

# BOOKS AND IDEAS PODCAST

*With Ginger Campbell, MD*

## Episode #40

**Interview with Infectious Disease Expert, Paul Offit, MD, Author of *Deadly Choices: How the Anti-Vaccine Movement Threatens Us All***

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## INTRODUCTION

This is *Books and Ideas* Episode 40, and I'm your host, Dr. Ginger Campbell. For complete show notes, including transcripts of this episode, go to [booksandideas.com](http://booksandideas.com).

My guest today is [Dr. Paul Offit](#), author of [\*Deadly Choices: How the Anti-Vaccine Movement Threatens Us All\*](#). Those of you who are regular listeners may remember that I interviewed Dr. Offit about two years ago about his book, [\*Autism's False Prophets: Bad Science, Risky Medicine, and the Search for a Cure\*](#). That was in [Episode 25](#).

I decided to invite Dr. Offit back on *Books & Ideas* because his new book contains information that I feel is vital for us all. I apologize to those of you who are listening outside the United States, although those of you in the UK have been facing some of the same problems. Wherever you live, I think it is vital to understand the importance of [herd immunity](#) and why it is the key to preventing the spread of infectious diseases.

After the interview I will be back with my closing announcements, which will include an update on some of the issues discussed back in Episode 25, as well as a discussion of a few items that Dr. Offit and I didn't have time to talk about. So, don't turn off the podcast when the interview ends.

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## INTERVIEW

**Dr. Campbell:** Paul, it's great to have you back on *Books and Ideas*. It's been almost two years since we last talked. How have you been?

**Dr. Offit:** I've been doing well, Ginger. How about you?

**Dr. Campbell:** Great! Now, you've written another book called *Deadly Choices: How the Anti-Vaccine Movement Threatens Us All*. Would you like to tell me a little bit about that?

**Dr. Offit:** Yes. I started working on this I guess about a year-and-a-half ago when there were starting to be outbreaks of infectious diseases that were preventable. There was a mumps epidemic. The first was actually in 2006, then again in 2009. The most recent one in New York and New Jersey affected 1500 people.

There is an ongoing whooping cough epidemic in California that's bigger than anything we've seen in more than 50 years. Actually the last one of this size was in 1947. Already during this epidemic 10 children have died. We've had children die of a particular kind of bacterial meningitis called Hib—here in the Philadelphia area, 3.

In all those cases parents chose not to vaccinate their children. And then we had a measles epidemic in 2008 that was bigger than anything we'd seen in more

than a decade. I guess I wrote the book because I want to sound a warning that there seems to be a fraying in the edges of vaccines, and it's causing our children to suffer.

**Dr. Campbell:** So, to get right on into that, your book provides a concise but detailed history of the anti-vaccine movement going all the way back to the smallpox vaccine in the mid 1800's. But before we talk about a few examples, I would like to talk about a key theme in your book, which is that when parents decide not to vaccinate their children they're risking not only their own children, but others, as well. Paul, could you tell us a little bit about herd immunity and why it is so important?

**Dr. Offit:** Right. The definition of 'herd immunity' is that when you get to a certain critical percentage of people who around you are vaccinated you're going to be protected, independent of whether you're vaccinated or not. For example, there was an outbreak of measles in the Netherlands between 1999 and 2000 that involved 4000 people.

And what was interesting—and it may seem counterintuitive on its face, but isn't when you think about it—is that you actually had a lesser chance of getting measles if you hadn't been vaccinated but lived in a highly-vaccinated community than if you had been vaccinated and lived in a relatively unvaccinated community: the reason being that no vaccine is 100% effective (measles included; for that 90% effective, but that means you have a 1-in-10 chance of still getting at least mild disease), and if you're more likely to be exposed you're more likely to get sick.

So, herd immunity is critical—especially for people who can't be vaccinated. And there are about 500,000 Americans who can't be vaccinated because they're getting chemotherapy for their cancers, or immune suppressive therapy for their chronic diseases or for their transplants. They depend on those around them to

be vaccinated, because if they're not, then they're the ones who are most likely to be hospitalized and to die. We always think about this as just for us or for our children, solely, but it does affect those around us. It's really not a decision you make solely for yourself.

**Dr. Campbell:** One of the takeaway points I got from your book was the idea that once a critical mass is reached the spread of a disease can be stopped. That's how we eradicated smallpox.

**Dr. Offit:** Right. And that's what herd immunity is. And it depends on the pathogen—or the virus or bacteria—you're talking about. For example, measles, chicken pox, whooping cough, those are highly contagious diseases, easily spread. So, you need a much higher percentage of the herd, if you will—the population—to be vaccinated if you're going to stop spread: frankly, somewhere between 90% and 95%.

Polio is different. Although polio is a devastating disease, it's not quite as contagious as, say, measles is; and so we found that once we started to introduce polio vaccine into the community, by the time we got to about 70% immunization rates we'd gone a long way to eliminating that disease. So, it really depends on the pathogen.

**Dr. Campbell:** So that's why we're seeing the outbreak of the most contagious diseases first as a result of the breakdown of herd immunity, because those are the ones that are easiest to spread—like, for example, the measles.

**Dr. Offit:** Exactly right. Measles, mumps, whooping cough, chicken pox, those are the most contagious. And you're right: when herd immunity starts to break down, when you start to see a fraying at the edges, it's the most contagious diseases that you'll see first. That's exactly what's happening.

**Dr. Campbell:** You mentioned how herd immunity protects people that can't be immunized. I think it's a good point also to note that it protects children when they're too young to be immunized, and also it protects those rare people who don't respond to vaccines even though they are immunized.

**Dr. Offit:** That's exactly right. If you look at the whooping cough epidemic in California now, there have been 10 deaths. All of those deaths were in children less than 3 months of age, so they wouldn't have been able to be effectively vaccinated. You get vaccines at 2, 4, 6 months of age. Again you get a booster dose between the first and second year of life—and really that's when you probably develop your best immune response. So, young infants depend on those around them to be protected.

And it's usually people in the home from whom they catch this disease. And if you look at immunization rates in California, where the vaccine Tdap—which is a pertussis- or whooping cough-containing vaccine—is recommended for all adolescents, only about 40% of adolescents get it. If you look at the vaccine in adults—and it's recommended for all adults who live in the home of someone who's very young—only about 6% get vaccinated.

So, that was the mote around the fire. The baby, who has a smaller windpipe, who when that smaller windpipe is clogged with mucus is most likely to die, they depend on those around them to be protected against whooping cough, or if not, they're going to suffer. And so, we need to be much better at immunizing in the home of young children than we are. That's a perfect example of herd immunity.

**Dr. Campbell:** There's another principle we discussed the last time we talked that is so important I want to go over it again. Today children are, of course, getting more shots than ever before, and lots of parents worry that maybe they're getting too many shots. Will you address that concern?

**Dr. Offit:** I talk about this actually at some length in Chapter 10 of this book. The title of the chapter is “Dr. Bob.” I go through parents’ concerns about modern vaccines, as sort of reflected in the writings of Bob Sears, who wrote a book called, *The Vaccine Book*, which, frankly, provided parents with an alternative schedule. But the notion that vaccines are weakening, or overwhelming, or perturbing the immune system just doesn’t jive with what we know about what’s contained in vaccines.

For example, when you’re in the womb, and you enter the birth canal, and then enter the world, you really are bombarded with literally trillions of bacteria that live on the surface of your body, to which you make an immune response. You make grams of immunoglobulins—which are the antibodies that we use to make sure that bacteria and viruses that we come in contact with every day sort of just stay at our mucosal surfaces and don’t invade us.

Grams! And each single bacterium has between 2000 and 6000 immunological components. If you add up all the immunological components in the 14 vaccines given to young children, it’s about 170. So, it’s really nothing. And, frankly, it’s less than the number of immunological components in the one vaccine we got 100 years ago—the smallpox vaccine. That vaccine alone was a greater challenge than all the vaccines we get today combined. And you could argue a single episode of a common cold is greater than the immunological challenge in vaccines.

**Dr. Campbell:** Also one of the things you talk about in the book is how the older vaccines were much cruder and they contained a lot more proteins because, obviously, our understanding of immunology was limited. In fact, when the smallpox vaccine was invented they didn’t even know about antibodies yet. Right?

**Dr. Offit:** When the smallpox vaccine was invented—I'll tell you what they didn't know about: They didn't know about germs. The [germ theory](#) wasn't until the late 1800's, with [Ehrlich](#) and [Koch](#). [Jenner](#) was 100 years before that. He was really about 40 years before the use of the term 'virus,' which wasn't until the 1830's, with [Beijerinck](#) and the tobacco mosaic virus. And even then it was just used to refer to sort of a "poison." It wasn't really until the 1930's that we had electron microscopy that could identify really what viruses were.

So, what you can say about Edward Jenner is it was pure phenomenology—pure phenomenology. He noted that women who milked cows, when smallpox would sweep across the southern English countryside where he practiced, that they would be protected against smallpox. And he linked the two things. He assumed that when they would get these blisters on their hands, and it was similar to the blisters on the cow's udder, and that they would be protected against these blisters caused by what we then called 'smallpox,' that those things were related.

And so, then he took blisters from people that were milking cows, and then used that as an inoculum to protect other people. We now know that he was using cowpox, a virus which is at least similar enough to human smallpox so that immunization with one protects against the other. But he didn't know that. It was just phenomenology. He didn't know anything about antibodies; didn't know anything about germs or viruses. It was all phenomenology.

**Dr. Campbell:** But one great thing about the fact that we do know all this stuff now is that we can make much more effective vaccines and have less side effects. I think the acellular pertussis vaccine is a wonderful example of that. Would you talk a minute about that?

**Dr. Offit:** In the old days—which is to say starting in the 1940's; frankly, up until the 1980's and early 1990's—the whooping cough, or pertussis vaccine, was made by taking a whole bacteria, growing it up in media, letting it express its

toxins (so-called ‘poisons’), and then you would just inactivate the whole thing—the bacteria, the toxins—with an inactivating agent like formaldehyde. It was a pretty crude vaccine, and had a disturbing side effect profile. It didn’t cause permanent harm, but it certainly caused a lot of acute events that were upsetting to parents—and reasonably so.

Because of advances in protein chemistry, because of advances in protein purification, we were able to make a vaccine that, instead of having basically the 3000 immunological components that were in that vaccine, to have vaccines that contain only between 2 and 5 immunological components. So, it’s a much purer vaccine, and as a consequence it’s safer.

**Dr. Campbell:** So, even we adults don’t need to be worried about getting that new Tdap vaccine. I work in the ER, and they’re now recommending that we use that in the ER; which I’m trying to make the transition to.

**Dr. Offit:** That’s right. That’s the vaccine that’s now currently recommended for adults.

**Dr. Campbell:** So, there’s not any reason at all to deviate from the recommended schedule for vaccines. These deviations have been recommended by doctors who aren’t even trained in immunology. In fact, deviating is potentially dangerous.

**Dr. Offit:** Yes. I think people should value the expertise of those who make the recommendations. You have a group of people that make decisions as an advisory body to the Centers for Disease Control and Prevention<sup>1</sup>, or experts in pediatric infectious diseases who make recommendations to the so-called Committee on Infectious Diseases for the American Academy of Pediatrics. These are people who have read the studies, and they often have even done the

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<sup>1</sup> Visit the CDC website for more information about vaccines: <http://www.cdc.gov/vaccines/>



research on vaccines. So, they really have an expertise in vaccines, both manufacture and practice. And that's valuable.

When you add a new vaccine to the schedule it would only be added if it's clear that that vaccine doesn't interfere with the safety profile, doesn't interfere with the immune response profile of the existing vaccines—and vice versa, that those vaccines don't interfere with the vaccine you're adding to the schedule. There are hundreds of tests—so-called 'concomitant use studies'—to prove that. You would never be able to get a vaccine on the schedule otherwise.

To sort of make up your own schedule—especially if you're going to delay vaccines—is only going to increase the period of time during which children are susceptible to these diseases; for no benefit. And it's an untested schedule. You just don't know whether or not it's going to work as well, or be as safe.

**Dr. Campbell:** And one of the arguments that has been put forth that's totally invalid is the idea that the babies are getting the vaccines too soon, before they're able to make antibodies. The example of the hepatitis B vaccine is a good one to discuss along those lines.

**Dr. Offit:** Certainly from an immunologist's standpoint this is almost silly—though, obviously, people are serious about it, so it's not silly. When you're born you ingest milk—whether it's bottle-fed or breast-fed—that's not sterile. You come in contact with dust that's not sterile. You have, very quickly, living on the surfaces of your body trillions of bacteria which reproduce themselves. So, compare that—remembering that each single bacterium has between 2000 and 6000 immunological components—with the hepatitis B vaccine, which is a single viral protein.

It's one protein. I mean it is laughable, I think, that people would think that that somehow overwhelms the immune system, when you're being bombarded the

minute you enter the world. And, obviously, we get out of the womb when we're ready to get out—when we're able to handle that. And, frankly, by around 32 weeks' gestation you're able to handle much of the assault that you get in your natural environment.

Kids generally suffer six to eight infections a year; typically viral infections, many of which vaccines don't prevent: rhinovirus, cough and cold viruses, and viruses that have names like 'parainfluenza virus,' 'respiratory syncytial virus,' 'calicivirus,' 'coronavirus,' 'ECHO virus,' 'metanuma virus.' There are many diseases out there for which we don't have vaccines, that continue to assault our children. The notion that a single protein—one viral protein in vaccines—would somehow overwhelm the immune system is just wrong.

**Dr. Campbell:** How do we know that that one protein gets the job done?

**Dr. Offit:** From careful study. Actually there was a series of studies in India that showed children born to mothers who were infected with hepatitis B virus (meaning actively infected, have a lot of live infectious virus in the birth canal as the baby comes out; remembering that just 1 milliliter of blood—so that's 1/5 of a teaspoon of blood—has about  $10^9$  infectious hepatitis particles in it: that's a billion infectious hepatitis B viruses per 1/5 of a teaspoon of blood; and babies are sort of coming through a sea of that), that if you give them a single dose of vaccine—which is just 20 micrograms; it's 20 millionths of a gram of only that 1 viral protein—that you will protect about 85% of those children from getting hepatitis B. Without giving them anything else; meaning don't give them the so-called 'immune globulin' that also is requested for children who are born to mothers who have that disease.

It's remarkable, actually, when you think about it. It's remarkable how vigorous children's immune responses are that they can make a response to that vaccine that protects them. It's a godsend.

**Dr. Campbell:** Yes. That example really made an impression on me. That's why I wanted you to talk about it.

Well, rather than focusing on the seemingly endless false claims that have been made about vaccines, I would like to focus a little bit on how vaccines can be made safer when a real problem is detected. And I wanted to do that through two examples. One was the gentleman whose son got the polio. So, could you tell us a little bit about John Salamone's story?

**Dr. Offit:** John Salamone is a person who grew up in the DC, Virginia area, who worked for the Italian American Foundation (he actually was a congressional liaison at a very young age—a very smart adept guy), whose son, David, when he was about five years of age, or so, got polio from the polio vaccine. And he was permanently paralyzed by that vaccine because a rare, but real, consequence of that particular vaccine is it can cause something called 'vaccine-associated paralytic polio'—which, frankly, is indistinguishable from natural polio.

It was rare. It affected about 6 to 8 children per year. It only occurred, say, in roughly 1 per 2.4 million doses that were administered. But it was real. There was no doubt about it; the vaccine caused that side effect. And John Salamone's son suffered that. He was upset for a number of reasons, but one of which that's most obvious is that there is another vaccine available—the so-called 'inactivated polio vaccine.' The polio shot that we now give was a safer alternative. Now, we didn't give that in this country. Starting around 1962 up until 1998 we gave the oral polio vaccine.

But John argued why can't we give this other vaccine—and, frankly, put a black box warning on the oral polio vaccine? His voice was an important voice. I was actually the head of the Polio Working Group at the CDC at the time, in 1998, and we did switch in 1998 from the oral polio vaccine to just a fully-inactivated polio vaccine schedule. And John Salamone had everything to do with that switch. He

was insistent, and always, I think, courteous and respectful of those who were working on this, who, like him, were trying to figure out what the best thing to do was. He didn't assume that we were inhuman. He treated us humanly. And so, as a consequence, I think, of just his persistence, and the fact that he was right.

I think consumer activism is important, even in vaccines, certainly; but it has to be science-based. You can't just make stuff up and expect vaccines to be safer. You can't say that this vaccine caused, for example, multiple sclerosis, so you need to make it safer so it doesn't cause multiple sclerosis, when it never caused multiple to begin with. So, there safety activism doesn't do anything. You can make the same case for autism. But there John was right, and we made the change, and I think we're better for it.

**Dr. Campbell:** Paul, the second thing I wanted to talk about with regards to making vaccines safer is the Vaccine Adverse Event Reporting System. But before we talk about that we'll take a short break.

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My suggestion for this month is a new book by Hannah Holmes called, [\*Quirk: Brain Science Makes Sense of Your Peculiar Personality\*](#). Holmes is a science journalist, and this book was recommended by Mary Roach. And I think if you like the writing of Mary Roach you would probably like this book. I haven't had a chance to read it yet, but it sounds like fun.

Also I want to mention that besides the sponsorship of Audible.com, the main support for this podcast comes from listeners like you. And you can learn how to help support the show if you visit our website, [booksandideas.com](http://booksandideas.com).

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**Dr. Campbell:** Paul, could you talk a little bit now about how the Vaccine Adverse Event Reporting System works?

**Dr. Offit:** In 1986, when the government created the so-called [National Childhood Vaccine Injury Act](#), that included a number of programs, one of which is the so-called [Vaccine Adverse Event Reporting System](#), or, VAERS. And it sort of serves like a canary in a coal mine—a warning system in case there might be a problem with vaccines. So, if you think that your child may have suffered a vaccine side effect — And anybody can report: parents, doctors, nurses, nurse practitioners, personal injury lawyers; anybody who feels that a vaccine might have caused a side effect can very simply fill out a one-page form and send it into this program that’s co-directed by the CDC and the FDA.

And then that can serve as a warning system. It did actually serve as a warning system for a rotavirus vaccine that was introduced in this country in 1998. It was on the market for about 10 months, and was found to be a rare cause of intestinal blockage, called ‘intussusception.’ It only serves as a warning system, and so then one has to do a study to see whether the instance of a particular side effect is actually greater in the vaccinated group. That was proven in the case of intussusception.

Now, it also can be a false warning system in the sense that there are people, for example, that got the human papillomavirus vaccine—the HPV vaccine—and would say that it caused chronic fatigue syndrome, or it caused blood clots, or

strokes, or heart attacks. Again, there, although people made that report, when the studies were done it was shown that the vaccine didn't do any of that.

I think VAERS can be misused—certainly by those who are vehemently opposed to vaccines—by saying, 'Look at all these case reports of people who are suffering.' But when the studies are done it shows that those side effects were simply temporally associated, they weren't really causally associated; meaning the vaccine didn't really cause it. Vaccines were only really designed to prevent certain viruses and bacteria. They don't prevent everything else that occurs in life. And so, there are going to be some temporal associations.

**Dr. Campbell:** That's I think, a very important point. First of all, as you mentioned, anybody can report a possible adverse effect in this system. Then you need the actual studies that look into the epidemiology to figure out whether or not it's really increased in those getting the vaccine compared to those who don't. And we talked a lot about that principle the last time we talked, but I do think it's important to remember.

But this system does help the CDC and the other people involved to know when there might be a problem, so they can look into it. Right?

**Dr. Offit:** Exactly right. It's best as a warning system. At its worst it can be used to sort of scare people that things are happening that aren't really associated with the vaccine.

**Dr. Campbell:** But we did have ways of finding these things out even before this system was in place. I mean back in '76 when we had the original swine flu vaccine, and some people got Guillain-Barré, that was detected. Right? And that was prior to this system.

**Dr. Offit:** That wasn't part of this system, because it was in 1976. It was pre VAERS, and pre [Vaccine Safety Datalink](#). But you're right. It was sort of

academic institutions, I guess, primarily. The lead investigator in the *New England Journal of Medicine* paper was a guy named Schoenberger, and he looked and found that the instance of Guillain-Barré syndrome was greater in those who had received swine flu vaccine, so that the attributable risk was around 1 per 100,000: 1 of every 100,000 people who got that vaccine could suffer that side effect—often not permanent, but real.

**Dr. Campbell:** But that was more than your chances of getting polio would have been from the old polio vaccine—because you said that was 1 in 2 million, or something like that.

**Dr. Offit:** Well, Guillain-Barré syndrome associated with '76 swine flu vaccine was 1 per 100,000. And actually, if you look at the oral polio vaccine, that was 1 in 2.4 million. That's right; you're right.

**Dr. Campbell:** But the point is that the systems that we have are very sensitive to rare side effects.

**Dr. Offit:** Yes—and unlike drugs, frankly. I would argue that if Vioxx were a vaccine, the fact that it increased your risk of heart attack would have been picked up much sooner. And I think it should be, in some ways: because vaccines are given to healthy children, they should be held to the highest standards of safety.

So, when there's a problem, it is very quickly picked up and acted on. And when parents say, 'Look, you should listen to our concerns,' I think people have listened to their concerns, and do the kinds of studies that they've raised questions about. I just think the frustrating part comes when the science is done and people don't believe the science.

**Dr. Campbell:** So, here's a question I really don't know the answer to. I don't know how many shots kids get these days, because I don't have any kids. But I

know it's a lot. From a just scientific point of view, would it be possible to put some of these shots into the same shot—if it wasn't too expensive to do?

**Dr. Offit:** Yes. And there are some examples of that. The DTaP vaccine is a combination of three vaccines. So is the MMR vaccine. There are other vaccines out there that are 5-in-1 combinations. So, it is possible. And children do get vaccines that prevent 14 different diseases in the first few years of life; which can mean 26 inoculations in those years, and can mean 5 shots at one time, which is a lot for any parent to watch.

But the challenge to combining vaccines is that sometimes the buffering and stabilizing agents used in the vaccines aren't compatible, one to the next. So, that's been the hard part. And interestingly, now you've combined the MMR vaccine, for example, and there are people who want to separate it out. So, it seems like you can't win.

**Dr. Campbell:** I want to take a few minutes to talk about a real-life example of what happens when the herd immunity fails. Would you talk a little bit about Julieanna Flint? Do you remember her?

**Dr. Offit:** Yes, I do. Julieanna Flint—her mother's name was Brendalee, who was in Minnesota—the child had gotten all the recommended doses of a vaccine to prevent a kind of bacterial meningitis called 'Hib' (which just stands for *Haemophilus influenzae* type b), yet despite that the child got the disease, and suffered it, and got severe meningitis that ended up requiring surgery because there was so much pus surrounding her brain that it was pushing her brain to the side. And she lived, but barely; and so far appears to be suffering some of the after-effects of having that severe form of meningitis.

She had been vaccinated. As it turns out, she was immunologically disabled. From a congenital disability she wasn't able to make the kind of immune



response that would have allowed her to respond to the vaccine. So, although she got the vaccine, she never made an antibody response that would have protected her. She depended on those around her to be protected. And she happened to be living in an area where there had been a pretty dramatic decrease in the use of that vaccine, which caused her to suffer that. So, when people make a decision not to vaccinate, they make a decision not only for themselves, but for people like Julieanna.

**Dr. Campbell:** Yes. And you had a great quote from her mother that was from when she was talking to the congressional staffers. I'm going to read that quote. I think it really gets to the point.

She said, "Parents need to understand that when they choose not to vaccinate, they're making a decision for other people's children, as well." And she went on to say, "Someone else chose Julieanna's path. It doesn't seem fair that someone like Jenny McCarthy can reach so many people, while my little girl has no voice." And I just agree with her a hundred percent.

Which brings me to my next question: As I was reading your book I felt very angry about the physicians—like Dr. Bob—who are fueling some of this anti-vaccine stuff, when they don't even have the scientific background to take their positions.

**Dr. Offit:** Me, too. I agree. That's why I devoted a whole chapter to Dr. Bob, called, "Dr. Bob." I think Dr. Bob is a good man. I don't think that's at issue. He is trying to find a middle ground between parents who are scared of vaccines—although I would argue not scared for the right reasons. They're scared that vaccines cause things that they don't cause; like autism, for example. He's trying to find a middle ground between that and trying to get people vaccinated.

But what he does then is he recommends delaying vaccines. I mean he calls it “Dr. Bob’s Alternative Vaccine Schedule,” but let’s call it what it is: it’s a delayed vaccine schedule, so therefore it only increases the time during which the children are at risk. And for what? There’s no benefit in doing that. I guess that’s what I fault him for.

But it’s extremely frustrating; especially since in some ways I’m familiar with the process, because I was part of a team here at [Children’s Hospital Philadelphia](#) that invented the rotavirus vaccine. So, we had those strains in our laboratory by the late ‘80s, and then watched over the next roughly 18 years the process of the research of development. And it’s pretty daunting. It’s certainly expensive, and very daunting. And it was an education for me about what goes into it.

So then when somebody sort of just sits down and makes up their own schedule, kind of ignoring all of these studies, like so-called ‘concomitant use studies’ that tell you when you can add it into the schedule and whether you can add it safely into the schedule, and just makes up their own schedule, it’s enormously frustrating. It shows a tremendous amount of either disrespect or lack of understanding for how this all works.

**Dr. Campbell:** And it seems ironic that one of the issues in the anti-vaccine movement seems to be that the parents leading it don’t trust doctors, yet somehow they decide to trust selected doctors. I don’t know what you do about that.

**Dr. Offit:** And trust them blindly and forever. It’s not only that they don’t trust doctors: they don’t trust pharmaceutical companies; they don’t trust the CDC or aspects of the government involved with public health. But, you’re right. Take Andrew Wakefield. I mean this is a doctor—a British surgeon—who sets himself up as in many ways a countercultural hero: ‘I’m the one who cares about your children. I’m the one who’s going to tell you the truth about vaccines—that they

cause autism.’ And I don’t think he could have been more dishonest, frankly, in a lot of his original work. And yet, still many people look to him as godlike, because he, in their mind, is speaking truth to power—when that’s not the case at all.

**Dr. Campbell:** You made a good point in the book about the fact that when the paper that sort of launched the whole MMR/autism movement that he wrote—that turned out to be totally invalid—when that paper was withdrawn from the British medical journal, *Lancet*, last year, the significance of that, I think, is not really appreciated by the average layperson. Because they don’t realize that articles aren’t removed from medical journals just because they’ve become obsolete; they’re only removed because they’re considered fraudulent.

**Dr. Offit:** Yes! Which is to say that there has to be clear evidence for fraud or misrepresentation. It’s not something journals do lightly. And I applaud Brian Deer, who is the investigative journalist that really dug deep into this and found out what Andrew Wakefield was all about.

OK, so now the paper is retracted. What that means technically is it doesn’t exist. There is no way to reference it, because it’s been retracted. It doesn’t exist. But the fact of the matter is you and I are still talking about it, and its effect is still lasting, because you just can’t eliminate what happened. That’s the tragedy in all this.

**Dr. Campbell:** So, I guess we could shift our focus to solutions?

**Dr. Offit:** I think actually in some ways things are getting better, in the sense that I think mainstream media has started to cover the story of vaccines generally better. I mean there are still some outliers, obviously: Larry King; I think Oprah; Mehmet Oz has been awful on vaccines. And so, I think there are certainly outliers in the entertainment television world. I think generally responsible

media—*New York Times*, *LA Times*—has gotten much better on this story. So, that's good.

So, I think things are swinging back a little bit. In terms of solutions, I guess there are two possible ways in which one could try and solve this. One is to make it more difficult to get religious exemptions or philosophical exemptions to vaccines. That, I think, would be problematic, in that it's a country founded on individual rights and freedoms. We don't like to be told what to do, even if it's good for us and good for our neighbors. And I don't think that's going to work.

I think another possibility would be to appeal to a sense that I know we all have in us, which is that of just our societal instinct. The people who rushed toward the shots during the Tucson shooting, because they wanted to protect their fellow man, is an example of that instinct. Or the fire department folks and police department folks in New York City who ran toward the buildings to try and save their fellow man—that cost them their own lives—is an example of that societal instinct. I know we have that instinct. And I just wish we could find a better way to appeal to it so we realize that when we're making these choices for ourselves, we're actually also making them for other people, and it can hurt them; and it's just not OK.

**Dr. Campbell:** Yes, I don't think many parents today realize that March of Dimes was originally founded to fund research to make the polio vaccine—that people back then really appreciated how important the vaccines were. I mean I'm grateful that I was born just after it was invented. My husband had polio as a young boy. Fortunately he wasn't disabled. I don't want us to get to the point where we have to go back. I don't want to go back to having to do lumbar punctures on babies because I'm worried they have Hib meningitis.

**Dr. Offit:** Yes. And you'd like to think we'd learn from history; that therefore we wouldn't be condemned to repeat it. These are things that certainly my

parents knew and I knew. I'm a child of the '50s and '60s. I saw these diseases or had these diseases, so vaccines are an easy sell for me. It's just a much more cynical, litigious, I think, distrustful time that we live in. And I'm not sure we're getting anything for our cynicism here, other than lower immunization rates and more suffering.

**Dr. Campbell:** I think you made a very important point about the role of parents. In your book you said maybe the tide will turn when parents start to speak up. It seems to me that because of this issue of trust—that so many people don't seem to have trust in the medical profession...

Although they do: surveys keep saying that people trust their individual doctors. So, I guess that we do need to encourage individual physicians to be more aggressive about educating whoever their patients are.

Have you talked at all to the OB/GYNs? It seems like that would be a natural group that needs to be doing teaching in this area, that I bet isn't.

**Dr. Offit:** I think you're exactly right. And I think nurse practitioners and nurses often really are on the frontlines of those questions. People feel more comfortable, often, asking the nurse or nurse practitioner the question. But you're right. I think people will say they don't trust doctors, but they trust their doctor. It's a little ironic. But you're right; I think that we lose that opportunity to educate, and frankly, be passionate about vaccines.

I'll give you an example. There was a child who came into our hospital about a year ago now—a two-month-old who died of whooping cough. And she caught it from her mother. Her mother got sick about two weeks after delivery. And no one else in the family was sick, the child hadn't gone anywhere, and no one else that had visited was sick. I mean she was pretty protective of her child. But she

got whooping cough and gave it to her child; and because her child had a narrow windpipe, died of pertussis, despite pretty heroic efforts on our part to save her.

The baby was born in a local hospital, and when the mother delivered, within 24 hours a nurse came into the room and said, 'You're recommended to receive the Tdap vaccine'—the pertussis-containing vaccine—'as an adult living in the home of a young child.' She said, 'I'd rather not get it. Thank you.' And the nurse said, 'OK,' and walked out of the room. Well, that was the chance to save that child's life. And I think the nurse, nurse practitioner, or doctor who walks in there has to be much more passionate about what a decision not to get a vaccine could mean.

**Dr. Campbell:** What about the parents? What can parents do? I know parents are starting to appreciate that other people not having their kids vaccinated is a threat to their kids.

**Dr. Offit:** Yes, I think that's exactly it. So, you're starting to see it. I get these calls all the time: Parents who want to know, 'Is there a way I can find out what the immunization rate is in this daycare center, what the immunization rate is in this first grade class? If I'm going to be in a class with a large number of children who aren't vaccinated, I don't want to be there. I want to find another way to do this.'

So, that is some sort of subtle pressure to say that you're affecting me. The pendulum ultimately is continuing to swing in that direction. I just think one of the reasons it's swinging, though, is that we're starting to see outbreaks. You'd like to think it wouldn't have to come to that; that we wouldn't have to pay the price of all this human suffering to get our attention.

**Dr. Campbell:** Yes, we'd like to see the count on the [Jenny McCarthy Body Count](#) website stop going up.

**Dr. Offit:** Me, too. That was an interesting website.

**Dr. Campbell:** So, just to recall where we've been, the research really has confirmed that children are actually at a greater risk if they are fully vaccinated and live in a relatively unvaccinated community (that would include going to a school that's relatively unvaccinated) than if they're unvaccinated and live in a highly-vaccinated community. I guess that was based on a study in the Netherlands, right?

**Dr. Offit:** That's exactly right. Because no vaccine is a hundred percent effective, and because the more likely you are to be exposed the more likely you are to be sick, the most important thing is to have high immunization rates. If you are vaccinated, that protects you to some extent, but it doesn't protect you fully. If you're living in an area where there's a large number of people who are unvaccinated, you're at risk. You shouldn't feel like you're living with a protective bubble around you, because you're not.

**Dr. Campbell:** Is there anything else important that you'd like to add before we close, that I've forgotten?

**Dr. Offit:** No, I think that's it, Ginger. I mean I think it's sort of a troubled time that we're living in right now, and we need to pay attention to this. I guess we all have our biases, is what I would say. And my bias is that I work in a hospital. This past week I was on service, and we had a child who came in with influenza. It was a little boy who came in with influenza, and despite pretty heroic efforts on our part, has gone from a ventilator, to an oscillator, to now ECMO—which is a heart/lung machine.

He's pretty sick, and I'm not sure he's going to make it. He's got a pretty severe flu. And what's interesting is that the mother had been great about immunizing him. I mean she gave him his immunizations every year when required; she

immunized him every year for influenza. She just didn't get around to it this year. There is just no story worse than that.

**Dr. Campbell:** Yes. I feel bad for her.

**Dr. Offit:** Me, too.

**Dr. Campbell:** Do you have another book coming out for parents?

**Dr. Offit:** Yes. Charlotte Moser and I have written a book called, [\*Vaccines and Your Child: Separating Fact from Fiction\*](#), that will be coming out on March 22<sup>nd</sup>.

**Dr. Campbell:** Right. So, that would be a good one to share with parents. But this book, *Deadly Choices*, is one that I recommend to everybody.

I want to thank you again for coming and talking with me. And I will send you links as soon as this episode goes up on the Internet.

**Dr. Offit:** Thanks, Ginger. It was a lot of fun, as always.

[music]

I want to thank Dr. Paul Offit for being on *Books and Ideas* again. And I highly recommend that you read his book, [\*Deadly Choices: How the Anti-Vaccine Movement Threatens Us All\*](#). I will have a link in the show notes, along with a link to his upcoming book for parents.

The key idea of this episode can be summarized in just a few sentences. Herd immunity is important for three reasons: 1) It stops the spread of disease. 2) It protects those who can't be immunized. And, 3) It protects those who don't respond to vaccines.



If the percentage of people vaccinated falls below a certain point herd immunity breaks down and epidemics of potentially deadly diseases will occur. Thus the decision not to vaccinate is not a personal decision; it is one that affects one's community, or, as one parent said, 'When you decide not to vaccinate, you are making a decision for my child, too.'

And don't forget the story of the newborn baby who got whooping cough from its unvaccinated mother. This brings up another point, which is how important it is for those who around young children to be vaccinated.

Now I want to give you a little update with respect to [Episode 25](#). This episode was mainly about the anti-vaccine movement's claims that certain vaccines and thimerosal cause autism—which has been thoroughly disproven by multiple scientific studies.

The United States Vaccine Court had two major rulings in 2009 and 2010<sup>2</sup> which concluded that there is absolutely no evidence linking vaccines or thimerosal to autism. This means that they will not be paying out any more money for this.

They have also tightened up their standards so that people filing claims have to show evidence beyond a temporal relationship. No more claims like the nurse who was able to get money after claiming that the hepatitis vaccine gave her multiple sclerosis, despite the total lack of evidence of any relationship.

We talked about the fact that Andrew Wakefield's paper was withdrawn from the British medical journal, *Lancet*, for fraud. It should be noted that even before the official withdrawal most of his co-authors had withdrawn their names when they found out that, among other things, his original study was funded by plaintiff lawyers. Last year Dr. Wakefield also lost his medical license in Great Britain.

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<sup>2</sup> The full docket including the decisions mentioned here is available at <http://www.uscfc.uscourts.gov/node/2718>

But unfortunately I think he's now in the United States, where the anti-vaccine people regard him as a martyr and a hero.

One reason that I recommend you read *Deadly Choices* for yourself is that it gives a detailed history of the anti-vaccine movement. It's amazing how some of the current claims against vaccines mirror those against the first smallpox vaccine. Some of the tactics used by the anti-vaccine movement are truly appalling. That's why I think it's important for those of us who understand the value of vaccines to speak up against what is essentially an anti-science movement.

More importantly, I hope those of you who are parents or teachers will become advocates in your community. Do you know what the vaccine rate is in your community or school? What about children that are being home-schooled? I'm afraid that may be where future epidemics start. Home-schooled children often participate in sports and other activities, so unvaccinated home-schooled children could infect children like Julieanna, who have been vaccinated but aren't immune.

Because I think that it is vital to get this message out, I want to encourage you to share this podcast with everyone you know—especially those with children. And if you are a physician or a nurse, I hope you will look for opportunities to educate your patients of all ages. I am making the interview-only portion of this episode available free to physicians and fellow podcasters.

Also, if you would like a transcript of this episode, don't forget you can go to [booksandideas.com](http://booksandideas.com). And you can send me feedback at [docartemis@gmail.com](mailto:docartemis@gmail.com).

The next episode of *Books and Ideas* will come out in April, but I will be back next month with a new episode of the [Brain Science Podcast](#).

Which reminds me: I will be giving a live talk in London on May 11, 2011. If you live in the area, I hope to see you there. I will provide more details in next month's show.

Thanks again for listening. I look forward to talking with you again very soon.

[music]

Theme music for *Books and Ideas* is "The Open Door" by Beatnik Turtle. Be sure to visit their website at [beatnikturtle.com](http://beatnikturtle.com).

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