chelsea, and welcome to Velocity of Content.

POLIS: Thank you so much, Chris. It's great to be with you.

KENNEALLY: Good to have you with us. The Maddox Prize acknowledges you for challenging marketing claims made by medical device manufacturers with evidence-based science. In your view, what is problematic about some of the marketing claims that femtech and medtech startups make?

POLIS: Great question. As a reproductive health epidemiologist, I know that many important aspects of reproductive health are underfunded and neglected. So-called femtech has generated a lot of fair excitement around the potential to innovate and accelerate innovation, but it also raises a number of concerns, including because some marketing claims are not supported by high-quality scientific evidence.

I brought one such example to light regarding a company that was selling a \$330 fertility tracking thermometer. They were marketing the thermometer as being a highly effective contraceptive method, claiming over 99% contraceptive effectiveness, which is among the highest you can get. But those claims were based on egregiously flawed studies that used inappropriate approaches to both data collection and analysis. So I published a peer-reviewed commentary which debunked a study on which their claims were based, and after explaining how this study's flaws led to overinflated contraceptive estimates, I called for that paper to be retracted from the scientific literature. After review by scientific experts, the journal agreed that the paper had serious methodological flaws that led to unreliable results, and they decided to retract it.



But I would add that the problem isn't only that these estimates were overinflated. This product is forbidden by the United States Food and Drug Administration to be marketed as a contraceptive method at all, since it never had undergone the rigorous clinical testing or regulatory approval processes required to sell it as such. So selling it as such can put users at greater-than-expected risk of unintended pregnancy, which as you know carries numerous negative health and social and economic consequences. Since these claims were touted all over social media, younger people may have been at particular risk of being influenced by those claims.

But the problem isn't only that these contraceptive effectiveness estimates were overinflated. The product is actually forbidden by the United States Food and Drug Administration to be marketed as a contraceptive method at all, and this is because it's never undergone the rigorous clinical testing or regulatory approval process that's required to sell a product as a contraceptive method in the United States. So selling it as a contraceptive method, let alone one that's over 99% effective, can put users at much greater risk than expected of unintended pregnancy, which we know carries many negative social, economic, and health risks. And since these claims were all over social media, it may have been that young people were particularly vulnerable to being influenced by these statements. Because of these potential impacts on consumers, and perhaps particularly younger consumers, the day that my paper was published, I also submitted an allegation of regulatory misconduct to the Food and Drug Administration, which ultimately led the FDA to forcing the company to correct its marketing language.

So to your question, I would say many femtech companies claim that their companies will empower users to do things like take control of their reproductive health, which obviously sounds wonderful. But I would argue that true empowerment requires clear and accurate information so that people can make informed decisions for themselves. And selling products in ways that violate the law or that violate basic scientific principles does not promote empowerment. On the contrary, it violates it.

**KENNEALLY:** It's a great point, Chelsea Polis. The notion here that marketing claims are getting ahead of scientific evidence is really a very dangerous one indeed. And it is not about empowerment, but about impact on people's lives. How common is this – for the excitement around the intersection of innovation and technology with medicine to kind of get ahead of itself, to make claims that really don't stand up to scientific research?

**POLIS:** I can't answer the extent to which this is occurring. I've looked specifically within companies that are in a very narrow piece of femtech, focused on contraception, and within that, focused on particular modes of contraception. I've noticed a number of concerns, and I've raised a number of concerns to different companies. The experience which is being



recognized by the Maddox Prize judges is an example that I found to be particularly egregious on a number of different fronts.

KENNEALLY: And your efforts in this regard brought you into court where you were sued by the manufacturer for defamation. What happened in that case, and do you think such suits like the one you faced have a chilling effect on research?

POLIS: Well, given my work in reproductive health, I know the grave impact that misleading claims can have on bodily autonomy. And I realized that engaging with the public on this issue was necessary to help protect consumers from unintended pregnancy where the company was unwilling or unable to give correct information.

I'll first say that long before I ever took any public action or published any papers, I directly and privately reached out to the company to share my concerns about their evidence base and their marketing approach. They chose to ignore those concerns. So my next step was to publish a paper detailing the flaws in their study and alerting the Food and Drug Administration to the concerns, but I didn't know how long those processes would take or if they would be successful. I also thought it would be very important given that I was seeing misinformation on this device spread like wildfire on social media to reach out directly to the public, and I did that by doing media interviews and writing blog posts and other pieces for public consumption.

In some of those pieces, I used language such as "junk science" to refer to a retracted study, and I used language such as "unethical" to describe a company that was selling a device as a highly effective contraceptive method in violation of FDA regulation. The company apparently felt that those terms were defamatory and decided to sue me for \$1 million in United States federal court. That was what happened that led to the lawsuit.

These kinds of lawsuits – they're called SLAPP lawsuits – strategic litigation against public participation. They are designed to harass and intimidate people from speaking out on matters of public interest. In the United States, even if baseless allegations are made against somebody who's speaking up in truthful ways about matters of public interest, they can force those defendants to pay exorbitant legal costs. I was lucky enough to receive *pro bono* representation from the law firm Arnold & Porter, led by Dori Hanswirth and a team of lawyers who defend free speech. But many, many, many other people would not be nearly so lucky.

And to the question of whether lawsuits like this have a chilling effect on research, absolutely – and not just on research, also just on public debate. I believe that it's an absolute necessity that scientists and other experts feel unencumbered from speaking out in valid, fair, evidence-based ways about various products' safety and effectiveness, because



many scientists can do this in ways that aren't influenced by the kind of financial conflicts of interest that for-profit companies might have.

KENNEALLY: Last year, a New York court of appeals ruled the defamation lawsuit against you was without merit, and I'm sure that was a great relief to you, Chelsea Polis. Can you tell us how you felt when you learned that you had won the Maddox Prize for early-career researchers?

POLIS: It is one of the enormous honors – one of the greatest honors of my career to have received the Maddox Prize. This is a prize unlike, I think, any other that I'm aware of that not only honors evidence-based science, but people who persist in promoting science in the face of hostility. There's not a lot of other support for things like that. It's rare to receive recognition for that kind of work, which is often done on unfunded time and which can sometimes make somebody wonder how it's going to be viewed by other people in the field. Receiving the Maddox Prize made me feel absolutely elated, and I'm just incredibly honored to be alongside previous recipients of this award and to have my story received by the judges in the way that it was. I'm deeply grateful.

KENNEALLY: Chelsea Polis, congratulations again on receiving the 2023 Maddox Prize given to early-career researchers, and thank you for speaking with me today.

POLIS: Thank you so much for your interest in this story, and it was a pleasure speaking with you as well.

KENNEALLY: That's all for now. Our producer is Jeremy Brieske of Burst Marketing. You can subscribe to the program wherever you go for podcasts, and please do follow us on Twitter and on Facebook. You can also find Velocity of Content on YouTube as part of the CCC channel.

I'm Christopher Kenneally. Thanks for listening.

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