Childhood Vaccines 2

[00:00:00]

EAU: I am one of the increasingly rare old-timers who lived during the pre-vaccination era. I am the second to the last of thirteen siblings, five of whom died of vaccine-preventable diseases in infancy. Born to poor immigrant parents, I remember well my mother's account of the causes of their deaths. Three from pertussis and two from measles. Even after many years had passed, she spoke of the death of her angels with a great deal of emotion. Imagine losing not one, two, three, or four but five babies. It was common in the pre-vaccine era. Like our family, many families lost several children to these diseases. We forget, time blurs our memories of these common tragedies of yesteryear. I remember well during the winter and spring of each year, hearing the whoop of pertussis in movie theaters, school assemblies, and assorted gatherings. Today, few have ever heard this, and those who have forget. I remember the summer outbreaks of polio, the crippled children who could no longer walk or walked with limb-distorted limps. As a third- and fourth-year medical student I remember answering the appeals of hospital administrators who could not find the nursing staff for special duty tending to the needs of polio patients in iron lungs. We forget. I remember the awful cases of measles my own children experienced. I remember the children with smallpox during the years my family lived in Pakistan. I remember those who lost their sight from lesions in their eyes. I remember those who died. We forget.

EAU: It's just such a incredibly powerful letter.

EW: this is, I mean, this is the second time that we

EAU: Mm-hmm.

EW: uh, included this firsthand account. The first time was in our, one of our vaccines episodes back in

EAU: 2018. Yeah.

EW: And it is, it has stuck with me so

EAU: Same. Same.

EW: because it is such a powerful personal story of what we have gained and what we stand to lose.

EAU: Right. Exactly. This was a letter from EJ Jean Gang Garosa to the Immunization Action Coalition. Uh, they were a professor emeritus from Emory University and wrote that letter all the way back in the year 2000.

EW: Yeah, and it's still as relevant

EAU: it is, and such just an important piece of sort of that like living memory that, that we do, we forget.

EW: Yep. And we have to, we have to remember.

EW: Hi, I'm Erin

EAU: And I'm Erin Allmann Updyke.

EW: and this is, This Podcast Will Kill You.

EAU: It sure is. And we're back with the second part as promised.

EW: Yes. Yeah. So last week we took you through just a refresher course on vaccines, how they worked, and then we did a very quick tour through each of the diseases, the many diseases that these vaccines protect us

EAU: We call it quick. We called it quick,

EW: yep, we clo. We closed out that episode with a big picture view of why vaccination is so very important, not just at the individual level, not just for yourself, for your kids, but also to protect our

EAU: Mm-hmm.

EW: Vaccines are truly one of science's greatest achievements, and as our firsthand just demonstrated, there are increasingly fewer of us who know what it's like to live in a world without vaccines. And the amazing thing is that we don't. Have

EAU: Right. We have these incredible vaccines, and even better, we have highly knowledgeable, well-trained scientists who consider all the aspects of the

data that we have to tell us which vaccines we should take and when. That's right. Everyone. Today we're talking about the A CIP, the Advisory Committee on Immunization practices here in the us.

EW: Yep. In this episode today we're gonna talk so much more about the A CIP. We're gonna talk about how we came to have our childhood vaccine schedule that we do have today. What goes into making it and where things stand with vaccine preventable illness around the world today. Because despite the existence of safe and effective vaccines, we are still seeing outbreaks of diseases like measles, like whooping cough, like rubella diseases that can seriously injure or even kill those who get it.

EAU: Yeah. A lot of these outbreaks are happening in regions of the world that lack access to vaccines or lack the infrastructure to deliver vaccines to everybody who needs them. And undoubtedly, we'll be seeing more and more of these outbreaks and preventable death and suffering due to the attacks and dismantling of U-S-A-I-D, which is a huge problem. But some of these outbreaks, [00:05:00] especially in high income countries like the US, are directly attributable to the rise in vaccine hesitancy and declining vaccination coverage

EW: vaccine hesitancy is one of the biggest threats to

EAU: mm-hmm.

EW: and it's not something that's just gonna go away on its own. It needs to be directly addressed in every possible way, at every possible level. And in this regard, all of us can truly make a difference. And so. We really can, and that's what we want to round out this episode with is just going through some evidence-based methods. We love evidence, we love evidence-based things for having conversations with those who might be wary of

EAU: Mm-hmm.

EW: We've got a lot to go through. So, um, should we start with

EAU: Quarantine time, we should,

EW: What are we drinking this

EAU: we're still drinking, boosted,

EW: We're, we are still

EAU: getting in those booster shots.

EW: Um, it is, it's delicious. It's got gin and, um, raspberries and lemonade, and we'll post the full recipe for boosted the quarantine as well as our alcohol free placebo, Rita, on our website. This podcast will kill you.com as well as on all of our social media channels, so make sure you're following us.

EAU: Make sure you are, and. On our website, this podcast will kill you.com. You can find just so many incredible things that you'd love to find. We've got merch. We've got transcripts from all of our episodes. We've got a link to a Goodreads account and a bookshop.org affiliate account. We've got our music from Blood Mobile. We've got sources for evidence from all of our episodes including this one. Um, we've got a contact us form. We've got a firsthand account form if you'd like to submit your firsthand account. It's just so much there

EW: It's, there's a lot.

EAU: really is. Um, and if you haven't already, we would love to encourage you to rate, review, and subscribe, um, so that you don't miss any of our things. And because it does really help us, uh, when other people can find our work, we like making this podcast

EW: It does. We appreciate it. Uh. Are we ready?

EAU: so. Should we take a quick break and then Aaron, walk us through the history of the A CP. I'm really excited to learn about this.

EW: Oh, I really had a really fun time digging into the details. So yeah, let's just take a quick break so we can get right to

EAU: Okay.

EW: What goes into creating a vaccine schedule? Like why do we have the one that we do here in the US and who decides

EAU: Such a good question.

EW: Right. VA vaccine schedules are different in different countries, and they take into account things like how prevalent a certain disease is and how much of a threat it poses. And so that explains why some of high risk countries use the BCG vaccine for tuberculosis, for instance, and others might not use that vaccine or include it in routine immunizations. In the us, the federal body that makes decisions about which vaccines to recommend, at what ages, and how many doses is the advisory committee on immunization practices, the ACIP. This committee is made of up to 19 voting members who vote on vaccine recommendations, and they include independent medical and public health experts who do not work at the CDC as well as one consumer representative. This is a volunteer position and members serve staggered four year terms.

EW: Prospective members have to apply and then they have to undergo this screening process. That includes things like disclosing conflicts of interest, and this is like a routinely done and maintained.

EAU: sounds fairly important.

EW: Ultimately they are selected by the Secretary of Health and Human Services, who at the time of recording is RFK Junior, who as probably most people are aware, has a long and vocal history promoting anti-vaccine propaganda, including during a measles outbreak in Samoa that led to the deaths of 83 children, mostly under the age of five.

EAU: Yep. And they, he ultimately is going to be choosing who sits on a CIP.

EW: Yeah. And so the, the, I will say that like there are, uh, there are a certain number of people right now whose terms will be up, and so it might not be, I mean, unless a CIP gets completely dismantled, who

EAU: that's a whole nother can of worms,

EW: are a lot of questions as to like, how much damage can someone do, who has mal-intent?

EAU: would hope that there are stop gaps in place, but tell me more, Erin.

EW: Yes, yes. Okay. So the A CIP charter, which allows for its continued functioning, has to be renewed and approved every two years by the Department of Health and Human Services. Mm-hmm. Currently, there are 15 members, active members on this committee with four whose terms are up in [00:10:00] 2025. Okay. So, in theory in 2025, he could replace four

EAU: Okay,

EW: There are other non-voting members of this committee who represent other federal institutions such as these Centers for Medicare and Medicaid services and the Indian Health Service, as well as organizations like the American Academy of Pediatrics and the National Foundation for Infectious Diseases and, and many others.

EAU: Yeah.

EW: A CIP meets three times a year. Three times a

EAU: Three times a year. That feels like more than I anticipated.

EW: I know it is. It's, um. It's a lot. They're, they're constantly reviewing data and voting on recommendations. Like, this is a con because things happen. Things have move very quickly in

EAU: Yeah. Well, quick and slow at the same time.

EW: Exactly, yeah. But like to keep up to date, this is not just like, oh, let's, you know, dust off the, the piles of data. It's like constant

EAU: Right. Okay. Awesome.

EW: Yeah. So there was a meeting scheduled for February 26th to 28th of this year, and it was postponed. And there has been, as of the time of recording, no updated meeting date. Um, and maybe it, maybe it will get rescheduled, maybe it won't. Uh, but I, you should know that if it does get rescheduled and if any one of the subsequent meetings do take place, that I, I want everyone to know that there are opportunities, at least at this point in time, to submit public

EAU: Okay. Like we could

EW: we can, yes. We'll, we'll link to the page that has more info on this, but in the past, the public was able to submit a written comment and request to make an oral public comment during the meeting. So there are written comments that you can make, and you could also request to make an oral comment during the meeting itself.

EAU: Love that.

EW: So this is an opportunity for all of us to demonstrate how much vaccines mean to

EAU: Right. Writing in to say

EW: our safety, our freedom.

EAU: we love them. Thank you. Please don't take them away.

EW: Yep. If the February meeting does not get rescheduled, there will be another one, maybe, I guess June 26th. June 25th to 26th. Okay. So what is, what is the A CIP looking for precisely during these

EAU: Right. What do they do?

EW: Right, so broadly speaking, they consider quote, disease, epidemiology, and burden of disease. Vaccine efficacy and effectiveness, vaccine safety, economic analysis, and implementation issues. So a whole lot of

EAU: Yeah, like all of the different facets that you could think of when it comes to vaccines, the disease itself, how good the vaccines works, the economics of it all makes sense,

EW: Yeah. Yeah. And so this is what they are looking at. These are the types of questions that they're looking at. Now, what are they voting on? So they are voting on, they vote on final recommendations. Right at the end of this are recommendations and they include, quote, the number of doses of each vaccine, timing between each dose, the age when infants and children should receive the vaccine and precautions and contraindications.

EW: So who should not receive the

EAU: Okay,

EW: That's what they vote on

EAU: and these are just recommendations.

EW: recommendations.

EAU: is. Then the CDC, who has to decide whether or not they adopt the recommendations from ACIP, right?

EW: Right. And then there's also like the American Academy of Pediatrics also decides what to incorporate. It's like there are a lot of, the thing is the, this is a constant conversation that is going on and there is one shared goal, which is to how to best ensure

EAU: The health of the public.

EW: the public. That's, that is the

EAU: Public health,

EW: How about

EAU: that's the goal.

EW: So the A CIP is not a new committee. It was first organized in 1964, and at the time of its first meeting, the only organization that was making recommendations on vaccines in the US was the American Academy of Pediatrics Committee on Infectious Diseases. And their recommendations were included in a publication called The Red Book, which. You. I know

EAU: I know the red book. Yeah.

EW: out there may have heard of, and it still exists today. It's a really important resource for physicians as well as the A CIP like these. These recommendations that are included in the Red Book are also considered by the A

EAU: Okay.

EW: at the time of the first Red Book, which was 1938. The included recommendations were fairly limited. Part of the reason for this was because there were far fewer vaccines available than there are today. So the only ones that they officially recommended in terms of the timing for when a child should receive them, were smallpox. This is of course, before it was eradicated. Diptheria, tetanus, pertussis, also known as whooping cough, typhoid fever, varicella, and tuberculosis. So, I mean. Compare that to what we went through yesterday. We, we have all of those and so, so many more. I just, we don't, we don't include typhoid fever regularly, but it, or smallpox, of [00:15:00] course. Yeah.

EAU: It's so interesting too though, that they had varice back then. 'cause then we didn't have it for so long. It's just so interesting. I, I have so many.

EW: know. I know. And we may have even touched on that in our

EAU: We probably

EW: episode.

EAU: but you know, I don't remember things.

EW: Same. Uh, but then the introduction of the polio vaccine in 1953, the prompted passage of the Polio Vaccination Act a couple of years later, and then this provided funds to what was then the Communicable Diseases Center, later became known as the CDC. And this helped states buy and distribute polio vaccines. But there was still no formal process for the federal government to make recommendations for vaccines and the timing of vaccinations at a national level. Vaccines were recommended for licensing at the federal level. Like by the Surgeon General. They would say, okay, yes, this, we recommend this for licensing, for we approve. but mostly the government was focused on vaccines only as far as the military was

EAU: got it.

EW: Tracking efficacy and outbreaks and so on. So it was like that is where the data collection was. That's where the decision making was. That was the, the main

EAU: Right. That makes sense. You're protecting assets in that case. Sorry.

EW: and I think especially the timing close to World War II and then, yeah. So there was like a lot of that. Yeah, there was context for that. Uh, but then the polio vaccine was, came out in 19 52, 19 53, and then the measles vaccine. 10 years later in 1963, it was clear that there was a need for a national immunization policy, especially with two more vaccines mumps and rubella on the horizon for the rest of the 1960s. Like they were like, clearly, you

EAU: There is momentum.

EW: was, yeah, these things were going to happen.

EAU: Yeah.

EW: And so things really got started with the Vaccination Assistance Act in 1962, and this provided support for mass vaccination campaigns, especially targeting school-aged children, which is where most of the spread and harm from these diseases was concentrated. And ultimately, it led to the formation of the A CIP in 1964. So like instead of having one meeting for measles and one meeting for polio and one meeting for this, it was like, why don't we just. Do this all at once. Yeah.

EAU: Efficiency.

EW: If, how about that?

EAU: I can't, I'm sorry. I was gonna make like a government efficiency joke, but I, 'cause it's too real right

EW: close. Yeah.

EAU: Woo.

EW: I know. At the first meeting, the committee considered measles, influenza, rubella, and smallpox vaccines for recommendation. I think there was still, at this point a separate committee for, uh,

EAU: Polio. Okay.

EW: but since the beginning, the A CIP has worked closely with professional organizations like the American Academy of Pediatrics, the American Academy of Family Physicians, the American College of Upstate. Obstetricians and gynecologists and others together, the A CIP and all of these organizations, both federal and professional, carefully evaluate all of the available data to make recommendations on how to best protect the health of Americans. Again, that is the

EAU: That is the goal.

EW: That is the goal. So what does this look like in practice? And I wanna share a real life example of how one of these recommendations is made and what information is considered when weighing whether or not to change a recommendation. So let's talk about measles.

EAU: Seems timely, unfortunately. Timely. Mm-hmm.

EW: So, since the introduction of the first measles vaccine in 1963, researchers have developed new versions of the vaccine, each of which has been and continues to be evaluated for safety, efficacy, ease of administration, and so on. So like live versus killed with or without certain adjuvants in a combo shot or solo. The timing for the best immune stimulation, like all those sorts of things are considered for each of these vaccines regularly. Continuously, and on occasion, the A CIP has changed their recommendation for which measles vaccine to include, such as in 1968 when they changed the recommendation from the less attenuated vaccine, which was the edmundston B strain to one that was based on a more attenuated strain, the Morin vaccine. The Morin vaccine, the, the more attenuated strain was as effective as the previous vaccine, but it produced fewer side

EAU: Right, so it was like a even weaker version of a measles virus compared to an older vaccine,

EW: But it protected you just as well had fewer side effects.

EAU: that.

EW: Yep. They also revisited what age to give the vaccine. So initially their recommendation was nine months of age, and then that changed to 12 months and then 15 months.

EW: And the reason for these changes was not about safety, but more about efficacy because researchers had found that babies that were vaccinated earlier tended to lose immunity a bit more than if they were vaccinated later. And it's [00:20:00] probably due to maternal antibodies

EAU: Yeah. Yeah. Or just like, you know, babies in their weird immune systems.

EW: Right. Exactly. And so these are things that they, that

EAU: They look

EW: monitoring, they were looking out for?

EAU: Because of basic scientific research that was going on in clinical research that's going on where people are actually like testing people who get these

vaccines for their antibody response, for example, and then collecting and gathering all of that

EW: and connecting that to epidemiological research that was monitoring outbreaks and in what ages and what, what birth cohorts and all of these different Yep. All of these different

EAU: All of this amazing research.

EW: Yes.

EAU: Okay.

EW: Okay. But starting in 1963, the A CIP had recommended only one dose of the measles vaccine. Or later, a few years later, when MUMPS and Rubella came along, MMR, so just they were had recommended one

EAU: Just one dose.

EW: And this is of course, different from the two shot series that we get today that we discussed last week. How did one shot become two

EAU: Mm-hmm.

EW: outbreaks? Within the first five years of the measles vaccine, incidents of the infection had dropped to 5% of pro-vaccine levels

EAU: five years.

EW: five years. Yeah. With this incredible success, measles elimination in North America seemed like a very achievable goal. Yep. I mean like real, like first it was like a pipe dream, and then it was like, oh wait, actually.

EAU: Wow. We could actually do this thing.

EW: dream. Yeah. And even as progress toward this goal was made a few outbreaks in the late 1970s and into the 1980s, slowed that progress, but they also provided an opportunity to ask how was measles spreading? Who was getting the infection? Was it teenagers? Was it young kids? Had they been vaccinated before? And what the CDC found was that those who were involved in the outbreaks were often either unvaccinated children under five years old, or

older children such as high school and college students who had been vaccinated, but only once. Only with one dose. And that was again, the recommendation at the time. And there had been some debate about whether to include a second dose. This was, you know, kind of brought up at different meetings. And it was this, this, this trade off, this weighing, well what, what are we actually getting with that second dose of the vaccine? And up until this point, up until the late, well 1980, the late 1980s, really, the, the. Decisions seem to fall on. Well, one dose is probably enough. One dose protects you, like, I think you said Erin

EAU: 93%. Yeah.

EW: Do we really need that extra four to 5%? Turns out what these outbreaks showed us is that yes we do, especially when having that extra four to 5% protects those who are vulnerable, who cannot be vaccinated, right? And so. The, there was an outbreak in 1989 that led to a 20% hospitalization rate, which is what we

EAU: Pretty common. Mm-hmm.

EW: see, seen today, and a hundred deaths. And this really demonstrated that waning immunity or under vaccination could have dire consequences for those who are too young to be vaccinated. So in 1989, both the A CIP and the A A P, the American Academy of Pediatrics changed their recommendation to include two doses of MMR for all children. And that decision is what helped to eliminate measles in entirely from the US in 2000 and the Western Hemisphere in 2016.

EAU: I mean, yeah, that's so interesting too, just in the context of like the biology of measles, right? 'cause you need such high vaccination coverage to be able to achieve herd immunity and protect everyone around you. So it makes sense that a second dose where now you're getting 97% efficacy in like lifelong antibodies, that that is what's going to allow you to achieve herd immunity rather than a 93%. And yeah. Ugh. How interesting. And cool, Erin.

EW: It was such an enlightening like, uh, exercise to go through, like, what does this look like? We know that they're making decisions, we know that they're considering all of these different things, but like, how does new data influence a recommendation?

EAU: Like walking through an example of that. It was, yeah,

EW: yeah.

EAU: because it's something we don't think about. We're just like, oh, here's the schedule. And you're like, okay, but like what? Who and why and how did you come up? Why do we need four doses of tdap and then a booster, and why? Because that's what the data says. We need.

EW: Yep. That's, I mean, evidence-based,

EAU: Oh, isn't that interesting? Which, yeah, I mean, and then they change the recommendations on adults getting like a pertussis booster. Like a tdap rather than just a TD a few years back [00:25:00] because of circulating pertussis. I mean, there's.

EW: science changes by design. It doesn't, it's like me, right? Like this is part of what science is. This is why, why science works is because we, we evaluate and consider

EAU: And consider, and then change recommendations

EW: cha yep. Yep.

EAU: on that.

EW: On that. These are not arbitrary decisions like that's, that's the message that we really wanted to get

EAU: Mm-hmm.

EW: The A CIP takes an evidence-based approach that weighs many different factors to come to a final recommendation. There is data. And reason and logic and evidence backing up each one of these recommendations such as timing, when to get the first dose of a vaccine. This is determined by the disease itself and when a child might be at highest risk for an exposure to the disease. Is at high risk for complications from the disease and also how well they're going to respond to the vaccine in terms of are they going to mount an adequate immune response that will protect them long term? Like we talked about with maternal antibodies, sort of, uh, circulating in baby for a while after birth so that vaccines don't induce this long, long-term immunity. Typically, it is recommended that a child gets a vaccine as soon as possible. Multiple doses are determined by how well one dose induces an immune response. Some vaccines need two to create long lasting immunity. Others like T DAP or DTaP require periodic boosters.

Flu of course, is annual, and I can understand that it feels like there are a million vaccines in a million jabs, but each one of these vaccines is so critical and combo shots like MMR and TDAP help to cut down on the number of jabs that your kid gets.

EAU: I love combo vaccines, but even each one of the combo vaccines has to be studied and tested in all the different age groups and in all the different scenarios, which is why some are used for some age groups and not others. Like the MMR Varicella vaccine technically is not recommended to be given to kids at the 12 month visit, but is at the four to five or 6-year-old visit, and it's because of the data on the risks versus benefits.

EW: these are carefully made decisions, right? Like the bottom line is that the childhood vaccine schedule that we have here in the US has been and continues to be continuously evaluated multiple times a year by a team of highly qualified individuals who have the best interests of the American public at

EAU: Yeah.

EW: That has historically been its

EAU: Yeah.

EW: I hope that that is what its role will be. In the, in the years to

EAU: It's protected us for so long. I hope that it continues to do so.

EW: The childhood vaccine schedule is safe. It is effective, and it has saved and continues to save millions, not an exaggeration, millions of lives of some of the most vulnerable members of our society every single year.

EAU: Yeah. Yeah. It's amazing.

EW: So, Aaron.

EAU: Yeah.

EW: Now that we know the history of the A CIP and how they make these decisions and why it is so vital that they do what they do, can you tell me why we might see some differences in the US compared to other countries around the

EAU: Yeah, I can. And then get into what we know about what these vaccine preventable diseases look like across the globe. Huh? We'll take a quick break and then get into it.

EAU: So the World Health Organization has a list of vaccines that are recommended for all children. And that schedule and those recommendations are essentially the same as what the CDC recommended schedule is in the us, which again, is, is mostly influenced by recommendations from A CIP, except there are a few big exceptions.

EAU: One is that we in the US do not use the BCG vaccine, which is a vaccine against tuberculosis and is recommended by the World Health Organization to be given at birth for all children. Um, we don't do this in the US because historically rates of tuberculosis have been relatively low. I mean, not historically, historically, but in recent times at this point in time.

EAU: Um, that could change in the future, but that's the recommendation right now. So we don't use the BCG vaccine here in the us. But overall, the World Health Organization recommends vaccines for all children that include Hepatitis B, polio, diptheria, tetanus, and pertussis, the DTaP hib or the Hemophilus Influenza. Pneumococcus Rotavirus, measles, rubella, and HPV. And then the World Health Organization goes on to have a number of other recommendations because of course, the World Health Organization is having to kind of stratify across the globe

EW: Right.

EAU: where they might recommend certain vaccines only for children who live in certain regions or who are in certain high risk populations, either geographically or [00:30:00] just population-wise, or in countries that have vaccine programs with certain characteristics. And the US falls into that.

EW: What does that mean?

EAU: you about it.

EW: Okay.

EAU: So there are some vaccines that we went over last week that we give in the US that weren't on that list. I just read from the World Health Organization specifically. That is mumps, varicella, flu, meningitis, and Hep A. The reason that we give those vaccines in the US and they're not on the recommended for

every single child across the globe list is number one, mumps, varicella, and Flu are recommended by the World Health Organization for all kids. If they live in a place that has an immunization program that can actually get at least 80% or more of vaccination coverage or if they have access to combination vaccines. So in parts of the world that are still struggling to even get kids access to vaccines or who can't get or can't afford or maybe can't, like, don't have the storage capacity. If vaccines have to be refrigerated, et cetera, for whatever reason, if they can't get combination vaccines or they just don't have the capacity to vaccinate, then the World Health Organization says Prioritize measles, rubella, mumps, and varicella come later, essentially. Does that make sense?

EW: Mm-hmm.

EAU: Similarly, hepatitis A and meningitis, which are on the vaccine schedule in the US are on the World Health Organization list of recommended for high risk populations, which based on our data in the us, the US is one of them. We had really high rates of hepatitis A and meningitis, um, enough so that the CDC said, Hey, we are gonna vaccinate all of our kids to prevent morbidity and mortality from these diseases. And then there are a lot of other vaccinations that are given in other countries, like for Japanese encephalitis or for dengue or yellow fever that we don't give in the US on, in everyone basis because they do not circulate in as high as numbers here in the us. So that's why our schedule looks a little bit diff specific to our country.

EW: Yeah. Yeah.

EAU: And we've said it a few times, I think maybe more than a few times between last week and this week. But I do think it, it bears repeating. It is very easy. Because of the incredible success of vaccines, to think that these diseases that we are vaccinating against are a thing of the past. Because it is true that the rates of illness and severe illness and death from almost all of these childhood vaccine preventable diseases have plummeted both here in the US but also across the globe.

EW: Mm-hmm.

EAU: And that is incredible.

EW: It is. It is amazing. It is such a huge feat that I think back like, okay, you know, like, okay, I was trying to think of a time travel movie, Kate and Leopold, for instance, which that's a deep cut. Uh,

EAU: That is. a deep cut.

EW: Right

EAU: Okay. Kate and leopold

EW: Somebody comes from the, Hugh Jackman is like a time traveler from the past anyway. I always think about if someone were able to travel to the present day from the past, one of the things that would instantly be so magical is vaccines, like, not magical, but just profound

EAU: right.

EW: in, in what it has done. I'm

EAU: sure it would feel magical quite honestly.

EW: Yeah. Leopold would really have appreciated vaccines, I think

EAU: Maybe he did. Did they talk about It the movie I don't remember

EW: I have not seen it since it was in theaters at the dollar theater like 20 years ago.

EAU: Oh, that's hilarious. I'm gonna go watch it now.

EW: I know.

EAU: But it's true. Vaccines save today in 2025. An estimated 4 million lives every single year.

EW: Uh, 4

EAU: The World Health Organization actually estimates three and a half to 5 million. So like, I mean, it's incredible.

EW: conservatively 4 million, which is like

EAU: It's conservatively. But the thing is that we could be saving even more.

EW: Mm-hmm.

EAU: Because while we have made huge strides in reducing the burden of these diseases, we have not eradicated any of them, aside from smallpox, which we no longer vaccinate for anywhere across the globe because it has been eradicated,

EW: Mm-hmm.

EAU: and also

EW: render Pest. Yeah,

EAU: of cattle.

EW: Like, well, actually

EAU: Well, actually don't worry, I wrote renderer, PE down. But until we can actually eradicate these other preventable diseases, a case anywhere represents the risk of disease everywhere. Especially because in the face of growing anti-vaccine sentiment in the US and around the globe, vaccine preventable diseases are on the rise. As we record this, which is early March, 2025, in the us, we are in the midst of a very significant measles outbreak that is [00:35:00] continuing to spread

EW: Yeah. These numbers are way out of date already.

EAU: I know. Yeah. By the time this episode comes out, they will unfortunately, I'm sure be much worse. And the current outbreak is not typical. It is not common.

EW: Nope.

EAU: And like you mentioned already, Aaron in the US measles was declared eliminated in the year 2000, which essentially means that we had had no continuous transmission of measles for an entire year, which meant that from that point forward, any cases that popped up, like anything more than three cases of measles is considered an outbreak in the us. And that was huge. And it wasn't just the us Like you said, in 2016, the World Health Organization declared measles eliminated from the entire Western hemisphere. And around that time, the World Health Organization, European region, also reached its lowest point ever in Europe.

EW: Hmm.

EAU: And then

EW: And

EAU: things started to get worse again. In the US between 2000 and 2010, so shortly after we were declared eliminated, there were only three years in that 10 year period where we had more than a hundred measles cases in the US

EW: Mm-hmm.

EAU: between 2011 and 2021, in that 10 year period, seven years had more than a hundred cases, including 667 cases in 20 14, 381 cases in 20 18, 1274 cases in 2019, and last year in 2024, we had 285 cases. Right now it's early March and the CDC last updated their measles disease outbreak surveillance on February 28th.

EW: Not often enough.

EAU: I know it's every

EW: a week every Friday. Yeah, I,

EAU: Yeah. But as of February 28th, there had been 164 confirmed cases and one child died. That is the first time that a child has died of measles in the US since 2015. In the current outbreak, and again, I know these numbers are outdated, by the time this episode comes out, 20% of these kids, and I say kids, because 82% of these cases are in children,

EW: Mm-hmm.

EAU: 20% of them have been hospitalized, and 95% of cases were in either unvaccinated individuals or people whose vaccination status is unknown. And in every case, whether an individual is vaccinated or unvaccinated, this is a preventable illness.

EW: Yes.

EAU: And it's not just measles like.

EW: is not just measles. And before we move on to the, the other diseases that are vaccine preventable and these outbreaks that are happening, I wanna to talk

about something that I think can generate some confusion when it comes to looking at these numbers. So you'll see in an outbreak like measles, like these measles outbreaks, that there is a number of people who are vaccinated who contract measles. And that could be for a million different reasons, right? Like some of us measles vaccines don't induce as strong of an immune

EAU: Right. 3% of

EW: why herd immunity is so important and because in an area, the general population is much more vaccinated than unvaccinated.

EAU: We have over 80% vaccination coverage in the us. Mm-hmm.

EW: it can seem like there is a high number or an equal number of people who are vaccinated compared to those who are not

EAU: Mm-hmm.

EW: Does that make sense? But that's not, that is actually disguises what is truly happening. And that is if you look at the proportion of people who are unvaccinated, what is the likelihood that they will get va? That they will get measles much, much, much higher than if you are

EAU: right. I think you said last week, Erin, it was like 170 times higher.

EW: times higher for unvaccinated. Yeah. And so, but like, just reporting on these sheer numbers only tells part of the story, right? Like we, it doesn't tell us what proportion of unvaccinated individuals in a community are infected compared to those who are

EAU: Exactly. Exactly.

EW: I think it, it kind of is, these numbers are sometimes used to undermine the power of vaccines in protecting you.

EAU: I remember that happening, especially a lot during the mumps outbreak, um, a few years ago because especially mumps, we see more waning immunity than we see with measles as well. And so it kind of compounded that same problem, but it is, yeah. The, the proportion, the likelihood that you get one of these illnesses is significantly higher if you are unvaccinated or under vaccinated compared to if you are vaccinated

EW: And on top of that, complications, right? Like this isn't just about whether or not you are getting the disease, it is about how sick you are getting and your chances of dying. And vaccines protect you from these

EAU: Exactly, and it is not just measles,

EW: not just measles.

EAU: cases. Whooping cough has been on the rise year over year [00:40:00] in 2024, there were 35,000 cases of pertussis in the US and over 2,700 of those were babies under 1-year-old, and six of those babies under 1-year-old died in the US in addition to four other kids that were over 1-year-old. That's 10 children who died last year alone in the United States from a vaccine preventable illness.

EW: Yep. Did not have to happen. I, yeah.

EAU: Polio is another example that made headlines back in 2022 here in the us. So we eliminated polio in the US in 1979, and there is of course, a huge campaign to try and eradicate polio across the globe, and we're not there yet. And yet there was a case of Paralytic polio in 2022 in the US and in conjunction with that case, there was enough virus being detected in the wastewater in surrounding areas that the US was actually added to the World Health Organization list of countries with endemic circulating vaccine derived strains of poliovirus. Now this is a strain of the virus that has evolved from the vaccine strain of the oral poliovirus vaccine. So this is a disease that people get, not from the vaccine itself, not from getting the vaccine, but from a mutated version of this virus that can persist in the environment from the vaccine derived strain that evolves to regain virulence or infectiousness and then can infect other people and get them sick. We do not use this oral polio vaccine in the US and we haven't since the year 2000, but there are some other countries across the globe that still do, because it's a much less expensive vaccine, it's easier to administer because it's oral. Rather than injected, you have to have less public health investment or infrastructure. And in some other places that still had circulating like. Wild type poliovirus. Um, it provided good protection, but it comes with this potential cost, and that cost has now been more vaccine derived, strains circulating.

EW: Mm-hmm.

EAU: And globally in 2023, which is the latest year that the World Health Organization has these global dashboard numbers, there were over 24,700

reported cases of diptheria, certainly more that were not reported, over 669,000 cases of measles globally. Over 163,000 cases of pertussis. 387,000 cases of mumps, 35,000 cases of rubella, and over 21,000 cases of tetanus. And the list goes on. So all of these diseases that we are protecting our children against with vaccines still circulate around the globe. And because of global travel, that means that many of these diseases can circulate anywhere. And I mean, the case of tetanus, those bacteria are just everywhere already.

EW: I mean, and so, so much of this is just like, it is, these numbers are staggering and they're so hard to, to absorb to like actually wrap your head around. And this, I think, speaks to how, why it is so important that an investment in global public health and global health is crucial. And it's just, uh, it's just something that is so obvious. It's so clear.

EAU: I know. Vaccines are not only the best thing that you can do to protect yourself and your children from infectious disease, but also the best thing that you can do to protect your community. Because vaccines are protecting us against communicable diseases. These are things that are spread from person to person. So it is, like we said last week, are social responsibility to vaccinate, like for the health of ourselves. Yes, I don't want to get sick and end up hospitalized, but also for the health of our communities,

EW: Mm-hmm.

EAU: for this reason, because of the health of the public that there are vaccine requirements for participation in public life, like public schools. And when these requirements are waived or changed to recommendations rather than requirements or if they're done away with altogether, we are putting both individual and public health at risk. We then see children hospitalized and dying. Resurgence of diseases that have previously been eliminated.

EW: Mm-hmm.

EAU: So understandably, there is a lot of interest in addressing vaccine hesitancy.

EW: How the heck do we do it?

EAU: That's a great question. Um, the World Health Organization actually named vaccine Hesitancy, one of the top threats to global health in 2019, and that's [00:45:00] alongside like climate change and air pollution, antimicrobial

resistance. The next global influenza pandemic, like big scary things include vaccine hesitancy.

EW: hesitancy. Yeah.

EAU: So lucky for us, there's a lot of research that has been done and that continues to be done on how to best try and address this. And we started out last week's episode, like this whole vaccine series. Part of what we wanted to be able to talk about is just how prevalent vaccine misinformation is and how easy it is to believe it because of the way that misinformation and disinformation praise on our fears and anxieties, especially when it comes to our kids. And we are all susceptible to misinformation, including us. I do hate to admit it, but it's true. And we know that when it comes to vaccine hesitancy, which is defined as the reluctance or refusal to vaccinate despite the availability of vaccines, there is a spectrum of belief. But I wanna first set the record straight. The vast majority of parents still vaccinate their kids on time according to the A CIP schedule period.

EW: Period.

EAU: Yay.

EW: That's amazing. And part of that is because we do have these childhood vaccination requirements for school entry, right? Like yeah.

EAU: it's, yeah, it's great.

EW: It's, it's amazing

EAU: But when we are looking at the minority of people who meet these criteria of vaccine hesitancy, there is a spectrum. And there are some people, many of whom are the spreaders of disinformation, who are profiting heavily off of vaccine hesitancy in one way or another, or who have wrapped up their identities in these false beliefs to a point where there really is no changing their mind.

EW: Mm-hmm.

EAU: But there are also a lot of people who are vaccine hesitant, who just have questions or fears or heard scary things on TikTok, and they just don't know who to believe. And recognizing this idea that we can all fall prey to misinformation. What that does is allow us to approach all of our conversations

about vaccines from a place of understanding and empathy. It allows us to actually have productive conversations about vaccines rather than just combative ones, like with

EW: Mm-hmm.

EAU: uncles.

EW: I'm sorry.

EAU: It's uh, true though. But we also know that a lot of parents rely on their healthcare providers as primary sources of information when it comes to their children's health. And that's great. We should all have a healthcare provider that we can trust to ask our questions and get answers without fear of judgment or reprisal. And studies show time and again that a strong recommendation from your healthcare provider drives vaccine uptake as do strategies like motivational interviewing, which is a technique that relies on like open-ended questions and affirming and reflecting back statements and concerns, and then summarizing information and then advising, but all in a way that actually requires that you listen.

EW: Yeah, I mean, Google it. It's like a really, it's a really important and, and technique, and I think that there's a lot more to it. So if you're interested in learning more about it, definitely search.

EAU: that you start from a place of empathy, from where a person is coming from and the concerns that they legitimately have. But a lot of us and a lot of you listening feel like maybe you feel like you'll never be in a position to directly like advise someone on whether or not to get vaccinated. That does not mean that we can't all be working towards increasing vaccine acceptance in our own communities. Most parents still vaccinate their kids. The majority of kids in the US are getting their vaccines on time. According to the ACIP schedule. If we start talking about this fact, like normalizing this, talking about getting your vaccines, about when you got your kids vaccinated, how you just got your flu shot and your arm's a little bit sore, but you're feeling great about it, that is one way that we individually can help to move this needle back towards vaccine acceptance and away from this idea of vaccine hesitancy.

EW: Yeah.

EAU: We collectively talk a lot about vaccine hesitancy, but I think we don't talk enough about getting vaccinated and like normalizing this process.

EW: I love this because I feel like I have done this with friends where I'm like, oh yeah, I got my flu shot and my arm is still a little bit sore, and they're like, oh, that reminds me I have to go get my flu shoT

EAU: Exactly. Exactly.

EW: as simple as that.

EAU: I, I love it. I also love things that make it easier. Like one time I got my flu shot and my covid shot this year when we went to, uh, the YMCA where my kids were doing gymnastics and they had a table there, and we went early. 'cause we thought my kids wanted to play in a thing and then they didn't want to. And we're like, well, fine, we're just gonna get our vaccines then. And it was so great. It made it so easy,

EW: Yes, [00:50:00] yes. Breaking down those barriers to just make it easy when you're just out, because there are so many other things that are that, that do stand in the way of someone being able to take time off to go get vaccinated when our clinic hours open. And I know that there are a lot of different organizations that really push towards this. Like we're having, you know, a van that comes and does like on onsite vaccinations. It's

EAU: and talking about this and normalizing this process and talking about how incredible the benefits of vaccination are is so helpful, and we can all start having these conversations with our friends and family who already vaccinate, and maybe those who might be more towards hesitant.

EW: Yeah. And I think it's important to, you know, wonder what might that conversation look like? What, what could it look like? And. Ugh. I mean, who knows, right? Like there's a huge spectrum and it, it depends a lot on how receptive someone is to changing their mind or to hearing conflicting information, something that conflicts with what they've heard or what they hold in their hearts, right? But it does start, like you said, Aaron, with empathy and with asking questions. So if you know someone who's vaccine hesitant or you learn that someone is, you could start by asking why. Like, what, what do you know about vaccines? What specific worries do you

EAU: Yeah.

EW: And then asking, you know, can, can I talk with you about this? Can I share my thoughts? Is there, can I share some, some information that I have

EAU: Asking for permission.

EW: can we engage in this way? Yeah. And maybe it's a flat no. Maybe they're like, not interested. Do not talk to me anymore about this. Right. But maybe it's not. Maybe they're like, actually, yeah, I have been really nervous and I don't know where to turn. And maybe you can help to answer their questions. Or maybe you can't. Maybe you're like, I too, I don't know where to turn. But you can at least look together. You can help them find where to

EAU: Mm-hmm.

EW: That is how this is proven to be, how progress is actually made on this front, human to human interaction. People who have, you know, social. Uh, capital in their community, right? Like people who are trusted, people who are like, no, I get it. I know where you're coming from. I can relate to you and I will relate to you. I won't stand here in a position of power and tell you, and look down on you and condescend to you, right? Like I will say, okay, I hear you. Right? And this, all of us having these conversations is how we can make

EAU: Yeah.

EW: Each of you has the most sway and reach within your own

EAU: Mm-hmm.

EW: and research does show that this community-based activism, even if it's just informal, even if it's just chatting with a neighbor, this has the greatest opportunity of making an impact. And one really important thing to remember, and I think that especially as our bandwidth grows ever more shorter these days, speaking

EAU: Personally, yes.

EW: is that you should pick your battles, right? Like you can pick your battles. We if, if you're not in the head space or you feel like someone is just super resistant and it's only going to drain you further so that you don't have the emotional bandwidth to take care of yourself. Or if you feel yourself getting heated and you're like, this is not going anywhere. I'm just getting angry at this person. Don't be afraid to take a step back, try another day. This is a constant, constant battle, but we truly can make progress.

EAU: Yeah. We really, really can't, we maybe sound very cheesy, but genuinely we believe that also data, um, backs it up. So,

EW: Yeah. Evidence-based, uh,

EAU: speaking of evidence,

EW: speaking of evidence, great transition.

EAU: you.

EW: We've got more sources for this. Um, let me see if I can shout out any in particular that I found helpful. If I can find this tab. Here we go. Uh, yeah, there is a paper by Walton Etal from 2015 called The History of the United States Advisory Committee on Immunization Practices. And it was, um, really insightful in terms of. How this committee came to be. And then I have a bunch of other, um, websites or a bunch of other sites from CDC and WHO that can help sort of put more context into this.

EAU: I used a lot, the World Health Organization Global Dashboard, um, their data portal, so we will link to that.

EAU: I also really enjoyed a paper by friend of the pod, Peter Hotez from 2019 titled America and Europe's New Normal, the Return of Vaccine Preventable Diseases. Um, and I also had a number on that whole idea of how we talk about vaccine hesitancy and kind of moving the needle. So we will post the list of all of our sources from this episode and every one of our episodes on our website. This podcast will kill you.com under the episodes tab.

EW: We

EAU: Mm-hmm.

EW: a big thank you to Blood Mobile who provides the music for this episode and all of our episodes.

EAU: [00:55:00] Sure do. Thank you so much. Blood Mobile, thank you to Lianna Squillache and Tom Breyfogle, focal for the incredible audio mixing. And thank you to Brent and Pete and the whole video editing team as well.

EW: Thank you. Thank you. And thank you to you listeners for listening.

EAU: listening or watching.

EW: Or watching, please do reach out with more what you wanna hear, what you wanna learn about.

EAU: I wanna know so we can make our season better.

EW: Yes, truly.

EAU: And thank you as always to our patrons. Your support means so much to us. Thank you. Thank you. Thank you.

EW: Thank you. Well, until next time, wash your hands.

EAU: filthy animals.