WEBVTT

NOTE duration:"00:24:52.2350000"

NOTE language:en-us

NOTE Confidence: 0.9197598695755

00:00:00.000 --> 00:00:03.080 I would now like to introduce our

NOTE Confidence: 0.9197598695755

00:00:03.080 --> 00:00:05.184 next Speaker, Doctor Saad. Omer.

NOTE Confidence: 0.9197598695755

00:00:05.184 --> 00:00:07.224 Doctor Omer has conducted studies

NOTE Confidence: 0.9197598695755

00:00:07.224 --> 00:00:09.505 in the United States, Guatemala,

NOTE Confidence: 0.9197598695755

00:00:09.505 --> 00:00:11.630 Kenya, Uganda at the opia,

NOTE Confidence: 0.9197598695755

00:00:11.630 --> 00:00:12.905 India, Pakistan, Bangladesh,

NOTE Confidence: 0.9197598695755

00:00:12.905 --> 00:00:14.605 South Africa and Australia.

NOTE Confidence: 0.9197598695755

00:00:14.610 --> 00:00:16.314 Doctor Omers research profile

NOTE Confidence: 0.9197598695755

00:00:16.314 --> 00:00:17.166 includes Epidemiology,

NOTE Confidence: 0.9197598695755

00:00:17.170 --> 00:00:19.726 a respiratory viruses such as influenza,

NOTE Confidence: 0.9197598695755

00:00:19.730 --> 00:00:21.860 RSV, and more recently COVID-19.

NOTE Confidence: 0.9197598695755

00:00:21.860 --> 00:00:24.796 He is a director of the Yale Institute

NOTE Confidence: 0.9197598695755

00:00:24.796 --> 00:00:27.522 for global health and associate Dean

NOTE Confidence: 0.9197598695755

00:00:27.522 --> 00:00:30.396 of Global Health Research Doctor Omer.

NOTE Confidence: 0.9197598695755

00:00:30.400 --> 00:00:33.440 Thank you for being here.

NOTE Confidence: 0.9197598695755

00:00:33.440 --> 00:00:35.095 It's my pleasure to present

NOTE Confidence: 0.9197598695755

00:00:35.095 --> 00:00:37.320 and I will share my slides.

NOTE Confidence: 0.907931983470917

00:00:41.540 --> 00:00:45.236 I'm assuming everyone can see my slides.

NOTE Confidence: 0.907931983470917

00:00:45.240 --> 00:00:49.268 Correct Fatma Yes Yeah.

NOTE Confidence: 0.907931983470917

00:00:49.270 --> 00:00:51.742 So it's my pleasure to present

NOTE Confidence: 0.907931983470917

00:00:51.742 --> 00:00:54.705 some of our work in on this

NOTE Confidence: 0.907931983470917

00:00:54.705 --> 00:00:57.159 topic on the topic of COVID-19.

NOTE Confidence: 0.907931983470917

00:00:57.160 --> 00:01:00.032 Broadly, I will focus on our group in

NOTE Confidence: 0.907931983470917

00:01:00.032 --> 00:01:02.785 both Yell Institute for Global Health

NOTE Confidence: 0.907931983470917

00:01:02.785 --> 00:01:05.719 and my more immediate research group

NOTE Confidence: 0.907931983470917

00:01:05.799 --> 00:01:08.775 has been focusing on a bunch of things,

NOTE Confidence: 0.907931983470917

00:01:08.780 --> 00:01:10.855 but this presentation will focus

NOTE Confidence: 0.907931983470917

00:01:10.855 --> 00:01:12.100 on somewhat interdisciplinary,

NOTE Confidence: 0.907931983470917

00:01:12.100 --> 00:01:15.490 quantitative research on code 19.

NOTE Confidence: 0.907931983470917

00:01:15.490 --> 00:01:16.850 But before I start,

NOTE Confidence: 0.907931983470917

00:01:16.850 --> 00:01:20.128 I just want to step back and talk about,

NOTE Confidence: 0.907931983470917

00:01:20.130 --> 00:01:22.626 you know, when there is an

NOTE Confidence: 0.907931983470917

00:01:22.626 --> 00:01:25.481 outbreak when there is a so called

NOTE Confidence: 0.907931983470917

00:01:25.481 --> 00:01:27.689 once in a century of event.

NOTE Confidence: 0.907931983470917

00:01:27.690 --> 00:01:28.911 Educational institutions and

NOTE Confidence: 0.907931983470917

00:01:28.911 --> 00:01:30.132 research institutions should

NOTE Confidence: 0.907931983470917

00:01:30.132 --> 00:01:32.270 think about their role actively.

NOTE Confidence: 0.907931983470917

00:01:32.270 --> 00:01:33.806 We're not Jackson Labs.

NOTE Confidence: 0.907931983470917

00:01:33.806 --> 00:01:36.110 We're not scripts who have their

NOTE Confidence: 0.907931983470917

00:01:36.186 --> 00:01:38.396 own position in the ecosystem

NOTE Confidence: 0.907931983470917

00:01:38.396 --> 00:01:40.164 of discovery and deployment.

NOTE Confidence: 0.907931983470917

00:01:40.170 --> 00:01:42.250 We are not the CDC.

NOTE Confidence: 0.907931983470917

00:01:42.250 --> 00:01:44.330 We're not a health Department.

NOTE Confidence: 0.907931983470917

00:01:44.330 --> 00:01:46.825 We are an educational institution

NOTE Confidence: 0.907931983470917

00:01:46.825 --> 00:01:48.821 and educational institutions have

NOTE Confidence: 0.907931983470917

00:01:48.821 --> 00:01:51.317 to be responsive both in terms

NOTE Confidence: 0.907931983470917

00:01:51.317 --> 00:01:53.740 of their research and some of

NOTE Confidence: 0.907931983470917

00:01:53.740 --> 00:01:55.875 the other activities to emerging.

NOTE Confidence: 0.907931983470917

00:01:55.880 --> 00:01:58.912 Issue so one way of looking at what

NOTE Confidence: 0.907931983470917

00:01:58.912 --> 00:02:00.817 educational entities do is the Inter.

NOTE Confidence: 0.907931983470917

00:02:00.820 --> 00:02:02.746 Logically to say that the appropriate

NOTE Confidence: 0.907931983470917

00:02:02.746 --> 00:02:05.258 Ness of our actions and our responses

NOTE Confidence: 0.907931983470917

00:02:05.258 --> 00:02:07.203 to public health emergencies are

NOTE Confidence: 0.907931983470917

00:02:07.203 --> 00:02:08.938 judge irrespective of their impact.

NOTE Confidence: 0.907931983470917

00:02:08.940 --> 00:02:10.705 I don't think that's that's

NOTE Confidence: 0.907931983470917

00:02:10.705 --> 00:02:11.764 an important thing.

NOTE Confidence: 0.907931983470917

00:02:11.770 --> 00:02:12.994 Part of a University,

NOTE Confidence: 0.907931983470917

00:02:12.994 --> 00:02:15.720 so you know we should ask why someone

NOTE Confidence: 0.907931983470917

00:02:15.720 --> 00:02:17.770 is looking at zebrafish biology?

NOTE Confidence: 0.907931983470917

00:02:17.770 --> 00:02:20.242 Because it serves as well that if you

NOTE Confidence: 0.907931983470917

00:02:20.242 --> 00:02:22.708 don't ask those questions earlier on,

NOTE Confidence: 0.907931983470917

00:02:22.710 --> 00:02:25.181 we benefit from that kind of free

NOTE Confidence: 0.907931983470917

00:02:25.181 --> 00:02:27.810 thinking and. Go taking where going.

NOTE Confidence: 0.907931983470917

00:02:27.810 --> 00:02:30.210 Whether our curiosity takes us,

NOTE Confidence: 0.907931983470917

00:02:30.210 --> 00:02:33.570 but in a pandemic we have to

NOTE Confidence: 0.907931983470917

00:02:33.570 --> 00:02:35.010 be decidedly consequentialist.

NOTE Confidence: 0.907931983470917

00:02:35.010 --> 00:02:37.410 We have to say Watt,

NOTE Confidence: 0.907931983470917

00:02:37.410 --> 00:02:40.357 the time we are spending the things

NOTE Confidence: 0.907931983470917

00:02:40.357 --> 00:02:42.832 we're doing and the research

NOTE Confidence: 0.907931983470917

00:02:42.832 --> 00:02:45.088 questions we're going after.

NOTE Confidence: 0.907931983470917

00:02:45.090 --> 00:02:47.495 How does that contribute to

NOTE Confidence: 0.907931983470917

00:02:47.495 --> 00:02:49.419 our response to this?

NOTE Confidence: 0.907931983470917

00:02:49.420 --> 00:02:51.382 This event I would say of

NOTE Confidence: 0.907931983470917

00:02:51.382 --> 00:02:52.036 unimaginable proportions.

NOTE Confidence: 0.907931983470917

00:02:52.040 --> 00:02:54.992 It is not unimaginable. So a lot of people.

NOTE Confidence: 0.907931983470917

00:02:55.000 --> 00:02:56.640 Part of it talked about.

NOTE Confidence: 0.907931983470917

00:02:56.640 --> 00:02:59.300 It worked on it.

NOTE Confidence: 0.907931983470917

00:02:59.300 --> 00:03:02.540 So I will go through a series of questions,

NOTE Confidence: 0.907931983470917

00:03:02.540 --> 00:03:05.179 so I'll take the so called Socratic

NOTE Confidence: 0.907931983470917

00:03:05.179 --> 00:03:06.691 approach to discussing what

NOTE Confidence: 0.907931983470917

00:03:06.691 --> 00:03:07.939 we have been doing.

NOTE Confidence: 0.907931983470917

00:03:07.940 --> 00:03:10.439 So the first question is what was

NOTE Confidence: 0.907931983470917

00:03:10.439 --> 00:03:13.071 the whole country in the world shut

NOTE Confidence: 0.907931983470917

00:03:13.071 --> 00:03:14.926 down and the immediate question

NOTE Confidence: 0.907931983470917

00:03:14.926 --> 00:03:17.390 was even in March when this was

NOTE Confidence: 0.907931983470917

00:03:17.390 --> 00:03:19.820 the started in early March in most

NOTE Confidence: 0.907931983470917

00:03:19.820 --> 00:03:21.260 a lot of places,

NOTE Confidence: 0.907931983470917

00:03:21.260 --> 00:03:24.140 or actually mid March 2nd week of March,

NOTE Confidence: 0.907931983470917

00:03:24.140 --> 00:03:25.845 is when there was imposition

NOTE Confidence: 0.907931983470917

00:03:25.845 --> 00:03:27.550 of these lockdowns or social

NOTE Confidence: 0.907931983470917

00:03:27.614 --> 00:03:29.589 distancing measures and then bye.

NOTE Confidence: 0.907931983470917

00:03:29.590 --> 00:03:32.285 Date March the question was was this?

NOTE Confidence: 0.907931983470917

00:03:32.290 --> 00:03:34.210 What are these policies working?

NOTE Confidence: 0.907931983470917

00:03:34.210 --> 00:03:36.905 So we did two projects around there.

NOTE Confidence: 0.907931983470917

00:03:36.910 --> 00:03:39.918 The first of all we contacted the CEO

NOTE Confidence: 0.907931983470917

00:03:39.918 --> 00:03:43.392 of one of the apps that is out there

NOTE Confidence: 0.907931983470917

00:03:43.392 --> 00:03:46.920 and the reason why we went after this app.

NOTE Confidence: 0.907931983470917

00:03:46.920 --> 00:03:48.840 It's called the mobility index.

NOTE Confidence: 0.907931983470917

00:03:48.840 --> 00:03:51.241 It's called the city mapper app because

NOTE Confidence: 0.907931983470917

00:03:51.241 --> 00:03:53.321 it combines both the IT combines

NOTE Confidence: 0.907931983470917

00:03:53.321 --> 00:03:55.301 the the the trips taken through

NOTE Confidence: 0.907931983470917

00:03:55.301 --> 00:03:57.170 public transportation and private

NOTE Confidence: 0.907931983470917

00:03:57.170 --> 00:03:59.620 transportation and trip planning etc.

NOTE Confidence: 0.907931983470917

00:03:59.620 --> 00:04:00.730 So they have.

NOTE Confidence: 0.907931983470917

00:04:00.730 --> 00:04:01.840 Calibrated this mobility

NOTE Confidence: 0.907931983470917

00:04:01.840 --> 00:04:03.320 index of 41243 cities.

NOTE Confidence: 0.909674286842346

00:04:03.320 --> 00:04:05.130 Depending on the type of

NOTE Confidence: 0.909674286842346

00:04:05.130 --> 00:04:06.940 data that you're looking at,

NOTE Confidence: 0.909674286842346

00:04:06.940 --> 00:04:09.118 and then we got those data.

NOTE Confidence: 0.909674286842346

00:04:09.120 --> 00:04:11.664 The other one was look at cell phone

NOTE Confidence: 0.909674286842346

00:04:11.664 --> 00:04:14.376 data that tells us with some minute

NOTE Confidence: 0.909674286842346

00:04:14.376 --> 00:04:16.381 detail where people are spending

NOTE Confidence: 0.909674286842346

00:04:16.452 --> 00:04:18.564 time and there are more advanced

NOTE Confidence: 0.909674286842346

00:04:18.564 --> 00:04:21.066 users of data that we're working on.

NOTE Confidence: 0.909674286842346

00:04:21.066 --> 00:04:23.600 So the second part of the work,

NOTE Confidence: 0.909674286842346

00:04:23.600 --> 00:04:25.622 the cellphone based data, came out

NOTE Confidence: 0.909674286842346

00:04:25.622 --> 00:04:27.580 of collaborations with Eli furniture.

NOTE Confidence: 0.909674286842346

00:04:27.580 --> 00:04:30.148 I'll pause here for a second, so

NOTE Confidence: 0.909674286842346

00:04:30.148 --> 00:04:32.138 the approach the consequentialist approach.

NOTE Confidence: 0.909674286842346

00:04:32.140 --> 00:04:34.222 Tells us that you don't start

NOTE Confidence: 0.909674286842346

00:04:34.222 --> 00:04:35.263 with the discipline.

NOTE Confidence: 0.909674286842346

00:04:35.270 --> 00:04:38.054 You start with a question and work backwards,

NOTE Confidence: 0.909674286842346

00:04:38.060 --> 00:04:40.496 and so I hope these snapshots and

NOTE Confidence: 0.909674286842346

00:04:40.496 --> 00:04:42.531 examples will convey that if you

NOTE Confidence: 0.909674286842346

00:04:42.531 --> 00:04:44.385 start with a question you don't

NOTE Confidence: 0.909674286842346

00:04:44.385 --> 00:04:46.757 stay within your own research group,

NOTE Confidence: 0.909674286842346

00:04:46.760 --> 00:04:47.075 certainly,

NOTE Confidence: 0.909674286842346

00:04:47.075 --> 00:04:49.595 but also not in a single school or

NOTE Confidence: 0.909674286842346

00:04:49.595 --> 00:04:51.977 two schools or even an institution.

NOTE Confidence: 0.909674286842346

00:04:51.980 --> 00:04:52.670 Broadly speaking,

NOTE Confidence: 0.909674286842346

00:04:52.670 --> 00:04:55.085 you work with people who have the

NOTE Confidence: 0.909674286842346

00:04:55.085 --> 00:04:56.847 interest and something to offer

NOTE Confidence: 0.909674286842346

00:04:56.847 --> 00:04:58.542 and combine forces in producing

NOTE Confidence: 0.909674286842346

00:04:58.542 --> 00:04:59.979 some of these outcomes.

NOTE Confidence: 0.909674286842346

00:04:59.980 --> 00:05:01.740 So the first thing was

NOTE Confidence: 0.909674286842346

00:05:01.740 --> 00:05:02.796 actually more immediate.

NOTE Confidence: 0.909674286842346

00:05:02.800 --> 00:05:04.865 So this was blood by amine Malik.

NOTE Confidence: 0.909674286842346

00:05:04.870 --> 00:05:07.180 One of my post docs and we did a very

NOTE Confidence: 0.909674286842346

00:05:07.249 --> 00:05:09.385 quick analysis and we did statistical

NOTE Confidence: 0.909674286842346

00:05:09.385 --> 00:05:11.379 analysis as well as sort of.

NOTE Confidence: 0.909674286842346

00:05:11.380 --> 00:05:12.612 This is graphic representation

NOTE Confidence: 0.909674286842346

00:05:12.612 --> 00:05:14.788 to be went through a few models

NOTE Confidence: 0.909674286842346

00:05:14.788 --> 00:05:16.420 and we found that in April.

NOTE Confidence: 0.909674286842346

00:05:16.420 --> 00:05:18.760 So this is by cities and if you look

NOTE Confidence: 0.909674286842346

00:05:18.760 --> 00:05:21.379 at the trends that red dots are the

NOTE Confidence: 0.909674286842346

00:05:21.379 --> 00:05:23.829 ones where there wasn't an imposition.

NOTE Confidence: 0.909674286842346

00:05:23.830 --> 00:05:25.039 Of these orders,

NOTE Confidence: 0.909674286842346

00:05:25.039 --> 00:05:27.457 so the initial very early inside.

NOTE Confidence: 0.909674286842346

00:05:27.460 --> 00:05:30.115 So this was on March 28th that we did

NOTE Confidence: 0.909674286842346

00:05:30.115 --> 00:05:33.170 the first analysis and we found that

NOTE Confidence: 0.909674286842346

00:05:33.170 --> 00:05:35.486 there was actual anticipatory this

NOTE Confidence: 0.909674286842346

00:05:35.486 --> 00:05:37.310 decrease in mobility approximately

NOTE Confidence: 0.909674286842346

00:05:37.310 --> 00:05:40.376 by three point 4% based on the

NOTE Confidence: 0.909674286842346

00:05:40.376 --> 00:05:42.436 depending on the baseline compared

NOTE Confidence: 0.909674286842346

00:05:42.436 --> 00:05:44.787 to the baseline for a day.

NOTE Confidence: 0.909674286842346

00:05:44.790 --> 00:05:46.595 Even before these orders were

NOTE Confidence: 0.909674286842346

00:05:46.595 --> 00:05:48.400 implemented and it was almost

NOTE Confidence: 0.909674286842346

00:05:48.468 --> 00:05:50.428 universal across continents etc.

NOTE Confidence: 0.909674286842346

00:05:50.430 --> 00:05:52.440 With these data were available,

NOTE Confidence: 0.909674286842346

00:05:52.440 --> 00:05:54.500 however, there was an effect.

NOTE Confidence: 0.909674286842346

00:05:54.500 --> 00:05:57.240 Overall effect of mobility decrease

NOTE Confidence: 0.909674286842346

00:05:57.240 --> 00:06:00.796 after using this measure after social

NOTE Confidence: 0.909674286842346

00:06:00.796 --> 00:06:03.720 distancing policies were implemented.

NOTE Confidence: 0.909674286842346

00:06:03.720 --> 00:06:05.946 Then with this cell phone based

NOTE Confidence: 0.909674286842346

00:06:05.946 --> 00:06:07.960 data that I talked about,

NOTE Confidence: 0.909674286842346

00:06:07.960 --> 00:06:10.966 we were able to look at time spent at

NOTE Confidence: 0.909674286842346

00:06:10.966 --> 00:06:14.185 home in the US and we try it stress

NOTE Confidence: 0.909674286842346

00:06:14.185 --> 00:06:17.240 testing these data in terms of these

NOTE Confidence: 0.909674286842346

00:06:17.240 --> 00:06:19.991 trends which were apparent earlier on.

NOTE Confidence: 0.909674286842346

00:06:19.991 --> 00:06:23.358 But just what the interesting part was,

NOTE Confidence: 0.909674286842346

00:06:23.360 --> 00:06:26.237 whether we looked at New York or

NOTE Confidence: 0.909674286842346

00:06:26.237 --> 00:06:28.290 Poker Tellow, Idaho or Arkansas,

NOTE Confidence: 0.909674286842346

00:06:28.290 --> 00:06:29.930 or Atlanta or Vermont,

NOTE Confidence: 0.909674286842346

00:06:29.930 --> 00:06:32.709 this these are the counties we had

NOTE Confidence: 0.909674286842346

00:06:32.709 --> 00:06:34.450 some pretty interesting trends,

NOTE Confidence: 0.909674286842346

00:06:34.450 --> 00:06:37.226 so they worked at first of all the

NOTE Confidence: 0.909674286842346

00:06:37.226 --> 00:06:39.743 change in behavior is the increase

NOTE Confidence: 0.909674286842346

00:06:39.743 --> 00:06:42.867 in time spent in home preceded some

NOTE Confidence: 0.909674286842346

00:06:42.867 --> 00:06:45.471 of these policy actions and this

NOTE Confidence: 0.909674286842346

00:06:45.471 --> 00:06:48.444 dark line anchors this work on the

NOTE Confidence: 0.909674286842346

00:06:48.444 --> 00:06:50.524 policy action and the imposition.

NOTE Confidence: 0.909674286842346

00:06:50.530 --> 00:06:50.991 Uh,

NOTE Confidence: 0.909674286842346

00:06:50.991 --> 00:06:53.296 of these lockdowns and social

NOTE Confidence: 0.909674286842346

00:06:53.296 --> 00:06:54.218 distancing measures.

NOTE Confidence: 0.909674286842346

00:06:54.220 --> 00:06:57.181 But there was also an effect and

NOTE Confidence: 0.909674286842346

00:06:57.181 --> 00:07:00.068 impact of the number of cases

NOTE Confidence: 0.909674286842346

00:07:00.068 --> 00:07:01.586 in the community,

NOTE Confidence: 0.909674286842346

00:07:01.590 --> 00:07:03.562 but there was differential

NOTE Confidence: 0.909674286842346

00:07:03.562 --> 00:07:06.027 that was the difference between

NOTE Confidence: 0.909674286842346

00:07:06.027 --> 00:07:08.047 Metropolitan areas in rural areas.

NOTE Confidence: 0.909674286842346

00:07:08.050 --> 00:07:10.594 The rural areas where going for

NOTE Confidence: 0.909674286842346

00:07:10.594 --> 00:07:12.939 the local cases and Metropolitan

NOTE Confidence: 0.909674286842346

00:07:12.939 --> 00:07:15.729 areas where tracking the added

NOTE Confidence: 0.909674286842346

00:07:15.729 --> 00:07:17.961 effect was tracking and

NOTE Confidence: 0.899560809135437

00:07:18.045 --> 00:07:21.456 there was a bit of a crowding out effect.

NOTE Confidence: 0.899560809135437

00:07:21.460 --> 00:07:24.730 That we're tracking national cases.

NOTE Confidence: 0.899560809135437

00:07:24.730 --> 00:07:27.190 And so that's an interesting observation.

NOTE Confidence: 0.899560809135437

00:07:27.190 --> 00:07:28.423 And that's rational,

NOTE Confidence: 0.899560809135437

00:07:28.423 --> 00:07:30.478 and that that works through.

NOTE Confidence: 0.899560809135437

00:07:30.480 --> 00:07:32.835 The phenomenon of availability heuristic

NOTE Confidence: 0.899560809135437

00:07:32.835 --> 00:07:36.067 in psychology that we just the probability

NOTE Confidence: 0.899560809135437

00:07:36.067 --> 00:07:38.874 of events by how vividly they are

NOTE Confidence: 0.899560809135437

00:07:38.874 --> 00:07:41.091 covered and so availability heuristic

NOTE Confidence: 0.899560809135437

00:07:41.091 --> 00:07:44.114 was working and it's rational to say

NOTE Confidence: 0.899560809135437

00:07:44.114 --> 00:07:46.134 that Metropolitan areas were actually

NOTE Confidence: 0.899560809135437

00:07:46.134 --> 00:07:49.000 linked more than non Metropolitan area.

NOTE Confidence: 0.899560809135437

00:07:49.000 --> 00:07:52.108 So they were tracking national cases whereas.

NOTE Confidence: 0.899560809135437

00:07:52.110 --> 00:07:54.684 Rural areas and on Metropolitan areas

NOTE Confidence: 0.899560809135437

00:07:54.684 --> 00:07:57.452 were tracking local cases and that has

NOTE Confidence: 0.899560809135437

00:07:57.452 --> 00:08:00.298 implications on when we open up and long

NOTE Confidence: 0.899560809135437

00:08:00.298 --> 00:08:02.738 term strategies for social distancing.

NOTE Confidence: 0.899560809135437

00:08:02.740 --> 00:08:05.899 The second thing was that a lot of us

NOTE Confidence: 0.899560809135437

00:08:05.899 --> 00:08:08.427 working with populations and governments

NOTE Confidence: 0.899560809135437

00:08:08.427 --> 00:08:11.985 and policymakers outside the US as well

NOTE Confidence: 0.899560809135437

00:08:11.985 --> 00:08:15.420 as inside the US an the testing in the US

NOTE Confidence: 0.899560809135437

00:08:15.420 --> 00:08:18.700 has gone up substantially and will go up.

NOTE Confidence: 0.899560809135437

00:08:18.700 --> 00:08:20.765 This testing is load University

NOTE Confidence: 0.899560809135437

00:08:20.765 --> 00:08:22.830 but in low income countries.

NOTE Confidence: 0.899560809135437

00:08:22.830 --> 00:08:24.986 That those limitations are even more stark,

NOTE Confidence: 0.899560809135437

00:08:24.990 --> 00:08:26.535 and therefore the testing capacity

NOTE Confidence: 0.899560809135437

00:08:26.535 --> 00:08:28.700 is a little bit more long term,

NOTE Confidence: 0.899560809135437

00:08:28.700 --> 00:08:30.732 so you know you can always use a

NOTE Confidence: 0.899560809135437

00:08:30.732 --> 00:08:32.041 little bit of interdisciplinary

NOTE Confidence: 0.899560809135437

00:08:32.041 --> 00:08:34.255 work where you could look at,

NOTE Confidence: 0.899560809135437

00:08:34.260 --> 00:08:36.283 you know what what is happening and

NOTE Confidence: 0.899560809135437

00:08:36.283 --> 00:08:38.278 what are some of the approaches.

NOTE Confidence: 0.899560809135437

00:08:38.280 --> 00:08:40.128 But before I get to that,

NOTE Confidence: 0.899560809135437

00:08:40.130 --> 00:08:42.300 so you know, as I've been saying,

NOTE Confidence: 0.899560809135437

00:08:42.300 --> 00:08:44.208 there's a cottage industry of plans

NOTE Confidence: 0.899560809135437

00:08:44.208 --> 00:08:46.308 to open up America in the world.

NOTE Confidence: 0.899560809135437

00:08:46.310 --> 00:08:48.480 Ours was shared initially in late March,

NOTE Confidence: 0.899560809135437

00:08:48.480 --> 00:08:51.880 it came out as part of a peace in JAMA where,

NOTE Confidence: 0.899560809135437

00:08:51.880 --> 00:08:53.480 you know, we focused on.

NOTE Confidence: 0.899560809135437

00:08:53.480 --> 00:08:55.610 Extensive testing and contact tracing.

NOTE Confidence: 0.899560809135437

00:08:55.610 --> 00:08:57.730 Reduced reduction of household transmission.

NOTE Confidence: 0.899560809135437

00:08:57.730 --> 00:08:59.890 An additional treatment options will

NOTE Confidence: 0.899560809135437

00:08:59.890 --> 00:09:03.731 be said is going to help US Open up

NOTE Confidence: 0.899560809135437

00:09:03.731 --> 00:09:06.230 America safely, but now you know,

NOTE Confidence: 0.899560809135437

00:09:06.230 --> 00:09:07.930 you know this is.

NOTE Confidence: 0.899560809135437

00:09:07.930 --> 00:09:10.674 You know several program plans have since

NOTE Confidence: 0.899560809135437

00:09:10.674 --> 00:09:14.148 come out for the Rockefeller plan, the.

NOTE Confidence: 0.899560809135437

00:09:14.148 --> 00:09:16.212 Eh, I plan.

NOTE Confidence: 0.899560809135437

00:09:16.212 --> 00:09:20.358 This one is published, I think April 4th.

NOTE Confidence: 0.899560809135437

00:09:20.358 --> 00:09:21.746 So and so forth.

NOTE Confidence: 0.899560809135437

00:09:21.750 --> 00:09:23.155 So there are multiple plans

NOTE Confidence: 0.899560809135437

00:09:23.155 --> 00:09:24.279 that are out there.

NOTE Confidence: 0.899560809135437

00:09:24.280 --> 00:09:25.966 One thing that is shared is

NOTE Confidence: 0.899560809135437

00:09:25.966 --> 00:09:27.090 testing and contact tracing.

NOTE Confidence: 0.899560809135437

00:09:27.090 --> 00:09:29.900 And so how do we optimize it in one way?

NOTE Confidence: 0.899560809135437

00:09:29.900 --> 00:09:32.556 And I'm sure at Kaplan was done brilliant

NOTE Confidence: 0.899560809135437

00:09:32.556 --> 00:09:34.985 work on this in the more sort of.

NOTE Confidence: 0.899560809135437

00:09:34.990 --> 00:09:36.950 Local and domestic settings will

NOTE Confidence: 0.899560809135437

00:09:36.950 --> 00:09:39.480 talk about that in more detail.

NOTE Confidence: 0.899560809135437

00:09:39.480 --> 00:09:41.280 One strategy that we figured

NOTE Confidence: 0.899560809135437

00:09:41.280 --> 00:09:43.970 out would be too for government,

NOTE Confidence: 0.899560809135437

00:09:43.970 --> 00:09:46.010 specially in low income countries,

NOTE Confidence: 0.899560809135437

00:09:46.010 --> 00:09:48.439 is pool testing and so this was

NOTE Confidence: 0.899560809135437

00:09:48.439 --> 00:09:50.964 a little bit of massive working

NOTE Confidence: 0.899560809135437

00:09:50.964 --> 00:09:53.760 with an economist at the awesome

NOTE Confidence: 0.899560809135437

00:09:53.760 --> 00:09:55.808 charger is the director of.

NOTE Confidence: 0.899560809135437

00:09:55.810 --> 00:09:57.486 Center for International Development

NOTE Confidence: 0.899560809135437

00:09:57.486 --> 00:10:00.705 at Harvard and for Han is from magic

NOTE Confidence: 0.899560809135437

00:10:00.705 --> 00:10:03.241 is a economist based out of rice and

NOTE Confidence: 0.899560809135437

00:10:03.318 --> 00:10:05.684 the three of us combined forces and

NOTE Confidence: 0.899560809135437

00:10:05.684 --> 00:10:08.535 looked at said that there is lab based

NOTE Confidence: 0.899560809135437

00:10:08.535 --> 00:10:10.789 information that says that you cannot

NOTE Confidence: 0.899560809135437

00:10:10.789 --> 00:10:13.225 pull up to beyond a certain level,

NOTE Confidence: 0.899560809135437

00:10:13.230 --> 00:10:14.682 which is entirely appropriate.

NOTE Confidence: 0.899560809135437

00:10:14.682 --> 00:10:18.384 But can we do a bit of math to figure out

NOTE Confidence: 0.899560809135437

00:10:18.384 --> 00:10:21.219 who to test in low resource settings?

NOTE Confidence: 0.899560809135437

00:10:21.220 --> 00:10:23.754 So this is one example of that,

NOTE Confidence: 0.899560809135437

00:10:23.760 --> 00:10:26.058 and we found that even at.

NOTE Confidence: 0.899560809135437

00:10:26.060 --> 00:10:27.820 The at lower prevalence levels

NOTE Confidence: 0.899560809135437

00:10:27.820 --> 00:10:29.580 we can find a lot

NOTE Confidence: 0.88037246465683

00:10:29.653 --> 00:10:31.998 of efficiencies by pool testing.

NOTE Confidence: 0.88037246465683

00:10:32.000 --> 00:10:35.555 Even a full size is as low as 10,

NOTE Confidence: 0.88037246465683

00:10:35.560 --> 00:10:39.124 and as as soon as you increase them hire.

NOTE Confidence: 0.88037246465683

00:10:39.130 --> 00:10:41.105 That would be of pretty

NOTE Confidence: 0.88037246465683

00:10:41.105 --> 00:10:42.685 high level of efficiency.

NOTE Confidence: 0.88037246465683

00:10:42.690 --> 00:10:45.066 We also prioritize is based on

NOTE Confidence: 0.88037246465683

00:10:45.066 --> 00:10:46.650 some network modeling approach,

NOTE Confidence: 0.88037246465683

00:10:46.650 --> 00:10:49.546 which I'm not showing here in the interest

NOTE Confidence: 0.88037246465683

00:10:49.546 --> 00:10:52.589 of time that for low resource settings,

NOTE Confidence: 0.88037246465683

00:10:52.590 --> 00:10:54.840 looking at figuring out who has

NOTE Confidence: 0.88037246465683

00:10:54.840 --> 00:10:57.410 a who's a high degree node.

NOTE Confidence: 0.88037246465683

00:10:57.410 --> 00:11:00.007 In a network and prioritizing them actually

NOTE Confidence: 0.88037246465683

00:11:00.007 --> 00:11:02.980 gets you a lot of bang for your Buck,

NOTE Confidence: 0.88037246465683

00:11:02.980 --> 00:11:06.270 especially when the boxer shorts.

NOTE Confidence: 0.88037246465683

00:11:06.270 --> 00:11:08.568 And then what do you so?

NOTE Confidence: 0.88037246465683

00:11:08.570 --> 00:11:11.602 A lot of these interventions are as much

NOTE Confidence: 0.88037246465683

00:11:11.602 --> 00:11:14.267 about human behavior as much as they

NOTE Confidence: 0.88037246465683

00:11:14.267 --> 00:11:17.410 are about the behavior of the virus itself.

NOTE Confidence: 0.88037246465683

00:11:17.410 --> 00:11:19.818 So very earlier on, we focused on

NOTE Confidence: 0.88037246465683

00:11:19.818 --> 00:11:22.399 what does the US population think.

NOTE Confidence: 0.88037246465683

00:11:22.400 --> 00:11:25.088 So we did a population representative survey.

NOTE Confidence: 0.88037246465683

00:11:25.090 --> 00:11:27.005 Did an online survey online

NOTE Confidence: 0.88037246465683

00:11:27.005 --> 00:11:28.537 servers have gotten better.

NOTE Confidence: 0.88037246465683

00:11:28.540 --> 00:11:30.844 We paid a lot of attention

NOTE Confidence: 0.88037246465683

00:11:30.844 --> 00:11:31.996 of representative samples.

NOTE Confidence: 0.88037246465683

00:11:32.000 --> 00:11:34.500 So there. We not be.

NOTE Confidence: 0.88037246465683

00:11:34.500 --> 00:11:36.460 It won't be able to stratify them

NOTE Confidence: 0.88037246465683

00:11:36.460 --> 00:11:38.639 by a lot of characteristics,

NOTE Confidence: 0.88037246465683

00:11:38.640 --> 00:11:40.710 but overall it was fairly representative.

NOTE Confidence: 0.88037246465683

00:11:40.710 --> 00:11:42.440 We did robustness checks and

NOTE Confidence: 0.88037246465683

00:11:42.440 --> 00:11:44.500 this was done on February 8th,

NOTE Confidence: 0.88037246465683

00:11:44.500 --> 00:11:44.834 2020,

NOTE Confidence: 0.88037246465683

00:11:44.834 --> 00:11:47.172 so before a lot of the features

NOTE Confidence: 0.88037246465683

00:11:47.172 --> 00:11:48.300 before doctor found,

NOTE Confidence: 0.88037246465683

00:11:48.300 --> 00:11:50.466 she became a household name and

NOTE Confidence: 0.88037246465683

00:11:50.466 --> 00:11:52.947 that would be relevant in the next

NOTE Confidence: 0.88037246465683

00:11:52.947 --> 00:11:55.194 slide we asked a bunch of questions,

NOTE Confidence: 0.88037246465683

00:11:55.200 --> 00:11:57.318 but I'm showing a bunch of.

NOTE Confidence: 0.88037246465683

00:11:57.320 --> 00:11:59.546 Pieces of data there on February 8th,

NOTE Confidence: 0.88037246465683

00:11:59.550 --> 00:12:01.440 they told us when we asked them

NOTE Confidence: 0.88037246465683

00:12:01.440 --> 00:12:04.057 who should be the the in charge of

NOTE Confidence: 0.88037246465683

00:12:04.057 --> 00:12:05.797 America is COVID-19 outbreak response

NOTE Confidence: 0.88037246465683

00:12:05.865 --> 00:12:07.845 and people said the CDC director,

NOTE Confidence: 0.88037246465683

00:12:07.850 --> 00:12:10.062 the director of NIH and then followed

NOTE Confidence: 0.88037246465683

00:12:10.062 --> 00:12:12.310 by the president and the Congress was,

NOTE Confidence: 0.88037246465683

00:12:12.310 --> 00:12:14.550 I think 1.5% what they were saying.

NOTE Confidence: 0.88037246465683

00:12:14.550 --> 00:12:17.102 They did not know the name of the

NOTE Confidence: 0.88037246465683

00:12:17.102 --> 00:12:19.965 direction of the NIH or the director of CDC,

NOTE Confidence: 0.88037246465683

00:12:19.970 --> 00:12:21.776 but where they were telling us

NOTE Confidence: 0.88037246465683

00:12:21.776 --> 00:12:23.799 that it should be a scientist.

NOTE Confidence: 0.88037246465683

00:12:23.800 --> 00:12:25.166 LED response.

NOTE Confidence: 0.88037246465683

00:12:25.166 --> 00:12:29.264 The other thing we asked them,

NOTE Confidence: 0.88037246465683

00:12:29.270 --> 00:12:30.582 whose advice would you?

NOTE Confidence: 0.88037246465683

00:12:30.582 --> 00:12:33.384 Trust the most and we found that it

NOTE Confidence: 0.88037246465683

00:12:33.384 --> 00:12:35.694 was that the top Dewar Healthcare

NOTE Confidence: 0.88037246465683

00:12:35.694 --> 00:12:38.077 Professional which is common to all

NOTE Confidence: 0.88037246465683

00:12:38.077 --> 00:12:40.002 sorts of other phenomenon phenomenon.

NOTE Confidence: 0.88037246465683

00:12:40.010 --> 00:12:42.513 A lot of our study, for example vaccines,

NOTE Confidence: 0.88037246465683

00:12:42.513 --> 00:12:44.550 but CDC ranks fairly low in terms

NOTE Confidence: 0.88037246465683

00:12:44.609 --> 00:12:46.197 of vaccine information source,

NOTE Confidence: 0.88037246465683

00:12:46.200 --> 00:12:48.630 but CDC and NIH were right up there and

NOTE Confidence: 0.88037246465683

00:12:48.630 --> 00:12:51.095 we have repeated these surveys, etc.

NOTE Confidence: 0.88037246465683

00:12:51.095 --> 00:12:53.695 We are analyzing it for this as well,

NOTE Confidence: 0.88037246465683

00:12:53.700 --> 00:12:55.982 but going back to some of the

NOTE Confidence: 0.88037246465683

00:12:55.982 --> 00:12:56.634 other questions.

NOTE Confidence: 0.88037246465683

00:12:56.640 --> 00:12:59.240 So how can we control the COVID-19 outbreak?

NOTE Confidence: 0.88037246465683

00:12:59.240 --> 00:13:01.832 Sorry for the typo in confined spaces and

NOTE Confidence: 0.88037246465683

00:13:01.832 --> 00:13:04.478 the reason why we are thinking about that.

NOTE Confidence: 0.88037246465683

00:13:04.480 --> 00:13:07.800 Is a lot of these micro level and

NOTE Confidence: 0.88037246465683

00:13:07.800 --> 00:13:11.751 a lot of the policy decisions as we

NOTE Confidence: 0.88037246465683

00:13:11.751 --> 00:13:15.570 open up our micro level decisions,

NOTE Confidence: 0.88037246465683

00:13:15.570 --> 00:13:16.081 companies,

NOTE Confidence: 0.88037246465683

00:13:16.081 --> 00:13:16.592 dorms,

NOTE Confidence: 0.88037246465683

00:13:16.592 --> 00:13:19.147 residential colleges in a certain

NOTE Confidence: 0.88037246465683

00:13:19.147 --> 00:13:21.620 300 over University for example,

NOTE Confidence: 0.88037246465683

00:13:21.620 --> 00:13:23.180 and cruise ships.

NOTE Confidence: 0.88037246465683

00:13:23.180 --> 00:13:26.300 So the first thing we started

NOTE Confidence: 0.88037246465683

00:13:26.300 --> 00:13:28.556 attacking with a postdoc amine

NOTE Confidence: 0.88037246465683

00:13:28.556 --> 00:13:31.736 and Sam Jenness who is a close

NOTE Confidence: 0.88037246465683

00:13:31.736 --> 00:13:34.216 collaborator based at Emory.

NOTE Confidence: 0.88037246465683

00:13:34.220 --> 00:13:36.428 Collaborating on some of the other

NOTE Confidence: 0.88037246465683

00:13:36.428 --> 00:13:39.018 stuff we said look the best model.

NOTE Confidence: 0.88037246465683

00:13:39.020 --> 00:13:42.170 The best source of data we have right now is

NOTE Confidence: 0.887116014957428

00:13:42.245 --> 00:13:44.177 from Diamond Princess Anne.

NOTE Confidence: 0.887116014957428

00:13:44.180 --> 00:13:47.231 If we could because there was a lot of

NOTE Confidence: 0.887116014957428

00:13:47.231 --> 00:13:49.231 reporting over reporting because there's

NOTE Confidence: 0.887116014957428

00:13:49.231 --> 00:13:52.669 a lot of other cases were not that high.

NOTE Confidence: 0.887116014957428

00:13:52.670 --> 00:13:54.878 We know a lot of details,

NOTE Confidence: 0.887116014957428

00:13:54.880 --> 00:13:57.463 so we sort of through with with

NOTE Confidence: 0.887116014957428

00:13:57.463 --> 00:13:58.948 another graduate students, etc.

NOTE Confidence: 0.887116014957428

00:13:58.948 --> 00:14:00.082 Katy Villa brand.

NOTE Confidence: 0.887116014957428

00:14:00.082 --> 00:14:03.141 We really did God really detailed data and

NOTE Confidence: 0.887116014957428

00:14:03.141 --> 00:14:06.005 we figured out that there were two networks.

NOTE Confidence: 0.887116014957428

00:14:06.010 --> 00:14:09.293 Uh, that were a small world networks

NOTE Confidence: 0.887116014957428

00:14:09.293 --> 00:14:11.900 that were existing side by side,

NOTE Confidence: 0.887116014957428

00:14:11.900 --> 00:14:15.977 the staff and the passengers and we said OK,

NOTE Confidence: 0.887116014957428

00:14:15.980 --> 00:14:18.245 but they are interacting so

NOTE Confidence: 0.887116014957428

00:14:18.245 --> 00:14:20.510 they have their own dynamics,

NOTE Confidence: 0.887116014957428

00:14:20.510 --> 00:14:24.171 their own degree of mixing etc and

NOTE Confidence: 0.887116014957428

00:14:24.171 --> 00:14:27.359 they are interacting with each other.

NOTE Confidence: 0.887116014957428

00:14:27.360 --> 00:14:29.450 And again from the beginning.

NOTE Confidence: 0.887116014957428

00:14:29.450 --> 00:14:32.474 The idea was that we work it out for

NOTE Confidence: 0.887116014957428

00:14:32.474 --> 00:14:35.319 Diamond Princess and then that serves as

NOTE Confidence: 0.887116014957428

00:14:35.319 --> 00:14:38.619 a template for other confined populations.

NOTE Confidence: 0.887116014957428

00:14:38.620 --> 00:14:40.700 So these are initial results.

NOTE Confidence: 0.887116014957428

00:14:40.700 --> 00:14:43.208 So we did we doing model,

NOTE Confidence: 0.887116014957428

00:14:43.210 --> 00:14:44.028 collaboration etc.

NOTE Confidence: 0.887116014957428

00:14:44.028 --> 00:14:46.482 And so with the initial thing

NOTE Confidence: 0.887116014957428

00:14:46.482 --> 00:14:49.048 is the first thing we evaluated

NOTE Confidence: 0.887116014957428

00:14:49.048 --> 00:14:51.550 and these are work in progress.

NOTE Confidence: 0.887116014957428

00:14:51.550 --> 00:14:54.106 That network, log downtime etc is.

NOTE Confidence: 0.887116014957428

00:14:54.110 --> 00:14:56.570 The earlier use stop the interaction

NOTE Confidence: 0.887116014957428

00:14:56.570 --> 00:14:58.210 between the two networks,

NOTE Confidence: 0.887116014957428

00:14:58.210 --> 00:15:00.750 the better control that you

NOTE Confidence: 0.887116014957428

00:15:00.750 --> 00:15:02.782 have on the outbreak.

NOTE Confidence: 0.887116014957428

00:15:02.790 --> 00:15:04.010 The other thing is,

NOTE Confidence: 0.887116014957428

00:15:04.010 --> 00:15:06.343 you know we are in a situation

NOTE Confidence: 0.887116014957428

00:15:06.343 --> 00:15:08.443 where going forward we're going

NOTE Confidence: 0.887116014957428

00:15:08.443 --> 00:15:11.759 to have a lot of decisions we made

NOTE Confidence: 0.887116014957428

00:15:11.759 --> 00:15:14.426 will be made on imperfect data and

NOTE Confidence: 0.887116014957428

00:15:14.426 --> 00:15:16.708 a lot of decisions will be made

NOTE Confidence: 0.887116014957428

00:15:16.708 --> 00:15:19.223 based on the idea that we have to

NOTE Confidence: 0.887116014957428

00:15:19.223 --> 00:15:22.192 have a grasp on reality for both

NOTE Confidence: 0.887116014957428

00:15:22.192 --> 00:15:23.899 symptomatic San asymptomatic.

NOTE Confidence: 0.887116014957428

00:15:23.900 --> 00:15:26.490 So how can we innovate in the

NOTE Confidence: 0.887116014957428

00:15:26.490 --> 00:15:28.050 context of imperfect data?

NOTE Confidence: 0.887116014957428

00:15:28.050 --> 00:15:30.312 So there are two lines of

NOTE Confidence: 0.887116014957428

00:15:30.312 --> 00:15:31.820 inquiry that we started.

NOTE Confidence: 0.887116014957428

00:15:31.820 --> 00:15:34.088 They are existing surveillance systems too.

NOTE Confidence: 0.887116014957428

00:15:34.090 --> 00:15:36.850 All to our surprise that CDC frankly wasn't

NOTE Confidence: 0.887116014957428

00:15:36.850 --> 00:15:39.030 utilizing it too to its full extent.

NOTE Confidence: 0.887116014957428

00:15:39.030 --> 00:15:40.848 When is influenza like in Leicester

NOTE Confidence: 0.887116014957428

00:15:40.848 --> 00:15:43.224 pin system and we went for flu

NOTE Confidence: 0.887116014957428

00:15:43.224 --> 00:15:43.956 negative influence?

NOTE Confidence: 0.887116014957428

00:15:43.960 --> 00:15:45.738 A negative I'll I there has been

NOTE Confidence: 0.887116014957428

00:15:45.738 --> 00:15:47.353 a change in healthcare behavior

NOTE Confidence: 0.887116014957428

00:15:47.353 --> 00:15:49.741 in terms of seeking care for

NOTE Confidence: 0.887116014957428

00:15:49.741 --> 00:15:50.537 respiratory illness,

NOTE Confidence: 0.887116014957428

00:15:50.540 --> 00:15:52.478 which is can be accounted for

NOTE Confidence: 0.887116014957428

00:15:52.478 --> 00:15:54.160 and we depend through that.

NOTE Confidence: 0.887116014957428

00:15:54.160 --> 00:15:56.128 And the other thing is sewage.

NOTE Confidence: 0.887116014957428

00:15:56.130 --> 00:15:57.442 Essentially sludge based surveillance,

NOTE Confidence: 0.887116014957428

00:15:57.442 --> 00:15:59.082 and for that again work.

NOTE Confidence: 0.887116014957428

00:15:59.090 --> 00:16:00.740 Starting with the problem and

NOTE Confidence: 0.887116014957428

00:16:00.740 --> 00:16:01.400 working backwards.

NOTE Confidence: 0.887116014957428

00:16:01.400 --> 00:16:03.416 So this this sort of these

NOTE Confidence: 0.887116014957428

00:16:03.416 --> 00:16:04.760 ideas came out with.

NOTE Confidence: 0.887116014957428

00:16:04.760 --> 00:16:07.838 Discussions with at Kaplan and then

NOTE Confidence: 0.887116014957428

00:16:07.838 --> 00:16:10.693 subsequently we reached out to Jordan

NOTE Confidence: 0.887116014957428

00:16:10.693 --> 00:16:14.459 patio what it came out of was that a lot

NOTE Confidence: 0.887116014957428

00:16:14.459 --> 00:16:17.715 of us were observing that very early around.

NOTE Confidence: 0.887116014957428

00:16:17.720 --> 00:16:20.611 There was evidence that at least viral

NOTE Confidence: 0.887116014957428

00:16:20.611 --> 00:16:23.339 name was being excreted in feces.

NOTE Confidence: 0.887116014957428

00:16:23.340 --> 00:16:25.842 Then the question was if it's

NOTE Confidence: 0.887116014957428

00:16:25.842 --> 00:16:28.090 being excreted in the feces,

NOTE Confidence: 0.887116014957428

00:16:28.090 --> 00:16:31.107 is it detectable in sewage or sludge,

NOTE Confidence: 0.887116014957428

00:16:31.110 --> 00:16:31.573 etc?

NOTE Confidence: 0.887116014957428

00:16:31.573 --> 00:16:33.425 Because there other attractive

NOTE Confidence: 0.887116014957428

00:16:33.425 --> 00:16:35.277 part interactive part was.

NOTE Confidence: 0.887116014957428

00:16:35.280 --> 00:16:37.140 That the world does this

NOTE Confidence: 0.887116014957428

00:16:37.140 --> 00:16:38.256 kind of surveillance,

NOTE Confidence: 0.887116014957428

00:16:38.260 --> 00:16:40.878 including and low income countries for polio.

NOTE Confidence: 0.887116014957428

00:16:40.880 --> 00:16:43.172 So there is this muscle memory

NOTE Confidence: 0.887116014957428

00:16:43.172 --> 00:16:45.483 and the ability to do this

NOTE Confidence: 0.887116014957428

00:16:45.483 --> 00:16:47.589 in this kind of a situation.

NOTE Confidence: 0.887116014957428

00:16:47.590 --> 00:16:49.564 So the first thing is that

NOTE Confidence: 0.887116014957428

00:16:49.564 --> 00:16:51.690 these data for flu influenza.

NOTE Confidence: 0.887116014957428

00:16:51.690 --> 00:16:52.809 I'll I influence,

NOTE Confidence: 0.887116014957428

00:16:52.809 --> 00:16:55.047 sorry flu negative influenza like illness.

NOTE Confidence: 0.887116014957428

00:16:55.050 --> 00:16:56.514 So we created standardized

NOTE Confidence: 0.887116014957428

00:16:56.514 --> 00:16:58.710 these scores and we found that

NOTE Confidence: 0.903065323829651

00:16:58.780 --> 00:17:01.657 this can be a leading indicator even

NOTE Confidence: 0.903065323829651

00:17:01.657 --> 00:17:03.616 adjusting for imperfections and testing

NOTE Confidence: 0.903065323829651

00:17:03.616 --> 00:17:05.912 Ware and sort of honing in places

NOTE Confidence: 0.903065323829651

00:17:05.912 --> 00:17:09.820 where we had some confidence. Uh.

NOTE Confidence: 0.903065323829651

00:17:09.820 --> 00:17:14.608 Can be a leading indicator for monitoring.

NOTE Confidence: 0.903065323829651

00:17:14.610 --> 00:17:16.070 Kobe 19 deaths and incidents.

NOTE Confidence: 0.903065323829651

00:17:16.070 --> 00:17:17.806 These are the data this should come

NOTE Confidence: 0.903065323829651

00:17:17.806 --> 00:17:20.138 out in a bio archive fairly quickly,

NOTE Confidence: 0.903065323829651

00:17:20.140 --> 00:17:22.009 and what we found a few things

NOTE Confidence: 0.903065323829651

00:17:22.009 --> 00:17:24.207 in from the sewage and such data.

NOTE Confidence: 0.903065323829651

00:17:24.210 --> 00:17:26.360 And then there was a.

NOTE Confidence: 0.903065323829651

00:17:26.360 --> 00:17:29.663 I would be remiss if I don't recognize the,

NOTE Confidence: 0.903065323829651

00:17:29.670 --> 00:17:32.008 uh, the dedication of not just Jordan

NOTE Confidence: 0.903065323829651

00:17:32.008 --> 00:17:34.459 Pescia from the school of engineering,

NOTE Confidence: 0.903065323829651

00:17:34.460 --> 00:17:36.265 but the medical students who

NOTE Confidence: 0.903065323829651

00:17:36.265 --> 00:17:38.500 collected specimens on a daily basis,

NOTE Confidence: 0.903065323829651

00:17:38.500 --> 00:17:40.340 and they're pretty trying circumstances.

NOTE Confidence: 0.903065323829651

00:17:40.340 --> 00:17:41.988 Obviously each is approved,

NOTE Confidence: 0.903065323829651

00:17:41.988 --> 00:17:44.048 etc from sewage medical students

NOTE Confidence: 0.903065323829651

00:17:44.048 --> 00:17:45.815 and graduate students as well

NOTE Confidence: 0.903065323829651

00:17:45.815 --> 00:17:48.070 as native grew by in his lab.

NOTE Confidence: 0.903065323829651

00:17:48.070 --> 00:17:49.204 Being a collaborator,

NOTE Confidence: 0.903065323829651

00:17:49.204 --> 00:17:52.120 the AG station folks being apart of it,

NOTE Confidence: 0.903065323829651

00:17:52.120 --> 00:17:54.448 this is a true collaborative project

NOTE Confidence: 0.903065323829651

00:17:54.448 --> 00:17:57.657 and what we found was that first of all.

NOTE Confidence: 0.903065323829651

00:17:57.660 --> 00:18:02.336 That the we can identify this RNA

NOTE Confidence: 0.903065323829651

00:18:02.336 --> 00:18:06.280 from sewage sludge that tracks well

NOTE Confidence: 0.903065323829651

00:18:06.280 --> 00:18:10.501 with the size of the with the.

NOTE Confidence: 0.903065323829651

00:18:10.510 --> 00:18:12.556 The trends in the outbreak and

NOTE Confidence: 0.903065323829651

00:18:12.556 --> 00:18:14.728 can serve as a leading indicator

NOTE Confidence: 0.903065323829651

00:18:14.728 --> 00:18:17.262 for cases by 5 to 7 days.

NOTE Confidence: 0.903065323829651

00:18:17.270 --> 00:18:18.995 There is other preliminary work

NOTE Confidence: 0.903065323829651

00:18:18.995 --> 00:18:21.155 that says that you can quantify

NOTE Confidence: 0.903065323829651

00:18:21.155 --> 00:18:22.970 the size of the outbreak,

NOTE Confidence: 0.903065323829651

00:18:22.970 --> 00:18:25.538 but I am a little bit more sceptical

NOTE Confidence: 0.903065323829651

00:18:25.538 --> 00:18:28.451 of that part right now because we need

NOTE Confidence: 0.903065323829651

00:18:28.451 --> 00:18:31.160 to calibrate that a little bit more.

NOTE Confidence: 0.903065323829651

00:18:31.160 --> 00:18:32.608 But as those indicators,

NOTE Confidence: 0.903065323829651

00:18:32.608 --> 00:18:35.430 so this has resulted already in the city,

NOTE Confidence: 0.903065323829651

00:18:35.430 --> 00:18:38.188 contacted us and Jordan will be providing

NOTE Confidence: 0.903065323829651

00:18:38.188 --> 00:18:40.816 weekly information to the city of New Haven.

NOTE Confidence: 0.903065323829651

00:18:40.820 --> 00:18:43.340 But also I've been working with

NOTE Confidence: 0.903065323829651

00:18:43.340 --> 00:18:46.140 the World Bank to expand this.

NOTE Confidence: 0.903065323829651

00:18:46.140 --> 00:18:49.684 Uh, and piloted in at least two countries.

NOTE Confidence: 0.903065323829651

00:18:49.690 --> 00:18:51.460 Countries in large Metropolitan areas,

NOTE Confidence: 0.903065323829651

00:18:51.460 --> 00:18:53.220 as well as smaller areas.

NOTE Confidence: 0.903065323829651

00:18:53.220 --> 00:18:56.036 So then what is the acceptance of vaccine?

NOTE Confidence: 0.903065323829651

00:18:56.040 --> 00:18:57.452 We're talking about vaccines,

NOTE Confidence: 0.903065323829651

00:18:57.452 --> 00:18:59.217 but vaccines if not taken,

NOTE Confidence: 0.903065323829651

00:18:59.220 --> 00:18:59.838 are pointless,

NOTE Confidence: 0.903065323829651

00:18:59.838 --> 00:19:02.310 and so we looked at that and we

NOTE Confidence: 0.903065323829651

00:19:02.386 --> 00:19:04.787 predicted that there is a lot of

NOTE Confidence: 0.903065323829651

00:19:04.787 --> 00:19:07.473 variability and we had sort of a

NOTE Confidence: 0.903065323829651

00:19:07.473 --> 00:19:09.453 predictive model based on demographics.

NOTE Confidence: 0.903065323829651

00:19:09.460 --> 00:19:11.578 So we calibrated this and said,

NOTE Confidence: 0.903065323829651

00:19:11.580 --> 00:19:13.785 can we create a risk map based

NOTE Confidence: 0.903065323829651

00:19:13.785 --> 00:19:15.460 on directly asked questions?

NOTE Confidence: 0.903065323829651

00:19:15.460 --> 00:19:17.674 But calibrating it again based on

NOTE Confidence: 0.903065323829651

00:19:17.674 --> 00:19:19.150 demographics to identify higher

NOTE Confidence: 0.903065323829651

00:19:19.210 --> 00:19:20.458 risk areas and that's.

NOTE Confidence: 0.903065323829651

00:19:20.460 --> 00:19:21.690 What some of this work?

NOTE Confidence: 0.903065323829651

00:19:21.690 --> 00:19:22.670 This is fairly recent,

NOTE Confidence: 0.903065323829651

00:19:22.670 --> 00:19:24.140 like a couple of days old,

NOTE Confidence: 0.903065323829651

00:19:24.140 --> 00:19:27.036 and this will be coming out fairly soon.

NOTE Confidence: 0.903065323829651

00:19:27.040 --> 00:19:28.783 The other thing is we don't want

NOTE Confidence: 0.903065323829651

00:19:28.783 --> 00:19:31.292 to be in a situation in vaccine

NOTE Confidence: 0.903065323829651

00:19:31.292 --> 00:19:32.992 distribution where governor's are

NOTE Confidence: 0.903065323829651

00:19:32.992 --> 00:19:34.835 fighting over vaccine like they

NOTE Confidence: 0.903065323829651

00:19:34.835 --> 00:19:36.695 did on some occasions on PE.

NOTE Confidence: 0.903065323829651

00:19:36.700 --> 00:19:38.988 So what we did was I worked with

NOTE Confidence: 0.903065323829651

00:19:38.988 --> 00:19:41.028 one of my keyboard mantis,

NOTE Confidence: 0.903065323829651

00:19:41.030 --> 00:19:43.847 who happens to be at the is a geography

NOTE Confidence: 0.903065323829651

00:19:43.847 --> 00:19:45.358 Republican geographer at UNC.

NOTE Confidence: 0.903065323829651

00:19:45.360 --> 00:19:47.642 Although matter and we looked at the

NOTE Confidence: 0.903065323829651

00:19:47.642 --> 00:19:50.347 what are the risk groups that we know?

NOTE Confidence: 0.903065323829651

00:19:50.350 --> 00:19:53.164 What are some of the other population

NOTE Confidence: 0.903065323829651

00:19:53.164 --> 00:19:54.683 characters characteristics we know

NOTE Confidence: 0.903065323829651

00:19:54.683 --> 00:19:56.707 and we came up with this map for.

NOTE Confidence: 0.903065323829651

00:19:56.710 --> 00:19:58.026 Distributing in placing vaccines

NOTE Confidence: 0.903065323829651

00:19:58.026 --> 00:20:00.240 and we have 5 version of it.

NOTE Confidence: 0.903065323829651

00:20:00.240 --> 00:20:01.850 Based on the policy goals.

NOTE Confidence: 0.903065323829651

00:20:01.850 --> 00:20:03.776 So if you have mortality reduction

NOTE Confidence: 0.903065323829651

00:20:03.776 --> 00:20:05.060 is your policy goals,

NOTE Confidence: 0.884898543357849

00:20:05.060 --> 00:20:06.660 this is very you situation,

NOTE Confidence: 0.884898543357849

00:20:06.660 --> 00:20:08.730 distribution centers etc and distribution

NOTE Confidence: 0.884898543357849

00:20:08.730 --> 00:20:11.676 based on the underlying and if you have

NOTE Confidence: 0.884898543357849

00:20:11.676 --> 00:20:13.990 it for transmission and so and so forth.

NOTE Confidence: 0.884898543357849

00:20:13.990 --> 00:20:16.202 The other thing is how do people

NOTE Confidence: 0.884898543357849

00:20:16.202 --> 00:20:17.909 mix during during an outside?

NOTE Confidence: 0.884898543357849

00:20:17.910 --> 00:20:19.550 Pandemics has been a question,

NOTE Confidence: 0.884898543357849

00:20:19.550 --> 00:20:22.290 so I've had a narrow one and a CDC grant

NOTE Confidence: 0.884898543357849

00:20:22.364 --> 00:20:25.108 funded on that area before the pandemic,

NOTE Confidence: 0.884898543357849

00:20:25.110 --> 00:20:27.374 but we repurposed it and so there are

NOTE Confidence: 0.884898543357849

00:20:27.374 --> 00:20:30.051 three 4 size the first original one with

NOTE Confidence: 0.884898543357849

00:20:30.051 --> 00:20:32.300 through STD CDC grant is workplace,

NOTE Confidence: 0.884898543357849

00:20:32.300 --> 00:20:33.608 the second is home,

NOTE Confidence: 0.884898543357849

00:20:33.608 --> 00:20:34.916 particularly low income countries,

NOTE Confidence: 0.884898543357849

00:20:34.920 --> 00:20:37.200 and then we have a supplement which is

NOTE Confidence: 0.884898543357849

00:20:37.200 --> 00:20:39.584 likely to get funded for health care

NOTE Confidence: 0.884898543357849

00:20:39.584 --> 00:20:41.744 workers that we're tracking them using

NOTE Confidence: 0.884898543357849

00:20:41.744 --> 00:20:44.154 RF ID technology, and the idea is.

NOTE Confidence: 0.884898543357849

00:20:44.154 --> 00:20:46.747 Uh, do, and with consent this has been

NOTE Confidence: 0.884898543357849

00:20:46.747 --> 00:20:49.174 there and we have an anthropologist in

NOTE Confidence: 0.884898543357849

00:20:49.174 --> 00:20:52.158 the team who has done the heavy lifting

NOTE Confidence: 0.884898543357849

00:20:52.158 --> 00:20:55.028 on acceptability and all sorts of stuff.

NOTE Confidence: 0.884898543357849

00:20:55.030 --> 00:20:57.430 That is that people are guessing

NOTE Confidence: 0.884898543357849

00:20:57.430 --> 00:20:59.799 now about the acceptability of other

NOTE Confidence: 0.884898543357849

00:20:59.799 --> 00:21:01.881 kinds of contact tracing and these

NOTE Confidence: 0.884898543357849

00:21:01.881 --> 00:21:04.281 kinds of these are the Maps that

NOTE Confidence: 0.884898543357849

00:21:04.281 --> 00:21:05.916 that we will be creating.

NOTE Confidence: 0.884898543357849

00:21:05.920 --> 00:21:08.848 This is from a previous study of Contacts

NOTE Confidence: 0.884898543357849

00:21:08.848 --> 00:21:10.639 between different kinds of people,

NOTE Confidence: 0.884898543357849

00:21:10.640 --> 00:21:13.490 not just 8 bass mixing.

NOTE Confidence: 0.884898543357849

00:21:13.490 --> 00:21:15.836 How can be facilitated vaccine development?

NOTE Confidence: 0.884898543357849

00:21:15.840 --> 00:21:17.928 There's all sorts of studies that

NOTE Confidence: 0.884898543357849

00:21:17.928 --> 00:21:20.141 are going on leveraging our health

NOTE Confidence: 0.884898543357849

00:21:20.141 --> 00:21:22.409 worker cohort that several people came

NOTE Confidence: 0.884898543357849

00:21:22.409 --> 00:21:24.564 together and establish to evaluate

NOTE Confidence: 0.884898543357849

00:21:24.564 --> 00:21:26.779 cordless of protection and severity.

NOTE Confidence: 0.884898543357849

00:21:26.780 --> 00:21:28.710 Advanced phase getting ready for

NOTE Confidence: 0.884898543357849

00:21:28.710 --> 00:21:30.254 advanced phase clinical trials

NOTE Confidence: 0.884898543357849

00:21:30.254 --> 00:21:32.259 and focusing on vaccine access.

NOTE Confidence: 0.884898543357849

00:21:32.260 --> 00:21:34.468 The last thing is that University

NOTE Confidence: 0.884898543357849

00:21:34.468 --> 00:21:36.793 of a unique responsibility to make

NOTE Confidence: 0.884898543357849

00:21:36.793 --> 00:21:38.758 sure lessons learned during this

NOTE Confidence: 0.884898543357849

00:21:38.758 --> 00:21:40.860 pandemic are remembered for centuries.

NOTE Confidence: 0.884898543357849

00:21:40.860 --> 00:21:43.597 So the first thing is public scholarship.

NOTE Confidence: 0.884898543357849

00:21:43.600 --> 00:21:46.008 This was. This is an op Ed.

NOTE Confidence: 0.884898543357849

00:21:46.010 --> 00:21:48.665 I wrote in the New York Times that came

NOTE Confidence: 0.884898543357849

00:21:48.665 --> 00:21:51.430 out right after the when the count was,

NOTE Confidence: 0.884898543357849

00:21:51.430 --> 00:21:54.334 I think one or two in the US and the title

NOTE Confidence: 0.884898543357849

00:21:54.334 --> 00:21:57.169 was is America ready for another outbreak?

NOTE Confidence: 0.884898543357849

00:21:57.170 --> 00:21:58.770 And the answer was no,

NOTE Confidence: 0.884898543357849

00:21:58.770 --> 00:22:00.993 but you can do a few things and I

NOTE Confidence: 0.884898543357849

00:22:00.993 --> 00:22:02.869 warned about not consequences of

NOTE Confidence: 0.884898543357849

00:22:02.869 --> 00:22:04.824 scientists not taking the lead.

NOTE Confidence: 0.884898543357849

00:22:04.830 --> 00:22:05.697 No false assurances,

NOTE Confidence: 0.884898543357849

00:22:05.697 --> 00:22:07.720 and it was very clear that if

NOTE Confidence: 0.884898543357849

00:22:07.784 --> 00:22:09.288 you give false assurances,

NOTE Confidence: 0.884898543357849

00:22:09.290 --> 00:22:11.312 there's a trust diversion it trust

NOTE Confidence: 0.884898543357849

00:22:11.312 --> 00:22:13.120 and then compliance will be low.

NOTE Confidence: 0.884898543357849

00:22:13.120 --> 00:22:14.970 And then scientific and public

NOTE Confidence: 0.884898543357849

00:22:14.970 --> 00:22:15.340 misinformation.

NOTE Confidence: 0.884898543357849

00:22:15.340 --> 00:22:18.460 Was the thread that a lot of us saw coming.

NOTE Confidence: 0.884898543357849

00:22:18.460 --> 00:22:20.956 And as you know, in the public discourse,

NOTE Confidence: 0.884898543357849

00:22:20.960 --> 00:22:23.137 a lot of that is happening yesterday.

NOTE Confidence: 0.884898543357849

00:22:23.140 --> 00:22:25.317 I think what the day before yesterday.

NOTE Confidence: 0.884898543357849

00:22:25.320 --> 00:22:26.568 There's another op Ed,

NOTE Confidence: 0.884898543357849

00:22:26.568 --> 00:22:27.816 that that was published,

NOTE Confidence: 0.884898543357849

00:22:27.820 --> 00:22:29.004 and I wrote highlighting.

NOTE Confidence: 0.884898543357849

00:22:29.004 --> 00:22:30.780 Look what is going to happen

NOTE Confidence: 0.884898543357849

00:22:30.838 --> 00:22:31.879 day after tomorrow.

NOTE Confidence: 0.884898543357849

00:22:31.880 --> 00:22:34.043 This is not the last big outbreak

NOTE Confidence: 0.884898543357849

00:22:34.043 --> 00:22:35.665 on unfortunately not even the

NOTE Confidence: 0.884898543357849

00:22:35.665 --> 00:22:37.240 last pandemic that will happen

NOTE Confidence: 0.884898543357849

00:22:37.240 --> 00:22:39.048 in this country in this world.

NOTE Confidence: 0.884898543357849

00:22:39.050 --> 00:22:41.330 And so the idea is to focus on

NOTE Confidence: 0.884898543357849

00:22:41.330 --> 00:22:43.437 CDC reform based on lessons now.

NOTE Confidence: 0.884898543357849

00:22:43.440 --> 00:22:46.128 And and and because CDC remains our

NOTE Confidence: 0.884898543357849

00:22:46.128 --> 00:22:48.249 best defense against Japan damage,

NOTE Confidence: 0.884898543357849

00:22:48.250 --> 00:22:50.260 but as an educational institution,

NOTE Confidence: 0.884898543357849

00:22:50.260 --> 00:22:52.120 it's our responsibility to make

NOTE Confidence: 0.884898543357849

00:22:52.120 --> 00:22:54.919 sure that we pass on this knowledge

NOTE Confidence: 0.884898543357849

00:22:54.919 --> 00:22:57.069 to our students an minties.

NOTE Confidence: 0.884898543357849

00:22:57.070 --> 00:23:00.920 So being Brown restart to a few of us to

NOTE Confidence: 0.856971502304077

00:23:01.022 --> 00:23:03.090 say that, can we create

NOTE Confidence: 0.856971502304077

00:23:03.090 --> 00:23:04.690 options for students elective,

NOTE Confidence: 0.856971502304077

00:23:04.690 --> 00:23:06.700 so we paired with myself,

NOTE Confidence: 0.856971502304077

00:23:06.700 --> 00:23:09.100 Doctor Sheila she noise from adults,

NOTE Confidence: 0.856971502304077

00:23:09.100 --> 00:23:10.780 ID and three students.

NOTE Confidence: 0.856971502304077

00:23:10.780 --> 00:23:12.460 Student volunteers came together

NOTE Confidence: 0.856971502304077

00:23:12.460 --> 00:23:14.727 with with having a course that.

NOTE Confidence: 0.856971502304077

00:23:14.730 --> 00:23:17.103 Worked on the higher terms of in

NOTE Confidence: 0.856971502304077

00:23:17.103 --> 00:23:19.287 the blooms taxonomy so that their

NOTE Confidence: 0.856971502304077

00:23:19.287 --> 00:23:21.112 education is not compromised in

NOTE Confidence: 0.856971502304077

00:23:21.112 --> 00:23:23.480 the middle of a pandemic and we

NOTE Confidence: 0.856971502304077

00:23:23.480 --> 00:23:25.418 were very encouraged in our initial

NOTE Confidence: 0.856971502304077

00:23:25.418 --> 00:23:26.890 evaluation approximately 86% says

NOTE Confidence: 0.856971502304077

00:23:26.890 --> 00:23:29.072 that the course achieved its stated

NOTE Confidence: 0.856971502304077

00:23:29.072 --> 00:23:30.872 aims and similar 87% of students

NOTE Confidence: 0.856971502304077

00:23:30.872 --> 00:23:32.858 said that it would recommend this

NOTE Confidence: 0.856971502304077

00:23:32.858 --> 00:23:34.265 course through the classmates

NOTE Confidence: 0.856971502304077

00:23:34.265 --> 00:23:35.633 because we obviously measured

NOTE Confidence: 0.856971502304077

00:23:35.633 --> 00:23:37.780 and then you know the efficacy.

NOTE Confidence: 0.856971502304077

00:23:37.780 --> 00:23:40.588 But the best way to pay back to

NOTE Confidence: 0.856971502304077

00:23:40.588 --> 00:23:42.383 this privilege of being part

NOTE Confidence: 0.856971502304077

00:23:42.383 --> 00:23:44.735 of this outbreak is to pay it.

NOTE Confidence: 0.856971502304077

00:23:44.740 --> 00:23:46.581 Forward and and I've had the privilege

NOTE Confidence: 0.856971502304077

00:23:46.581 --> 00:23:48.901 and a lot of us have had the privilege

NOTE Confidence: 0.856971502304077

00:23:48.901 --> 00:23:50.975 to invest in the next generation

NOTE Confidence: 0.856971502304077

00:23:50.975 --> 00:23:52.520 of interdisciplinary scientist.

NOTE Confidence: 0.856971502304077

00:23:52.520 --> 00:23:54.487 So they range from left to right

NOTE Confidence: 0.856971502304077

00:23:54.487 --> 00:23:56.295 of faculty member who's about to

NOTE Confidence: 0.856971502304077

00:23:56.295 --> 00:23:58.113 join my existing entities about to

NOTE Confidence: 0.856971502304077

00:23:58.113 --> 00:24:00.163 join Yale as an associate professor

NOTE Confidence: 0.856971502304077

00:24:00.163 --> 00:24:01.848 in Zaidi to medical students,

NOTE Confidence: 0.856971502304077

00:24:01.850 --> 00:24:02.780 post graduate students,

NOTE Confidence: 0.856971502304077

00:24:02.780 --> 00:24:04.020 and all of them,

NOTE Confidence: 0.856971502304077

00:24:04.020 --> 00:24:06.236 and so these are the ones only the

NOTE Confidence: 0.856971502304077

00:24:06.236 --> 00:24:07.872 select ones that have directly

NOTE Confidence: 0.856971502304077

00:24:07.872 --> 00:24:10.238 contributed to the work I have shown.

NOTE Confidence: 0.856971502304077

00:24:10.240 --> 00:24:12.172 And that's the most incredibly gratifying

NOTE Confidence: 0.856971502304077

00:24:12.172 --> 00:24:15.586 part of a lot of this work, so I'll.

NOTE Confidence: 0.856971502304077

00:24:15.586 --> 00:24:17.530 I said something.

NOTE Confidence: 0.856971502304077

00:24:17.530 --> 00:24:19.396 In a seminar that you know

NOTE Confidence: 0.856971502304077

00:24:19.396 --> 00:24:21.800 found that on it was surprising,

NOTE Confidence: 0.856971502304077

00:24:21.800 --> 00:24:23.224 unfortunately highlighted on the

NOTE Confidence: 0.856971502304077

00:24:23.224 --> 00:24:25.004 years full of Medicine website,

NOTE Confidence: 0.856971502304077

00:24:25.010 --> 00:24:27.850 the root page and and I'll repeat it,

NOTE Confidence: 0.856971502304077

00:24:27.850 --> 00:24:29.278 universities have a privileged

NOTE Confidence: 0.856971502304077

00:24:29.278 --> 00:24:30.349 position in civilization.

NOTE Confidence: 0.856971502304077

00:24:30.350 --> 00:24:31.770 We're guardians of knowledge

NOTE Confidence: 0.856971502304077

00:24:31.770 --> 00:24:32.835 for future generations.

NOTE Confidence: 0.856971502304077

00:24:32.840 --> 00:24:35.325 We are what we are learning now

NOTE Confidence: 0.856971502304077

00:24:35.325 --> 00:24:36.676 through science, through experience.

NOTE Confidence: 0.856971502304077

00:24:36.676 --> 00:24:39.220 Through policy we will pass on to our

NOTE Confidence: 0.856971502304077

00:24:39.281 --> 00:24:41.735 students are manatees and future scientists,

NOTE Confidence: 0.856971502304077

00:24:41.740 --> 00:24:43.870 so I'll end with the expression.

NOTE Confidence: 0.856971502304077

00:24:43.870 --> 00:24:45.298 No pressure, no pressure.

NOTE Confidence: 0.856971502304077

00:24:45.298 --> 00:24:46.369 My academic friends.

NOTE Confidence: 0.856971502304077

00:24:46.370 --> 00:24:47.790 This is a responsibility.

NOTE Confidence: 0.97594279050827

00:24:51.070 --> 00:24:52.234 Thank you very much.