

WEBVTT

NOTE duration:"00:18:22.6230000"

NOTE language:en-us

NOTE Confidence: 0.8450877

00:00:00.000 --> 00:00:02.155 My name is Sam Powell.

NOTE Confidence: 0.8450877

00:00:02.155 --> 00:00:05.090 I'm an MD, PhD student and currently

NOTE Confidence: 0.8450877

00:00:05.090 --> 00:00:08.711 in my final year of the PhD in the

NOTE Confidence: 0.8450877

00:00:08.711 --> 00:00:11.224 lab of Kristen Byrne and it's my

NOTE Confidence: 0.8450877

00:00:11.316 --> 00:00:14.226 great pleasure to introduce our next

NOTE Confidence: 0.8450877

00:00:14.226 --> 00:00:16.930 speaker who is Doctor Mike Murray.

NOTE Confidence: 0.8450877

00:00:16.930 --> 00:00:18.830 Doctor Murray joined Yale in

NOTE Confidence: 0.8450877

00:00:18.830 --> 00:00:21.394 2018 as the Director of Clinical

NOTE Confidence: 0.8450877

00:00:21.394 --> 00:00:23.649 Operations in the newly formed

NOTE Confidence: 0.8450877

00:00:23.649 --> 00:00:25.920 Yale Center of Genomic Health.

NOTE Confidence: 0.8450877

00:00:25.920 --> 00:00:28.040 Prior to coming to Yale,

NOTE Confidence: 0.8450877

00:00:28.040 --> 00:00:31.190 he was the Director of Genomic Medicine.

NOTE Confidence: 0.8450877

00:00:31.190 --> 00:00:32.658 At Geisinger Health System,

NOTE Confidence: 0.8450877

00:00:32.658 --> 00:00:35.358 where he led the design and implementation

NOTE Confidence: 0.8450877

00:00:35.358 --> 00:00:38.340 of the Genome First Program in 2015,

NOTE Confidence: 0.8450877

00:00:38.340 --> 00:00:41.140 he is a physician and his board certified

NOTE Confidence: 0.8450877

00:00:41.140 --> 00:00:43.888 in internal medicine and medical genetics,

NOTE Confidence: 0.8450877

00:00:43.890 --> 00:00:45.875 and is the principle investigator

NOTE Confidence: 0.8450877

00:00:45.875 --> 00:00:47.860 on the Yale Generations Project.

NOTE Confidence: 0.8450877

00:00:47.860 --> 00:00:50.844 So with that I will turn over the

NOTE Confidence: 0.8450877

00:00:50.844 --> 00:00:53.028 virtual floor to Doctor Murray.

NOTE Confidence: 0.80774873

00:00:59.030 --> 00:01:00.400 I think you're still muted,

NOTE Confidence: 0.80774873

00:01:00.400 --> 00:01:01.210 muted Doctor Mary.

NOTE Confidence: 0.883763

00:01:03.040 --> 00:01:04.966 Thank you, thanks Sam and thanks

NOTE Confidence: 0.883763

00:01:04.966 --> 00:01:07.010 to all the organizers and everyone

NOTE Confidence: 0.883763

00:01:07.010 --> 00:01:10.518 that's worked on this. I have the.

NOTE Confidence: 0.883763

00:01:10.520 --> 00:01:13.448 The honor and the opportunity to tell you

NOTE Confidence: 0.883763

00:01:13.448 --> 00:01:16.121 about the Generations project and it is

NOTE Confidence: 0.883763

00:01:16.121 --> 00:01:19.291 the work of dozens and dozens of people

NOTE Confidence: 0.883763

00:01:19.291 --> 00:01:22.154 around the health system and the school.

NOTE Confidence: 0.883763

00:01:22.160 --> 00:01:25.580 So I will tell you about it in 15 minutes

NOTE Confidence: 0.883763

00:01:25.672 --> 00:01:28.423 and hopefully have a little bit of

NOTE Confidence: 0.883763

00:01:28.423 --> 00:01:31.856 time for for some questions at the end.

NOTE Confidence: 0.883763

00:01:31.860 --> 00:01:34.332 So when we describe the generations

NOTE Confidence: 0.883763

00:01:34.332 --> 00:01:37.125 project we talked about it as a

NOTE Confidence: 0.883763

00:01:37.125 --> 00:01:38.905 large sequence cohort project aiming

NOTE Confidence: 0.883763

00:01:38.905 --> 00:01:41.369 to get at least 100,000 volunteers

NOTE Confidence: 0.883763

00:01:41.369 --> 00:01:43.883 over the first five year period.

NOTE Confidence: 0.883763

00:01:43.890 --> 00:01:47.112 And to be an engine for both 21st century

NOTE Confidence: 0.883763

00:01:47.112 --> 00:01:49.128 Healthcare and Discovery Research,

NOTE Confidence: 0.883763

00:01:49.130 --> 00:01:52.226 I have no see any conflicts of interest

NOTE Confidence: 0.883763

00:01:52.226 --> 00:01:56.087 for this event when we talk about the

NOTE Confidence: 0.883763

00:01:56.087 --> 00:01:58.820 deliverables from the Generations project.

NOTE Confidence: 0.883763

00:01:58.820 --> 00:02:00.552 There's four main areas.

NOTE Confidence: 0.883763

00:02:00.552 --> 00:02:02.717 First is data for research,

NOTE Confidence: 0.883763
00:02:02.720 --> 00:02:05.429 so DNA datasets linked to HR phenotypes
NOTE Confidence: 0.883763
00:02:05.429 --> 00:02:07.480 are available for researchers.
NOTE Confidence: 0.883763
00:02:07.480 --> 00:02:10.006 They can be either identified or
NOTE Confidence: 0.883763
00:02:10.006 --> 00:02:12.201 deidentified depending on the IRB
NOTE Confidence: 0.883763
00:02:12.201 --> 00:02:14.406 approval that the researchers have.
NOTE Confidence: 0.883763
00:02:14.410 --> 00:02:16.142 We have banked biospecimens.
NOTE Confidence: 0.883763
00:02:16.142 --> 00:02:18.718 Right now, it's just germline DNA,
NOTE Confidence: 0.883763
00:02:18.718 --> 00:02:21.280 but over time we anticipate adding
NOTE Confidence: 0.883763
00:02:21.361 --> 00:02:23.496 other types of bio specimens.
NOTE Confidence: 0.883763
00:02:23.500 --> 00:02:24.799 There are participants.
NOTE Confidence: 0.883763
00:02:24.799 --> 00:02:26.964 All the volunteers are consented
NOTE Confidence: 0.883763
00:02:26.964 --> 00:02:27.830 for Recontact,
NOTE Confidence: 0.883763
00:02:27.830 --> 00:02:29.222 so there potentially.
NOTE Confidence: 0.883763
00:02:29.222 --> 00:02:31.078 Participants for new studies,
NOTE Confidence: 0.883763
00:02:31.080 --> 00:02:32.559 including clinical trials,
NOTE Confidence: 0.883763

00:02:32.559 --> 00:02:35.517 surveys the callbacks for deep phenotyping

NOTE Confidence: 0.883763

00:02:35.517 --> 00:02:37.724 biospecimens another and the last

NOTE Confidence: 0.883763

00:02:37.724 --> 00:02:39.376 deliverable is precision medicine,

NOTE Confidence: 0.883763

00:02:39.380 --> 00:02:42.026 so everyone that volunteers into the

NOTE Confidence: 0.883763

00:02:42.026 --> 00:02:44.344 project receives back clinical results

NOTE Confidence: 0.883763

00:02:44.344 --> 00:02:46.759 into their electronic health record.

NOTE Confidence: 0.883763

00:02:46.760 --> 00:02:50.012 And I'll describe how that works

NOTE Confidence: 0.883763

00:02:50.012 --> 00:02:53.840 to you in the slides ahead.

NOTE Confidence: 0.883763

00:02:53.840 --> 00:02:56.414 So we spent about a year and a half

NOTE Confidence: 0.883763

00:02:56.414 --> 00:02:58.636 setting up the workflows and building

NOTE Confidence: 0.883763

00:02:58.636 --> 00:03:01.099 this and and this workshop as well.

NOTE Confidence: 0.883763

00:03:01.100 --> 00:03:03.389 Time because we're now really at the

NOTE Confidence: 0.883763

00:03:03.389 --> 00:03:06.048 point where we can open this up broadly,

NOTE Confidence: 0.883763

00:03:06.050 --> 00:03:08.426 an invite health care providers and

NOTE Confidence: 0.883763

00:03:08.426 --> 00:03:10.808 researchers around Yale to think about

NOTE Confidence: 0.883763

00:03:10.808 --> 00:03:12.992 this unique infrastructure to build on

NOTE Confidence: 0.883763

00:03:12.992 --> 00:03:15.899 it and to collaborate with this project.

NOTE Confidence: 0.883763

00:03:15.900 --> 00:03:18.044 So what are we talking about when we

NOTE Confidence: 0.883763

00:03:18.044 --> 00:03:20.008 talk about 21st century healthcare?

NOTE Confidence: 0.883763

00:03:20.010 --> 00:03:21.760 We describe it like this.

NOTE Confidence: 0.883763

00:03:21.760 --> 00:03:23.500 A patient who volunteers has

NOTE Confidence: 0.883763

00:03:23.500 --> 00:03:24.892 a comprehensive data set,

NOTE Confidence: 0.883763

00:03:24.900 --> 00:03:26.705 genomic data set that's created

NOTE Confidence: 0.883763

00:03:26.705 --> 00:03:28.898 and then held securely within the

NOTE Confidence: 0.883763

00:03:28.898 --> 00:03:30.824 health system and over a lifetime.

NOTE Confidence: 0.883763

00:03:30.830 --> 00:03:32.958 We anticipate that that data set can

NOTE Confidence: 0.883763

00:03:32.958 --> 00:03:35.368 be used to generate test results.

NOTE Confidence: 0.883763

00:03:35.370 --> 00:03:37.799 There's two types of test results that

NOTE Confidence: 0.883763

00:03:37.799 --> 00:03:39.900 we anticipate and are planning on.

NOTE Confidence: 0.883763

00:03:39.900 --> 00:03:41.650 The first are screening results,

NOTE Confidence: 0.883763

00:03:41.650 --> 00:03:43.822 so looking at an individual's data

NOTE Confidence: 0.883763

00:03:43.822 --> 00:03:45.699 and looking for otherwise invisible
NOTE Confidence: 0.883763

00:03:45.699 --> 00:03:48.275 risks for heart disease or cancer or
NOTE Confidence: 0.883763

00:03:48.275 --> 00:03:50.457 other diseases that are there and are.
NOTE Confidence: 0.883763

00:03:50.460 --> 00:03:50.792 Present,
NOTE Confidence: 0.883763

00:03:50.792 --> 00:03:52.784 but they and their health care
NOTE Confidence: 0.883763

00:03:52.784 --> 00:03:55.505 provider may not know about the second
NOTE Confidence: 0.883763

00:03:55.505 --> 00:03:57.165 category are clinically indicated.
NOTE Confidence: 0.883763

00:03:57.170 --> 00:03:58.232 Diagnostic test results.
NOTE Confidence: 0.883763

00:03:58.232 --> 00:04:01.164 So when a patient presents with a medical
NOTE Confidence: 0.883763

00:04:01.164 --> 00:04:03.516 problem and it's part of generations,
NOTE Confidence: 0.883763

00:04:03.520 --> 00:04:04.666 we anticipated overtime,
NOTE Confidence: 0.883763

00:04:04.666 --> 00:04:06.576 more and more opportunities will
NOTE Confidence: 0.883763

00:04:06.576 --> 00:04:08.805 be available to order a clinical
NOTE Confidence: 0.883763

00:04:08.805 --> 00:04:09.858 test through generations.
NOTE Confidence: 0.883763

00:04:09.860 --> 00:04:12.044 So the test results that are ordered
NOTE Confidence: 0.883763

00:04:12.044 --> 00:04:14.080 in this way will get delivered

NOTE Confidence: 0.883763

00:04:14.080 --> 00:04:16.488 into the EHR without a new patient

NOTE Confidence: 0.883763

00:04:16.561 --> 00:04:19.249 sample without a repeat blood drawn

NOTE Confidence: 0.883763

00:04:19.249 --> 00:04:21.041 without any additional sequencing

NOTE Confidence: 0.8756842

00:04:21.050 --> 00:04:24.077 or genotyping. And then the

NOTE Confidence: 0.8756842

00:04:24.077 --> 00:04:25.972 results are managed by clinical

NOTE Confidence: 0.8756842

00:04:25.972 --> 00:04:27.960 experts within the health system.

NOTE Confidence: 0.8756842

00:04:27.960 --> 00:04:29.670 Highlighted in red are the

NOTE Confidence: 0.8756842

00:04:29.670 --> 00:04:31.907 two areas that really are new

NOTE Confidence: 0.8756842

00:04:31.907 --> 00:04:33.747 within the generations project,

NOTE Confidence: 0.8756842

00:04:33.750 --> 00:04:36.702 and as far as I know are not being

NOTE Confidence: 0.8756842

00:04:36.702 --> 00:04:38.704 offered or anticipated anytime

NOTE Confidence: 0.8756842

00:04:38.704 --> 00:04:40.828 soon within similar sequence

NOTE Confidence: 0.8756842

00:04:40.828 --> 00:04:43.520 cohorts at other institutions.

NOTE Confidence: 0.8756842

00:04:43.520 --> 00:04:45.930 So more broadly, about generations,

NOTE Confidence: 0.8756842

00:04:45.930 --> 00:04:47.430 as mentioned earlier,

NOTE Confidence: 0.8756842

00:04:47.430 --> 00:04:49.930 this is a collaboration between
NOTE Confidence: 0.8756842

00:04:49.930 --> 00:04:52.657 the health system in the school,
NOTE Confidence: 0.8756842

00:04:52.660 --> 00:04:54.584 anticipating at least 100,000
NOTE Confidence: 0.8756842

00:04:54.584 --> 00:04:57.470 volunteers over a five year period.
NOTE Confidence: 0.8756842

00:04:57.470 --> 00:05:00.837 The DNA samples undergo both zoman sniper,
NOTE Confidence: 0.8756842

00:05:00.840 --> 00:05:02.280 a data generation.
NOTE Confidence: 0.8756842

00:05:02.280 --> 00:05:04.680 There are no exclusion criteria,
NOTE Confidence: 0.8756842

00:05:04.680 --> 00:05:07.566 any age, any health status can
NOTE Confidence: 0.8756842

00:05:07.566 --> 00:05:09.490 volunteer into this project,
NOTE Confidence: 0.8756842

00:05:09.490 --> 00:05:13.000 and the data gets linked to.
NOTE Confidence: 0.8756842

00:05:13.000 --> 00:05:16.510 To the individuals electronic health record.
NOTE Confidence: 0.8756842

00:05:16.510 --> 00:05:18.350 So the consenting is.
NOTE Confidence: 0.8620367

00:05:20.390 --> 00:05:21.754 Is a little complicated
NOTE Confidence: 0.8620367

00:05:21.754 --> 00:05:23.118 because of that integration,
NOTE Confidence: 0.8620367

00:05:23.120 --> 00:05:25.661 so it's different than maybe some other
NOTE Confidence: 0.8620367

00:05:25.661 --> 00:05:27.714 consenting that you're familiar with and

NOTE Confidence: 0.8620367

00:05:27.714 --> 00:05:30.280 the IT Group has really made this happen,

NOTE Confidence: 0.8620367

00:05:30.280 --> 00:05:32.380 and we're grateful when someone wants

NOTE Confidence: 0.8620367

00:05:32.380 --> 00:05:34.467 to volunteer for four generations if

NOTE Confidence: 0.8620367

00:05:34.467 --> 00:05:36.939 they have never been seen at the Yale

NOTE Confidence: 0.8620367

00:05:37.001 --> 00:05:39.451 New Haven health System and don't have

NOTE Confidence: 0.8620367

00:05:39.451 --> 00:05:41.790 an electronic health record or consent team,

NOTE Confidence: 0.8620367

00:05:41.790 --> 00:05:43.710 is able to generate an electronic

NOTE Confidence: 0.8620367

00:05:43.767 --> 00:05:45.617 health record during the process.

NOTE Confidence: 0.8620367

00:05:45.620 --> 00:05:46.984 So in many registration,

NOTE Confidence: 0.8620367

00:05:46.984 --> 00:05:49.030 all volunteers then sign a consent.

NOTE Confidence: 0.8620367

00:05:49.030 --> 00:05:50.800 It gets direct, directly linked.

NOTE Confidence: 0.8620367

00:05:50.800 --> 00:05:53.704 Into their epic record and that

NOTE Confidence: 0.8620367

00:05:53.704 --> 00:05:55.640 consenting triggers a physician

NOTE Confidence: 0.8620367

00:05:55.725 --> 00:05:58.107 order for DNA test within Epic.

NOTE Confidence: 0.8620367

00:05:58.110 --> 00:06:00.400 This is a clinical order.

NOTE Confidence: 0.8620367

00:06:00.400 --> 00:06:03.200 This is not a research request and
NOTE Confidence: 0.8620367

00:06:03.200 --> 00:06:06.196 that DNA sample goes through the
NOTE Confidence: 0.8620367

00:06:06.196 --> 00:06:08.472 normal clinical workflows through
NOTE Confidence: 0.8620367

00:06:08.472 --> 00:06:11.798 the laboratories and off to the DNA
NOTE Confidence: 0.8620367

00:06:11.798 --> 00:06:14.566 diagnostic lab in the West Campus for
NOTE Confidence: 0.8620367

00:06:14.566 --> 00:06:16.846 for genomic sequencing and genotyping.
NOTE Confidence: 0.8620367

00:06:16.850 --> 00:06:20.654 The DNA can be acquired from
NOTE Confidence: 0.8620367

00:06:20.654 --> 00:06:23.190 either blood or saliva.
NOTE Confidence: 0.8620367

00:06:23.190 --> 00:06:25.776 The deliverables we talk about it
NOTE Confidence: 0.8620367

00:06:25.776 --> 00:06:29.468 as all the results that we plan on
NOTE Confidence: 0.8620367

00:06:29.468 --> 00:06:31.818 giving back are actionable results.
NOTE Confidence: 0.8620367

00:06:31.820 --> 00:06:33.528 They have clinical utility,
NOTE Confidence: 0.8620367

00:06:33.528 --> 00:06:36.090 meaning that of provider and the
NOTE Confidence: 0.8620367

00:06:36.164 --> 00:06:39.006 volunteer can use that to make clinical
NOTE Confidence: 0.8620367

00:06:39.006 --> 00:06:41.912 decisions and the examples of broad
NOTE Confidence: 0.8620367

00:06:41.912 --> 00:06:44.068 categories are monogenic screening,

NOTE Confidence: 0.8620367
00:06:44.070 --> 00:06:44.672 pharmaco,
NOTE Confidence: 0.8620367
00:06:44.672 --> 00:06:47.080 genomics and diagnostic testing.
NOTE Confidence: 0.8620367
00:06:47.080 --> 00:06:48.274 Following the screening,
NOTE Confidence: 0.8620367
00:06:48.274 --> 00:06:50.662 we give back the positive results
NOTE Confidence: 0.8620367
00:06:50.662 --> 00:06:52.570 through the genomic health team,
NOTE Confidence: 0.8620367
00:06:52.570 --> 00:06:54.430 and there's three steps that
NOTE Confidence: 0.8620367
00:06:54.430 --> 00:06:56.880 go with each return of result.
NOTE Confidence: 0.8620367
00:06:56.880 --> 00:06:57.664 That is,
NOTE Confidence: 0.8620367
00:06:57.664 --> 00:07:00.408 the first step is education and counseling,
NOTE Confidence: 0.8620367
00:07:00.410 --> 00:07:01.192 essentially genetic
NOTE Confidence: 0.8620367
00:07:01.192 --> 00:07:02.756 counseling about the result,
NOTE Confidence: 0.8620367
00:07:02.760 --> 00:07:05.896 what it means and what it doesn't mean,
NOTE Confidence: 0.8620367
00:07:05.900 --> 00:07:07.845 and then family cascade testing
NOTE Confidence: 0.8620367
00:07:07.845 --> 00:07:10.636 is offered so that if someone has
NOTE Confidence: 0.8620367
00:07:10.636 --> 00:07:12.946 a risk result that we uncover,
NOTE Confidence: 0.8620367

00:07:12.950 --> 00:07:14.423 then their siblings,
NOTE Confidence: 0.8620367

00:07:14.423 --> 00:07:16.878 children and parents are offered
NOTE Confidence: 0.8620367

00:07:16.878 --> 00:07:18.886 participation so that they can
NOTE Confidence: 0.8620367

00:07:18.886 --> 00:07:21.098 find out if they have the same.
NOTE Confidence: 0.8620367

00:07:21.100 --> 00:07:25.306 Same risk and then referral to
NOTE Confidence: 0.8620367

00:07:25.306 --> 00:07:28.110 clinical experts for management
NOTE Confidence: 0.8620367

00:07:28.226 --> 00:07:30.938 and evaluation overtime.
NOTE Confidence: 0.8620367

00:07:30.940 --> 00:07:32.540 There's no cost for participation
NOTE Confidence: 0.8620367

00:07:32.540 --> 00:07:34.140 to the to the volunteer,
NOTE Confidence: 0.8620367

00:07:34.140 --> 00:07:35.505 the DNA analysis,
NOTE Confidence: 0.8620367

00:07:35.505 --> 00:07:38.235 and the Genomic health visit are
NOTE Confidence: 0.8620367

00:07:38.235 --> 00:07:40.759 part of being in the project.
NOTE Confidence: 0.8620367

00:07:40.760 --> 00:07:42.866 This is data that we pulled
NOTE Confidence: 0.8620367

00:07:42.866 --> 00:07:44.270 recently on the approximately
NOTE Confidence: 0.8620367

00:07:44.340 --> 00:07:46.470 3500 patients that are currently
NOTE Confidence: 0.8620367

00:07:46.470 --> 00:07:48.600 enrolled in the Generations project.

NOTE Confidence: 0.8620367

00:07:48.600 --> 00:07:51.416 On the top panel you can see that

NOTE Confidence: 0.8620367

00:07:51.416 --> 00:07:53.896 the cohort currently is made up

NOTE Confidence: 0.8620367

00:07:53.896 --> 00:07:56.440 of primarily of adults age 2280.

NOTE Confidence: 0.8620367

00:07:56.440 --> 00:07:56.833 However,

NOTE Confidence: 0.8620367

00:07:56.833 --> 00:07:58.798 there are children and there

NOTE Confidence: 0.8620367

00:07:58.798 --> 00:08:00.815 are older individuals that have

NOTE Confidence: 0.8620367

00:08:00.815 --> 00:08:02.710 been consented into the project,

NOTE Confidence: 0.8620367

00:08:02.710 --> 00:08:04.590 including an individual over the

NOTE Confidence: 0.8620367

00:08:04.590 --> 00:08:07.780 age of 100 in the middle and lower

NOTE Confidence: 0.8620367

00:08:07.780 --> 00:08:10.240 panel or pie charts showing the.

NOTE Confidence: 0.8620367

00:08:10.240 --> 00:08:12.886 Race and ethnicity of the participants.

NOTE Confidence: 0.8620367

00:08:12.890 --> 00:08:15.230 It's important to note that this

NOTE Confidence: 0.8620367

00:08:15.230 --> 00:08:17.879 race and ethnicity is drawn directly

NOTE Confidence: 0.8620367

00:08:17.879 --> 00:08:20.409 from the electronic health record,

NOTE Confidence: 0.8620367

00:08:20.410 --> 00:08:23.362 and so both both of those pie charts

NOTE Confidence: 0.8620367

00:08:23.362 --> 00:08:26.056 have relatively large slices that are
NOTE Confidence: 0.8620367

00:08:26.056 --> 00:08:28.401 unknown because the electronic health
NOTE Confidence: 0.8620367

00:08:28.401 --> 00:08:31.007 record doesn't doesn't require this.
NOTE Confidence: 0.8620367

00:08:31.010 --> 00:08:33.220 This category of information currently,
NOTE Confidence: 0.8620367

00:08:33.220 --> 00:08:35.430 so we're working on strategies
NOTE Confidence: 0.8620367

00:08:35.430 --> 00:08:37.640 to fill those gaps overtime.
NOTE Confidence: 0.88035905

00:08:39.700 --> 00:08:44.070 Her two other pie charts, the one on the top,
NOTE Confidence: 0.88035905

00:08:44.070 --> 00:08:47.129 talks about those that had an electronic
NOTE Confidence: 0.88035905

00:08:47.129 --> 00:08:50.185 health record versus those that had one
NOTE Confidence: 0.88035905

00:08:50.185 --> 00:08:52.681 generated in order to become volunteers
NOTE Confidence: 0.88035905

00:08:52.756 --> 00:08:55.476 and generations 17% in the dark blue.
NOTE Confidence: 0.88035905

00:08:55.476 --> 00:08:59.239 There are those that had a new epic record
NOTE Confidence: 0.88035905

00:08:59.239 --> 00:09:01.984 created for participation in generations,
NOTE Confidence: 0.88035905

00:09:01.990 --> 00:09:04.612 and then the bottom pie chart
NOTE Confidence: 0.88035905

00:09:04.612 --> 00:09:06.815 shows the approximately 75% of
NOTE Confidence: 0.88035905

00:09:06.815 --> 00:09:09.090 individuals who were new registrants.

NOTE Confidence: 0.88035905

00:09:09.090 --> 00:09:10.314 Via the process,

NOTE Confidence: 0.88035905

00:09:10.314 --> 00:09:12.762 who then later had a clinical

NOTE Confidence: 0.88035905

00:09:12.762 --> 00:09:15.140 encounter of some sort following it.

NOTE Confidence: 0.88035905

00:09:15.140 --> 00:09:17.504 So though we haven't been specifically

NOTE Confidence: 0.88035905

00:09:17.504 --> 00:09:19.553 targeting individuals who are not

NOTE Confidence: 0.88035905

00:09:19.553 --> 00:09:21.177 Yellow Haven hospital patients,

NOTE Confidence: 0.88035905

00:09:21.180 --> 00:09:23.908 they are coming to us and they are

NOTE Confidence: 0.88035905

00:09:23.908 --> 00:09:26.819 not only signing up for generations,

NOTE Confidence: 0.88035905

00:09:26.820 --> 00:09:29.196 but they're then getting some elements

NOTE Confidence: 0.88035905

00:09:29.196 --> 00:09:32.060 of their care within the health system.

NOTE Confidence: 0.8184872

00:09:34.460 --> 00:09:36.938 Shown here on the left is our

NOTE Confidence: 0.8184872

00:09:36.938 --> 00:09:38.460 monogenic risk screening table.

NOTE Confidence: 0.8184872

00:09:38.460 --> 00:09:40.644 There are 10 genes associated with

NOTE Confidence: 0.8184872

00:09:40.644 --> 00:09:43.199 monogenic risk for cancer or heart disease,

NOTE Confidence: 0.8184872

00:09:43.200 --> 00:09:46.840 10 out of the 20,000 that each of us have.

NOTE Confidence: 0.8184872

00:09:46.840 --> 00:09:49.059 So I jokingly say that this version
NOTE Confidence: 0.8184872

00:09:49.059 --> 00:09:51.568 one will go through many versions,
NOTE Confidence: 0.8184872

00:09:51.570 --> 00:09:54.250 be before we eventually get to the 20,000
NOTE Confidence: 0.8184872

00:09:54.250 --> 00:09:56.657 total that will ultimately give back,
NOTE Confidence: 0.8184872

00:09:56.660 --> 00:09:59.428 and then on the right is the Pharmaco
NOTE Confidence: 0.8184872

00:09:59.428 --> 00:10:02.119 genomics panel that we currently offer back.
NOTE Confidence: 0.8184872

00:10:02.120 --> 00:10:04.180 There are six genes associated
NOTE Confidence: 0.8184872

00:10:04.180 --> 00:10:06.240 with the medications that you
NOTE Confidence: 0.8184872

00:10:06.312 --> 00:10:08.028 can see on the far right.
NOTE Confidence: 0.8184872

00:10:08.030 --> 00:10:09.562 Column that are given
NOTE Confidence: 0.8184872

00:10:09.562 --> 00:10:11.477 back into the epic record,
NOTE Confidence: 0.8184872

00:10:11.480 --> 00:10:13.740 and then there's clinical decision
NOTE Confidence: 0.8184872

00:10:13.740 --> 00:10:16.000 support driven off of that.
NOTE Confidence: 0.8184872

00:10:16.000 --> 00:10:18.352 A lot of folks ask what's the
NOTE Confidence: 0.8184872

00:10:18.352 --> 00:10:20.119 percentage of people that get
NOTE Confidence: 0.8184872

00:10:20.119 --> 00:10:21.844 back results based on this?

NOTE Confidence: 0.8184872
00:10:21.850 --> 00:10:23.580 We're currently giving back about
NOTE Confidence: 0.8184872
00:10:23.580 --> 00:10:25.960 as you can see there 1.4% of
NOTE Confidence: 0.8184872
00:10:25.960 --> 00:10:27.610 volunteers are getting a result
NOTE Confidence: 0.8184872
00:10:27.610 --> 00:10:30.405 back on this short list of 10 genes
NOTE Confidence: 0.8184872
00:10:30.405 --> 00:10:32.170 and conditions for monogenic risk,
NOTE Confidence: 0.8184872
00:10:32.170 --> 00:10:34.578 that number will go up later this
NOTE Confidence: 0.8184872
00:10:34.578 --> 00:10:37.330 year when we go to our version two,
NOTE Confidence: 0.8184872
00:10:37.330 --> 00:10:39.507 which will have 44 genes in the
NOTE Confidence: 0.8184872
00:10:39.507 --> 00:10:41.526 panel and this is consistent with
NOTE Confidence: 0.8184872
00:10:41.526 --> 00:10:43.892 with other groups as far as the
NOTE Confidence: 0.8184872
00:10:43.965 --> 00:10:46.470 percentage is receiving back results.
NOTE Confidence: 0.8184872
00:10:46.470 --> 00:10:47.529 On the pharmacogenomics,
NOTE Confidence: 0.8184872
00:10:47.529 --> 00:10:49.647 there are now over 2000 individuals
NOTE Confidence: 0.8184872
00:10:49.647 --> 00:10:51.104 that have pharmaco genomic
NOTE Confidence: 0.8184872
00:10:51.104 --> 00:10:52.839 results in their epic record.
NOTE Confidence: 0.8184872

00:10:52.840 --> 00:10:55.318 As a result of participation in generations.
NOTE Confidence: 0.84937644

00:10:57.470 --> 00:10:59.666 Some of you will be familiar
NOTE Confidence: 0.84937644

00:10:59.666 --> 00:11:01.130 with this published data.
NOTE Confidence: 0.84937644

00:11:01.130 --> 00:11:04.790 This came out of work that I was involved in,
NOTE Confidence: 0.84937644

00:11:04.790 --> 00:11:06.420 and Geisinger Health System in
NOTE Confidence: 0.84937644

00:11:06.420 --> 00:11:08.050 Pennsylvania where we did a
NOTE Confidence: 0.84937644

00:11:08.110 --> 00:11:09.910 similar sequence cohort project.
NOTE Confidence: 0.84937644

00:11:09.910 --> 00:11:12.381 This was on the 1st 50,000 individuals
NOTE Confidence: 0.84937644

00:11:12.381 --> 00:11:14.310 who participate in that project.
NOTE Confidence: 0.84937644

00:11:14.310 --> 00:11:16.466 We went back and we looked at
NOTE Confidence: 0.84937644

00:11:16.466 --> 00:11:18.316 their data for those individuals
NOTE Confidence: 0.84937644

00:11:18.316 --> 00:11:20.884 that had changes in their BRCA,
NOTE Confidence: 0.84937644

00:11:20.890 --> 00:11:23.347 one or two gene that would be
NOTE Confidence: 0.84937644

00:11:23.347 --> 00:11:25.648 expected to confer risk for cancer.
NOTE Confidence: 0.84937644

00:11:25.650 --> 00:11:28.072 We found that about one in 190
NOTE Confidence: 0.84937644

00:11:28.072 --> 00:11:29.950 individuals in this population.

NOTE Confidence: 0.84937644

00:11:29.950 --> 00:11:33.165 Had one of those risks and 80% of

NOTE Confidence: 0.84937644

00:11:33.165 --> 00:11:35.415 those individuals had no idea that

NOTE Confidence: 0.84937644

00:11:35.415 --> 00:11:38.119 they had this risk the first time

NOTE Confidence: 0.84937644

00:11:38.119 --> 00:11:40.369 that they found out was through

NOTE Confidence: 0.84937644

00:11:40.448 --> 00:11:43.591 participation in this sort of a sequence

NOTE Confidence: 0.84937644

00:11:43.591 --> 00:11:45.748 project project with with population

NOTE Confidence: 0.84937644

00:11:45.748 --> 00:11:47.768 screening for this particular risk.

NOTE Confidence: 0.84937644

00:11:47.770 --> 00:11:50.612 So this is the DNA based screening

NOTE Confidence: 0.84937644

00:11:50.612 --> 00:11:53.093 that we anticipate and plan to

NOTE Confidence: 0.84937644

00:11:53.093 --> 00:11:55.058 roll out to all participants.

NOTE Confidence: 0.84937644

00:11:55.060 --> 00:11:57.622 It offers the chance to uncover

NOTE Confidence: 0.84937644

00:11:57.622 --> 00:12:00.658 invisible risks such as this and others.

NOTE Confidence: 0.84937644

00:12:00.660 --> 00:12:02.630 And and will go to.

NOTE Confidence: 0.84937644

00:12:02.630 --> 00:12:04.490 As I mentioned earlier,

NOTE Confidence: 0.84937644

00:12:04.490 --> 00:12:06.815 44 genes and conditions associated

NOTE Confidence: 0.84937644

00:12:06.815 --> 00:12:09.570 with risk can expand that overtime.

NOTE Confidence: 0.84937644

00:12:09.570 --> 00:12:12.020 But I promised that I'd also talk

NOTE Confidence: 0.84937644

00:12:12.020 --> 00:12:14.075 about diagnostic use of the data and

NOTE Confidence: 0.84937644

00:12:14.075 --> 00:12:16.651 so I want to go into the first use

NOTE Confidence: 0.84937644

00:12:16.651 --> 00:12:18.859 case that we've launched around this.

NOTE Confidence: 0.84937644

00:12:18.860 --> 00:12:21.478 And this builds off of paper that

NOTE Confidence: 0.84937644

00:12:21.478 --> 00:12:24.034 showed up in the New England

NOTE Confidence: 0.84937644

00:12:24.034 --> 00:12:26.274 Journal of Medicine written by

NOTE Confidence: 0.84937644

00:12:26.274 --> 00:12:29.209 the team at Columbia in New York.

NOTE Confidence: 0.84937644

00:12:29.210 --> 00:12:30.905 And they offered xom sequencing

NOTE Confidence: 0.84937644

00:12:30.905 --> 00:12:33.116 on a research basis to individuals

NOTE Confidence: 0.84937644

00:12:33.116 --> 00:12:35.346 with kidney disease and reported

NOTE Confidence: 0.84937644

00:12:35.346 --> 00:12:37.687 out the diagnostic utility of

NOTE Confidence: 0.84937644

00:12:37.687 --> 00:12:39.148 screening those individuals.

NOTE Confidence: 0.84937644

00:12:39.150 --> 00:12:42.078 The renal team here.

NOTE Confidence: 0.84937644

00:12:42.080 --> 00:12:44.672 Came to us in we discussed the fact

NOTE Confidence: 0.84937644

00:12:44.672 --> 00:12:47.342 that they can't easily order this kind

NOTE Confidence: 0.84937644

00:12:47.342 --> 00:12:50.587 of testing that they love to for the

NOTE Confidence: 0.84937644

00:12:50.587 --> 00:12:53.035 patients that are listed for transplant.

NOTE Confidence: 0.84937644

00:12:53.040 --> 00:12:54.924 There's all kinds of hurdles to

NOTE Confidence: 0.84937644

00:12:54.924 --> 00:12:57.193 getting this kind of testing ordered

NOTE Confidence: 0.84937644

00:12:57.193 --> 00:12:59.085 and resulted within healthcare.

NOTE Confidence: 0.84937644

00:12:59.090 --> 00:12:59.782 Currently zero.

NOTE Confidence: 0.84937644

00:12:59.782 --> 00:13:02.204 I saw this as an opportunity to

NOTE Confidence: 0.84937644

00:13:02.204 --> 00:13:04.235 to explore this opportunity for

NOTE Confidence: 0.84937644

00:13:04.235 --> 00:13:06.647 down the middle of the slide.

NOTE Confidence: 0.84937644

00:13:06.650 --> 00:13:09.303 Here you can see in blue the

NOTE Confidence: 0.84937644

00:13:09.303 --> 00:13:11.322 nephrology just wanting to simply

NOTE Confidence: 0.84937644

00:13:11.322 --> 00:13:12.926 place a clinical order.

NOTE Confidence: 0.84937644

00:13:12.930 --> 00:13:15.810 In epic for tests that had the potential

NOTE Confidence: 0.84937644

00:13:15.810 --> 00:13:18.218 to offer back positive results,

NOTE Confidence: 0.84937644

00:13:18.220 --> 00:13:20.680 29 percent of their transplant patients

NOTE Confidence: 0.84937644

00:13:20.680 --> 00:13:22.700 that would influence their care,

NOTE Confidence: 0.84937644

00:13:22.700 --> 00:13:26.180 and we had the aspiration of using the

NOTE Confidence: 0.84937644

00:13:26.180 --> 00:13:28.796 generations data for this kind of use.

NOTE Confidence: 0.84937644

00:13:28.800 --> 00:13:32.283 So to do that we had to move this

NOTE Confidence: 0.84937644

00:13:32.283 --> 00:13:35.317 down to the bottom and up top.

NOTE Confidence: 0.84937644

00:13:35.320 --> 00:13:37.140 Here offer the patients participation

NOTE Confidence: 0.84937644

00:13:37.140 --> 00:13:39.504 in generations as they got identified

NOTE Confidence: 0.84937644

00:13:39.504 --> 00:13:41.416 as renal transplant candidates.

NOTE Confidence: 0.84937644

00:13:41.420 --> 00:13:43.440 So we started this.

NOTE Confidence: 0.84937644

00:13:43.440 --> 00:13:47.079 Back in the fall together with the

NOTE Confidence: 0.84937644

00:13:47.079 --> 00:13:50.124 YCCI based, consenting for generations,

NOTE Confidence: 0.84937644

00:13:50.124 --> 00:13:54.192 we now have about 65 individuals.

NOTE Confidence: 0.84937644

00:13:54.200 --> 00:13:56.818 Who are on the transplant list and

NOTE Confidence: 0.84937644

00:13:56.818 --> 00:13:58.447 have consented into generations

NOTE Confidence: 0.84937644

00:13:58.447 --> 00:14:00.597 and their receiving the standard

NOTE Confidence: 0.84937644
00:14:00.597 --> 00:14:03.132 used to the data, the screening,
NOTE Confidence: 0.84937644
00:14:03.132 --> 00:14:05.568 and the Pharmaco Genomics as mentioned.
NOTE Confidence: 0.84937644
00:14:05.570 --> 00:14:07.600 And then just this week,
NOTE Confidence: 0.84937644
00:14:07.600 --> 00:14:10.092 the epic team worked hard and stood
NOTE Confidence: 0.84937644
00:14:10.092 --> 00:14:13.276 up a Go live order that are not
NOTE Confidence: 0.84937644
00:14:13.276 --> 00:14:16.267 for Ologist can now place an order
NOTE Confidence: 0.84937644
00:14:16.267 --> 00:14:18.901 for what we're calling the renal
NOTE Confidence: 0.84937644
00:14:18.901 --> 00:14:19.779 gene screen
NOTE Confidence: 0.895264088333334
00:14:19.780 --> 00:14:22.140 panel. 27 genes associated with
NOTE Confidence: 0.895264088333334
00:14:22.140 --> 00:14:25.044 renal failure that they'll be able
NOTE Confidence: 0.895264088333334
00:14:25.044 --> 00:14:27.786 to offer going forward and hopefully
NOTE Confidence: 0.895264088333334
00:14:27.786 --> 00:14:30.168 within the coming months will
NOTE Confidence: 0.895264088333334
00:14:30.168 --> 00:14:33.423 have some data to share about the
NOTE Confidence: 0.895264088333334
00:14:33.423 --> 00:14:36.920 implementation of this strategy.
NOTE Confidence: 0.895264088333334
00:14:36.920 --> 00:14:39.920 Other diagnostic uses of data, of course.
NOTE Confidence: 0.895264088333334

00:14:39.920 --> 00:14:41.945 I'm sure that individuals can
NOTE Confidence: 0.895264088333334

00:14:41.945 --> 00:14:44.369 think of many different ways,
NOTE Confidence: 0.895264088333334

00:14:44.370 --> 00:14:47.410 and so you know we are open to
NOTE Confidence: 0.895264088333334

00:14:47.410 --> 00:14:49.246 hearing your suggestions and
NOTE Confidence: 0.895264088333334

00:14:49.246 --> 00:14:52.683 working with you to stand these U.
NOTE Confidence: 0.895264088333334

00:14:52.690 --> 00:14:55.161 The next case that we expect to
NOTE Confidence: 0.895264088333334

00:14:55.161 --> 00:14:58.012 stand up is in the smilow breast
NOTE Confidence: 0.895264088333334

00:14:58.012 --> 00:15:01.173 cancer program where we plan to offer
NOTE Confidence: 0.895264088333334

00:15:01.173 --> 00:15:03.758 enrollment in generations early in
NOTE Confidence: 0.895264088333334

00:15:03.758 --> 00:15:06.586 the diagnosis and then deliver back.
NOTE Confidence: 0.895264088333334

00:15:06.586 --> 00:15:08.476 Results of germline diagnosis to
NOTE Confidence: 0.895264088333334

00:15:08.476 --> 00:15:10.381 those individuals who have been
NOTE Confidence: 0.895264088333334

00:15:10.381 --> 00:15:11.449 diagnosed with cancer,
NOTE Confidence: 0.895264088333334

00:15:11.450 --> 00:15:13.628 but there's many more potential use
NOTE Confidence: 0.895264088333334

00:15:13.628 --> 00:15:15.806 cases and I've already talked to
NOTE Confidence: 0.895264088333334

00:15:15.806 --> 00:15:17.780 a number of people about others.

NOTE Confidence: 0.8680108

00:15:19.790 --> 00:15:21.956 Regarding the research use of generations

NOTE Confidence: 0.8680108

00:15:21.956 --> 00:15:24.665 data, you know some of you have heard

NOTE Confidence: 0.8680108

00:15:24.665 --> 00:15:26.744 me describe generations as a living

NOTE Confidence: 0.8680108

00:15:26.744 --> 00:15:28.419 laboratory because of the generosity

NOTE Confidence: 0.8680108

00:15:28.419 --> 00:15:30.785 of the volunteers they have made

NOTE Confidence: 0.8680108

00:15:30.785 --> 00:15:32.820 their data available for research,

NOTE Confidence: 0.8680108

00:15:32.820 --> 00:15:35.130 and they've also made themselves

NOTE Confidence: 0.8680108

00:15:35.130 --> 00:15:36.516 available for callbacks.

NOTE Confidence: 0.8680108

00:15:36.520 --> 00:15:39.215 And so there's three categories of data

NOTE Confidence: 0.8680108

00:15:39.215 --> 00:15:41.730 or callbacks that we're anticipating.

NOTE Confidence: 0.8680108

00:15:41.730 --> 00:15:43.900 The first is healthy controls,

NOTE Confidence: 0.8680108

00:15:43.900 --> 00:15:46.630 so researchers that have a group of

NOTE Confidence: 0.8680108

00:15:46.630 --> 00:15:49.096 patients with the disease or condition

NOTE Confidence: 0.8680108

00:15:49.096 --> 00:15:52.538 that are looking for age or gender or

NOTE Confidence: 0.8680108

00:15:52.538 --> 00:15:55.178 other criteria matched healthy controls.

NOTE Confidence: 0.8680108

00:15:55.180 --> 00:15:57.445 We anticipate having those controls
NOTE Confidence: 0.8680108

00:15:57.445 --> 00:16:00.588 available for either sharing of data sets
NOTE Confidence: 0.8680108

00:16:00.588 --> 00:16:03.423 or for calling back individuals for studies.
NOTE Confidence: 0.8680108

00:16:03.430 --> 00:16:05.194 As you can imagine,
NOTE Confidence: 0.8680108

00:16:05.194 --> 00:16:07.399 there also be genetically defined.
NOTE Confidence: 0.8680108

00:16:07.400 --> 00:16:07.815 Cohorts,
NOTE Confidence: 0.8680108

00:16:07.815 --> 00:16:10.305 so relatively rare snips that individuals
NOTE Confidence: 0.8680108

00:16:10.305 --> 00:16:13.177 want to study patients that have them.
NOTE Confidence: 0.8680108

00:16:13.180 --> 00:16:16.484 We can find them within that this cohort,
NOTE Confidence: 0.8680108

00:16:16.490 --> 00:16:18.824 and we've already done that together
NOTE Confidence: 0.8680108

00:16:18.824 --> 00:16:21.440 with somebody in David Hafler's Group,
NOTE Confidence: 0.8680108

00:16:21.440 --> 00:16:23.918 and then there's clinically defined cohorts.
NOTE Confidence: 0.8680108

00:16:23.920 --> 00:16:25.568 Individuals that have a
NOTE Confidence: 0.8680108

00:16:25.568 --> 00:16:27.216 medical issue or problem,
NOTE Confidence: 0.8680108

00:16:27.220 --> 00:16:29.285 and bringing back those individuals
NOTE Confidence: 0.8680108

00:16:29.285 --> 00:16:31.770 who are looking at those data.

NOTE Confidence: 0.8680108

00:16:31.770 --> 00:16:32.913 So we are,

NOTE Confidence: 0.8680108

00:16:32.913 --> 00:16:35.199 we stand ready to generate letters

NOTE Confidence: 0.8680108

00:16:35.199 --> 00:16:37.889 of support for grant proposals.

NOTE Confidence: 0.8680108

00:16:37.890 --> 00:16:40.761 To to work with you to give you genomic

NOTE Confidence: 0.8680108

00:16:40.761 --> 00:16:43.378 datasets that will require that you have

NOTE Confidence: 0.8680108

00:16:43.378 --> 00:16:45.656 an IRB approved protocol to receive

NOTE Confidence: 0.8680108

00:16:45.656 --> 00:16:48.183 such datasets and to do callbacks and.

NOTE Confidence: 0.8680108

00:16:48.190 --> 00:16:51.412 And we've we've stood this up

NOTE Confidence: 0.8680108

00:16:51.412 --> 00:16:54.380 in all three categories so far.

NOTE Confidence: 0.8680108

00:16:54.380 --> 00:16:56.546 The last thing that I'll mention

NOTE Confidence: 0.8680108

00:16:56.546 --> 00:16:59.528 is many of you familiar with this.

NOTE Confidence: 0.8680108

00:16:59.530 --> 00:17:01.980 The Nomad database is available

NOTE Confidence: 0.8680108

00:17:01.980 --> 00:17:04.780 online for individuals that want to

NOTE Confidence: 0.8680108

00:17:04.780 --> 00:17:07.684 go onto it and look up a gene or a

NOTE Confidence: 0.8680108

00:17:07.684 --> 00:17:10.162 variant and find out the frequency

NOTE Confidence: 0.8680108

00:17:10.162 --> 00:17:12.202 within this large data set,
NOTE Confidence: 0.8680108

00:17:12.202 --> 00:17:14.578 which which includes large cohorts from
NOTE Confidence: 0.8680108

00:17:14.578 --> 00:17:17.346 across the country and across the world.
NOTE Confidence: 0.8680108

00:17:17.350 --> 00:17:18.592 Luckily for us,
NOTE Confidence: 0.8680108

00:17:18.592 --> 00:17:21.076 muenkel like who's in our Department
NOTE Confidence: 0.8680108

00:17:21.076 --> 00:17:23.609 as a speaker in this workshop.
NOTE Confidence: 0.8680108

00:17:23.610 --> 00:17:25.927 Was one of the drivers of standing
NOTE Confidence: 0.8680108

00:17:25.927 --> 00:17:28.346 up this this database and will be
NOTE Confidence: 0.8680108

00:17:28.346 --> 00:17:30.893 working with us to create a mini
NOTE Confidence: 0.8680108

00:17:30.893 --> 00:17:33.557 version of this and internal HIPAA
NOTE Confidence: 0.8680108

00:17:33.557 --> 00:17:35.209 compliant version where individuals
NOTE Confidence: 0.8680108

00:17:35.209 --> 00:17:37.761 within Yale can go in and look up
NOTE Confidence: 0.8680108

00:17:37.761 --> 00:17:40.150 genes and variants within generations.
NOTE Confidence: 0.8680108

00:17:40.150 --> 00:17:42.030 Data set to do queries.
NOTE Confidence: 0.8680108

00:17:42.030 --> 00:17:43.910 So with that I'll end.
NOTE Confidence: 0.8680108

00:17:43.910 --> 00:17:46.661 I'll thank the many many people who

NOTE Confidence: 0.8680108

00:17:46.661 --> 00:17:49.177 have helped to get us this far.

NOTE Confidence: 0.8680108

00:17:49.180 --> 00:17:51.490 An R hopefully cheering us on to

NOTE Confidence: 0.8680108

00:17:51.490 --> 00:17:54.302 go further and to thank all the

NOTE Confidence: 0.8680108

00:17:54.302 --> 00:17:56.054 volunteers who have participated.

NOTE Confidence: 0.8680108

00:17:56.060 --> 00:17:57.590 In the last slide here,

NOTE Confidence: 0.8680108

00:17:57.590 --> 00:18:00.030 if you're within the sound of my voice,

NOTE Confidence: 0.8680108

00:18:00.030 --> 00:18:01.860 that means that you're a potential

NOTE Confidence: 0.8680108

00:18:01.860 --> 00:18:03.080 volunteer for generations also,

NOTE Confidence: 0.8680108

00:18:03.080 --> 00:18:04.904 and we invite you to join

NOTE Confidence: 0.8680108

00:18:04.904 --> 00:18:05.816 if you're interested.

NOTE Confidence: 0.8680108

00:18:05.820 --> 00:18:07.350 Here's how to reach us,

NOTE Confidence: 0.8680108

00:18:07.350 --> 00:18:09.541 including a QR code will leave this

NOTE Confidence: 0.8680108

00:18:09.541 --> 00:18:11.954 up during the Q&A so that you can

NOTE Confidence: 0.8680108

00:18:11.954 --> 00:18:13.736 scan your phone over and generate

NOTE Confidence: 0.8680108

00:18:13.736 --> 00:18:16.192 an email to either ask us a question

NOTE Confidence: 0.8680108

00:18:16.192 --> 00:18:18.270 or or reach the consenters who can

NOTE Confidence: 0.8680108

00:18:18.270 --> 00:18:20.160 get you consented into the project.

NOTE Confidence: 0.8680108

00:18:20.160 --> 00:18:21.680 And with that I'll stop.

NOTE Confidence: 0.8680108

00:18:21.680 --> 00:18:22.622 Thanks very much.