WEBVTT

NOTE duration: ”01:16:05.675”

NOTE Confidence: 0.77523196

00:00:01.040 --> 00:00:01.540 No.

NOTE Confidence: 0.94938534

00:00:05.120 --> 00:00:06.240 I'm just making sure everything's

NOTE Confidence: 0.94938534

00:00:06.240 --> 00:00:06.740 working.

NOTE Confidence: 0.87948567

00:00:08.559 --> 00:00:10.160 Eric, can you grab your

NOTE Confidence: 0.87948567

00:00:10.160 --> 00:00:10.660 ear?

NOTE Confidence: 0.69859225

00:00:11.119 --> 00:00:12.080 Well, I'll sit next to

NOTE Confidence: 0.69859225

00:00:12.080 --> 00:00:13.039 you. Oh, I'm just gonna

NOTE Confidence: 0.69859225

00:00:13.039 --> 00:00:14.000 call back to the wall

NOTE Confidence: 0.69859225

00:00:14.000 --> 00:00:14.500 pen.

NOTE Confidence: 0.6058838

00:00:27.800 --> 00:00:28.300 Yeah.

NOTE Confidence: 0.91390234

00:00:42.065 --> 00:00:42.565 Yeah.

NOTE Confidence: 0.9934294

00:00:54.740 --> 00:00:55.240 Alright.

NOTE Confidence: 0.9516405

00:00:55.700 --> 00:00:56.500 I think we need to

NOTE Confidence: 0.9516405

00:00:56.500 --> 00:00:58.180 get started with Grand Rounds.

NOTE Confidence: 0.9516405

00:00:58.180 --> 00:00:59.540 We've been running a little

NOTE Confidence: 0.9516405

00:00:59.540 --> 00:01:00.840 bit late on the Symposium.

NOTE Confidence: 0.9863869

00:01:02.500 --> 00:01:04.600 So people are out, wandering,

NOTE Confidence: 0.9863869

00:01:04.660 --> 00:01:06.280 looking at the posters, and

NOTE Confidence: 0.9863869

00:01:06.500 --> 00:01:07.880 they're coming in now.

NOTE Confidence: 0.89493465

00:01:09.905 --> 00:01:10.805 But I can

NOTE Confidence: 0.9735693

00:01:11.905 --> 00:01:13.105 so to start with some

NOTE Confidence: 0.9735693

00:01:13.105 --> 00:01:14.005 general announcements,

NOTE Confidence: 0.9826984

00:01:14.465 --> 00:01:14.965 so,

NOTE Confidence: 0.99853605

00:01:16.145 --> 00:01:16.944 this is

NOTE Confidence: 0.9680755

00:01:17.505 --> 00:01:18.545 shown on the screen is

NOTE Confidence: 0.9680755

00:01:18.545 --> 00:01:19.685 the code for,

NOTE Confidence: 0.95856255

00:01:20.465 --> 00:01:23.125 getting, CME credit for cardiology

NOTE Confidence: 0.95856255

00:01:23.345 --> 00:01:24.165 grand rounds.

NOTE Confidence: 0.93939346

00:01:25.720 --> 00:01:27.720 The afternoon session will have

NOTE Confidence: 0.93939346

00:01:27.720 --> 00:01:28.220 also,

NOTE Confidence: 0.99085367

00:01:29.240 --> 00:01:30.440 a Zoom link to get

NOTE Confidence: 0.99085367

00:01:30.440 --> 00:01:32.360 additional CME. So the whole

NOTE Confidence: 0.99085367

00:01:32.360 --> 00:01:32.860 symposium

NOTE Confidence: 0.9741858

00:01:33.640 --> 00:01:34.380 is offering,

NOTE Confidence: 0.9887778

00:01:34.760 --> 00:01:35.980 four point five,

NOTE Confidence: 0.999351

00:01:36.680 --> 00:01:38.300 credits CME credits.

NOTE Confidence: 0.91918284

00:01:42.495 --> 00:01:44.495 Shown here is the upcoming

NOTE Confidence: 0.91918284

00:01:44.495 --> 00:01:44.995 cardiovascular

NOTE Confidence: 0.9741983

00:01:45.375 --> 00:01:46.194 grand rounds.

NOTE Confidence: 0.9376171

00:01:47.615 --> 00:01:49.215 In the beginning of December,

NOTE Confidence: 0.9376171

00:01:49.215 --> 00:01:51.075 we have for peripheral vascular

NOTE Confidence: 0.9376171

00:01:51.135 --> 00:01:51.955 case conference.

NOTE Confidence: 0.96781677

00:01:52.760 --> 00:01:54.700 And then, middle of December,

NOTE Confidence: 0.96781677

00:01:54.760 --> 00:01:56.360 there's a a faculty research

NOTE Confidence: 0.96781677

00:01:56.360 --> 00:01:57.480 meeting. And then on the

NOTE Confidence: 0.96781677

00:01:57.480 --> 00:01:57.980 seventeenth,

NOTE Confidence: 0.9790658

00:01:59.080 --> 00:02:01.320 there's the meeting required annual

NOTE Confidence: 0.9790658

00:02:01.320 --> 00:02:02.540 bill billing training.

NOTE Confidence: 0.9849465

00:02:05.695 --> 00:02:06.595 And, of course,

NOTE Confidence: 0.9774348

00:02:07.215 --> 00:02:07.715 our,

NOTE Confidence: 0.87267244

00:02:08.975 --> 00:02:10.915 Grand Rounds speaker is,

NOTE Confidence: 0.7997328

00:02:12.095 --> 00:02:12.995 Todd Valines,

NOTE Confidence: 0.97309625

00:02:13.455 --> 00:02:13.955 and,

NOTE Confidence: 0.88222206

00:02:14.495 --> 00:02:16.495 this is part of sort

NOTE Confidence: 0.88222206

00:02:16.495 --> 00:02:18.595 of giants and Yale Cardiovascular

NOTE Confidence: 0.9141388

00:02:18.895 --> 00:02:21.250 Medicine. And this grand rounds,

NOTE Confidence: 0.9141388

00:02:21.250 --> 00:02:22.950 in addition to this symposium,

NOTE Confidence: 0.9141388

00:02:23.169 --> 00:02:24.389 is in honor of

NOTE Confidence: 0.5662708

00:02:24.690 --> 00:02:25.669 Barry Zarett.

NOTE Confidence: 0.9941911

00:02:26.210 --> 00:02:27.110 Excuse me.

NOTE Confidence: 0.98334765

00:02:29.810 --> 00:02:31.030 These are the disclosures.

NOTE Confidence: 0.99938864

00:02:33.855 --> 00:02:34.895 So I wanted to start

NOTE Confidence: 0.99938864

00:02:34.895 --> 00:02:36.014 off and just say a

NOTE Confidence: 0.99938864

00:02:36.014 --> 00:02:37.395 few words about Barry.

NOTE Confidence: 0.9794481

00:02:38.095 --> 00:02:38.595 So,

NOTE Confidence: 0.99904704

00:02:39.935 --> 00:02:41.135 as many of you know,

NOTE Confidence: 0.99904704

00:02:41.294 --> 00:02:41.794 Barry

NOTE Confidence: 0.9621449

00:02:42.095 --> 00:02:43.135 was born in New York

NOTE Confidence: 0.9621449

00:02:43.135 --> 00:02:44.335 City, grew up in Brooklyn

NOTE Confidence: 0.9621449

00:02:44.335 --> 00:02:45.535 in the Queens. He went

NOTE Confidence: 0.9621449

00:02:45.535 --> 00:02:46.975 to Queens College in New

NOTE Confidence: 0.9621449

00:02:46.975 --> 00:02:47.635 York City,

NOTE Confidence: 0.9446191

00:02:48.000 --> 00:02:49.760 went to NYU School of

NOTE Confidence: 0.9446191

00:02:49.760 --> 00:02:51.680 Medicine, did his residency and

NOTE Confidence: 0.9446191

00:02:51.680 --> 00:02:53.620 internship at Bellevue Hospital,

NOTE Confidence: 0.95237297

00:02:54.720 --> 00:02:56.720 then a cardiology fellowship at

NOTE Confidence: 0.95237297

00:02:56.720 --> 00:02:59.040 Johns Hopkins University and was

NOTE Confidence: 0.95237297

00:02:59.040 --> 00:03:00.319 in the Air Force and

NOTE Confidence: 0.95237297

00:03:00.319 --> 00:03:01.299 ended up being,

NOTE Confidence: 0.92535686

00:03:01.915 --> 00:03:03.755 positioned at Travis Air Force

NOTE Confidence: 0.92535686

00:03:03.755 --> 00:03:05.355 Base where he did sort

NOTE Confidence: 0.92535686

00:03:05.355 --> 00:03:06.655 of pioneering work,

NOTE Confidence: 0.91113925

00:03:08.475 --> 00:03:09.694 in in the cardiovascular

NOTE Confidence: 0.9832351

00:03:10.315 --> 00:03:10.815 space.

NOTE Confidence: 0.9765705

00:03:12.155 --> 00:03:14.075 It was in nineteen seventy

NOTE Confidence: 0.9765705

00:03:14.075 --> 00:03:15.595 three that he joined the

NOTE Confidence: 0.9765705

00:03:15.595 --> 00:03:16.815 faculty at Yale,

NOTE Confidence: 0.9011063

00:03:17.120 --> 00:03:18.719 and shortly thereafter he was

NOTE Confidence: 0.9011063

00:03:18.719 --> 00:03:20.000 appointed as the chief of

NOTE Confidence: 0.9011063

00:03:20.000 --> 00:03:20.500 cardiology,

NOTE Confidence: 0.9201345

00:03:21.280 --> 00:03:22.639 and then a professor of

NOTE Confidence: 0.9201345

00:03:22.639 --> 00:03:24.319 medicine and radiology in nineteen

NOTE Confidence: 0.9201345

00:03:24.319 --> 00:03:26.000 eighty two and became the

NOTE Confidence: 0.9201345

00:03:26.000 --> 00:03:27.919 Robert w Berliner professor of

NOTE Confidence: 0.9201345

00:03:27.919 --> 00:03:29.859 medicine in nineteen eighty four.

NOTE Confidence: 0.97927743

00:03:30.665 --> 00:03:32.605 Barry has many accolades.

NOTE Confidence: 0.99691164

00:03:33.225 --> 00:03:34.985 He was an established investigator

NOTE Confidence: 0.99691164

00:03:34.985 --> 00:03:36.605 with the American Heart Association.

NOTE Confidence: 0.9736779

00:03:37.145 --> 00:03:38.025 He was a member of

NOTE Confidence: 0.9736779

00:03:38.025 --> 00:03:39.785 the American Society of Clinical

NOTE Confidence: 0.9736779

00:03:39.785 --> 00:03:40.285 Investigation,

NOTE Confidence: 0.9536695

00:03:41.385 --> 00:03:42.905 and importantly, he was the

NOTE Confidence: 0.9536695

00:03:42.905 --> 00:03:44.345 founding editor for the Journal

NOTE Confidence: 0.9536695

00:03:44.345 --> 00:03:45.565 of Nuclear Cardiology,

NOTE Confidence: 0.99930453

00:03:47.060 --> 00:03:48.500 which he served for ten

NOTE Confidence: 0.99930453

00:03:48.500 --> 00:03:49.000 years.

NOTE Confidence: 0.9931026

00:03:50.099 --> 00:03:51.459 He served as a medical

NOTE Confidence: 0.9931026

00:03:51.459 --> 00:03:52.680 director at the hospital

NOTE Confidence: 0.96473503

00:03:53.299 --> 00:03:54.819 and, and was the chief

NOTE Confidence: 0.96473503

00:03:54.819 --> 00:03:56.200 of cardiology here,

NOTE Confidence: 0.99514866

00:03:56.579 --> 00:03:58.420 from nineteen seventy eight to

NOTE Confidence: 0.99514866

00:03:58.420 --> 00:03:59.720 two thousand and four

NOTE Confidence: 0.95133674

00:04:00.465 --> 00:04:02.485 and was also associate chair

NOTE Confidence: 0.95133674

00:04:02.625 --> 00:04:03.985 of clinical affairs in the

NOTE Confidence: 0.95133674

00:04:03.985 --> 00:04:05.125 Department of Medicine.

NOTE Confidence: 0.9942725

00:04:08.144 --> 00:04:09.185 But as many of you

NOTE Confidence: 0.9942725

00:04:09.185 --> 00:04:09.685 know,

NOTE Confidence: 0.5333367

00:04:10.305 --> 00:04:10.805 Barry

NOTE Confidence: 0.79422647

00:04:11.185 --> 00:04:12.004 was recognized

NOTE Confidence: 0.99741906

00:04:12.385 --> 00:04:14.709 as a truly gifted clinician,

NOTE Confidence: 0.99741906

00:04:14.930 --> 00:04:16.469 a teacher, a researcher,

NOTE Confidence: 0.9989972

00:04:17.089 --> 00:04:18.370 and a mentor to many

NOTE Confidence: 0.9989972

00:04:18.370 --> 00:04:19.009 of us.

NOTE Confidence: 0.9946719

00:04:19.729 --> 00:04:21.190 He was a true pioneer

NOTE Confidence: 0.9946719

00:04:21.330 --> 00:04:22.550 in nuclear cardiology.

NOTE Confidence: 0.9952026

00:04:23.650 --> 00:04:25.750 Initial work he did was

NOTE Confidence: 0.9952026

00:04:26.050 --> 00:04:27.729 was in measurement of coronary

NOTE Confidence: 0.9952026

00:04:27.729 --> 00:04:28.470 blood flow,

NOTE Confidence: 0.94774026

00:04:29.545 --> 00:04:31.305 with the intracorone injection of

NOTE Confidence: 0.94774026

00:04:31.305 --> 00:04:31.805 radioactive

NOTE Confidence: 0.9897895

00:04:32.105 --> 00:04:32.605 xenon.

NOTE Confidence: 0.99616146

00:04:34.025 --> 00:04:34.845 He pioneered,

NOTE Confidence: 0.9940152

00:04:35.385 --> 00:04:36.825 the work initial work in

NOTE Confidence: 0.9940152

00:04:36.825 --> 00:04:38.445 myocardial perfusion imaging

NOTE Confidence: 0.95038795

00:04:39.065 --> 00:04:41.464 with, development of potassium forty

NOTE Confidence: 0.95038795

00:04:41.464 --> 00:04:43.300 three imaging, which then was

NOTE Confidence: 0.95038795

00:04:43.300 --> 00:04:44.660 replaced by thallium to a

NOTE Confidence: 0.95038795

00:04:44.660 --> 00:04:45.400 one imaging.

NOTE Confidence: 0.952075

00:04:46.660 --> 00:04:48.419 He also was instrumental in

NOTE Confidence: 0.952075

00:04:48.419 --> 00:04:49.940 moving forward gated blood pool

NOTE Confidence: 0.952075

00:04:49.940 --> 00:04:50.440 imaging.

NOTE Confidence: 0.99847007

00:04:51.220 --> 00:04:52.120 And he

NOTE Confidence: 0.9447947

00:04:52.500 --> 00:04:53.960 really was the one introduced

NOTE Confidence: 0.9447947

00:04:54.259 --> 00:04:55.860 the use of assessment of

NOTE Confidence: 0.9447947

00:04:55.860 --> 00:04:56.919 ejection fraction

NOTE Confidence: 0.9972812

00:04:57.495 --> 00:04:59.355 to actually guide and monitor

NOTE Confidence: 0.8716213

00:04:59.815 --> 00:05:01.195 patients who are on chemotherapy,

NOTE Confidence: 0.9890912

00:05:02.775 --> 00:05:03.495 to prevent,

NOTE Confidence: 0.94633454

00:05:03.975 --> 00:05:04.475 cardio,

NOTE Confidence: 0.93240035

00:05:05.495 --> 00:05:07.355 cardio chemotherapy induced cardiotoxicity.

NOTE Confidence: 0.9940591

00:05:09.015 --> 00:05:10.475 He had an important role,

NOTE Confidence: 0.97049505

00:05:11.015 --> 00:05:12.235 as part of the Timmy

NOTE Confidence: 0.8111055

00:05:12.870 --> 00:05:14.010 executive committee

NOTE Confidence: 0.93979275

00:05:14.950 --> 00:05:16.550 and was a principal investigator

NOTE Confidence: 0.93979275

00:05:16.550 --> 00:05:17.750 and ran an important core

NOTE Confidence: 0.93979275

00:05:17.750 --> 00:05:18.950 lab for many years here

NOTE Confidence: 0.93979275

00:05:18.950 --> 00:05:20.550 at Yale and a lot

NOTE Confidence: 0.93979275

00:05:20.550 --> 00:05:22.089 of sort of the infrastructure

NOTE Confidence: 0.93979275

00:05:22.230 --> 00:05:23.430 that was developed as part

NOTE Confidence: 0.93979275

00:05:23.430 --> 00:05:25.050 of that remains in place,

NOTE Confidence: 0.9849663

00:05:25.990 --> 00:05:26.710 for other,

NOTE Confidence: 0.81811476

00:05:27.110 --> 00:05:27.610 course.

NOTE Confidence: 0.947552

00:05:29.555 --> 00:05:30.695 He sort of advanced

NOTE Confidence: 0.9531915

00:05:30.995 --> 00:05:32.755 first pass angiography, which we

NOTE Confidence: 0.9531915

00:05:32.755 --> 00:05:34.275 don't do very frequently right

NOTE Confidence: 0.9531915

00:05:34.275 --> 00:05:34.775 now,

NOTE Confidence: 0.94103146

00:05:35.235 --> 00:05:37.095 and that included actually ambulatory

NOTE Confidence: 0.944738

00:05:37.475 --> 00:05:39.475 assessment of cardiac function including

NOTE Confidence: 0.944738

00:05:39.475 --> 00:05:40.695 during mental stress.

NOTE Confidence: 0.9842408

00:05:41.960 --> 00:05:43.160 He was involved in the

NOTE Confidence: 0.9842408

00:05:43.160 --> 00:05:45.320 evaluation of many new tech

NOTE Confidence: 0.9842408

00:05:45.320 --> 00:05:46.940 labeled perfusion agents

NOTE Confidence: 0.9237798

00:05:47.640 --> 00:05:49.400 that involved first in human

NOTE Confidence: 0.9237798

00:05:49.400 --> 00:05:49.900 studies.

NOTE Confidence: 0.9820461

00:05:51.160 --> 00:05:53.000 And importantly, he sort of

NOTE Confidence: 0.9820461

00:05:53.000 --> 00:05:54.360 made a major shift in

NOTE Confidence: 0.9820461

00:05:54.360 --> 00:05:56.195 the whole area of nuclear

NOTE Confidence: 0.9820461

00:05:56.195 --> 00:05:57.654 cardiology and promoting,

NOTE Confidence: 0.9585342

00:05:58.835 --> 00:06:01.335 molecular imaging amongst the community.

NOTE Confidence: 0.9585342

00:06:01.555 --> 00:06:02.375 He's published,

NOTE Confidence: 0.9436161

00:06:02.755 --> 00:06:04.535 he's well published and he's

NOTE Confidence: 0.99280816

00:06:04.995 --> 00:06:06.275 best known for,

NOTE Confidence: 0.9111562

00:06:06.915 --> 00:06:08.355 the the textbook that he

NOTE Confidence: 0.9111562

00:06:08.355 --> 00:06:09.175 co edited

NOTE Confidence: 0.9694981

00:06:09.870 --> 00:06:11.410 with George Beller on clinical

NOTE Confidence: 0.9694981

00:06:11.550 --> 00:06:12.610 nuclear cardiology.

NOTE Confidence: 0.9413784

00:06:16.430 --> 00:06:17.550 So shown here are,

NOTE Confidence: 0.9764025

00:06:18.110 --> 00:06:19.730 two of the classic images

NOTE Confidence: 0.9764025

00:06:19.870 --> 00:06:22.395 from Barry's, sort of pioneering

NOTE Confidence: 0.9764025

00:06:22.395 --> 00:06:23.935 work in blood pool imaging

NOTE Confidence: 0.9880617

00:06:24.315 --> 00:06:26.175 and potassium forty three imaging.

NOTE Confidence: 0.98305565

00:06:31.835 --> 00:06:33.275 So as you know, Barry

NOTE Confidence: 0.98305565

00:06:33.275 --> 00:06:35.194 was an avid runner, a

NOTE Confidence: 0.98305565

00:06:35.194 --> 00:06:35.694 painter,

NOTE Confidence: 0.9958982

00:06:36.210 --> 00:06:36.950 and a family

NOTE Confidence: 0.9172432

00:06:37.410 --> 00:06:39.490 man and, and he saw

NOTE Confidence: 0.9172432

00:06:39.490 --> 00:06:39.990 cardiology

NOTE Confidence: 0.81581265

00:06:40.529 --> 00:06:42.050 and the faculty as his

NOTE Confidence: 0.81581265

00:06:42.050 --> 00:06:43.190 extended family.

NOTE Confidence: 0.9839116

00:06:43.890 --> 00:06:46.130 We had, annual picnics at

NOTE Confidence: 0.9839116

00:06:46.130 --> 00:06:48.050 his house and softball games

NOTE Confidence: 0.9839116

00:06:48.050 --> 00:06:49.730 and, and he was sort

NOTE Confidence: 0.9839116

00:06:49.730 --> 00:06:51.765 of, always the pitcher at

NOTE Confidence: 0.9839116

00:06:51.765 --> 00:06:53.625 the softball game and trained

NOTE Confidence: 0.9647579

00:06:53.925 --> 00:06:55.525 for weeks in advance in

NOTE Confidence: 0.9647579

00:06:55.525 --> 00:06:57.465 preparation for the softball game.

NOTE Confidence: 0.98152864

00:06:58.485 --> 00:06:59.225 His sons,

NOTE Confidence: 0.97470784

00:06:59.525 --> 00:07:00.645 you know, he recruited to

NOTE Confidence: 0.97470784

00:07:00.645 --> 00:07:01.545 help the faculty,

NOTE Confidence: 0.9531226

00:07:02.005 --> 00:07:03.225 so to beat the fellows.

NOTE Confidence: 0.9729699

00:07:06.960 --> 00:07:08.580 And so in his honor,

NOTE Confidence: 0.93504816

00:07:09.440 --> 00:07:10.900 we have the special cardiology

NOTE Confidence: 0.93504816

00:07:10.960 --> 00:07:12.080 grand rounds and we have

NOTE Confidence: 0.93504816

00:07:12.080 --> 00:07:13.060 a special speaker,

NOTE Confidence: 0.9407522

00:07:13.680 --> 00:07:15.040 Todd Valines, who is a

NOTE Confidence: 0.9407522

00:07:15.040 --> 00:07:16.180 professor of medicine

NOTE Confidence: 0.9884207

00:07:16.720 --> 00:07:18.560 and vice, chief of clinical

NOTE Confidence: 0.9884207

00:07:18.560 --> 00:07:19.920 services in the division of

NOTE Confidence: 0.9884207

00:07:19.920 --> 00:07:20.420 cardiology

NOTE Confidence: 0.9863847

00:07:20.985 --> 00:07:22.525 at the University of Virginia.

NOTE Confidence: 0.9355919

00:07:24.824 --> 00:07:25.784 And just to tell you

NOTE Confidence: 0.9355919

00:07:25.784 --> 00:07:27.245 a little bit about Todd,

NOTE Confidence: 0.9355919

00:07:27.384 --> 00:07:28.985 so he's, as I said

NOTE Confidence: 0.9355919

00:07:28.985 --> 00:07:30.664 a Professor of Medicine. He

NOTE Confidence: 0.9355919

00:07:30.664 --> 00:07:32.264 got his undergraduate degree,

NOTE Confidence: 0.9751125

00:07:32.664 --> 00:07:33.944 at West Point. He got

NOTE Confidence: 0.9751125

00:07:33.944 --> 00:07:35.680 his MD degree at the

NOTE Confidence: 0.9751125

00:07:35.680 --> 00:07:37.360 University of Oklahoma College of

NOTE Confidence: 0.9751125

00:07:37.360 --> 00:07:37.860 Medicine.

NOTE Confidence: 0.9804174

00:07:39.120 --> 00:07:40.480 He did his internal medicine

NOTE Confidence: 0.9804174

00:07:40.480 --> 00:07:42.400 training at Walter Reed Army

NOTE Confidence: 0.9804174

00:07:42.400 --> 00:07:43.760 Medical Center, and then he

NOTE Confidence: 0.9804174

00:07:43.760 --> 00:07:44.580 did a fellowship

NOTE Confidence: 0.9786851

00:07:45.120 --> 00:07:47.139 at the National Capital Consortium,

NOTE Confidence: 0.9950443

00:07:48.555 --> 00:07:50.395 at Walter Reed National Naval

NOTE Confidence: 0.9950443

00:07:50.395 --> 00:07:51.294 Medical Center.

NOTE Confidence: 0.988367

00:07:52.475 --> 00:07:54.315 He was initially appointed on

NOTE Confidence: 0.988367

00:07:54.315 --> 00:07:54.895 the faculty,

NOTE Confidence: 0.8366999

00:07:55.354 --> 00:07:56.574 the uniformed services,

NOTE Confidence: 0.9421419

00:07:57.115 --> 00:07:57.615 University

NOTE Confidence: 0.96514004

00:07:58.074 --> 00:07:59.854 of Health Sciences in Bethesda,

NOTE Confidence: 0.9020029

00:08:01.680 --> 00:08:03.440 and then he served on

NOTE Confidence: 0.9020029

00:08:03.440 --> 00:08:04.979 the US Army Command

NOTE Confidence: 0.9462875

00:08:05.600 --> 00:08:07.280 and General Staff College and

NOTE Confidence: 0.9462875

00:08:07.280 --> 00:08:08.319 he was a consultant to

NOTE Confidence: 0.9462875

00:08:08.319 --> 00:08:10.819 the US Army General Surgeon

NOTE Confidence: 0.9332378

00:08:11.680 --> 00:08:13.360 General and was a leader

NOTE Confidence: 0.9332378

00:08:13.360 --> 00:08:14.500 in Army Cardiology.

NOTE Confidence: 0.9751868

00:08:16.514 --> 00:08:18.195 He joined, the faculty at

NOTE Confidence: 0.9751868

00:08:18.195 --> 00:08:19.875 the University of Virginia in

NOTE Confidence: 0.9751868

00:08:19.875 --> 00:08:20.854 twenty nineteen

NOTE Confidence: 0.91931736

00:08:21.315 --> 00:08:22.914 and he's now the Chair

NOTE Confidence: 0.91931736

00:08:22.914 --> 00:08:24.055 of Clinical Operations,

NOTE Confidence: 0.9230981

00:08:25.634 --> 00:08:26.695 at that institution,

NOTE Confidence: 0.93093896

00:08:30.330 --> 00:08:31.310 But importantly

NOTE Confidence: 0.82837296

00:08:31.690 --> 00:08:32.670 were his contributions

NOTE Confidence: 0.9130254

00:08:33.130 --> 00:08:34.330 in the sign in the

NOTE Confidence: 0.9130254

00:08:34.330 --> 00:08:35.390 in the field of medicine.

NOTE Confidence: 0.97352254

00:08:36.650 --> 00:08:38.270 He is the past president

NOTE Confidence: 0.97352254

00:08:38.330 --> 00:08:39.710 of the Society of Cardiovascular

NOTE Confidence: 0.9575819

00:08:40.170 --> 00:08:40.670 CT,

NOTE Confidence: 0.93726534

00:08:41.290 --> 00:08:42.970 the immediate past editor in

NOTE Confidence: 0.93726534

00:08:42.970 --> 00:08:44.625 chief of the Journal of

NOTE Confidence: 0.93726534

00:08:44.625 --> 00:08:45.125 Cardiovascular

NOTE Confidence: 0.8774031

00:08:45.584 --> 00:08:46.084 CT.

NOTE Confidence: 0.969618

00:08:46.704 --> 00:08:48.065 And in two thousand twenty

NOTE Confidence: 0.969618

00:08:48.065 --> 00:08:49.764 one, he received the highest

NOTE Confidence: 0.9774313

00:08:50.225 --> 00:08:51.745 award, the gold medal award,

NOTE Confidence: 0.9774313

00:08:52.065 --> 00:08:53.524 from the Society of Cardiac

NOTE Confidence: 0.9774313

00:08:53.584 --> 00:08:54.084 CT.

NOTE Confidence: 0.97354794

00:08:55.899 --> 00:08:57.980 He also served as chair

NOTE Confidence: 0.97354794

00:08:57.980 --> 00:08:58.720 for both

NOTE Confidence: 0.88014543

00:08:59.020 --> 00:09:00.940 the ACC Imaging Section and

NOTE Confidence: 0.88014543

00:09:00.940 --> 00:09:02.640 the Federal Cardiology Section,

NOTE Confidence: 0.97934407

00:09:03.899 --> 00:09:05.600 past chair of the Certification

NOTE Confidence: 0.97934407

00:09:05.660 --> 00:09:06.559 Board of Cardiovascular

NOTE Confidence: 0.99231935

00:09:07.020 --> 00:09:07.520 CT,

NOTE Confidence: 0.9567529

00:09:08.184 --> 00:09:09.625 past president of the American

NOTE Confidence: 0.9567529

00:09:09.625 --> 00:09:10.365 Heart Association,

NOTE Confidence: 0.9069645

00:09:10.745 --> 00:09:12.825 Washington DC chapter, and he

NOTE Confidence: 0.9069645

00:09:12.825 --> 00:09:13.885 has innumerable

NOTE Confidence: 0.93132657

00:09:14.425 --> 00:09:16.505 military and academic awards and

NOTE Confidence: 0.93132657

00:09:16.505 --> 00:09:17.805 honors, a very impressive

NOTE Confidence: 0.9963932

00:09:18.825 --> 00:09:20.045 CV. He's published

NOTE Confidence: 0.96771693

00:09:20.425 --> 00:09:21.725 over three hundred publications,

NOTE Confidence: 0.9816664

00:09:22.350 --> 00:09:23.889 and he's really an international

NOTE Confidence: 0.9816664

00:09:24.029 --> 00:09:25.550 leader in cardiac CT. So

NOTE Confidence: 0.9816664

00:09:25.550 --> 00:09:27.230 it's really a pleasure to

NOTE Confidence: 0.9816664

00:09:27.230 --> 00:09:28.429 have him here and join

NOTE Confidence: 0.9816664

00:09:28.429 --> 00:09:30.269 me in welcoming Todd as

NOTE Confidence: 0.9816664

00:09:30.269 --> 00:09:31.410 our ground round speaker.

NOTE Confidence: 0.9675196

00:09:37.465 --> 00:09:38.825 Wow. You know, when when

NOTE Confidence: 0.9675196

00:09:38.825 --> 00:09:39.785 people come up and say

NOTE Confidence: 0.9675196

00:09:39.785 --> 00:09:40.985 that was an overly kind

NOTE Confidence: 0.9675196

00:09:40.985 --> 00:09:42.605 introduction, this really was

NOTE Confidence: 0.97499985

00:09:42.985 --> 00:09:44.665 an overly kind introduction. And

NOTE Confidence: 0.97499985

00:09:44.665 --> 00:09:45.865 and I wanna first start

NOTE Confidence: 0.97499985

00:09:45.865 --> 00:09:46.365 by,

NOTE Confidence: 0.9893514

00:09:47.785 --> 00:09:49.304 just, thanking all of you

NOTE Confidence: 0.9893514

00:09:49.304 --> 00:09:50.425 for this opportunity. This is

NOTE Confidence: 0.9893514

00:09:50.425 --> 00:09:51.304 truly an honor of a

NOTE Confidence: 0.9893514

00:09:51.304 --> 00:09:52.285 lifetime because

NOTE Confidence: 0.9867125

00:09:52.610 --> 00:09:54.050 to to not only, come

NOTE Confidence: 0.9867125

00:09:54.050 --> 00:09:55.490 to what I consider hallowed

NOTE Confidence: 0.9867125

00:09:55.490 --> 00:09:56.770 ground in the imaging world.

NOTE Confidence: 0.9867125

00:09:56.770 --> 00:09:57.650 I mean and and so

NOTE Confidence: 0.9867125

00:09:57.650 --> 00:09:58.850 for our residents, it's really

NOTE Confidence: 0.9867125

00:09:58.850 --> 00:10:00.070 exciting to have the trainees,

NOTE Confidence: 0.9863405

00:10:00.770 --> 00:10:02.950 for our residents, students, postdocs.

NOTE Confidence: 0.9448169

00:10:04.210 --> 00:10:05.250 You know, this is hallowed

NOTE Confidence: 0.9448169

00:10:05.250 --> 00:10:06.530 ground in imaging, and and

NOTE Confidence: 0.9448169

00:10:06.530 --> 00:10:07.650 it it is something that,

NOTE Confidence: 0.9448169

00:10:07.650 --> 00:10:08.195 you know, know, to have

NOTE Confidence: 0.9448169

00:10:08.195 --> 00:10:09.235 the opportunity to train with

NOTE Confidence: 0.9448169

00:10:09.235 --> 00:10:10.595 people like doctor Sanusis and

NOTE Confidence: 0.9448169

00:10:10.595 --> 00:10:11.255 the entire,

NOTE Confidence: 0.9823043

00:10:12.035 --> 00:10:12.535 group,

NOTE Confidence: 0.9971358

00:10:12.835 --> 00:10:14.455 and to hear the diverse

NOTE Confidence: 0.9772494

00:10:15.955 --> 00:10:17.235 areas of research that you're

NOTE Confidence: 0.9772494

00:10:17.235 --> 00:10:18.934 doing, which are truly groundbreaking

NOTE Confidence: 0.9772494

00:10:18.995 --> 00:10:20.370 and have changed practice for

NOTE Confidence: 0.9772494

00:10:20.370 --> 00:10:21.570 many of us who do

NOTE Confidence: 0.9772494

00:10:21.570 --> 00:10:23.490 multimodality imaging. So thank you

NOTE Confidence: 0.9772494

00:10:23.490 --> 00:10:25.250 for this opportunity, doctor Sanusas,

NOTE Confidence: 0.9772494

00:10:25.250 --> 00:10:26.550 and to see the lab,

NOTE Confidence: 0.8996237

00:10:27.010 --> 00:10:27.890 and the work and for

NOTE Confidence: 0.8996237

00:10:27.890 --> 00:10:28.710 doctor Velasquez.

NOTE Confidence: 0.9659953

00:10:29.890 --> 00:10:31.010 I I am just deeply

NOTE Confidence: 0.9659953

00:10:31.010 --> 00:10:32.610 honored, to and today, I'm

NOTE Confidence: 0.9659953

00:10:32.610 --> 00:10:33.490 gonna talk to you mainly

NOTE Confidence: 0.9659953

00:10:33.490 --> 00:10:35.725 about coronary CTA and and

NOTE Confidence: 0.9659953

00:10:35.725 --> 00:10:36.225 many

NOTE Confidence: 0.8956325

00:10:36.605 --> 00:10:37.804 of the, I I would

NOTE Confidence: 0.8956325

00:10:37.804 --> 00:10:38.304 say,

NOTE Confidence: 0.96909064

00:10:39.245 --> 00:10:40.605 emerging topics, but I think

NOTE Confidence: 0.96909064

00:10:40.605 --> 00:10:42.045 they're here in in in

NOTE Confidence: 0.96909064

00:10:42.045 --> 00:10:43.804 in the forefront today related

NOTE Confidence: 0.96909064

00:10:43.804 --> 00:10:44.765 to AI. And you heard

NOTE Confidence: 0.96909064

00:10:44.765 --> 00:10:45.425 all morning

NOTE Confidence: 0.8822933

00:10:45.725 --> 00:10:46.925 there rarely a talk that

NOTE Confidence: 0.8822933

00:10:46.925 --> 00:10:48.545 didn't talk about the potential

NOTE Confidence: 0.8822933

00:10:48.605 --> 00:10:49.265 or promise

NOTE Confidence: 0.98395246

00:10:49.690 --> 00:10:50.490 or or even the current

NOTE Confidence: 0.98395246

00:10:50.490 --> 00:10:51.370 use of AI in your

NOTE Confidence: 0.98395246

00:10:51.370 --> 00:10:51.870 research.

NOTE Confidence: 0.9735013

00:10:52.570 --> 00:10:53.770 These are just disclosures. I

NOTE Confidence: 0.9735013

00:10:53.770 --> 00:10:55.310 do some clinical trial leadership,

NOTE Confidence: 0.8787015

00:10:55.770 --> 00:10:57.070 that involves CT,

NOTE Confidence: 0.91385776

00:10:58.090 --> 00:10:59.370 acquisition, and so just making

NOTE Confidence: 0.91385776

00:10:59.370 --> 00:11:00.190 sure that those

NOTE Confidence: 0.9298317

00:11:00.570 --> 00:11:02.250 are appropriate, acquisitions. And I'll

NOTE Confidence: 0.9298317

00:11:02.250 --> 00:11:03.210 point out that while I'm

NOTE Confidence: 0.9298317

00:11:03.210 --> 00:11:04.750 talking about coronary CT,

NOTE Confidence: 0.9039904

00:11:06.485 --> 00:11:06.985 that,

NOTE Confidence: 0.7550944

00:11:08.245 --> 00:11:10.184 actually, we I guess we

NOTE Confidence: 0.98631626

00:11:11.765 --> 00:11:12.725 I think this is the

NOTE Confidence: 0.98631626

00:11:12.725 --> 00:11:13.925 old slide set, but,

NOTE Confidence: 0.96887183

00:11:14.645 --> 00:11:15.925 that's okay. But I I

NOTE Confidence: 0.96887183

00:11:15.925 --> 00:11:16.725 had some slides that I

NOTE Confidence: 0.96887183

00:11:16.725 --> 00:11:17.925 wanted to just also point

NOTE Confidence: 0.96887183

00:11:17.925 --> 00:11:18.825 out and thank,

NOTE Confidence: 0.9941964

00:11:20.080 --> 00:11:21.540 Renee. I had the opportunity

NOTE Confidence: 0.9941964

00:11:21.600 --> 00:11:23.059 to to have dinner with,

NOTE Confidence: 0.89866954

00:11:23.760 --> 00:11:24.980 doc doctor Barrett's,

NOTE Confidence: 0.9212826

00:11:25.920 --> 00:11:27.200 spouse, and and and I

NOTE Confidence: 0.9212826

00:11:27.200 --> 00:11:27.700 also,

NOTE Confidence: 0.9770005

00:11:28.720 --> 00:11:29.840 many years ago, got the

NOTE Confidence: 0.9770005

00:11:29.840 --> 00:11:31.220 chance to meet,

NOTE Confidence: 0.99920464

00:11:32.080 --> 00:11:32.900 doctor Barrett's

NOTE Confidence: 0.968966

00:11:33.735 --> 00:11:35.495 daughter-in-law who was training in

NOTE Confidence: 0.968966

00:11:35.495 --> 00:11:36.615 OB GYN at Walter Reed,

NOTE Confidence: 0.968966

00:11:36.615 --> 00:11:37.495 and she just happened to

NOTE Confidence: 0.968966

00:11:37.495 --> 00:11:39.095 be on my cardiology service.

NOTE Confidence: 0.968966

00:11:39.095 --> 00:11:40.535 So, and I pulled out

NOTE Confidence: 0.968966

00:11:40.535 --> 00:11:41.335 at that time, and I

NOTE Confidence: 0.968966

00:11:41.335 --> 00:11:42.135 had a slide that just

NOTE Confidence: 0.968966

00:11:42.135 --> 00:11:44.154 showed a picture of doctor

NOTE Confidence: 0.968966

00:11:44.375 --> 00:11:45.335 Zaritz's book,

NOTE Confidence: 0.93434983

00:11:45.895 --> 00:11:47.575 which, I, like so many

NOTE Confidence: 0.93434983

00:11:47.575 --> 00:11:49.019 of you, that practice nuclear

NOTE Confidence: 0.93434983

00:11:49.019 --> 00:11:50.079 cardiology read.

NOTE Confidence: 0.9886194

00:11:50.459 --> 00:11:51.980 And so, you know, thank

NOTE Confidence: 0.9886194

00:11:51.980 --> 00:11:53.259 you for being here today

NOTE Confidence: 0.9886194

00:11:53.259 --> 00:11:54.940 and, and such a pleasure

NOTE Confidence: 0.9886194

00:11:54.940 --> 00:11:56.059 to have dinner and and

NOTE Confidence: 0.9886194

00:11:56.059 --> 00:11:57.019 and to meet you.

NOTE Confidence: 0.9807942

00:11:57.740 --> 00:11:58.860 So why don't we, we'll

NOTE Confidence: 0.9807942

00:11:58.860 --> 00:11:59.420 just go ahead and,

NOTE Confidence: 0.97804046

00:12:01.115 --> 00:12:01.915 get started.

NOTE Confidence: 0.983339

00:12:02.315 --> 00:12:03.695 Real real quickly,

NOTE Confidence: 0.9986904

00:12:04.075 --> 00:12:04.815 is the

NOTE Confidence: 0.9960546

00:12:05.675 --> 00:12:06.714 do we have the other

NOTE Confidence: 0.9960546

00:12:06.714 --> 00:12:07.535 slide set?

NOTE Confidence: 0.98655427

00:12:09.995 --> 00:12:11.195 That's okay. We'll we'll roll

NOTE Confidence: 0.98655427

00:12:11.195 --> 00:12:11.855 with this.

NOTE Confidence: 0.9810315

00:12:14.010 --> 00:12:14.970 So what I'm gonna talk

NOTE Confidence: 0.9810315

00:12:14.970 --> 00:12:16.170 about originally is where we're

NOTE Confidence: 0.9810315

00:12:16.170 --> 00:12:17.370 at in corn in with

NOTE Confidence: 0.9810315

00:12:17.370 --> 00:12:19.050 with coronary CT in twenty

NOTE Confidence: 0.9810315

00:12:19.050 --> 00:12:19.870 twenty five.

NOTE Confidence: 0.9980389

00:12:20.330 --> 00:12:21.210 And so I think many

NOTE Confidence: 0.9980389

00:12:21.210 --> 00:12:22.090 of you are used to

NOTE Confidence: 0.9980389

00:12:22.090 --> 00:12:23.690 seeing the clinical indications for

NOTE Confidence: 0.9980389

00:12:23.690 --> 00:12:25.290 coronary CT. This is a

NOTE Confidence: 0.9980389

00:12:25.290 --> 00:12:26.590 noninvasive angiogram.

NOTE Confidence: 0.96709245

00:12:27.445 --> 00:12:28.485 You know, I was very

NOTE Confidence: 0.96709245

00:12:28.565 --> 00:12:29.125 I I you know, I

NOTE Confidence: 0.96709245

00:12:29.125 --> 00:12:30.245 was talking yesterday with doctor

NOTE Confidence: 0.96709245

00:12:30.245 --> 00:12:31.365 Velasquez about how I got

NOTE Confidence: 0.96709245

00:12:31.365 --> 00:12:32.804 interested in this technology and

NOTE Confidence: 0.96709245

00:12:32.804 --> 00:12:34.165 this thought that if you

NOTE Confidence: 0.96709245

00:12:34.165 --> 00:12:35.045 think back to when we

NOTE Confidence: 0.96709245

00:12:35.045 --> 00:12:35.785 were training,

NOTE Confidence: 0.9970002

00:12:36.245 --> 00:12:38.325 you know, invasive angiography, we

NOTE Confidence: 0.9970002

00:12:38.325 --> 00:12:40.520 were all doing functional testing

NOTE Confidence: 0.978148

00:12:40.900 --> 00:12:43.059 with this probably overly singular

NOTE Confidence: 0.978148

00:12:43.059 --> 00:12:45.140 focus on epicardial coronary disease.

NOTE Confidence: 0.978148

00:12:45.140 --> 00:12:46.500 Right? We were focused on

NOTE Confidence: 0.978148

00:12:46.500 --> 00:12:47.620 detecting what I show you

NOTE Confidence: 0.978148

00:12:47.620 --> 00:12:49.380 here. Right? Severe epicardial disease.

NOTE Confidence: 0.978148

00:12:49.380 --> 00:12:50.260 And we've learned there's so

NOTE Confidence: 0.978148

00:12:50.260 --> 00:12:52.020 much more physiology that's important

NOTE Confidence: 0.978148

00:12:52.020 --> 00:12:53.635 from functional imaging. We've learned

NOTE Confidence: 0.978148

00:12:53.635 --> 00:12:54.615 about the microvasculature,

NOTE Confidence: 0.9794783

00:12:55.554 --> 00:12:57.315 INOCA, ANOCA, but this was

NOTE Confidence: 0.9794783

00:12:57.315 --> 00:12:58.595 really the goal. And the

NOTE Confidence: 0.9794783

00:12:58.595 --> 00:12:59.394 thought that you could do

NOTE Confidence: 0.9794783

00:12:59.394 --> 00:13:00.295 this noninvasively,

NOTE Confidence: 0.9135467

00:13:01.235 --> 00:13:02.995 accurately with a beating heart

NOTE Confidence: 0.9135467

00:13:02.995 --> 00:13:03.554 was quite,

NOTE Confidence: 0.96784055

00:13:04.115 --> 00:13:05.635 quite a novel idea back

NOTE Confidence: 0.96784055

00:13:05.635 --> 00:13:06.834 in the early two thousands.

NOTE Confidence: 0.96784055

00:13:06.834 --> 00:13:07.795 And having grown up doing

NOTE Confidence: 0.96784055

00:13:07.795 --> 00:13:08.695 coronary calcium,

NOTE Confidence: 0.9963193

00:13:09.389 --> 00:13:09.889 research,

NOTE Confidence: 0.9686899

00:13:10.589 --> 00:13:11.949 that was, you know, to

NOTE Confidence: 0.9686899

00:13:11.949 --> 00:13:13.329 be able to do angiography

NOTE Confidence: 0.9686899

00:13:13.389 --> 00:13:14.429 with CT was quite based.

NOTE Confidence: 0.9686899

00:13:14.429 --> 00:13:15.230 So most of you, when

NOTE Confidence: 0.9686899

00:13:15.230 --> 00:13:16.269 we're talking about the clinical

NOTE Confidence: 0.9686899

00:13:16.269 --> 00:13:18.610 utilization, obviously, in symptomatic patients,

NOTE Confidence: 0.9686899

00:13:18.910 --> 00:13:20.429 identifying patients like this is

NOTE Confidence: 0.9686899

00:13:20.429 --> 00:13:21.870 a super helpful role, this

NOTE Confidence: 0.9686899

00:13:21.870 --> 00:13:23.649 ability to do noninvasive angiography.

NOTE Confidence: 0.94683784

00:13:24.005 --> 00:13:24.725 But I think what got

NOTE Confidence: 0.94683784

00:13:24.725 --> 00:13:26.265 me most excited about

NOTE Confidence: 0.9978544

00:13:26.644 --> 00:13:28.584 coronary CT was this idea

NOTE Confidence: 0.9955557

00:13:29.125 --> 00:13:30.404 that not only can we

NOTE Confidence: 0.9955557

00:13:30.404 --> 00:13:30.904 identify

NOTE Confidence: 0.99709976

00:13:31.205 --> 00:13:33.225 high risk epicardial coronary disease,

NOTE Confidence: 0.99709976

00:13:33.285 --> 00:13:34.964 perhaps better select patients who

NOTE Confidence: 0.99709976

00:13:34.964 --> 00:13:36.345 may benefit from revascularization

NOTE Confidence: 0.95943135

00:13:36.885 --> 00:13:37.925 or who need or don't

NOTE Confidence: 0.95943135

00:13:37.925 --> 00:13:39.144 need the cath lab,

NOTE Confidence: 0.9655382

00:13:39.605 --> 00:13:40.360 but But this idea that

NOTE Confidence: 0.9655382

00:13:40.360 --> 00:13:41.720 we can see three-dimensional whole

NOTE Confidence: 0.9655382

00:13:41.720 --> 00:13:42.459 heart atherosclerosis

NOTE Confidence: 0.9442627

00:13:43.480 --> 00:13:45.240 in a noninvasive test and

NOTE Confidence: 0.9442627

00:13:45.240 --> 00:13:46.779 to use that to then

NOTE Confidence: 0.99921703

00:13:47.240 --> 00:13:47.740 change

NOTE Confidence: 0.99064445

00:13:48.279 --> 00:13:48.939 our preventive

NOTE Confidence: 0.9998714

00:13:49.319 --> 00:13:49.819 approach

NOTE Confidence: 0.94127506

00:13:50.360 --> 00:13:51.639 and to harness this data

NOTE Confidence: 0.94127506

00:13:51.639 --> 00:13:52.699 and to change management.

NOTE Confidence: 0.9838528

00:13:53.000 --> 00:13:53.879 Because, you know, this was

NOTE Confidence: 0.9838528

00:13:53.879 --> 00:13:55.475 something that, we had seen

NOTE Confidence: 0.9838528

00:13:55.475 --> 00:13:57.334 this concept of seeing atherosclerosis

NOTE Confidence: 0.9838528

00:13:57.475 --> 00:13:59.075 and treating atherosclerosis with coronary

NOTE Confidence: 0.9838528

00:13:59.075 --> 00:14:00.515 calcium score. And so if

NOTE Confidence: 0.9838528

00:14:00.515 --> 00:14:01.394 you look, you know, at

NOTE Confidence: 0.9838528

00:14:01.394 --> 00:14:02.595 current state, look at current

NOTE Confidence: 0.9838528

00:14:02.595 --> 00:14:04.274 guidelines, we know that coronary

NOTE Confidence: 0.9838528

00:14:04.274 --> 00:14:05.315 CT has come a long

NOTE Confidence: 0.9838528

00:14:05.315 --> 00:14:06.915 way. When you compare this

NOTE Confidence: 0.9838528

00:14:06.915 --> 00:14:08.195 to prior chest pain guidelines,

NOTE Confidence: 0.9838528

00:14:08.195 --> 00:14:09.720 it now is a recommended

NOTE Confidence: 0.9838528

00:14:09.780 --> 00:14:11.700 first line test in patients

NOTE Confidence: 0.9838528

00:14:11.700 --> 00:14:12.360 who are,

NOTE Confidence: 0.9660827

00:14:12.740 --> 00:14:14.340 who are without known coronary

NOTE Confidence: 0.9660827

00:14:14.340 --> 00:14:15.700 disease. And so this is

NOTE Confidence: 0.9660827

00:14:15.700 --> 00:14:16.500 something that, you know, I

NOTE Confidence: 0.9660827

00:14:16.500 --> 00:14:17.720 think when we think about

NOTE Confidence: 0.9660827

00:14:17.940 --> 00:14:19.860 test selection, where the really

NOTE Confidence: 0.9660827

00:14:19.860 --> 00:14:21.300 the the foundational role of

NOTE Confidence: 0.9660827

00:14:21.300 --> 00:14:22.340 CT is in patients who

NOTE Confidence: 0.9660827

00:14:22.340 --> 00:14:23.945 have no known coronary disease

NOTE Confidence: 0.9660827

00:14:23.945 --> 00:14:25.144 and the guideline writers have

NOTE Confidence: 0.9660827

00:14:25.144 --> 00:14:26.345 talked about when you might

NOTE Confidence: 0.9660827

00:14:26.345 --> 00:14:28.105 choose coronary CT and when

NOTE Confidence: 0.9660827

00:14:28.105 --> 00:14:30.105 you might be more more

NOTE Confidence: 0.9660827

00:14:30.105 --> 00:14:31.464 more preferred to choose functional

NOTE Confidence: 0.9660827

00:14:31.464 --> 00:14:32.264 testing. And so I think

NOTE Confidence: 0.9660827

00:14:32.264 --> 00:14:33.144 this is data that you're

NOTE Confidence: 0.9660827

00:14:33.144 --> 00:14:33.865 all aware of and this

NOTE Confidence: 0.9660827

00:14:33.865 --> 00:14:35.225 is true for both acute

NOTE Confidence: 0.9660827

00:14:35.225 --> 00:14:36.685 and chronic chest pain.

NOTE Confidence: 0.9660777

00:14:36.990 --> 00:14:38.350 Now the guideline writers, much

NOTE Confidence: 0.9660777

00:14:38.350 --> 00:14:39.630 what I just mentioned about

NOTE Confidence: 0.9660777

00:14:39.630 --> 00:14:40.850 this concept of atherosclerosis,

NOTE Confidence: 0.98860896

00:14:41.550 --> 00:14:42.510 I think, you know, really

NOTE Confidence: 0.98860896

00:14:42.510 --> 00:14:44.510 changed the phenotypic description of

NOTE Confidence: 0.98860896

00:14:44.510 --> 00:14:46.190 who has coronary disease. And

NOTE Confidence: 0.98860896

00:14:46.190 --> 00:14:47.250 so if you think traditionally,

NOTE Confidence: 0.9797611

00:14:47.950 --> 00:14:49.149 if you looked at clinical

NOTE Confidence: 0.9797611

00:14:49.149 --> 00:14:50.430 trial enrollment or if you

NOTE Confidence: 0.9797611

00:14:50.430 --> 00:14:51.170 looked at,

NOTE Confidence: 0.9793422

00:14:51.495 --> 00:14:52.935 how we define people with

NOTE Confidence: 0.9793422

00:14:52.935 --> 00:14:54.555 established coronary disease clinically,

NOTE Confidence: 0.96466464

00:14:55.095 --> 00:14:56.715 we typically use stenosis

NOTE Confidence: 0.96920776

00:14:57.415 --> 00:14:58.855 to define it. It was

NOTE Confidence: 0.96920776

00:14:58.855 --> 00:15:00.155 based on how much stenosis

NOTE Confidence: 0.96920776

00:15:00.215 --> 00:15:01.575 you had. Right? And so

NOTE Confidence: 0.96920776

00:15:01.575 --> 00:15:02.455 typically, you had to have

NOTE Confidence: 0.96920776

00:15:02.455 --> 00:15:03.655 at least a fifty percent

NOTE Confidence: 0.96920776

00:15:03.655 --> 00:15:05.440 stenosis or some threshold, seventy

NOTE Confidence: 0.96920776

00:15:05.440 --> 00:15:06.720 percent in non lane left

NOTE Confidence: 0.96920776

00:15:06.720 --> 00:15:08.079 main vessels. You have to

NOTE Confidence: 0.96920776

00:15:08.079 --> 00:15:09.060 have had an event

NOTE Confidence: 0.90905863

00:15:09.440 --> 00:15:10.259 or a revascularization

NOTE Confidence: 0.98294383

00:15:10.720 --> 00:15:12.000 procedure to be defined. And

NOTE Confidence: 0.98294383

00:15:12.000 --> 00:15:13.120 I think the guideline writers

NOTE Confidence: 0.98294383

00:15:13.120 --> 00:15:14.339 for the first time said

NOTE Confidence: 0.98294383

00:15:14.480 --> 00:15:15.540 that atherosclerosis

NOTE Confidence: 0.9705362

00:15:16.240 --> 00:15:16.740 identified

NOTE Confidence: 0.99908614

00:15:17.199 --> 00:15:17.940 on CT

NOTE Confidence: 0.99993205

00:15:18.675 --> 00:15:19.975 is coronary

NOTE Confidence: 0.99982774

00:15:20.275 --> 00:15:21.175 artery disease

NOTE Confidence: 0.9403454

00:15:21.555 --> 00:15:22.515 and that we should use

NOTE Confidence: 0.9403454

00:15:22.515 --> 00:15:24.215 this information to pair this

NOTE Confidence: 0.83733034

00:15:24.675 --> 00:15:25.175 commensurally,

NOTE Confidence: 0.96854573

00:15:25.955 --> 00:15:27.315 the intensity of prevention to

NOTE Confidence: 0.96854573

00:15:27.315 --> 00:15:28.595 disease severity. And so our

NOTE Confidence: 0.96854573

00:15:28.595 --> 00:15:30.995 European colleagues have have, similar

NOTE Confidence: 0.96854573

00:15:30.995 --> 00:15:32.630 guidelines. This is now, what

NOTE Confidence: 0.96854573

00:15:32.630 --> 00:15:33.350 I just showed you, what

NOTE Confidence: 0.96854573

00:15:33.350 --> 00:15:34.230 we're doing in the US

NOTE Confidence: 0.96854573

00:15:34.230 --> 00:15:36.250 with coronary CT is actually,

NOTE Confidence: 0.96854573

00:15:36.550 --> 00:15:37.690 now being done

NOTE Confidence: 0.9529949

00:15:38.390 --> 00:15:40.070 internationally. And in fact, you

NOTE Confidence: 0.9529949

00:15:40.070 --> 00:15:41.029 know, these these are actually

NOTE Confidence: 0.9529949

00:15:41.029 --> 00:15:42.310 just recent guidelines. This has

NOTE Confidence: 0.9529949

00:15:42.310 --> 00:15:43.110 been the case for now

NOTE Confidence: 0.9529949

00:15:43.110 --> 00:15:44.550 for many years. Now these

NOTE Confidence: 0.9529949

00:15:44.550 --> 00:15:46.250 guidelines are based on prospective

NOTE Confidence: 0.94049245

00:15:46.630 --> 00:15:48.255 randomized clinical trials to have

NOTE Confidence: 0.94049245

00:15:48.335 --> 00:15:49.615 a class one recommendation and

NOTE Confidence: 0.94049245

00:15:49.615 --> 00:15:50.115 guidelines,

NOTE Confidence: 0.9743419

00:15:50.655 --> 00:15:51.775 and they're based on data

NOTE Confidence: 0.9743419

00:15:51.775 --> 00:15:52.515 showing that,

NOTE Confidence: 0.9755019

00:15:53.055 --> 00:15:53.775 you know, we know it's

NOTE Confidence: 0.9755019

00:15:53.775 --> 00:15:55.215 not the tests that essentially

NOTE Confidence: 0.9755019

00:15:55.215 --> 00:15:56.255 change the outcome. It's how

NOTE Confidence: 0.9755019

00:15:56.255 --> 00:15:58.095 you utilize this information. And

NOTE Confidence: 0.9755019

00:15:58.095 --> 00:15:58.895 so if you look at,

NOTE Confidence: 0.9755019

00:15:58.895 --> 00:16:00.835 for example, in Scott Hart,

NOTE Confidence: 0.9755019

00:16:00.895 --> 00:16:02.035 that when you paired

NOTE Confidence: 0.9870292

00:16:02.700 --> 00:16:04.780 atherosclerosis imaging with an increased

NOTE Confidence: 0.9870292

00:16:04.780 --> 00:16:06.380 use of preventive therapies, that

NOTE Confidence: 0.9870292

00:16:06.380 --> 00:16:07.340 you saw about a forty

NOTE Confidence: 0.9870292

00:16:07.340 --> 00:16:08.620 percent reduction in MI. And

NOTE Confidence: 0.9870292

00:16:08.620 --> 00:16:10.140 so this concept that, you

NOTE Confidence: 0.9870292

00:16:10.140 --> 00:16:11.600 know, we're not making people

NOTE Confidence: 0.97178537

00:16:12.060 --> 00:16:13.980 necessarily live longer because we're

NOTE Confidence: 0.97178537

00:16:13.980 --> 00:16:15.375 putting in more stents or

NOTE Confidence: 0.97178537

00:16:15.615 --> 00:16:17.135 necessarily doing more bypass surgery

NOTE Confidence: 0.97178537

00:16:17.135 --> 00:16:18.175 with CT, but it's in

NOTE Confidence: 0.97178537

00:16:18.175 --> 00:16:19.235 fact this identification

NOTE Confidence: 0.9810032

00:16:19.935 --> 00:16:21.695 of nonobstructive disease paired with

NOTE Confidence: 0.9810032

00:16:21.695 --> 00:16:22.895 preventive therapies. And I think

NOTE Confidence: 0.9810032

00:16:22.895 --> 00:16:23.775 this is the concept that

NOTE Confidence: 0.9810032

00:16:23.775 --> 00:16:25.135 we're most excited about. And

NOTE Confidence: 0.9810032

00:16:25.135 --> 00:16:26.015 so just to kinda talk

NOTE Confidence: 0.9810032

00:16:26.015 --> 00:16:26.975 about where we're at in

NOTE Confidence: 0.9810032

00:16:26.975 --> 00:16:28.435 twenty twenty five and how

NOTE Confidence: 0.9638295

00:16:29.339 --> 00:16:31.420 AI software is potentially changing

NOTE Confidence: 0.9638295

00:16:31.420 --> 00:16:32.540 practice, I think it's important

NOTE Confidence: 0.9638295

00:16:32.540 --> 00:16:34.459 to understand the strengths but

NOTE Confidence: 0.9638295

00:16:34.459 --> 00:16:36.079 also the limitations of anatomic

NOTE Confidence: 0.9638295

00:16:36.140 --> 00:16:36.860 imaging. And I think no

NOTE Confidence: 0.9638295

00:16:36.940 --> 00:16:37.579 there's no place in the

NOTE Confidence: 0.9638295

00:16:37.579 --> 00:16:38.700 world that understands that better

NOTE Confidence: 0.9638295

00:16:38.700 --> 00:16:39.500 than the people in this

NOTE Confidence: 0.9638295

00:16:39.500 --> 00:16:40.000 room.

NOTE Confidence: 0.9620913

00:16:40.380 --> 00:16:41.019 But we know the real

NOTE Confidence: 0.9620913

00:16:41.019 --> 00:16:42.540 value of coronary CT is

NOTE Confidence: 0.9620913

00:16:42.540 --> 00:16:43.760 its very high sensitivity

NOTE Confidence: 0.99703693

00:16:44.435 --> 00:16:46.055 for detecting both angiographically

NOTE Confidence: 0.98511946

00:16:46.514 --> 00:16:48.195 significant coronary disease, so using

NOTE Confidence: 0.98511946

00:16:48.195 --> 00:16:50.535 a fifty percent stenosis threshold,

NOTE Confidence: 0.89458156

00:16:51.714 --> 00:16:53.415 as well as detecting functionally

NOTE Confidence: 0.89458156

00:16:53.475 --> 00:16:53.975 significant,

NOTE Confidence: 0.94760245

00:16:54.755 --> 00:16:56.355 CAD based on an abnormal

NOTE Confidence: 0.94760245

00:16:56.355 --> 00:16:57.495 invasive FFR.

NOTE Confidence: 0.9418095

00:16:58.060 --> 00:16:59.100 And so we know in

NOTE Confidence: 0.9418095

00:16:59.100 --> 00:17:00.220 the in this scenario that

NOTE Confidence: 0.9418095

00:17:00.220 --> 00:17:01.899 there's, you know, stenosis less

NOTE Confidence: 0.9418095

00:17:01.899 --> 00:17:03.100 than fifty percent. You're very

NOTE Confidence: 0.9418095

00:17:03.100 --> 00:17:05.679 unlikely to have hemodynamically significant

NOTE Confidence: 0.9418095

00:17:05.740 --> 00:17:07.020 disease if used in FFR

NOTE Confidence: 0.9418095

00:17:07.020 --> 00:17:07.520 standard,

NOTE Confidence: 0.9995384

00:17:07.980 --> 00:17:08.960 or you're unlikely

NOTE Confidence: 0.99735826

00:17:09.260 --> 00:17:10.000 to to

NOTE Confidence: 0.945544

00:17:10.565 --> 00:17:12.804 be missing significant angiographic disease.

NOTE Confidence: 0.945544

00:17:12.804 --> 00:17:13.765 Now on the con on

NOTE Confidence: 0.945544

00:17:13.765 --> 00:17:14.804 the converse, right, we know

NOTE Confidence: 0.945544

00:17:14.804 --> 00:17:15.705 that its specificity

NOTE Confidence: 0.9399985

00:17:16.165 --> 00:17:18.025 as a static image is,

NOTE Confidence: 0.9498402

00:17:18.484 --> 00:17:19.445 about the same as other

NOTE Confidence: 0.9498402

00:17:19.445 --> 00:17:20.345 tests, modest,

NOTE Confidence: 0.99821395

00:17:20.725 --> 00:17:21.605 and that when we see

NOTE Confidence: 0.99821395

00:17:21.605 --> 00:17:22.665 intermediate stenosis

NOTE Confidence: 0.982597

00:17:23.130 --> 00:17:24.250 on CT, that it's probably

NOTE Confidence: 0.982597

00:17:24.250 --> 00:17:24.970 a flip of a coin

NOTE Confidence: 0.982597

00:17:24.970 --> 00:17:25.770 as to whether that is

NOTE Confidence: 0.982597

00:17:25.770 --> 00:17:27.290 a functionally significant lesion. And

NOTE Confidence: 0.982597

00:17:27.290 --> 00:17:28.650 so that's certainly the the

NOTE Confidence: 0.982597

00:17:28.650 --> 00:17:29.790 the downside of CT.

NOTE Confidence: 0.9880375

00:17:30.730 --> 00:17:32.330 So how is CT today

NOTE Confidence: 0.9880375

00:17:32.330 --> 00:17:34.090 changing who how we treat?

NOTE Confidence: 0.9880375

00:17:34.090 --> 00:17:34.970 And I'm gonna show you

NOTE Confidence: 0.9880375

00:17:34.970 --> 00:17:36.030 some recent data,

NOTE Confidence: 0.9722509

00:17:36.585 --> 00:17:37.385 and then kind of with

NOTE Confidence: 0.9722509

00:17:37.385 --> 00:17:38.665 an eye forward to how

NOTE Confidence: 0.9722509

00:17:38.665 --> 00:17:40.744 perhaps the field is is

NOTE Confidence: 0.9722509

00:17:40.744 --> 00:17:41.625 is changing. Now we know

NOTE Confidence: 0.9722509

00:17:41.625 --> 00:17:42.445 that historically

NOTE Confidence: 0.96953326

00:17:43.145 --> 00:17:44.365 we have done a relatively

NOTE Confidence: 0.9998394

00:17:45.065 --> 00:17:47.484 average job at selecting patients

NOTE Confidence: 0.9868204

00:17:48.184 --> 00:17:49.405 for invasive angiography.

NOTE Confidence: 0.9343964

00:17:50.520 --> 00:17:51.720 When and and I say

NOTE Confidence: 0.9343964

00:17:51.720 --> 00:17:52.760 historically, if you look at

NOTE Confidence: 0.9343964

00:17:52.760 --> 00:17:54.920 large scale, NCDR, these are

NOTE Confidence: 0.9343964

00:17:54.920 --> 00:17:57.000 ACC run, cath registries if

NOTE Confidence: 0.9343964

00:17:57.000 --> 00:17:58.060 you look at the USVA.

NOTE Confidence: 0.9804406

00:17:58.520 --> 00:18:00.060 If you take patients without

NOTE Confidence: 0.9804406

00:18:00.119 --> 00:18:02.359 established coronary disease, who most

NOTE Confidence: 0.9804406

00:18:02.359 --> 00:18:03.400 of which have had either

NOTE Confidence: 0.9804406

00:18:03.400 --> 00:18:04.060 no testing,

NOTE Confidence: 0.9888521

00:18:04.414 --> 00:18:05.294 but most of them have

NOTE Confidence: 0.9888521

00:18:05.294 --> 00:18:06.654 had functional testing. It's about

NOTE Confidence: 0.9888521

00:18:06.654 --> 00:18:08.034 half of patients end up

NOTE Confidence: 0.9888521

00:18:08.174 --> 00:18:09.534 leaving the cath lab with

NOTE Confidence: 0.9888521

00:18:09.534 --> 00:18:10.994 a with a a diagnosis

NOTE Confidence: 0.9888521

00:18:11.135 --> 00:18:12.494 of of of minimal to

NOTE Confidence: 0.9888521

00:18:12.494 --> 00:18:14.195 nonobstructive coronary disease.

NOTE Confidence: 0.9759971

00:18:14.895 --> 00:18:16.335 And so can we do

NOTE Confidence: 0.9759971

00:18:16.335 --> 00:18:17.294 better? And I say that

NOTE Confidence: 0.9759971

00:18:17.294 --> 00:18:18.015 because, you know, if you

NOTE Confidence: 0.9759971

00:18:18.015 --> 00:18:18.815 look at my cath lab

NOTE Confidence: 0.9759971

00:18:18.815 --> 00:18:20.115 at the University of Virginia,

NOTE Confidence: 0.84026706

00:18:20.520 --> 00:18:21.260 my interventionalists

NOTE Confidence: 0.9540934

00:18:21.560 --> 00:18:22.840 like doing things and fixing

NOTE Confidence: 0.9540934

00:18:22.840 --> 00:18:25.000 things and doing normal cast

NOTE Confidence: 0.9540934

00:18:25.000 --> 00:18:26.040 is not a you know,

NOTE Confidence: 0.9540934

00:18:26.040 --> 00:18:27.500 you know, most people aren't

NOTE Confidence: 0.9540934

00:18:27.640 --> 00:18:28.600 super thrilled about that, but

NOTE Confidence: 0.9540934

00:18:28.600 --> 00:18:29.960 it's really more about efficiency

NOTE Confidence: 0.9540934

00:18:29.960 --> 00:18:31.340 of care and resource utilization.

NOTE Confidence: 0.9780357

00:18:31.880 --> 00:18:32.680 You know, I think most

NOTE Confidence: 0.9780357

00:18:32.680 --> 00:18:33.560 of us would argue that

NOTE Confidence: 0.9780357

00:18:33.560 --> 00:18:35.000 with our noninvasive tools, the

NOTE Confidence: 0.9780357

00:18:35.000 --> 00:18:36.255 people in this room, we

NOTE Confidence: 0.9780357

00:18:36.255 --> 00:18:37.535 we can phenotype and pretty

NOTE Confidence: 0.9780357

00:18:37.535 --> 00:18:39.315 accurately diagnose people noninvasively.

NOTE Confidence: 0.9819746

00:18:39.695 --> 00:18:40.575 So people who go to

NOTE Confidence: 0.9819746

00:18:40.575 --> 00:18:41.455 the cath lab are people

NOTE Confidence: 0.9819746

00:18:41.455 --> 00:18:42.195 who actually

NOTE Confidence: 0.9984147

00:18:42.655 --> 00:18:44.515 are likely to need revascularization

NOTE Confidence: 0.95912176

00:18:44.975 --> 00:18:46.015 or they need something we

NOTE Confidence: 0.95912176

00:18:46.015 --> 00:18:46.915 can't do noninvasively.

NOTE Confidence: 0.9884339

00:18:47.375 --> 00:18:48.255 And so the question is,

NOTE Confidence: 0.9884339

00:18:48.255 --> 00:18:49.775 can we do better? And

NOTE Confidence: 0.9884339

00:18:49.775 --> 00:18:50.655 and if you look at

NOTE Confidence: 0.9884339

00:18:50.655 --> 00:18:51.155 data,

NOTE Confidence: 0.9849767

00:18:52.200 --> 00:18:53.080 you know, we know that

NOTE Confidence: 0.9849767

00:18:53.080 --> 00:18:54.440 if you use CT, you're

NOTE Confidence: 0.9849767

00:18:54.440 --> 00:18:55.480 much less likely to have

NOTE Confidence: 0.9849767

00:18:55.480 --> 00:18:56.440 a normal cath when you

NOTE Confidence: 0.9849767

00:18:56.440 --> 00:18:57.559 leave the cath lab. And

NOTE Confidence: 0.9849767

00:18:57.559 --> 00:18:58.600 this is even true in

NOTE Confidence: 0.9849767

00:18:58.600 --> 00:18:59.880 recent patients when we look

NOTE Confidence: 0.9849767

00:18:59.880 --> 00:19:01.399 at studies like ischemia. These

NOTE Confidence: 0.9849767

00:19:01.399 --> 00:19:02.359 were patients with moderate to

NOTE Confidence: 0.9849767

00:19:02.359 --> 00:19:03.720 severe ischemia based on sight

NOTE Confidence: 0.9849767

00:19:03.720 --> 00:19:04.934 reads. And when you did

NOTE Confidence: 0.9849767

00:19:04.934 --> 00:19:06.455 coronary CT in about eighty

NOTE Confidence: 0.9849767

00:19:06.455 --> 00:19:07.755 plus percent of these patients,

NOTE Confidence: 0.9849767

00:19:07.895 --> 00:19:08.775 one in five of them

NOTE Confidence: 0.9849767

00:19:08.775 --> 00:19:10.395 did not have significant angiographic

NOTE Confidence: 0.9849767

00:19:10.615 --> 00:19:11.575 disease. This is not to

NOTE Confidence: 0.9849767

00:19:11.575 --> 00:19:12.455 say that they didn't have

NOTE Confidence: 0.9849767

00:19:12.455 --> 00:19:13.815 things like microvascular disease or

NOTE Confidence: 0.9849767

00:19:13.815 --> 00:19:15.015 other things, but they probably

NOTE Confidence: 0.9849767

00:19:15.015 --> 00:19:15.815 didn't need to go to

NOTE Confidence: 0.9849767

00:19:15.815 --> 00:19:16.650 the cath lab.

NOTE Confidence: 0.97737503

00:19:17.130 --> 00:19:18.170 And we could probably use

NOTE Confidence: 0.97737503

00:19:18.170 --> 00:19:19.609 those resources perhaps a little

NOTE Confidence: 0.97737503

00:19:19.609 --> 00:19:20.090 more,

NOTE Confidence: 0.9081508

00:19:20.410 --> 00:19:20.910 appropriately.

NOTE Confidence: 0.9963321

00:19:21.450 --> 00:19:22.410 And so this is a

NOTE Confidence: 0.9963321

00:19:22.410 --> 00:19:24.010 relatively recent study. This this

NOTE Confidence: 0.9963321

00:19:24.010 --> 00:19:24.970 was a study that was

NOTE Confidence: 0.9963321

00:19:24.970 --> 00:19:26.570 started before the guidelines, but

NOTE Confidence: 0.9963321

00:19:26.570 --> 00:19:27.690 it came out after the

NOTE Confidence: 0.9963321

00:19:27.690 --> 00:19:28.190 guidelines.

NOTE Confidence: 0.98213935

00:19:29.050 --> 00:19:30.885 This was, a sponsored study

NOTE Confidence: 0.98213935

00:19:31.045 --> 00:19:32.005 by by one of the

NOTE Confidence: 0.98213935

00:19:32.005 --> 00:19:33.305 vendors in the field, but

NOTE Confidence: 0.98213935

00:19:33.365 --> 00:19:34.744 they, were comparing

NOTE Confidence: 0.9687201

00:19:35.045 --> 00:19:37.045 a CT guided strategy with,

NOTE Confidence: 0.9187068

00:19:37.765 --> 00:19:38.265 optional

NOTE Confidence: 0.98231107

00:19:38.805 --> 00:19:40.085 FFR CT. I'm not gonna

NOTE Confidence: 0.98231107

00:19:40.085 --> 00:19:41.125 be talking much about that

NOTE Confidence: 0.98231107

00:19:41.125 --> 00:19:41.625 technology.

NOTE Confidence: 0.93381166

00:19:42.005 --> 00:19:42.965 About a third of patients

NOTE Confidence: 0.93381166

00:19:42.965 --> 00:19:43.525 got that if they had

NOTE Confidence: 0.93381166

00:19:43.525 --> 00:19:45.605 intermediate stenosis versus functional testing.

NOTE Confidence: 0.93381166

00:19:45.605 --> 00:19:47.290 This is a relatively low

NOTE Confidence: 0.93381166

00:19:47.350 --> 00:19:48.809 risk outpatient population.

NOTE Confidence: 0.937474

00:19:49.270 --> 00:19:50.230 And again, what did they

NOTE Confidence: 0.937474

00:19:50.230 --> 00:19:51.830 find? Well, no difference in

NOTE Confidence: 0.937474

00:19:51.830 --> 00:19:52.650 death or MI,

NOTE Confidence: 0.9651958

00:19:53.190 --> 00:19:54.549 big reduction, about a seventy

NOTE Confidence: 0.9651958

00:19:54.549 --> 00:19:57.049 percent reduction in unnecessary casts.

NOTE Confidence: 0.9651958

00:19:57.109 --> 00:19:58.230 And so this concept of

NOTE Confidence: 0.9651958

00:19:58.230 --> 00:19:59.270 can we be more efficient

NOTE Confidence: 0.9651958

00:19:59.270 --> 00:20:00.169 with our resources,

NOTE Confidence: 0.9845559

00:20:00.945 --> 00:20:02.544 in a in a scenario

NOTE Confidence: 0.9845559

00:20:02.544 --> 00:20:04.725 where we're having increasing demands

NOTE Confidence: 0.9333139

00:20:05.025 --> 00:20:07.025 for, spots in our testing

NOTE Confidence: 0.9333139

00:20:07.025 --> 00:20:08.544 procedures, our labs, and especially

NOTE Confidence: 0.9333139

00:20:08.544 --> 00:20:09.585 our our cath labs. And

NOTE Confidence: 0.9333139

00:20:09.585 --> 00:20:10.465 so this just shows it

NOTE Confidence: 0.9333139

00:20:10.465 --> 00:20:12.005 another way. In patients

NOTE Confidence: 0.978796

00:20:12.385 --> 00:20:14.304 who had CT, less than

NOTE Confidence: 0.978796

00:20:14.304 --> 00:20:15.910 thirty percent of them, left

NOTE Confidence: 0.978796

00:20:15.910 --> 00:20:17.450 the cath lab without revascularization

NOTE Confidence: 0.9823557

00:20:17.830 --> 00:20:19.130 or a plan for CABG,

NOTE Confidence: 0.9823557

00:20:19.270 --> 00:20:20.630 and this was exactly opposite

NOTE Confidence: 0.9823557

00:20:20.630 --> 00:20:21.670 in patients who got usual

NOTE Confidence: 0.9823557

00:20:21.670 --> 00:20:22.790 care. About seventy percent of

NOTE Confidence: 0.9823557

00:20:22.790 --> 00:20:24.730 patients left the lab without

NOTE Confidence: 0.9823557

00:20:24.950 --> 00:20:25.450 revascularization.

NOTE Confidence: 0.9954012

00:20:25.910 --> 00:20:27.510 Sixty percent had no significant

NOTE Confidence: 0.9954012

00:20:27.510 --> 00:20:29.145 angiographic coronary disease at all.

NOTE Confidence: 0.8547143

00:20:29.865 --> 00:20:30.984 And again this was just,

NOTE Confidence: 0.8547143

00:20:31.385 --> 00:20:32.845 essentially in many ways observational,

NOTE Confidence: 0.9659526

00:20:33.625 --> 00:20:34.744 in the sense that people

NOTE Confidence: 0.9659526

00:20:34.744 --> 00:20:35.705 sent to the cath lab

NOTE Confidence: 0.9659526

00:20:35.705 --> 00:20:36.744 is left up to local

NOTE Confidence: 0.9659526

00:20:36.744 --> 00:20:37.565 site investigators.

NOTE Confidence: 0.92059547

00:20:38.585 --> 00:20:40.185 So what we're seeing now

NOTE Confidence: 0.92059547

00:20:40.185 --> 00:20:41.465 in a current guideline era

NOTE Confidence: 0.92059547

00:20:41.465 --> 00:20:41.865 is that,

NOTE Confidence: 0.999579

00:20:42.900 --> 00:20:43.400 utilization

NOTE Confidence: 0.95048326

00:20:43.780 --> 00:20:45.640 of coronary CT has significantly

NOTE Confidence: 0.95048326

00:20:45.859 --> 00:20:47.220 increased. This is actually some

NOTE Confidence: 0.95048326

00:20:47.220 --> 00:20:48.820 older data from just, about

NOTE Confidence: 0.95048326

00:20:48.820 --> 00:20:50.180 three months ago. And if

NOTE Confidence: 0.95048326

00:20:50.180 --> 00:20:51.220 you just look at these

NOTE Confidence: 0.95048326

00:20:51.220 --> 00:20:52.920 this kind of exponential increase

NOTE Confidence: 0.95048326

00:20:53.060 --> 00:20:53.720 in our,

NOTE Confidence: 0.9370777

00:20:54.100 --> 00:20:55.859 coronary CT lab and this

NOTE Confidence: 0.9370777

00:20:55.859 --> 00:20:57.295 is actually now this is

NOTE Confidence: 0.9370777

00:20:57.295 --> 00:20:58.895 actually not even, the full

NOTE Confidence: 0.9370777

00:20:58.895 --> 00:21:00.355 year for twenty twenty five.

NOTE Confidence: 0.9726927

00:21:00.975 --> 00:21:01.775 We've seen that it's now

NOTE Confidence: 0.9726927

00:21:01.775 --> 00:21:03.375 at UVA become the dominant

NOTE Confidence: 0.9726927

00:21:03.375 --> 00:21:03.875 testing

NOTE Confidence: 0.9469116

00:21:04.255 --> 00:21:06.175 modality for ischemic heart disease,

NOTE Confidence: 0.9469116

00:21:06.335 --> 00:21:07.234 at our institution.

NOTE Confidence: 0.99043554

00:21:07.615 --> 00:21:08.655 And while all of our,

NOTE Confidence: 0.99043554

00:21:08.975 --> 00:21:10.990 imaging modalities are growing, we've

NOTE Confidence: 0.99043554

00:21:10.990 --> 00:21:12.289 really seen this increased

NOTE Confidence: 0.97165966

00:21:12.750 --> 00:21:14.429 utilization of coronary CT. And

NOTE Confidence: 0.97165966

00:21:14.429 --> 00:21:15.230 so this has really created

NOTE Confidence: 0.97165966

00:21:15.230 --> 00:21:16.750 some unique problems, and this

NOTE Confidence: 0.97165966

00:21:16.750 --> 00:21:17.789 will dovetail into what we

NOTE Confidence: 0.97165966

00:21:17.789 --> 00:21:19.150 talked about using software. When

NOTE Confidence: 0.97165966

00:21:19.150 --> 00:21:20.190 I say unique problems, it's

NOTE Confidence: 0.97165966

00:21:20.190 --> 00:21:21.150 how do we schedule these

NOTE Confidence: 0.97165966

00:21:21.150 --> 00:21:21.650 patients?

NOTE Confidence: 0.99972224

00:21:22.029 --> 00:21:22.830 How do we get these

NOTE Confidence: 0.99972224

00:21:22.830 --> 00:21:23.789 people in and out of

NOTE Confidence: 0.99972224

00:21:23.789 --> 00:21:24.450 the scanner

NOTE Confidence: 0.9096637

00:21:24.755 --> 00:21:25.875 as quickly as we can

NOTE Confidence: 0.9096637

00:21:25.875 --> 00:21:27.235 so we utilize these slots

NOTE Confidence: 0.9096637

00:21:27.235 --> 00:21:28.675 appropriately? How do you know,

NOTE Confidence: 0.9096637

00:21:28.675 --> 00:21:29.875 we're really traveling to drill

NOTE Confidence: 0.9096637

00:21:29.875 --> 00:21:30.915 down and look at every

NOTE Confidence: 0.9096637

00:21:30.915 --> 00:21:31.655 part of

NOTE Confidence: 0.97486264

00:21:32.035 --> 00:21:33.255 the patient experience,

NOTE Confidence: 0.8974035

00:21:34.195 --> 00:21:34.695 premedication,

NOTE Confidence: 0.9450775

00:21:35.475 --> 00:21:37.155 where we start IVs, etcetera

NOTE Confidence: 0.9450775

00:21:37.155 --> 00:21:38.250 and so forth. And so

NOTE Confidence: 0.9450775

00:21:38.250 --> 00:21:39.690 we've now built the use

NOTE Confidence: 0.9450775

00:21:39.690 --> 00:21:41.530 of coronary CT into our

NOTE Confidence: 0.9450775

00:21:41.609 --> 00:21:43.050 this is actually called Agila

NOTE Confidence: 0.9450775

00:21:43.050 --> 00:21:44.250 MD. You probably have this

NOTE Confidence: 0.9450775

00:21:44.250 --> 00:21:45.470 embedded within your

NOTE Confidence: 0.9265007

00:21:45.930 --> 00:21:47.050 EHR and Epic. And so

NOTE Confidence: 0.9265007

00:21:47.050 --> 00:21:48.570 this is our observation pathway

NOTE Confidence: 0.9265007

00:21:48.570 --> 00:21:50.190 for people with intermediate troponins.

NOTE Confidence: 0.9937998

00:21:51.050 --> 00:21:51.850 And this is now,

NOTE Confidence: 0.9903404

00:21:52.475 --> 00:21:54.075 you know, the recommended testing

NOTE Confidence: 0.9903404

00:21:54.075 --> 00:21:55.935 strategy for, and we arbitrarily

NOTE Confidence: 0.9903404

00:21:55.994 --> 00:21:57.115 set this at anyone under

NOTE Confidence: 0.9903404

00:21:57.115 --> 00:21:58.395 eighty years old without known

NOTE Confidence: 0.9903404

00:21:58.395 --> 00:21:59.215 coronary disease.

NOTE Confidence: 0.9706889

00:22:00.155 --> 00:22:01.515 And so this is, kind

NOTE Confidence: 0.9706889

00:22:01.515 --> 00:22:02.555 of the approach. There's an

NOTE Confidence: 0.9706889

00:22:02.555 --> 00:22:03.755 order set that's built into

NOTE Confidence: 0.9706889

00:22:03.755 --> 00:22:05.115 this, and then what we've

NOTE Confidence: 0.9706889

00:22:05.115 --> 00:22:06.255 provided are recommendations

NOTE Confidence: 0.9991691

00:22:06.635 --> 00:22:07.375 for management

NOTE Confidence: 0.9893273

00:22:07.810 --> 00:22:09.250 as well as follow-up care

NOTE Confidence: 0.9893273

00:22:09.250 --> 00:22:10.690 and when to consult patients

NOTE Confidence: 0.9893273

00:22:10.690 --> 00:22:12.210 based on, in this case,

NOTE Confidence: 0.9893273

00:22:12.210 --> 00:22:13.430 a relatively simplistic,

NOTE Confidence: 0.9430251

00:22:13.890 --> 00:22:15.510 reporting tool called CADRADS.

NOTE Confidence: 0.9856131

00:22:16.210 --> 00:22:17.090 But this is something that

NOTE Confidence: 0.9856131

00:22:17.090 --> 00:22:17.970 that I I'm not I'll

NOTE Confidence: 0.9856131

00:22:17.970 --> 00:22:18.770 I'll spend a little bit

NOTE Confidence: 0.9856131

00:22:18.770 --> 00:22:19.590 of time about.

NOTE Confidence: 0.99702334

00:22:19.894 --> 00:22:20.774 But this is now,

NOTE Confidence: 0.93905205

00:22:21.254 --> 00:22:22.294 you know, again, this this

NOTE Confidence: 0.93905205

00:22:22.294 --> 00:22:23.174 challenge of how do we

NOTE Confidence: 0.93905205

00:22:23.174 --> 00:22:25.014 get these patients through red

NOTE Confidence: 0.93905205

00:22:25.014 --> 00:22:26.375 quickly in in a in

NOTE Confidence: 0.93905205

00:22:26.375 --> 00:22:26.774 a scanner

NOTE Confidence: 0.9878728

00:22:27.494 --> 00:22:28.534 scanned in an efficient way

NOTE Confidence: 0.9878728

00:22:28.534 --> 00:22:29.975 is really a challenge. I'm

NOTE Confidence: 0.9878728

00:22:29.975 --> 00:22:30.855 gonna talk a little bit

NOTE Confidence: 0.9878728

00:22:30.855 --> 00:22:32.455 about the current reporting of

NOTE Confidence: 0.9878728

00:22:32.455 --> 00:22:33.880 CT, and this is, I

NOTE Confidence: 0.9878728

00:22:33.880 --> 00:22:35.159 think, again, setting the stage

NOTE Confidence: 0.9878728

00:22:35.159 --> 00:22:35.960 of where we are in

NOTE Confidence: 0.9878728

00:22:35.960 --> 00:22:37.020 twenty twenty five

NOTE Confidence: 0.9621292

00:22:37.559 --> 00:22:39.480 because there are significant changes

NOTE Confidence: 0.9621292

00:22:39.480 --> 00:22:40.940 that are about to occur

NOTE Confidence: 0.9621292

00:22:41.000 --> 00:22:41.480 in,

NOTE Confidence: 0.9883473

00:22:41.880 --> 00:22:42.859 some software,

NOTE Confidence: 0.9566034

00:22:43.880 --> 00:22:45.880 that may, be available. And

NOTE Confidence: 0.9566034

00:22:45.880 --> 00:22:47.000 and the question is then

NOTE Confidence: 0.9566034

00:22:47.000 --> 00:22:48.135 how how does this help

NOTE Confidence: 0.9566034

00:22:48.135 --> 00:22:49.335 us? And and my question

NOTE Confidence: 0.9566034

00:22:49.335 --> 00:22:49.994 for you,

NOTE Confidence: 0.97150815

00:22:50.455 --> 00:22:51.335 and I wanna have you

NOTE Confidence: 0.97150815

00:22:51.335 --> 00:22:52.695 think about this critically, is

NOTE Confidence: 0.97150815

00:22:52.695 --> 00:22:53.815 does this help us? Do

NOTE Confidence: 0.97150815

00:22:53.815 --> 00:22:55.494 we need these, advanced AI

NOTE Confidence: 0.97150815

00:22:55.494 --> 00:22:55.994 tools?

NOTE Confidence: 0.96779925

00:22:57.095 --> 00:22:58.535 Well, here's the current state.

NOTE Confidence: 0.96779925

00:22:58.535 --> 00:22:59.575 And so the current state,

NOTE Confidence: 0.96779925

00:22:59.575 --> 00:23:00.775 this is I mentioned CADRADS.

NOTE Confidence: 0.96779925

00:23:00.775 --> 00:23:01.734 This is a document. It's

NOTE Confidence: 0.96779925

00:23:01.734 --> 00:23:03.690 a multisocietal document led by

NOTE Confidence: 0.96779925

00:23:03.690 --> 00:23:05.549 the Society of Cardiovascular CT,

NOTE Confidence: 0.96779925

00:23:05.609 --> 00:23:06.669 and the whole goal,

NOTE Confidence: 0.9996022

00:23:07.289 --> 00:23:08.669 is just to improve

NOTE Confidence: 0.98763955

00:23:08.970 --> 00:23:10.090 consistency. If you look at

NOTE Confidence: 0.98763955

00:23:10.090 --> 00:23:11.289 some of the older CT

NOTE Confidence: 0.98763955

00:23:11.289 --> 00:23:13.149 reports or studies like PROMIS,

NOTE Confidence: 0.91610307

00:23:13.770 --> 00:23:15.149 highly variable reporting.

NOTE Confidence: 0.97228616

00:23:15.825 --> 00:23:17.845 No consistency or minimal consistency

NOTE Confidence: 0.97228616

00:23:17.904 --> 00:23:18.784 in what people were calling

NOTE Confidence: 0.97228616

00:23:18.784 --> 00:23:20.804 mild, moderate, severe. There was

NOTE Confidence: 0.94070804

00:23:21.265 --> 00:23:23.345 very, very scattered recommendations or

NOTE Confidence: 0.94070804

00:23:23.345 --> 00:23:24.565 many times no recommendations

NOTE Confidence: 0.9726279

00:23:24.865 --> 00:23:25.744 as to what to do

NOTE Confidence: 0.9726279

00:23:25.744 --> 00:23:26.645 with this information.

NOTE Confidence: 0.9960562

00:23:27.664 --> 00:23:28.865 And the thought was to

NOTE Confidence: 0.9960562

00:23:28.865 --> 00:23:30.290 standardize this. And so I

NOTE Confidence: 0.9960562

00:23:30.290 --> 00:23:31.330 think you're all familiar with

NOTE Confidence: 0.9960562

00:23:31.330 --> 00:23:32.369 this. This is the current

NOTE Confidence: 0.9960562

00:23:32.369 --> 00:23:33.970 scheme that people have their

NOTE Confidence: 0.9960562

00:23:33.970 --> 00:23:35.270 coronary CT reported,

NOTE Confidence: 0.87919116

00:23:36.049 --> 00:23:37.510 based on worse stenosis.

NOTE Confidence: 0.9638427

00:23:38.049 --> 00:23:40.210 And the initial version, CADRADS

NOTE Confidence: 0.9638427

00:23:40.210 --> 00:23:41.010 one point o, this is

NOTE Confidence: 0.9638427

00:23:41.010 --> 00:23:42.434 all that there was in

NOTE Confidence: 0.9638427

00:23:42.434 --> 00:23:43.634 the sense that there was

NOTE Confidence: 0.9638427

00:23:43.634 --> 00:23:44.755 a comment about high risk

NOTE Confidence: 0.9638427

00:23:44.755 --> 00:23:45.255 plaque.

NOTE Confidence: 0.9747196

00:23:46.034 --> 00:23:47.475 But what the second version

NOTE Confidence: 0.9747196

00:23:47.475 --> 00:23:48.355 that I just showed you

NOTE Confidence: 0.9747196

00:23:48.355 --> 00:23:49.654 did is it's it mandated

NOTE Confidence: 0.9747196

00:23:49.715 --> 00:23:51.315 that all patients who undergo

NOTE Confidence: 0.9747196

00:23:51.315 --> 00:23:53.554 coronary CT have a an

NOTE Confidence: 0.9747196

00:23:53.554 --> 00:23:55.234 assessment, not just of worse

NOTE Confidence: 0.9747196

00:23:55.234 --> 00:23:55.734 stenosis,

NOTE Confidence: 0.96448874

00:23:56.910 --> 00:23:58.270 but of the overall plaque

NOTE Confidence: 0.96448874

00:23:58.270 --> 00:23:58.770 burden.

NOTE Confidence: 0.96099275

00:23:59.390 --> 00:24:00.590 How much plaque do you

NOTE Confidence: 0.96099275

00:24:00.590 --> 00:24:01.950 have? And the reason for

NOTE Confidence: 0.96099275

00:24:01.950 --> 00:24:02.830 this is that and we're

NOTE Confidence: 0.96099275

00:24:02.830 --> 00:24:03.550 not gonna go through all

NOTE Confidence: 0.96099275

00:24:03.550 --> 00:24:04.590 these studies, but we've seen

NOTE Confidence: 0.96099275

00:24:04.590 --> 00:24:05.090 consistent

NOTE Confidence: 0.9803435

00:24:05.550 --> 00:24:06.910 consistent results, whether it be

NOTE Confidence: 0.9803435

00:24:06.910 --> 00:24:08.990 large registries or prospective randomized

NOTE Confidence: 0.9803435

00:24:08.990 --> 00:24:09.855 clinical trials,

NOTE Confidence: 0.9874983

00:24:10.335 --> 00:24:11.855 that in addition to stenosis

NOTE Confidence: 0.9874983

00:24:12.015 --> 00:24:14.195 stenosis is prognostically very important.

NOTE Confidence: 0.9974455

00:24:14.975 --> 00:24:16.174 But in addition to that,

NOTE Confidence: 0.9974455

00:24:16.174 --> 00:24:17.934 probably the strongest predictor of

NOTE Confidence: 0.9974455

00:24:17.934 --> 00:24:18.434 risk

NOTE Confidence: 0.98792523

00:24:18.734 --> 00:24:20.255 is the overall extent of

NOTE Confidence: 0.98792523

00:24:20.255 --> 00:24:20.755 atherosclerosis.

NOTE Confidence: 0.9618739

00:24:21.695 --> 00:24:23.375 And our previous versions of

NOTE Confidence: 0.9618739

00:24:23.375 --> 00:24:24.900 CADREDS did not include that.

NOTE Confidence: 0.9618739

00:24:25.140 --> 00:24:25.859 It could say you could

NOTE Confidence: 0.9618739

00:24:25.859 --> 00:24:26.900 be CADREDS one and have

NOTE Confidence: 0.9618739

00:24:26.900 --> 00:24:27.859 a single plaque, and you

NOTE Confidence: 0.9618739

00:24:27.859 --> 00:24:28.900 could be CADREDS one and

NOTE Confidence: 0.9618739

00:24:28.900 --> 00:24:29.880 have thirty plaques,

NOTE Confidence: 0.9530718

00:24:30.180 --> 00:24:31.140 and we called them the

NOTE Confidence: 0.9530718

00:24:31.140 --> 00:24:31.640 same.

NOTE Confidence: 0.97606784

00:24:31.940 --> 00:24:33.160 And so now in CADREDS,

NOTE Confidence: 0.9758799

00:24:33.540 --> 00:24:34.500 two point o, you can

NOTE Confidence: 0.9758799

00:24:34.500 --> 00:24:35.619 see that there is some

NOTE Confidence: 0.9758799

00:24:35.619 --> 00:24:37.480 assessment of overall plaque burden.

NOTE Confidence: 0.9758799

00:24:37.619 --> 00:24:38.740 And the question is, how

NOTE Confidence: 0.9758799

00:24:38.740 --> 00:24:39.880 do we measure that?

NOTE Confidence: 0.9527594

00:24:40.384 --> 00:24:41.504 Right. Well, here are some

NOTE Confidence: 0.9527594

00:24:41.504 --> 00:24:42.705 options you can do. If

NOTE Confidence: 0.9527594

00:24:42.705 --> 00:24:43.904 you do a calcium score

NOTE Confidence: 0.9527594

00:24:43.904 --> 00:24:45.424 prior to your coronary CTs,

NOTE Confidence: 0.9527594

00:24:45.424 --> 00:24:46.965 which we've done that international

NOTE Confidence: 0.9527594

00:24:47.184 --> 00:24:48.945 surveys, about seventy percent of

NOTE Confidence: 0.9527594

00:24:48.945 --> 00:24:50.625 labs do routine calcium scoring.

NOTE Confidence: 0.9527594

00:24:50.625 --> 00:24:51.605 Some do it selectively,

NOTE Confidence: 0.9965593

00:24:52.304 --> 00:24:53.924 avoiding it in younger patients.

NOTE Confidence: 0.949673

00:24:54.480 --> 00:24:55.780 Some do it in everybody

NOTE Confidence: 0.949673

00:24:56.000 --> 00:24:56.960 with the thought being that

NOTE Confidence: 0.949673

00:24:56.960 --> 00:24:58.100 it provides additional,

NOTE Confidence: 0.9772117

00:24:58.559 --> 00:25:00.720 prognostic information perhaps that people

NOTE Confidence: 0.9772117

00:25:00.720 --> 00:25:01.760 are used to seeing or

NOTE Confidence: 0.9772117

00:25:01.760 --> 00:25:02.660 maybe understand.

NOTE Confidence: 0.9838674

00:25:04.880 --> 00:25:05.840 It may change how you

NOTE Confidence: 0.9838674

00:25:05.840 --> 00:25:07.280 scan the patient in scenarios

NOTE Confidence: 0.9838674

00:25:07.280 --> 00:25:08.480 where you have very dense

NOTE Confidence: 0.9838674

00:25:08.480 --> 00:25:09.885 extensive coronary calcium.

NOTE Confidence: 0.9616347

00:25:10.285 --> 00:25:11.165 But suffice to say, if

NOTE Confidence: 0.9616347

00:25:11.165 --> 00:25:12.205 you do that, this is

NOTE Confidence: 0.9616347

00:25:12.205 --> 00:25:12.945 one recommendation.

NOTE Confidence: 0.99520224

00:25:13.325 --> 00:25:15.185 These are pretty standardized categorizations

NOTE Confidence: 0.9905294

00:25:15.645 --> 00:25:17.405 of mild, moderate, severe, or

NOTE Confidence: 0.9905294

00:25:17.405 --> 00:25:19.105 extensive coronary calcium.

NOTE Confidence: 0.9976164

00:25:19.405 --> 00:25:20.525 You can simply count the

NOTE Confidence: 0.9976164

00:25:20.525 --> 00:25:22.145 number of segments with atherosclerosis.

NOTE Confidence: 0.9122489

00:25:22.525 --> 00:25:24.205 There is prognostic data supporting

NOTE Confidence: 0.9122489

00:25:24.205 --> 00:25:24.945 this role,

NOTE Confidence: 0.97029066

00:25:25.840 --> 00:25:27.139 or you can just visually

NOTE Confidence: 0.97029066

00:25:27.279 --> 00:25:27.779 estimate

NOTE Confidence: 0.9944763

00:25:28.159 --> 00:25:29.440 the number of vessels and

NOTE Confidence: 0.9944763

00:25:29.440 --> 00:25:31.279 the extent within those vessels

NOTE Confidence: 0.9944763

00:25:31.279 --> 00:25:32.820 and do a virtual score.

NOTE Confidence: 0.9428417

00:25:33.359 --> 00:25:34.240 And so you can see

NOTE Confidence: 0.9428417

00:25:34.240 --> 00:25:35.539 some of the challenge and

NOTE Confidence: 0.9428417

00:25:35.600 --> 00:25:37.119 challenges in this, particularly if

NOTE Confidence: 0.9428417

00:25:37.119 --> 00:25:38.659 you're not doing calcium scoring,

NOTE Confidence: 0.9428417

00:25:38.855 --> 00:25:40.055 which we know calcium scoring

NOTE Confidence: 0.9428417

00:25:40.055 --> 00:25:41.195 has reasonable reproducibility.

NOTE Confidence: 0.99428487

00:25:42.055 --> 00:25:43.015 And so this is the

NOTE Confidence: 0.99428487

00:25:43.015 --> 00:25:44.395 the current state today.

NOTE Confidence: 0.99132633

00:25:45.015 --> 00:25:46.234 In addition to that,

NOTE Confidence: 0.99962616

00:25:47.175 --> 00:25:48.875 we report the presence

NOTE Confidence: 0.95738965

00:25:49.175 --> 00:25:50.455 of what's called high risk

NOTE Confidence: 0.95738965

00:25:50.455 --> 00:25:51.415 plaque. I'm gonna come back

NOTE Confidence: 0.95738965

00:25:51.415 --> 00:25:52.375 to this topic and talk

NOTE Confidence: 0.95738965

00:25:52.455 --> 00:25:53.435 when we talk about

NOTE Confidence: 0.9959117

00:25:53.809 --> 00:25:55.670 AI and plaque quantification.

NOTE Confidence: 0.98491615

00:25:56.130 --> 00:25:57.490 And currently, high risk plaque

NOTE Confidence: 0.98491615

00:25:57.490 --> 00:25:59.010 is defined as any plaque

NOTE Confidence: 0.98491615

00:25:59.010 --> 00:25:59.970 with at least two of

NOTE Confidence: 0.98491615

00:25:59.970 --> 00:26:01.090 these features, and I've just

NOTE Confidence: 0.98491615

00:26:01.090 --> 00:26:02.290 shown you visually what these

NOTE Confidence: 0.98491615

00:26:02.290 --> 00:26:03.030 look like.

NOTE Confidence: 0.9465969

00:26:04.130 --> 00:26:05.270 And you can see here,

NOTE Confidence: 0.9465969

00:26:05.330 --> 00:26:06.515 you you know, two classic

NOTE Confidence: 0.9465969

00:26:06.575 --> 00:26:08.815 positive remodeling, low attenuation plaque

NOTE Confidence: 0.9465969

00:26:08.815 --> 00:26:10.335 if you've got plaque with

NOTE Confidence: 0.9465969

00:26:10.335 --> 00:26:11.855 Hounsfield units of less than

NOTE Confidence: 0.9465969

00:26:11.855 --> 00:26:14.175 thirty, spotty calcification, or napkin

NOTE Confidence: 0.9465969

00:26:14.175 --> 00:26:15.135 ring signs. So this is

NOTE Confidence: 0.9465969

00:26:15.135 --> 00:26:15.875 the reporting

NOTE Confidence: 0.9908853

00:26:16.175 --> 00:26:16.895 today. This is,

NOTE Confidence: 0.99090856

00:26:17.659 --> 00:26:18.859 you know, about three years

NOTE Confidence: 0.99090856

00:26:18.859 --> 00:26:19.359 old.

NOTE Confidence: 0.99944973

00:26:19.899 --> 00:26:21.340 And what is this based

NOTE Confidence: 0.99944973

00:26:21.340 --> 00:26:21.840 on?

NOTE Confidence: 0.9899433

00:26:22.220 --> 00:26:23.100 And I'm gonna I'm gonna

NOTE Confidence: 0.9899433

00:26:23.100 --> 00:26:24.220 kinda, you know, spend the

NOTE Confidence: 0.9899433

00:26:24.220 --> 00:26:25.340 rest of this talk looking

NOTE Confidence: 0.9899433

00:26:25.340 --> 00:26:26.779 behind the scenes and challenging

NOTE Confidence: 0.9899433

00:26:26.779 --> 00:26:27.500 a little bit of what

NOTE Confidence: 0.9899433

00:26:27.500 --> 00:26:28.159 we do,

NOTE Confidence: 0.9952

00:26:28.940 --> 00:26:30.299 and challenging a little bit

NOTE Confidence: 0.9952

00:26:30.299 --> 00:26:31.365 about what some people think

NOTE Confidence: 0.9952

00:26:31.365 --> 00:26:32.425 we ought to do.

NOTE Confidence: 0.97313553

00:26:32.965 --> 00:26:34.085 This is why we report

NOTE Confidence: 0.97313553

00:26:34.085 --> 00:26:34.965 high risk plaque. This was

NOTE Confidence: 0.97313553

00:26:34.965 --> 00:26:36.345 a seminal paper from Sudeki

NOTE Confidence: 0.97313553

00:26:36.405 --> 00:26:37.525 Motoyama's group. She took a

NOTE Confidence: 0.97313553

00:26:37.525 --> 00:26:38.905 little over a thousand patients.

NOTE Confidence: 0.97313553

00:26:39.205 --> 00:26:40.425 They all had nonobstructive

NOTE Confidence: 0.96899974

00:26:40.805 --> 00:26:42.244 coronary artery disease on a

NOTE Confidence: 0.96899974

00:26:42.244 --> 00:26:43.225 coronary CT,

NOTE Confidence: 0.9878107

00:26:43.890 --> 00:26:45.330 and and she followed them

NOTE Confidence: 0.9878107

00:26:45.330 --> 00:26:45.830 prospectively.

NOTE Confidence: 0.9807274

00:26:46.609 --> 00:26:48.130 And what they noticed is

NOTE Confidence: 0.9807274

00:26:48.130 --> 00:26:48.630 that,

NOTE Confidence: 0.982912

00:26:49.170 --> 00:26:49.970 and and these are all

NOTE Confidence: 0.982912

00:26:49.970 --> 00:26:51.250 patients who were followed and

NOTE Confidence: 0.982912

00:26:51.250 --> 00:26:52.130 had and if they had

NOTE Confidence: 0.982912

00:26:52.130 --> 00:26:53.330 events, they had data on

NOTE Confidence: 0.982912

00:26:53.330 --> 00:26:54.230 culprit lesions.

NOTE Confidence: 0.99800545

00:26:54.690 --> 00:26:55.730 And and they looked at

NOTE Confidence: 0.99800545

00:26:55.730 --> 00:26:57.010 these patients and said, you

NOTE Confidence: 0.99800545

00:26:57.010 --> 00:26:58.070 know, what was predictive

NOTE Confidence: 0.9866648

00:26:58.994 --> 00:26:59.734 beyond stenosis?

NOTE Confidence: 0.9788006

00:27:00.355 --> 00:27:01.555 And it turns out these

NOTE Confidence: 0.9788006

00:27:01.555 --> 00:27:02.835 two feature plaques that were

NOTE Confidence: 0.9788006

00:27:02.835 --> 00:27:03.575 low attenuation

NOTE Confidence: 0.970633

00:27:04.035 --> 00:27:05.795 and positive remodeling, only about

NOTE Confidence: 0.970633

00:27:05.795 --> 00:27:07.075 five percent of patients had

NOTE Confidence: 0.970633

00:27:07.075 --> 00:27:07.575 these.

NOTE Confidence: 0.9451608

00:27:07.875 --> 00:27:08.915 But you had a twenty

NOTE Confidence: 0.9451608

00:27:08.915 --> 00:27:10.435 fold increased risk of ACS

NOTE Confidence: 0.9451608

00:27:10.435 --> 00:27:11.415 if you had these.

NOTE Confidence: 0.95003617

00:27:11.875 --> 00:27:13.635 It didn't always predict the

NOTE Confidence: 0.95003617

00:27:13.635 --> 00:27:14.535 culprit lesion.

NOTE Confidence: 0.9563088

00:27:15.260 --> 00:27:16.619 So patients who had these

NOTE Confidence: 0.9563088

00:27:16.619 --> 00:27:17.980 often developed new high risk

NOTE Confidence: 0.9563088

00:27:17.980 --> 00:27:18.480 plaques.

NOTE Confidence: 0.9609029

00:27:19.179 --> 00:27:19.820 And, in fact, some of

NOTE Confidence: 0.9609029

00:27:19.820 --> 00:27:21.359 these plaques over time regressed.

NOTE Confidence: 0.9609029

00:27:21.500 --> 00:27:22.380 But what was shown is

NOTE Confidence: 0.9609029

00:27:22.380 --> 00:27:24.480 that this was identification of

NOTE Confidence: 0.9609029

00:27:24.700 --> 00:27:25.899 at least a high risk

NOTE Confidence: 0.9609029

00:27:25.899 --> 00:27:27.740 patient who has propensity to

NOTE Confidence: 0.9609029

00:27:27.740 --> 00:27:29.174 develop high risk plaques. And

NOTE Confidence: 0.9609029

00:27:29.174 --> 00:27:30.494 this has been subsequently shown

NOTE Confidence: 0.9609029

00:27:30.494 --> 00:27:32.335 in in NHLBI funded studies

NOTE Confidence: 0.9609029

00:27:32.335 --> 00:27:33.234 such as PROMISE,

NOTE Confidence: 0.94783497

00:27:33.695 --> 00:27:35.075 that I think doctor Velasquez

NOTE Confidence: 0.94783497

00:27:35.134 --> 00:27:36.835 was involved with and and

NOTE Confidence: 0.94783497

00:27:36.894 --> 00:27:38.174 and and and and probably

NOTE Confidence: 0.94783497

00:27:38.174 --> 00:27:39.534 several others in this room,

NOTE Confidence: 0.94783497

00:27:39.534 --> 00:27:41.375 again showing that in addition

NOTE Confidence: 0.94783497

00:27:41.375 --> 00:27:43.215 to traditional risk factors, calcium

NOTE Confidence: 0.94783497

00:27:43.215 --> 00:27:45.160 scorching stenosis, that the presence

NOTE Confidence: 0.94783497

00:27:45.160 --> 00:27:46.680 of high risk plaque in

NOTE Confidence: 0.94783497

00:27:46.680 --> 00:27:47.900 a binary way

NOTE Confidence: 0.99675167

00:27:48.280 --> 00:27:49.740 was associated with increased,

NOTE Confidence: 0.9961635

00:27:50.119 --> 00:27:50.619 events.

NOTE Confidence: 0.93312174

00:27:51.000 --> 00:27:51.960 This is an example of

NOTE Confidence: 0.93312174

00:27:51.960 --> 00:27:52.840 a patient that stand at

NOTE Confidence: 0.93312174

00:27:52.840 --> 00:27:53.960 our institution. This is a

NOTE Confidence: 0.93312174

00:27:53.960 --> 00:27:54.920 sixty year old man, pretty

NOTE Confidence: 0.93312174

00:27:54.920 --> 00:27:56.359 nonanginal chest pain, was a

NOTE Confidence: 0.93312174

00:27:56.359 --> 00:27:56.859 smoker,

NOTE Confidence: 0.9981393

00:27:57.335 --> 00:27:59.355 had zero coronary calcium,

NOTE Confidence: 0.9673695

00:27:59.655 --> 00:28:00.855 had a plaque that looked

NOTE Confidence: 0.9673695

00:28:00.855 --> 00:28:01.575 like this. I don't know

NOTE Confidence: 0.9673695

00:28:01.575 --> 00:28:02.615 if you can appreciate this.

NOTE Confidence: 0.9673695

00:28:02.615 --> 00:28:04.215 This degree of stenosis was

NOTE Confidence: 0.9673695

00:28:04.215 --> 00:28:04.955 not impressive,

NOTE Confidence: 0.97655123

00:28:05.415 --> 00:28:07.015 but this person had a

NOTE Confidence: 0.97655123

00:28:07.015 --> 00:28:08.855 lot of non calcified plaque.

NOTE Confidence: 0.97655123

00:28:08.855 --> 00:28:10.535 There was expansile remodeling or

NOTE Confidence: 0.97655123

00:28:10.535 --> 00:28:12.234 positive remodeling, low attenuation,

NOTE Confidence: 0.990607

00:28:12.730 --> 00:28:13.450 and this was a person

NOTE Confidence: 0.990607

00:28:13.450 --> 00:28:14.490 who came back about five

NOTE Confidence: 0.990607

00:28:14.490 --> 00:28:16.190 months later with an anterior

NOTE Confidence: 0.990607

00:28:16.250 --> 00:28:17.950 infarct right at that particular

NOTE Confidence: 0.990607

00:28:18.090 --> 00:28:18.590 location.

NOTE Confidence: 0.9423105

00:28:19.369 --> 00:28:21.130 And he, unfortunately, elected because

NOTE Confidence: 0.9423105

00:28:21.130 --> 00:28:22.649 his calcium score was zero,

NOTE Confidence: 0.96906376

00:28:23.049 --> 00:28:24.090 and he said, I'm not

NOTE Confidence: 0.96906376

00:28:24.090 --> 00:28:25.130 gonna take a statin. I'm

NOTE Confidence: 0.96906376

00:28:25.130 --> 00:28:26.405 gonna keep smoking. But this

NOTE Confidence: 0.96906376

00:28:26.405 --> 00:28:27.645 is just an obviously extreme

NOTE Confidence: 0.96906376

00:28:27.645 --> 00:28:28.924 example. We know the risks

NOTE Confidence: 0.96906376

00:28:28.924 --> 00:28:29.804 of of these types of

NOTE Confidence: 0.96906376

00:28:29.804 --> 00:28:30.684 events are low in people

NOTE Confidence: 0.96906376

00:28:30.684 --> 00:28:32.304 with calcium scores of zero,

NOTE Confidence: 0.9867514

00:28:32.765 --> 00:28:34.145 but plaque biology,

NOTE Confidence: 0.93487215

00:28:34.845 --> 00:28:35.744 does matter.

NOTE Confidence: 0.9742137

00:28:36.284 --> 00:28:37.164 And so I want to

NOTE Confidence: 0.9742137

00:28:37.164 --> 00:28:37.965 spend a little bit of

NOTE Confidence: 0.9742137

00:28:37.965 --> 00:28:38.765 time as we start to

NOTE Confidence: 0.9742137

00:28:38.765 --> 00:28:40.140 talk about machine learning is

NOTE Confidence: 0.9742137

00:28:40.140 --> 00:28:41.340 what does this mean from

NOTE Confidence: 0.9742137

00:28:41.340 --> 00:28:42.000 a pathological

NOTE Confidence: 0.9774289

00:28:42.300 --> 00:28:43.580 standpoint? You know, when I

NOTE Confidence: 0.9774289

00:28:43.580 --> 00:28:44.380 would go out and talk

NOTE Confidence: 0.9774289

00:28:44.380 --> 00:28:45.740 about high risk plaques, people

NOTE Confidence: 0.9774289

00:28:45.820 --> 00:28:46.480 my interventional

NOTE Confidence: 0.9763764

00:28:46.780 --> 00:28:47.280 colleagues,

NOTE Confidence: 0.95962816

00:28:47.820 --> 00:28:48.940 Greg Stone would say, what

NOTE Confidence: 0.95962816

00:28:48.940 --> 00:28:50.160 are you guys in CT

NOTE Confidence: 0.95962816

00:28:50.220 --> 00:28:50.960 talking about?

NOTE Confidence: 0.8794715

00:28:51.420 --> 00:28:52.935 This is high risk plaque,

NOTE Confidence: 0.8794715

00:28:53.095 --> 00:28:53.975 and we know this from

NOTE Confidence: 0.8794715

00:28:53.975 --> 00:28:55.915 an in invasive cardiology.

NOTE Confidence: 0.9794833

00:28:56.375 --> 00:28:57.255 And you may know this,

NOTE Confidence: 0.9794833

00:28:57.255 --> 00:28:58.395 many of you, from histology.

NOTE Confidence: 0.99898446

00:28:59.015 --> 00:29:00.215 And no one talks about

NOTE Confidence: 0.99898446

00:29:00.215 --> 00:29:01.115 spotty calcification

NOTE Confidence: 0.9778374

00:29:01.895 --> 00:29:03.735 and low attenuation and positive

NOTE Confidence: 0.9778374

00:29:03.735 --> 00:29:04.235 remodeling

NOTE Confidence: 0.9991971

00:29:04.775 --> 00:29:05.995 in those two fields.

NOTE Confidence: 0.960734

00:29:06.670 --> 00:29:07.870 So this is data from

NOTE Confidence: 0.960734

00:29:07.870 --> 00:29:10.030 the prospect two trial, and

NOTE Confidence: 0.960734

00:29:10.030 --> 00:29:10.990 these were patients who came

NOTE Confidence: 0.960734

00:29:10.990 --> 00:29:12.610 in with ACS. They got

NOTE Confidence: 0.960734

00:29:12.670 --> 00:29:14.430 three vessel IVUS with virtual

NOTE Confidence: 0.960734

00:29:14.430 --> 00:29:14.930 histology,

NOTE Confidence: 0.9638618

00:29:15.310 --> 00:29:16.510 and they then followed these

NOTE Confidence: 0.9638618

00:29:16.510 --> 00:29:17.330 patients prospectively

NOTE Confidence: 0.9973746

00:29:18.110 --> 00:29:19.090 to look at

NOTE Confidence: 0.99463433

00:29:19.684 --> 00:29:20.885 what happened to them and

NOTE Confidence: 0.99463433

00:29:20.885 --> 00:29:21.385 where

NOTE Confidence: 0.9696231

00:29:21.925 --> 00:29:23.765 the event, future ACS, if

NOTE Confidence: 0.9696231

00:29:23.765 --> 00:29:24.565 it did occur, where did

NOTE Confidence: 0.9696231

00:29:24.565 --> 00:29:25.845 it occur? And what they

NOTE Confidence: 0.9696231

00:29:25.845 --> 00:29:27.065 found is that, of course,

NOTE Confidence: 0.9403736

00:29:27.365 --> 00:29:28.585 if you have a documented

NOTE Confidence: 0.9403736

00:29:28.725 --> 00:29:29.785 thin cap fibroarthroma,

NOTE Confidence: 0.9893306

00:29:31.605 --> 00:29:32.965 then you're at higher risk.

NOTE Confidence: 0.9893306

00:29:32.965 --> 00:29:33.945 We know that from

NOTE Confidence: 0.68843436

00:29:34.485 --> 00:29:35.160 years of

NOTE Confidence: 0.9160778

00:29:35.640 --> 00:29:37.640 If you have stenosis, right,

NOTE Confidence: 0.9160778

00:29:37.640 --> 00:29:38.760 stenosis is a high risk

NOTE Confidence: 0.9160778

00:29:38.760 --> 00:29:40.040 feature. Minimal luminal area of

NOTE Confidence: 0.9160778

00:29:40.040 --> 00:29:41.320 less than four millimeters squared

NOTE Confidence: 0.9160778

00:29:41.320 --> 00:29:42.360 in a proximal to mid

NOTE Confidence: 0.9160778

00:29:42.360 --> 00:29:43.260 coronary segment.

NOTE Confidence: 0.9324098

00:29:44.040 --> 00:29:45.400 If you have plaque burden

NOTE Confidence: 0.9324098

00:29:45.480 --> 00:29:47.160 so, again, this concept that

NOTE Confidence: 0.9324098

00:29:47.160 --> 00:29:48.325 on a cross sectional image

NOTE Confidence: 0.9324098

00:29:48.325 --> 00:29:49.445 of more than seventy percent

NOTE Confidence: 0.9324098

00:29:49.445 --> 00:29:50.725 of that area is occupied

NOTE Confidence: 0.9324098

00:29:50.725 --> 00:29:51.465 by plaque,

NOTE Confidence: 0.8790496

00:29:52.485 --> 00:29:54.024 kind of the invasive analogy

NOTE Confidence: 0.8790496

00:29:54.164 --> 00:29:54.664 analogies

NOTE Confidence: 0.9904863

00:29:54.965 --> 00:29:56.745 analogy to positive remodeling.

NOTE Confidence: 0.95181113

00:29:57.684 --> 00:29:58.485 And if you had all

NOTE Confidence: 0.95181113

00:29:58.485 --> 00:29:59.284 of these things, you can

NOTE Confidence: 0.95181113

00:29:59.284 --> 00:30:00.245 see your more than eighteen

NOTE Confidence: 0.95181113

00:30:00.245 --> 00:30:00.745 fold

NOTE Confidence: 0.9741743

00:30:01.290 --> 00:30:03.150 higher rate of having ACS

NOTE Confidence: 0.9741743

00:30:03.370 --> 00:30:05.130 irrespective of clinical risk factors

NOTE Confidence: 0.9741743

00:30:05.130 --> 00:30:06.350 or your prior angiogram.

NOTE Confidence: 0.97117984

00:30:07.290 --> 00:30:08.970 And, again, it didn't always

NOTE Confidence: 0.97117984

00:30:08.970 --> 00:30:10.190 predict the culprit lesion,

NOTE Confidence: 0.9873633

00:30:10.890 --> 00:30:12.090 but it predicted patients more

NOTE Confidence: 0.9873633

00:30:12.090 --> 00:30:13.790 likely to develop sometimes new

NOTE Confidence: 0.9873633

00:30:13.955 --> 00:30:14.995 high risk plaque. And so

NOTE Confidence: 0.9873633

00:30:14.995 --> 00:30:16.675 when interventionalists talk about high

NOTE Confidence: 0.9873633

00:30:16.675 --> 00:30:17.555 risk plaque, this is what

NOTE Confidence: 0.9873633

00:30:17.555 --> 00:30:19.155 they're referring to. And so

NOTE Confidence: 0.9873633

00:30:19.155 --> 00:30:20.035 the question is, what are

NOTE Confidence: 0.9873633

00:30:20.035 --> 00:30:21.895 we detecting on CT compared

NOTE Confidence: 0.9873633

00:30:22.115 --> 00:30:22.775 to this?

NOTE Confidence: 0.9848401

00:30:23.315 --> 00:30:24.115 And this is just a

NOTE Confidence: 0.9848401

00:30:24.115 --> 00:30:25.795 summary slide showing from if

NOTE Confidence: 0.9848401

00:30:25.795 --> 00:30:27.315 you look at, you know,

NOTE Confidence: 0.9848401

00:30:27.315 --> 00:30:29.015 these these these multiple,

NOTE Confidence: 0.98743176

00:30:29.395 --> 00:30:29.850 really,

NOTE Confidence: 0.9712002

00:30:30.890 --> 00:30:32.410 you know, seminal trials that

NOTE Confidence: 0.9712002

00:30:32.410 --> 00:30:33.870 taught us about plaque biology

NOTE Confidence: 0.9712002

00:30:34.010 --> 00:30:34.910 assessed noninvasively,

NOTE Confidence: 0.8925835

00:30:35.610 --> 00:30:37.370 of the hazard ratios associated

NOTE Confidence: 0.8925835

00:30:37.370 --> 00:30:39.470 with thin cap fiber atherosclerosis,

NOTE Confidence: 0.9616412

00:30:40.090 --> 00:30:41.929 plaque burden, high plaque burden

NOTE Confidence: 0.9616412

00:30:41.929 --> 00:30:42.990 being the most predictive,

NOTE Confidence: 0.97193736

00:30:43.645 --> 00:30:44.785 if you look at MLAs

NOTE Confidence: 0.97193736

00:30:44.845 --> 00:30:46.045 less than four, and then

NOTE Confidence: 0.97193736

00:30:46.045 --> 00:30:48.125 another technology called near infrared

NOTE Confidence: 0.97193736

00:30:48.125 --> 00:30:48.625 spectroscopy

NOTE Confidence: 0.9919069

00:30:49.085 --> 00:30:49.825 that identifies

NOTE Confidence: 0.97631973

00:30:50.205 --> 00:30:52.385 these lipid these these highly

NOTE Confidence: 0.97631973

00:30:52.605 --> 00:30:54.205 highly lipidic plaques or high

NOTE Confidence: 0.97631973

00:30:54.205 --> 00:30:55.345 lipid burden plaques.

NOTE Confidence: 0.98607045

00:30:55.725 --> 00:30:57.105 These are what most interventionists

NOTE Confidence: 0.995649

00:30:58.050 --> 00:30:59.350 consider high risk plaque.

NOTE Confidence: 0.9779733

00:30:59.890 --> 00:31:00.690 So what are we seeing

NOTE Confidence: 0.9779733

00:31:00.690 --> 00:31:02.210 on CT? Well, if we

NOTE Confidence: 0.9779733

00:31:02.210 --> 00:31:03.490 go back, to our roots

NOTE Confidence: 0.9779733

00:31:03.490 --> 00:31:04.290 here, these are there are

NOTE Confidence: 0.9779733

00:31:04.290 --> 00:31:05.570 multiple small studies. These are

NOTE Confidence: 0.9779733

00:31:05.570 --> 00:31:06.450 hard studies to do, by

NOTE Confidence: 0.9779733

00:31:06.450 --> 00:31:07.170 the way. These are not

NOTE Confidence: 0.9779733

00:31:07.170 --> 00:31:08.850 thousands of patients. But this

NOTE Confidence: 0.9779733

00:31:08.850 --> 00:31:10.045 is a small study. I

NOTE Confidence: 0.9779733

00:31:10.045 --> 00:31:11.245 could show you four other

NOTE Confidence: 0.9779733

00:31:11.245 --> 00:31:12.525 similar studies, but they took

NOTE Confidence: 0.9779733

00:31:12.525 --> 00:31:13.725 a small number of patients

NOTE Confidence: 0.9779733

00:31:13.725 --> 00:31:15.665 who were getting intravascular imaging.

NOTE Confidence: 0.9779733

00:31:15.725 --> 00:31:16.605 And this time, they used

NOTE Confidence: 0.9779733

00:31:16.605 --> 00:31:17.965 even a better technology than

NOTE Confidence: 0.9779733

00:31:17.965 --> 00:31:19.485 virtual eyes. They used optical

NOTE Confidence: 0.9779733

00:31:19.485 --> 00:31:20.465 coherence tomography,

NOTE Confidence: 0.9960032

00:31:21.165 --> 00:31:22.445 and they which is really

NOTE Confidence: 0.9960032

00:31:22.445 --> 00:31:23.885 the the single modality that

NOTE Confidence: 0.9960032

00:31:23.885 --> 00:31:25.165 can identify truly at the

NOTE Confidence: 0.9960032

00:31:25.165 --> 00:31:25.665 highest

NOTE Confidence: 0.84692323

00:31:26.010 --> 00:31:27.390 accuracy thin capped fibroarthromas.

NOTE Confidence: 0.9922269

00:31:28.250 --> 00:31:29.130 And what they found is

NOTE Confidence: 0.9922269

00:31:29.130 --> 00:31:30.910 that true thin capped fibroarthromas,

NOTE Confidence: 0.999151

00:31:31.290 --> 00:31:32.910 the most risky plaques

NOTE Confidence: 0.9780594

00:31:33.370 --> 00:31:34.830 from a biological standpoint,

NOTE Confidence: 0.9963221

00:31:36.170 --> 00:31:37.690 eighty percent of them had

NOTE Confidence: 0.9963221

00:31:37.690 --> 00:31:39.150 two adverse features.

NOTE Confidence: 0.9667116

00:31:39.585 --> 00:31:40.865 So these high high risk

NOTE Confidence: 0.9667116

00:31:40.865 --> 00:31:42.145 plaques are that we're seeing,

NOTE Confidence: 0.9667116

00:31:42.145 --> 00:31:42.885 we're describing,

NOTE Confidence: 0.9997789

00:31:43.345 --> 00:31:44.965 are more likely to be

NOTE Confidence: 0.94226927

00:31:45.345 --> 00:31:46.544 than capped by breath rooms.

NOTE Confidence: 0.94226927

00:31:46.544 --> 00:31:48.405 We cannot image down to

NOTE Confidence: 0.94226927

00:31:48.705 --> 00:31:50.544 the resolution to see cap

NOTE Confidence: 0.94226927

00:31:50.544 --> 00:31:52.225 thickness on CT, not even

NOTE Confidence: 0.94226927

00:31:52.225 --> 00:31:54.360 with photon counting CT scanners.

NOTE Confidence: 0.94226927

00:31:54.659 --> 00:31:55.779 And which two was it?

NOTE Confidence: 0.94226927

00:31:55.779 --> 00:31:57.639 Well, again, it was these

NOTE Confidence: 0.94226927

00:31:57.700 --> 00:31:59.399 two positive remodeling

NOTE Confidence: 0.95026296

00:32:00.019 --> 00:32:02.100 and low attenuation plaque. So

NOTE Confidence: 0.95026296

00:32:02.100 --> 00:32:03.299 those features were more than

NOTE Confidence: 0.95026296

00:32:03.299 --> 00:32:04.740 ten to fifteen fold more

NOTE Confidence: 0.95026296

00:32:04.740 --> 00:32:05.620 likely to be a thick

NOTE Confidence: 0.95026296

00:32:05.620 --> 00:32:06.360 cap fibroarthromas.

NOTE Confidence: 0.9783113

00:32:06.740 --> 00:32:07.855 So when someone says, what

NOTE Confidence: 0.9783113

00:32:07.855 --> 00:32:08.895 does this mean, this high

NOTE Confidence: 0.9783113

00:32:08.895 --> 00:32:10.515 risk plaque? You're scaring people.

NOTE Confidence: 0.9611472

00:32:11.615 --> 00:32:12.174 Do I need to go

NOTE Confidence: 0.9611472

00:32:12.174 --> 00:32:12.895 in and stent it? Well,

NOTE Confidence: 0.9611472

00:32:12.895 --> 00:32:13.615 the answer, of course, is

NOTE Confidence: 0.9611472

00:32:13.615 --> 00:32:14.495 we hope we're not scaring

NOTE Confidence: 0.9611472

00:32:14.495 --> 00:32:15.535 people, and, no, you shouldn't

NOTE Confidence: 0.9611472

00:32:15.535 --> 00:32:17.294 do preemptive stenting. There are

NOTE Confidence: 0.9611472

00:32:17.294 --> 00:32:18.655 trials that are studying that.

NOTE Confidence: 0.9611472

00:32:18.655 --> 00:32:19.635 That's really interesting.

NOTE Confidence: 0.935816

00:32:20.220 --> 00:32:21.500 Greg Stone, of course, wants

NOTE Confidence: 0.935816

00:32:21.500 --> 00:32:22.480 to do that in everybody,

NOTE Confidence: 0.98784083

00:32:22.940 --> 00:32:24.220 but you gotta have science

NOTE Confidence: 0.98784083

00:32:24.220 --> 00:32:25.100 for that. But what it

NOTE Confidence: 0.98784083

00:32:25.100 --> 00:32:26.140 does mean is that perhaps

NOTE Confidence: 0.98784083

00:32:26.140 --> 00:32:27.900 you should consider this risk

NOTE Confidence: 0.98784083

00:32:27.900 --> 00:32:29.919 above and beyond the stenosis

NOTE Confidence: 0.98784083

00:32:29.980 --> 00:32:31.340 severity and the calcium score

NOTE Confidence: 0.98784083

00:32:31.340 --> 00:32:32.220 like the patient I just

NOTE Confidence: 0.98784083

00:32:32.220 --> 00:32:32.625 showed you.

NOTE Confidence: 0.91585934

00:32:33.745 --> 00:32:35.425 So now what about lipid

NOTE Confidence: 0.91585934

00:32:35.425 --> 00:32:36.305 rich plaque and where are

NOTE Confidence: 0.91585934

00:32:36.305 --> 00:32:37.585 we gonna use software to

NOTE Confidence: 0.91585934

00:32:37.585 --> 00:32:38.785 perhaps help us?

NOTE Confidence: 0.97380847

00:32:39.185 --> 00:32:40.625 This is a study where,

NOTE Confidence: 0.9652306

00:32:41.105 --> 00:32:42.305 a software was used,

NOTE Confidence: 0.8165025

00:32:42.945 --> 00:32:43.685 to quantify

NOTE Confidence: 0.9997898

00:32:44.545 --> 00:32:45.045 plaque

NOTE Confidence: 0.9867195

00:32:45.470 --> 00:32:46.990 burden. So it can quantify

NOTE Confidence: 0.9867195

00:32:46.990 --> 00:32:48.770 the volume of low attenuation

NOTE Confidence: 0.9867195

00:32:48.910 --> 00:32:50.110 plaque. And it said, how

NOTE Confidence: 0.9867195

00:32:50.110 --> 00:32:51.150 do these plaques that have

NOTE Confidence: 0.9867195

00:32:51.150 --> 00:32:52.130 a lot of low attenuation

NOTE Confidence: 0.9867195

00:32:52.270 --> 00:32:53.810 plaque compare to lipid

NOTE Confidence: 0.99969435

00:32:54.270 --> 00:32:54.770 content

NOTE Confidence: 0.99435115

00:32:55.150 --> 00:32:56.930 using near infrared spectroscopy?

NOTE Confidence: 0.9985513

00:32:57.695 --> 00:32:58.615 And so this is,

NOTE Confidence: 0.9677842

00:32:59.215 --> 00:33:00.255 you know, work using, again,

NOTE Confidence: 0.9677842

00:33:00.255 --> 00:33:01.295 one of these software. And

NOTE Confidence: 0.9677842

00:33:01.295 --> 00:33:02.335 what they found was there

NOTE Confidence: 0.9677842

00:33:02.335 --> 00:33:03.695 were that plaques who had

NOTE Confidence: 0.9677842

00:33:03.695 --> 00:33:04.975 more than two point three

NOTE Confidence: 0.9677842

00:33:04.975 --> 00:33:06.915 cubic millimeters of low density

NOTE Confidence: 0.9677842

00:33:06.975 --> 00:33:08.675 plaque or low attenuation plaque

NOTE Confidence: 0.9677842

00:33:08.895 --> 00:33:10.355 were over ninety percent

NOTE Confidence: 0.99934053

00:33:10.980 --> 00:33:12.920 sensitive and specific for predicting

NOTE Confidence: 0.9828622

00:33:13.540 --> 00:33:14.900 high risk plaque defined by

NOTE Confidence: 0.9828622

00:33:14.900 --> 00:33:15.400 NEARS.

NOTE Confidence: 0.9242804

00:33:16.179 --> 00:33:17.380 And so, again, this concept

NOTE Confidence: 0.9242804

00:33:17.380 --> 00:33:18.179 that when we see low

NOTE Confidence: 0.9242804

00:33:18.179 --> 00:33:19.700 attenuation plaque, these are not

NOTE Confidence: 0.9242804

00:33:19.700 --> 00:33:20.980 only more likely to be

NOTE Confidence: 0.9242804

00:33:20.980 --> 00:33:21.960 thin capped bibryotheromas,

NOTE Confidence: 0.9948733

00:33:22.260 --> 00:33:23.460 they're also more likely to

NOTE Confidence: 0.9948733

00:33:23.460 --> 00:33:25.575 be high lipid content plaques.

NOTE Confidence: 0.9948733

00:33:25.715 --> 00:33:26.435 And so I think this

NOTE Confidence: 0.9948733

00:33:26.435 --> 00:33:28.115 is helpful as we think

NOTE Confidence: 0.9948733

00:33:28.115 --> 00:33:29.955 about how we manage patients

NOTE Confidence: 0.9948733

00:33:29.955 --> 00:33:31.155 in the current, era. So

NOTE Confidence: 0.9948733

00:33:31.155 --> 00:33:32.275 I think this is just

NOTE Confidence: 0.9948733

00:33:32.275 --> 00:33:33.635 a slide which reminds us

NOTE Confidence: 0.9948733

00:33:33.635 --> 00:33:34.675 that while we can't see

NOTE Confidence: 0.9948733

00:33:34.675 --> 00:33:35.575 plaque thickness,

NOTE Confidence: 0.971734

00:33:36.275 --> 00:33:38.195 and we're reporting plaque burden

NOTE Confidence: 0.971734

00:33:38.195 --> 00:33:39.735 relatively semi quantitatively,

NOTE Confidence: 0.99685425

00:33:40.380 --> 00:33:40.880 that

NOTE Confidence: 0.9948602

00:33:42.060 --> 00:33:43.740 current CT does a decent

NOTE Confidence: 0.9948602

00:33:43.740 --> 00:33:45.040 job at identifying

NOTE Confidence: 0.999727

00:33:45.740 --> 00:33:47.040 plaques that might

NOTE Confidence: 0.9527655

00:33:47.660 --> 00:33:49.260 portend an increased patient level

NOTE Confidence: 0.9527655

00:33:49.260 --> 00:33:50.620 risk and maybe change management.

NOTE Confidence: 0.9527655

00:33:50.620 --> 00:33:51.820 The concept that plaques that

NOTE Confidence: 0.9527655

00:33:51.820 --> 00:33:52.640 look differently

NOTE Confidence: 0.9094144

00:33:53.100 --> 00:33:54.540 do behave differently. In fact,

NOTE Confidence: 0.9094144

00:33:54.540 --> 00:33:55.420 what work that we have

NOTE Confidence: 0.9094144

00:33:55.420 --> 00:33:56.615 done has shown that in

NOTE Confidence: 0.9094144

00:33:56.615 --> 00:33:58.154 fact on the end spectrum,

NOTE Confidence: 0.9833722

00:33:58.774 --> 00:33:59.514 that calcification

NOTE Confidence: 0.9421659

00:33:59.815 --> 00:34:00.855 is in fact a healing

NOTE Confidence: 0.9421659

00:34:00.855 --> 00:34:02.294 process, and in many ways,

NOTE Confidence: 0.9421659

00:34:02.294 --> 00:34:03.274 a plaque stabilization

NOTE Confidence: 0.9948508

00:34:03.654 --> 00:34:05.014 process. So if you look

NOTE Confidence: 0.9948508

00:34:05.014 --> 00:34:05.975 at what are called one

NOTE Confidence: 0.9948508

00:34:05.975 --> 00:34:07.254 k plaques, plaques that have

NOTE Confidence: 0.9948508

00:34:07.254 --> 00:34:08.714 more than a thousand Hounsfield

NOTE Confidence: 0.9948508

00:34:08.775 --> 00:34:09.275 units,

NOTE Confidence: 0.97622395

00:34:09.690 --> 00:34:10.969 almost never rupture and cause

NOTE Confidence: 0.97622395

00:34:10.969 --> 00:34:12.250 an ACS event. In fact,

NOTE Confidence: 0.97622395

00:34:12.250 --> 00:34:13.690 they're almost the lowest risk

NOTE Confidence: 0.97622395

00:34:13.690 --> 00:34:15.130 plaque that we have. Now

NOTE Confidence: 0.97622395

00:34:15.130 --> 00:34:16.329 they can certainly be flow

NOTE Confidence: 0.97622395

00:34:16.329 --> 00:34:16.829 limiting,

NOTE Confidence: 0.99707997

00:34:17.130 --> 00:34:18.750 particularly in the proximal vessels,

NOTE Confidence: 0.99526024

00:34:19.050 --> 00:34:20.089 but they're very unlikely to

NOTE Confidence: 0.99526024

00:34:20.089 --> 00:34:21.770 cause an ACS event from

NOTE Confidence: 0.99526024

00:34:21.770 --> 00:34:22.455 plaque rupture.

NOTE Confidence: 0.9923638

00:34:23.175 --> 00:34:24.055 And so this is kind

NOTE Confidence: 0.9923638

00:34:24.055 --> 00:34:24.855 of, I think, what we've

NOTE Confidence: 0.9923638

00:34:24.855 --> 00:34:26.135 learned. Now what's the dirty

NOTE Confidence: 0.9923638

00:34:26.135 --> 00:34:27.335 little secret about all of

NOTE Confidence: 0.9923638

00:34:27.335 --> 00:34:27.835 this?

NOTE Confidence: 0.99927926

00:34:28.215 --> 00:34:28.715 Well,

NOTE Confidence: 0.9781715

00:34:29.015 --> 00:34:30.295 the challenge is that if

NOTE Confidence: 0.9781715

00:34:30.295 --> 00:34:31.175 I look at a CT

NOTE Confidence: 0.9781715

00:34:31.175 --> 00:34:32.135 and my colleague looks at

NOTE Confidence: 0.9781715

00:34:32.135 --> 00:34:33.015 a CT and I say

NOTE Confidence: 0.9781715

00:34:33.015 --> 00:34:34.155 that's high risk plaque,

NOTE Confidence: 0.9745484

00:34:35.559 --> 00:34:36.920 We may agree, but there's

NOTE Confidence: 0.9745484

00:34:36.920 --> 00:34:37.640 a good chance that we

NOTE Confidence: 0.9745484

00:34:37.640 --> 00:34:38.920 won't. Meaning that we know

NOTE Confidence: 0.9745484

00:34:38.920 --> 00:34:40.039 from very good studies that

NOTE Confidence: 0.9745484

00:34:40.039 --> 00:34:41.900 there's only moderate interobserver

NOTE Confidence: 0.99850166

00:34:42.200 --> 00:34:42.700 agreement

NOTE Confidence: 0.9932622

00:34:43.400 --> 00:34:44.839 for high risk plaque features.

NOTE Confidence: 0.9932622

00:34:44.839 --> 00:34:45.719 And this has a lot

NOTE Confidence: 0.9932622

00:34:45.719 --> 00:34:46.839 to do with a lot

NOTE Confidence: 0.9932622

00:34:46.839 --> 00:34:47.799 of variables. A lot of

NOTE Confidence: 0.9932622

00:34:47.799 --> 00:34:49.180 it's due to image quality.

NOTE Confidence: 0.99803036

00:34:49.674 --> 00:34:51.055 Right? We know there's highly

NOTE Confidence: 0.9446886

00:34:51.355 --> 00:34:53.055 variable image quality in clinical

NOTE Confidence: 0.9446886

00:34:53.194 --> 00:34:54.555 CTA. And so this is

NOTE Confidence: 0.9446886

00:34:54.555 --> 00:34:56.315 something that perhaps perhaps we

NOTE Confidence: 0.9446886

00:34:56.315 --> 00:34:57.434 can get better at. And

NOTE Confidence: 0.9446886

00:34:57.434 --> 00:34:58.315 and the other question, of

NOTE Confidence: 0.9446886

00:34:58.315 --> 00:34:59.434 course, is can software help

NOTE Confidence: 0.9446886

00:34:59.434 --> 00:35:00.335 us? We'll see.

NOTE Confidence: 0.95601

00:35:00.875 --> 00:35:02.474 But even in research settings

NOTE Confidence: 0.95601

00:35:02.474 --> 00:35:04.410 and experienced labs, the inner

NOTE Confidence: 0.95601

00:35:04.410 --> 00:35:05.710 observer agreement for

NOTE Confidence: 0.9899369

00:35:06.089 --> 00:35:07.609 identifying high risk plaque is

NOTE Confidence: 0.9899369

00:35:07.609 --> 00:35:09.210 not great. In fact, this

NOTE Confidence: 0.9899369

00:35:09.210 --> 00:35:10.410 is a group in Europe

NOTE Confidence: 0.9899369

00:35:10.410 --> 00:35:12.250 who just recently published. This

NOTE Confidence: 0.9899369

00:35:12.250 --> 00:35:14.170 is this quantitative coronary imaging

NOTE Confidence: 0.9899369

00:35:14.170 --> 00:35:15.770 group who's trying to bring

NOTE Confidence: 0.9899369

00:35:15.770 --> 00:35:16.510 some standardization

NOTE Confidence: 0.99898744

00:35:17.454 --> 00:35:19.375 to how we quantify coronary

NOTE Confidence: 0.99898744

00:35:19.375 --> 00:35:20.755 disease in an era

NOTE Confidence: 0.9642585

00:35:21.295 --> 00:35:22.815 of an increasing use of

NOTE Confidence: 0.9642585

00:35:22.815 --> 00:35:24.734 software tools. And what they

NOTE Confidence: 0.9642585

00:35:24.734 --> 00:35:25.855 said is that essentially for

NOTE Confidence: 0.9642585

00:35:25.855 --> 00:35:26.734 high risk black, these are

NOTE Confidence: 0.9642585

00:35:26.734 --> 00:35:27.855 really the only two features

NOTE Confidence: 0.9642585

00:35:27.855 --> 00:35:29.535 you should be reporting, positive

NOTE Confidence: 0.9642585

00:35:29.535 --> 00:35:31.214 remodeling, low attenuation, those two

NOTE Confidence: 0.9642585

00:35:31.214 --> 00:35:32.094 that seem to be the

NOTE Confidence: 0.9642585

00:35:32.094 --> 00:35:32.835 most predictive

NOTE Confidence: 0.9597736

00:35:33.849 --> 00:35:35.210 because very low levels of

NOTE Confidence: 0.9597736

00:35:35.210 --> 00:35:35.710 agreement,

NOTE Confidence: 0.9610984

00:35:36.090 --> 00:35:36.810 if you look at the

NOTE Confidence: 0.9610984

00:35:36.810 --> 00:35:38.890 published literature for identifying spotty

NOTE Confidence: 0.9610984

00:35:38.890 --> 00:35:40.250 calcification and napkin ring sign.

NOTE Confidence: 0.9610984

00:35:40.250 --> 00:35:40.890 I think most of us

NOTE Confidence: 0.9610984

00:35:40.890 --> 00:35:41.770 who read a fair bit

NOTE Confidence: 0.9610984

00:35:41.770 --> 00:35:42.650 of CT would tell you

NOTE Confidence: 0.9610984

00:35:42.650 --> 00:35:44.090 that's the case for those

NOTE Confidence: 0.9610984

00:35:44.090 --> 00:35:45.530 two features. So spotty calcium,

NOTE Confidence: 0.9610984

00:35:45.530 --> 00:35:46.665 maybe not so much, but

NOTE Confidence: 0.9610984

00:35:46.825 --> 00:35:48.344 napkin ring sign is is

NOTE Confidence: 0.9610984

00:35:48.344 --> 00:35:50.505 is it's it's it's it's

NOTE Confidence: 0.9610984

00:35:50.505 --> 00:35:51.705 not not an easy one

NOTE Confidence: 0.9610984

00:35:51.705 --> 00:35:52.525 to see consistently.

NOTE Confidence: 0.9741042

00:35:52.985 --> 00:35:54.185 So that's kinda where we're

NOTE Confidence: 0.9741042

00:35:54.185 --> 00:35:55.385 at in the field. And

NOTE Confidence: 0.9741042

00:35:55.385 --> 00:35:56.105 what I want us now

NOTE Confidence: 0.9741042

00:35:56.105 --> 00:35:57.145 looking is where we're going

NOTE Confidence: 0.9741042

00:35:57.145 --> 00:35:58.105 in the field and moving

NOTE Confidence: 0.9741042

00:35:58.105 --> 00:35:59.700 beyond twenty twenty five. And

NOTE Confidence: 0.9741042

00:35:59.700 --> 00:36:01.080 one is that there's tremendous

NOTE Confidence: 0.9741042

00:36:01.219 --> 00:36:02.920 interest in moving away from

NOTE Confidence: 0.9741042

00:36:02.980 --> 00:36:03.880 use defining

NOTE Confidence: 0.9718588

00:36:04.260 --> 00:36:05.480 disease by stenosis.

NOTE Confidence: 0.9499396

00:36:06.020 --> 00:36:07.700 And so this was, just

NOTE Confidence: 0.9499396

00:36:07.700 --> 00:36:10.099 a recent Lancet Commission. The

NOTE Confidence: 0.9499396

00:36:10.099 --> 00:36:11.160 front cover of

NOTE Confidence: 0.9749575

00:36:11.780 --> 00:36:12.980 Lancet from that month said

NOTE Confidence: 0.9749575

00:36:12.980 --> 00:36:14.085 that they thought that by

NOTE Confidence: 0.9749575

00:36:14.165 --> 00:36:15.065 by refocusing

NOTE Confidence: 0.8785822

00:36:15.525 --> 00:36:17.125 how we address corn disease

NOTE Confidence: 0.8785822

00:36:17.125 --> 00:36:17.625 worldwide,

NOTE Confidence: 0.9816145

00:36:18.244 --> 00:36:18.964 that we could they could

NOTE Confidence: 0.9816145

00:36:18.964 --> 00:36:20.585 save over eight million lives,

NOTE Confidence: 0.9994534

00:36:21.285 --> 00:36:22.025 per year.

NOTE Confidence: 0.9622

00:36:22.325 --> 00:36:23.364 We'll see if that comes

NOTE Confidence: 0.9622

00:36:23.364 --> 00:36:24.825 to fruition, but this is,

NOTE Confidence: 0.919416

00:36:25.125 --> 00:36:26.085 a challenge, and I advise

NOTE Confidence: 0.919416

00:36:26.085 --> 00:36:27.045 you to kinda read through

NOTE Confidence: 0.919416

00:36:27.045 --> 00:36:28.505 this, that as a field,

NOTE Confidence: 0.9993081

00:36:29.000 --> 00:36:30.040 we need to think about

NOTE Confidence: 0.9993081

00:36:30.040 --> 00:36:30.859 plaque burden

NOTE Confidence: 0.99131364

00:36:31.160 --> 00:36:32.700 and atherosclerotic burden,

NOTE Confidence: 0.97308594

00:36:33.319 --> 00:36:35.319 in how we, address patients

NOTE Confidence: 0.97308594

00:36:35.319 --> 00:36:36.619 from a preventive standpoint.

NOTE Confidence: 0.95013255

00:36:37.480 --> 00:36:38.359 And I think one of

NOTE Confidence: 0.95013255

00:36:38.359 --> 00:36:39.400 the two I one of

NOTE Confidence: 0.95013255

00:36:39.400 --> 00:36:40.280 the talks that you just

NOTE Confidence: 0.95013255

00:36:40.280 --> 00:36:41.500 heard today about population

NOTE Confidence: 0.977015

00:36:42.344 --> 00:36:44.105 opportunistic screening with non gated

NOTE Confidence: 0.977015

00:36:44.105 --> 00:36:45.785 chest CT is just one

NOTE Confidence: 0.977015

00:36:45.785 --> 00:36:47.465 example of that, is using

NOTE Confidence: 0.977015

00:36:47.465 --> 00:36:48.505 data that we have for

NOTE Confidence: 0.977015

00:36:48.505 --> 00:36:49.005 opportunistic

NOTE Confidence: 0.9994176

00:36:49.305 --> 00:36:49.805 screening.

NOTE Confidence: 0.96946114

00:36:50.265 --> 00:36:51.225 So this is, if you

NOTE Confidence: 0.96946114

00:36:51.225 --> 00:36:52.185 go back in time when

NOTE Confidence: 0.96946114

00:36:52.185 --> 00:36:53.705 I was really just about

NOTE Confidence: 0.96946114

00:36:53.705 --> 00:36:54.840 a year into doing, you

NOTE Confidence: 0.96946114

00:36:55.000 --> 00:36:56.040 you know, you know, CT

NOTE Confidence: 0.96946114

00:36:56.040 --> 00:36:57.420 as an as an attending,

NOTE Confidence: 0.96946114

00:36:57.640 --> 00:36:58.680 you know, this was the

NOTE Confidence: 0.96946114

00:36:58.680 --> 00:36:59.960 the call, to all of

NOTE Confidence: 0.96946114

00:36:59.960 --> 00:37:00.920 us. I got very nervous

NOTE Confidence: 0.96946114

00:37:00.920 --> 00:37:01.800 when I saw the front

NOTE Confidence: 0.96946114

00:37:01.800 --> 00:37:03.400 cover because there's absolutely no

NOTE Confidence: 0.96946114

00:37:03.400 --> 00:37:04.600 data in two thousand five

NOTE Confidence: 0.96946114

00:37:04.600 --> 00:37:06.040 that CT could prevent heart

NOTE Confidence: 0.96946114

00:37:06.040 --> 00:37:06.540 attacks.

NOTE Confidence: 0.9232553

00:37:07.275 --> 00:37:08.734 We were doing CT at,

NOTE Confidence: 0.9232553

00:37:08.954 --> 00:37:10.954 you know, decent image quality,

NOTE Confidence: 0.9232553

00:37:10.954 --> 00:37:12.635 I would say, but scanner

NOTE Confidence: 0.9232553

00:37:12.635 --> 00:37:14.075 technology was not great. You

NOTE Confidence: 0.9232553

00:37:14.075 --> 00:37:14.714 can even see if you

NOTE Confidence: 0.9232553

00:37:14.714 --> 00:37:15.515 have the front cover of

NOTE Confidence: 0.9232553

00:37:15.515 --> 00:37:16.255 this image.

NOTE Confidence: 0.99698865

00:37:17.355 --> 00:37:18.155 We were doing a very

NOTE Confidence: 0.99698865

00:37:18.155 --> 00:37:19.454 high radiation dose,

NOTE Confidence: 0.9527085

00:37:20.075 --> 00:37:21.535 and we didn't have data.

NOTE Confidence: 0.9527085

00:37:21.680 --> 00:37:22.880 So the question is, can

NOTE Confidence: 0.9527085

00:37:22.880 --> 00:37:24.080 we, you know, you know,

NOTE Confidence: 0.9527085

00:37:24.080 --> 00:37:25.040 where where have we come

NOTE Confidence: 0.9527085

00:37:25.040 --> 00:37:26.080 in since since then? And

NOTE Confidence: 0.9527085

00:37:26.080 --> 00:37:27.040 you saw the guidelines. You

NOTE Confidence: 0.9527085

00:37:27.040 --> 00:37:28.400 saw Scott Hart. But we

NOTE Confidence: 0.9527085

00:37:28.480 --> 00:37:29.280 you know, the question is

NOTE Confidence: 0.9527085

00:37:29.280 --> 00:37:30.640 where are we going? Well,

NOTE Confidence: 0.9527085

00:37:30.640 --> 00:37:31.520 you know, this is data

NOTE Confidence: 0.9527085

00:37:31.520 --> 00:37:32.400 that goes way back, and

NOTE Confidence: 0.9527085

00:37:32.400 --> 00:37:33.360 I'm just gonna remind us

NOTE Confidence: 0.9527085

00:37:33.360 --> 00:37:34.720 that stenosis still matters. And

NOTE Confidence: 0.9527085

00:37:34.720 --> 00:37:35.600 we've known this. This is

NOTE Confidence: 0.9527085

00:37:35.600 --> 00:37:36.960 a very large registry, almost

NOTE Confidence: 0.9527085

00:37:36.960 --> 00:37:38.535 twenty four thousand patients. The

NOTE Confidence: 0.9527085

00:37:38.535 --> 00:37:40.055 more vessels with stenosis that

NOTE Confidence: 0.9527085

00:37:40.055 --> 00:37:41.415 you have, remember stenosis is

NOTE Confidence: 0.9527085

00:37:41.415 --> 00:37:42.555 a high risk feature.

NOTE Confidence: 0.95206326

00:37:42.935 --> 00:37:43.974 But we have been trying

NOTE Confidence: 0.95206326

00:37:43.974 --> 00:37:45.835 to quantify what we're seeing,

NOTE Confidence: 0.95206326

00:37:45.895 --> 00:37:47.094 and you saw the Cad

NOTE Confidence: 0.95206326

00:37:47.094 --> 00:37:48.375 RADS two point o attempts

NOTE Confidence: 0.95206326

00:37:48.375 --> 00:37:49.994 at quantifying plaque burden.

NOTE Confidence: 0.9476573

00:37:50.520 --> 00:37:51.640 How do we do that?

NOTE Confidence: 0.9476573

00:37:51.640 --> 00:37:52.680 Well, you know, this is

NOTE Confidence: 0.9476573

00:37:52.680 --> 00:37:53.800 very old data that simply

NOTE Confidence: 0.9476573

00:37:53.800 --> 00:37:55.080 just counting the number of

NOTE Confidence: 0.9476573

00:37:55.080 --> 00:37:56.760 segments with disease maybe is

NOTE Confidence: 0.9476573

00:37:56.760 --> 00:37:58.760 prognostically important. Segment involvement score.

NOTE Confidence: 0.9476573

00:37:58.760 --> 00:37:59.719 This is another score. I'll

NOTE Confidence: 0.9476573

00:37:59.719 --> 00:38:00.680 go through these pretty quickly.

NOTE Confidence: 0.9476573

00:38:00.680 --> 00:38:01.640 This is a Leiden score.

NOTE Confidence: 0.9476573

00:38:01.640 --> 00:38:02.600 We were really proud of

NOTE Confidence: 0.9476573

00:38:02.600 --> 00:38:04.565 ourselves within the confirmed registry

NOTE Confidence: 0.9476573

00:38:04.565 --> 00:38:05.364 that we came up with

NOTE Confidence: 0.9476573

00:38:05.364 --> 00:38:07.045 a smarter score that no

NOTE Confidence: 0.9476573

00:38:07.045 --> 00:38:07.785 one uses.

NOTE Confidence: 0.9504622

00:38:08.405 --> 00:38:09.844 And so no one uses

NOTE Confidence: 0.9504622

00:38:09.844 --> 00:38:10.805 this today. Right? We said,

NOTE Confidence: 0.9504622

00:38:10.805 --> 00:38:12.085 okay. Well, let's look at

NOTE Confidence: 0.9504622

00:38:12.085 --> 00:38:12.825 the prognostic

NOTE Confidence: 0.99810463

00:38:13.125 --> 00:38:15.385 weight of the proximal location,

NOTE Confidence: 0.99810463

00:38:15.525 --> 00:38:16.744 the type of plaque,

NOTE Confidence: 0.961803

00:38:17.100 --> 00:38:18.700 the stenosis, and put all

NOTE Confidence: 0.961803

00:38:18.700 --> 00:38:19.739 of this in a score.

NOTE Confidence: 0.961803

00:38:19.739 --> 00:38:20.620 And then we added to

NOTE Confidence: 0.961803

00:38:20.620 --> 00:38:22.140 this clinical factors, called it

NOTE Confidence: 0.961803

00:38:22.140 --> 00:38:23.660 the confirmed risk score. No

NOTE Confidence: 0.961803

00:38:23.660 --> 00:38:25.040 one uses this stuff.

NOTE Confidence: 0.91795594

00:38:25.900 --> 00:38:27.020 And you know it's and

NOTE Confidence: 0.91795594

00:38:27.020 --> 00:38:27.900 we said this is even

NOTE Confidence: 0.91795594

00:38:27.900 --> 00:38:29.235 better than the segment involvement

NOTE Confidence: 0.91795594

00:38:29.235 --> 00:38:30.435 score, better than other scores.

NOTE Confidence: 0.91795594

00:38:30.435 --> 00:38:31.235 And the problem is no

NOTE Confidence: 0.91795594

00:38:31.235 --> 00:38:32.355 one's doing because they're they're

NOTE Confidence: 0.91795594

00:38:32.355 --> 00:38:33.255 clunky to

NOTE Confidence: 0.8790937

00:38:33.555 --> 00:38:34.915 do, and it's still fairly

NOTE Confidence: 0.8790937

00:38:34.915 --> 00:38:36.755 quite it's fair still fairly

NOTE Confidence: 0.8790937

00:38:36.755 --> 00:38:37.255 subjective.

NOTE Confidence: 0.97836167

00:38:37.795 --> 00:38:38.675 And so I think what

NOTE Confidence: 0.97836167

00:38:38.675 --> 00:38:39.795 the field has realized is

NOTE Confidence: 0.97836167

00:38:39.795 --> 00:38:41.415 that, you know, there's potential

NOTE Confidence: 0.9910781

00:38:41.715 --> 00:38:42.215 using

NOTE Confidence: 0.99852896

00:38:42.515 --> 00:38:44.330 AI tools to truly quantify

NOTE Confidence: 0.99852896

00:38:44.390 --> 00:38:44.890 three-dimensional

NOTE Confidence: 0.9702098

00:38:45.190 --> 00:38:46.550 atherosclerosis. And this is really

NOTE Confidence: 0.9702098

00:38:46.550 --> 00:38:47.430 one of the first papers

NOTE Confidence: 0.9702098

00:38:47.430 --> 00:38:48.550 to show it show this.

NOTE Confidence: 0.9702098

00:38:48.550 --> 00:38:49.590 This is data from Scott

NOTE Confidence: 0.9702098

00:38:49.590 --> 00:38:50.870 Hart. Remember, these patients were

NOTE Confidence: 0.9702098

00:38:50.870 --> 00:38:52.790 randomized to either coronary CT

NOTE Confidence: 0.9702098

00:38:52.790 --> 00:38:54.090 or standard of care.

NOTE Confidence: 0.9901505

00:38:54.470 --> 00:38:56.070 And in the CT patients,

NOTE Confidence: 0.9901505

00:38:56.070 --> 00:38:57.510 about seventeen hundred patients from

NOTE Confidence: 0.9901505

00:38:57.510 --> 00:38:58.810 Scotland who were symptomatic,

NOTE Confidence: 0.99812585

00:38:59.565 --> 00:39:00.224 they quantified

NOTE Confidence: 0.7730776

00:39:00.605 --> 00:39:01.425 plaque volumes,

NOTE Confidence: 0.9806699

00:39:02.045 --> 00:39:03.005 and they said, what is

NOTE Confidence: 0.9806699

00:39:03.005 --> 00:39:04.364 most predictive of events? Now

NOTE Confidence: 0.9806699

00:39:04.364 --> 00:39:05.005 I'll say this is a

NOTE Confidence: 0.9806699

00:39:05.005 --> 00:39:06.705 relatively low risk group,

NOTE Confidence: 0.97697425

00:39:07.325 --> 00:39:08.364 but what they showed is

NOTE Confidence: 0.97697425

00:39:08.364 --> 00:39:09.885 that the volume of low

NOTE Confidence: 0.97697425

00:39:09.885 --> 00:39:12.060 attenuation plaque was the strongest

NOTE Confidence: 0.97697425

00:39:12.060 --> 00:39:13.420 predictor of incident MI. It

NOTE Confidence: 0.97697425

00:39:13.420 --> 00:39:14.700 was better than calcium scoring.

NOTE Confidence: 0.97697425

00:39:14.700 --> 00:39:15.760 It was better than stenosis.

NOTE Confidence: 0.9911421

00:39:16.220 --> 00:39:17.180 It was better than clinical

NOTE Confidence: 0.9911421

00:39:17.180 --> 00:39:18.620 risk factors, and they showed

NOTE Confidence: 0.9911421

00:39:18.620 --> 00:39:19.900 some thresholds. For example, if

NOTE Confidence: 0.9911421

00:39:19.900 --> 00:39:21.020 you had more than four

NOTE Confidence: 0.9911421

00:39:21.020 --> 00:39:21.520 percent

NOTE Confidence: 0.9294984

00:39:22.140 --> 00:39:23.440 of your coronary,

NOTE Confidence: 0.9345171

00:39:24.435 --> 00:39:26.275 tree or your plaque burden,

NOTE Confidence: 0.9345171

00:39:26.594 --> 00:39:28.035 as low attenuation plaque. They

NOTE Confidence: 0.9345171

00:39:28.035 --> 00:39:29.495 saw, you know, this fivefold

NOTE Confidence: 0.9345171

00:39:29.555 --> 00:39:31.555 increase in myocardial infarction even

NOTE Confidence: 0.9345171

00:39:31.555 --> 00:39:32.755 when accounting for these other

NOTE Confidence: 0.9345171

00:39:32.755 --> 00:39:34.114 factors. And there have been

NOTE Confidence: 0.9345171

00:39:34.114 --> 00:39:35.315 numerous groups, and this is

NOTE Confidence: 0.9345171

00:39:35.315 --> 00:39:36.675 just from Dominique Day's group

NOTE Confidence: 0.9345171

00:39:36.675 --> 00:39:38.300 at Cedars Sinai, where they

NOTE Confidence: 0.9345171

00:39:38.300 --> 00:39:39.680 have gone and used multiple

NOTE Confidence: 0.99960345

00:39:40.060 --> 00:39:42.000 populations to train software

NOTE Confidence: 0.9847795

00:39:42.460 --> 00:39:44.239 and compare it to intravascular

NOTE Confidence: 0.9760735

00:39:44.540 --> 00:39:46.640 imaging for accuracy, for volumetric

NOTE Confidence: 0.9760735

00:39:46.859 --> 00:39:47.359 assessments,

NOTE Confidence: 0.958992

00:39:47.820 --> 00:39:49.260 comparing it in some cases

NOTE Confidence: 0.958992

00:39:49.260 --> 00:39:49.760 to,

NOTE Confidence: 0.999586

00:39:50.525 --> 00:39:50.844 you know,

NOTE Confidence: 0.9876371

00:39:51.565 --> 00:39:53.505 large populations for outcomes,

NOTE Confidence: 0.9871206

00:39:54.125 --> 00:39:55.565 and even some even some

NOTE Confidence: 0.9871206

00:39:55.565 --> 00:39:57.805 small histology groups showing that

NOTE Confidence: 0.9871206

00:39:57.805 --> 00:39:59.425 software can do a reasonable

NOTE Confidence: 0.9871206

00:39:59.485 --> 00:39:59.985 job

NOTE Confidence: 0.99177927

00:40:00.364 --> 00:40:02.065 if you compare the volume

NOTE Confidence: 0.99177927

00:40:02.285 --> 00:40:02.785 of

NOTE Confidence: 0.99054116

00:40:03.099 --> 00:40:04.380 plaque to things such as

NOTE Confidence: 0.99054116

00:40:04.380 --> 00:40:04.880 intravascular

NOTE Confidence: 0.97745436

00:40:05.180 --> 00:40:05.680 ultrasound,

NOTE Confidence: 0.9483727

00:40:06.540 --> 00:40:08.380 or even manual assessments of

NOTE Confidence: 0.9483727

00:40:08.380 --> 00:40:09.900 plaque on CT. This can

NOTE Confidence: 0.9483727

00:40:09.900 --> 00:40:10.940 do this in this particular

NOTE Confidence: 0.9483727

00:40:10.940 --> 00:40:11.739 study. They could do this

NOTE Confidence: 0.9483727

00:40:11.739 --> 00:40:12.960 in just a few seconds,

NOTE Confidence: 0.97234863

00:40:13.339 --> 00:40:15.260 with some oversight as to,

NOTE Confidence: 0.97234863

00:40:15.500 --> 00:40:16.780 ensuring that the vessel was

NOTE Confidence: 0.97234863

00:40:16.780 --> 00:40:17.760 segmented appropriately.

NOTE Confidence: 0.94421756

00:40:18.785 --> 00:40:19.585 And in fact, in this

NOTE Confidence: 0.94421756

00:40:19.585 --> 00:40:21.025 in this analysis, they showed

NOTE Confidence: 0.94421756

00:40:21.025 --> 00:40:22.385 from Scott Hart that there,

NOTE Confidence: 0.94421756

00:40:22.385 --> 00:40:23.745 you know, plaque volumes above

NOTE Confidence: 0.94421756

00:40:23.745 --> 00:40:24.545 two hundred and thirty eight

NOTE Confidence: 0.94421756

00:40:24.545 --> 00:40:26.085 and a half millimeters cube,

NOTE Confidence: 0.94421756

00:40:26.225 --> 00:40:28.405 you saw this significant sevenfold

NOTE Confidence: 0.94421756

00:40:28.625 --> 00:40:29.925 increase in risk.

NOTE Confidence: 0.99778575

00:40:30.385 --> 00:40:31.265 And this was,

NOTE Confidence: 0.9637717

00:40:31.820 --> 00:40:33.020 you know, certainly a better

NOTE Confidence: 0.9637717

00:40:33.020 --> 00:40:35.119 predictor for outcomes than stenosis.

NOTE Confidence: 0.9561976

00:40:35.820 --> 00:40:37.260 And we don't currently do

NOTE Confidence: 0.9561976

00:40:37.260 --> 00:40:38.700 this. Right? We don't currently

NOTE Confidence: 0.9561976

00:40:38.700 --> 00:40:40.940 report this. And so this

NOTE Confidence: 0.9561976

00:40:40.940 --> 00:40:41.900 has kind of gotten people

NOTE Confidence: 0.9561976

00:40:41.900 --> 00:40:43.739 a lot really, really, kinda

NOTE Confidence: 0.9561976

00:40:43.739 --> 00:40:45.420 interested in this field that

NOTE Confidence: 0.9561976

00:40:45.420 --> 00:40:46.640 should we be quantifying

NOTE Confidence: 0.9506285

00:40:46.940 --> 00:40:48.165 more. And, you know, at

NOTE Confidence: 0.9506285

00:40:48.165 --> 00:40:48.725 the end of this talk,

NOTE Confidence: 0.9506285

00:40:48.725 --> 00:40:49.605 you're gonna say, well, you

NOTE Confidence: 0.9506285

00:40:49.605 --> 00:40:50.565 know, that all sounded pretty

NOTE Confidence: 0.9506285

00:40:50.565 --> 00:40:51.765 good. Why why is doctor

NOTE Confidence: 0.9506285

00:40:51.765 --> 00:40:52.885 Vollandz a little bit negative

NOTE Confidence: 0.9506285

00:40:52.885 --> 00:40:54.005 about this field? Well, I'm

NOTE Confidence: 0.9506285

00:40:54.005 --> 00:40:54.885 gonna show you kind of

NOTE Confidence: 0.9506285

00:40:54.885 --> 00:40:55.285 why,

NOTE Confidence: 0.96545017

00:40:55.765 --> 00:40:56.985 in the next few settings.

NOTE Confidence: 0.96545017

00:40:57.045 --> 00:40:58.245 There are now software that

NOTE Confidence: 0.96545017

00:40:58.245 --> 00:41:00.105 are available, commercially available,

NOTE Confidence: 0.954232

00:41:00.540 --> 00:41:01.820 that have taken this approach

NOTE Confidence: 0.954232

00:41:01.820 --> 00:41:02.700 and said, we can do

NOTE Confidence: 0.954232

00:41:02.700 --> 00:41:03.600 this for you.

NOTE Confidence: 0.99031806

00:41:04.219 --> 00:41:05.500 And we can stage this

NOTE Confidence: 0.99031806

00:41:05.500 --> 00:41:06.560 much like we do

NOTE Confidence: 0.98934066

00:41:07.180 --> 00:41:09.200 oncology patients or cancer patients.

NOTE Confidence: 0.94147617

00:41:09.820 --> 00:41:10.780 You know, that how how

NOTE Confidence: 0.94147617

00:41:10.860 --> 00:41:11.980 what do these numbers mean

NOTE Confidence: 0.94147617

00:41:11.980 --> 00:41:13.340 if you're gonna quantify plaque

NOTE Confidence: 0.94147617

00:41:13.340 --> 00:41:14.460 volumes? And so they they've

NOTE Confidence: 0.94147617

00:41:14.460 --> 00:41:15.600 tried to give some,

NOTE Confidence: 0.96738046

00:41:16.015 --> 00:41:17.635 you know, guidance to clinicians.

NOTE Confidence: 0.96738046

00:41:17.855 --> 00:41:18.815 And this is just a

NOTE Confidence: 0.96738046

00:41:18.815 --> 00:41:20.575 very early stage approach of

NOTE Confidence: 0.96738046

00:41:20.575 --> 00:41:22.255 trying to stage how bad

NOTE Confidence: 0.96738046

00:41:22.255 --> 00:41:23.555 is my coronary disease.

NOTE Confidence: 0.7751355

00:41:24.175 --> 00:41:24.675 Right?

NOTE Confidence: 0.9842879

00:41:24.975 --> 00:41:25.935 And this is just one

NOTE Confidence: 0.9842879

00:41:25.935 --> 00:41:27.535 such approach. Total plaque volume,

NOTE Confidence: 0.9842879

00:41:27.535 --> 00:41:28.494 you can see these different

NOTE Confidence: 0.9842879

00:41:28.494 --> 00:41:30.450 cut points, or percent atheroma

NOTE Confidence: 0.9842879

00:41:30.450 --> 00:41:31.410 volume, which is how much

NOTE Confidence: 0.9842879

00:41:31.410 --> 00:41:32.610 of the vessel volume is

NOTE Confidence: 0.9842879

00:41:32.610 --> 00:41:33.590 made up of plaque

NOTE Confidence: 0.97495073

00:41:33.969 --> 00:41:35.090 as one approach. And this

NOTE Confidence: 0.97495073

00:41:35.090 --> 00:41:36.469 was really based on invasive

NOTE Confidence: 0.97495073

00:41:36.530 --> 00:41:38.290 angiography, by the way. They

NOTE Confidence: 0.97495073

00:41:38.290 --> 00:41:39.969 took patients who had one

NOTE Confidence: 0.97495073

00:41:39.969 --> 00:41:41.170 vessel, two vessel, and three

NOTE Confidence: 0.97495073

00:41:41.170 --> 00:41:42.850 vessel obstructive disease, and they

NOTE Confidence: 0.97495073

00:41:42.850 --> 00:41:44.230 quantified their plaque

NOTE Confidence: 0.94586295

00:41:44.585 --> 00:41:46.424 and said these cut points

NOTE Confidence: 0.94586295

00:41:46.424 --> 00:41:48.285 seem to work pretty well.

NOTE Confidence: 0.960614

00:41:49.144 --> 00:41:50.025 And so this is how

NOTE Confidence: 0.960614

00:41:50.025 --> 00:41:51.144 this was done. Probably not

NOTE Confidence: 0.960614

00:41:51.144 --> 00:41:52.505 the ideal way of deriving

NOTE Confidence: 0.960614

00:41:52.505 --> 00:41:53.785 this, and we can argue

NOTE Confidence: 0.960614

00:41:53.785 --> 00:41:54.664 about some of these cut

NOTE Confidence: 0.960614

00:41:54.664 --> 00:41:55.625 points. I just showed you

NOTE Confidence: 0.960614

00:41:55.625 --> 00:41:56.984 a sevenfold increase in risk

NOTE Confidence: 0.960614

00:41:56.984 --> 00:41:57.944 if you were below two

NOTE Confidence: 0.960614

00:41:57.944 --> 00:41:59.144 fifty for the Scott Heart

NOTE Confidence: 0.960614

00:41:59.144 --> 00:42:00.560 pryper. So may you know,

NOTE Confidence: 0.960614

00:42:00.560 --> 00:42:01.920 is is is stage one

NOTE Confidence: 0.960614

00:42:01.920 --> 00:42:03.219 mild plaque really mild?

NOTE Confidence: 0.9870108

00:42:03.760 --> 00:42:04.960 So this has been criticized

NOTE Confidence: 0.9870108

00:42:04.960 --> 00:42:06.000 for that reason. But they

NOTE Confidence: 0.9870108

00:42:06.000 --> 00:42:06.739 have shown

NOTE Confidence: 0.87777454

00:42:07.040 --> 00:42:08.800 in small populations and just

NOTE Confidence: 0.87777454

00:42:08.800 --> 00:42:11.120 published this week actually from

NOTE Confidence: 0.87777454

00:42:11.120 --> 00:42:12.820 from a a separate population

NOTE Confidence: 0.9331711

00:42:13.280 --> 00:42:14.420 that plaque volumes

NOTE Confidence: 0.99983245

00:42:14.844 --> 00:42:16.145 are a little bit better

NOTE Confidence: 0.98316604

00:42:17.245 --> 00:42:18.545 than calcium scoring,

NOTE Confidence: 0.9624224

00:42:19.005 --> 00:42:19.505 stenosis,

NOTE Confidence: 0.9866102

00:42:19.805 --> 00:42:21.005 and the standard things. And

NOTE Confidence: 0.9866102

00:42:21.005 --> 00:42:22.145 this is looking at,

NOTE Confidence: 0.94692826

00:42:22.605 --> 00:42:23.825 ten year event rates.

NOTE Confidence: 0.9796949

00:42:24.285 --> 00:42:26.125 According to this stage, and

NOTE Confidence: 0.9796949

00:42:26.125 --> 00:42:27.245 what you can see is

NOTE Confidence: 0.9796949

00:42:27.245 --> 00:42:28.440 that the ten year event

NOTE Confidence: 0.9796949

00:42:28.440 --> 00:42:30.520 rates were relatively predicted by

NOTE Confidence: 0.9796949

00:42:30.520 --> 00:42:31.880 this staging system that I

NOTE Confidence: 0.9796949

00:42:31.880 --> 00:42:32.780 just showed you,

NOTE Confidence: 0.9937606

00:42:33.640 --> 00:42:34.460 in a moment.

NOTE Confidence: 0.9894896

00:42:34.760 --> 00:42:35.960 Not something we can do.

NOTE Confidence: 0.9894896

00:42:35.960 --> 00:42:36.920 And so as I mentioned,

NOTE Confidence: 0.9894896

00:42:36.920 --> 00:42:37.960 there are vendors out there

NOTE Confidence: 0.9894896

00:42:37.960 --> 00:42:39.080 that will come into you

NOTE Confidence: 0.9894896

00:42:39.080 --> 00:42:40.040 and talk with you and

NOTE Confidence: 0.9894896

00:42:40.040 --> 00:42:41.000 try to sell you this

NOTE Confidence: 0.9894896

00:42:41.000 --> 00:42:41.500 technology

NOTE Confidence: 0.95170337

00:42:41.975 --> 00:42:43.175 where they say, send us

NOTE Confidence: 0.95170337

00:42:43.175 --> 00:42:44.235 a CT scan.

NOTE Confidence: 0.9984464

00:42:44.695 --> 00:42:46.235 We'll process it three dimensionally.

NOTE Confidence: 0.9984464

00:42:46.375 --> 00:42:47.415 We'll send you back a

NOTE Confidence: 0.9984464

00:42:47.415 --> 00:42:49.195 report that has total coronary

NOTE Confidence: 0.9984464

00:42:49.255 --> 00:42:50.075 plaque volumes

NOTE Confidence: 0.9280262

00:42:50.855 --> 00:42:52.215 to include the volumes of

NOTE Confidence: 0.9280262

00:42:52.215 --> 00:42:54.375 noncalcified plaque. Remember this this

NOTE Confidence: 0.9280262

00:42:54.375 --> 00:42:56.395 this riskier low density plaque,

NOTE Confidence: 0.9955716

00:42:56.799 --> 00:42:57.779 calcified plaque,

NOTE Confidence: 0.9925402

00:42:58.239 --> 00:42:59.839 percent atheroma volumes, and we'll

NOTE Confidence: 0.9925402

00:42:59.839 --> 00:43:01.440 even assess stenosis for you

NOTE Confidence: 0.9925402

00:43:01.440 --> 00:43:01.940 automatically.

NOTE Confidence: 0.74840367

00:43:02.719 --> 00:43:03.219 Right?

NOTE Confidence: 0.96723527

00:43:03.599 --> 00:43:04.480 And so we we can

NOTE Confidence: 0.96723527

00:43:04.480 --> 00:43:05.200 do this for you. We

NOTE Confidence: 0.96723527

00:43:05.200 --> 00:43:06.239 can make this easier for

NOTE Confidence: 0.96723527

00:43:06.239 --> 00:43:07.839 you. There's there's another shot

NOTE Confidence: 0.96723527

00:43:07.839 --> 00:43:09.295 of another vendor where they

NOTE Confidence: 0.96723527

00:43:09.295 --> 00:43:11.295 will, you know, again, process

NOTE Confidence: 0.96723527

00:43:11.295 --> 00:43:12.415 these scans and take this

NOTE Confidence: 0.96723527

00:43:12.415 --> 00:43:14.175 data from you, analyze them,

NOTE Confidence: 0.96723527

00:43:14.175 --> 00:43:15.055 and send them back to

NOTE Confidence: 0.96723527

00:43:15.055 --> 00:43:16.975 you, giving you these plaque

NOTE Confidence: 0.96723527

00:43:16.975 --> 00:43:17.475 analysis.

NOTE Confidence: 0.9925922

00:43:19.935 --> 00:43:21.455 And in this scenario, instead

NOTE Confidence: 0.9925922

00:43:21.455 --> 00:43:22.920 of staging your disease, this

NOTE Confidence: 0.9925922

00:43:22.920 --> 00:43:24.599 particular vendor says, well, I'm

NOTE Confidence: 0.9925922

00:43:24.599 --> 00:43:25.560 gonna tell you how you

NOTE Confidence: 0.9925922

00:43:25.560 --> 00:43:26.920 compare to other men and

NOTE Confidence: 0.9925922

00:43:26.920 --> 00:43:28.060 women of the same,

NOTE Confidence: 0.9531437

00:43:28.680 --> 00:43:30.200 you know, men and women

NOTE Confidence: 0.9531437

00:43:30.200 --> 00:43:31.900 of the same rough age

NOTE Confidence: 0.9531437

00:43:32.119 --> 00:43:33.340 and give you a percentile,

NOTE Confidence: 0.9531437

00:43:33.400 --> 00:43:34.200 much like we do with

NOTE Confidence: 0.9531437

00:43:34.200 --> 00:43:35.364 calcium score. So you would

NOTE Confidence: 0.9531437

00:43:35.364 --> 00:43:36.645 get a coronary CT and

NOTE Confidence: 0.9531437

00:43:36.645 --> 00:43:37.364 would come back and say

NOTE Confidence: 0.9531437

00:43:37.364 --> 00:43:38.825 you're at the eightieth percentile

NOTE Confidence: 0.99212986

00:43:39.605 --> 00:43:40.825 compared to other

NOTE Confidence: 0.990342

00:43:41.285 --> 00:43:42.485 men your age, for example,

NOTE Confidence: 0.990342

00:43:42.485 --> 00:43:43.685 or women your age. And

NOTE Confidence: 0.990342

00:43:43.685 --> 00:43:44.965 so this is another approach

NOTE Confidence: 0.990342

00:43:44.965 --> 00:43:45.945 that's being taken.

NOTE Confidence: 0.9831501

00:43:46.485 --> 00:43:47.605 And they have shown, of

NOTE Confidence: 0.9831501

00:43:47.605 --> 00:43:48.585 course, not surprisingly,

NOTE Confidence: 0.99896306

00:43:49.130 --> 00:43:50.410 that patients in the highest

NOTE Confidence: 0.99896306

00:43:50.410 --> 00:43:52.270 percentile have a significant

NOTE Confidence: 0.9441586

00:43:52.570 --> 00:43:54.170 increased risk when you look

NOTE Confidence: 0.9441586

00:43:54.170 --> 00:43:55.690 at large populations. And, again,

NOTE Confidence: 0.9441586

00:43:55.690 --> 00:43:56.730 this is based on not

NOTE Confidence: 0.9441586

00:43:56.730 --> 00:43:57.930 only Scott Heart data, but

NOTE Confidence: 0.9441586

00:43:57.930 --> 00:44:00.170 other, another large population from

NOTE Confidence: 0.9441586

00:44:00.170 --> 00:44:00.670 Europe.

NOTE Confidence: 0.9992132

00:44:01.475 --> 00:44:02.375 But here's the

NOTE Confidence: 0.9621923

00:44:02.755 --> 00:44:03.875 rub, is that number one

NOTE Confidence: 0.9621923

00:44:03.875 --> 00:44:04.915 is that that the field

NOTE Confidence: 0.9621923

00:44:04.915 --> 00:44:06.855 is currently lacking real standardization.

NOTE Confidence: 0.983743

00:44:07.155 --> 00:44:07.955 And what I mean by

NOTE Confidence: 0.983743

00:44:07.955 --> 00:44:08.755 that is I think all

NOTE Confidence: 0.983743

00:44:08.755 --> 00:44:10.114 of us as physicians like

NOTE Confidence: 0.983743

00:44:10.114 --> 00:44:11.715 measuring what we see. There's

NOTE Confidence: 0.983743

00:44:11.715 --> 00:44:13.075 so many areas in science

NOTE Confidence: 0.983743

00:44:13.075 --> 00:44:14.515 where that actually does really

NOTE Confidence: 0.983743

00:44:14.515 --> 00:44:15.895 improve patient care.

NOTE Confidence: 0.9626383

00:44:16.469 --> 00:44:17.270 But if you look at

NOTE Confidence: 0.9626383

00:44:17.350 --> 00:44:18.150 this is a statement from

NOTE Confidence: 0.9626383

00:44:18.150 --> 00:44:19.670 the SECT again trying to

NOTE Confidence: 0.9626383

00:44:19.670 --> 00:44:20.650 help with standardization,

NOTE Confidence: 0.98623043

00:44:21.270 --> 00:44:22.730 and they looked across multiple

NOTE Confidence: 0.98623043

00:44:22.790 --> 00:44:23.770 different software.

NOTE Confidence: 0.98378414

00:44:24.070 --> 00:44:25.030 And you can see that

NOTE Confidence: 0.98378414

00:44:25.030 --> 00:44:26.630 just based on Hounsfield unit

NOTE Confidence: 0.98378414

00:44:26.630 --> 00:44:28.090 thresholds, there's high variability

NOTE Confidence: 0.9782561

00:44:28.710 --> 00:44:30.810 in what people call calcified

NOTE Confidence: 0.9782561

00:44:30.869 --> 00:44:31.770 plaque, noncalcified

NOTE Confidence: 0.9608918

00:44:32.844 --> 00:44:33.725 plaque, and low attenuation plaque.

NOTE Confidence: 0.9608918

00:44:33.725 --> 00:44:34.925 And in fact, they ran

NOTE Confidence: 0.9608918

00:44:34.925 --> 00:44:36.285 a single scan with seven

NOTE Confidence: 0.9608918

00:44:36.285 --> 00:44:37.725 different software, and what they

NOTE Confidence: 0.9608918

00:44:37.725 --> 00:44:39.585 found were highly discrepant results.

NOTE Confidence: 0.98112583

00:44:40.205 --> 00:44:41.325 And and this is just

NOTE Confidence: 0.98112583

00:44:41.325 --> 00:44:42.285 an example of some of

NOTE Confidence: 0.98112583

00:44:42.285 --> 00:44:43.405 these different software. In fact,

NOTE Confidence: 0.98112583

00:44:43.405 --> 00:44:44.765 these results vary by more

NOTE Confidence: 0.98112583

00:44:44.765 --> 00:44:45.885 than a hundred and fifty

NOTE Confidence: 0.98112583

00:44:45.885 --> 00:44:48.065 percent with some plaque types.

NOTE Confidence: 0.97525334

00:44:49.380 --> 00:44:50.339 Why is this important for

NOTE Confidence: 0.97525334

00:44:50.339 --> 00:44:51.480 you to know this? Because

NOTE Confidence: 0.97525334

00:44:51.540 --> 00:44:52.760 surprising to many,

NOTE Confidence: 0.9780793

00:44:53.380 --> 00:44:55.079 starting on January first,

NOTE Confidence: 0.95374346

00:44:55.380 --> 00:44:56.579 Medicare has said we are

NOTE Confidence: 0.95374346

00:44:56.579 --> 00:44:57.480 paying for this.

NOTE Confidence: 0.8588842

00:44:58.180 --> 00:44:59.140 And this this is you

NOTE Confidence: 0.8588842

00:44:59.140 --> 00:45:00.180 can actually see this is

NOTE Confidence: 0.8588842

00:45:00.180 --> 00:45:01.300 a a an LCD, a

NOTE Confidence: 0.8588842

00:45:01.300 --> 00:45:02.599 local coverage decision

NOTE Confidence: 0.92486835

00:45:02.945 --> 00:45:04.864 from Medicare that says in

NOTE Confidence: 0.92486835

00:45:04.864 --> 00:45:05.364 patients

NOTE Confidence: 0.99157447

00:45:05.665 --> 00:45:06.725 who are symptomatic,

NOTE Confidence: 0.99837846

00:45:07.265 --> 00:45:08.864 who don't have known coronary

NOTE Confidence: 0.99837846

00:45:08.864 --> 00:45:09.364 disease,

NOTE Confidence: 0.9468096

00:45:09.665 --> 00:45:11.025 who obviously are eligible for

NOTE Confidence: 0.9468096

00:45:11.025 --> 00:45:13.025 coronary CT and don't have

NOTE Confidence: 0.9468096

00:45:13.025 --> 00:45:13.844 severe stenosis.

NOTE Confidence: 0.92601514

00:45:15.344 --> 00:45:16.864 Right? This is stenosis less

NOTE Confidence: 0.92601514

00:45:16.864 --> 00:45:18.005 than seventy percent.

NOTE Confidence: 0.93738765

00:45:18.770 --> 00:45:19.969 Then in those patients, you

NOTE Confidence: 0.93738765

00:45:19.969 --> 00:45:21.430 can do this plaque analysis,

NOTE Confidence: 0.9992089

00:45:22.050 --> 00:45:23.250 and they will pay nine

NOTE Confidence: 0.9992089

00:45:23.250 --> 00:45:24.609 hundred and fifty dollars and

NOTE Confidence: 0.9992089

00:45:24.609 --> 00:45:25.910 fifty cents for this.

NOTE Confidence: 0.97607106

00:45:26.369 --> 00:45:27.670 So that's the current payment.

NOTE Confidence: 0.99382627

00:45:28.530 --> 00:45:29.650 And they say, where can

NOTE Confidence: 0.99382627

00:45:29.650 --> 00:45:30.690 you not do this? Well,

NOTE Confidence: 0.99382627

00:45:30.690 --> 00:45:32.335 you shouldn't do this in

NOTE Confidence: 0.99382627

00:45:32.335 --> 00:45:33.315 screening cases.

NOTE Confidence: 0.98413825

00:45:33.614 --> 00:45:34.575 You shouldn't do this in

NOTE Confidence: 0.98413825

00:45:34.575 --> 00:45:35.455 people who have had a

NOTE Confidence: 0.98413825

00:45:35.455 --> 00:45:36.655 prior CT who are just

NOTE Confidence: 0.98413825

00:45:36.655 --> 00:45:37.635 doing it for

NOTE Confidence: 0.9987731

00:45:38.094 --> 00:45:39.075 disease progression.

NOTE Confidence: 0.986482

00:45:41.295 --> 00:45:42.094 You know, you shouldn't do

NOTE Confidence: 0.986482

00:45:42.094 --> 00:45:43.055 it if you're taking them,

NOTE Confidence: 0.986482

00:45:43.055 --> 00:45:43.935 you know, to the cath

NOTE Confidence: 0.986482

00:45:43.935 --> 00:45:44.895 lab for whatever reason. So

NOTE Confidence: 0.986482

00:45:44.895 --> 00:45:45.535 these are kind of the

NOTE Confidence: 0.986482

00:45:45.695 --> 00:45:46.675 some of the safeguards.

NOTE Confidence: 0.93508935

00:45:47.280 --> 00:45:48.719 And, again, I mentioned disease

NOTE Confidence: 0.93508935

00:45:48.719 --> 00:45:49.219 surveillance,

NOTE Confidence: 0.97996205

00:45:49.920 --> 00:45:50.800 but there will be a

NOTE Confidence: 0.97996205

00:45:50.800 --> 00:45:52.160 category code go into effect

NOTE Confidence: 0.97996205

00:45:52.160 --> 00:45:53.360 on January first of this

NOTE Confidence: 0.97996205

00:45:53.360 --> 00:45:54.640 year. Now I'm gonna kinda

NOTE Confidence: 0.97996205

00:45:54.640 --> 00:45:55.440 walk you through some of

NOTE Confidence: 0.97996205

00:45:55.440 --> 00:45:56.719 the challenges that with this

NOTE Confidence: 0.97996205

00:45:56.719 --> 00:45:58.000 approach. This happened a lot

NOTE Confidence: 0.97996205

00:45:58.000 --> 00:45:59.040 faster than any of us

NOTE Confidence: 0.97996205

00:45:59.040 --> 00:46:00.160 thought would happen in the

NOTE Confidence: 0.97996205

00:46:00.160 --> 00:46:01.575 field, that we would be

NOTE Confidence: 0.97996205

00:46:01.575 --> 00:46:02.795 paying for this technology,

NOTE Confidence: 0.9963741

00:46:03.415 --> 00:46:05.015 at this early stage. One

NOTE Confidence: 0.9963741

00:46:05.015 --> 00:46:06.135 is that how I scan

NOTE Confidence: 0.9963741

00:46:06.135 --> 00:46:07.575 a patient will markedly affect

NOTE Confidence: 0.9963741

00:46:07.575 --> 00:46:08.535 what I measure in that

NOTE Confidence: 0.9963741

00:46:08.535 --> 00:46:09.895 patient. And so if I

NOTE Confidence: 0.9963741

00:46:10.055 --> 00:46:11.435 this is data from Paradigm

NOTE Confidence: 0.9706038

00:46:11.815 --> 00:46:13.494 where patients got serial CT

NOTE Confidence: 0.9706038

00:46:13.494 --> 00:46:15.050 scans for clinical reasons separated

NOTE Confidence: 0.9706038

00:46:15.050 --> 00:46:16.170 by about three little more

NOTE Confidence: 0.9706038

00:46:16.170 --> 00:46:16.969 than three and a half

NOTE Confidence: 0.9706038

00:46:16.969 --> 00:46:17.469 years.

NOTE Confidence: 0.9992017

00:46:17.930 --> 00:46:19.130 And what you saw was

NOTE Confidence: 0.9992017

00:46:19.130 --> 00:46:20.030 vast differences

NOTE Confidence: 0.974932

00:46:20.730 --> 00:46:22.410 in low attenuation plaques simply

NOTE Confidence: 0.974932

00:46:22.410 --> 00:46:23.870 based on the tube potential

NOTE Confidence: 0.9785333

00:46:24.250 --> 00:46:25.210 of the CT. So for

NOTE Confidence: 0.9785333

00:46:25.210 --> 00:46:26.170 example, if you lower tube

NOTE Confidence: 0.9785333

00:46:26.170 --> 00:46:27.915 potential, the contrast or the

NOTE Confidence: 0.9785333

00:46:27.915 --> 00:46:29.035 density of contrast in the

NOTE Confidence: 0.9785333

00:46:29.035 --> 00:46:30.315 lumen goes up, and many

NOTE Confidence: 0.9785333

00:46:30.315 --> 00:46:31.835 of our pixels include both

NOTE Confidence: 0.9785333

00:46:31.835 --> 00:46:33.375 lumen and wall.

NOTE Confidence: 0.9537158

00:46:33.835 --> 00:46:35.055 And when you do that,

NOTE Confidence: 0.9537158

00:46:35.114 --> 00:46:35.995 what you measure in the

NOTE Confidence: 0.9537158

00:46:35.995 --> 00:46:37.195 lumen or sorry, in the

NOTE Confidence: 0.9537158

00:46:37.195 --> 00:46:37.835 in the wall of the

NOTE Confidence: 0.9537158

00:46:37.835 --> 00:46:39.195 artery also goes up called

NOTE Confidence: 0.9537158

00:46:39.195 --> 00:46:41.275 partial volume averaging. And because

NOTE Confidence: 0.9537158

00:46:41.275 --> 00:46:41.935 of that,

NOTE Confidence: 0.987292

00:46:42.369 --> 00:46:43.250 we know that people who

NOTE Confidence: 0.987292

00:46:43.250 --> 00:46:44.230 have high attenuation

NOTE Confidence: 0.99978137

00:46:44.609 --> 00:46:45.670 in the aorta

NOTE Confidence: 0.97965705

00:46:46.130 --> 00:46:47.969 have much less likely chance

NOTE Confidence: 0.97965705

00:46:47.969 --> 00:46:49.650 of having fibrofatty or low

NOTE Confidence: 0.97965705

00:46:49.650 --> 00:46:51.890 attenuation plaque measured. So details

NOTE Confidence: 0.97965705

00:46:51.890 --> 00:46:52.930 matter in how you scan

NOTE Confidence: 0.97965705

00:46:52.930 --> 00:46:54.210 patients. And you can imagine

NOTE Confidence: 0.97965705

00:46:54.210 --> 00:46:55.090 how this would matter if

NOTE Confidence: 0.97965705

00:46:55.090 --> 00:46:55.989 you got scanned

NOTE Confidence: 0.92385274

00:46:56.415 --> 00:46:58.015 twice with two different tube

NOTE Confidence: 0.92385274

00:46:58.015 --> 00:46:59.455 potential settings. And so we

NOTE Confidence: 0.92385274

00:46:59.455 --> 00:47:00.575 have to put some safeguards

NOTE Confidence: 0.92385274

00:47:00.575 --> 00:47:01.614 on this. And, this is

NOTE Confidence: 0.92385274

00:47:01.614 --> 00:47:02.655 the data I just mentioned.

NOTE Confidence: 0.92385274

00:47:02.655 --> 00:47:03.855 This is the seven study

NOTE Confidence: 0.92385274

00:47:04.015 --> 00:47:05.455 the seven scans. This is

NOTE Confidence: 0.92385274

00:47:05.455 --> 00:47:07.695 someone with obviously significant LED

NOTE Confidence: 0.92385274

00:47:07.695 --> 00:47:08.735 disease, but you can see

NOTE Confidence: 0.92385274

00:47:08.735 --> 00:47:10.035 the stenosis ranges

NOTE Confidence: 0.8108298

00:47:10.800 --> 00:47:11.940 across these software,

NOTE Confidence: 0.9606926

00:47:12.400 --> 00:47:14.320 significant differences in total plaque

NOTE Confidence: 0.9606926

00:47:14.320 --> 00:47:15.840 volume. And the important thing

NOTE Confidence: 0.9606926

00:47:15.840 --> 00:47:16.880 is how much plaque you

NOTE Confidence: 0.9606926

00:47:16.880 --> 00:47:18.960 measure differs significantly based on

NOTE Confidence: 0.9606926

00:47:18.960 --> 00:47:19.840 how much of the length

NOTE Confidence: 0.9606926

00:47:19.840 --> 00:47:20.800 of the coronary as you

NOTE Confidence: 0.9606926

00:47:20.800 --> 00:47:21.300 analyze.

NOTE Confidence: 0.9704552

00:47:21.680 --> 00:47:22.960 And each of these software

NOTE Confidence: 0.9704552

00:47:22.960 --> 00:47:25.035 has different extensiveness, which where

NOTE Confidence: 0.9704552

00:47:25.035 --> 00:47:26.395 they're analyzed. One will go

NOTE Confidence: 0.9704552

00:47:26.395 --> 00:47:27.675 to two millimeters. Another goes

NOTE Confidence: 0.9704552

00:47:27.675 --> 00:47:29.114 to one point five. Another

NOTE Confidence: 0.9704552

00:47:29.114 --> 00:47:30.335 goes to one point eight.

NOTE Confidence: 0.9882209

00:47:30.635 --> 00:47:32.155 And how they deal with

NOTE Confidence: 0.9882209

00:47:32.155 --> 00:47:34.415 artifacts is also very, very

NOTE Confidence: 0.9809692

00:47:34.875 --> 00:47:35.855 vendor dependent.

NOTE Confidence: 0.97479314

00:47:37.900 --> 00:47:38.780 And I say this because

NOTE Confidence: 0.97479314

00:47:38.780 --> 00:47:40.060 there are many studies now,

NOTE Confidence: 0.97479314

00:47:40.060 --> 00:47:41.020 and this is what I'm

NOTE Confidence: 0.97479314

00:47:41.020 --> 00:47:42.060 working on some of these

NOTE Confidence: 0.97479314

00:47:42.060 --> 00:47:43.020 to try to make sure

NOTE Confidence: 0.97479314

00:47:43.020 --> 00:47:43.980 that people who do this

NOTE Confidence: 0.97479314

00:47:43.980 --> 00:47:45.260 know what they're doing and

NOTE Confidence: 0.97479314

00:47:45.260 --> 00:47:46.700 they do this correctly. So

NOTE Confidence: 0.97479314

00:47:46.700 --> 00:47:47.580 we do know that medical

NOTE Confidence: 0.97479314

00:47:47.580 --> 00:47:49.360 therapy can change the progression

NOTE Confidence: 0.97479314

00:47:49.420 --> 00:47:50.460 of plaque. This is, again,

NOTE Confidence: 0.97479314

00:47:50.460 --> 00:47:51.739 an observational study we were

NOTE Confidence: 0.97479314

00:47:51.739 --> 00:47:53.055 involved with called Paradigm.

NOTE Confidence: 0.97192943

00:47:53.594 --> 00:47:55.135 These were patients who had,

NOTE Confidence: 0.97192943

00:47:55.355 --> 00:47:57.114 again, serial CT scans for

NOTE Confidence: 0.97192943

00:47:57.114 --> 00:47:58.715 clinical reasons, and we simply

NOTE Confidence: 0.97192943

00:47:58.715 --> 00:47:59.915 looked at patients who were

NOTE Confidence: 0.97192943

00:47:59.915 --> 00:48:01.195 on statins and who were

NOTE Confidence: 0.97192943

00:48:01.195 --> 00:48:02.715 not on statins. And what

NOTE Confidence: 0.97192943

00:48:02.715 --> 00:48:04.075 we saw was no over

NOTE Confidence: 0.97192943

00:48:04.075 --> 00:48:06.069 four years, again, using a

NOTE Confidence: 0.97192943

00:48:06.069 --> 00:48:06.809 plaque quantification

NOTE Confidence: 0.9698403

00:48:07.270 --> 00:48:08.710 software, are that patients who

NOTE Confidence: 0.9698403

00:48:08.710 --> 00:48:10.150 were on statins had a

NOTE Confidence: 0.9698403

00:48:10.150 --> 00:48:12.089 reduction in non calcified plaque,

NOTE Confidence: 0.9698403

00:48:12.150 --> 00:48:14.250 an increase in calcified plaque,

NOTE Confidence: 0.9698403

00:48:14.390 --> 00:48:15.049 a slight

NOTE Confidence: 0.9516712

00:48:15.510 --> 00:48:17.030 decrease in total plaque or

NOTE Confidence: 0.9516712

00:48:17.030 --> 00:48:18.469 percent atheromol volume, but that

NOTE Confidence: 0.9516712

00:48:18.469 --> 00:48:19.530 was pretty minimal.

NOTE Confidence: 0.9608734

00:48:20.405 --> 00:48:22.185 So we've we've learned that

NOTE Confidence: 0.9608734

00:48:22.325 --> 00:48:23.685 the plaque biology can be

NOTE Confidence: 0.9608734

00:48:23.685 --> 00:48:24.885 changed, and there are multiple

NOTE Confidence: 0.9608734

00:48:24.885 --> 00:48:26.165 clinical trials that are still

NOTE Confidence: 0.9608734

00:48:26.165 --> 00:48:26.984 doing this.

NOTE Confidence: 0.9846725

00:48:27.445 --> 00:48:28.645 But there's devil in the

NOTE Confidence: 0.9846725

00:48:28.645 --> 00:48:29.765 details that you have to

NOTE Confidence: 0.9846725

00:48:29.765 --> 00:48:30.645 be aware of, and so

NOTE Confidence: 0.9846725

00:48:30.645 --> 00:48:31.685 this this is what, you

NOTE Confidence: 0.9846725

00:48:31.685 --> 00:48:32.505 know, people,

NOTE Confidence: 0.942496

00:48:32.980 --> 00:48:34.260 I think, have have have

NOTE Confidence: 0.942496

00:48:34.260 --> 00:48:35.640 viewed as the potential

NOTE Confidence: 0.9817684

00:48:35.940 --> 00:48:37.540 benefit of plaque software. It's

NOTE Confidence: 0.9817684

00:48:37.540 --> 00:48:38.739 very challenging to look at

NOTE Confidence: 0.9817684

00:48:38.739 --> 00:48:40.120 scans side by side

NOTE Confidence: 0.98802054

00:48:40.580 --> 00:48:42.100 and visually know if someone

NOTE Confidence: 0.98802054

00:48:42.100 --> 00:48:44.260 has gotten better. Software can

NOTE Confidence: 0.98802054

00:48:44.260 --> 00:48:45.719 probably help us here,

NOTE Confidence: 0.97541976

00:48:46.065 --> 00:48:47.265 and this is just one

NOTE Confidence: 0.97541976

00:48:47.265 --> 00:48:48.945 example of someone who's gone

NOTE Confidence: 0.97541976

00:48:48.945 --> 00:48:50.545 from more non calcified plaque

NOTE Confidence: 0.97541976

00:48:50.545 --> 00:48:52.065 to blue here, more calcified

NOTE Confidence: 0.97541976

00:48:52.065 --> 00:48:53.185 plaque. And so this may

NOTE Confidence: 0.97541976

00:48:53.185 --> 00:48:54.065 be helpful, and this is

NOTE Confidence: 0.97541976

00:48:54.065 --> 00:48:55.605 why many drug trials

NOTE Confidence: 0.9445416

00:48:55.905 --> 00:48:57.744 are ongoing using CT as

NOTE Confidence: 0.9445416

00:48:57.744 --> 00:48:58.565 an endpoint,

NOTE Confidence: 0.9628867

00:48:59.500 --> 00:49:01.260 not for drug approval. It's

NOTE Confidence: 0.9628867

00:49:01.260 --> 00:49:02.540 not a valid surrogate for

NOTE Confidence: 0.9628867

00:49:02.540 --> 00:49:03.760 the FDA, but for

NOTE Confidence: 0.9959889

00:49:04.060 --> 00:49:04.560 biological

NOTE Confidence: 0.9050241

00:49:04.860 --> 00:49:05.900 insights as to whether the

NOTE Confidence: 0.9050241

00:49:05.900 --> 00:49:07.820 drug affects the biology of

NOTE Confidence: 0.9050241

00:49:07.820 --> 00:49:08.320 atherosclerosis.

NOTE Confidence: 0.9886126

00:49:09.340 --> 00:49:10.460 But to do this well,

NOTE Confidence: 0.9886126

00:49:10.460 --> 00:49:11.520 you have to be careful.

NOTE Confidence: 0.9886126

00:49:11.535 --> 00:49:12.255 And so what I mean

NOTE Confidence: 0.9886126

00:49:12.255 --> 00:49:12.994 by that,

NOTE Confidence: 0.9826665

00:49:13.375 --> 00:49:14.815 is there are challenges. I

NOTE Confidence: 0.9826665

00:49:14.815 --> 00:49:16.494 mentioned already the fact that

NOTE Confidence: 0.9826665

00:49:16.494 --> 00:49:18.335 you, have to scan these

NOTE Confidence: 0.9826665

00:49:18.335 --> 00:49:20.174 patients as exactly the same

NOTE Confidence: 0.9826665

00:49:20.174 --> 00:49:20.674 scanner,

NOTE Confidence: 0.7930156

00:49:21.295 --> 00:49:23.635 kernel reconstruction settings, slice thickness

NOTE Confidence: 0.80850923

00:49:24.015 --> 00:49:24.755 to potential

NOTE Confidence: 0.84767556

00:49:25.214 --> 00:49:26.275 contrast delivery,

NOTE Confidence: 0.95485234

00:49:27.609 --> 00:49:29.050 and that is something that

NOTE Confidence: 0.95485234

00:49:29.050 --> 00:49:30.250 is vitally important or you

NOTE Confidence: 0.95485234

00:49:30.250 --> 00:49:31.950 will get really wacky numbers.

NOTE Confidence: 0.93193775

00:49:33.130 --> 00:49:34.090 Now there some of these

NOTE Confidence: 0.93193775

00:49:34.090 --> 00:49:35.369 may be overcome by photon

NOTE Confidence: 0.93193775

00:49:35.369 --> 00:49:36.410 counting CT, and I think

NOTE Confidence: 0.93193775

00:49:36.410 --> 00:49:38.030 that's really the the future

NOTE Confidence: 0.93193775

00:49:38.090 --> 00:49:39.550 of using mono energetic

NOTE Confidence: 0.998971

00:49:40.795 --> 00:49:41.295 imaging

NOTE Confidence: 0.98504335

00:49:41.675 --> 00:49:43.375 to standardize how we reconstruct

NOTE Confidence: 0.98504335

00:49:43.435 --> 00:49:44.575 images. But today,

NOTE Confidence: 0.9940285

00:49:46.075 --> 00:49:47.295 this is a real challenge

NOTE Confidence: 0.9940285

00:49:47.355 --> 00:49:48.955 to assessing disease progression. And

NOTE Confidence: 0.9940285

00:49:48.955 --> 00:49:49.755 I say that because some

NOTE Confidence: 0.9940285

00:49:49.755 --> 00:49:50.635 of the vendors will come

NOTE Confidence: 0.9940285

00:49:50.635 --> 00:49:51.935 to you and say,

NOTE Confidence: 0.9951755

00:49:52.315 --> 00:49:53.515 if you scan somebody and

NOTE Confidence: 0.9951755

00:49:53.515 --> 00:49:54.655 you do a plaque analysis,

NOTE Confidence: 0.99143124

00:49:56.130 --> 00:49:57.170 maybe you should repeat it

NOTE Confidence: 0.99143124

00:49:57.170 --> 00:49:57.890 in two to three years

NOTE Confidence: 0.99143124

00:49:57.890 --> 00:49:58.849 and see if they're doing

NOTE Confidence: 0.99143124

00:49:58.849 --> 00:49:59.349 okay.

NOTE Confidence: 0.9759834

00:49:59.890 --> 00:50:01.489 And some patients have been

NOTE Confidence: 0.9759834

00:50:01.489 --> 00:50:02.450 told that and will come

NOTE Confidence: 0.9759834

00:50:02.450 --> 00:50:03.170 to you and say, hey.

NOTE Confidence: 0.9759834

00:50:03.170 --> 00:50:04.130 Is my my heart disease

NOTE Confidence: 0.9759834

00:50:04.130 --> 00:50:05.089 getting better? You've got me

NOTE Confidence: 0.9759834

00:50:05.089 --> 00:50:06.529 on this combination lipid lowering

NOTE Confidence: 0.9759834

00:50:06.529 --> 00:50:07.489 therapy. You've got me on

NOTE Confidence: 0.9759834

00:50:07.489 --> 00:50:08.789 a GLP one and SGLP

NOTE Confidence: 0.9759834

00:50:08.849 --> 00:50:10.049 two. Is it getting better?

NOTE Confidence: 0.9759834

00:50:10.049 --> 00:50:11.269 It's a valid question.

NOTE Confidence: 0.9771838

00:50:11.805 --> 00:50:12.525 We do that in a

NOTE Confidence: 0.9771838

00:50:12.525 --> 00:50:13.984 lot of other disease states.

NOTE Confidence: 0.9919223

00:50:14.525 --> 00:50:15.565 But my point is it's

NOTE Confidence: 0.9919223

00:50:15.565 --> 00:50:16.605 not as easy as going

NOTE Confidence: 0.9919223

00:50:16.605 --> 00:50:17.885 downtown and just getting another

NOTE Confidence: 0.9919223

00:50:17.885 --> 00:50:19.005 CT and sending it for

NOTE Confidence: 0.9919223

00:50:19.005 --> 00:50:19.905 software analysis.

NOTE Confidence: 0.9923511

00:50:20.684 --> 00:50:21.484 And I tell you this

NOTE Confidence: 0.9923511

00:50:21.484 --> 00:50:23.005 because in clinical trials, we've

NOTE Confidence: 0.9923511

00:50:23.005 --> 00:50:24.630 done this test. We've gotten

NOTE Confidence: 0.9923511

00:50:24.630 --> 00:50:25.849 very different results

NOTE Confidence: 0.9953651

00:50:26.150 --> 00:50:27.910 from the same vendor simply

NOTE Confidence: 0.9953651

00:50:27.910 --> 00:50:29.109 based on the phase that

NOTE Confidence: 0.9953651

00:50:29.109 --> 00:50:29.770 they choose

NOTE Confidence: 0.97538507

00:50:30.309 --> 00:50:31.690 or based on the technologist

NOTE Confidence: 0.97538507

00:50:31.829 --> 00:50:32.710 at the vendor who ran

NOTE Confidence: 0.97538507

00:50:32.710 --> 00:50:33.430 it. I'll give you an

NOTE Confidence: 0.97538507

00:50:33.430 --> 00:50:34.390 example. We had a patient

NOTE Confidence: 0.97538507

00:50:34.390 --> 00:50:35.690 who had a serial CT.

NOTE Confidence: 0.9970002

00:50:35.989 --> 00:50:36.950 They ran it with two

NOTE Confidence: 0.9970002

00:50:36.950 --> 00:50:37.305 different

NOTE Confidence: 0.9621867

00:50:37.785 --> 00:50:39.385 technologists. One picked one phase,

NOTE Confidence: 0.9621867

00:50:39.385 --> 00:50:41.145 another picked another phase. One

NOTE Confidence: 0.9621867

00:50:41.145 --> 00:50:42.444 told us the patient progressed.

NOTE Confidence: 0.9980893

00:50:42.984 --> 00:50:43.944 One told us the patient

NOTE Confidence: 0.9980893

00:50:43.944 --> 00:50:44.444 regressed.

NOTE Confidence: 0.90021235

00:50:45.305 --> 00:50:46.125 Same patient.

NOTE Confidence: 0.95821774

00:50:46.585 --> 00:50:47.484 Same company.

NOTE Confidence: 0.99976325

00:50:47.864 --> 00:50:48.605 Same software.

NOTE Confidence: 0.9674019

00:50:48.905 --> 00:50:51.160 Imagine that across different software.

NOTE Confidence: 0.9674019

00:50:51.160 --> 00:50:51.880 So my point is if

NOTE Confidence: 0.9674019

00:50:51.880 --> 00:50:52.760 you're gonna use this for

NOTE Confidence: 0.9674019

00:50:52.760 --> 00:50:54.360 disease progression, the devil is

NOTE Confidence: 0.9674019

00:50:54.360 --> 00:50:55.100 in the details,

NOTE Confidence: 0.99685043

00:50:55.560 --> 00:50:56.780 and the software

NOTE Confidence: 0.99766916

00:50:57.160 --> 00:50:58.219 have not adjusted

NOTE Confidence: 0.9572785

00:50:58.760 --> 00:51:00.040 or counted for many of

NOTE Confidence: 0.9572785

00:51:00.040 --> 00:51:00.540 these

NOTE Confidence: 0.79571056

00:51:00.920 --> 00:51:02.219 these acquisition differences.

NOTE Confidence: 0.95791125

00:51:02.760 --> 00:51:04.280 Meaning, they're the outputs that

NOTE Confidence: 0.95791125

00:51:04.280 --> 00:51:05.420 you get are not

NOTE Confidence: 0.9833829

00:51:06.414 --> 00:51:08.275 different or modified or,

NOTE Confidence: 0.99499243

00:51:08.895 --> 00:51:10.895 you know, standardized based on

NOTE Confidence: 0.99499243

00:51:10.895 --> 00:51:12.515 two potential and other acquisition

NOTE Confidence: 0.99499243

00:51:12.575 --> 00:51:13.075 parameters.

NOTE Confidence: 0.9953799

00:51:13.694 --> 00:51:15.214 Now software I mentioned high

NOTE Confidence: 0.9953799

00:51:15.214 --> 00:51:16.594 risk plaque. Can we use

NOTE Confidence: 0.96569604

00:51:16.895 --> 00:51:18.800 software to help us, you

NOTE Confidence: 0.96569604

00:51:18.800 --> 00:51:20.480 know, better, you know, identify

NOTE Confidence: 0.96569604

00:51:20.480 --> 00:51:21.359 high risk plaque? I showed

NOTE Confidence: 0.96569604

00:51:21.359 --> 00:51:22.400 you the kind of simplistic

NOTE Confidence: 0.96569604

00:51:22.400 --> 00:51:23.280 way which we look at

NOTE Confidence: 0.96569604

00:51:23.280 --> 00:51:24.080 a plaque and say is

NOTE Confidence: 0.96569604

00:51:24.080 --> 00:51:25.359 it high risk. You know?

NOTE Confidence: 0.96569604

00:51:25.359 --> 00:51:26.400 And this is another area

NOTE Confidence: 0.96569604

00:51:26.400 --> 00:51:27.680 of investigation. This is a

NOTE Confidence: 0.96569604

00:51:27.680 --> 00:51:29.119 study just recently published called

NOTE Confidence: 0.96569604

00:51:29.119 --> 00:51:30.800 Emerald two, and this was

NOTE Confidence: 0.96569604

00:51:30.800 --> 00:51:32.320 a population of patients who

NOTE Confidence: 0.96569604

00:51:32.320 --> 00:51:34.055 had had a CT either

NOTE Confidence: 0.96569604

00:51:34.055 --> 00:51:35.335 one month or up to

NOTE Confidence: 0.96569604

00:51:35.335 --> 00:51:36.535 three years prior to an

NOTE Confidence: 0.96569604

00:51:36.535 --> 00:51:38.075 m MI, and they had

NOTE Confidence: 0.96569604

00:51:38.214 --> 00:51:39.275 invasive angiography

NOTE Confidence: 0.9612066

00:51:39.575 --> 00:51:40.934 to identify the culprit lesion.

NOTE Confidence: 0.9612066

00:51:40.934 --> 00:51:42.454 And they used AI. And

NOTE Confidence: 0.9612066

00:51:42.454 --> 00:51:43.575 they said, can you train

NOTE Confidence: 0.9612066

00:51:43.575 --> 00:51:44.775 an AI model to identify

NOTE Confidence: 0.9612066

00:51:44.775 --> 00:51:45.835 the culprit lesion?

NOTE Confidence: 0.9460166

00:51:47.420 --> 00:51:48.380 And what they found is

NOTE Confidence: 0.9460166

00:51:48.380 --> 00:51:49.660 they did a reasonable job,

NOTE Confidence: 0.9460166

00:51:49.660 --> 00:51:50.539 and what they found is

NOTE Confidence: 0.9460166

00:51:50.539 --> 00:51:52.460 that that Delta FFR CT,

NOTE Confidence: 0.9460166

00:51:52.460 --> 00:51:54.140 the change in estimated pressure

NOTE Confidence: 0.9460166

00:51:54.140 --> 00:51:56.059 across the lesion, higher plaque

NOTE Confidence: 0.9460166

00:51:56.059 --> 00:51:58.219 burden, again more total plaque

NOTE Confidence: 0.9460166

00:51:58.219 --> 00:51:59.680 volume and more low attenuation

NOTE Confidence: 0.9460166

00:51:59.900 --> 00:52:00.799 plaque volume.

NOTE Confidence: 0.94292

00:52:01.180 --> 00:52:02.885 And this somewhat kinda clunky

NOTE Confidence: 0.94292

00:52:02.885 --> 00:52:04.244 estimate of myocardial blood flow

NOTE Confidence: 0.94292

00:52:04.244 --> 00:52:06.085 with CT, these tended to

NOTE Confidence: 0.94292

00:52:06.085 --> 00:52:07.945 be the the five predictors

NOTE Confidence: 0.94292

00:52:08.244 --> 00:52:09.844 of culprit lesions. And so

NOTE Confidence: 0.94292

00:52:09.844 --> 00:52:11.145 this is very early work,

NOTE Confidence: 0.95461637

00:52:11.445 --> 00:52:12.805 but the software companies, I

NOTE Confidence: 0.95461637

00:52:12.805 --> 00:52:13.765 imagine, in the future will

NOTE Confidence: 0.95461637

00:52:13.765 --> 00:52:14.484 come to you and say

NOTE Confidence: 0.95461637

00:52:14.484 --> 00:52:15.785 we can not only assess

NOTE Confidence: 0.95461637

00:52:15.844 --> 00:52:16.825 high risk plaque,

NOTE Confidence: 0.99348897

00:52:17.140 --> 00:52:18.180 you know, that you see,

NOTE Confidence: 0.99348897

00:52:18.180 --> 00:52:19.460 but we can identify high

NOTE Confidence: 0.99348897

00:52:19.460 --> 00:52:20.500 risk plaque from an AI

NOTE Confidence: 0.99348897

00:52:20.500 --> 00:52:21.700 algorithm that may be more

NOTE Confidence: 0.99348897

00:52:21.700 --> 00:52:22.760 effective. We'll see.

NOTE Confidence: 0.95023084

00:52:23.300 --> 00:52:24.020 The last thing I wanna

NOTE Confidence: 0.95023084

00:52:24.020 --> 00:52:24.739 do before I close is

NOTE Confidence: 0.95023084

00:52:24.739 --> 00:52:25.700 just touch on some of

NOTE Confidence: 0.95023084

00:52:25.700 --> 00:52:26.820 the other features that are

NOTE Confidence: 0.95023084

00:52:26.820 --> 00:52:28.260 being investigated. These are kinda

NOTE Confidence: 0.95023084

00:52:28.260 --> 00:52:29.540 hot topics in the area

NOTE Confidence: 0.95023084

00:52:29.540 --> 00:52:30.200 of CT.

NOTE Confidence: 0.9798025

00:52:30.535 --> 00:52:31.655 And one is this question

NOTE Confidence: 0.9798025

00:52:31.655 --> 00:52:33.495 of can you also infer

NOTE Confidence: 0.9798025

00:52:33.495 --> 00:52:35.415 information about the degree of

NOTE Confidence: 0.9798025

00:52:35.415 --> 00:52:36.535 inflammation? I think all of

NOTE Confidence: 0.9798025

00:52:36.535 --> 00:52:37.255 us in the room are

NOTE Confidence: 0.9798025

00:52:37.255 --> 00:52:39.035 aware that inflammation drives,

NOTE Confidence: 0.9995576

00:52:39.655 --> 00:52:40.955 a large part of atherosclerosis

NOTE Confidence: 0.8607718

00:52:41.735 --> 00:52:43.114 and perhaps its progression.

NOTE Confidence: 0.9955825

00:52:43.739 --> 00:52:45.340 And investigators in Oxford have

NOTE Confidence: 0.9955825

00:52:45.340 --> 00:52:46.700 looked at the fat that

NOTE Confidence: 0.9955825

00:52:46.700 --> 00:52:49.020 immediately surrounds the proximal coronary

NOTE Confidence: 0.9955825

00:52:49.020 --> 00:52:49.520 arteries.

NOTE Confidence: 0.99844116

00:52:50.460 --> 00:52:51.820 And we know that in

NOTE Confidence: 0.99844116

00:52:51.820 --> 00:52:52.560 this scenario

NOTE Confidence: 0.9718028

00:52:52.860 --> 00:52:54.620 that you see, I'll just

NOTE Confidence: 0.9718028

00:52:54.620 --> 00:52:55.660 mention this briefly, but one

NOTE Confidence: 0.9718028

00:52:55.660 --> 00:52:56.460 of the things that you

NOTE Confidence: 0.9718028

00:52:56.460 --> 00:52:58.674 see on histology slides are

NOTE Confidence: 0.9718028

00:52:58.674 --> 00:53:00.194 that areas of patients who

NOTE Confidence: 0.9718028

00:53:00.194 --> 00:53:01.575 have significant atherosclerosis

NOTE Confidence: 0.9765693

00:53:02.594 --> 00:53:04.135 and or systemic inflammation,

NOTE Confidence: 0.9878363

00:53:05.154 --> 00:53:06.355 we see a reduction in

NOTE Confidence: 0.9878363

00:53:06.355 --> 00:53:07.734 the size of the adipocytes

NOTE Confidence: 0.9878363

00:53:07.875 --> 00:53:09.255 immediately near the coronaries.

NOTE Confidence: 0.99780524

00:53:10.194 --> 00:53:11.555 We see an increased water

NOTE Confidence: 0.99780524

00:53:11.555 --> 00:53:12.214 and inflammatory

NOTE Confidence: 0.9997707

00:53:12.515 --> 00:53:13.255 cell content

NOTE Confidence: 0.9835718

00:53:14.330 --> 00:53:15.950 and an increase on CT

NOTE Confidence: 0.9835718

00:53:16.010 --> 00:53:18.030 correspondingly of higher CT density.

NOTE Confidence: 0.95449835

00:53:19.530 --> 00:53:20.810 And so others have said

NOTE Confidence: 0.95449835

00:53:20.810 --> 00:53:21.850 why we already have this

NOTE Confidence: 0.95449835

00:53:21.850 --> 00:53:23.050 information in the CT scan,

NOTE Confidence: 0.95449835

00:53:23.050 --> 00:53:24.270 why don't we use it?

NOTE Confidence: 0.95449835

00:53:24.330 --> 00:53:25.210 Why don't we use this

NOTE Confidence: 0.95449835

00:53:25.210 --> 00:53:26.505 to assess? And so what

NOTE Confidence: 0.95449835

00:53:26.505 --> 00:53:27.625 we what is what has

NOTE Confidence: 0.95449835

00:53:27.625 --> 00:53:28.825 been shown here is that

NOTE Confidence: 0.95449835

00:53:28.825 --> 00:53:30.585 patients using a an AI

NOTE Confidence: 0.95449835

00:53:30.585 --> 00:53:31.085 tool,

NOTE Confidence: 0.9841665

00:53:31.864 --> 00:53:33.224 where they measure this density,

NOTE Confidence: 0.9841665

00:53:33.224 --> 00:53:34.744 this increased density around the

NOTE Confidence: 0.9841665

00:53:34.744 --> 00:53:36.505 coronaries, patients who have really

NOTE Confidence: 0.9841665

00:53:36.505 --> 00:53:38.285 high densities around their coronaries

NOTE Confidence: 0.9656569

00:53:38.585 --> 00:53:39.964 in this fourth quartile,

NOTE Confidence: 0.97894937

00:53:40.310 --> 00:53:41.270 and they've labeled this a

NOTE Confidence: 0.97894937

00:53:41.270 --> 00:53:42.890 PHY score, have a significantly

NOTE Confidence: 0.97894937

00:53:42.950 --> 00:53:45.190 increased risk of cardiovascular hard

NOTE Confidence: 0.97894937

00:53:45.190 --> 00:53:46.630 cardiovascular events. And this was

NOTE Confidence: 0.97894937

00:53:46.630 --> 00:53:47.910 in a very large population

NOTE Confidence: 0.97894937

00:53:47.910 --> 00:53:50.090 called Orphan published in Lancet.

NOTE Confidence: 0.97894937

00:53:50.310 --> 00:53:51.430 This is really the largest

NOTE Confidence: 0.97894937

00:53:51.430 --> 00:53:52.869 cardiac CT trial done to

NOTE Confidence: 0.97894937

00:53:52.869 --> 00:53:53.369 date.

NOTE Confidence: 0.98697025

00:53:53.825 --> 00:53:55.265 This is, you know, over

NOTE Confidence: 0.98697025

00:53:55.265 --> 00:53:56.805 thirty thousand patients. So

NOTE Confidence: 0.97794425

00:53:57.185 --> 00:53:58.385 more to follow. This is

NOTE Confidence: 0.97794425

00:53:58.385 --> 00:53:59.925 in its very early stages,

NOTE Confidence: 0.9922833

00:54:00.785 --> 00:54:01.665 and I do have some

NOTE Confidence: 0.9922833

00:54:01.665 --> 00:54:03.025 of the same concerns about

NOTE Confidence: 0.9922833

00:54:03.025 --> 00:54:04.885 this technology based on acquisition

NOTE Confidence: 0.9922833

00:54:05.025 --> 00:54:05.525 differences.

NOTE Confidence: 0.9562012

00:54:06.145 --> 00:54:07.585 The vendor says we account

NOTE Confidence: 0.9562012

00:54:07.585 --> 00:54:08.790 for all of those. Meaning

NOTE Confidence: 0.9562012

00:54:08.790 --> 00:54:09.830 if you scan someone at

NOTE Confidence: 0.9562012

00:54:09.830 --> 00:54:10.650 seventy kV,

NOTE Confidence: 0.92689943

00:54:11.270 --> 00:54:12.230 we scan someone at one

NOTE Confidence: 0.92689943

00:54:12.230 --> 00:54:13.270 hundred and twenty kV. This

NOTE Confidence: 0.92689943

00:54:13.350 --> 00:54:14.790 unlike our plaque colleagues, we

NOTE Confidence: 0.92689943

00:54:14.790 --> 00:54:16.230 account for that. But they

NOTE Confidence: 0.92689943

00:54:16.230 --> 00:54:17.030 don't really tell us how

NOTE Confidence: 0.92689943

00:54:17.030 --> 00:54:17.750 they do that. And so

NOTE Confidence: 0.92689943

00:54:17.750 --> 00:54:18.390 this is kind of an

NOTE Confidence: 0.92689943

00:54:18.390 --> 00:54:19.830 area of intensive investigation. Last

NOTE Confidence: 0.92689943

00:54:19.830 --> 00:54:20.550 thing I wanna say is

NOTE Confidence: 0.92689943

00:54:20.550 --> 00:54:21.510 that is the area the

NOTE Confidence: 0.92689943

00:54:21.510 --> 00:54:22.570 the field is changing.

NOTE Confidence: 0.9582274

00:54:23.114 --> 00:54:24.655 We're seeing this new technology

NOTE Confidence: 0.9582274

00:54:24.715 --> 00:54:26.235 which may overcome many of

NOTE Confidence: 0.9582274

00:54:26.235 --> 00:54:27.055 these limitations

NOTE Confidence: 0.97880083

00:54:27.515 --> 00:54:29.355 using photon counting CT. I

NOTE Confidence: 0.97880083

00:54:29.355 --> 00:54:30.075 won't we won't go through

NOTE Confidence: 0.97880083

00:54:30.075 --> 00:54:31.035 all of the physics of

NOTE Confidence: 0.97880083

00:54:31.035 --> 00:54:32.075 this, but suffice it to

NOTE Confidence: 0.97880083

00:54:32.075 --> 00:54:33.435 say it has significantly higher

NOTE Confidence: 0.97880083

00:54:33.435 --> 00:54:34.335 spatial resolution,

NOTE Confidence: 0.99964494

00:54:34.715 --> 00:54:36.495 which allows us to overcome

NOTE Confidence: 0.99964494

00:54:36.555 --> 00:54:37.614 some of these limitations.

NOTE Confidence: 0.9821609

00:54:38.210 --> 00:54:39.670 Pixel sizes are much smaller.

NOTE Confidence: 0.9802949

00:54:40.049 --> 00:54:42.049 Our ability to identify plaque

NOTE Confidence: 0.9802949

00:54:42.049 --> 00:54:43.509 and separate it from pericornary

NOTE Confidence: 0.9988246

00:54:43.890 --> 00:54:45.109 fat and calcium

NOTE Confidence: 0.96466064

00:54:45.569 --> 00:54:47.250 is improved. And what data

NOTE Confidence: 0.96466064

00:54:47.250 --> 00:54:48.210 has shown is that when

NOTE Confidence: 0.96466064

00:54:48.210 --> 00:54:49.730 sites that have photon counting

NOTE Confidence: 0.96466064

00:54:49.730 --> 00:54:51.410 CT, the referral rates to

NOTE Confidence: 0.96466064

00:54:51.410 --> 00:54:53.305 cath go down, the overall

NOTE Confidence: 0.96466064

00:54:53.305 --> 00:54:54.585 accuracy of patients who go

NOTE Confidence: 0.96466064

00:54:54.585 --> 00:54:55.465 to the cath lab go

NOTE Confidence: 0.96466064

00:54:55.465 --> 00:54:56.205 up mainly

NOTE Confidence: 0.9925301

00:54:56.505 --> 00:54:57.965 at an increased specificity.

NOTE Confidence: 0.979413

00:54:58.585 --> 00:54:59.625 You know, CT does a

NOTE Confidence: 0.979413

00:54:59.625 --> 00:55:01.145 pretty good job, just regular

NOTE Confidence: 0.979413

00:55:01.145 --> 00:55:01.805 old CT,

NOTE Confidence: 0.98523915

00:55:03.065 --> 00:55:04.265 at ruling out high risk

NOTE Confidence: 0.98523915

00:55:04.265 --> 00:55:06.180 coronary disease. But our specificity

NOTE Confidence: 0.98523915

00:55:06.239 --> 00:55:07.280 goes up because we're able

NOTE Confidence: 0.98523915

00:55:07.280 --> 00:55:08.400 to see more of the

NOTE Confidence: 0.98523915

00:55:08.400 --> 00:55:08.900 lumen.

NOTE Confidence: 0.9643642

00:55:09.520 --> 00:55:10.480 And so this is something

NOTE Confidence: 0.9643642

00:55:10.480 --> 00:55:11.440 that may change some of

NOTE Confidence: 0.9643642

00:55:11.440 --> 00:55:12.719 these challenges that I just

NOTE Confidence: 0.9643642

00:55:12.719 --> 00:55:14.000 mentioned and this is just

NOTE Confidence: 0.9643642

00:55:14.000 --> 00:55:14.880 some of this data from

NOTE Confidence: 0.9643642

00:55:14.880 --> 00:55:16.160 this largest site. And in

NOTE Confidence: 0.9643642

00:55:16.160 --> 00:55:17.280 fact, it may change how

NOTE Confidence: 0.9643642

00:55:17.280 --> 00:55:18.320 good we are at identifying

NOTE Confidence: 0.9643642

00:55:18.320 --> 00:55:19.280 low risk plaque and this

NOTE Confidence: 0.9643642

00:55:19.280 --> 00:55:20.305 is a a paper just

NOTE Confidence: 0.9643642

00:55:20.305 --> 00:55:21.825 recently from radiology showing that

NOTE Confidence: 0.9643642

00:55:21.825 --> 00:55:23.745 using photon counting CT, you

NOTE Confidence: 0.9643642

00:55:23.745 --> 00:55:24.945 can actually see that the

NOTE Confidence: 0.9643642

00:55:24.945 --> 00:55:25.445 agreement

NOTE Confidence: 0.9984556

00:55:25.825 --> 00:55:26.945 for high risk plaque went

NOTE Confidence: 0.9984556

00:55:26.945 --> 00:55:27.765 up significantly

NOTE Confidence: 0.96514016

00:55:28.385 --> 00:55:30.225 as compared to standard, CT

NOTE Confidence: 0.96514016

00:55:30.225 --> 00:55:31.185 scans. And these were patients

NOTE Confidence: 0.96514016

00:55:31.185 --> 00:55:32.225 who got scanned on both

NOTE Confidence: 0.96514016

00:55:32.225 --> 00:55:33.125 scanner platforms.

NOTE Confidence: 0.94367474

00:55:33.910 --> 00:55:34.790 So the last thing I

NOTE Confidence: 0.94367474

00:55:34.790 --> 00:55:35.430 want to say is that,

NOTE Confidence: 0.94367474

00:55:35.430 --> 00:55:36.550 you know, there's are several

NOTE Confidence: 0.94367474

00:55:36.550 --> 00:55:37.989 clinical trials that are looking

NOTE Confidence: 0.94367474

00:55:37.989 --> 00:55:39.190 at screening CT. This is

NOTE Confidence: 0.94367474

00:55:39.190 --> 00:55:39.510 a very,

NOTE Confidence: 0.9824077

00:55:40.070 --> 00:55:41.290 controversial topic.

NOTE Confidence: 0.9786348

00:55:41.590 --> 00:55:42.790 You know, people who advocate

NOTE Confidence: 0.9786348

00:55:42.790 --> 00:55:43.670 for this will say, we

NOTE Confidence: 0.9786348

00:55:43.670 --> 00:55:44.790 already do this in so

NOTE Confidence: 0.9786348

00:55:44.790 --> 00:55:46.550 many disease states. We have

NOTE Confidence: 0.9786348

00:55:46.550 --> 00:55:48.170 transitioned to using imaging.

NOTE Confidence: 0.95745164

00:55:49.835 --> 00:55:50.714 We don't do a great

NOTE Confidence: 0.95745164

00:55:50.714 --> 00:55:51.835 job, by the way. You

NOTE Confidence: 0.95745164

00:55:51.835 --> 00:55:52.714 know you know, this is

NOTE Confidence: 0.95745164

00:55:52.714 --> 00:55:54.714 a recent publication, two thousand

NOTE Confidence: 0.95745164

00:55:54.714 --> 00:55:55.994 seventeen to two thousand twenty

NOTE Confidence: 0.95745164

00:55:55.994 --> 00:55:57.275 two, or four point six

NOTE Confidence: 0.95745164

00:55:57.275 --> 00:55:59.454 million patients in the US.

NOTE Confidence: 0.9606954

00:56:00.315 --> 00:56:01.194 One in five are on

NOTE Confidence: 0.9606954

00:56:01.194 --> 00:56:02.234 a statin prior to their

NOTE Confidence: 0.9606954

00:56:02.234 --> 00:56:03.194 event, and so this has

NOTE Confidence: 0.9606954

00:56:03.194 --> 00:56:04.174 been, you know, certainly,

NOTE Confidence: 0.9862676

00:56:05.210 --> 00:56:06.410 data that has armed people

NOTE Confidence: 0.9862676

00:56:06.410 --> 00:56:07.369 to say maybe we can

NOTE Confidence: 0.9862676

00:56:07.369 --> 00:56:08.730 use imaging to do better.

NOTE Confidence: 0.9862676

00:56:08.730 --> 00:56:10.569 It's not better risk scores.

NOTE Confidence: 0.9862676

00:56:10.569 --> 00:56:11.690 These risk scores do not

NOTE Confidence: 0.9862676

00:56:11.690 --> 00:56:12.730 perform well. This is our

NOTE Confidence: 0.9862676

00:56:12.730 --> 00:56:14.569 new PREVENT score across four

NOTE Confidence: 0.9862676

00:56:14.569 --> 00:56:15.849 different what you would think

NOTE Confidence: 0.9862676

00:56:15.849 --> 00:56:17.355 would be relatively like

NOTE Confidence: 0.9192847

00:56:17.835 --> 00:56:19.594 academic practices, and there was

NOTE Confidence: 0.9192847

00:56:19.594 --> 00:56:21.055 very, very poor discrimination,

NOTE Confidence: 0.9936604

00:56:22.075 --> 00:56:23.755 and poor calibration for who's

NOTE Confidence: 0.9936604

00:56:23.755 --> 00:56:25.055 actually having an event.

NOTE Confidence: 0.97529817

00:56:25.515 --> 00:56:26.475 And so can we use

NOTE Confidence: 0.97529817

00:56:26.475 --> 00:56:28.175 imaging? Wait and see.

NOTE Confidence: 0.9581101

00:56:28.715 --> 00:56:30.155 Calcium scoring you heard today

NOTE Confidence: 0.9581101

00:56:30.155 --> 00:56:31.594 does well. We know from

NOTE Confidence: 0.9581101

00:56:31.594 --> 00:56:33.270 large scale screening trials like

NOTE Confidence: 0.9581101

00:56:33.270 --> 00:56:34.570 SCAPIS in Sweden

NOTE Confidence: 0.96076846

00:56:35.030 --> 00:56:35.830 and the,

NOTE Confidence: 0.9717271

00:56:36.230 --> 00:56:37.510 Miami Heart Study that when

NOTE Confidence: 0.9717271

00:56:37.510 --> 00:56:39.190 you screen asymptomatic patients, you

NOTE Confidence: 0.9717271

00:56:39.190 --> 00:56:40.250 find a lot of atherosclerosis.

NOTE Confidence: 0.9717271

00:56:40.469 --> 00:56:41.989 About half of patients who

NOTE Confidence: 0.9717271

00:56:41.989 --> 00:56:43.770 were low risk had plaque,

NOTE Confidence: 0.9992468

00:56:44.310 --> 00:56:45.850 and this plaque is prognostically

NOTE Confidence: 0.9992468

00:56:46.150 --> 00:56:46.650 important.

NOTE Confidence: 0.968279

00:56:47.114 --> 00:56:48.075 This is data from from

NOTE Confidence: 0.968279

00:56:48.075 --> 00:56:50.075 Denmark showing that asymptomatic patients

NOTE Confidence: 0.968279

00:56:50.075 --> 00:56:51.035 have more events if they

NOTE Confidence: 0.968279

00:56:51.035 --> 00:56:52.175 have more of their atherosclerosis.

NOTE Confidence: 0.95646554

00:56:53.035 --> 00:56:54.075 So there are two large

NOTE Confidence: 0.95646554

00:56:54.075 --> 00:56:55.355 scale or actually four large

NOTE Confidence: 0.95646554

00:56:55.355 --> 00:56:56.715 scale trials. I'll mention two

NOTE Confidence: 0.95646554

00:56:56.715 --> 00:56:57.755 of them that are ongoing.

NOTE Confidence: 0.95646554

00:56:57.755 --> 00:56:59.594 This is SCOTHEART two. This

NOTE Confidence: 0.95646554

00:56:59.594 --> 00:57:00.795 is looking at six thousand

NOTE Confidence: 0.95646554

00:57:00.795 --> 00:57:01.935 patients in Scotland,

NOTE Confidence: 0.98525965

00:57:02.930 --> 00:57:04.210 and they're randomizing them to

NOTE Confidence: 0.98525965

00:57:04.210 --> 00:57:05.590 screening coronary CT

NOTE Confidence: 0.94092304

00:57:06.450 --> 00:57:07.670 versus usual care,

NOTE Confidence: 0.9959482

00:57:08.050 --> 00:57:09.270 is now fully enrolled.

NOTE Confidence: 0.9437916

00:57:09.650 --> 00:57:11.090 This is the transform trial.

NOTE Confidence: 0.9437916

00:57:11.090 --> 00:57:12.130 This is a trial that's

NOTE Confidence: 0.9437916

00:57:12.130 --> 00:57:14.390 randomizing patients who have metabolic

NOTE Confidence: 0.9574354

00:57:14.850 --> 00:57:16.070 syndrome or diabetes,

NOTE Confidence: 0.9668739

00:57:17.285 --> 00:57:19.465 to CT. They're doing serial

NOTE Confidence: 0.9668739

00:57:19.525 --> 00:57:20.965 CTs in this trial. They're

NOTE Confidence: 0.9668739

00:57:20.965 --> 00:57:22.885 using very aggressive prevention for

NOTE Confidence: 0.9668739

00:57:22.885 --> 00:57:24.565 PC. They're using LDL goals

NOTE Confidence: 0.9668739

00:57:24.565 --> 00:57:25.525 of less than thirty in

NOTE Confidence: 0.9668739

00:57:25.525 --> 00:57:26.585 those with high risk.

NOTE Confidence: 0.9869532

00:57:27.285 --> 00:57:28.405 And so these are these

NOTE Confidence: 0.9869532

00:57:28.405 --> 00:57:29.205 are trials that will be

NOTE Confidence: 0.9869532

00:57:29.205 --> 00:57:30.325 reported in the next three

NOTE Confidence: 0.9869532

00:57:30.325 --> 00:57:31.225 to four years,

NOTE Confidence: 0.9803597

00:57:31.690 --> 00:57:32.570 And we are a site

NOTE Confidence: 0.9803597

00:57:32.570 --> 00:57:33.710 for one of those trials,

NOTE Confidence: 0.9803597

00:57:33.930 --> 00:57:35.450 led by Pam Douglas, which

NOTE Confidence: 0.9803597

00:57:35.450 --> 00:57:36.910 is looking at young patients

NOTE Confidence: 0.9803597

00:57:36.970 --> 00:57:38.030 at low risk,

NOTE Confidence: 0.9995718

00:57:38.490 --> 00:57:39.470 who have atherosclerosis.

NOTE Confidence: 0.9975765

00:57:39.850 --> 00:57:40.970 This is not an outcomes

NOTE Confidence: 0.9975765

00:57:40.970 --> 00:57:42.250 trial, but it's looking at

NOTE Confidence: 0.9975765

00:57:42.250 --> 00:57:42.750 prevalence

NOTE Confidence: 0.8998456

00:57:43.130 --> 00:57:44.730 and, changes in risk factors.

NOTE Confidence: 0.8998456

00:57:44.730 --> 00:57:46.010 So I think I'll end

NOTE Confidence: 0.8998456

00:57:46.010 --> 00:57:46.970 and close to say, you

NOTE Confidence: 0.8998456

00:57:46.970 --> 00:57:48.244 know, in in twenty twenty

NOTE Confidence: 0.9967264

00:57:48.625 --> 00:57:49.984 five, CT has come a

NOTE Confidence: 0.9967264

00:57:49.984 --> 00:57:50.724 long way.

NOTE Confidence: 0.9036776

00:57:51.265 --> 00:57:52.625 It is at our institution

NOTE Confidence: 0.9036776

00:57:52.625 --> 00:57:54.385 has become really foundational to

NOTE Confidence: 0.9036776

00:57:54.385 --> 00:57:55.984 many, not just coronary imaging,

NOTE Confidence: 0.9036776

00:57:55.984 --> 00:57:57.285 but structural heart imaging.

NOTE Confidence: 0.98116887

00:57:58.385 --> 00:57:59.585 And I think it's more

NOTE Confidence: 0.98116887

00:57:59.744 --> 00:58:01.345 maybe more central to decision

NOTE Confidence: 0.98116887

00:58:01.345 --> 00:58:02.545 making in an era where

NOTE Confidence: 0.98116887

00:58:02.545 --> 00:58:03.980 we have nearly a dozen

NOTE Confidence: 0.98116887

00:58:04.040 --> 00:58:05.240 therapies that have been shown

NOTE Confidence: 0.98116887

00:58:05.240 --> 00:58:06.380 to reduce heart cardiovascular

NOTE Confidence: 0.9774029

00:58:06.680 --> 00:58:07.560 events. And so I think

NOTE Confidence: 0.9774029

00:58:07.560 --> 00:58:08.520 use the I use this

NOTE Confidence: 0.9774029

00:58:08.520 --> 00:58:10.280 plaque data with every patient

NOTE Confidence: 0.9774029

00:58:10.280 --> 00:58:11.240 that I see to assess

NOTE Confidence: 0.9774029

00:58:11.240 --> 00:58:12.840 pretest probability in chest pain

NOTE Confidence: 0.9774029

00:58:12.840 --> 00:58:14.700 patients, but also to refine

NOTE Confidence: 0.9774029

00:58:14.840 --> 00:58:15.500 the intensity

NOTE Confidence: 0.9841171

00:58:16.200 --> 00:58:17.340 of preventive therapy.

NOTE Confidence: 0.9838304

00:58:18.305 --> 00:58:19.505 I think it's exciting what

NOTE Confidence: 0.9838304

00:58:19.505 --> 00:58:20.785 we see from vendors to

NOTE Confidence: 0.9838304

00:58:20.785 --> 00:58:22.225 quantify this plaque that we

NOTE Confidence: 0.9838304

00:58:22.225 --> 00:58:23.745 currently manually would take me

NOTE Confidence: 0.9838304

00:58:23.745 --> 00:58:24.885 half a day to qualify

NOTE Confidence: 0.9838304

00:58:25.025 --> 00:58:26.225 to quantify. But I think

NOTE Confidence: 0.9838304

00:58:26.225 --> 00:58:27.445 while we're all enthusiastic,

NOTE Confidence: 0.9730377

00:58:28.545 --> 00:58:29.665 I think we're not excited

NOTE Confidence: 0.9730377

00:58:29.665 --> 00:58:30.530 about the price. And I

NOTE Confidence: 0.9730377

00:58:30.530 --> 00:58:31.250 can tell you from a

NOTE Confidence: 0.9730377

00:58:31.250 --> 00:58:32.450 cross sectional standpoint as a

NOTE Confidence: 0.9730377

00:58:32.450 --> 00:58:34.050 preventive cardiologist in my clinical

NOTE Confidence: 0.9730377

00:58:34.050 --> 00:58:35.570 world, I don't really need

NOTE Confidence: 0.9730377

00:58:35.570 --> 00:58:37.089 those plaque numbers to treat

NOTE Confidence: 0.9730377

00:58:37.089 --> 00:58:37.910 most patients.

NOTE Confidence: 0.98275024

00:58:38.450 --> 00:58:39.250 I I know how to

NOTE Confidence: 0.98275024

00:58:39.250 --> 00:58:40.290 treat them just looking at

NOTE Confidence: 0.98275024

00:58:40.290 --> 00:58:42.150 their CT scan. I probably

NOTE Confidence: 0.98275024

00:58:42.210 --> 00:58:43.105 will need it if you

NOTE Confidence: 0.98275024

00:58:43.105 --> 00:58:44.065 won't ask me if their

NOTE Confidence: 0.98275024

00:58:44.065 --> 00:58:45.665 disease is getting worse. So

NOTE Confidence: 0.98275024

00:58:45.665 --> 00:58:47.265 serial progression is probably the

NOTE Confidence: 0.98275024

00:58:47.265 --> 00:58:48.385 role for c for these

NOTE Confidence: 0.98275024

00:58:48.385 --> 00:58:48.885 plaque,

NOTE Confidence: 0.98475045

00:58:49.345 --> 00:58:50.305 software. They don't like to

NOTE Confidence: 0.98475045

00:58:50.305 --> 00:58:51.265 hear that because that means

NOTE Confidence: 0.98475045

00:58:51.265 --> 00:58:51.985 you're not gonna use them

NOTE Confidence: 0.98475045

00:58:51.985 --> 00:58:52.965 for the first scan.

NOTE Confidence: 0.97047573

00:58:54.225 --> 00:58:55.505 But I think that's kinda

NOTE Confidence: 0.97047573

00:58:55.505 --> 00:58:56.305 where we're moving, and I

NOTE Confidence: 0.97047573

00:58:56.305 --> 00:58:57.185 think the field has to

NOTE Confidence: 0.97047573

00:58:57.185 --> 00:58:58.680 get refined. The algorithms they're

NOTE Confidence: 0.97047573

00:58:58.680 --> 00:58:59.740 using are old.

NOTE Confidence: 0.97897434

00:59:00.119 --> 00:59:01.500 They're pre the transformer

NOTE Confidence: 0.73814994

00:59:01.880 --> 00:59:03.400 upgrades and in in deep

NOTE Confidence: 0.73814994

00:59:03.400 --> 00:59:03.900 learning.

NOTE Confidence: 0.9288448

00:59:04.680 --> 00:59:05.880 They the f data makes

NOTE Confidence: 0.9288448

00:59:05.880 --> 00:59:07.080 them lock them in. You

NOTE Confidence: 0.9288448

00:59:07.080 --> 00:59:08.040 can't update them on the

NOTE Confidence: 0.9288448

00:59:08.040 --> 00:59:09.339 fly. You have to resubmit.

NOTE Confidence: 0.9189635

00:59:10.359 --> 00:59:11.560 Hard flows never increase there.

NOTE Confidence: 0.9189635

00:59:11.560 --> 00:59:12.765 It never change their algorithm,

NOTE Confidence: 0.9189635

00:59:12.924 --> 00:59:13.964 and and and that's for

NOTE Confidence: 0.9189635

00:59:13.964 --> 00:59:14.845 that reason. So I think

NOTE Confidence: 0.9189635

00:59:14.845 --> 00:59:15.565 they need to get better,

NOTE Confidence: 0.9189635

00:59:15.565 --> 00:59:16.204 and I think they should

NOTE Confidence: 0.9189635

00:59:16.204 --> 00:59:17.244 probably should be retrained on

NOTE Confidence: 0.9189635

00:59:17.244 --> 00:59:18.545 full time counting CT.

NOTE Confidence: 0.95795494

00:59:19.244 --> 00:59:20.525 So thank you very much,

NOTE Confidence: 0.95795494

00:59:20.525 --> 00:59:20.924 and,

NOTE Confidence: 0.98520225

00:59:21.325 --> 00:59:22.525 and, again, thank you for

NOTE Confidence: 0.98520225

00:59:22.525 --> 00:59:23.265 this opportunity.

NOTE Confidence: 0.9447225

00:59:32.109 --> 00:59:32.849 Yes, sir.

NOTE Confidence: 0.9096429

00:59:43.474 --> 00:59:44.515 It was a very nice

NOTE Confidence: 0.9096429

00:59:44.515 --> 00:59:45.734 balanced presentation.

NOTE Confidence: 0.94725525

00:59:46.515 --> 00:59:48.295 Thank you. So the technical

NOTE Confidence: 0.94725525

00:59:48.434 --> 00:59:50.674 parts eventually may resolve, and

NOTE Confidence: 0.94725525

00:59:50.674 --> 00:59:52.430 you can address them. The

NOTE Confidence: 0.94725525

00:59:52.430 --> 00:59:53.790 biological part, you can't do

NOTE Confidence: 0.94725525

00:59:53.790 --> 00:59:55.230 anything with it. And plaque

NOTE Confidence: 0.94725525

00:59:55.230 --> 00:59:57.090 phenotype, you did we discussed

NOTE Confidence: 0.9888486

00:59:57.790 --> 00:59:58.850 that it's modifiable.

NOTE Confidence: 0.97279483

00:59:59.710 --> 01:00:00.830 It's also not a it's

NOTE Confidence: 0.97279483

01:00:00.830 --> 01:00:02.770 a dynamic process. That's right.

NOTE Confidence: 0.97279483

01:00:02.990 --> 01:00:04.590 Everything changes within a very

NOTE Confidence: 0.97279483

01:00:04.590 --> 01:00:06.531 short period of time, in

NOTE Confidence: 0.97279483

01:00:06.531 --> 01:00:07.895 fact, months. So

NOTE Confidence: 0.95820963

01:00:08.515 --> 01:00:09.475 is there any and then

NOTE Confidence: 0.95820963

01:00:09.475 --> 01:00:10.835 the pause based because of

NOTE Confidence: 0.95820963

01:00:10.835 --> 01:00:12.515 that, the positive predictive value

NOTE Confidence: 0.95820963

01:00:12.515 --> 01:00:13.395 of all of this is

NOTE Confidence: 0.95820963

01:00:13.395 --> 01:00:14.755 below two percent, which is

NOTE Confidence: 0.95820963

01:00:14.755 --> 01:00:15.975 our threshold for

NOTE Confidence: 0.94002414

01:00:16.275 --> 01:00:17.920 for doing things. So is

NOTE Confidence: 0.94002414

01:00:17.920 --> 01:00:19.200 this really going to fly

NOTE Confidence: 0.94002414

01:00:19.200 --> 01:00:20.640 anytime in the future even

NOTE Confidence: 0.94002414

01:00:20.640 --> 01:00:22.260 if the techniques get better?

NOTE Confidence: 0.94002414

01:00:22.320 --> 01:00:23.940 When you say It means,

NOTE Confidence: 0.99170715

01:00:24.720 --> 01:00:26.560 adjusting treatment based on plaque

NOTE Confidence: 0.99170715

01:00:26.560 --> 01:00:27.060 characterization.

NOTE Confidence: 0.9781231

01:00:28.800 --> 01:00:29.600 Well, I think, you know,

NOTE Confidence: 0.9781231

01:00:29.600 --> 01:00:30.320 I look at this as

NOTE Confidence: 0.9781231

01:00:30.320 --> 01:00:31.760 more as patient risk. And

NOTE Confidence: 0.9781231

01:00:31.760 --> 01:00:32.960 so I think when you,

NOTE Confidence: 0.9781231

01:00:33.210 --> 01:00:34.295 you know, the challenge I

NOTE Confidence: 0.9781231

01:00:34.295 --> 01:00:35.895 have in my clinical setting

NOTE Confidence: 0.9781231

01:00:35.895 --> 01:00:36.695 is, you know, we have,

NOTE Confidence: 0.9781231

01:00:36.695 --> 01:00:37.575 you know, who needs to

NOTE Confidence: 0.9781231

01:00:37.575 --> 01:00:39.415 go on sometimes lifelong expensive

NOTE Confidence: 0.9781231

01:00:39.415 --> 01:00:40.855 therapies. And so I think

NOTE Confidence: 0.9781231

01:00:40.855 --> 01:00:41.835 trying to match,

NOTE Confidence: 0.9996767

01:00:42.455 --> 01:00:43.735 you know, the intensity of

NOTE Confidence: 0.9996767

01:00:43.735 --> 01:00:44.235 treatment

NOTE Confidence: 0.94362617

01:00:45.015 --> 01:00:46.135 with the risk of the

NOTE Confidence: 0.94362617

01:00:46.135 --> 01:00:47.095 patient, I think, is what

NOTE Confidence: 0.94362617

01:00:47.095 --> 01:00:48.170 we're all kinda aiming to

NOTE Confidence: 0.94362617

01:00:48.170 --> 01:00:49.290 do. And we don't wanna

NOTE Confidence: 0.94362617

01:00:49.290 --> 01:00:50.430 overtreat patients,

NOTE Confidence: 0.9211306

01:00:51.210 --> 01:00:52.170 but I think right now

NOTE Confidence: 0.9211306

01:00:52.170 --> 01:00:53.050 when you look at this

NOTE Confidence: 0.9211306

01:00:53.050 --> 01:00:54.650 this this summation of, of

NOTE Confidence: 0.9211306

01:00:54.650 --> 01:00:56.410 outputs that you have, such

NOTE Confidence: 0.9211306

01:00:56.410 --> 01:00:58.110 as calcium scoring, stenosis,

NOTE Confidence: 0.9764343

01:00:58.970 --> 01:01:00.030 plaque extensiveness

NOTE Confidence: 0.9611466

01:01:00.410 --> 01:01:02.090 or burden, to include high

NOTE Confidence: 0.9611466

01:01:02.090 --> 01:01:03.130 risk plaque being a part

NOTE Confidence: 0.9611466

01:01:03.130 --> 01:01:04.545 of that, that I think

NOTE Confidence: 0.9611466

01:01:04.545 --> 01:01:06.305 you can actually see that,

NOTE Confidence: 0.9611466

01:01:06.305 --> 01:01:07.505 you know, there is pretty

NOTE Confidence: 0.9611466

01:01:07.505 --> 01:01:09.585 wide differences in patient individual

NOTE Confidence: 0.9611466

01:01:09.585 --> 01:01:10.785 patient risk. Now I think

NOTE Confidence: 0.9611466

01:01:10.785 --> 01:01:11.585 where people get hung up

NOTE Confidence: 0.9611466

01:01:11.585 --> 01:01:12.945 is that you're right. I

NOTE Confidence: 0.9611466

01:01:12.945 --> 01:01:14.244 mentioned in, you know, if

NOTE Confidence: 0.9611466

01:01:14.385 --> 01:01:15.585 you look at just high

NOTE Confidence: 0.9611466

01:01:15.585 --> 01:01:16.805 risk plaques individually,

NOTE Confidence: 0.9958024

01:01:17.585 --> 01:01:18.545 most of them do not

NOTE Confidence: 0.9958024

01:01:18.545 --> 01:01:19.365 cause events.

NOTE Confidence: 0.8904722

01:01:19.800 --> 01:01:21.260 They do lack specificity,

NOTE Confidence: 0.9730555

01:01:22.280 --> 01:01:23.080 but we know as a

NOTE Confidence: 0.9730555

01:01:23.080 --> 01:01:24.200 patient level, these are also

NOTE Confidence: 0.9730555

01:01:24.200 --> 01:01:25.400 patients more likely to develop

NOTE Confidence: 0.9730555

01:01:25.400 --> 01:01:26.700 future high risk plaques,

NOTE Confidence: 0.9520796

01:01:27.400 --> 01:01:28.840 and that biologically they are

NOTE Confidence: 0.9520796

01:01:28.840 --> 01:01:30.840 different. And so I think

NOTE Confidence: 0.9520796

01:01:30.840 --> 01:01:32.300 it is helpful potentially

NOTE Confidence: 0.97749084

01:01:32.964 --> 01:01:33.765 to to to use these

NOTE Confidence: 0.97749084

01:01:33.765 --> 01:01:34.484 therapies. We don't have a

NOTE Confidence: 0.97749084

01:01:34.484 --> 01:01:35.285 lot of great data on

NOTE Confidence: 0.97749084

01:01:35.285 --> 01:01:36.565 how these therapies change plaque

NOTE Confidence: 0.97749084

01:01:36.565 --> 01:01:38.265 biology. We know from PCSK

NOTE Confidence: 0.97749084

01:01:38.484 --> 01:01:40.005 nine data that you see

NOTE Confidence: 0.97749084

01:01:40.005 --> 01:01:41.944 regression of noncalcified plaque.

NOTE Confidence: 0.97116

01:01:42.244 --> 01:01:43.845 You see improvement and reduction

NOTE Confidence: 0.97116

01:01:43.845 --> 01:01:45.300 in high risk plaque, and

NOTE Confidence: 0.97116

01:01:45.300 --> 01:01:46.340 we know they also reduce

NOTE Confidence: 0.97116

01:01:46.340 --> 01:01:47.620 events. And so I think

NOTE Confidence: 0.97116

01:01:47.620 --> 01:01:48.900 that's the rationale for doing

NOTE Confidence: 0.97116

01:01:48.900 --> 01:01:49.700 that, but we don't have

NOTE Confidence: 0.97116

01:01:49.700 --> 01:01:50.200 data.

NOTE Confidence: 0.96913797

01:01:50.500 --> 01:01:51.300 Now well, am I you

NOTE Confidence: 0.96913797

01:01:51.380 --> 01:01:52.180 am I waiting for that

NOTE Confidence: 0.96913797

01:01:52.180 --> 01:01:53.220 data? No. And if I

NOTE Confidence: 0.96913797

01:01:53.220 --> 01:01:53.860 have a patient at high

NOTE Confidence: 0.96913797

01:01:53.860 --> 01:01:55.220 cardiometabolic risk who has a

NOTE Confidence: 0.96913797

01:01:55.220 --> 01:01:56.180 lot of high risk plaque,

NOTE Confidence: 0.96913797

01:01:56.180 --> 01:01:57.300 I'm probably gonna use an

NOTE Confidence: 0.96913797

01:01:57.300 --> 01:01:58.360 SGLT two inhibitor,

NOTE Confidence: 0.99381685

01:01:58.740 --> 01:01:59.720 GLP one

NOTE Confidence: 0.93001145

01:02:00.045 --> 01:02:01.724 until that data helps helps

NOTE Confidence: 0.93001145

01:02:01.724 --> 01:02:03.964 change my mind. Yep. Yes,

NOTE Confidence: 0.93001145

01:02:03.964 --> 01:02:05.585 sir. Thank you, Brent.

NOTE Confidence: 0.93750805

01:02:06.845 --> 01:02:07.805 Thank you for a nice

NOTE Confidence: 0.93750805

01:02:07.805 --> 01:02:09.805 thought. Yeah. And, also, for

NOTE Confidence: 0.93750805

01:02:09.964 --> 01:02:11.565 and, one of the most

NOTE Confidence: 0.93750805

01:02:11.565 --> 01:02:14.030 honest self reflections on their

NOTE Confidence: 0.93750805

01:02:14.030 --> 01:02:15.550 own field in the era

NOTE Confidence: 0.93750805

01:02:15.550 --> 01:02:17.089 of AI that I've seen.

NOTE Confidence: 0.93750805

01:02:17.150 --> 01:02:18.609 Really nice. Thank you.

NOTE Confidence: 0.9200623

01:02:19.150 --> 01:02:20.270 Charlie Taylor was here a

NOTE Confidence: 0.9200623

01:02:20.270 --> 01:02:21.650 few weeks ago from Artflow

NOTE Confidence: 0.9200623

01:02:21.710 --> 01:02:22.990 giving us a talk. A

NOTE Confidence: 0.9200623

01:02:22.990 --> 01:02:23.869 lot of what you're saying

NOTE Confidence: 0.9200623

01:02:23.869 --> 01:02:25.230 is true about the algorithms

NOTE Confidence: 0.9200623

01:02:25.230 --> 01:02:26.365 of things. One of the

NOTE Confidence: 0.9200623

01:02:26.365 --> 01:02:27.565 things that I I don't

NOTE Confidence: 0.9200623

01:02:27.565 --> 01:02:28.765 know if all these imaging

NOTE Confidence: 0.9200623

01:02:28.765 --> 01:02:30.385 parameters are always reported

NOTE Confidence: 0.7676785

01:02:30.765 --> 01:02:32.045 at use in the different

NOTE Confidence: 0.7676785

01:02:32.045 --> 01:02:33.765 softwares. Are they, like Mhmm.

NOTE Confidence: 0.7676785

01:02:33.965 --> 01:02:35.405 All this Well, I mean,

NOTE Confidence: 0.7676785

01:02:35.405 --> 01:02:36.845 the the the metadata within

NOTE Confidence: 0.7676785

01:02:36.845 --> 01:02:37.505 the DICOM,

NOTE Confidence: 0.94796973

01:02:38.365 --> 01:02:39.360 data is there.

NOTE Confidence: 0.93367106

01:02:39.840 --> 01:02:40.880 And that that is set

NOTE Confidence: 0.93367106

01:02:40.880 --> 01:02:42.440 up also proactively by this

NOTE Confidence: 0.93367106

01:02:42.560 --> 01:02:43.460 by the vendors,

NOTE Confidence: 0.99524873

01:02:44.320 --> 01:02:45.520 and so they they they

NOTE Confidence: 0.99524873

01:02:45.520 --> 01:02:47.120 have that data. The challenge

NOTE Confidence: 0.99524873

01:02:47.120 --> 01:02:48.000 is that if you look

NOTE Confidence: 0.99524873

01:02:48.000 --> 01:02:48.240 at

NOTE Confidence: 0.94740313

01:02:48.880 --> 01:02:50.180 I'll use the fat attenuation

NOTE Confidence: 0.96901405

01:02:50.480 --> 01:02:52.480 folks, and and their whole

NOTE Confidence: 0.96901405

01:02:52.480 --> 01:02:53.760 software was validated on a

NOTE Confidence: 0.96901405

01:02:53.760 --> 01:02:54.640 hundred and a hundred and

NOTE Confidence: 0.96901405

01:02:54.640 --> 01:02:56.695 twenty kV. That's it. They

NOTE Confidence: 0.96901405

01:02:56.695 --> 01:02:57.974 will run their software on

NOTE Confidence: 0.96901405

01:02:57.974 --> 01:02:58.714 all kVs.

NOTE Confidence: 0.9942247

01:02:59.175 --> 01:03:01.175 And so the algorithm does

NOTE Confidence: 0.9942247

01:03:01.175 --> 01:03:01.494 not

NOTE Confidence: 0.9865236

01:03:02.455 --> 01:03:04.135 it's not been trained using

NOTE Confidence: 0.9865236

01:03:04.135 --> 01:03:04.955 those kVs,

NOTE Confidence: 0.9918912

01:03:05.335 --> 01:03:06.955 and it's not really tuned

NOTE Confidence: 0.9918912

01:03:07.015 --> 01:03:07.350 and

NOTE Confidence: 0.97091407

01:03:07.910 --> 01:03:09.030 and and really, you know,

NOTE Confidence: 0.97091407

01:03:09.030 --> 01:03:10.630 adjusted for those differences. And

NOTE Confidence: 0.97091407

01:03:10.630 --> 01:03:11.350 that's kind of the same

NOTE Confidence: 0.97091407

01:03:11.350 --> 01:03:12.390 for plaque. Right? They if

NOTE Confidence: 0.97091407

01:03:12.390 --> 01:03:13.070 you look at most of

NOTE Confidence: 0.97091407

01:03:13.070 --> 01:03:14.150 the plaque vendors, they give

NOTE Confidence: 0.97091407

01:03:14.150 --> 01:03:15.670 you outputs based purely on

NOTE Confidence: 0.97091407

01:03:15.670 --> 01:03:16.730 houndsealed units,

NOTE Confidence: 0.9738243

01:03:17.510 --> 01:03:19.190 and they don't adjust their

NOTE Confidence: 0.9738243

01:03:19.190 --> 01:03:20.790 thresholds based on the k

NOTE Confidence: 0.9738243

01:03:20.790 --> 01:03:21.670 v, even though we know

NOTE Confidence: 0.9738243

01:03:21.670 --> 01:03:22.395 they should.

NOTE Confidence: 0.93432814

01:03:23.355 --> 01:03:24.075 And I think in the

NOTE Confidence: 0.93432814

01:03:24.075 --> 01:03:25.195 future, you know, the solution,

NOTE Confidence: 0.93432814

01:03:25.195 --> 01:03:25.995 if you talk to, you

NOTE Confidence: 0.93432814

01:03:25.995 --> 01:03:27.115 know, many of our, you

NOTE Confidence: 0.93432814

01:03:27.115 --> 01:03:28.635 know, like, Cynthia McCullough's of

NOTE Confidence: 0.93432814

01:03:28.635 --> 01:03:29.515 the world is it is

NOTE Confidence: 0.93432814

01:03:29.595 --> 01:03:30.495 will be monoenergetic

NOTE Confidence: 0.9978

01:03:31.195 --> 01:03:31.695 reconstructions

NOTE Confidence: 0.9965824

01:03:31.995 --> 01:03:34.075 that can standardize this. Very

NOTE Confidence: 0.9965824

01:03:34.075 --> 01:03:35.515 little differences in software when

NOTE Confidence: 0.9965824

01:03:35.515 --> 01:03:36.155 you run them on the

NOTE Confidence: 0.9965824

01:03:36.155 --> 01:03:36.815 same monoenergetic

NOTE Confidence: 0.8392707

01:03:37.115 --> 01:03:38.170 images. That's what's gonna be

NOTE Confidence: 0.8392707

01:03:38.170 --> 01:03:39.210 a help hopefully, to help.

NOTE Confidence: 0.8392707

01:03:39.210 --> 01:03:40.250 Well, that's totally strange. You

NOTE Confidence: 0.8392707

01:03:40.250 --> 01:03:41.050 can see where you can

NOTE Confidence: 0.8392707

01:03:41.050 --> 01:03:42.570 fix that now. But what

NOTE Confidence: 0.8392707

01:03:42.570 --> 01:03:43.850 it could do, and I'm

NOTE Confidence: 0.8392707

01:03:43.850 --> 01:03:45.290 curious if you've seen this

NOTE Confidence: 0.8392707

01:03:45.290 --> 01:03:46.490 or even if you add

NOTE Confidence: 0.8392707

01:03:46.490 --> 01:03:47.610 it, which you find it

NOTE Confidence: 0.8392707

01:03:47.610 --> 01:03:48.110 helpful,

NOTE Confidence: 0.9917397

01:03:48.650 --> 01:03:50.730 is it might algorithm might

NOTE Confidence: 0.9917397

01:03:50.730 --> 01:03:51.870 be able to characterize

NOTE Confidence: 0.9576669

01:03:52.250 --> 01:03:52.750 uncertainty.

NOTE Confidence: 0.9159209

01:03:53.285 --> 01:03:54.645 That's right. Give you bounds

NOTE Confidence: 0.9159209

01:03:54.645 --> 01:03:56.105 on things. And so

NOTE Confidence: 0.84162444

01:03:56.405 --> 01:03:58.025 here's maybe the flack,

NOTE Confidence: 0.9556417

01:03:58.325 --> 01:04:00.025 but it's within this confidence

NOTE Confidence: 0.9556417

01:04:00.165 --> 01:04:01.365 bound. Would you find that

NOTE Confidence: 0.9556417

01:04:01.365 --> 01:04:02.265 helpful? Or

NOTE Confidence: 0.963438

01:04:02.645 --> 01:04:03.945 We we've had this discussion

NOTE Confidence: 0.963438

01:04:04.005 --> 01:04:05.125 is this, you know, level

NOTE Confidence: 0.963438

01:04:05.125 --> 01:04:06.425 of diagnostic certainty.

NOTE Confidence: 0.96289015

01:04:07.299 --> 01:04:08.260 I actually kind of am

NOTE Confidence: 0.96289015

01:04:08.260 --> 01:04:08.819 a fan of it. I

NOTE Confidence: 0.96289015

01:04:08.819 --> 01:04:09.619 don't know. We've got some

NOTE Confidence: 0.96289015

01:04:09.619 --> 01:04:10.339 others in the room. I

NOTE Confidence: 0.96289015

01:04:10.339 --> 01:04:11.619 mean, when I say even

NOTE Confidence: 0.96289015

01:04:11.619 --> 01:04:12.980 for things like stenosis. Right?

NOTE Confidence: 0.96289015

01:04:12.980 --> 01:04:13.700 I mean, I say there's

NOTE Confidence: 0.96289015

01:04:13.700 --> 01:04:15.140 a severe stenosis. Should I

NOTE Confidence: 0.96289015

01:04:15.140 --> 01:04:16.339 qualify that with a level

NOTE Confidence: 0.96289015

01:04:16.339 --> 01:04:17.559 of diagnostic certainty?

NOTE Confidence: 0.9996228

01:04:18.099 --> 01:04:18.675 I think

NOTE Confidence: 0.98981667

01:04:19.075 --> 01:04:20.115 many of us, like me,

NOTE Confidence: 0.98981667

01:04:20.115 --> 01:04:21.635 would like that to put

NOTE Confidence: 0.98981667

01:04:21.635 --> 01:04:22.755 that in my reports so

NOTE Confidence: 0.98981667

01:04:22.755 --> 01:04:23.635 that they I I try

NOTE Confidence: 0.98981667

01:04:23.635 --> 01:04:24.915 to convey that with words,

NOTE Confidence: 0.98981667

01:04:24.915 --> 01:04:25.795 but I think that would

NOTE Confidence: 0.98981667

01:04:25.795 --> 01:04:26.675 be helpful. I think some

NOTE Confidence: 0.98981667

01:04:26.675 --> 01:04:27.955 of the end users might

NOTE Confidence: 0.98981667

01:04:27.955 --> 01:04:29.075 not like that. And so

NOTE Confidence: 0.98981667

01:04:29.075 --> 01:04:30.375 my interventional cardiologist

NOTE Confidence: 0.97046286

01:04:30.755 --> 01:04:31.875 would probably and they have

NOTE Confidence: 0.97046286

01:04:31.875 --> 01:04:32.755 they have told us that.

NOTE Confidence: 0.97046286

01:04:32.755 --> 01:04:34.089 So I it's not something

NOTE Confidence: 0.97046286

01:04:34.089 --> 01:04:36.010 we've started using. A AI,

NOTE Confidence: 0.97046286

01:04:36.010 --> 01:04:37.130 I think people want black

NOTE Confidence: 0.97046286

01:04:37.130 --> 01:04:38.330 and white answers usually, but

NOTE Confidence: 0.97046286

01:04:38.330 --> 01:04:39.049 I don't know. I but

NOTE Confidence: 0.97046286

01:04:39.049 --> 01:04:39.849 I think you're right. Now

NOTE Confidence: 0.97046286

01:04:39.849 --> 01:04:41.210 the challenge is artifacts too.

NOTE Confidence: 0.97046286

01:04:41.210 --> 01:04:42.410 I have seen we have

NOTE Confidence: 0.97046286

01:04:42.410 --> 01:04:44.250 run analysis for studies on

NOTE Confidence: 0.97046286

01:04:44.250 --> 01:04:45.230 four different vendors,

NOTE Confidence: 0.965577

01:04:45.845 --> 01:04:47.204 and their rejection rates are

NOTE Confidence: 0.965577

01:04:47.204 --> 01:04:48.565 all variable. They don't reject

NOTE Confidence: 0.965577

01:04:48.565 --> 01:04:49.924 the same cases, and they'll

NOTE Confidence: 0.965577

01:04:49.924 --> 01:04:51.765 sometimes analyze cases. And you're

NOTE Confidence: 0.965577

01:04:51.765 --> 01:04:52.805 like, I have no idea

NOTE Confidence: 0.965577

01:04:52.805 --> 01:04:54.265 how they analyze that vessel.

NOTE Confidence: 0.9851382

01:04:55.204 --> 01:04:56.085 And they have they say,

NOTE Confidence: 0.9851382

01:04:56.085 --> 01:04:56.805 well, they have a motion

NOTE Confidence: 0.9851382

01:04:56.805 --> 01:04:58.164 correction algorithm. They can find

NOTE Confidence: 0.9851382

01:04:58.164 --> 01:04:59.444 the lumen. I can't even

NOTE Confidence: 0.9851382

01:04:59.444 --> 01:05:00.265 see the coronary.

NOTE Confidence: 0.93505025

01:05:00.800 --> 01:05:02.160 So that's a challenge as

NOTE Confidence: 0.93505025

01:05:02.160 --> 01:05:03.840 artifacts is another challenge. There's

NOTE Confidence: 0.93505025

01:05:03.840 --> 01:05:05.460 no consistent approach to that.

NOTE Confidence: 0.9912714

01:05:11.119 --> 01:05:12.960 Phenomenal talk as usual. Thank

NOTE Confidence: 0.9912714

01:05:12.960 --> 01:05:14.415 you very much. I'm gonna

NOTE Confidence: 0.9912714

01:05:14.415 --> 01:05:15.375 put you on the spot

NOTE Confidence: 0.9912714

01:05:15.375 --> 01:05:17.315 because you were talking about

NOTE Confidence: 0.9912714

01:05:17.615 --> 01:05:20.035 the validity of calcium scoring

NOTE Confidence: 0.92603713

01:05:20.815 --> 01:05:22.575 and that people who don't

NOTE Confidence: 0.92603713

01:05:22.575 --> 01:05:23.075 have,

NOTE Confidence: 0.99395055

01:05:23.695 --> 01:05:24.895 who have a calcium score

NOTE Confidence: 0.99395055

01:05:24.895 --> 01:05:25.475 of zero

NOTE Confidence: 0.9990572

01:05:26.480 --> 01:05:27.940 likely don't have any

NOTE Confidence: 0.99977

01:05:28.720 --> 01:05:30.900 coronary disease that is

NOTE Confidence: 0.9332376

01:05:31.200 --> 01:05:32.799 actionable or severe. Well, I

NOTE Confidence: 0.9332376

01:05:32.799 --> 01:05:33.760 think what what I what

NOTE Confidence: 0.9332376

01:05:33.760 --> 01:05:34.480 I said is they have

NOTE Confidence: 0.9332376

01:05:34.559 --> 01:05:35.920 we know from large populations

NOTE Confidence: 0.9332376

01:05:35.920 --> 01:05:37.200 they have low event rates.

NOTE Confidence: 0.9332376

01:05:37.200 --> 01:05:38.175 I showed you a case

NOTE Confidence: 0.9332376

01:05:38.175 --> 01:05:39.055 where that was not the

NOTE Confidence: 0.9332376

01:05:39.055 --> 01:05:40.255 case. That that was exactly

NOTE Confidence: 0.9332376

01:05:40.255 --> 01:05:41.055 my you know, that's where

NOTE Confidence: 0.9332376

01:05:41.055 --> 01:05:41.775 I'm you know, where I'm

NOTE Confidence: 0.9332376

01:05:41.775 --> 01:05:42.835 heading. Yeah. The

NOTE Confidence: 0.96328926

01:05:43.695 --> 01:05:45.455 calcium scores have become extremely

NOTE Confidence: 0.96328926

01:05:45.455 --> 01:05:46.735 popular, and see we see

NOTE Confidence: 0.96328926

01:05:46.735 --> 01:05:48.675 them being ordered by our,

NOTE Confidence: 0.96328926

01:05:48.735 --> 01:05:50.195 you know, primary care providers

NOTE Confidence: 0.96328926

01:05:50.335 --> 01:05:51.375 on all sorts of people,

NOTE Confidence: 0.96328926

01:05:51.375 --> 01:05:52.915 including thirty year olds.

NOTE Confidence: 0.99537563

01:05:55.010 --> 01:05:56.850 Yeah. And my question for

NOTE Confidence: 0.99537563

01:05:56.850 --> 01:05:57.350 you

NOTE Confidence: 0.94487065

01:05:57.810 --> 01:05:59.110 is how much,

NOTE Confidence: 0.99917084

01:06:00.850 --> 01:06:02.230 well, how much

NOTE Confidence: 0.99855995

01:06:02.530 --> 01:06:04.210 does a calcium score of

NOTE Confidence: 0.99855995

01:06:04.210 --> 01:06:05.730 zero in a high risk

NOTE Confidence: 0.99855995

01:06:05.730 --> 01:06:06.230 patient

NOTE Confidence: 0.97804767

01:06:06.610 --> 01:06:08.070 who is thirty years old

NOTE Confidence: 0.7526206

01:06:09.225 --> 01:06:09.725 count?

NOTE Confidence: 0.97825027

01:06:10.025 --> 01:06:11.785 Is it valuable, or should

NOTE Confidence: 0.97825027

01:06:11.785 --> 01:06:13.545 we just assume this patient

NOTE Confidence: 0.97825027

01:06:13.545 --> 01:06:14.905 may have more than just

NOTE Confidence: 0.97825027

01:06:14.905 --> 01:06:15.405 calcified

NOTE Confidence: 0.96069556

01:06:15.785 --> 01:06:16.985 plaque if they are a

NOTE Confidence: 0.96069556

01:06:16.985 --> 01:06:17.885 high risk patient

NOTE Confidence: 0.9703338

01:06:18.265 --> 01:06:19.625 and proceed and do a

NOTE Confidence: 0.9703338

01:06:19.625 --> 01:06:21.385 coronary CTA if we're looking

NOTE Confidence: 0.9703338

01:06:21.385 --> 01:06:21.885 for

NOTE Confidence: 0.78181314

01:06:22.750 --> 01:06:23.250 plaque.

NOTE Confidence: 0.9874788

01:06:23.710 --> 01:06:24.590 Yep. So we know I

NOTE Confidence: 0.9874788

01:06:24.590 --> 01:06:25.230 just I just put up

NOTE Confidence: 0.9874788

01:06:25.230 --> 01:06:26.030 a slide here. I kinda

NOTE Confidence: 0.9874788

01:06:26.030 --> 01:06:26.990 went through this quickly for

NOTE Confidence: 0.9874788

01:06:26.990 --> 01:06:28.990 time, but in symptomatic patients,

NOTE Confidence: 0.9874788

01:06:28.990 --> 01:06:29.730 it's unquestionable.

NOTE Confidence: 0.98976606

01:06:30.190 --> 01:06:31.250 CTA is better.

NOTE Confidence: 0.92892045

01:06:32.510 --> 01:06:33.550 It's I I get in

NOTE Confidence: 0.92892045

01:06:33.550 --> 01:06:35.070 these arguments with doctor Budoff

NOTE Confidence: 0.92892045

01:06:35.070 --> 01:06:36.590 and with Karim Nasir, and

NOTE Confidence: 0.92892045

01:06:36.590 --> 01:06:37.730 they're lovely people.

NOTE Confidence: 0.9612665

01:06:38.495 --> 01:06:40.175 And I my career started

NOTE Confidence: 0.9612665

01:06:40.175 --> 01:06:41.155 in calcium scoring.

NOTE Confidence: 0.97356415

01:06:41.695 --> 01:06:42.735 But when I say that,

NOTE Confidence: 0.97356415

01:06:42.735 --> 01:06:43.615 they get mad at me.

NOTE Confidence: 0.97356415

01:06:43.615 --> 01:06:44.735 I mean, they literally really

NOTE Confidence: 0.97356415

01:06:44.735 --> 01:06:45.615 get mad at me.

NOTE Confidence: 0.9795301

01:06:46.175 --> 01:06:47.615 But it's unquestionably better, and

NOTE Confidence: 0.9795301

01:06:47.615 --> 01:06:48.655 this is data from from

NOTE Confidence: 0.9795301

01:06:48.655 --> 01:06:50.095 PROMIS showing the hazard ratios

NOTE Confidence: 0.9795301

01:06:50.095 --> 01:06:51.295 for an abnormal calcium score

NOTE Confidence: 0.9795301

01:06:51.295 --> 01:06:53.309 versus abnormal CT. In asymptomatic

NOTE Confidence: 0.9795301

01:06:53.450 --> 01:06:54.910 patients, you will find,

NOTE Confidence: 0.97056556

01:06:55.530 --> 01:06:56.750 and this is from Scapis,

NOTE Confidence: 0.97056556

01:06:56.890 --> 01:06:58.250 in patients with calcium scores

NOTE Confidence: 0.97056556

01:06:58.250 --> 01:06:59.530 of zero, they had about

NOTE Confidence: 0.97056556

01:06:59.530 --> 01:07:00.730 six percent of people that

NOTE Confidence: 0.97056556

01:07:00.730 --> 01:07:01.390 had plaque.

NOTE Confidence: 0.96336925

01:07:02.250 --> 01:07:03.690 And the more risk you

NOTE Confidence: 0.96336925

01:07:03.690 --> 01:07:05.770 have individually, like family history

NOTE Confidence: 0.96336925

01:07:05.770 --> 01:07:07.289 and risk factors, that number

NOTE Confidence: 0.96336925

01:07:07.289 --> 01:07:08.030 goes up.

NOTE Confidence: 0.96192116

01:07:08.365 --> 01:07:09.725 And so you absolutely are

NOTE Confidence: 0.96192116

01:07:09.725 --> 01:07:11.245 missing disease. So CT is

NOTE Confidence: 0.96192116

01:07:11.245 --> 01:07:12.685 unquestionably going to be better,

NOTE Confidence: 0.96192116

01:07:12.685 --> 01:07:13.805 and we know that from

NOTE Confidence: 0.96192116

01:07:13.805 --> 01:07:15.405 this group just published a

NOTE Confidence: 0.96192116

01:07:15.405 --> 01:07:16.685 paper in JAMA this week.

NOTE Confidence: 0.96192116

01:07:16.685 --> 01:07:17.565 I didn't make a slide

NOTE Confidence: 0.96192116

01:07:17.565 --> 01:07:18.605 for it. And they showed

NOTE Confidence: 0.96192116

01:07:18.605 --> 01:07:19.805 that. They showed that the

NOTE Confidence: 0.96192116

01:07:19.805 --> 01:07:21.805 plaque findings, not quantification of

NOTE Confidence: 0.96192116

01:07:21.805 --> 01:07:22.305 plaque.

NOTE Confidence: 0.9456523

01:07:22.740 --> 01:07:23.780 The problem is people mix

NOTE Confidence: 0.9456523

01:07:23.780 --> 01:07:24.500 this up. They think if

NOTE Confidence: 0.9456523

01:07:24.500 --> 01:07:25.540 I'm talking about screening, CT,

NOTE Confidence: 0.9456523

01:07:25.540 --> 01:07:26.360 I must be

NOTE Confidence: 0.95996886

01:07:26.740 --> 01:07:28.340 wanting to do quantification. No.

NOTE Confidence: 0.95996886

01:07:28.340 --> 01:07:30.040 Just stenosis, high risk plaque,

NOTE Confidence: 0.95996886

01:07:30.100 --> 01:07:31.540 CADRADS two was better than

NOTE Confidence: 0.95996886

01:07:31.540 --> 01:07:33.140 calcium scoring. The problem is

NOTE Confidence: 0.95996886

01:07:33.140 --> 01:07:34.100 it was just a little

NOTE Confidence: 0.95996886

01:07:34.100 --> 01:07:34.760 bit better.

NOTE Confidence: 0.91378534

01:07:35.635 --> 01:07:36.675 There's a paper coming out

NOTE Confidence: 0.91378534

01:07:36.675 --> 01:07:37.815 next week in JAC Imaging

NOTE Confidence: 0.99698377

01:07:38.275 --> 01:07:38.935 that looks

NOTE Confidence: 0.9120331

01:07:39.475 --> 01:07:41.475 at confirmed two registry that

NOTE Confidence: 0.9120331

01:07:41.475 --> 01:07:42.935 also shows that plaque quantification

NOTE Confidence: 0.93493766

01:07:43.955 --> 01:07:45.635 was barely better than what

NOTE Confidence: 0.93493766

01:07:45.635 --> 01:07:47.155 we're already doing in an

NOTE Confidence: 0.93493766

01:07:47.155 --> 01:07:49.079 asymptomatic or in symptomatic population.

NOTE Confidence: 0.93493766

01:07:49.079 --> 01:07:50.200 So the question is made

NOTE Confidence: 0.93493766

01:07:50.200 --> 01:07:51.079 is not is it better,

NOTE Confidence: 0.93493766

01:07:51.079 --> 01:07:52.119 it's by is it worth

NOTE Confidence: 0.93493766

01:07:52.119 --> 01:07:53.559 it? And that's the real

NOTE Confidence: 0.93493766

01:07:53.559 --> 01:07:55.180 question is how much better?

NOTE Confidence: 0.93493766

01:07:55.319 --> 01:07:56.519 And so, you know, I

NOTE Confidence: 0.93493766

01:07:56.519 --> 01:07:58.119 think CTA is unquestionably better

NOTE Confidence: 0.93493766

01:07:58.119 --> 01:07:59.160 and and and people it

NOTE Confidence: 0.93493766

01:07:59.160 --> 01:08:00.039 may be better in those

NOTE Confidence: 0.93493766

01:08:00.039 --> 01:08:01.400 younger higher risk patients where

NOTE Confidence: 0.93493766

01:08:01.400 --> 01:08:02.359 you're gonna find this type

NOTE Confidence: 0.93493766

01:08:02.359 --> 01:08:03.595 of plaque. The fear is

NOTE Confidence: 0.93493766

01:08:03.595 --> 01:08:04.395 that I had this come

NOTE Confidence: 0.93493766

01:08:04.395 --> 01:08:05.195 up actually this week in

NOTE Confidence: 0.93493766

01:08:05.195 --> 01:08:06.075 my own clinic is that

NOTE Confidence: 0.93493766

01:08:06.075 --> 01:08:07.275 someone's gonna, at forty, get

NOTE Confidence: 0.93493766

01:08:07.275 --> 01:08:08.395 a normal calcium score. They've

NOTE Confidence: 0.93493766

01:08:08.395 --> 01:08:09.115 got an LDL of a

NOTE Confidence: 0.93493766

01:08:09.115 --> 01:08:10.555 hundred and eighty and say,

NOTE Confidence: 0.93493766

01:08:10.555 --> 01:08:11.295 I'm good.

NOTE Confidence: 0.9876656

01:08:11.675 --> 01:08:12.715 And that's what happened with

NOTE Confidence: 0.9876656

01:08:12.715 --> 01:08:13.755 the patient I just showed

NOTE Confidence: 0.9876656

01:08:13.755 --> 01:08:15.275 you. And that's the fear

NOTE Confidence: 0.9876656

01:08:15.275 --> 01:08:16.635 in those patients is that

NOTE Confidence: 0.9876656

01:08:16.635 --> 01:08:17.375 you shouldn't,

NOTE Confidence: 0.9623334

01:08:17.780 --> 01:08:19.060 you know, I think, overly

NOTE Confidence: 0.9623334

01:08:19.060 --> 01:08:20.760 reassure those people. Yeah.

NOTE Confidence: 0.48834294

01:08:21.220 --> 01:08:22.120 Very cool.

NOTE Confidence: 0.99568033

01:08:23.460 --> 01:08:24.900 This was an excellent talk.

NOTE Confidence: 0.99568033

01:08:24.900 --> 01:08:25.940 I really enjoyed it. I

NOTE Confidence: 0.9939637

01:08:26.979 --> 01:08:28.440 in a practical sense,

NOTE Confidence: 0.8951318

01:08:29.060 --> 01:08:30.500 how much these indices, my

NOTE Confidence: 0.8951318

01:08:30.500 --> 01:08:31.560 question, is gonna,

NOTE Confidence: 0.9075575

01:08:32.100 --> 01:08:32.840 be helpful.

NOTE Confidence: 0.93965846

01:08:34.025 --> 01:08:35.545 Not infrequently, we see people

NOTE Confidence: 0.93965846

01:08:35.545 --> 01:08:37.064 having actually high risk plaque

NOTE Confidence: 0.93965846

01:08:37.064 --> 01:08:38.425 such as napkin sign, but

NOTE Confidence: 0.93965846

01:08:38.425 --> 01:08:39.724 they have a normal FFR.

NOTE Confidence: 0.9647191

01:08:40.344 --> 01:08:41.145 Now if I have a

NOTE Confidence: 0.9647191

01:08:41.145 --> 01:08:42.985 patient with abnormal FFR, I

NOTE Confidence: 0.9647191

01:08:42.985 --> 01:08:44.104 know that if he has

NOTE Confidence: 0.9647191

01:08:44.104 --> 01:08:45.784 a chest pain, a stenting

NOTE Confidence: 0.9647191

01:08:45.784 --> 01:08:46.764 gonna help him.

NOTE Confidence: 0.99360555

01:08:47.360 --> 01:08:48.880 But if I have a

NOTE Confidence: 0.99360555

01:08:48.880 --> 01:08:49.619 high risk,

NOTE Confidence: 0.9698538

01:08:50.079 --> 01:08:51.760 plaque Mhmm. Do you have

NOTE Confidence: 0.9698538

01:08:51.760 --> 01:08:53.840 evidence that actually stenting that

NOTE Confidence: 0.9698538

01:08:53.840 --> 01:08:55.219 plaque is gonna help

NOTE Confidence: 0.9843547

01:08:55.760 --> 01:08:56.659 help this individual?

NOTE Confidence: 0.96547174

01:08:57.280 --> 01:08:58.239 I mean, that that's the

NOTE Confidence: 0.96547174

01:08:58.239 --> 01:08:59.775 question of practical Yeah. So

NOTE Confidence: 0.96547174

01:08:59.775 --> 01:09:00.814 you're asking a million dollar

NOTE Confidence: 0.96547174

01:09:00.814 --> 01:09:01.635 question there.

NOTE Confidence: 0.9782757

01:09:01.935 --> 01:09:02.814 You know, and and to

NOTE Confidence: 0.9782757

01:09:02.814 --> 01:09:03.614 be honest with you, we

NOTE Confidence: 0.9782757

01:09:03.614 --> 01:09:04.655 get that patient question from

NOTE Confidence: 0.9782757

01:09:04.655 --> 01:09:05.715 patients and interventionists.

NOTE Confidence: 0.98748714

01:09:06.895 --> 01:09:08.175 If you recall, there was

NOTE Confidence: 0.98748714

01:09:08.175 --> 01:09:10.175 a similar clinical trial published

NOTE Confidence: 0.98748714

01:09:10.175 --> 01:09:11.375 this past year and a

NOTE Confidence: 0.98748714

01:09:11.375 --> 01:09:13.235 half called the PREVENTS study

NOTE Confidence: 0.97832566

01:09:13.614 --> 01:09:15.110 that defined high risk plaque

NOTE Confidence: 0.97832566

01:09:15.110 --> 01:09:15.610 invasively

NOTE Confidence: 0.8836092

01:09:16.710 --> 01:09:17.530 by OCT.

NOTE Confidence: 0.98698187

01:09:17.910 --> 01:09:18.630 And if they were high

NOTE Confidence: 0.98698187

01:09:18.630 --> 01:09:19.830 risk, they stented them, and

NOTE Confidence: 0.98698187

01:09:19.830 --> 01:09:20.950 there was a benefit in

NOTE Confidence: 0.98698187

01:09:20.950 --> 01:09:21.610 that trial.

NOTE Confidence: 0.9682787

01:09:21.990 --> 01:09:23.270 We have no data that

NOTE Confidence: 0.9682787

01:09:23.270 --> 01:09:24.310 that that that that was

NOTE Confidence: 0.9682787

01:09:24.310 --> 01:09:25.270 a small trial. It was

NOTE Confidence: 0.9682787

01:09:25.270 --> 01:09:26.070 more of a proof of

NOTE Confidence: 0.9682787

01:09:26.070 --> 01:09:27.670 concept trial. So I think

NOTE Confidence: 0.9682787

01:09:27.670 --> 01:09:28.790 we have no data that

NOTE Confidence: 0.9682787

01:09:28.790 --> 01:09:30.090 preemptive stenting,

NOTE Confidence: 0.9964771

01:09:31.235 --> 01:09:32.135 is beneficial.

NOTE Confidence: 0.9411518

01:09:32.755 --> 01:09:33.954 I think, you know, I

NOTE Confidence: 0.9411518

01:09:33.954 --> 01:09:35.235 I would favor much strongly

NOTE Confidence: 0.9411518

01:09:35.235 --> 01:09:36.835 favor medical therapy. So I

NOTE Confidence: 0.9411518

01:09:36.835 --> 01:09:38.114 would not use high risk

NOTE Confidence: 0.9411518

01:09:38.114 --> 01:09:39.715 plaque to tell someone they

NOTE Confidence: 0.9411518

01:09:39.715 --> 01:09:40.695 need an intervention.

NOTE Confidence: 0.9775902

01:09:41.795 --> 01:09:42.915 People, you know, there again,

NOTE Confidence: 0.9775902

01:09:42.915 --> 01:09:43.715 there are people out there

NOTE Confidence: 0.9775902

01:09:43.715 --> 01:09:44.675 who think that as our

NOTE Confidence: 0.9775902

01:09:44.675 --> 01:09:46.375 stents become more like balloons

NOTE Confidence: 0.9997071

01:09:47.040 --> 01:09:47.700 and become

NOTE Confidence: 0.934736

01:09:48.080 --> 01:09:48.979 safer potentially,

NOTE Confidence: 0.99870116

01:09:49.680 --> 01:09:50.500 maybe there

NOTE Confidence: 0.9450945

01:09:50.960 --> 01:09:52.560 are proxylid lesions that are

NOTE Confidence: 0.9450945

01:09:52.560 --> 01:09:53.520 just so high risk we

NOTE Confidence: 0.9450945

01:09:53.520 --> 01:09:54.720 can't not treat them, but

NOTE Confidence: 0.9450945

01:09:54.720 --> 01:09:56.160 that's that's that got has

NOTE Confidence: 0.9450945

01:09:56.160 --> 01:09:57.040 got to be proven with

NOTE Confidence: 0.9450945

01:09:57.040 --> 01:09:58.240 clinical trial data. So that

NOTE Confidence: 0.9450945

01:09:58.240 --> 01:09:59.360 is not today. I would

NOTE Confidence: 0.9450945

01:09:59.360 --> 01:10:00.400 say use it to refine

NOTE Confidence: 0.9450945

01:10:00.400 --> 01:10:02.385 or intensify therapy med medically.

NOTE Confidence: 0.71893525

01:10:02.784 --> 01:10:03.824 But you know the high

NOTE Confidence: 0.71893525

01:10:03.824 --> 01:10:04.804 risk plaque. High risk

NOTE Confidence: 0.94010013

01:10:05.104 --> 01:10:06.304 plaque, but you have a

NOTE Confidence: 0.94010013

01:10:06.304 --> 01:10:06.804 plaque.

NOTE Confidence: 0.92995423

01:10:07.184 --> 01:10:08.545 You will less intensely treat

NOTE Confidence: 0.92995423

01:10:08.545 --> 01:10:09.664 that patient? No. I would

NOTE Confidence: 0.92995423

01:10:09.664 --> 01:10:11.104 I would I would more

NOTE Confidence: 0.92995423

01:10:11.184 --> 01:10:11.985 I I tend to, you

NOTE Confidence: 0.92995423

01:10:11.985 --> 01:10:14.144 know, again, conventionally address risk

NOTE Confidence: 0.92995423

01:10:14.144 --> 01:10:15.744 with intensity of treatment. So

NOTE Confidence: 0.92995423

01:10:15.744 --> 01:10:16.545 if I have someone who

NOTE Confidence: 0.92995423

01:10:16.545 --> 01:10:17.764 has high risk atherosclerosis,

NOTE Confidence: 0.9786762

01:10:18.970 --> 01:10:20.410 a lot of atherosclerosis or

NOTE Confidence: 0.9786762

01:10:20.410 --> 01:10:21.370 both, I would treat them

NOTE Confidence: 0.9786762

01:10:21.370 --> 01:10:22.410 more intensely, but I would

NOTE Confidence: 0.9786762

01:10:22.410 --> 01:10:24.250 not use that in decision

NOTE Confidence: 0.9786762

01:10:24.250 --> 01:10:25.310 making for revascularization

NOTE Confidence: 0.96200734

01:10:25.770 --> 01:10:27.610 for particularly for chronic coronary

NOTE Confidence: 0.96200734

01:10:27.610 --> 01:10:29.050 disease where there's really not

NOTE Confidence: 0.96200734

01:10:29.050 --> 01:10:30.330 a lot of survival benefit.

NOTE Confidence: 0.96200734

01:10:30.330 --> 01:10:31.130 Right? You would only do

NOTE Confidence: 0.96200734

01:10:31.130 --> 01:10:32.830 that for symptom benefit mostly.

NOTE Confidence: 0.91705596

01:10:33.265 --> 01:10:34.225 Now maybe that'll change in

NOTE Confidence: 0.91705596

01:10:34.225 --> 01:10:34.865 the future,

NOTE Confidence: 0.93454754

01:10:35.665 --> 01:10:36.705 you know the Scott Arp

NOTE Confidence: 0.93454754

01:10:36.705 --> 01:10:37.505 two people tell me they're

NOTE Confidence: 0.93454754

01:10:37.505 --> 01:10:39.185 finding lots of scary looking

NOTE Confidence: 0.93454754

01:10:39.185 --> 01:10:40.385 disease and these people that

NOTE Confidence: 0.93454754

01:10:40.385 --> 01:10:41.745 are biking and hiking and

NOTE Confidence: 0.93454754

01:10:41.745 --> 01:10:42.485 feel great.

NOTE Confidence: 0.9897994

01:10:42.945 --> 01:10:44.065 We'll see what happens to

NOTE Confidence: 0.9897994

01:10:44.065 --> 01:10:45.105 them and what they do

NOTE Confidence: 0.9897994

01:10:45.105 --> 01:10:46.165 with that information.

NOTE Confidence: 0.96769065

01:10:47.720 --> 01:10:48.840 You know, there's also a

NOTE Confidence: 0.96769065

01:10:48.840 --> 01:10:49.640 fear that, you know, we

NOTE Confidence: 0.96769065

01:10:49.640 --> 01:10:50.520 do a lot of calcium

NOTE Confidence: 0.96769065

01:10:50.520 --> 01:10:52.200 scoring, but CT, if you

NOTE Confidence: 0.96769065

01:10:52.200 --> 01:10:53.320 do that in a screening

NOTE Confidence: 0.96769065

01:10:53.320 --> 01:10:54.280 population, you're gonna do a

NOTE Confidence: 0.96769065

01:10:54.280 --> 01:10:55.479 lot more casts and things

NOTE Confidence: 0.96769065

01:10:55.479 --> 01:10:57.000 like that. And some people

NOTE Confidence: 0.96769065

01:10:57.000 --> 01:10:58.280 said the opposite would happen

NOTE Confidence: 0.96769065

01:10:58.280 --> 01:10:59.320 because we see these high

NOTE Confidence: 0.96769065

01:10:59.320 --> 01:11:00.439 calcium scores, most of them

NOTE Confidence: 0.96769065

01:11:00.439 --> 01:11:01.975 will not have stenosis That's

NOTE Confidence: 0.96769065

01:11:01.975 --> 01:11:03.255 severe. Maybe it would reassure

NOTE Confidence: 0.96769065

01:11:03.255 --> 01:11:04.135 people. I don't know the

NOTE Confidence: 0.96769065

01:11:04.135 --> 01:11:05.035 answer to that.

NOTE Confidence: 0.99633044

01:11:06.215 --> 01:11:07.495 So before we close the

NOTE Confidence: 0.99633044

01:11:07.495 --> 01:11:09.115 program, I wanted to invite,

NOTE Confidence: 0.9645014

01:11:09.575 --> 01:11:11.095 Barry's widow, Renee, to come

NOTE Confidence: 0.9645014

01:11:11.095 --> 01:11:11.815 up and say a few

NOTE Confidence: 0.9645014

01:11:11.815 --> 01:11:12.315 words.

NOTE Confidence: 0.8022101

01:11:24.290 --> 01:11:25.110 Thank you.

NOTE Confidence: 0.95326066

01:11:28.865 --> 01:11:30.465 That was brilliant. Oh, thank

NOTE Confidence: 0.95326066

01:11:30.465 --> 01:11:31.285 you so much.

NOTE Confidence: 0.95533025

01:11:37.985 --> 01:11:40.085 So it's very difficult following

NOTE Confidence: 0.95533025

01:11:40.145 --> 01:11:42.245 the brilliance of doctor Valine.

NOTE Confidence: 0.9824049

01:11:43.530 --> 01:11:44.909 And so my comments

NOTE Confidence: 0.99980754

01:11:45.369 --> 01:11:47.050 will be on a very

NOTE Confidence: 0.99980754

01:11:47.050 --> 01:11:48.110 different scale.

NOTE Confidence: 0.9986592

01:11:50.650 --> 01:11:51.610 I want you to know

NOTE Confidence: 0.9986592

01:11:51.610 --> 01:11:53.449 that I feel honored to

NOTE Confidence: 0.9986592

01:11:53.449 --> 01:11:55.550 be standing here before you,

NOTE Confidence: 0.9735365

01:11:56.170 --> 01:11:57.309 Barry's colleagues

NOTE Confidence: 0.8671365

01:11:57.610 --> 01:11:58.349 and friends.

NOTE Confidence: 0.9972496

01:11:59.555 --> 01:12:01.175 And it is with gratitude

NOTE Confidence: 0.9972496

01:12:01.475 --> 01:12:02.615 from our family,

NOTE Confidence: 0.88541865

01:12:04.035 --> 01:12:06.455 to doctor Eric Velasquez

NOTE Confidence: 0.8074009

01:12:07.314 --> 01:12:08.535 and to Al,

NOTE Confidence: 0.35789856

01:12:09.235 --> 01:12:09.735 Stanusis

NOTE Confidence: 0.94909894

01:12:10.354 --> 01:12:11.895 and to the other members

NOTE Confidence: 0.94909894

01:12:12.115 --> 01:12:14.375 of the Department of Medicine

NOTE Confidence: 0.9998736

01:12:15.050 --> 01:12:15.950 for the creation

NOTE Confidence: 0.99950504

01:12:16.570 --> 01:12:17.310 and naming

NOTE Confidence: 0.866188

01:12:17.850 --> 01:12:19.150 of the symposium,

NOTE Confidence: 0.80376995

01:12:19.770 --> 01:12:20.910 the Barry

NOTE Confidence: 0.65090364

01:12:21.210 --> 01:12:21.710 Zarratt

NOTE Confidence: 0.9668069

01:12:22.250 --> 01:12:22.750 Symposium

NOTE Confidence: 0.87471837

01:12:23.130 --> 01:12:24.350 and Grand Rapids.

NOTE Confidence: 0.99983174

01:12:26.330 --> 01:12:28.990 Barry would have been deeply

NOTE Confidence: 0.99983174

01:12:29.210 --> 01:12:29.710 humbled

NOTE Confidence: 0.999955

01:12:30.425 --> 01:12:31.325 by the tribute

NOTE Confidence: 0.9998523

01:12:31.705 --> 01:12:33.565 from his colleagues and friends

NOTE Confidence: 0.88887393

01:12:34.185 --> 01:12:35.885 whom he deeply respected,

NOTE Confidence: 0.99784875

01:12:36.985 --> 01:12:37.485 cherished,

NOTE Confidence: 0.99418664

01:12:38.185 --> 01:12:40.125 whose presence he admired,

NOTE Confidence: 0.99976426

01:12:41.305 --> 01:12:43.885 and from whom he received

NOTE Confidence: 0.99976426

01:12:44.185 --> 01:12:44.685 inspiration.

NOTE Confidence: 0.9998319

01:12:46.979 --> 01:12:48.119 As you may know,

NOTE Confidence: 0.9754396

01:12:48.900 --> 01:12:50.739 Barry was a man of

NOTE Confidence: 0.9754396

01:12:50.739 --> 01:12:51.800 many talents,

NOTE Confidence: 0.9346376

01:12:53.699 --> 01:12:54.760 and he published,

NOTE Confidence: 0.99602175

01:12:55.300 --> 01:12:56.119 in addition

NOTE Confidence: 0.9990927

01:12:56.659 --> 01:12:58.420 to the more than three

NOTE Confidence: 0.9990927

01:12:58.420 --> 01:12:59.559 hundred articles

NOTE Confidence: 0.9145696

01:13:00.179 --> 01:13:00.679 and

NOTE Confidence: 0.9968471

01:13:01.305 --> 01:13:01.805 the

NOTE Confidence: 0.78379583

01:13:02.185 --> 01:13:03.005 four books

NOTE Confidence: 0.8775687

01:13:03.305 --> 01:13:04.205 on cardiology.

NOTE Confidence: 0.99955755

01:13:05.145 --> 01:13:06.364 He also published

NOTE Confidence: 0.9985788

01:13:06.824 --> 01:13:08.525 three books of poetry.

NOTE Confidence: 0.99671465

01:13:09.625 --> 01:13:10.844 And in keeping

NOTE Confidence: 0.9895918

01:13:11.225 --> 01:13:13.324 with the subject of imaging,

NOTE Confidence: 0.99980664

01:13:14.580 --> 01:13:15.800 I want to read

NOTE Confidence: 0.99418104

01:13:16.179 --> 01:13:18.360 a poem that Barry wrote.

NOTE Confidence: 0.99986523

01:13:19.139 --> 01:13:20.040 It is called

NOTE Confidence: 0.9747447

01:13:20.420 --> 01:13:21.719 Nuclear Images.

NOTE Confidence: 0.999861

01:13:22.739 --> 01:13:24.820 It comes from the third

NOTE Confidence: 0.999861

01:13:24.820 --> 01:13:25.320 book

NOTE Confidence: 0.9794071

01:13:25.780 --> 01:13:28.040 called A House of Many

NOTE Confidence: 0.9794071

01:13:28.260 --> 01:13:28.760 Rooms,

NOTE Confidence: 0.9968082

01:13:29.835 --> 01:13:32.315 and it, was published in

NOTE Confidence: 0.9968082

01:13:32.315 --> 01:13:34.095 two thousand twenty one.

NOTE Confidence: 0.92508185

01:13:36.955 --> 01:13:37.695 Nuclear images.

NOTE Confidence: 0.93141985

01:13:39.755 --> 01:13:40.575 My life,

NOTE Confidence: 0.9982281

01:13:41.435 --> 01:13:42.175 a montage

NOTE Confidence: 0.9997574

01:13:42.715 --> 01:13:43.455 of images

NOTE Confidence: 0.99851155

01:13:45.010 --> 01:13:45.670 in the

NOTE Confidence: 0.9192428

01:13:46.050 --> 01:13:47.830 lab, nuclear images,

NOTE Confidence: 0.997124

01:13:48.930 --> 01:13:51.270 heart scans showing blood supply

NOTE Confidence: 0.96221715

01:13:52.050 --> 01:13:53.750 after isotope injected.

NOTE Confidence: 0.9410065

01:13:55.650 --> 01:13:57.189 First done when young,

NOTE Confidence: 0.9924363

01:13:58.305 --> 01:13:59.205 career beginning,

NOTE Confidence: 0.9779748

01:14:00.225 --> 01:14:01.445 initial success.

NOTE Confidence: 0.99765813

01:14:03.665 --> 01:14:04.165 Now

NOTE Confidence: 0.7752574

01:14:04.864 --> 01:14:05.925 daily practice.

NOTE Confidence: 0.9580542

01:14:06.945 --> 01:14:09.844 Many patients studied, all awaiting

NOTE Confidence: 0.7975569

01:14:10.145 --> 01:14:10.645 answers,

NOTE Confidence: 0.97900987

01:14:12.225 --> 01:14:13.125 some anxious,

NOTE Confidence: 0.98741984

01:14:15.020 --> 01:14:16.000 some resigned,

NOTE Confidence: 0.96745557

01:14:17.660 --> 01:14:19.760 some seeming not to care.

NOTE Confidence: 0.93398046

01:14:21.340 --> 01:14:22.479 Images read,

NOTE Confidence: 0.99576175

01:14:23.020 --> 01:14:24.160 reports written,

NOTE Confidence: 0.9259212

01:14:24.620 --> 01:14:25.520 work done.

NOTE Confidence: 0.97080165

01:14:27.435 --> 01:14:28.415 All the while,

NOTE Confidence: 0.98582685

01:14:29.354 --> 01:14:32.014 knowing little of those imaged,

NOTE Confidence: 0.9715655

01:14:33.034 --> 01:14:33.854 their families,

NOTE Confidence: 0.9947247

01:14:35.594 --> 01:14:36.094 loves,

NOTE Confidence: 0.99824595

01:14:37.594 --> 01:14:38.094 woes,

NOTE Confidence: 0.94896054

01:14:39.479 --> 01:14:39.979 occupations,

NOTE Confidence: 0.92972875

01:14:41.479 --> 01:14:42.939 their life's poetry.

NOTE Confidence: 0.96448326

01:14:44.760 --> 01:14:45.900 Will the tests

NOTE Confidence: 0.99978906

01:14:46.200 --> 01:14:46.700 trigger

NOTE Confidence: 0.9758958

01:14:47.080 --> 01:14:47.740 new treatment,

NOTE Confidence: 0.99944687

01:14:49.160 --> 01:14:49.660 concern,

NOTE Confidence: 0.9993474

01:14:51.320 --> 01:14:51.820 alarm,

NOTE Confidence: 0.97375995

01:14:53.655 --> 01:14:54.155 fear,

NOTE Confidence: 0.9996649

01:14:55.094 --> 01:14:55.594 or

NOTE Confidence: 0.9090537

01:14:57.415 --> 01:14:57.915 relief.

NOTE Confidence: 0.9711151

01:15:00.375 --> 01:15:01.354 Days follow days.

NOTE Confidence: 0.9998137

01:15:02.054 --> 01:15:02.554 Pixels

NOTE Confidence: 0.99724257

01:15:02.934 --> 01:15:03.915 follow pixels.

NOTE Confidence: 0.99964213

01:15:05.094 --> 01:15:05.594 Images

NOTE Confidence: 0.98803747

01:15:06.630 --> 01:15:07.370 follow images.

NOTE Confidence: 0.99783677

01:15:08.229 --> 01:15:08.729 Schedules

NOTE Confidence: 0.99672097

01:15:09.030 --> 01:15:10.650 filled and refilled.

NOTE Confidence: 0.885471

01:15:12.550 --> 01:15:14.890 Patients return to change lives.

NOTE Confidence: 0.99889463

01:15:16.390 --> 01:15:16.890 Unaltered

NOTE Confidence: 0.99925

01:15:17.350 --> 01:15:17.850 readers

NOTE Confidence: 0.958035

01:15:19.030 --> 01:15:20.250 remain in offices,

NOTE Confidence: 0.99929696

01:15:21.315 --> 01:15:22.615 viewing more images

NOTE Confidence: 0.9880823

01:15:22.995 --> 01:15:24.775 in two dimensions, unaware

NOTE Confidence: 0.99919796

01:15:27.075 --> 01:15:28.055 of the humanity

NOTE Confidence: 0.99227923

01:15:28.675 --> 01:15:30.135 behind each study,

NOTE Confidence: 0.99567276

01:15:30.995 --> 01:15:33.235 quenching thirst from half filled

NOTE Confidence: 0.99567276

01:15:33.235 --> 01:15:33.735 glasses.

NOTE Confidence: 0.98393387

01:15:35.820 --> 01:15:36.880 Nuclear images,

NOTE Confidence: 0.99502635

01:15:37.900 --> 01:15:38.719 my profession.

NOTE Confidence: 0.9997675

01:15:40.219 --> 01:15:40.719 Nuclear

NOTE Confidence: 0.8429177

01:15:41.020 --> 01:15:41.520 patience,

NOTE Confidence: 0.99903643

01:15:42.460 --> 01:15:43.600 my soul.

NOTE Confidence: 0.99820375

01:15:44.860 --> 01:15:45.679 Thank you.

NOTE Confidence: 0.95199996

01:15:51.125 --> 01:15:52.104 Alright. Thank you.

NOTE Confidence: 0.9395997

01:15:52.885 --> 01:15:55.284 And thank you, doctor Valence,

NOTE Confidence: 0.9395997

01:15:55.284 --> 01:15:56.905 for a wonderful presentation.

NOTE Confidence: 0.9970508

01:15:59.590 --> 01:16:01.429 Alright. So lunch is served,

NOTE Confidence: 0.9970508

01:16:01.429 --> 01:16:02.790 and please take time to

NOTE Confidence: 0.9970508

01:16:02.790 --> 01:16:03.770 see the posters.