TPWKY - Special Episode - Adam Ratner

EW: [00:00:00] Hi, I'm Erin Welsh and this is, this podcast Will Kill You. You are listening to the latest episode in the T-P-W-K-Y book Club series where I interview authors of popular science and medicine books about their latest work. It has been so much fun to put these episodes together, and I am really thrilled to be bringing you more of these this season.

EW: If you'd like to get a sneak peek of the books that we'll be featuring throughout the rest of this season, or to check out the books that have been featured on past episodes, head over to our website. This podcast will kill you.com. There under the extras tab, you'll find a link to our bookshop.org affiliate account, which has a few different lists of books that we've featured on the podcast, including a book club list. I'll be adding more books to that list throughout the season, so check in regularly for updates. We always appreciate hearing from you all which books you're enjoying, and so if there are any book club episodes that you particularly loved, or if there's a book that you'd like to see featured, shoot us a message through the Contact Us Form on our website. Also, did you know that you can now find full videos of most new episodes of this podcast will kill you on YouTube? Subscribe to Xactly Write Media's YouTube channel so you never miss an episode. One last thing and that is a request to please take a minute if you haven't already to rate, review and subscribe. It really does help us out.

EW: A worrying trend has emerged in the United States over the past few years, as well as in other regions around the globe. Vaccine uptake rates both in children and adults have started to decline due in large part, to increasing vaccine hesitancy. As a result, we've seen more and more outbreaks of vaccine preventable diseases that had once been on their way to elimination in the US diseases such as measles. Which actually had been eliminated while I'm recording this on March 17th. There is an ongoing measles outbreak in West Texas with cases numbering in the hundreds, and the infection has been popping up in other states as well. And although we can't predict exactly what will happen with this particular outbreak, we can use our knowledge of measles as a guide to understand how it spreads so fast and causes such devastation. Why people are reluctant to get themselves or their children vaccinated.

EW: In this book club episode, pediatric Infectious Disease Specialist, professor of Pediatrics and microbiology and author Dr. Adam Ratner, joins me to discuss his latest book Booster Shots, the Urgent Lessons of Measles and the

Uncertain Future of Children's Health. With his experience treating children that are gravely ill with vaccine preventable diseases like measles. Dr. Ratner provides a powerful perspective on the dangers of this virus and the harm caused by miss and disinformation. In booster shots, he takes readers through the biography of this virus. Its transmissibility, its lethality. Its long and devastating history, and the factors contributing to its reemergence, what results is a compelling and comprehensive portrait of a disease that should be found only in the history books, but of course is not. Crucially, Dr. Ratner demonstrates that minds can be changed, that progress can be made in the fight against vaccine hesitancy, and that what it takes is empathy and understanding if things keep going the way they are. If vaccine hesitancy continues to mount and if people continue to turn away from science and towards unproven cures that are at best, neutral, and at worst, harmful. This current outbreak will be far from the last. The lessons of measles, as Dr. Ratner describes in booster shots, apply well beyond this one infection. They are lessons in public health, in prioritizing prevention, and in understanding that [00:05:00] individual choices can have far reaching civic consequences. I am very excited to share this conversation with you all, so let's take a quick break and get right into it.

EW: Dr. Rettner, thank you so much for joining me today.

AR: Oh, so excited to be here.

EW: I can't tell you just how much I loved your book Booster shots, and I feel like part of the reason that it was so impactful is because. You are coming from the front lines about this, like you have seen firsthand the devastation that measles and other vaccine preventable illnesses can cause. When did you decide that you wanted to write a book about this topic and then why? Measles in particular? I.

AR: The turning point for me was really in 2018 and 2019 when we had this big measles outbreak in New York City. And at that point I had been doing this for a long time. I had been seeing patients for a long time. I trained as a, a pediatrician and then an infectious disease expert. And I thought I had seen, you know, most stuff. And this was really interesting to me because it. Measles was something that I had learned about, of course, but it was, it was something I had seen a handful of cases of over the course of my career. You know, uh, uh, returning traveler, uh, a little cluster of cases in northern Manhattan when I worked there. But all of a sudden, this disease that I had kind of filed under solved problems in my mind, was something where we were seeing four or five kids a day, and it was, you know. Interesting from a, a, just a learning point of

view for me because I, I think I had read about it in books, but had never really understood what it was to take care of kids with measles.

AR: And it also really changed my perspective on, you know, vaccines and the anti-vaccine movement and things where I, obviously I knew about the anti-vaccine movement I had, I had dealt with parents who had questions or were frankly anti-vaccine, but. We were then in a situation where we had kids getting admitted to the hospital with a disease that, you know, for the most part, their parents had been vaccinated against. So the grandparents had chosen to vaccinate the parents. The parents had made a different decision, and we were seeing the consequences of that, and it made me. Think more about how I talked to these families and it made me want to dig into the history of measles, which I did and I found it fascinating. And then, yeah, this was 2018. 2019. So after 2019 comes 2020, and all of a sudden as I was starting to do this work, I. We were in the middle of a brand new pandemic and dealing with questions of public health and masking and, you know, eventually vaccination and all of these other things. And I just, I saw echoes of what I had learned about measles everywhere in that. And so that turned it once again into a totally different project.

EW: Right. Yeah. I, I feel like I've been. Saying, saying something similar where it's like, it's not about measles, it's not even about vaccines. It's not about, you know, it's just like these, these issues, the drivers of them are so widespread and, and I wanna get to sort of talking about the vaccine hesitancy or anti-vaccine movement in a bit. Um, but first, let's, let's talk about measles. The, the measles virus itself is remarkable. I mean, it's the most infectious. Virus ever discovered and ha has a lot of other qualities that make it quite dangerous and contagious. Can you take me through some of those characteristics?

AR: Sure. And I agree with you. I mean, I think it's the, I'm biased, but I think it's the most interesting virus out there. Um, and you know, it, it, it really is incredibly contagious and, um, that's kind of the thing that people talk about first with it. And it just, it moves through crowds incredibly. Quickly and in unvaccinated populations like we're seeing now in, in West Texas, it has a, a very high rate of infecting people who are not vaccinated or haven't had measles in the past. It's an airborne virus, like lots of other viruses we know like flu and, and other things. You know, you get it by inhaling it. And instead of infecting the cells that kind of make up the bulk of the lungs, the measles virus infects the immune cells in the lungs, the ones that live there, and it traffics to lymph nodes, and then it spreads widely throughout the body. I. You get these huge viral loads before it comes back to [00:10:00] the lungs, and then people cough it out and they are just coughing out enormous amounts of virus. It's this, you

know, very particular clinical presentation where kids are sick with, uh, you know, cold like symptoms at first, and then it turns into this rash. That is really characteristic of the disease and the reason we worry about it so much is, is not the rash and is not the fever and stuff. It's that there are these rare bad outcomes where, you know, most kids with measles will be fine, but five or 10% will develop pneumonia and will need to be hospitalized. One in a thousand will develop encephalitis or brain swelling. And you know, that risks deafness or blindness or seizure disorders and one in a thousand will die, which sounds like a small number and it is for any particular kid with measles. But when you scale that to a whole population, and it used to be before there was a vaccine that everybody in the population got measles. That was a lot of deaths. That was a lot of dead. Kids every year.

EW: Yeah. Yeah. I, off the top of my head, I can't do this math in my head. I'm too reliant on calculators. But if it's like 4 million children every year, pro-vaccine would get the measles that, I mean, that is a staggering number of complications of deaths. It's, it's of, of permanent disability because of, of now a vaccine preventable disease virus.

AR: And I mean, I, I think that people often talk about it like it was a rite of passage in childhood. That's certainly how, you know, politicians talk about it. It's, it's how some people who lived through that that time will talk about it. And for most kids that's true. Right? But it's also true that there were a significant number of families that were devastated by the complications of measles.

EW: One of the things that you mentioned when it comes to measles today and kind of relates back to some of these characteristics of measles is that you describe it as a bellwether. Can you tell me more about what you mean by that?

AR: Sure. So that comes from the fact that

AR: measles is both incredibly contagious and now imminently vaccine preventable. And you know, the combination of those two things means that when you see measles outbreaks. Somewhere like we're seeing in West Texas now, like you have to pay attention to that, not just because of measles and, and like, yes, you have to pay attention because of measles. Measles is risky for, for children, and we have to take care of the, the people who have measles, but also because that is telling you something about that community. It is telling you that. You're not getting vaccine to the people who you need to be getting vaccine to. It's often indicating that either you know, you have a delivery problem with vaccines or more often in the United States, that you have a problem with trust in public health and and medicine, and it's an indicator that

other things will follow. Um, and this is one of the things I'm most worried about now is that, you know, like we have the complications of measles, but there are other vaccine preventable diseases that, you know, you don't want, that nobody wants, you know, and, and I worry about whooping cough, which pertussis, um, or, you know, I worry about diptheria, I worry about all sorts of other things that we don't think about that much.

EW: Let's take a quick break and when we get back, there's still so much to discuss. Welcome back everyone. I've been chatting with Dr. Adam Ratner about his book Booster Shots, the Urgent Lessons of Measles and the Uncertain Future of Children's Health. Let's get back into things. Measles also has this direct effect on immune memory, and I think that. The measles induced immune amnesia is probably throughout all of the years of doing the podcast, the one of the top five most fascinating and bizarre things I have ever learned about and also terrifying. Can you gimme a refresher on how this works and some of the implications?

AR: I. Yeah. So to start, I'll just say, you know, I, in addition to seeing patients and some I, I teach medical students, and when I teach about measles induced immune amnesia, I say, you should listen to this. This is the coolest thing I know about measles. It's actually probably the coolest thing I know about any infectious disease. Yes, I

EW: agree.

AR: It really has just been figured out in the last. Decade or so. Um, there are, like, there are observations that go back, you know, long before that, that, that are now explained by this. But, you know, measles does something that other viruses don't do, which is that when you breathe it in, it targets those immune cells in the lungs. It does that by binding to a receptor called slam on, um, on those cells. And viruses care deeply about what [00:15:00] receptor they bind to. Not that they really care. They're not, you know, they're not thinking about it. But, but like, that affects everything about how viruses manifest. It affects, you know, which, which organs they affect. It affects how contagious they are. Everything. So measles binds to slam in the, you know, in the way that SARS cov to two binds to the ACE two receptor. And we have, you know, medicines that, that. Disrupt that interaction. So measles spine slam, it gets into those immune cells. The immune cells go to the lymph nodes. There are lots of other cells with slam there. It starts infecting and killing those cells. It spreads throughout the blood. It is encountering lots of cells that express slam there. It's entering and killing those cells. And the cells that express Slam are mostly memory B and T cells. And so that's your encyclopedia of all of the things that

you've encountered, everything that you, every cold you've ever gotten, that you've gotten rid of.

AR: Every, you know, for a kid, any virus that causes diarrhea or you know, an upper respiratory infection, anything you've been vaccinated against, like measles kills those cells. It doesn't wipe them out completely, but the, the studies that they've done that, that have looked. At, you know, the, the amount of antibody producing cells you have left, it's a pretty big depletion and it happens quickly. You end up with it. Interestingly, you develop immunity to measles that clears the infection and you have lifelong immunity to measles after you have the measles, but you're left with less immunity to things that you already had immunity to, and you see that manifest in some of the early vaccine trials. For measles, where the va, what they say is that the vaccine overperformed, meaning that, you know, they rolled out the vaccine in places with high rates of measles deaths. They calculated how many. Deaths they thought would be averted by measles vaccine. And it did much better because it wasn't just that they were saving kids from measles. It was that there were kids who would've gotten measles recovered and then died due to measles induced immune amnesia. So that's like, that's called the measles shadow. Yeah, and it is. Bonkers and it, yeah, it happens even with mild cases of measles. You don't have to be one of the unlucky kids who ends up in the hospital or something like that. And it's, we're still, I think, figuring out all of the consequences of this. But the best thing about it is that the vaccine does not do that, and the vaccine protects you against that because it protects you against getting measles.

EW: The implications of immune amnesia are huge, and the measles shadow and just the broader public health impact of the measles vaccine, I think is so apparent with this. And you talk about this in your book, that this immune amnesia is a really kind of a neat parallel to our society's own forgetfulness when it comes to how devastating and deadly the, the measles virus can be. How are vaccines a victim of their own success in this way?

AR: Yeah, it's, I mean, this is a problem for public health in general, but I think you see it most acutely in with vaccines where the whole job of a vaccine is to make nothing happen. Yes. It's, it's to make it so that life goes on and you don't. You know, you don't even know what the vaccine has done. You see this when you look at a population and you say, oh my God, we introduced the diptheria vaccine. And children don't die from diptheria anymore. But kids don't walk around with a sign that says, I would've died of diptheria, obviously. Right? Like they just look like kids. Who get to grow up. Yeah. And that's amazing. But then you have this generation of kids and parents who don't experience that disease. And so that's what I saw at the beginning of the, the New York City

measles outbreak is there were all of these parents who said, well, you know, there's bad information on whether there's this information out there that it, the vaccine might be dangerous.

AR: And I've never known anyone with measles. I mean, the response to that is obviously, why do you think that is? You know? Right, right. You know, but, but in fairness, they, they really have never known anyone with measles. And so as a parent weighing those things, you might say, well, measles doesn't seem like that big of a problem. I. And they, they might even say, you know, polio doesn't seem like that big of a problem. When was the last time I met someone with polio? But if you ask the parents of those kids, and, and these are some of the multi-generational discussions that I had at that time, the parents are like, are you kidding me? Like, 'cause they knew. People with polio and I, you know, I know a handful of people in the generation before mine who, who still live with the effects of polio. Mm-hmm. I was not around at the time when polio was literally killing people and, and where people had, were staying home at the peak of the polio epidemics. But like, yeah, that was, that was something that was perspective shifting I think for, for the people who lived through it. And it's something [00:20:00] that. We don't experience anymore. And so, and, and it, it even applies to doctors where it was interesting, you know, I, I had a teeny tiny bit of experience taking care of measles. Most of the people I was working with at that time did not have any experience taking care of measles. We learned quickly, and I mean, the people you know, who I worked with did an incredible job. Um. But it's, it is interesting and you could see how someone might, you know, see a kid with measles, see a kid with something else, and not even know what they're dealing with,

EW: right. So many of the doctors have either been trained in a world where these vaccine preventable diseases are not a, not commonly seen because the vaccines, or they've been fortunate to, you know, live in regions where these diseases are not common. And how do you think that that. Affects their ability to not only recognize as you point out these cases or these, these diseases themselves and see, like, see a measles case for what it is, but also to communicate the dangers of these diseases.

AR: Yeah, I think that's hard and I, I. I think I, I'll start by saying I am not a primary care pediatrician, and they're the ones who are usually having like the, the sort of longitudinal long-term conversations with families. And that can be a sticking point. And I, I think most pediatricians are, you know, are in favor of the normal vaccine schedule. Um, but most pediatricians, if they're asked by a family, well, have you ever seen a child with diptheria or polio or something like that? Would have to say no. Um Right. And they, they can follow that up

and say, and I never want to, because I, I learned about it in, in school and I've seen pictures of these things and, and they're not things that you want to come back, but that doesn't have the same, I think impact for, for the, for either person in the conversation, like I, I think it can be harder for the doctor to really have their heart in it and it can be harder mm-hmm. For the parent to really buy what the doctor is saying.

EW: Lacking that, that firsthand, that witness experience of that and the devastation. But I think it's also lacking sometimes the context and the, the historical big picture of what these diseases did. Yeah. Before vaccines or in populations that were already, you know, oppressed and then had never experienced a. An outbreak of, you know, the measles virus. Yeah. For instance. And so, you know, you describe one of these outbreaks in your book in the Pharaoh Islands in 1846, and there was one person in particular who really kind of changed our, the medical understanding of measles at the time. How did this really shift what we understood measles to be and how did that change, I guess, how, how people treated it in the future?

AR: Yeah, it, it's an interesting story and it's one that I knew sort of the very broad outlines of before I started and then I dug into it and I was like, this is incredible. Yeah. I think because measles is so contagious, there is a huge difference in the way that a population first experiences measles and then a population that has been exposed to it, and it's. Become an endemic disease in the population. Mm-hmm. Meaning that it's sort of always there, but you, you see, you know, seasonal and, and yearly variations in how much there is. And to look at, you know, what, what happens in terms of, uh, brand new exposures of populations that have never seen measles. You can look at what happened in, in Mesoamerica with. The, the colonizers who came over and that this was true of smallpox, it's true of measles, and there were incredible infection rates because no one had immunity. And so it wasn't just the kids were getting sick, it was that all the adults were getting sick at once and there were multiple overlapping diseases. And the people who brought the diseases with them were trying to plunder and, and topple societies. And so all of those things together I think made it so that, I mean, you, you saw a, a loss of about 95% of the population in Mesoamerica, and that was partially measles par, partially smallpox. And we saw the, you know, we, we see this in other island outbreaks.

AR: In contrast, the places where the colonizers came from were these big population centers in Europe where they were big cities where measles had come in before then it had infected the whole population at some point, and then you reached kind of a steady state where, you know, most adults had had it in childhood. The ones who didn't survive, didn't survive to be adults. But then

most adults had had it before and then new kids were born who didn't have immunity. And sometimes people would come in from less densely populated places and they wouldn't have immunity. Mm-hmm. But you had, you had sort of this constant hum of measles, but it was mostly a childhood disease. So they went from a place like that to a place where nobody had immunity and that the difference was stark. So. With the Pharaoh Islands. The Pharaoh Islands were a colony of Denmark. [00:25:00] Copenhagen had endemic measles at the time. The Pharaohs had had an outbreak of measles about 65 years earlier, but that just meant that only people who were over age 65 in the Pharaohs had ever encountered measles. So most of their population had never encountered it before. Mm-hmm. Politically, the Pharaohs were completely dependent on Denmark. The only trade route was from Copenhagen to Torson, which is the, the capital of the Pharaohs. And someone, someone who lived in the Pharaohs, went to Copenhagen, got exposed to measles, didn't realize it came back to the Pharaohs. Got sick. Someone realized, you know, the doctors eventually realized what he had. And then, um, within several weeks there were cases all over the place and they, you know, the folks in the Faroh Islands called to Denmark and said, Hey, you know, we really need help. And so the. Ruling authorities in in Denmark sent two people, both medical students, so not exactly the C, D. C epidemic Intelligence service. The

EW: best and the brightest. Yeah, right, exactly.

AR: They were good, but there's still only two

EW: of them.

AR: Right. And they went. And, you know, they provided some help. They did what they could to, to nurse the sick and they brought some food and things like that, but, but really there's not a whole lot you can do for people who already have measles. But the main I. One of the two was this guy named Peter PanAm, and he was a big believer in the new way that medicine was being thought about, meaning that you could observe things, you could think about them scientifically, and you could come to these broad conclusions. And he was like, I. I'm gonna do that. I think the geography is important. I think that the fact that this place is isolated is important. And I think we don't know everything about measles yet because people were very sure that measles had a miasma component and a contagious component. People were very sure that you were contagious with measles at the very end of the disease when your skin was peeling from the rash. 'Cause that's where the measles lived. And it turned out none of those things were true and. He was able to figure that out because he went from village to village to village, and he just talked to everybody, wrote

everything down. He found this one village Kovi where. 10 people had gone from that village, which had no measles to another village nearby to help with a whale hunt on this one particular day. They came back on the same day. They all got sick 14 days later, and he was like, oh, right, right on the

EW: time. Yeah. He

AR: figured out the incubation period of measles, which is about 14 days from exposure to rash. He figured out, you know, that it was spread from person to person and that the miasma theory did not explain any. Part of it. He, you know, he, he did all of these things that we now take for granted when we talk about measles. And he drew this incredible map, um, where you see the ship coming in, you see the, the contagion going out, the, the different cases coming up. And it's the thing that was most shocking to me about it. Was, you know, when, when he presented this to, to the folks back in Denmark, he basically said, here's this map, here's what happened. I figured out all these things about measles. This is basically a new kind of science where you, where you observe things and you can figure out stuff about diseases and you can draw maps. And this is eight years before, uh, John Snow's collar map. So I give, I give credit to Panam over Snow, but that's a, that's a fringe opinion.

EW: I love it. I love it. He's like, here's this new science. You're welcome.

AR: Right. Exactly. Please

EW: do with it what you will. Yeah.

AR: Now can I graduate from medical school? Yeah. Yeah.

EW: Can I, can I be a doctor now? That is amazing.

EW: Let's take a quick break here. We'll be back before you know it. Welcome back everyone. I'm here chatting with the wonderful doctor Adam Ratner about his book Booster Shots. Let's get into some more questions.

EW: This story of, of this outbreak, um, the, in the Faroe Islands as well as some of the other ones, as you described historically, where we're seeing, you know, massive rates of, of mortality. I think that it's, it's in direct contrast to the way that measles and a lot of other infectious diseases are described as being these great levelers of society. They affect the rich and the poor equally, and no one is at, you know, no one is safe from it, which is, that part is true to some degree, but. Measles is is not a great leveler. Right. It definitely has affected

people who are living in crowded conditions, malnourished people in very different ways, both [00:30:00] historically as well as today. Can you talk a little bit more about that?

AR: Yeah. Measles has never, ever, ever affected the rich and the poor. Equally, it affected both the rich and the poor. That part is true, but it is, it is stunning and that that was something I didn't appreciate going in. Like I, I appreciated that. There were population level differences now in how countries experienced the measles, but I didn't, I I didn't realize the magnitude of it going back through history. And so, you know, you, you look at the Faroes, which was a, a colony you look at, at Fiji in the 1870s where there was this measles outbreak right after they. Um, became part of the British Empire and it killed a quarter of the native Fijians over the course of like, just a couple of months, which is insane to think about it. It's, it's just a tremendous amount of death. Yeah. You look in the, you know, in the 1800, the late 18 hundreds, you have, um, Jacob Rees who went through the tenements in New York City and took pictures of people that, that most people didn't want to look at or think about. It has. A book is called How The Other Half Lives, and he writes about measles in that book and he, he basically says, on the avenues, meaning where the rich people live, this is something that is made light of that, you know, people just think is part of, of regular life. And in the tenements it kills right and left. And he, he talked about seeing, you know, multiple kids in, in individual families die of measles. And then, you know, on the other side of it. You have cartoons from the time, and then, you know, Brady Bunch episodes a couple of decades later that are like, isn't it great to have the measles?

EW: What a, what a strange like PR thing for measles. Like Yeah, seriously. Yeah. Interesting choice with that, with that plotting there. Yeah. Um, and that's, that brings me to sort of this, this era right before the vaccine, the measles vaccine was introduced in the decades leading up to that. In the US specifically, how was measles perceived? How did parents especially view this?

AR: Yeah, so I, I think it depends which population you're talking about because Yeah, certainly among well off families, it was like we were talking about like the Brady Bunch type thing. Like I think that people really did feel. That way that it was part of life, but you still had these occasional horrific tragedies. Right. And I think that people just saw those as random events. But Al Dahl, the, uh, the author of Charlie and the Chocolate Factory lost a daughter at age, I think age nine to uh, to measles in 1962, the year before the vaccine was licensed. And so. There were famous people who, who had this happen to them, and then in. Crowded populations in cities where in poor areas of cities you had death rates that were much higher. But that wasn't, those were not the

stories that were making it into the media and you know, the way that most people experienced measles. And then you had the vaccine come out. And there were a lot of issues with that vaccine rollout, and one of them was that people had to pay for it on their own. So unlike the polio vaccine, there was no central financing for the measles vaccine, which meant that, you know, people were supposed to just go to their doctor and the vaccine cost about $10 a dose, and that's about a hundred dollars a dose today in, you know, scale dollars. Yeah. And. So you, you had a, a system that set it up so that the rich people who needed protection less were the ones who were able to access protection and the people who needed it most, you know, may not have had a doctor to begin with, and, and certainly may have made the decision not to spend the $10.

EW: That is such, I think a key aspect because yeah, you, you think, or at least I, I thought back at that time and I thought, well, people were lining up around the block to get polio vaccine. Yeah. But when, when you have to pay for this vaccine and you have to make the appointment and it's not, you know, I think that brings to, to light how important access is. Like cost is a barrier, and ease is a barrier. Like were there vaccine. Clinics the way that there were for polio, you know, at in, in the gymnasium, everyone gets a polio shot today. Were there similar things for measles?

AR: Not to the same extent. Like there, there was tremendous excitement when the polio vaccine came out and the main policy question was, how do we get every child vaccinated against polio? Mm-hmm. The measles vaccine rollout was confusing. There were two vaccines licensed. There was a recommendation for the live attenuated one, which is like the one that we use today, but there was the, there was the killed virus vaccine, which we now know didn't work as well, but had fewer side effects. And so some parents were like, well, I want the one with fewer side effects, and that makes sense.

AR: And then there was the access issue. And you know, part of the problem was, you know, states would have vaccine drives. And then [00:35:00] rates would go down. The desire to spend money on measles vaccine drives would go down. Case rates would go back up. They'd have a year where they had vaccine drives, and so it was not a recipe for really controlling measles in the population. There was this waxing and waning of access to vaccines. I. Then the thing that we realized in the 1990s in the very, in the 89 to 91, there were all of these huge outbreaks in, um, mostly in big cities. So New York, Chicago, la, and a lot of those cases were kids in crowded conditions in cities who. The parents were not able to access vaccines because there was limited clinic availability, because they had to shell out money for the vaccines. And those were, you know, I, I think people finally realized at that time that those were

some of the biggest drivers of, of people being unvaccinated. And then finally in 94, we got the, uh, the Vaccines for Children program, which, you know, helped with access and, and certainly helped with financing.

EW: It's fascinating to think about today. If we did a pie chart, and I know statisticians hate pie charts, but if we did a pie chart anyway, and we broke it down into who is not vaccinated, how big of the slice is for access, and how big of the slice is for hesitancy, and then how different that was historically.

AR: Yeah, it, it's so interesting because I was, I was reading congressional testimony from the nineties and when they were, when they were making the decisions about what to do after the 89 to 91 measles outbreaks, and they interviewed, um, someone from Los Angeles who had dealt with the, with measles outbreaks over several decades there, and she was insistent that the problem was not vaccine hesitancy. The problem was access. What states needed were, you know, free vaccines for kids and enough funding that they could have clinics that were open late and open on weekends and stuff, which all makes perfect sense. But I was reading this in, you know, 2020 and like, this does not resonate at all because it's totally different now.

AR: And I, you know, I, I think it's. A number of things. Like I, I think part of the reason that the proportions have shifted is that not that vaccines for Children solved everything, but I, I think the access problem in this country at this time is, is mostly under control with the, with the federal programs that currently exist. At the same time, you had this growth of the anti-vaccine movement, and I think that. There, there have been questions about vaccines and PE and some people who are hesitant or anti-vaccine since there have been vaccines. There are the cartoons about the smallpox vaccine where people turn into cows and like, so, right. It's not like that was a hundred percent new and there were concerns about the diptheria, tetanus, pertussis vaccine in the seventies and eighties that led to, you know, decreased uptake in the UK and then a big pertussis outbreak and then, you know, so like that all. Also predates, you know, the, the current vaccine hesitancy, and then in 98 you had the, the Wakefield paper where the hypothesized link between mm MR and autism, which we're still fighting against now. I mean, despite the fact that the paper was a, could never have answered the question that was being asked. Because it was essentially a case series B, it was horribly conflicted and he was paid by plaintiff's attorneys. And there, there's, you know, there are a million reasons that that paper is to quote Paul Offit. Not just wrong, but spectacularly wrong.

AR: Yeah. Um, but it raised a, a scientifically testable hypothesis, which is, you know, vaccines cause autism. Then you had science that followed it. Dozens of

studies, multiple continents, tens of thousands of children. Vaccines do not cause autism. We, we know that and can say that definitively now, and yet that idea I. Persists. I think some of that is that the idea is sort of tailor made for something that you can tweet about or, or post about on social media. It is three words. You have vaccines cause autism. It provides an explanation for something that I, as a pediatrician or any of us as, as pediatricians, cannot provide a comparable three word explanation for. Because if, if a parent goes to a pediatrician and says, well then what does cause autism? If vaccines don't? A good pediatrician will say, well, it's complicated. Like there are some genetic causes of autism. That's a lot of it. There are some environmental causes, there are some infections that cause autism. Congenital rubella is, is one of them. Congenital cytomegalovirus infection is another. So it kind of depends on the kid you're talking about. And, and you've lost the parent at that point, right? Because you're, you're way over your three words. Right? So it is very hard to push back against that kind of. Messaging. And then there, there's also, you know, since social [00:40:00] media, it's just the flooding, the zone of the, uh, of with bad information makes it very hard also.

EW: Oh yeah. And then there's the social media bubble that people are in, not to mention the people who are directly profiting off of the spread of this vaccine disinformation. Can you talk about the important distinction between these two groups?

AR: I think it's important to separate the people who are, who are kind of the leaders of the Vaccine Information Movement. Yes. Who, yes, it, it's for them, it's a grift. Like for them it is, you know, they're making a ton of money. They're selling their books, they're selling their onesies that say, you know, my kid isn't vaccinated or whatever. So like, yes, that that exists and that is part of it. And then I think there are. The, the vast majority of the parents who are vaccine hesitant or, or anti-vaccine, and yeah, I, I've said this in a lot of settings recently, but it, it's still true, is these are people who love their kids. Yes. Like these are not people who want kids to suffer. They've been lied to. They, you know, they have bad information and they, they are believing the information, but I believe that for most of them, they're passing on information that they believe to be true and that they believe to be important information for other parents. Mm-hmm. Which is almost worse, you know? Right. It, it's hard to break into that. It's hard to bring people around to understand the value of vaccines and the, the lies that are out there. Yeah. But, um, but I, I, I do think those are different populations of anti-vaccine folks.

EW: Absolutely. No, there's the people who are benefiting off of spreading the information and the people who are spreading the information because they

think that it's the best thing for Yeah. Their kid. Yeah. And I'm, I'm wondering how your experience, you know, over your career, how have you seen this change?

AR: I mean, it's all so much more politicized now than it used to be. I mean, I even think, mm-hmm. Back to earlier, like during my training, like there were certainly, you know, parents with questions about vaccines and that was fine. And you could, you could sit and, and talk to people. There were not these entrenched views that became people's identities. Like I, I think that is what's different now. And I mean, some of that is COVID, some of it predates covid, but. There've been a bunch of analyses of this, but, but the, your political party affiliation affected, you know, was an independent risk factor for your risk of dying of covid because you were less likely to get vaccinated if you were a Republican than if you were a Democrat. That's insane, because

AR: vaccines and protecting kids against, against vaccine-preventable diseases did not use to be. A political issue, like there were legitimate disagreements about like how much, what one might spend on a vaccine campaign or whether school mandates were the right thing to do. They are, um, or, and anything else like that.

AR: But those were legitimate disagreements with the background of vaccines are good. They control the spread of the disease in populations, and now it's. I think in many cases can't have conversations because it is so much a part of people's identities. I heard someone quoted, a parent quoted from the, uh, the West Texas measles outbreak the other day, say she was asked about measles vaccine and then was asked about Covid vaccine, and she said, oh, we don't do that here. This is West Texas. That is stagger, stagger. It was not even, yeah, I've, I've thought about this. I've, I've made the decision that it's not for my family. It was mm-hmm. You know, we don't do that here. It's, it was a, a piece of identity for her.

EW: Yes. A signal of like, this is who I am. Yeah. This is part, yeah. That is. I think that it is really daunting to know what to do about it and what works and what doesn't. And I was wondering if, if there's anything that you could share about what we have, you know, evidence-based methods that work, uh, both on the more infrastructure side of things like school mandates or policies, you know, increasing access of, of course works, increasing funding. And also on the communication side of things. Yeah.

AR: Yeah. So to address the policy piece first, I mean, there are things that we know work and that are very important. School mandates are one of them, you

know, especially for measles vaccine where because measles is so contagious, you need about 95% of the population vaccinated. You do not get there without school mandates. Mm-hmm. And you can't control measles in the population. Without that, and it is good policy, it, it prevents deaths from measles. It is something that we've had in this country for decades at this point, and that most other places have as well. So school mandates are important. And then the other piece of it. Access, federal financing has to go along with that. 'cause it's impossible to ask people to, you know, to vaccinate their kids in order for their kids to be able to go to school, but then not provide them a way to easily get those vaccines for free. So [00:45:00] that's, that's the policy side. The communication side's much harder. And I'll, I'll start by saying that I am a, a hospital based consultant. I see kids only in the hospital. I am not. General pediatrician, they are the superheroes of these conversations. They are the ones who are having the long-term relationship with, with families and having these discussions.

AR: And it's really hard and it's, it's individualized. I mean, there, there are some evidence-based things, especially for particular vaccines. There are motivational interviewing techniques. There are, you know, specific bundles of things for, for the HPV vaccine that have been shown to, mm-hmm. To help with, with hesitancy and to increase uptake. Um, I have sort of different conversations 'cause the, it, it's mostly kids who've been hospitalized due to a vaccine preventable disease. And those conversations can be sort of fraught because it's very easy for parents to feel like they're being blamed, which is not the intention, but. It's, I think it's an important conversation to have because how they walk away from their child being hospitalized and hopefully then being okay and going home is really important. It's important to what they do for that kid going forward it in terms of vaccinating or not what they do for their other kids and the story that they tell within their community. And so I, I try, mm-hmm. Hard to be curious and understand what their, you know, hesitancy was leading up to this. I, I try to be careful about the words that I choose. I try to have empathy because these are people with a hospitalized child, which is the worst thing in the world and their. Terrified and, and that is reasonable. And I try to be clear, and this is part of, of what I think any pediatrician does, which is that I think having a, a clear and a strong recommendation for vaccines is important because parents understand when the recommendation that's being given is not, if you don't have your heart in it, and mm-hmm. So, and mm-hmm. You know, I, I don't know how well these things work, but it, it's what I've got at this point.

EW: Uh, I just can't imagine how hard that must be to be the person who is taking care of this sick child who did not have to be there.

AR: No, it is, it is frustrating and sad and I mean, I hearing about the child who died in West Texas from measles. No child should die. No child should die of, of measles anywhere on earth now. Yeah. Like there's no reason We have had a safe, effective vaccine that prevents measles for 60 years. Measles should have gone the way of smallpox already. Yeah. That's an extreme position. But I, I think we, I. Hope maybe can agree that, that no child should die of measles in the United States where there's easy access to, to vaccines in 2025, it doesn't make any sense.

EW: It doesn't make any sense. It's, it's so hard and I, I, I can't imagine how, how difficult that, that must be. As we're speaking right now, it's, it's March 14th, 2025. We're in the middle of this, and maybe at the beginning of this, uh, measles outbreak. I mean, who knows where it'll go from here, right? I just, every headline I see is a new state, a new case, a new growth of this. What are some of the other lessons that we can take from past measles outbreaks post vaccine that can help us manage this current one?

AR: Yeah, I mean, I, I think the other thing that I'll say, which maybe seems obvious now after Covid, but I think wasn't obvious at the, at the time was, you know, there, there was this measles outbreak in, in a city that straddles Texas and Arkansas, Texarkana, and you know, basically the Texas side of the city, you know. Kids went to school based on where their home was, but there was a ton of mixing of people, Fred, you know, movie theaters and churches and things like that. And Texas had no school vaccine mandates. Arkansas had vaccine mandates and had, you know, big, uh, vaccination drives. They, there was this big measles outbreak in 19 70, 90 5% of the cases were on the Texas side of the border. You know, 5% were on the Arkansas side. And I, what I, what I learned from that was, you know. Vaccines worked. Uh, and school, school mandates work, which is not surprising either, but also just from a more general point of view that policy decisions really, really matter.

EW: Yes.

AR: And you know, where, where you lived in that city, you know which side of Stateline Avenue you lived on mattered for the health of your kid. And I thin

AR: k we're seeing all sorts of stuff now in the US where a lot of policies that it has taken us a lot of time to get to things like vaccines for children, like we were talking about. These are incredible things and kids are healthier today as a result of them than they [00:50:00] were even a couple of decades ago, and that's not guaranteed. None of that progress is guaranteed. I don't know if it's a hopeful message or not, but it's a message of something to pay attention to.

EW: That's an important message and I, I really appreciate you taking the time to chat with me today. This was so, so fascinating. I mean, honestly, I could just talk measles for hours. So appreciate you and me both.

AR: Uh, thank you so much for having me. This is a, a dream. I've been a fan of the podcast for a long, long time.

EW: Oh my God. Thank you. Yeah. Amazing.

EW: Big thanks again to Dr. Adam Ratner for taking the time to chat with me. If you also enjoyed this conversation and want to learn more, check out our website. This podcast will kill you.com, where I'll post a link to where you can find booster shots, the urgent lessons of measles and the uncertain future of Children's Health, as well as a link to Dr. Ratner's website. And don't forget, you can check out our website for. All sorts of other cool things, including but not limited to transcripts, quarantining, and placebo. Read recipes, show notes and references for all of our episodes. Links to merch, our bookshop.org affiliate account, our good reads list, a firsthand account form. And Music by Blood Mobile. Speaking of which, thank you to Blood Mobile for providing the music for this episode and all of our episodes. Thank you to Liana Sci and Tom Bry Fogle for our audio mixing. And thanks to you listeners for listening. I hope that you like this episode and our loving being part of the TP WKY Book Club, a special thank you as always to our fantastic patrons. We truly appreciate your support so very much. Well, until next time, keep washing those hands.