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## Paul Offit on the Dangers of the Anti-Vaccine Movement

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Posted: 04/27/2011

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Eli Y. Adashi, MD: Hello. I am Eli Adashi, Professor of Medical Science at Brown University and host of [Medscape One-on-One](#). Joining me today is Dr. Paul Offit to discuss his latest book, *Deadly Choices: How the Anti-Vaccine Movement Threatens Us All*. Dr. Offit is the Maurice R. Hilleman Professor of Vaccinology and Chief of the Division of Infectious Diseases at the Children's Hospital of Philadelphia. Welcome.

Paul A. Offit, MD: Thank you.

Dr. Adashi: It's great to have you. What led you to undertake this significant project?

Dr. Offit: I think we're at a tipping point and it worries me. The tipping point is evidenced by outbreaks, the likes of which we haven't seen recently. For example, we have a whooping cough outbreak in California that's bigger than anything we've seen since 1947. We've had mumps epidemics in the Midwest in 2006. Again, in the Northeast this past year the most recent [mumps outbreak] involved 1500 people, leaving several people deaf. We've had outbreaks of bacterial meningitis, the preventable kind (*Haemophilus influenzae* type B), because parents chose *not* to vaccinate their children. We had a measles epidemic in 2008 and continue to have sporadic measles epidemics, most recently in Minnesota, because people are choosing not to vaccinate their children. You're starting to see these vaccine-preventable diseases come back; these once historic diseases come back. It's hard to watch. I'm trying to sound a warning bell.

Dr. Adashi: So it's an ongoing advocacy effort really in support of vaccinating children. Do you sense that we're gaining, that you're having an impact? Are we turning the tide? How do you feel about that?

Dr. Offit: I think there is good news and bad news. The good news is that the media, certainly the mainstream media, has gotten much more responsible about covering this subject. I mean, it used to be that they would tell 2 sides of the story when only 1 side was supported by the science. This was, for example, the vaccines-cause-autism debate. That's not true anymore.

Mainstream media is much better about this. Even entertainment television, [for example] *Larry King Live* and *Oprah*, have started to back away from this. The problem is that there has been a lot of residual damage. A

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recent study that was reported at the Pediatric Academic Society meeting showed that 4 of 10 parents now are choosing to delay or withhold one or more vaccines for their children. I think that's the fallout from all this.

Dr. Adashi: What was it that triggered the anti-vaccine movement in the first place? Was there a seminal event, a point in time that launched this new effort?

Dr. Offit: I think there was. I think the birth of the modern American anti-vaccine movement occurred on April 19, 1982. That date was associated with a 1-hour documentary. It appeared on a local NBC affiliate in Washington, DC. It was called "DPT: Vaccine Roulette," and it was made by Lea Thompson who went on to have sort of a meteoric career at NBC.

Her contention was as follows: She showed a series of parents whose children were fine. Then they get the whooping cough vaccine (the DPT vaccine), and then they weren't fine anymore. You saw these children with withered arms and legs, with spastic limbs, who were seizing. They were staring vacantly up at the sky and had bicycle helmets on and were drooling. I think anybody who was human who watched that show couldn't help but be moved by it.

But it was wrong. The whooping cough vaccine didn't cause permanent brain damage, but it had tremendous fallout. It really gave birth to the notion in this country that vaccines might be doing more harm than good.

Dr. Adashi: So we're talking about a debate that is now about 30 years old. Should we be thinking about the anti-vaccine movement as a purely grassroots effort or is it more than that today?

Dr. Offit: It's much more than that. I think certainly there are dedicated groups like the National Vaccine Information Center, which used to be called Dissatisfied Parents Together, and others such as Moms Against Mercury, Safe Minds, and Generation Rescue. These are the professional anti-vaccine groups, but I think the bigger group, frankly, is made of parents who become scared. They're not sure who to trust. They're not sure what to believe. They have this vague sense that maybe pharmaceutical companies have too much influence and maybe doctors aren't to be trusted, and they're choosing to delay or withhold one or more vaccines at their children's risk.

Dr. Adashi: But there is, from the sound of it, an infrastructure out there -- offices in Washington, DC and people who make a living in the context of this movement. Is that a correct assumption?

Dr. Offit: That's a correct assumption.

Dr. Adashi: Has the anti-vaccine movement targeted one particular vaccine or another, or is it a relatively global type of a focus?

Dr. Offit: It's relatively global. Certainly, the vaccine that started the modern American anti-vaccine movement group was clearly the whooping cough vaccine, the pertussis vaccine. I think the vaccines that have been hardest hit have been the hepatitis B vaccine, I think in large part because it's given to children in the first day of life. The human papillomavirus vaccine has been a big target because it prevents a sexually transmitted disease, and I think at some level people see that as dirty and don't like to give it to adolescents. I think hepatitis B vaccine suffered the same thing. I think there are some vaccines that suffer more than others, but I think at some level when one suffers they all suffer.

Dr. Adashi: When did you first get involved in this 30-year debate?

Dr. Offit: What got me interested in this was the fact that I worked with a team at Children's Hospital of Philadelphia to develop the rotavirus vaccine. I'm a basic scientist -- an immunologist and a virologist. That's how I grew up. That's how I was trained in all this. For the 10 years that I worked with the group at Children's Hospital of Philadelphia to do the research that created the strains that ultimately became a licensed rotavirus vaccine, I learned about what it took to do the research. I think the real education came with the 15-plus years that it took to do the research of development to make that vaccine. When you see what exactly is required to get a vaccine into children it's just daunting. *I had no idea*. Then when you see it so easily and wrongly dismissed by people who have really little idea of what vaccines are or how they work or how they're made it was hard to watch.

Dr. Adashi: So in essence, obviously, your awareness increased over the years. Were you called upon to speak up at some point? Was there an interview that was considered the first congressional hearing perhaps? When did you first physically get involved in the debate?

Dr. Offit: I certainly wasn't called upon. Nobody has ever asked me that question -- I'll tell you exactly what got me in. There was an article in the *Philadelphia Inquirer* about the chicken pox vaccine, the varicella vaccine. It has just come out in 1995. Here was a vaccine that had the capacity to protect against the 10,000 hospitalizations and roughly 70-100 deaths that occurred from chicken pox every year. This article in the *Philadelphia Inquirer* actually was sort of that typical "he said, she said" story. Here are people, researchers at the CDC, who say this about the vaccine, which is that it is safe and effective. [And] here is just the local guy who says it's not.

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I just couldn't believe that, and I called up the reporter and I said this is not balanced. There's no perspective here. This is just not the way to cover this story. There are not 2 sides to this story. Do your homework. Read the original papers if you're going to comment on this. It just made me angry that this vaccine that had been worked upon so hard was so easily dismissed by the paper because that's where people were getting their information. It just really upset me that that's where people were going to get this information, that they wouldn't believe the CDC was correct in its statement that the vaccine was of value.

Dr. Adashi: And was it left at the level of a phone call or did you follow it up with an op-ed perhaps, or other advocacy efforts?

Dr. Offit: Yes, it was followed up with a letter to the editor, actually. Then I was in. Then I found myself getting angrier and angrier and calling these generally local reporters. Eventually *Fox News* did an awful story that I remember, and I just found myself calling people and writing op-ed pieces and being angry about all this.

Dr. Adashi: So you've been at it for about 15 years, based on my quick calculations, about half the duration that the controversy seems to have been swirling. In reading your book, you appropriately devote a significant amount of space to one of the major protagonists in the debate, Dr. [Andrew] Wakefield. Could you share with our viewers the role that Dr. Wakefield played and where that role has come to?

Dr. Offit: He's an interesting guy, Andrew Wakefield. What he did was he published a paper in 1998 in a general medical journal called *The Lancet*, which is a very well-respected journal. It was really a case report. It was a case series of 8 children who had recently received the combination measles, mumps, rubella vaccine or MMR vaccine. They all, according to the parents, had developed symptoms and signs of autism within a month of receiving that vaccine. He also believed that when he looked by endoscopy at their intestines that they had something called ileal lymphoid nodular hyperplasia, which is to say, a swelling of groups of lymphoid tissue like the Peyer's patch or mesenteric node.

He believed he had found something. He believed he identified an important syndrome. Get the MMR vaccine, develop intestinal symptoms, and then get autism. Now, that was wrong --

Dr. Adashi: Based on 8 cases.

Dr. Offit: Based on 8 cases. Obviously, to his credit, in the discussion section of that paper he actually said, I cannot say that this vaccine caused autism because this is not a controlled study; I haven't looked at large groups of children who did or didn't receive the vaccine. He did say that in the discussion section, but that was the *last time* he said it. I mean, the next day with the lights shining and the cameras rolling, he said exactly that -- that he feared the MMR vaccine caused autism.

Now what is interesting about Dr. Wakefield is a few things. One is that since that study or that case series was reported there have been many, many studies -- about 14 -- that looked at large groups of children who either did or didn't receive MMR to see whether the risk for autism was greater in the vaccinated group. Clearly, it wasn't -- again and again and again. What makes Dr. Wakefield interesting is that he simply holds onto this belief. It's like a religious belief, which is remarkable for a scientist, and that's why he can do so much damage. He's convincing because he's convinced. I've never seen anything like him.

In many ways, though, he has actually helped the cause of getting good information to the public. What has since been found out is that much of what he had published was fraudulent -- that he had misrepresented those cases and that he'd misrepresented the so-called PCR data looking at measles virus genome in the intestines. That, in fact, 5 of the children in that paper (actually their parents) were in the midst of suing pharmaceutical companies. He received hundreds of thousands of pounds from a personal injury lawyer to arguably make their claims more valid by publishing it in a paper.

When the fraudulent nature of that paper came out, it did a lot of harm to the anti-vaccine movement because people saw it as fraudulent.

Dr. Adashi: As we speak about it today, where do Dr. Wakefield's claims stand?

Dr. Offit: They're on the fringe. They're gone. There is no mainstream reporter who carries this as fact anymore or even a controversy. I think because he was found to be fraudulent he's been dismissed, which is a little upsetting in some ways, because it doesn't matter whether he was wrong or whether he was wrong *and* fraudulent. *It really only matters that he was wrong.* I think people more easily dismiss him because he was also fraudulent, but the fact that he was wrong, and studies have shown that he was wrong, should have been enough. It seemed that the fraud made it easier to dismiss him.

Dr. Adashi: Has Dr. Wakefield ever gone beyond those 8 cases? Has he published follow-up papers, a larger number of cases, controlled studies of any kind?

Dr. Offit: Controlled studies, no. I mean, he has published a larger number of cases in what he believes to be a syndrome, but his syndrome has not been supported by large, excellent, controlled epidemiologic studies. He was wrong. MMR doesn't cause autism. It never made sense that it did, and now we know that it doesn't. Yet

he still holds on to this fact. Now he's in Minnesota trying to talk to these Somalis who are in the midst of a measles epidemic. It's all just so horribly *unconscionable* and hard to watch.

Dr. Adashi: In reading your book one other impression one is left with is the ever present role of celebrities in public debates. Now that you've been exposed to it, what can you share with our viewers as to the role of celebrities in such public debates, positive and not so positive?

Dr. Offit: Well, largely *not so positive*. I mean, I think it's remarkable. We look to people like Jenny McCarthy, who is a parent of a child with autism, to give us information about autism and its treatments. I think Jenny McCarthy, because she has a child with autism, certainly is a sympathetic figure and she's certainly an expert on her child, but that doesn't make her an expert on the disease. It's just remarkable to me.

I remember watching a *Larry King Live* episode where he had Jenny McCarthy on. He also had Holly Robinson Peete, who is an actress and also a mother who had a child with autism, and then a noncelebrity mother. He looked at each one of them and said "What do you think causes autism?" *What do you think causes autism?* You're watching this show thinking "Why don't you get an autism expert on the show and ask *that person* what they think causes autism because that's what they do for a living?" It's as if because one has a child with this disease that you have some special insight into all the research that has been done in that area, and that's not true.

Dr. Adashi: Some of the celebrities were physicians. Dr. Oz comes to mind. Have you interacted with him and/or spoken with him about the issue?

Dr. Offit: Yes. I was actually on his radio show not too long ago. He is of the belief that vaccines may be doing more harm than good, that children shouldn't get as many as they do as soon as they do. He has a book with Michael Roizen called *YOU: Having a Baby*, which is interesting because he's a cardiovascular surgeon and Roizen is an anesthesiologist. I'm not sure why they have any specific expertise that teaches them about how to handle children who are young but so be it. He's an interesting guy. First of all, he's a graduate of Penn's medical school right here, so I guess we take responsibility for this. Then he goes to Columbia where he rises in the ranks to become a full professor in cardiovascular surgery.

He is a brilliant man, a brilliant well-spoken man, who has become a brand, a commodity. Yet, he feels strongly against vaccines. I don't know why.... Obviously, Mehmet Oz has been very disappointing in this. He has a platform. He could educate people about science and good science and chooses, at least in this case, not to.

Dr. Adashi: So you had a conversation but he was left unconvinced at the end of that interaction?

Dr. Offit: Apparently so.

Dr. Adashi: In your book, in fact, in the very first sentence you describe the conflict between pro- and anti-vaccine proponents as a war. How would you describe the state of the war to date?

Dr. Offit: Again, I do think we're largely winning. I do think that in some ways the professional anti-vaccine people made a big bet and it was a bad one. The big bet that they made was that vaccines cause autism because what has happened now is that every time they've raised this, whether it's MMR causes autism or thimerosal and ethyl mercury-containing preservative in vaccine causes autism or too many vaccines too soon causes autism, there have been studies that have come out that have largely refuted that notion.

I think the mainstream media is getting a little tired of trying to follow this basically bad lead that was given to them by the anti-vaccine people. I do think we're largely winning. It'll never go away. I mean, certainly those who are firmly entrenched in believing that vaccines hurt their children will always believe that. There is no amount of data that will convince them otherwise. There certainly will always be some in the media who will be an advocate for them, but the fact of the matter is it's hard to sustain a movement that doesn't have science on its side. That's certainly true here.

Dr. Adashi: Moving to the practical for a moment, what advice would you give physicians who encounter parents who are disinclined or, in fact, are opposed to vaccinating their children?

Dr. Offit: I feel sorry for people in that position. I think it's an impossible position to be in because you could argue this one of 2 ways. My wife is actually a perfect example of this. She's a general pediatrician in mainline Philadelphia trying to deal with this all the time. What she used to do is whatever she could to try to get children vaccinated. She would give parents as much information as she could. She would spend time with them and try and say "Look, here is why vaccines are good. Here is why a choice not to get a vaccine is a risky choice, a choice that you shouldn't make for your child." She felt that she probably had about 25% of parents gradually getting the vaccines that they needed.

Then, she had had it. She felt like "I can't send you out into a world where I know that there's an increased risk now of getting these diseases. Let me love your child. Don't put me in a position where I have to practice substandard care that could result in harm. I can't do it. I cannot do that, so I can't see you [as a patient]. I can't see you unless you can get vaccines according to the schedule." She feels now actually that she

convinces more people because they see just how strongly she feels.

Dr. Adashi: On a personal note, if I may ask, you dedicated this book to Maurice Hilleman and Stanley Plotkin. I believe most of our viewers would be very interested in knowing why and what these individuals meant to you.

Dr. Offit: Well, they were my heroes. I mean, Stanley Plotkin was the Division Chief when I first came into the Children's Hospital of Philadelphia's Division of Infectious Diseases. He is the developer of the current rubella vaccine, the so-called RA 27/3 strain of vaccine, and has done really important work in cytomegalovirus. He was an important member of the team at Children's when we developed the rotavirus vaccine. He was an important member of the team at Wistar that developed the rabies vaccine. He's just a brilliant, thoughtful man who was just, to me, the epitome of reason. I just never met anybody quite as logical and ordered as he was.

I think Maurice was an unappreciated hero. He is really arguably the developer or the primary researcher on 9 of the 14 vaccines that we have. I would argue Maurice Hilleman's work has saved more lives than any other scientist, and yet few know him, I think in part because he worked for a company. We don't like our heroes to come from companies. We like them to come from academia. He was a unique combination of brilliant and profane. He was both profound and profane. Maybe it was his army experience, but I've never seen anybody curse as much as he does who was as brilliant as he is. He was just a very tough smart guy who got a lot done quickly and it was still never enough. He was an amazing guy, Maurice Hilleman.

Dr. Adashi: Is there another book in the making?

Dr. Offit: Yes, I think I'm going to write a book about alternative medicine. I think the subtitle of that book is going to be something like "How Alternative Medicine Hurts Us and Why We Let It Happen." The current working title is "Killing Them Softly." A number of people have actually taken on quackery and health fraud, but I sort of would like to try my perspective on taking that on.

Dr. Adashi: So one war is not enough. Thank you.

Dr. Offit: Thank you.

Dr. Adashi: On that note, sincere thanks to Dr. Offit and to you, our viewers, for joining Medscape One-on-One. Until next time, I am Eli Adashi.

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