Polio Confidential:
Stories From Those Who Lived It

Part 1 - The Continued Path Toward Prevention

PODCAST 44

00:12
Dr. Jane Caldwell
Hi, this is Jane Caldwell. Welcome to the *On Medical Grounds* podcast, your source for engaging, relevant, evidence-based medical information. We're hosting a three-part series on polio, a serious disease that was almost totally eradicated in my lifetime due to polio vaccination programs worldwide. We'll be talking to polio survivors, healthcare providers who cared for polio victims, and a noted expert on polio vaccines.

Today is part one of Polio Confidential: Stories from Those Who Lived It, The Continued Path Toward Prevention. Today I'm speaking with Dr. Paul Offit. Dr. Offit is a professor of pediatrics and an attending physician at the Division of Infectious Diseases at the Children's Hospital of Philadelphia. As director of the Vaccine Education Center at that institution, he is an internationally recognized expert in the fields of virology and immunology. Dr. Offit is a member of the FDA Vaccine Advisory Committee. In 2011, he wrote *"Deadly Choices: How the Anti-Vaccine Movement Threatens Us All."* This book was selected by Kirkus Reviews and Booklist as one of the best non-fiction books of that year. More recently, he has written *"Tell Me When It's Over: An Insider's Guide to Deciphering COVID Myths and Navigating Our Post-Pandemic World."*

Hello Dr. Offit. Thank you for joining us today.

Dr. Paul Offit
Thanks for asking me.

01:54
Dr. Jane Caldwell
Before we talk about polio, I'd like to ask a few general questions for our listeners so they know who you are and where you're coming from. First, I'd like to take you back to 2008 when you published a book called *"Vaccinated: One Man's Quest to Defeat the World's Deadliest Diseases."* You were friends with Maurice Hilleman and you interviewed him extensively for that book. His vaccines have been credited with saving millions of lives. How did he shape the way you view vaccines and infectious disease?

Dr. Paul Offit
Well, he was this brilliant man who really was the principal, either inventor or developer, of nine of the 14 vaccines that we give to infants and young children. It's just a remarkable, in many ways unimaginable, accomplishment. It's like trying to imagine a fourth or fifth dimension. He had been a friend for 20 years and in October of 2004, he was diagnosed with disseminated cancer and given roughly six months to live, which is exactly how long he did live. He lived till April of 2005. And, you know, I asked if it would be okay with him if I would interview him periodically during that time. And I did about maybe

65 or 70 hours of interviews just to get his life story. And he was nice enough to allow me to do that. But he was an inspiration. He was never satisfied. He was this sort of brilliant man who was never satisfied. And even on his death bed, he just, his regret was that he didn't do more.

03:28

Dr. Jane Caldwell

You've published over 160 scientific articles and written at least 11 narratives; narratives concerning medical misinformation and the risks and benefits of science. I know physicians live very busy and complicated lives. Why take the time to write and publish? What do you hope to accomplish?

Dr. Paul Offit

Well, I enjoy writing, and I sort of get up every morning early around 4:30 and write for a couple hours before I go into work. It's to try and influence thought. I do think we're sort of standing on the precipice right now. Where in some ways science is losing its place as a source of truth. People are just declaring their own scientific truths. And I watched the anti-vaccine movement really grow bigger and better funded. You could argue that with the possible succession into Health and Human Services by Robert F. Kennedy Jr. or the pick of Dave Weldon as head of CDC that the anti-vaccine movement has moved into the mainstream. And I think children are going to suffer for that. So I write to try and prevent that.

04:35

Dr. Jane Caldwell

To me, your narratives seem balanced because you discuss not only the benefits of science, but some of the downsides and risks. On a technical note, for our listeners, how do advisors, say the CDC and FDA, decide when things have gone too far and are too risky, especially in the vaccine world?

Dr. Paul Offit

Well, there are many examples of that. I mean, you look at, for example, just with the COVID vaccines, we had the two mRNA vaccines of Pfizer and Moderna in December of 2020. Two months later, we had a different vaccine, Johnson & Johnson's vectored virus vaccine, which was found fairly quick to be a very rare cause of something called blood clotting, including clotting in the brain, including fatal clotting in the brain. It was very rare.

But was real. And so you had now these two different vaccines, one of which didn't cause fatal reactions and one of which did. So I think it became clear that that vaccine had to come off the market, and we did the same thing with the oral polio vaccine. I think we got to the point where more cases were caused by the vaccine than were caused by the wild type virus in this country. And so we had to get away from that oral polio vaccine and did by the year 2000.

05:45

Dr. Jane Caldwell

Many of your writings are medical histories, and one of your first books was about polio. Could you briefly outline the history of polio and the discovery of the first polio vaccine by Jonas Salk?

Dr. Paul Offit

Right. Polio would, at its worst, cause as many as 50,000 cases of paralysis and 1500 deaths a year.

More typically, it was 20 to 30,000 cases of paralysis. It was often children five to nine years of age that were paralyzed, and they were paralyzed for the rest of their life. And those who had paralysis of the respiratory muscles had to be put in iron lungs. Some of them were put in iron lungs for decades.

I happened to actually be in a polio ward when I was five years old at the Kernan's Hospital for Crippled Children. I didn't have polio, but I had a failed operation on my right foot from a congenital abnormality, which landed me in this ward. You know, it was like a Dickensian experience. You know, there was only one visiting hour a week on Sundays from two to three. I saw children in iron lungs. I saw children in traction who were getting these so-called Sister Kenny hot pack treatments where we take these excruciatingly hot packs and put them on withered arms and withered legs in hopes of restoring movement. And so children were screaming, children were in iron lungs, you know, parents weren't there, and it was just living hell and that is my recollection of polio and it's certainly not a time where that we want to ever go back to.

07:19

Dr. Jane Caldwell

Wow. The polio vaccine was developed at a time when our society was embracing science. Antibiotics were in production for the first time, so infectious diseases were on the decline, but polio was still ravaging children. There was this long campaign of information on the polio eradication effort. When the vaccine was declared safe, I was told that church bells rang and loudspeakers in stores would announce the news and people jumped on it. People lined up for their children to get it. How is this different from our environment today?

Dr. Paul Offit

Well, it couldn't be more different. I mean today. Back in Jonas Salk's time, when he invented a vaccine, which he did by taking polio, growing it up in cells, purifying it, and killing it with the chemical. And that vaccine worked. And it's really, really very much like the vaccine we use today. He was a hero. He had ticker tape parades. Now, if you're an inventor of a vaccine or a co-inventor of vaccine, you're considered a bad guy. It's a very, very different time. I think part of it was just people were much more society-minded. I think the focus wasn't as much on the individual then. We thought of ourselves as a group, as part of a whole, which I don't think we think of today. And there was just enormous distrust today, distrust of the whole public health infrastructure, whether it's FDA, CDC, NIH, people are just very quick to reject that and to reject expertise and to reject experts. And it's a troubled time.

08:55

Dr. Jane Caldwell

I'd like to talk briefly about the Cutter incident. In April 1955, more than 200,000 children in five states received a polio vaccine that was defective and actually contained active virus rather than attenuated virus. And within a month, that first vaccination program against polio had to be paused. Can you explain to us what went wrong and what the government could have done to prevent that?

Dr. Paul Offit

Well, at the time, we just didn't really have an infrastructure for vaccine regulation. There were sort of some people at NIH that while doing their other research would sort of supervise programs like Cutter's. And it was the birth of vaccine regulation in the U.S. The problem was a filtration problem. So poliovirus grows in cells, and it was inactivated or was supposed to be inactivated with formaldehyde, a chemical, but because

there was an inadequate separation of the virus from some cells and cell debris, some of the virus hid in those cell debris. And so the formaldehyde wasn't able to get to the virus. And when that was realized, then the process was changed, and it wasn't a problem anymore. But it was a killed vaccine that wasn't killed. And as a consequence , a couple hundred thousand children were inoculated with live fully virulent polio virus. Some suffered, or many suffered, abortive polio, meaning short-lived paralysis. Many suffered permanent paralysis, and 10 people were killed. I think it was probably the worst biological disaster in this country's history. And it's amazing to me nobody knows about it. It really was that bad. Imagine something like that happening today.

10:32
Dr. Jane Caldwell
That's my next question. Even after that Cutter incident, many parents went back to vaccinating their children. Do you think parents now would be willing to go back after an incident like that?

Dr. Paul Offit
They're not willing to do it now with vaccines that are safe and effective. So, no, I think it was a different time. You're right. I mean, people trusted, they trusted the companies to figure it out. They trusted the federal agencies like the FDA and CDC to supervise it. And even when it had gone horribly, horribly wrong, they still trusted them to get it right. It was just a very different time than today where we are enormously distrustful in situations where we shouldn't be distrustful.

11:12
Dr. Jane Caldwell
Would you describe the Cutter incident as maybe the birth of the modern anti-vax movement?

Dr. Paul Offit
I don't think so, because just for the reasons you said, I think people still trusted and still got vaccinated. Very quickly, we vaccinated the population with polio vaccine. No, I think the birth of the modern American anti-vaccine movement was in the early 1980s with a TV show called *DPT Vaccine Roulette*, which falsely claimed that the whooping cough or pertussis vaccine was causing permanent disabilities. It was done by a woman named Lee Thompson, who was a reporter then, and it just had enormous impact. People thought, my God, this vaccine isn't doing what it's supposed to do. It's not, not only not necessarily protecting against whooping cough, it's causing these horrible neurological disorders like epilepsy and others. And it really changed the landscape here, I think. And DPT, there was a group called Dissatisfied Parents Together, which eventually became the National Childhood Information Center, National Vaccine Information Center.

And it was off to the races. Companies were sued and sued and sued. We had to put in the National Childhood Vaccine Injury Act to at least partially prevent these companies from this frivolous civil litigation. And, you know, it never was true, which is interesting is that that vaccine didn't cause permanent disabilities, but it took, even though study after study showed that it didn't, it didn't matter. It had already been put into the consciousness of people in this country. And it was off to the races. The anti-vaccine movement was born.

And now after the pandemic, it's even better funded and even more influential and has now risen up

into the top tier of government with people like Robert F. Kennedy Jr. being considered as being head of, or, Secretary of Health and Human Services when he said, he has said on a recent podcast, when asked the question, is there any vaccine that you consider beneficial? He said, "No."

13:06
Dr. Jane Caldwell
What do you think motivates anti-vaxxers?

Dr. Paul Offit
I think for most, it's a real belief that vaccines have caused harm. Vaccines are given to many children, more than 90, 95 % of children in this country, and they are designed to prevent vaccine-specific, vaccine-preventable disease, specific viruses and bacteria, but they don't prevent everything else that occurs in life. And there's often these temporal associations between when a child got a vaccine, and then had a problem. I'll give you a perfect example. My wife is a private practicing pediatrician.

She went into the office on a weekend and was helping the nurse vaccinate the children because they were getting behind. So there was a mother holding a four-month-old on her lap. While my wife was drawing the vaccine up into the syringe, the child had a seizure and went on to have a permanent seizure disorder, epilepsy, and actually died of a chronic neurological disease at age five. If she had given that vaccine five minutes earlier, I think there are no amount of data in the world that would have convinced that mother of anything other than vaccine caused the problem, right? Her child gets a vaccine, has a seizure, now has a permanent seizure disorder, now is dead of a chronic neurological condition. The vaccine caused it. I'm the mother of a vaccine-damaged child. And that's what you're up against. You're up against these emotional temporal associations and you're trying to defeat them with statistical arguments.

14:23
Dr. Jane Caldwell
Let's talk about polio. Has polio been eliminated? And if not, what is its present status, both in the U.S. and globally?

Dr. Paul Offit
So certainly polio, natural polio, still exists in the world, it's in like Afghanistan, Pakistan. The problem is, and it's not discussed as much as it should, the oral polio vaccine had a problem which wasn't trivial. This was the vaccine that was invented by Albert Sabin that came onto the market in the United States in the early 1960s. And it was great. It was cheaper. It could be given by mouth. There was something called contact immunity, meaning you would actually shed vaccine virus in your feces and therefore with hand-mouth behavior, there was about 25 % of people in the home would be vaccinated. Even if you didn't vaccinate them, that's contact immunity. And it could be given without requirements, it wasn't a shot, so it didn't require sort of sophisticated medical personnel to give the vaccine. And it eliminated polio from the U.S. By the 1970s, polio was gone from the US. But this vaccine could itself cause paralysis and it caused paralysis in eight to 10 children every year. And throughout the 1980s and throughout the 1990s, the only cause of polio in the United States was the polio vaccine. So we then replaced that back essentially with the Salk vaccine, the inactivated vaccine in 2000. And that's the only vaccine we've been using for the last 25 years.

But the virus that could revert to essentially a paralytic type, the oral polio vaccine could mutate back

to essentially a virus that could cause paralysis, the so-called, you know, revert virus. Though that's still in sewage samples, still around. That virus that could cause paralysis is still around. And that's what happened in Rockland County, New York in 2022, when a 27-year-old man living in an area that had immunization rates less than 30 percent against polio, got polio. And, you know, as you know, with polio, only about one in 200 people at most who are infected with polio are paralyzed. When you see a case of paralysis, you can assume it's the tip of a much larger iceberg. And when they looked in wastewater samples where he lived, Rockland County and suburban counties, they found that virus. And I think if you looked in Philadelphia, you'd see it, or Chicago or LA, I think that reverting virus is around. He was infected with a type two reverting vaccine strain. And that's what's happening in Gaza right now. That's what's causing paralysis. It's not a wild type of virus. So I think that's the sort of Faustian deal, if you will, that we made with the oral polio vaccine that was made by Albert Sabin.

17:01
Dr. Jane Caldwell
Is polio a particularly dangerous and insidious disease, even today?

Dr. Paul Offit
Well, it affects healthy children and many are permanently paralyzed. I can tell you no disease was more feared when I was a child in the 1950s than that virus. I mean, my parents would not let me go to a public swimming pool. I had to swim with my two cousins in that little sort of plastic pool that you'd wade in in the backyard. That's where me and my two cousins swam.

And it really is the birth of summer camps. I think that those summer camps in upstate New York, for example, New Hampshire, Vermont, Maine, those were born at the polio epidemic. Parents wanted their children out of the city in those summer months because it was a summer plague, if you will.

17:50
Dr. Jane Caldwell
As you know, most of the people who directly cared for polio patients are no longer alive, and most of the individuals who survive polio, excuse me, most individuals who survive polio in this country are older. How does that impact our current society and how we view polio? Have we just forgotten?

Dr. Paul Offit
We forgot. I think people don't remember this disease. I think they just see it as a series of black and white pictures of children from long, long ago. And it's too bad because I think it's not just that we've eliminated polio, we've eliminated the memory of polio. And with this case now in Rockland County a couple of years ago, I have a fear that if people think, well, why am I vaccinated against this virus? I don't even see this disease anymore. Let immunization rates drop low enough and polio will come back.

18:40
Dr. Jane Caldwell
There's a lot of talk in the media and among healthcare professionals like yourself about a potential resurgence of polio and other vaccine preventable diseases due to the rise in the anti-vax movement and the incoming political administration. Should we be afraid?

Dr. Paul Offit
Yes, we should be very afraid. I think you're seeing a dramatic increase now in cases of measles and in outbreaks of measles. We had an outbreak recently in Philadelphia. There was an outbreak of 85 children in Columbus, Ohio recently. You're seeing a five-fold increase in pertussis or whooping cough. In the past year, we had 200 deaths in children from influenza, which is very high. I think the CDC recently published data showing that a larger percentage of parents are exempting their children from getting vaccines in kindergarten than ever before.

There are 14 jurisdictions where more than 5 % of kindergartens were exempted or their parents had exempted them from getting vaccines using philosophical exemptions or religious exemptions. And that has dropped below the level of herd immunity. So now we're seeing these outbreaks occur. I think they'll only get worse.

19:45
Dr. Jane Caldwell
How much control does a political administration actually have on vaccine approval and recommendations?

Dr. Paul Offit
They have a lot of power. So for example, it could be that a company would submit a vaccine for licensure. The FDA could say, I think this should be licensed. The CDC could say, I think this should be recommended. And the head of Health and Human Services could say, I don't think it's been studied enough. The head of Health and Human Services could say, I want to take these vaccines out of the Vaccine Injury Compensation Program and subject them to the slings and arrows of outrageous civil litigation and then watch what will happen.

Those vaccines will also come off the market. Vaccines aren't big money makers for these companies. They're given a few, once or a few times in a lifetime. They're never going to compete successfully with, you know, diabetes drugs or psychiatric drugs or lifestyle products and, and lipid lowering agents, which are taken every day. So you're going to, you know, this is a very friable market, if you will. It's a fragile market. And I think these companies could drop vaccines in a second.

20:52
Dr. Jane Caldwell
As an older American, I got my polio vaccination in the 60s. Should I get a booster?

Dr. Paul Offit
No, you're good. I think if you were fully vaccinated, good. I mean, it's a long incubation period disease. All you need is immunological memory, and you likely have immunological memory that will last for a lifetime.

21:11
Dr. Jane Caldwell
Good to know, good to know. What would you recommend that a healthcare provider say to a patient or a patient's parents who might be questioning vaccine safety?

Dr. Paul Offit
Well, I think it's reasonable to question vaccines. I mean, we give them to healthy children. I think it's reasonable to be skeptical of anything you put into your body, especially vaccines, which are biological agents. But you shouldn't be cynical. You know, I mean, you should be willing to accept that there are data showing efficacy. There are data showing safety, that there are systems in place like the Vaccine Safety Datalink or the V-Safe system or others that are there to pick up rare events if they occur. So, I mean, look at the mRNA vaccines. I mean, that issue of myocarditis was picked up very quickly. And even though it was very rare, like one in 50,000 was picked up very quickly. So there are systems in place to sort of ensure safety because they have to be in place because we give vaccines to healthy children. So we have to have those kinds of systems.

22:05
Dr. Jane Caldwell
COVID-19 deaths greatly outnumbered polio deaths, yet there was a massive spike in the anti-vax and anti-science movement with this recent pandemic. In hindsight, what could the government, healthcare providers, or medical educators, what could we have done differently?

Dr. Paul Offit
I think what happened is we didn't have anything, right? All we had was a virus that could be transmitted asymptomatically. Anybody you passed in the street could be shedding a virus that could kill you. We didn't have antivirals till October of 2020. We didn't have monoclonal until November. We didn't have vaccines until December. We had nothing other than avoid human-to-human contact. So that's what we did. We closed businesses. We shuttered schools. We restricted travel. We isolated—and used—quarantine masks. And I think that alone was seen as massive government overreach. People didn't like that.

They didn't like that we closed schools. They didn't like that we closed businesses. And then extending into 2021, once we had a vaccine, you had vaccine mandates. You couldn't go to your favorite bar or sporting event or restaurant or place of worship unless you'd shown you had that card. And you just started to see pushback, all in the name of so-called medical freedom. That's how we use the term freedom in this country. It's often a way of saying that we don't care about our neighbor because that's what this was. I mean, the freedom to what? Freedom to catch and transmit a potentially fatal infection. Is that your right? I mean, if you choose not to get a tetanus vaccine, you get tetanus, no one's going to catch tetanus from you. It's not a contagious disease. This is a contagious disease. And there are millions of people in this country who can't be vaccinated. They depend on those around them to protect them. Do you have any responsibility to them? And I think it was just seen as a massive government overreach.

Plus, I think we overpromised the vaccine a little bit. I think that those initial studies, which were really done over a period of three months, showed a high level of efficacy against even mild or moderate disease. But those were three months studies. Those people had just gotten their second dose. If over time as antibodies fade, you're again going to be susceptible to mild disease. You should be protected against severe disease, which really only depends on memory, immunological memory. But mild disease, you could expect that six months later, protection against mild disease would fade. And it did. And I think people don't wait. I mean, I'm mandated to get this vaccine. I got the vaccine like they told me. Now I've been in bed for a couple of days. I have a cough and fever, and I feel terrible, and I've been nauseated. And the government lied to me. That's the way it was seen. And I feel sorry for Dr. Fauci who was sort

of the face of all that. He sort of took all that upon himself. And I think he was viewed, at least by some, as being pedantic and condescending and sort of telling you what to do rather than necessarily explaining like, this is why we're doing this. These are the issues at hand. I just think it was, we have paid an enormous price for that in an erosion in vaccines rates across the board. I think if there were to be another pandemic, we have seriously tied the hands of public health behind its back.

25:00
Dr. Jane Caldwell
So what should we be doing now to promote vaccines and vaccine safety?

Dr. Paul Offit
Just educate as much as we can passionately and compassionately and in as clear a way as possible that what vaccines are and what they aren't and why they're still important. I fear that the only way we're going to kind of recognize their importance, frankly, is to see some of these diseases come back, which is sad because it's always the most vulnerable among us, children who suffer that. And I think that's what's going to happen. I do hope I'm wrong. Normally I'm an optimist. I mean, I'm a Philadelphia Eagles fan, but, you know, I'm not so optimistic about this.

25:35
Dr. Jane Caldwell
Besides educational medical writing, you were involved in the documentary *"Shot in the Arm"*, and you have a Substack newsletter called *"Beyond the Noise"*. And by the way, we will link to those show notes for everyone. What else do you have coming in the future with medical education?

Dr. Paul Offit
Well, I'm actually working on another book, just the subtitle, which is *"Who Can You Trust When Experts Give Bad Advice?"* Because that's sort of where we're at now. I mean, you're seeing a lot of people who are experts sort of bad advice and people who like Joseph Ladapo, an MD, PhD from Harvard who's saying don't get the mRNA vaccines because they're contaminated with fragments of DNA that cause cancer, which is just utter nonsense. Those are the people that I worry about. It's like Robert F. Kennedy Jr. worries me because it's a platform and now he will have a bigger platform, but he's a lawyer.

I mean, here are people who are trained, Dave Weldon, who will be head of the CDC, he's a doctor who thinks MMR vaccine causes autism, even though data have shown that it doesn't, or that thimerosal in vaccines cause autism, which it doesn't. And he doesn't trust the CDC, he doesn't trust an agency he may be about to run. So it's troubled times.

27:42
Dr. Jane Caldwell
What were you hoping I would ask you today?

Dr. Paul Offit
I think that was great. I think that's what I was hoping you would ask me. What to do now in this troubled time, I think.

Continued

Dr. Jane Caldwell
Okay. All right, well, Dr. Offit, we appreciate your passion and thank you so much for joining us and providing a balanced look at polio vaccinations.

Dr. Paul Offit
Thank you.

Dr. Jane Caldwell
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