00:00:13.220 --> 00:00:32.550
Kylie Hall: Good afternoon, everyone. Welcome. My name is Kylie Hall. I'm the Operations Director in the North Dakota State University Center for Immunization Research and Education. Today, I have the pleasure of introducing Dr. Walter Orenstein. He's going to be presenting the webinar, The Role of Vaccines in Eradicating and Eliminating Diseases.

2
00:00:32.549 --> 00:00:40.310
Kylie Hall: Dr. Orenstein is Professor Emeritus in the Emory School of Medicine. He was a former professor of medicine, epidemiology, global health.

3
00:00:40.310 --> 00:00:56.360
Kylie Hall: and pediatrics at Emory University, as well as the Associate Director of the Emory Vaccine Center and Director of the Emory Program on Vaccine Policy and Development. He has formerly served as Deputy Director for Immunization Programs at the Bill and Melinda Gates Foundation.

4
00:00:56.430 --> 00:01:10.390
Kylie Hall: Where he focused on polio eradication, measles control, and improving routine immunization programs. He's also served as Director of the United States Immunization Program at the CDC, Assistant Surgeon General of the United States Public Health Service.

5
00:01:10.390 --> 00:01:17.939
Kylie Hall: and President of the National Foundation for Infectious Diseases. He is the past chair of the World Health Organization Polio

6
00:01:17.940 --> 00:01:33.919
Kylie Hall: Technical Consultative Group, and served as the chair of the National Vaccine Advisory Committee. He is also currently a member of the World Health Organization's Strategic Advisory Group of Experts on Immunization for Polio, as well as measles and rubella Working Groups.

7
00:01:33.920 --> 00:01:49.040
Kylie Hall: His research focus has been on assessment of vaccine effectiveness in observational studies, methods to overcome vaccine hesitancy, ways to enhance uptake of recommended vaccines, and ways to facilitate polio eradication and sustain that eradication.

8
00:01:49.420 --> 00:02:04.790
Kylie Hall: For your information, this webinar is being recorded. It'll be available with slides on our website and YouTube page following the presentation. For those who are seeking one credit of CME, please follow the link available in the webinar chat, and please take that pretest as we get going here.

9
00:02:04.790 --> 00:02:15.369
Kylie Hall: We're also excited to be offering continuing pharmacy education credit for this webinar. Instructions for claiming CPE will be available at the end of the webinar, and we'll put those instructions in the chat as well.

10
00:02:15.370 --> 00:02:23.309
Kylie Hall: If there is time, Dr. Ornstein has agreed to stay on and answer questions at the end of the webinar. Please use that Q&A function on your Zoom webinar.

11
00:02:23.490 --> 00:02:30.429
Kylie Hall: And we'll get to as many questions and answers as we can at the end of the webinar. Dr. Orenstein, you are ready to begin.

12
00:02:30.860 --> 00:02:36.090
Walter Orenstein: Thank you very much, and it's a real pleasure to be here. I really appreciate the opportunity.

13
00:02:36.210 --> 00:02:44.359
Walter Orenstein: to present And vaccines eradicate diseases. In other words.

14
00:02:44.490 --> 00:02:54.460
Walter Orenstein: Most of the vaccine-preventable diseases are person-to-person spread, and if you break those chains, not only do you protect vaccinees.

15
00:02:54.460 --> 00:03:05.039
Walter Orenstein: But you protect the community at large, including persons who can't be vaccinated, or make a protective immune response.

16

00:03:07.370 --> 00:03:16.360
Walter Orenstein: This is, this describes the disclosure policy, whoops, and …

17
00:03:17.800 --> 00:03:27.240
Walter Orenstein: that I, comply with from, and the utilization research and, and, and, efforts, and…

18
00:03:27.290 --> 00:03:44.490
Walter Orenstein: Here, it just shows you what the disclosures are. I have been a consultant for vaccine manufacturers, CureVac, Securus, Mercog, Sanfi, Moderna, and financial relationships have been mitigated.

19
00:03:46.470 --> 00:03:54.269
Kylie Hall: Dr. Ornstein, we're getting some cutting in and out on your… on your audio. I don't know if there's, any other options, but I just wanted to let you know.

20
00:03:55.580 --> 00:04:01.540
Walter Orenstein: by listening, and if not, I will try and photo.

21
00:04:02.080 --> 00:04:10.109
Walter Orenstein: That's two objectives for my presentation. To define what is eradication and elimination.

22
00:04:10.320 --> 00:04:16.549
Walter Orenstein: And the criteria required in making the disease eligible for eradication.

23
00:04:17.740 --> 00:04:20.690
Walter Orenstein: I hope you're saying, he's a Trump.

24
00:04:21.399 --> 00:04:23.980
Walter Orenstein: I'm sorry, let me just chime.

25
00:04:24.210 --> 00:04:25.799
Walter Orenstein: You can walk me through.

26
00:04:26.270 --> 00:04:28.450
Walter Orenstein: Let's see if that works better.

27
00:04:38.550 --> 00:04:39.949
Walter Orenstein: It's getting better?

28
00:04:42.690 --> 00:04:56.870
Kylie Hall: Yeah, once you… once you settle in a new… in a new area, we can let you know how it sounds. Another option, Dr. Ornstein, that we found is that sometimes you can turn off your camera, and that can help, with that, bandwidth as well.

29
00:04:57.000 --> 00:04:58.829
Walter Orenstein: Okay, how's things now?

30
00:04:59.110 --> 00:05:00.199
Kylie Hall: Much better.

31
00:05:00.200 --> 00:05:01.620
Walter Orenstein: Okay, sorry.

32
00:05:01.910 --> 00:05:17.280
Walter Orenstein: So my objectives today are to define what eradication and elimination really are in the criteria that makes a disease eligible for elimination or eradication.

33
00:05:17.390 --> 00:05:32.130
Walter Orenstein: Describe why disease surveillance, including whether cases are the result of vaccine failure and failure to vaccinate, plays a critical role in disease eradication and elimination.

34
00:05:32.300 --> 00:05:50.700
Walter Orenstein: And to try and make the case how investments by high-income countries to support efforts to eradicate or eliminate vaccine-preventable diseases in low-income countries benefit both low- and high-income countries.

35
00:05:53.330 --> 00:06:06.369
Walter Orenstein: What is the definition of eradication? The definition of eradication is the worldwide absence of a specific disease agent in nature as a result of deliberate control efforts

36
00:06:06.370 --> 00:06:23.409
Walter Orenstein: that may be discontinued when the agent is judged no longer to present a significant risk from extrinsic saucers. The only genome disease ever eradicated is smallpox. A medication needs to live forever.

37
00:06:23.580 --> 00:06:29.729
Walter Orenstein: And it's a gift of the generation that achieves it to every future generation.

38
00:06:35.780 --> 00:06:40.619
Walter Orenstein: And this is just the example of what people call

39
00:06:40.870 --> 00:06:50.169
Walter Orenstein: I prefer the term community protection or committal immunity. And what it means is when you have a transmitting case.

40
00:06:50.450 --> 00:07:02.839
Walter Orenstein: That case can then come in contact with people and infect them and lead to an outbreak. When there's a high levels of immunity through vaccine.

41
00:07:02.970 --> 00:07:21.879
Walter Orenstein: coverage. What you can see here is the likelihood of a transmitting case coming in contact with a susceptible individual is markedly reduced, and you can block transmission without having to get every single person immune.

42
00:07:21.880 --> 00:07:40.869
Walter Orenstein: And who are the people protected? They're people who are not eligible for vaccination, who may be susceptible, for example, younger than your teenage. It's people with compromised immune systems who can't make a protective immune response. It's people who…

43
00:07:40.880 --> 00:07:47.299
Walter Orenstein: Have, allergies or medical contraindications to a vaccination.

44
00:07:47.300 --> 00:08:12.149
Walter Orenstein: And it's people who are vaccinated, but who didn't make an immune response. For example, the measles vaccine is extremely effective. Two doses are 97% effective, but 3% are not protected. How are they protected? They're protected if not exposed. So even people who are vaccinated should advocate for people who are not

45
00:08:12.150 --> 00:08:14.479
Walter Orenstein: vaccinated, not going to…

46
00:08:14.480 --> 00:08:23.950
Walter Orenstein: For their own person's… this other person's children or themselves, but for your own children in case your child is one of the 3%.

47
00:08:28.150 --> 00:08:31.269
Walter Orenstein: There are four criteria.

48
00:08:31.410 --> 00:08:37.750
Walter Orenstein: in the potential biologic criteria for medication. This is not.

49
00:08:37.809 --> 00:08:52.430
Walter Orenstein: an issue of resources and politics. This is biologic. Then, there must be an effective, practical intervention that is available to interrupt transmission.

50
00:08:52.750 --> 00:09:11.799
Walter Orenstein: Number two is there must be practical diagnostic tools to exist with sufficient sensitivity to detect levels of infection that can lead to transmission. There must be an absence of a non-call verbal pathogenic agent.

51
00:09:11.800 --> 00:09:28.269
Walter Orenstein: And the organism does not amplify in the environment. For example, tetanus has a soil resource. Tetanus can never be eradicated because the organism, Clostridium tetani,

ends in soil.

52
00:09:28.670 --> 00:09:42.680
Walter Orenstein: And fourth, there must be a demonstration in a large geographic area or region that shows transmission has been terminated with the intervention.

53
00:09:45.370 --> 00:09:46.790
Walter Orenstein: Well, the…

54
00:09:48.070 --> 00:10:07.020
Walter Orenstein: as I mentioned, is smallpox. This is a picture of a child with smallpox. In fact, when I worked in smallpox in India, I would use this picture in going door-to-door to ask people if they knew of a case of smallpox.

55
00:10:07.020 --> 00:10:21.619
Walter Orenstein: There is a… about a 12-day incubation period, about a 4-day period of fever, and then you get the classic illness. And…

56
00:10:21.620 --> 00:10:37.659
Walter Orenstein: it's a very deadly illness, and the area I worked in in India was about 30% case fatality ratio, but there were some very important points. It was one, in contrast to measles, for example.

57
00:10:37.660 --> 00:10:53.509
Walter Orenstein: The person didn't become contagious until they were very sick, and so it wasn't like they were walking around and infecting people, which made smallpox easier to control and eventually eradicate.

58
00:10:56.920 --> 00:11:11.899
Walter Orenstein: Also interesting about smallpox is that's how we got the first vaccine. Edward Jenner in England noted that maids who got cowpox lesions didn't get smallpox.

59
00:11:12.030 --> 00:11:20.069
Walter Orenstein: And so he hypothesized that the immune response to cowpox also protected against smallpox.

60
00:11:20.710 --> 00:11:26.789
Walter Orenstein: And in 1796, he vaccinated James Phipps.

61
00:11:26.830 --> 00:11:41.999
Walter Orenstein: an 8-year-old, he didn't get institutional clearance for that. They didn't have them at the time. But he… and they exposed James Phipps to smallpox, and he didn't get smallpox, and that's how he got smallpox vaccine.

62
00:11:42.000 --> 00:11:55.469
Walter Orenstein: And the vaccine comes from vodka, or can, and that's how… and it became vaccine because of this cowpox effort.

63
00:11:56.730 --> 00:12:06.610
Walter Orenstein: So, what happened with smallpox is the original goal was to have mass vaccination.

64
00:12:06.630 --> 00:12:23.109
Walter Orenstein: And then they found a shortage of vaccine, so they decided, well, until we get enough vaccine, let's do something called surveillance and containment vaccination. Search for cases.

65
00:12:23.370 --> 00:12:27.129
Walter Orenstein: Identify and vaccinate their contacts.

66
00:12:27.180 --> 00:12:47.010
Walter Orenstein: provide a real unit. So basically, what I did in smallpox is, when we found the case, we put the case in the hut, we would put a guard on the hut, and no one could go in unless they were vaccinated. Then we would identify

67
00:12:47.040 --> 00:13:00.179
Walter Orenstein: who that person might have exposed, and we would do a census, and we would go back to those people until they accepted vaccination. And then we made some guesstimate of

68
00:13:00.390 --> 00:13:18.630
Walter Orenstein: who, if this first ring got sick, who would they infect? The secondary ring? Take a census of them and go to them. And so, what we did is… and this became a way of enhancing things, and also because

69
00:13:18.820 --> 00:13:33.120
Walter Orenstein: Vaxilia was a very reactogenics vaccine, a small bronze vaccine, that, because we were limiting vaccination to people who are at risk, we also decreased adverse events.

70
00:13:34.320 --> 00:13:49.369
Walter Orenstein: So, what made smallpox successful is, one, the disease was easy to diagnose, there were no carriers, no quantit transmitters. Almost all transmission was by droplets.

71
00:13:55.140 --> 00:14:03.139
Walter Orenstein: There was transmission, virtually no transmission, until the patient became more sick.

72
00:14:03.800 --> 00:14:16.650
Walter Orenstein: And you could get protection in giving vaccination as short as 3 to 4 days after exposure, given the long incubation period.

73
00:14:18.370 --> 00:14:34.460
Walter Orenstein: So, in summary, the clinical diagnosis was comparatively straightforward. The laboratory tests off the field needed even for eradication, but we didn't need a laboratory for smallpox.

74
00:14:34.460 --> 00:14:47.529
Walter Orenstein: the clinical syndrome was so distinct that I could teach a layperson to make the diagnosis. The major differential diagnosis was, measles.

75
00:14:47.650 --> 00:15:00.630
Walter Orenstein: It was, chickenpox, rather. And spread was slow, and then transmission was almost traceable, almost traceable to face-to-face contact.

76
00:15:04.360 --> 00:15:18.370
Walter Orenstein: All… and so the question is, all of the following are practical and necessary criteria for the biologic eligibility for a medication, except…

77
00:15:18.420 --> 00:15:30.059
Walter Orenstein: An effective practical intervention to interrupt transmission, practical diagnostic tools, absence of a non-libernalism, funding, and political support.

78
00:15:32.060 --> 00:15:35.719
Walter Orenstein: Maeve, how… what do I… do you have a…

79
00:15:41.040 --> 00:15:42.120
Walter Orenstein: No.

80
00:15:43.500 --> 00:15:50.340
Maeve Williams: Oh, yep, if people just want to kind of answer in their heads, that's just fine, and then we can go over the answer and go from there.

81
00:15:50.670 --> 00:15:51.550
Walter Orenstein: Thank you.

82
00:15:54.030 --> 00:16:03.540
Walter Orenstein: And I wanted to let you know, Dr. Ornstein, we're still getting a little bit of cutting in and out, so I wonder if we should try turning off your camera, and we could see if that improves…

83
00:16:07.710 --> 00:16:09.349
Walter Orenstein: Is this any better?

84
00:16:10.910 --> 00:16:17.080
Kylie Hall: It's… it's kind of in and out, so our… it's hit and miss, so let's see as we go if the sound improves over time.

85
00:16:17.080 --> 00:16:24.159
Walter Orenstein: Okay, okay, and this is a picture… A rare smallpox case.

86
00:16:24.280 --> 00:16:30.990
Walter Orenstein: In Uttar Pradesh, India, India's largest state in north central India, India…

87
00:16:31.460 --> 00:16:37.019
Walter Orenstein: And, that's a picture of me in 1975, a few years ago.

88
00:16:37.040 --> 00:16:56.750
Walter Orenstein: And what you can see here is this was a 7-month-old child. Her name was Shanti, daughter of Priyari Lal, and she died, and … I was called to see her about an hour or two afterwards from an unusual complication of smallpox.

89
00:16:56.850 --> 00:17:07.320
Walter Orenstein: She bled into her skin lesions, related hemorrhagic smallpox, but the last case of smallpox in India's largest state.

90
00:17:19.839 --> 00:17:31.399
Walter Orenstein: And this is the last case of naturally occurring smallpox in the world. His name was Al-Mob in Burka, Somalia in Africa.

91
00:17:31.810 --> 00:17:39.889
Walter Orenstein: And he was not the last case. The last two cases were actually in the United Kingdom as a result

92
00:17:40.060 --> 00:17:53.819
Walter Orenstein: Two of the, … controlled leak, and they were occurring in 1978. So in 1980, smallpox was declared eradicated.

93
00:17:56.860 --> 00:18:10.349
Walter Orenstein: And what are the benefits? In 1967, where the enhanced effort began, there were 44 countries that had smallpox cases, 31 were considered endemic.

94
00:18:10.840 --> 00:18:23.650
Walter Orenstein: There were 217,000 cases reported. An estimate that this was marked under-reporting, 10 to 15 million, and 1.5 to 2 million deaths.

95
00:18:24.270 --> 00:18:39.600
Walter Orenstein: For a total investment of $300, the estimate benefits were about $1 billion per year. A tremendous benefit to the world, but also to the U.S.

96
00:18:40.500 --> 00:18:56.969
Walter Orenstein: In fact, David Sensor, who was director of the CDC in the 1960s, showed that, there were 14.2 million persons vaccinated during the study period.

97
00:18:57.020 --> 00:19:12.420
Walter Orenstein: 8.6 million revaccinations, 5.6 first, There are lots of complications, 238 reported hospitalization, none dying from their vaccine complications.

98
00:19:12.420 --> 00:19:23.139
Walter Orenstein: Four were permanently disabled, and the total cost to the country, including costs of quarantine, were estimated to be $150 million.

99
00:19:23.140 --> 00:19:28.449
Walter Orenstein: That is now completely saved because of eradication.

100
00:19:29.370 --> 00:19:33.960
Walter Orenstein: Now, there are a continuum of services to improve health.

101
00:19:34.340 --> 00:19:42.209
Walter Orenstein: One is just routine comprehensive health services, selective approaches to certain diseases.

102
00:19:42.250 --> 00:19:59.540
Walter Orenstein: Targeted programs like tuberculosis control, elimination, as we've been trying to do and have been successful to date, although it's in real difficult trouble right now is measles, and then eradication, polio.

103
00:20:01.480 --> 00:20:05.160
Walter Orenstein: So, let me go over some of the definitions.

104
00:20:05.560 --> 00:20:16.589
Walter Orenstein: control… Of the disease incidence, prevalence, and mortality to a relatively acceptable level as a result of deliberate efforts

105
00:20:16.650 --> 00:20:27.770
Walter Orenstein: Continued intervention measures are required to maintain the reduction. And that's what we have with the vast majority of vaccine-preventable diseases.

106
00:20:29.320 --> 00:20:43.619
Walter Orenstein: Elimination is the reduction to zero of the incidence of a specified disease in a defined geographic area as a result of deliberate efforts

107
00:20:43.620 --> 00:20:53.099
Walter Orenstein: But continued intervention is needed. This is not global, it's in a geographic area.

108
00:20:53.400 --> 00:21:05.259
Walter Orenstein: And the definitions can be quite different. For example, for measles elimination, the goal is in our country that any measles case introduced

109
00:21:05.260 --> 00:21:14.660
Walter Orenstein: does not lead to sustained transmission of that virus for over a year. So we could still get measles cases, but

110
00:21:14.840 --> 00:21:34.479
Walter Orenstein: it… you can't have continued circulation. There are other definitions, such as neonatal tetanus elimination, which is basically a certain level of cases is compatible with elimination, not zero, but if you go above that, you lose your elimination status.

111
00:21:36.150 --> 00:21:44.949

Walter Orenstein: So, here is some of the, definitions. You can see here that for new Old Testamenteness.

112
00:21:44.950 --> 00:21:56.930
Walter Orenstein: It's no more than one case per thousand live births over a given year. Leprosy, 1 per 10,000. Hepatitis B, a 90% reduction.

113
00:21:56.930 --> 00:22:05.770
Walter Orenstein: So, elimination has many different definitions, as opposed to eradication, where it's zero forever.

114
00:22:06.300 --> 00:22:20.080
Walter Orenstein: So again, eradication is permanent reduction to zero the incidence of infection caused by a specific agent, and intervention measures may no longer be needed.

115
00:22:21.550 --> 00:22:24.570
Walter Orenstein: So, my second question…

116
00:22:24.660 --> 00:22:42.219
Walter Orenstein: is what was the first vaccine ever developed? Deflora toxoid, tetanus toxoid, smallpox vaccine, or polio vaccine? Please think about this and answer the question.

117
00:22:47.020 --> 00:22:57.790
Walter Orenstein: The most recent, biggest effort in eradication is polio. This is what polio looked like in low- and middle-income countries.

118
00:22:57.860 --> 00:23:11.760
Walter Orenstein: The polar virus destroys the anterior horn cells in the spinal cord, and these are the cells in the nerves that basically tell the muscles what to do.

119
00:23:11.990 --> 00:23:14.160
Walter Orenstein: If, in fact.

120
00:23:14.160 --> 00:23:29.110

Walter Orenstein: you destroy that, it's like cutting the wires to a light bulb. Your muscles can no longer contract, and so they become flaccid, and you have flaccid paralysis and muscular atrophy.

121
00:23:29.110 --> 00:23:34.499
Walter Orenstein: If it paralyzes the muscles of respiration when it attacks

122
00:23:34.500 --> 00:23:45.539
Walter Orenstein: the nerves in the brain that do that, then it could cause you not to be able to breathe, and that was a common cause of death from polio.

123
00:23:45.540 --> 00:23:55.290
Walter Orenstein: And we've shown how serious a problem polio is in low- and middle-income countries by doing maintenance surveys such as this.

124
00:23:58.520 --> 00:24:13.860
Walter Orenstein: And polio was awful. We had thousands and thousands of cases of it in the United States each year, and this is a picture from the Rancho de los Amigos Hospital in California of a room full of people

125
00:24:13.860 --> 00:24:25.289
Walter Orenstein: onion, better known as drinker respirators, because they couldn't breathe. They couldn't breathe. And basically.

126
00:24:25.630 --> 00:24:32.900
Walter Orenstein: They needed this for the rest of their lives because, again, these nerves could not regenerate.

127
00:24:34.800 --> 00:24:45.520
Walter Orenstein: So, why is polo eligible for vaccination? These are the criteria required for the pathogen lifestyle.

128
00:24:45.520 --> 00:25:00.770
Walter Orenstein: And the polar virus requires special receptors on human cells, and they're only on human cells, with some in some high-level primates, but those are not big populations to

sustain transmission.

129
00:25:01.190 --> 00:25:07.220
Walter Orenstein: Second is sensitive and specific diagnostic tools. Smallpox.

130
00:25:07.220 --> 00:25:20.290
Walter Orenstein: We didn't do it because the clinical syndrome was that specific, but with polio, what was done, and is being done, is to do surveillance for acute flaccid paralysis.

131
00:25:20.290 --> 00:25:38.470
Walter Orenstein: to collect stools and send them to a laboratory and culture and use PCR to determine if poliovirus is there, and genetic sequencing to see if it's new in the community to relate to something that was already there.

132
00:25:38.490 --> 00:25:48.230
Walter Orenstein: In contrast to smallpox, where everything was clinical, less than 1% of cases of polio are paralytic, which makes it somewhat difficult.

133
00:25:48.840 --> 00:25:58.040
Walter Orenstein: Was it an effective intervention? There were two effective interventions, the oral vaccine, which was a live attenuated virus.

134
00:25:58.130 --> 00:26:13.690
Walter Orenstein: which was developed by Edward Sabin and became available in the 1960s, and the inactivated polar vaccine, an injectable care vaccine, developed by Jonas Salk, and available since 1955.

135
00:26:13.800 --> 00:26:24.989
Walter Orenstein: And we have gotten near proof of principle. The wide coronaviruses have been certified as eliminated in 4 of the 6 World Health Organization regions.

136
00:26:24.990 --> 00:26:38.679
Walter Orenstein: And there are… in contrast to smallpox or variola, where there's only one virus, there are 3 polar viruses, types 1, 2, and 3, and types 2 and 3 have been certified as eradicated.

137
00:26:41.090 --> 00:26:48.330
Walter Orenstein: So, to show you what I was talking about, the transmission is dry, oil, oil.

138
00:26:48.470 --> 00:26:53.439
Walter Orenstein: Particularly fecal to oil, because that's where most of the shedding takes place.

139
00:26:53.560 --> 00:26:57.050
Walter Orenstein: More than 70% of infections

140
00:26:57.330 --> 00:27:15.030
Walter Orenstein: without symptoms whatsoever. So if you came with them with palliative cola, we would often not know who gave it to you. About a quarter of the infections have a transit illness with fever, melaws, drowsiness, headache, nausea, vomiting, or constipation.

141
00:27:15.500 --> 00:27:16.920
Walter Orenstein: And about…

142
00:27:17.190 --> 00:27:36.439
Walter Orenstein: about 4%, 1 in 25, had aseptic meningitis, where they had this minor litmus, this flu embolizing, followed by real brain pain, and less than 1%

143
00:27:36.690 --> 00:27:39.770
Walter Orenstein: had intra-parallel repair polio.

144
00:27:43.730 --> 00:27:58.149
Walter Orenstein: The characteristics of women, it was asymmetric, as opposed to Guillain-Barre syndrome, and it tended to first start in the central parts of your body, and then proceed out.

145
00:27:58.760 --> 00:28:07.330
Walter Orenstein: Your deep tendon reflexes were completely restless, you wanted the sensory part of it intact, but not

146
00:28:07.330 --> 00:28:18.960
Walter Orenstein: the, … and that's why you got paralysis. The most common type was spinal, which is muscle paralysis, particularly of the ribs.

147
00:28:19.190 --> 00:28:26.209
Walter Orenstein: Spinal bell bever included paralysis and rumor muscles paralysis.

148
00:28:26.440 --> 00:28:32.729
Walter Orenstein: And then Buddha was promoted, booming. And then…

149
00:28:33.150 --> 00:28:48.490
Walter Orenstein: was usually permanent because you killed the nerves. There could be some recovery of some inflammation, but if you didn't recover by the first 6 months, this was lit forever.

150
00:28:49.260 --> 00:28:54.789
Walter Orenstein: Now, the basic epidemiology, particularly in low- and middle-income countries.

151
00:28:54.790 --> 00:29:09.989
Walter Orenstein: It infected mostly children 6 to 24 months of age. The overall case fatality ratio is about 5%. It was most infectious immediately before, and the 1-2 weeks after paralysis.

152
00:29:10.020 --> 00:29:29.809
Walter Orenstein: And the problem is the virus was excreted for 3 to 6 weeks in the feces at high titer, and 2 weeks in the survival. The incubation period, generally the first symptoms was 3 to 6 days, and paralysis 7 to 21 days, and the diagnosis

153
00:29:29.910 --> 00:29:45.820
Walter Orenstein: It's very helpful, but the issue is that, the gold standard is detection of virus from stool specimens, and that's with collection of stool specimens.

154
00:29:47.230 --> 00:30:03.550
Walter Orenstein: This is the progress to date, and this is as of August the 5th. And what you can see here has been a 99% reduction in polio virus cases since 1988, when this began.

155
00:30:03.640 --> 00:30:09.709
Walter Orenstein: The only current rapid polio virus still circulating is type 1,

156
00:30:10.180 --> 00:30:25.880
Walter Orenstein: Type 2 and type 3 have been eradicated globally. The early vaccine is a potential problem, because it's a live attenuated virus, and unfortunately, it can cause polio itself.

157
00:30:25.920 --> 00:30:38.300
Walter Orenstein: It can cause something called vaccine-associated polio, which occurs in about 1 to… in about 4 to 5 million doses, and recipients are close contacts.

158
00:30:38.300 --> 00:30:57.549
Walter Orenstein: And what has become a real problem, first recognized in 2000, is circulating vaccine-derived polioviruses, where polio vaccine given to a low community circulates, mutates, and regains both immune vigilance

159
00:30:57.690 --> 00:31:10.560
Walter Orenstein: and the transmissibility properties of all viruses, and causes outbreaks. And we have some more problems with that. That's the most common cause of polio now, and particularly the type 2 component.

160
00:31:11.460 --> 00:31:22.499
Walter Orenstein: We have two effective interventions, the Sabin vaccine, which is the African, and the inactivated salt vaccine, which is KIV.

161
00:31:24.890 --> 00:31:34.249
Walter Orenstein: And this is a strategy. One is getting teen immunization, usually in a 4-5 dose schedule for children.

162
00:31:34.330 --> 00:31:49.149
Walter Orenstein: And then, National Immunization Days, at least a couple times a year, vaccinating all children less than 5, going door-to-door with the oral polio vaccine.

163
00:31:49.500 --> 00:32:00.339
Walter Orenstein: Third is careful surveillance, looking at acute flaccid paralysis surveillance, and then getting students from them and looking for virus.

164
00:32:00.340 --> 00:32:21.339
Walter Orenstein: And then, what has really been very helpful is wastewater surveillance, sewage surveillance, doing environmental sampling, and when cases or environments are found, going on mass campaigns in that local area to try and terminate all chains of transmission.

165
00:32:22.030 --> 00:32:22.950
Walter Orenstein: So…

166
00:32:23.000 --> 00:32:40.650
Walter Orenstein: Some of the critical tools was disease surveillance. How do we know how good it is? And what was found is if you had an incidence rate of at least 2 per 100,000 non-AFP cases among children, that was

167
00:32:40.650 --> 00:32:51.940
Walter Orenstein: down, consumed, you pick up polio cases of women there. And then 80% of AFP cases invested with them had at least 2 stools collected.

168
00:32:52.030 --> 00:33:01.579
Walter Orenstein: Then what became important, as I mentioned, is environmental coverage, and then going over and looking how well people are getting vaccinated.

169
00:33:01.580 --> 00:33:07.820
Walter Orenstein: Assuring that people were getting vaccinated, and that the vaccinators were doing their job.

170
00:33:07.820 --> 00:33:22.199
Walter Orenstein: Some of the other things there that were done were ink marking on the kids who got vaccinated, and then having independent monitors going and just check how many in an area actually were vaccinated.

171
00:33:22.820 --> 00:33:40.979
Walter Orenstein: And this just shows you how far we've come. The whole effort really began in the Americas with the Pan Am Health Association setting involved to eradicate polio in the Americas by 1990.

172
00:33:40.980 --> 00:34:00.289
Walter Orenstein: The World Health Assembly was so impressed that they established a goal for global medication by 2000. The last case of wild virus polio in the Americas was in 1991 in Peru. The last outbreak of type 2 virus

173
00:34:00.430 --> 00:34:15.250
Walter Orenstein: in the world, wild virus was in Allied by India in 1999, and that's where the picture was of me, that I showed you earlier. That was smallpox, not polio. The last out, in…

174
00:34:15.270 --> 00:34:24.749
Walter Orenstein: 1999, the Western Pacific region, including Japan and China, was certified as total polar free. 2002 group.

175
00:34:25.020 --> 00:34:49.170
Walter Orenstein: In 2012, the last case of type 3, in Nigeria, India, in 2014, and then what you can see here is in 2016, there was a decision to take Type 2 out of the trivalent type 1, 2, 3 vaccine. Of course, it had been

176
00:34:49.170 --> 00:35:07.410
Walter Orenstein: eradicated, and that's become a problem because we now see new problems with circulating vaccine-derived poliovirus, primarily type 2. And what you can see here, in 2025, is 99 cases of wild polio virus.

177
00:35:07.410 --> 00:35:13.660
Walter Orenstein: All of them in only two countries, Pakistan and Afghanistan, whereas

178
00:35:13.660 --> 00:35:31.590
Walter Orenstein: There have been 100 cases of CBTVs in many countries, primarily type 2, 97 of them, and some type 3, and this time, not any type 1, but there had been Type 1s.

179
00:35:31.880 --> 00:35:51.419
Walter Orenstein: And this just shows you the progress. In 1988, when this began, there were an estimated 350,000 cases of paralytic disease, 125 endemic countries. Again, in 2025, 99 wild polar virus cases.

180
00:35:51.420 --> 00:35:58.720
Walter Orenstein: And 25 in Afghanistan, 76 in Pakistan. Those are the only endemic countries.

181
00:36:01.330 --> 00:36:24.719
Walter Orenstein: And this just shows you in another… here's Pakistan and Afghanistan, showing the time what has happened with them, and this is from non-polio sources. And you can see here, and this is from other countries around the world that were not endemic. So, this is the area that it's isolated in, and this just shows you the red dots

182
00:36:25.290 --> 00:36:39.730
Walter Orenstein: around polio virus, and this is in the last year, and you can see they're all in Pakistan and Afghanistan, but what you're seeing in the gluten diets is type 2,

183
00:36:39.980 --> 00:36:57.410
Walter Orenstein: circling vaccine-derived polio virus, and in fact, we have a circling vaccine-derived polio virus type 2 in New York State in 2022, so it's clearly an interest to finally get rid of all the polio.

184
00:36:58.100 --> 00:37:06.319
Walter Orenstein: And another thing that became very useful is, as I mentioned, environmental surveillance, waste and weather, sewage surveillance.

185
00:37:06.320 --> 00:37:18.279
Walter Orenstein: And you can see here in Pakistan, that these are the cases of actual paralytic polio, but we can, by looking at

186
00:37:18.360 --> 00:37:29.900
Walter Orenstein: at wastewater surveillance, you could detect all these other cases, so I might think polio is gone, this shows it's not, and it's become a very important tool.

187
00:37:30.440 --> 00:37:39.629
Walter Orenstein: So, Type 2, again, was certified as eradicated in 2015. Type 3 in 2019.

188
00:37:40.270 --> 00:37:51.089
Walter Orenstein: And so, which pain viruses have not been eradicated? Type 1, type 2, type 3, types 1 and 2, or types 2 and 3?

189
00:37:54.920 --> 00:37:56.920
Walter Orenstein: So, what about measles?

190
00:37:58.490 --> 00:38:17.010
Walter Orenstein: a disease for immunization programs. It's highly contagious, it's most infectious of the vaccine-preventable diseases. There is a differential diagnosis. It's clinically distinctive in that it's a rash illness with fever as opposed to, for example, influenza or COVID.

191
00:38:17.020 --> 00:38:21.629
Walter Orenstein: Though so all cases are clinically compared as opposed to polio.

192
00:38:21.690 --> 00:38:36.279
Walter Orenstein: There are virtually, hardly any cases of clinical repairing. There are good diagnostic tests, it's episodic in nature, and it does have substantial complications, including hospitalizations and deaths.

193
00:38:37.430 --> 00:38:47.540
Walter Orenstein: The first measles vaccines in the United States were licensed in 1963, And John F. Kennedy.

194
00:38:47.590 --> 00:38:59.919
Walter Orenstein: The uncle of Alf K. Jr. established our immunization program in 1962 with him signing the Vaccination Assistance Act. And so.

195
00:38:59.920 --> 00:39:12.660
Walter Orenstein: one of the things that was said is, why don't we try and eradicate measles? And there were four criteria, routine immunization of infants, immunization on school entry,

surveillance, and epidemic control.

196
00:39:13.500 --> 00:39:25.330
Walter Orenstein: And what they found is a greater than 90% reduction in cases by 1968, as opposed to millions in the pre-vaccine era.

197
00:39:25.610 --> 00:39:41.050
Walter Orenstein: There was improved reporting, there was probably the most massive reduction in 90%, and the funding was switched to rebel, because for the concerns Rebell was a major cause of adverse events.

198
00:39:41.050 --> 00:39:49.399
Walter Orenstein: Now, what you can see here is, this is when the program began. Lots of dollars were put in, in the dashed lines.

199
00:39:49.670 --> 00:39:52.219
Walter Orenstein: Dials up, cases down.

200
00:39:52.390 --> 00:39:57.629
Walter Orenstein: Cases down, dollars got suspended, they didn't use the dollars.

201
00:39:58.280 --> 00:40:04.790
Walter Orenstein: Cases came up because coverage went up. People were buried here, and they didn't have immune.

202
00:40:05.320 --> 00:40:12.199
Walter Orenstein: Led to more funding. Funding went up, cases went down. Funding started coming down.

203
00:40:12.530 --> 00:40:29.919
Walter Orenstein: Then we had efforts, and we had a presidential initiative, finally, and that's the issue, is we need to, until a disease is eradicated, we need to continue the effort, because people arrive, just as if we stopped vaccinating

204

00:40:29.920 --> 00:40:38.560
Walter Orenstein: Today, this means all children who have big outbreaks tomorrow will take time to susceptible to a teammate.

205
00:40:42.440 --> 00:40:43.270
Walter Orenstein: Okay.

206
00:40:46.320 --> 00:40:56.639
Walter Orenstein: So, when the smallpox was eradicated with an outbreak control strategy, and maybe we could do that less.

207
00:40:56.670 --> 00:41:07.149
Walter Orenstein: And what was learned is mandates made a big difference for a continuous source of funding, and surveillance was critical, as well as political leadership.

208
00:41:07.930 --> 00:41:21.870
Walter Orenstein: And this is a study done by Phil Landrigan in Texarkana, Texas, back in the early 70s, and what you can see here is Arkansas had a ban mandating utilization for school attendance

209
00:41:22.190 --> 00:41:28.399
Walter Orenstein: The Texas part of Texel County, we want, and look at this outbreak. Lots of cases there.

210
00:41:28.400 --> 00:41:52.479
Walter Orenstein: More cases there. And then, in Los Angeles County, in 1977, there were two deaths, 3 encephalitis cases, multiple measles cases, sustained transmission, even though clinics were held in schools. And Sharon Farron, who was Director of Acute Chemical Diseases in Los Angeles County, said, I'm going to throw your children out of school if they're not

211
00:41:52.480 --> 00:42:08.199
Walter Orenstein: vaccinated by a certain date. And lo and behold, by the two months where she had clinics in the school and everything, there were about 50,000 kids who didn't have evidence of missing immunity, and she excluded 50,000 kids out of school.

212

00:42:08.500 --> 00:42:24.629
Walter Orenstein: Many of them turned out to be vaccinated, just having brought the ambulance in, but this became the standard way of controlling outbreaks, and it didn't take long to recognize we should be in the business of preventing outbreaks, not controlling them.

213
00:42:24.630 --> 00:42:29.600
Walter Orenstein: And this just is an example of the effectiveness of mandates. Six states.

214
00:42:29.600 --> 00:42:43.709
Walter Orenstein: that enacted the mandates eventually, and others, and the incident of measles didn't really go down in these states, but went really down in those states. And that led to a presidential initiative

215
00:42:43.710 --> 00:43:08.709
Walter Orenstein: to enact and forced school maintenance. It led to another presidential initiative later to eliminate financing barriers, the Vaccines for Children program, and it led to the National Immunization Survey to measure coverage in a standard way, and this got adapted in the Clinton Presidential Initiative, and the state that was at the lowest level in the first

216
00:43:08.710 --> 00:43:19.499
Walter Orenstein: National Immunization Survey, whereas Michigan, the health office will use that to get lots of money from the state legislature, so say it at the bottom, and played a big role.

217
00:43:19.830 --> 00:43:26.110
Walter Orenstein: So, the lessons learned was form scientific base, measurable goals.

218
00:43:26.240 --> 00:43:37.390
Walter Orenstein: Compare and contrast group performers, develop key partnerships to build the political base, and focus not only on vertical, but build the whole system.

219
00:43:37.410 --> 00:43:46.620
Walter Orenstein: These are… there are guidelines to monitor which of the following diseases? Polio, or tetanus.

220
00:43:50.590 --> 00:44:02.450

Walter Orenstein: So, to end, the critical issues in the immunization program success. Understanding the epidemiology of the disease to prevent it, who transmitted.

221
00:44:02.450 --> 00:44:13.509
Walter Orenstein: transmitters who's most seriously affected should a universal immunization program be targeted… implemented in the first one, or targeted to more selective groups.

222
00:44:13.510 --> 00:44:38.020
Walter Orenstein: Knowing the effectiveness and safety in populations for whom vaccine is recommended, having a surveillance system in place to determine if cases are the result of vaccine failure or failure to vaccinate. If vaccine failure, what is the reason, problems with the cold chain, raining immunity, subpopulations with poor response, and take action based on what was needed, such as booster doses.

223
00:44:38.460 --> 00:44:56.659
Walter Orenstein: If failure to vaccinate, then what is the problem? Is it hesitancy? Is it problems with access, such as financial backgrounds? Or is it people… the National Immunization Technical Advisory Group, the ACIP, in our case, didn't recommend be vaccinated?

224
00:44:56.680 --> 00:45:03.680
Walter Orenstein: Have an ongoing monitor in place to continue to answer the questions, measure vaccine effectiveness.

225
00:45:03.680 --> 00:45:27.610
Walter Orenstein: In observational studies, when randomized studies are not ethical. Vaccine safety evaluation, look for rare adverse events, determine if they are causal characteristics. Is there a person you can identify and make vaccine a contraindication for them? If not, is the risk of the vaccine greater than

226
00:45:27.780 --> 00:45:43.049
Walter Orenstein: the risk of the benefits, or compared to the benefits, the benefits outweigh the risk, and have a strong communication system to deliver the right messages by the right messengers through the right communications channels.

227
00:45:43.110 --> 00:45:48.440
Walter Orenstein: By kid groups, public health, and health driver values mean for the general

public, and more.

228
00:45:49.110 --> 00:46:12.550
Walter Orenstein: So, eradication is global extinction of disease, elimination is stopping the spread within a defined geographic area. Surveillance is critical to help track progress, because although there isn't immunization, it's getting rid of the disease, identifying outbreaks, and the reasons for it, and global collaboration benefits everyone.

229
00:46:12.550 --> 00:46:15.730
Walter Orenstein: If we were able to eliminate measles everywhere.

230
00:46:15.730 --> 00:46:18.509
Walter Orenstein: Having the resurgence we're having now.

231
00:46:19.070 --> 00:46:20.220
Walter Orenstein: Thank you.

232
00:46:20.580 --> 00:46:22.670
Walter Orenstein: I'm sorry, I'm running over.

233
00:46:23.940 --> 00:46:38.420
Kylie Hall: Oh, no, Dr. Ornstein, that was wonderful. Thank you so much for… for that awesome and wonderful presentation. As a reminder to everyone still on the webinar, please type your questions into the Q&A function. We have, some time here to get to some of them.

234
00:46:38.420 --> 00:46:51.760
Kylie Hall: But I do need to mention, for those of you seeking one credit of CME, please follow the link provided in the chat, and that'll lead you to our post-test and evaluation. This has to be completed to get that CME credit, so please make sure you do that.

235
00:46:51.780 --> 00:47:04.730
Kylie Hall: For those of you claiming continuing pharmacy education credit, please follow the instructions on the screen now. Please note that the instructions on the screen are only for pharmacy Education Credit. Those CME instructions are in the chat.

236
00:47:04.970 --> 00:47:22.700
Kylie Hall: A recording of the webinar, along with the presentation slides, will be available on our website and on our YouTube page, and then we'll be offering CME credit for those who watch the recording at a later date. And then for clarification, continuing education credit can only be claimed once for each monthly session.

237
00:47:22.910 --> 00:47:32.660
Kylie Hall: More details on how to seek enduring credit, will follow in our next Siri email, so make sure you sign up for our email list, and share those opportunities with your friends.

238
00:47:32.660 --> 00:47:50.219
Kylie Hall: and with your colleagues. I do see a question in the chat about nursing continuing education credits. We do know that many state nursing boards will, accept the CME credit for nursing continuing education credits, so please, refer to your certain state's

239
00:47:50.570 --> 00:47:51.690
Kylie Hall: …

240
00:47:51.980 --> 00:47:57.720
Kylie Hall: specifics, and see if it would qualify for that. We know that it does qualify in North Dakota.

241
00:47:58.010 --> 00:48:05.370
Kylie Hall: Okay, so some questions for you, Dr. Ornstein. I have, I have one for you, maybe to get us started. So, …

242
00:48:05.420 --> 00:48:21.690
Kylie Hall: you played a pretty significant role in the eradication of smallpox. Can you just tell us, you know, maybe what sticks out in your mind about some of your efforts in India and elsewhere? Can you just reflect on your role and what sticks out about that time period?

243
00:48:21.950 --> 00:48:28.370
Walter Orenstein: Right, what was really important is to get the political role and support

244

00:48:28.600 --> 00:48:46.170
Walter Orenstein: Serba Padros, who is Director of the Immunization Program in the Pan American Health Organization for many years, used to say the pill in public health is politics. And it's really important to get that support. So, in India, working with groups

245
00:48:46.170 --> 00:48:54.390
Walter Orenstein: such as the pediatricians, it was very important to build confidence in what we were doing. And…

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00:48:54.500 --> 00:49:11.109
Walter Orenstein: It was very helpful to bring in and develop coalitions of partners who were respected in the community, because there were very, there was always distrust

247
00:49:11.180 --> 00:49:25.310
Walter Orenstein: And trying to counter that. And that was my first effort to deal with vaccine hesitancy, because smallpox vaccine was extremely reactogenic, very unpleasant vaccine.

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00:49:25.480 --> 00:49:48.110
Walter Orenstein: And, what I used to do when I was vaccinated is when we found the case in the village, we would gather the village around, and I would vaccinate myself. First time, I got a whopping reaction to it with anchitis and lymphaticis, but after that, nothing. But trying to find ways of countering this

249
00:49:48.110 --> 00:50:09.689
Walter Orenstein: hesitancy, and bringing in people who could be trusted. For example, in some… there were substantial communities of Muslims and Hindus, and sometimes they didn't trust each other, and bringing people around door-to-door in the same community was extremely important.

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00:50:11.030 --> 00:50:13.410
Kylie Hall: Yeah, that's wonderful. Thank you for that.

251
00:50:14.370 --> 00:50:39.329
Kylie Hall: All right, so my next question for you, this is… this is kind of like a crystal ball question, Dr. Orenstein, but knowing what you know about, you know, the situation globally and the time period and the political will, what would you say would be an ideal timeline and a

possibility for eradicating the next disease, likely polio, but maybe even looking into the future, some of the diseases that you talked about? What… what could a… could a timeline look like?

252
00:50:39.330 --> 00:50:40.890
Kylie Hall: Like, for eradicating the next disease.

253
00:50:40.890 --> 00:50:50.969
Walter Orenstein: That's a very good question, and a very difficult answer, because my fear is we may be going backwards now, with the U.S.

254
00:50:51.940 --> 00:51:03.590
Walter Orenstein: coming out of WHO, the USAID and ending funding for a number of these organizations.

255
00:51:03.590 --> 00:51:21.590
Walter Orenstein: On the polio side, for example, the Gates Foundation is trying to step up, but I'm not sure it can cover the funding needs. And what we need is we need to purchase the vaccines, but we also need to invest in the delivery system.

256
00:51:21.590 --> 00:51:24.149
Walter Orenstein: Vaccines don't give themselves.

257
00:51:24.240 --> 00:51:25.210
Walter Orenstein: And…

258
00:51:25.760 --> 00:51:39.200
Walter Orenstein: In smallpox, we learned what we needed was a smooth vaccination approach. For Polaro, we recognize we need this mass vaccination approach, and we need to understand how do we overcome

259
00:51:39.200 --> 00:51:46.320
Walter Orenstein: Resistance. How do we overcome hesitancy? Because there's so much distrust in the world.

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00:51:46.570 --> 00:52:10.060
Walter Orenstein: So, at this point, I think it would be very difficult to start on eradicating a new disease. For example, measles meets the criteria for eradication. It has… it requires human transmission, it, … we have an effective intervention, we have got rid of it in a lot of places, or that's resurging now in the U.S.

261
00:52:10.300 --> 00:52:23.980
Walter Orenstein: But I would be very hesitant until we can finish polio, and again, get the political will to get the support to do this.

262
00:52:25.400 --> 00:52:26.830
Kylie Hall: Yeah, absolutely.

263
00:52:27.390 --> 00:52:36.099
Kylie Hall: Another question, what have you found to be successful in helping parents and families feel more confident to get vaccinated?

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00:52:36.420 --> 00:52:40.250
Walter Orenstein: I think what's very important is two things.

265
00:52:40.420 --> 00:52:56.470
Walter Orenstein: is anecdotes are more persuasive than numbers. My boss for 13 years at the CBC, Alan Hindman, used to say, anecdata will always trump real data. The issue is to get anecd data that illustrate real data.

266
00:52:56.470 --> 00:53:13.700
Walter Orenstein: Because when you have a successful prevention program, people don't realize they're getting any benefits. They don't see the threats, as opposed to therapy. And so, what's important is the stories. The second issue is who people trust.

267
00:53:14.110 --> 00:53:30.870
Walter Orenstein: That study after study has shown that primary care providers are often the most trusted messengers, and trying to work with them to give them tools, how they can answer parents' questions, for example.

268

00:53:30.870 --> 00:53:39.720
Walter Orenstein: deal with it, or anticipate it, so that they know how to do it. There are techniques called motivational interviewing.

269
00:53:39.720 --> 00:53:46.079
Walter Orenstein: Presumptive recommendations, things that are needed to try and overcome

270
00:53:46.120 --> 00:54:04.829
Walter Orenstein: hesitancy. And again, trying to make the diagnosis. In the Clinton administration, we got a presidential initiative, we had a big resurgence of missives, and we found that the problem there is that parents couldn't pay for vaccines.

271
00:54:04.880 --> 00:54:22.919
Walter Orenstein: And so, they were getting vaccinated at their provider's office. They could get free vaccines at health department clinics, but it was a hassle to get there. And that led to the Vaccines for Children program. So we need to keep the science going, we need

272
00:54:22.920 --> 00:54:29.499
Walter Orenstein: To find those messages, and we need to invest, in my opinion, in implementation science.

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00:54:29.500 --> 00:54:44.379
Walter Orenstein: to determine what messages work and what does not. And, for example, motivational interviewing is basically, you know, you've raised a good question, I certainly understand it.

274
00:54:44.380 --> 00:54:52.740
Walter Orenstein: giving people a hesitant credibility, as opposed to saying, you're crazy, that science doesn't support, that's not the way to talk.

275
00:54:52.740 --> 00:54:54.649
Walter Orenstein: To someone who's hesitant.

276
00:54:55.020 --> 00:55:13.840
Walter Orenstein: And just trying to do that, and one of the things, I think, when I was chair of

the National Vaccine Advisory Committee, we had a recommendation to build confidence, a draft recommendation, to support reimbursement to providers for vaccine counseling.

277
00:55:14.170 --> 00:55:23.579
Walter Orenstein: And the insurer said, shall we deliver that that makes a difference, because they were concerned about abuse of that code. And…

278
00:55:23.580 --> 00:55:36.779
Walter Orenstein: let's fund the research and see if it makes a difference, because a number of the pediatricians at the time said, we just don't have the time to spend in counseling and talking with parents who are hesitant. But I think that

279
00:55:36.780 --> 00:55:52.220
Walter Orenstein: We need to do that in order to look at what's happened. And again, surveillance is critical. What we found in the United States with measles is most of our cases in preschool children were failing to vaccinate.

280
00:55:52.220 --> 00:55:57.790
Walter Orenstein: Now, most of our cases in school oaks children were vaccine failure, because

281
00:55:57.860 --> 00:56:15.330
Walter Orenstein: the contact rates and herdling threshold of schoolchildren was much higher, and so that led us to a two-dose schedule in schoolchildren, and it led us to overcoming the barriers with the financing in the Vaccines for Children program.

282
00:56:18.000 --> 00:56:36.130
Kylie Hall: I think we have time for one more question, and I think this question, goes right along with the title of the webinar, and Vaccine's Role in Eliminating and Eradicating Diseases. Someone's asking, can a disease eradicate itself? To which I'm going to take to mean, can a disease be eradicated without something like vaccination? Could you address that, Dr. Ornstein?

283
00:56:36.800 --> 00:56:39.739
Walter Orenstein: I assume that's theoretically possible.

284

00:56:40.580 --> 00:56:59.350
Walter Orenstein: And there may be, I'd have to think more about it, but that disease that can eradicate itself would be one that has low transmission, low, basic reproduction level, the ability to transmit.

285
00:56:59.350 --> 00:57:19.070
Walter Orenstein: and … high natural immunity, etc. So it's possible, but the beauty of vaccines is that with most of the vaccines, one or two or a few doses give you lifetime protection.

286
00:57:19.080 --> 00:57:26.550
Walter Orenstein: And so, it's a lot easier than having to, let's say, take a drug every day.

287
00:57:26.640 --> 00:57:48.949
Walter Orenstein: or something like that. And again, another big issue that we're having problems with now is this whole issue is it's my body and my child's body, you can't interfere, and we need to find a way to try to explain to these people

288
00:57:49.210 --> 00:58:03.670
Walter Orenstein: and encourage them that it's not only protecting you if you get vaccinated, but the community. And even if your child was vaccinated, there's a small percentage who might be protected

289
00:58:03.830 --> 00:58:20.270
Walter Orenstein: If your child's in that, then that child can be protected if they're not exposed, and that's when we have high levels of immunity in the community. But we need to find a way of what works. That's my guess, I don't know… I'm not aware that if that's been tested yet.

290
00:58:22.320 --> 00:58:29.709
Kylie Hall: Wonderful. Well, I want to say thank you again to Dr. Ornstein for joining us today and giving us a wonderful presentation. I learned

291
00:58:29.710 --> 00:58:52.249
Kylie Hall: I learned a lot about this topic, and I hope everyone found it really insightful. Thank you, everyone, for joining us as well and spending your lunch hour with us. We look forward to seeing you again at our next webinar. If you're not on our email listserv, please take a moment to sign up so that you can get an email letting you know when the recording is available, but

then also information on our next webinar. Dr. Ornstein, thank you.

292
00:58:52.250 --> 00:58:53.290
Walter Orenstein: Thank you very much.

293
00:58:53.290 --> 00:58:54.350
Kylie Hall: of your day.

294
00:58:54.350 --> 00:58:56.670
Walter Orenstein: Thank you, you too. Thank you.