WEBVTT

1 00:00:00.000 --> 00:00:06.910 Thank you very much, uh, I would now like to introduce our next Speaker,

2 00:00:06.910 --> 00:00:13.000 Professor Linda Nicholi. Doctor Nicholi is a professor of Epidemiology of microbial diseases at Yale.

3 00:00:13.000 --> 00:00:20.649 She's also the director of the Connecticut emerging infections program and the HP vaccine Working Group at Yale.

4 00:00:20.649 --> 00:00:27.670 Doctor Nicholi received her Master of Science at Harvard School of public health and her PhD at Tulane University.

5 00:00:27.670 --> 00:00:29.780 She has served as an advisor,

6 00:00:29.780 --> 00:00:32.579 an reviewer for the NIH and CDC conferences,

7 00:00:32.579 --> 00:00:37.179 and grant programs. Professor Nikolai thank you for being here.

8 00:00:37.179 --> 00:00:38.539 Thank you for having me,

9 00:00:38.539 --> 00:00:39.890 uhm, you can hear me,

10 00:00:39.890 --> 00:00:43.560 OK? Yes great OK thanks.

11 00:00:43.646 --> 00:00:47.189 So um, as noted in the title of this presentation.

12 00:00:47.189 --> 00:00:58.560 But I'd like to talk to you all about today is about the academic public health partnerships that have either been newly developed or existing partnerships that have been called

13 00:00:58.560 --> 00:01:01.210 action in response to COVID-19 next slide.

14 00:01:01.210 --> 00:01:11.890 Please thank you. So I'd like to begin with a really high level overview of what is the role of public health departments in outbreak or pandemic situations.

15 00:01:11.890 --> 00:01:18.030 I think most of us at the University recognize the really important need for research,

16 00:01:18.030 --> 00:01:27.840 and in many of us actively engage an important research that research questions that arise during outbreaks and now what has become a pandemic,

17 00:01:27.840 --> 00:01:29.890 questions about transmission, immune response,

18 00:01:29.890 --> 00:01:33.569 clinical presentation, treatment, all of these things are really,

19 00:01:33.569 --> 00:01:36.849 really important. What public health departments do?

20 00:01:36.849 --> 00:01:41.849 That's quite different is they play a real critical role in response activities,

21 00:01:41.849 --> 00:01:48.010 response activities, things we do to detect trends and patterns during the course of an outbreak,

22 00:01:48.010 --> 00:01:59.560 and pandemic. An implement control measures so public health department's really do this as outlined in this report from the Institute of Madison Public Health departments do this through epidemiological

23 00:01:59.560 --> 00:02:01.489 investigation. Surveillance are very important.

24 00:02:01.489 --> 00:02:04.980 Function is communicating with the public and strategic planning.

25 00:02:04.980 --> 00:02:08.300 So this is all again outlined in this IOM report.

26 00:02:08.300 --> 00:02:17.930 I really like the preface of this IOM report actually has a quote that I think very succinctly summarizes what public health systems do in times of emerging infections.

27 00:02:17.930 --> 00:02:21.909 In the quote you can read it there knowing is not enough,

28 00:02:21.909 --> 00:02:24.240 we must apply willing is not enough.

29 00:02:24.240 --> 00:02:29.979 We must do, and that's the critical role public health department's next slide please.

30 00:02:29.979 --> 00:02:34.479 So then what is the added value of public health academic partnerships?

31 00:02:34.479 --> 00:02:40.110 and I think there are several benefits to these partnerships during this time of pandemic,

32 00:02:40.110 --> 00:02:43.479 academic institutions can provide resources to public health efforts.

33 00:02:43.479 --> 00:02:48.879 I pretty sure I don't need to tell anybody at this workshop how.

34 00:02:48.879 --> 00:02:50.990 Woefully underfunded, our public health system,

35 00:02:50.990 --> 00:02:52.740 it is. It's a real,

36 00:02:52.740 --> 00:02:55.900 real modern tragedy even can't think of another word.

37 00:02:55.900 --> 00:02:59.759 So I'm not saying that academic institutions can provide actual dollars,

38 00:02:59.759 --> 00:03:03.270 but we do have access to resources that are public.

39 00:03:03.270 --> 00:03:08.879 Health system doesn't. And one of those resources would be a range of expertise.

40 00:03:08.879 --> 00:03:15.080 So academic centers, places like Yale have world renowned experts in basic and Clinical Sciences,

41 00:03:15.080 --> 00:03:21.680 population science, pop policy experts and these can bring added value to the public health response.

42 00:03:21.680 --> 00:03:34.069 And finally, I think it's really worth noting the academic institutions have an agility or nimbleness to mobilize in ways that public health Department may not be able to in

43 00:03:34.069 --> 00:03:36.550 terms of bureaucratic structures that exist.

44 00:03:36.550 --> 00:03:39.069 You know, sometimes we feel like.

45 00:03:39.069 --> 00:03:41.310 Our academic centers are highly bureaucratic,

46 00:03:41.310 --> 00:03:46.530 but I can tell you that public health systems can be even more so,

47 00:03:46.530 --> 00:03:52.129 so there are many, many Venice benefits to given the role of Public Health Department.

48 00:03:52.129 --> 00:03:55.860 There are many benefits to these academic partnerships next slide,

49 00:03:55.860 --> 00:04:00.189 please. So this is a really busy slide,

50 00:04:00.189 --> 00:04:05.280 and that's because we have been really busy over the past couple of months.

51 00:04:05.280 --> 00:04:11.110 On this slide, I'm just highlighting some of the different activities that we've been involved in.

52 00:04:11.110 --> 00:04:14.379 Partnerships between Yale and sitting in state health departments.

53 00:04:14.379 --> 00:04:22.029 So most of this work has been really facilitated by the presence of the Connecticut emerging infections program here at Yale.

54 00:04:22.029 --> 00:04:27.899 So this the EP is a CDC funded partnership between the Connecticut Department of Public Health.

55 00:04:27.899 --> 00:04:30.410 In the Yale School of Public Health,

56 00:04:30.410 --> 00:04:35.060 this is a program that has been at Yale continuously funded since 1995.

57 00:04:35.060 --> 00:04:38.279 So for over or just about 25 years now,

58 00:04:38.279 --> 00:04:47.220 the general function of the EP is to do public health surveillance and applied epidemiologic research for a variety of Infectious Diseases.

59 00:04:47.220 --> 00:04:49.000 And over the past six weeks,

60 00:04:49.000 --> 00:04:51.959 it's incredible to think that it's only been six weeks.

61 00:04:51.959 --> 00:04:53.439 It feels like a lifetime,

62 00:04:53.439 --> 00:04:56.689 but over the past six weeks or so for Cobain 19,

63 00:04:56.689 --> 00:04:59.060 we've done the following. So first of all,

64 00:04:59.060 --> 00:05:07.939 we have implemented surveillance for laboratory confirmed hospitalizations for COVID-19 and the results of the first month of surveillance have already been published in an MMWR that was released about

65 00:05:07.939 --> 00:05:10.319 a week and a half ago.

66 00:05:10.319 --> 00:05:18.970 We are currently in the planning phases of an epidemiologic investigation of healthcare personnel in terms of what are their risks and what are their exposures.

67 00:05:18.970 --> 00:05:25.589 We have already completed a rapid supplemental case series investigation of COVID-19 patients.

68 00:05:25.589 --> 00:05:27.860 We currently staff at the IP.

69 00:05:27.860 --> 00:05:29.759 It's incredible what they're doing.

70 00:05:29.759 --> 00:05:39.610 They are currently providing surge capacity for COVID-19 case reporting to DPH that includes follow up a positive lab reports gathering missing information and data entry,

71 00:05:39.610 --> 00:05:46.290 and that information is really critical is we need to monitor the spread of the epidemic.

72 00:05:46.290 --> 00:05:54.279 We also worked initially with DPH to develop and implement a volunteer contact tracing program in which we do rapid follow-up of case reports.

73 00:05:54.279 --> 00:05:56.610 Patients who are newly diagnosed with COVID-19,

74 00:05:56.610 --> 00:05:58.610 we identify who their Contacts are,

75 00:05:58.610 --> 00:06:00.279 people who potentially been exposed,

76 00:06:00.279 --> 00:06:09.600 and then we notify them about this exposure and provide them appropriate guidance so that effort is currently a partnership with the city of New Haven Health Department.

77 00:06:09.600 --> 00:06:11.930 We work closely with Marissa Bantus name.

78 00:06:11.930 --> 00:06:15.379 You've already heard handy all hell.

79 00:06:15.379 --> 00:06:18.790 So each of these activities is really worthy of their own presentation.

80 00:06:18.790 --> 00:06:21.629 But since I don't have time to do that today,

81 00:06:21.629 --> 00:06:27.310 what I'd like to do in the next 10 or 15 minutes or so is talk about our newest project,

82 00:06:27.310 --> 00:06:31.000 which is a partnership between Yale and the Connecticut Department of Public health,

83 00:06:31.000 --> 00:06:36.399 where we have set up an active daily monitoring system for COVID-19 in long term care facilities.

84 00:06:36.399 --> 00:06:38.029 So I'll just focus on that,

85 00:06:38.029 --> 00:06:41.009 but anybody wants to hear about any of these other activities.

86 00:06:41.009 --> 00:06:43.180 I'm happy to speak more about those later.

87 00:06:43.180 --> 00:06:52.310 Next slide, please. So I think everybody appreciates the significance of long term care facilities in this current pandemics.

88 00:06:52.310 --> 00:07:03.519 So one of the earliest signals of their significance was the devastating outbreak that occured in a long term care facility in Washington state in early March.

89 00:07:03.519 --> 00:07:10.569 So again, this is really one of the earliest occurrences as the COVID-19 came to the US,

90 00:07:10.569 --> 00:07:14.310 really devastating. Over 130 people were diagnosed with COVID-19,

91 00:07:14.310 --> 00:07:16.449 including more than 80 residents.

92 00:07:16.449 --> 00:07:21.149 Over 30 staff members and 20 three people died in this outbreak.

93 00:07:21.149 --> 00:07:23.509 So as noted in this MMWR,

94 00:07:23.509 --> 00:07:35.269 and I think what's clear to probably most people at this workshop is long term care facilities are really important setting because the residents tend to be older and have

95 00:07:35.269 --> 00:07:40.750 underlying or comorbid health conditions which make them vulnerable to infection and worse outcomes.

96 00:07:40.750 --> 00:07:42.709 And it's also a vulnerable.

97 00:07:42.709 --> 00:07:47.420 It's also vulnerable. Settings like this congregate nature of living.

98 00:07:47.420 --> 00:07:58.040 Furthermore, it's really important setting because it's this interface with the health care system and it really highlights the risks to the health care workforce and how important of a

99 00:07:58.040 --> 00:08:04.769 population that is and how hard we need to work to preserve our health care workforce at this time.

100 00:08:04.769 --> 00:08:06.540 So since this early report,

101 00:08:06.540 --> 00:08:10.430 long term care facilities are in the news locally and nationally,

102 00:08:10.430 --> 00:08:15.389 just about every day, so hopefully people can appreciate the significance of this population.

103 00:08:15.389 --> 00:08:20.370 Next slide, please. So what's going on in Connecticut?

104 00:08:20.370 --> 00:08:24.399 These are data from the Connecticut Department of Public Health.

105 00:08:24.399 --> 00:08:27.220 They are updated regularly on their website.

106 00:08:27.220 --> 00:08:34.070 This is a screenshot I pulled from April 13th where you can see that by April 13th,

107 00:08:34.070 --> 00:08:40.919 50% of long term care facilities in Connecticut reported having had at least one case of COVID-19.

108 00:08:40.919 --> 00:08:46.559 They also note a total of over 1500 residents had been diagnosed with COVID-19.

109 00:08:46.559 --> 00:08:49.970 Nearly 400 of them. I been hospitalised and 14%

110 00:08:49.970 --> 00:08:52.970 or over 200 of them had died.

111 00:08:52.970 --> 00:08:56.710 So these data, and of course these numbers are constantly changing,

112 00:08:56.710 --> 00:09:06.909 so these data are really important and they reflect the information that was coming from the existing surveillance that had been ongoing for Kobe 19 in long term care facilities.

113 00:09:06.909 --> 00:09:09.860 But some important limitations had been noted.

114 00:09:09.860 --> 00:09:17.450 In this surveillance system is as important as good as these data are that the Department of Public health realized there was some room for improvement.

115 00:09:17.450 --> 00:09:29.734 Next slide, please. So in the existing system diagnosis of COVID-19 in long term care facilities would be reported both to the local well into three places to the local

116 00:09:29.802 --> 00:09:32.544 health Department into two different groups.

117 00:09:32.602 --> 00:09:40.360 At DPH they would be reported to the infectious disease Epidemiology group into the facility licensing investigation section or less.

118 00:09:40.360 --> 00:09:50.220 So there was sort of triple reporting of cases from long term care facilities and is create some inefficiencies for an already overburdened staff both.

119 00:09:50.220 --> 00:09:54.840 At the long term, care facilities who do the reporting and at the public health,

120 00:09:54.840 --> 00:09:58.179 local and state level that was receiving these reports.

121 00:09:58.179 --> 00:10:05.450 There was also some concern that delays in reporting could allow a single case of COVID-19 to turn into larger outbreaks,

122 00:10:05.450 --> 00:10:08.909 so the need for real time data is just essential,

123 00:10:08.909 --> 00:10:11.669 so recognizing the need to revamp this system,

124 00:10:11.669 --> 00:10:22.049 the Department of Public health put out a call essentially to us at Yale for assistance so that emodi pH you can see them all listed there are folks who

125 00:10:22.049 --> 00:10:24.480 work in the healthcare associated infection group,

126 00:10:24.480 --> 00:10:28.629 folks who work in syndromic surveillance folks who work in information technology.

127 00:10:28.629 --> 00:10:32.340 You'll see, that's been a really important component to this.

128 00:10:32.340 --> 00:10:36.769 We're also very fortunate to have doctor Kevin O'laughlin in this group.

129 00:10:36.769 --> 00:10:44.149 He is ACDC signee to the state of Connecticut to help with COVID-19 so we're very grateful for his presence.

130 00:10:44.149 --> 00:10:55.201 Next slide, please. So essentially the ask from DPH to Yale was to assist with developing and implementing an active surveillance system for COVID-19 in long term care facilities that

131 00:10:55.254 --> 00:10:58.469 could do the following. Ultimately,

132 00:10:58.530 --> 00:11:05.379 the goal is to reduce the size and scope of Coben 19 outbreaks in long term care facilities by early detection.

133 00:11:05.379 --> 00:11:11.250 Early detection is really what's so important to improve data collection to meet the existing reporting needs,

134 00:11:11.250 --> 00:11:12.970 things need to be reported,

135 00:11:12.970 --> 00:11:23.320 but we wanted to improve the ways in which this could be done efficiently and accurately to provide timely information to leadership via daily reports to enable rapid intervention when

136 00:11:23.320 --> 00:11:28.500 suspected or confirmed outbreaks are identified an to triage prevention and control questions for response.

137 00:11:28.500 --> 00:11:30.279 So long term care facilities.

138 00:11:30.279 --> 00:11:35.529 Have a lot of questions and we wanted to be able to use this system to address those.

139 00:11:35.529 --> 00:11:41.389 Next slide, please. So we assembled a team at Yale and this is what it looks like.

140 00:11:41.389 --> 00:11:44.860 So there it is. Includes folks from school public health.

141 00:11:44.860 --> 00:11:51.279 Folks from the Institute for Global Health and from the school of Madison,

142 00:11:51.279 --> 00:11:54.740 the members of the team include faculty,

143 00:11:54.740 --> 00:11:59.679 staff, and students. Collectively, this group represents expertise in Epidemiology,

144 00:11:59.679 --> 00:12:02.639 public health, clinical Medison, Infectious Diseases,

145 00:12:02.639 --> 00:12:05.110 infection prevention, and really importantly,

146 00:12:05.110 --> 00:12:08.610 an outstanding student workforce. Next slide,

147 00:12:08.610 --> 00:12:12.870 please. So operationally, this is what it looks like,

148 00:12:12.870 --> 00:12:16.230 so we set up this electronic database of portal through flips.

149 00:12:16.230 --> 00:12:19.889 Again, the facility licensing investigation group at DPH on line reporting system.

150 00:12:19.889 --> 00:12:29.039 So the long term care facilities are supposed to enter their daily reports and I'll show you in the next slide what a daily report looks like every morning by

151 00:12:29.039 --> 00:12:34.850 10:00 AM. So every day there's supposed to complete a questionnaire on this portal.

152 00:12:34.850 --> 00:12:43.549 Up by 10:30 in the morning we have run a report identifying which long term care facilities have not entered their data.

153 00:12:43.549 --> 00:12:54.049 They are contacted by phone good old-fashioned telephone call that is either the student team at Yale makes these phone calls or staff at the pH make these phone calls,

154 00:12:54.049 --> 00:12:59.649 the facilities are also sent an email reminder at reminding them to report to the system.

155 00:12:59.649 --> 00:13:03.850 And if they don't then they get a phone call from us.

156 00:13:03.850 --> 00:13:06.649 And while we're on the phone with them.

157 00:13:06.649 --> 00:13:14.700 We complete the reporting worksheet and enter that directly into this portal so this all happens every day between about 10:30 and 2:30,

158 00:13:14.700 --> 00:13:18.559 so during the middle of the day we're actively calling log.

159 00:13:18.559 --> 00:13:21.220 Home care facilities and asking them some questions.

160 00:13:21.220 --> 00:13:23.870 Again, I'll show that on the next slide,

161 00:13:23.870 --> 00:13:27.190 then by three o'clock report of these data is run,

162 00:13:27.190 --> 00:13:29.519 any signals of an outbreak are identified.

163 00:13:29.519 --> 00:13:32.169 This is could include one case of COVID-19,

164 00:13:32.169 --> 00:13:34.500 and that's a signal that's an outbreak.

165 00:13:34.500 --> 00:13:37.149 This is communicated to the leadership at DPH,

166 00:13:37.149 --> 00:13:40.139 who can then implement appropriate response and control activities,

167 00:13:40.139 --> 00:13:44.039 and I'll show more of that on the next slide.

168 00:13:44.039 --> 00:13:51.700 So essentially yeah, so essentially the students that are calling from Yale collect these data and submit this to DPH.

169 00:13:51.700 --> 00:13:59.889 And what this really does is it frees up the frontline public health staff or other critical tasks.

170 00:13:59.889 --> 00:14:03.539 So realize this image is a little difficult to see.

171 00:14:03.539 --> 00:14:10.840 It's a screenshot from the online portal and it just gives you an idea of the data that we gather,

172 00:14:10.840 --> 00:14:15.220 so it's important to note this is a facility level surveillance system.

173 00:14:15.220 --> 00:14:21.429 We are not getting individual information about any residents or any patients were getting facility level information.

174 00:14:21.429 --> 00:14:27.269 So for example, survey asks if any residents currently have any symptoms of coded 19 weather.

175 00:14:27.269 --> 00:14:29.899 Any residents have been hospitalised with COVID-19.

176 00:14:29.899 --> 00:14:33.580 Like symptoms, whether any residents have died of these symptoms,

177 00:14:33.580 --> 00:14:36.159 whether anybody has tested positive for cocaine,

178 00:14:36.159 --> 00:14:39.100 19 weather, people have test pending for COVID-19,

179 00:14:39.100 --> 00:14:47.450 so all of the things that we can run a daily report on to identify signals for a potential outbreak.

180 00:14:47.450 --> 00:14:51.330 Next slide, please. So then if a signal is detected,

181 00:14:51.330 --> 00:14:52.919 if something is going on,

182 00:14:52.919 --> 00:14:56.100 this is when the infection prevention response team is activated.

183 00:14:56.100 --> 00:15:01.820 These are the clinical experts I showed you from most from school medicine at Yale.

184 00:15:01.820 --> 00:15:05.409 And they provide several important functions in this active surveillance system.

185 00:15:05.409 --> 00:15:12.899 So the first thing they can do is field some of the questions from the long term care facilities regarding prevention and control,

186 00:15:12.899 --> 00:15:15.509 and this is all done using CDC guidance,

187 00:15:15.509 --> 00:15:23.340 CDC, MD pH guidance. They will participate in calls with DPH and long term care facilities to assist in control and Prevention when indicated.

188 00:15:23.340 --> 00:15:25.940 Should there be a signal or an outbreak,

189 00:15:25.940 --> 00:15:29.860 they provide clinical expert guidance to DPH in long term care facilities,

190 00:15:29.860 --> 00:15:31.809 unrelated matters and importantly, going forward,

191 00:15:31.809 --> 00:15:35.100 they're going to be involved in a CDC LED initiative.

192 00:15:35.100 --> 00:15:38.870 To do more proactive work in this area rather than reactive work,

193 00:15:38.870 --> 00:15:48.289 so this is going to be a new area of work at CDC that's really looking to keep Cove it out of long term care facilities that have had no

194 00:15:48.289 --> 00:15:51.519 cases or a low number of cases.

195 00:15:51.519 --> 00:15:57.789 Next slide, please. So I just want to show you how quickly we launched this system.

196 00:15:57.789 --> 00:16:02.659 You know it's like the time frame we're all working on now is just really remarkable.

197 00:16:02.659 --> 00:16:05.700 So the initial request came to DPH came from DP.

198 00:16:05.700 --> 00:16:10.610 HTML came from the state epidemiologist Matt Carter Dr Mac harder on March 28.

199 00:16:10.610 --> 00:16:13.100 The A-Team at Yale of what's faculty,

200 00:16:13.100 --> 00:16:22.000 staff and students. The team at Yale was assembled the very next day on March 29th and we had our first call on April 1st.

201 00:16:22.000 --> 00:16:26.629 We then spent about a week figuring out the logistics of the program,

202 00:16:26.629 --> 00:16:28.769 including a lot of it logistics.

203 00:16:28.769 --> 00:16:31.610 You think about setting up the surveillance system,

204 00:16:31.610 --> 00:16:36.600 communicating with a long term care facilities that they need to enter into it,

205 00:16:36.600 --> 00:16:41.279 getting the students access to it so that they could enter the data.

206 00:16:41.279 --> 00:16:43.110 Again, being as efficient as possible,

207 00:16:43.110 --> 00:16:45.570 so a lot of it work.

208 00:16:45.570 --> 00:16:49.620 So then the student training began on April 9th,

209 00:16:49.620 --> 00:16:54.120 students have received training not only in this surveillance system,

210 00:16:54.120 --> 00:16:57.269 but also more broadly in infection prevention,

211 00:16:57.269 --> 00:17:01.220 so they can field questions possibly.

212 00:17:01.220 --> 00:17:04.750 And on April 13th. Yeah,

213 00:17:04.750 --> 00:17:06.390 that was just earlier this week.

214 00:17:06.390 --> 00:17:09.430 Just a few days ago this system was launched.

215 00:17:09.430 --> 00:17:11.829 It's just the timing is incredible.

216 00:17:11.829 --> 00:17:22.680 OK, next slide plays. So this just shows you the status of this program for the first 2 days we launched the system on the 13th and what we know

217 00:17:22.680 --> 00:17:26.579 from the first 2 days of active surveillance is at about 350.

218 00:17:26.579 --> 00:17:30.160 Phone calls have been made to long term care facilities together.

219 00:17:30.160 --> 00:17:37.960 This important information half of these calls have come from were made by DPH staff and about half were made by the student team.

220 00:17:37.960 --> 00:17:43.160 So this just really provides an idea of how great the need was for this program.

221 00:17:43.160 --> 00:17:45.769 The number of calls that are being made.

222 00:17:45.769 --> 00:17:55.519 Just shows you how much more quickly and how much more completely we can gather data in near real time from a long term care facilities.

223 00:17:55.519 --> 00:17:57.400 So it really just incredible.

224 00:17:57.400 --> 00:18:08.650 And it also I think signals that points to just how potentially impactful this program can be in terms of its ability to collect this information so quickly and so

225 00:18:08.650 --> 00:18:15.799 completely. We do expect that overtime the number of calls may go down as long term care facilities become.

226 00:18:15.799 --> 00:18:18.640 More able to enter the data on their own again,

227 00:18:18.640 --> 00:18:20.910 it's a new system for them as well,

228 00:18:20.910 --> 00:18:24.250 so we're all getting up to speed.

229 00:18:24.250 --> 00:18:26.500 So where do we go from here?

230 00:18:26.500 --> 00:18:31.009 Well, all of this work will continue and I'm sure it will evolve overtime.

231 00:18:31.009 --> 00:18:34.549 Will make improvements to the system and then at some point,

232 00:18:34.549 --> 00:18:41.640 I think some really important research questions can be can be answered from this program and from the data that we're collecting,

233 00:18:41.640 --> 00:18:47.109 whether it's from an implementation science perspective or about the effectiveness of infection control and Prevention programs,

234 00:18:47.109 --> 00:18:54.869 or about the effectiveness of being more proactive in keeping COVID-19 out in the first place will be a lot of really interesting questions.

235 00:18:54.869 --> 00:19:00.259 That we can answer and will have a tremendous amount of data to do that,

236 00:19:00.259 --> 00:19:08.150 and I think that's true for all of the public health academic partnership programs I talked about on a much earlier slide.

237 00:19:08.150 --> 00:19:12.460 Tremendous amounts of data that are being collected in such unique circumstances.

238 00:19:12.460 --> 00:19:17.130 I think there will be lots of opportunity for analyzing data in learning.

239 00:19:17.130 --> 00:19:20.200 Learning from this experience, but right now.

240 00:19:20.200 --> 00:19:22.490 The real priority is again,

241 00:19:22.490 --> 00:19:28.150 the public health response activity of identifying and controlling outbreaks.

242 00:19:28.150 --> 00:19:31.753 Next slide, please. So, to conclude,

243 00:19:31.824 --> 00:19:38.420 Jean Brown, use the word extraordinary in her introduction today and I'm using it here as well.

244 00:19:38.420 --> 00:19:50.089 I really want to acknowledge that during this incredibly extraordinarily difficult at frankly horrible time that I have been honored at truly honored and so lucky to be able to

245 00:19:50.089 --> 00:19:54.369 work with some of the most extraordinary people in the world.

246 00:19:54.369 --> 00:19:56.309 At each of these institutions,

247 00:19:56.309 --> 00:20:00.650 on all of these projects that I mentioned in the beginning.

248 00:20:00.650 --> 00:20:07.450 I, the commitment and the resilience and the effort and the way in which people do it in.

249 00:20:07.450 --> 00:20:11.990 Just stay calm and cool and collected in these just unreal times.

250 00:20:11.990 --> 00:20:20.799 It's truly inspiring really. Get choked up thinking about all of the people that I worked with on all these projects.

251 00:20:20.799 --> 00:20:23.210 And I will say it really,

252 00:20:23.210 --> 00:20:29.240 it does give me hope that the people at all of these institutions and organizations,

253 00:20:29.240 --> 00:20:34.470 tremendous hope that we will emerge sooner rather than later from this pandemic.

254 00:20:34.470 --> 00:20:42.069 and I think the ties between all these institutions will be strengthened throughout this process.

255 00:20:42.069 --> 00:20:42.640 Thank you.