

WEBVTT

NOTE duration:"04:14:38"

NOTE recognizability:0.841

NOTE language:en-us

NOTE Confidence: 0.8706825

00:00:03.340 --> 00:00:05.640 I guess it's being recorded.

NOTE Confidence: 0.8706825

00:00:05.640 --> 00:00:07.332 I I actually feel kind of

NOTE Confidence: 0.8706825

00:00:07.332 --> 00:00:08.178 bad interrupting everybody.

NOTE Confidence: 0.8706825

00:00:08.180 --> 00:00:09.710 It's great to see everybody like

NOTE Confidence: 0.8706825

00:00:09.710 --> 00:00:11.500 sort of getting to see each other

NOTE Confidence: 0.8706825

00:00:11.500 --> 00:00:13.224 again and talking, and it's great.

NOTE Confidence: 0.8706825

00:00:13.224 --> 00:00:15.846 So I want to say thank you very

NOTE Confidence: 0.8706825

00:00:15.846 --> 00:00:17.910 much to Jen DeSantis and the

NOTE Confidence: 0.8706825

00:00:17.910 --> 00:00:19.636 Chair's office and Lauren Perry

NOTE Confidence: 0.8706825

00:00:19.636 --> 00:00:21.574 for helping us put this on.

NOTE Confidence: 0.8706825

00:00:21.580 --> 00:00:23.330 Really, it could not have

NOTE Confidence: 0.8706825

00:00:23.330 --> 00:00:24.730 come together without them.

NOTE Confidence: 0.862725608888889

00:00:29.960 --> 00:00:31.936 I also want to be sure to recognize

NOTE Confidence: 0.862725608888889

00:00:31.936 --> 00:00:33.503 that it's Rob Wilder's birthday
NOTE Confidence: 0.862725608888889

00:00:33.503 --> 00:00:35.188 and Despite that he's here.
NOTE Confidence: 0.859501974074074

00:00:39.480 --> 00:00:41.174 It's it's, I think, just the vibe
NOTE Confidence: 0.859501974074074

00:00:41.174 --> 00:00:43.258 in the room is speaks a lot about
NOTE Confidence: 0.859501974074074

00:00:43.258 --> 00:00:45.315 the history of the section and the
NOTE Confidence: 0.859501974074074

00:00:45.315 --> 00:00:47.085 history of congenital cardiology here,
NOTE Confidence: 0.859501974074074

00:00:47.090 --> 00:00:48.542 because I think what what you
NOTE Confidence: 0.859501974074074

00:00:48.542 --> 00:00:50.328 come away with is that this place
NOTE Confidence: 0.859501974074074

00:00:50.328 --> 00:00:52.099 has always been kind of a family,
NOTE Confidence: 0.859501974074074

00:00:52.100 --> 00:00:53.948 and I think it's stayed that way
NOTE Confidence: 0.859501974074074

00:00:53.948 --> 00:00:56.048 and I think we'll we'll feel that
NOTE Confidence: 0.859501974074074

00:00:56.048 --> 00:00:57.920 as we go through this history,
NOTE Confidence: 0.859501974074074

00:00:57.920 --> 00:00:59.672 part of part of the plan for today
NOTE Confidence: 0.859501974074074

00:00:59.672 --> 00:01:01.280 was to talk about the history
NOTE Confidence: 0.859501974074074

00:01:01.280 --> 00:01:03.345 of the section in the history of
NOTE Confidence: 0.859501974074074

00:01:03.345 --> 00:01:05.040 congenital cardiology here at Yale,

NOTE Confidence: 0.859501974074074
00:01:05.040 --> 00:01:07.357 which is a really incredibly rich history.
NOTE Confidence: 0.859501974074074
00:01:07.360 --> 00:01:09.583 And then look at where is the field going?
NOTE Confidence: 0.859501974074074
00:01:09.590 --> 00:01:13.822 And and what can we expect over the
NOTE Confidence: 0.859501974074074
00:01:13.822 --> 00:01:17.406 over the next decade along the way?
NOTE Confidence: 0.859501974074074
00:01:17.406 --> 00:01:19.214 Ohh, along the way,
NOTE Confidence: 0.859501974074074
00:01:19.220 --> 00:01:21.476 we're going to hear from Mike
NOTE Confidence: 0.859501974074074
00:01:21.476 --> 00:01:23.414 Alfieri who's a wonderful gentleman
NOTE Confidence: 0.859501974074074
00:01:23.414 --> 00:01:25.906 and a patient of our program who
NOTE Confidence: 0.859501974074074
00:01:25.906 --> 00:01:28.664 spent his life in and out of the
NOTE Confidence: 0.859501974074074
00:01:28.664 --> 00:01:30.508 program at various points in time.
NOTE Confidence: 0.859501974074074
00:01:30.508 --> 00:01:32.620 And it's going to provide us with a
NOTE Confidence: 0.859501974074074
00:01:32.680 --> 00:01:34.906 perspective of a patient who's who's been
NOTE Confidence: 0.859501974074074
00:01:34.906 --> 00:01:37.780 part of our family for for many many years.
NOTE Confidence: 0.859501974074074
00:01:37.780 --> 00:01:39.436 So I think I'm going to jump right in.
NOTE Confidence: 0.859501974074074
00:01:39.440 --> 00:01:40.487 Unfortunately, Cliff Bogue,
NOTE Confidence: 0.859501974074074

00:01:40.487 --> 00:01:43.839 who's our chair is not able to be here today.
NOTE Confidence: 0.859501974074074

00:01:43.840 --> 00:01:47.523 He's at his son's graduation at Oxford, so.
NOTE Confidence: 0.859501974074074

00:01:47.523 --> 00:01:53.844 He he recorded a message for us.
NOTE Confidence: 0.859501974074074

00:01:53.850 --> 00:01:55.178 I think I'm doing the wrong thing up.
NOTE Confidence: 0.859501974074074

00:01:55.180 --> 00:01:56.710 There we go.
NOTE Confidence: 0.859501974074074

00:01:56.710 --> 00:01:57.078 So.
NOTE Confidence: 0.859501974074074

00:01:57.078 --> 00:01:59.286 I have not yet seen this.
NOTE Confidence: 0.859501974074074

00:01:59.290 --> 00:02:01.800 I have no idea what he's going to say so.
NOTE Confidence: 0.86971813

00:03:22.760 --> 00:03:23.210 Right?
NOTE Confidence: 0.852588398125

00:03:26.210 --> 00:03:28.630 So with that I'm going to just make a couple
NOTE Confidence: 0.852588398125

00:03:28.690 --> 00:03:31.060 of announcements so there's coffee outside.
NOTE Confidence: 0.852588398125

00:03:31.060 --> 00:03:32.815 That'll stay there for anybody
NOTE Confidence: 0.852588398125

00:03:32.815 --> 00:03:34.822 who needs it, including myself.
NOTE Confidence: 0.852588398125

00:03:34.822 --> 00:03:37.678 There's a there are restrooms on
NOTE Confidence: 0.852588398125

00:03:37.678 --> 00:03:40.349 the sort of 2nd floor, so you can
NOTE Confidence: 0.852588398125

00:03:40.349 --> 00:03:41.930 either go out the back door that way,

NOTE Confidence: 0.852588398125

00:03:41.930 --> 00:03:43.746 or out that way and up the stairs.

NOTE Confidence: 0.852588398125

00:03:43.750 --> 00:03:46.686 And there are restrooms back up that way.

NOTE Confidence: 0.852588398125

00:03:46.690 --> 00:03:48.646 I think those are the only

NOTE Confidence: 0.852588398125

00:03:48.646 --> 00:03:50.350 announcements I need to make.

NOTE Confidence: 0.852588398125

00:03:50.350 --> 00:03:52.609 All right, so we're going to start with a

NOTE Confidence: 0.852588398125

00:03:52.609 --> 00:03:54.846 brief history of of congenital cardiology.

NOTE Confidence: 0.852588398125

00:03:54.850 --> 00:03:57.912 Yale and I have to say that it's not

NOTE Confidence: 0.852588398125

00:03:57.912 --> 00:03:59.949 easy to put this together because there

NOTE Confidence: 0.852588398125

00:03:59.949 --> 00:04:02.214 are lots of different sort of sources

NOTE Confidence: 0.852588398125

00:04:02.214 --> 00:04:04.110 and memories and things out there.

NOTE Confidence: 0.852588398125

00:04:04.110 --> 00:04:06.196 And I learned this morning from from

NOTE Confidence: 0.852588398125

00:04:06.196 --> 00:04:08.420 Doctor Kim that there are some people

NOTE Confidence: 0.852588398125

00:04:08.420 --> 00:04:10.720 who I never stumbled across their names.

NOTE Confidence: 0.852588398125

00:04:10.720 --> 00:04:12.645 So it's it's really a fascinating history.

NOTE Confidence: 0.852588398125

00:04:12.650 --> 00:04:15.125 Who has moved in and out of out of

NOTE Confidence: 0.852588398125

00:04:15.125 --> 00:04:17.515 the halls here and and what became
NOTE Confidence: 0.852588398125

00:04:17.515 --> 00:04:20.107 of them and what became of us so.
NOTE Confidence: 0.852588398125

00:04:20.110 --> 00:04:22.046 I'm going to walk through some of that.
NOTE Confidence: 0.852588398125

00:04:22.050 --> 00:04:24.234 I think the theme here that that I
NOTE Confidence: 0.852588398125

00:04:24.234 --> 00:04:26.674 came away with was that we really stand
NOTE Confidence: 0.852588398125

00:04:26.674 --> 00:04:28.924 on the shoulders of giants and that's
NOTE Confidence: 0.852588398125

00:04:28.924 --> 00:04:30.810 really a very cliché thing to say,
NOTE Confidence: 0.852588398125

00:04:30.810 --> 00:04:32.390 but I think as you'll see it,
NOTE Confidence: 0.852588398125

00:04:32.390 --> 00:04:34.670 it really is true.
NOTE Confidence: 0.852588398125

00:04:34.670 --> 00:04:36.128 I don't have any relevant disclosures
NOTE Confidence: 0.852588398125

00:04:36.128 --> 00:04:37.360 about the history of Yale.
NOTE Confidence: 0.87482529375

00:04:41.700 --> 00:04:44.772 So I think people know that
NOTE Confidence: 0.87482529375

00:04:44.772 --> 00:04:46.720 Ruth Whittamore really founded
NOTE Confidence: 0.87482529375

00:04:46.720 --> 00:04:49.020 pediatric cardiology here at Yale.
NOTE Confidence: 0.87482529375

00:04:49.020 --> 00:04:52.522 Ruth was a resident here from 1942 to 1944.
NOTE Confidence: 0.87482529375

00:04:52.522 --> 00:04:54.886 She then went down to Hopkins

NOTE Confidence: 0.87482529375

00:04:54.886 --> 00:04:57.140 where she was Doctor Tausik,

NOTE Confidence: 0.87482529375

00:04:57.140 --> 00:04:59.730 senior Fellow in pediatric cardiology,

NOTE Confidence: 0.87482529375

00:04:59.730 --> 00:05:02.196 and she spent three years there.

NOTE Confidence: 0.87482529375

00:05:02.200 --> 00:05:03.900 She was news to me,

NOTE Confidence: 0.87482529375

00:05:03.900 --> 00:05:06.553 but she took care of the first

NOTE Confidence: 0.87482529375

00:05:06.553 --> 00:05:08.899 child who had the Blaylock.

NOTE Confidence: 0.87482529375

00:05:08.900 --> 00:05:11.035 Like Thomas Shunt and was the sort

NOTE Confidence: 0.87482529375

00:05:11.035 --> 00:05:13.190 of there the postop night and so

NOTE Confidence: 0.87482529375

00:05:13.190 --> 00:05:15.675 this was a quote from her I thought

NOTE Confidence: 0.87482529375

00:05:15.675 --> 00:05:17.330 was really interesting so she

NOTE Confidence: 0.87482529375

00:05:17.330 --> 00:05:19.386 says it was a girl Eileen Saxon.

NOTE Confidence: 0.87482529375

00:05:19.386 --> 00:05:20.970 She came out of surgery with

NOTE Confidence: 0.87482529375

00:05:21.031 --> 00:05:23.029 numerous postoperative complications.

NOTE Confidence: 0.87482529375

00:05:23.030 --> 00:05:24.703 I had to stick needles into both

NOTE Confidence: 0.87482529375

00:05:24.703 --> 00:05:26.510 sides for chest to draw off air

NOTE Confidence: 0.87482529375

00:05:26.510 --> 00:05:27.810 that was compressing her lungs.
NOTE Confidence: 0.87482529375

00:05:27.810 --> 00:05:29.259 We didn't have a way to monitor
NOTE Confidence: 0.87482529375

00:05:29.259 --> 00:05:30.369 the pressure on her lungs,
NOTE Confidence: 0.87482529375

00:05:30.370 --> 00:05:32.260 so I rigged up a way to monitor it
NOTE Confidence: 0.87482529375

00:05:32.260 --> 00:05:34.070 without having to stick her repeatedly.
NOTE Confidence: 0.87482529375

00:05:34.070 --> 00:05:35.024 I was definitely.
NOTE Confidence: 0.87482529375

00:05:35.024 --> 00:05:37.250 It was definitely a Rube Goldberg affair,
NOTE Confidence: 0.87482529375

00:05:37.250 --> 00:05:39.188 but the baby came through it.
NOTE Confidence: 0.87482529375

00:05:39.190 --> 00:05:40.054 As for me,
NOTE Confidence: 0.87482529375

00:05:40.054 --> 00:05:41.782 I fell into pediatric cardiology and
NOTE Confidence: 0.87482529375

00:05:41.782 --> 00:05:44.254 I couldn't get out and I think you
NOTE Confidence: 0.87482529375

00:05:44.254 --> 00:05:46.392 know it really speaks to what life
NOTE Confidence: 0.87482529375

00:05:46.392 --> 00:05:48.760 was like and I think like what life
NOTE Confidence: 0.87482529375

00:05:48.760 --> 00:05:51.026 felt to a lot of us like as first,
NOTE Confidence: 0.87482529375

00:05:51.030 --> 00:05:53.670 second and third year fellows sometimes.
NOTE Confidence: 0.87482529375

00:05:53.670 --> 00:05:55.476 But the last piece of this that

NOTE Confidence: 0.87482529375

00:05:55.476 --> 00:05:57.119 she fell into pediatric cardiology

NOTE Confidence: 0.87482529375

00:05:57.119 --> 00:05:58.727 and couldn't get out.

NOTE Confidence: 0.87482529375

00:05:58.730 --> 00:06:00.445 I think it really is probably true

NOTE Confidence: 0.87482529375

00:06:00.445 --> 00:06:02.519 for most of the people in this room,

NOTE Confidence: 0.87482529375

00:06:02.520 --> 00:06:04.491 and I think you sort of get stuck in

NOTE Confidence: 0.87482529375

00:06:04.491 --> 00:06:08.904 it and love it so. There you have it.

NOTE Confidence: 0.87482529375

00:06:08.904 --> 00:06:12.319 So Ruth came back to New Haven in

NOTE Confidence: 0.87482529375

00:06:12.320 --> 00:06:14.856 1947 and really came back to start a

NOTE Confidence: 0.87482529375

00:06:14.856 --> 00:06:16.611 rheumatic heart disease program for

NOTE Confidence: 0.87482529375

00:06:16.611 --> 00:06:18.988 the state and and along the way she

NOTE Confidence: 0.87482529375

00:06:18.988 --> 00:06:20.885 also began taking care of congenital

NOTE Confidence: 0.87482529375

00:06:20.885 --> 00:06:23.057 heart disease patients in the state.

NOTE Confidence: 0.87482529375

00:06:23.060 --> 00:06:25.100 Around 1950 she started having

NOTE Confidence: 0.87482529375

00:06:25.100 --> 00:06:27.592 trainees come to work with her

NOTE Confidence: 0.87482529375

00:06:27.592 --> 00:06:29.866 and it's hard to date exactly

NOTE Confidence: 0.87482529375

00:06:29.866 --> 00:06:32.009 when the fellowship here started,
NOTE Confidence: 0.87482529375

00:06:32.010 --> 00:06:34.658 but it seems to be that that was
NOTE Confidence: 0.87482529375

00:06:34.658 --> 00:06:36.700 the beginning of the fellowship.
NOTE Confidence: 0.87482529375

00:06:36.700 --> 00:06:38.835 She also went on to study the.
NOTE Confidence: 0.87482529375

00:06:38.840 --> 00:06:39.872 Inheritance of congenital heart
NOTE Confidence: 0.87482529375

00:06:39.872 --> 00:06:41.162 disease and Tina Brechner's going
NOTE Confidence: 0.87482529375

00:06:41.162 --> 00:06:42.489 to talk a good bit about this,
NOTE Confidence: 0.87482529375

00:06:42.490 --> 00:06:43.810 so I'm just going to skim over it,
NOTE Confidence: 0.87482529375

00:06:43.810 --> 00:06:44.880 but really,
NOTE Confidence: 0.87482529375

00:06:44.880 --> 00:06:47.888 she was quite a giant in in starting
NOTE Confidence: 0.87482529375

00:06:47.888 --> 00:06:49.592 to think through the inheritance
NOTE Confidence: 0.87482529375

00:06:49.592 --> 00:06:51.951 of of the diseases that we deal
NOTE Confidence: 0.87482529375

00:06:51.951 --> 00:06:53.748 with on a regular basis.
NOTE Confidence: 0.87482529375

00:06:53.750 --> 00:06:55.676 She also was an early adult
NOTE Confidence: 0.87482529375

00:06:55.676 --> 00:06:56.960 congenital heart disease specialist.
NOTE Confidence: 0.87482529375

00:06:56.960 --> 00:06:57.844 And really, you know,

NOTE Confidence: 0.87482529375

00:06:57.844 --> 00:06:59.741 wrote one of the first papers on the

NOTE Confidence: 0.87482529375

00:06:59.741 --> 00:07:01.041 impact of congenital heart disease

NOTE Confidence: 0.87482529375

00:07:01.041 --> 00:07:02.394 on pregnant women, and this is,

NOTE Confidence: 0.87482529375

00:07:02.394 --> 00:07:02.770 you know,

NOTE Confidence: 0.87482529375

00:07:02.770 --> 00:07:04.858 going back quite some time before

NOTE Confidence: 0.87482529375

00:07:04.858 --> 00:07:06.533 adult congenital heart disease was

NOTE Confidence: 0.87482529375

00:07:06.533 --> 00:07:08.365 really thought of as a as a field,

NOTE Confidence: 0.87482529375

00:07:08.370 --> 00:07:10.378 so she was really quite a remarkable woman.

NOTE Confidence: 0.720649966666667

00:07:12.960 --> 00:07:16.920 In 1960 Norm Towner was recruited

NOTE Confidence: 0.720649966666667

00:07:16.920 --> 00:07:19.368 by Dave Cook who is the chair of

NOTE Confidence: 0.720649966666667

00:07:19.368 --> 00:07:21.711 Pediatrics at the time and Norm was

NOTE Confidence: 0.720649966666667

00:07:21.711 --> 00:07:23.973 he had trained at the Cardiovascular

NOTE Confidence: 0.720649966666667

00:07:23.973 --> 00:07:26.001 Research Institute in San Francisco

NOTE Confidence: 0.720649966666667

00:07:26.001 --> 00:07:28.377 which is where Abradolf and Julian

NOTE Confidence: 0.720649966666667

00:07:28.449 --> 00:07:30.399 Hoffman were The Who are huge

NOTE Confidence: 0.720649966666667

00:07:30.399 --> 00:07:33.038 figures in the field in terms of
NOTE Confidence: 0.720649966666667

00:07:33.038 --> 00:07:35.268 the early understandings of cardiac
NOTE Confidence: 0.720649966666667

00:07:35.268 --> 00:07:37.595 Physiology and so norm came and
NOTE Confidence: 0.720649966666667

00:07:37.595 --> 00:07:40.312 really brought a whole new era to
NOTE Confidence: 0.720649966666667

00:07:40.312 --> 00:07:42.586 to the section to the hospital.
NOTE Confidence: 0.720649966666667

00:07:42.590 --> 00:07:44.438 And to the care of of patients
NOTE Confidence: 0.720649966666667

00:07:44.438 --> 00:07:45.230 with heart disease,
NOTE Confidence: 0.720649966666667

00:07:45.230 --> 00:07:47.110 catheterization was a relatively
NOTE Confidence: 0.720649966666667

00:07:47.110 --> 00:07:50.429 new and growing area and really was
NOTE Confidence: 0.720649966666667

00:07:50.429 --> 00:07:52.949 just about angiography at that time.
NOTE Confidence: 0.720649966666667

00:07:52.950 --> 00:07:54.868 And he brought a focus on the
NOTE Confidence: 0.720649966666667

00:07:54.868 --> 00:07:56.329 Physiology of congenital heart disease
NOTE Confidence: 0.720649966666667

00:07:56.329 --> 00:07:57.779 and in particular the Physiology
NOTE Confidence: 0.720649966666667

00:07:57.779 --> 00:07:59.803 of of what we consider congestive
NOTE Confidence: 0.720649966666667

00:07:59.803 --> 00:08:01.271 heart failure for congenital
NOTE Confidence: 0.720649966666667

00:08:01.271 --> 00:08:03.562 heart disease and really sort of.

NOTE Confidence: 0.720649966666667

00:08:03.562 --> 00:08:06.619 Pivoted the section in a lot of ways.

NOTE Confidence: 0.7826689

00:08:09.110 --> 00:08:11.534 Norm recruited this gentleman.

NOTE Confidence: 0.7826689

00:08:11.534 --> 00:08:14.238 Mike Berman. Mike had been doing

NOTE Confidence: 0.7826689

00:08:14.238 --> 00:08:16.470 pediatric cardiology at the NIH and

NOTE Confidence: 0.7826689

00:08:16.541 --> 00:08:19.013 he was really focused on cardiac

NOTE Confidence: 0.7826689

00:08:19.013 --> 00:08:21.428 catheterization and he added a lot

NOTE Confidence: 0.7826689

00:08:21.428 --> 00:08:23.498 to our understanding of the human

NOTE Confidence: 0.7826689

00:08:23.498 --> 00:08:24.944 dynamics of complex surgeries.

NOTE Confidence: 0.7826689

00:08:24.944 --> 00:08:27.583 This was one of the papers that

NOTE Confidence: 0.7826689

00:08:27.583 --> 00:08:29.981 they wrote together about the

NOTE Confidence: 0.7826689

00:08:29.981 --> 00:08:32.416 mustard operation and about the

NOTE Confidence: 0.7826689

00:08:32.416 --> 00:08:34.250 identification of obstruction or

NOTE Confidence: 0.7826689

00:08:34.250 --> 00:08:36.375 blockage between the pulmonary veins

NOTE Confidence: 0.7826689

00:08:36.375 --> 00:08:38.398 and the and the right ventricle.

NOTE Confidence: 0.7826689

00:08:38.398 --> 00:08:40.700 And and what that looked like in the

NOTE Confidence: 0.7826689

00:08:40.700 --> 00:08:42.436 Cath lab and how to understand that
NOTE Confidence: 0.7826689

00:08:42.436 --> 00:08:44.447 you have to remember this is at a
NOTE Confidence: 0.7826689

00:08:44.447 --> 00:08:46.084 time when there was no echo, right?
NOTE Confidence: 0.7826689

00:08:46.084 --> 00:08:47.711 So so you couldn't put the probe
NOTE Confidence: 0.7826689

00:08:47.711 --> 00:08:49.258 down and sort of look and say,
NOTE Confidence: 0.7826689

00:08:49.260 --> 00:08:51.465 oh that's where this was all moving
NOTE Confidence: 0.7826689

00:08:51.465 --> 00:08:53.163 catheters around and trying to
NOTE Confidence: 0.7826689

00:08:53.163 --> 00:08:55.227 understand where you were by injecting
NOTE Confidence: 0.7826689

00:08:55.227 --> 00:08:57.100 contrast and measuring pressures.
NOTE Confidence: 0.7826689

00:08:57.100 --> 00:08:59.972 And Mike went on to invent 2 specific
NOTE Confidence: 0.7826689

00:08:59.972 --> 00:09:01.400 pediatric specific catheters.
NOTE Confidence: 0.7826689

00:09:01.400 --> 00:09:03.542 The Berman catheter and the wedge
NOTE Confidence: 0.7826689

00:09:03.542 --> 00:09:05.408 catheter will talk a little
NOTE Confidence: 0.7826689

00:09:05.408 --> 00:09:06.888 bit about that later.
NOTE Confidence: 0.7826689

00:09:06.890 --> 00:09:09.898 So the Physiology and and the Cath lab
NOTE Confidence: 0.7826689

00:09:09.898 --> 00:09:12.829 really became a huge focus for the program.

NOTE Confidence: 0.7826689

00:09:12.830 --> 00:09:14.670 And really landmark studies came

NOTE Confidence: 0.7826689

00:09:14.670 --> 00:09:17.249 out of out of the lab here.

NOTE Confidence: 0.7826689

00:09:17.250 --> 00:09:19.434 This was a study that showed the

NOTE Confidence: 0.7826689

00:09:19.434 --> 00:09:21.318 impact of raising blood pressure

NOTE Confidence: 0.7826689

00:09:21.318 --> 00:09:23.070 on patients with tetralogy.

NOTE Confidence: 0.7826689

00:09:23.070 --> 00:09:25.806 So they brought patients to the Cath lab,

NOTE Confidence: 0.7826689

00:09:25.810 --> 00:09:27.470 increased their systemic blood

NOTE Confidence: 0.7826689

00:09:27.470 --> 00:09:29.130 pressure using phenylephrine and

NOTE Confidence: 0.7826689

00:09:29.130 --> 00:09:31.091 measured what happened to their

NOTE Confidence: 0.7826689

00:09:31.091 --> 00:09:32.876 oxygen content and oxygen delivery.

NOTE Confidence: 0.7826689

00:09:32.880 --> 00:09:34.480 And remember there were no

NOTE Confidence: 0.7826689

00:09:34.480 --> 00:09:36.590 pulse ox probes that you had to.

NOTE Confidence: 0.7826689

00:09:36.590 --> 00:09:38.111 Get a blood gas and we had to run

NOTE Confidence: 0.7826689

00:09:38.111 --> 00:09:39.678 a blood gas and this and that.

NOTE Confidence: 0.7826689

00:09:39.680 --> 00:09:41.773 And I was amazed at the saturations

NOTE Confidence: 0.7826689

00:09:41.773 --> 00:09:43.769 of some of the patients that
NOTE Confidence: 0.7826689

00:09:43.769 --> 00:09:45.479 they brought to the lab.
NOTE Confidence: 0.7826689

00:09:45.480 --> 00:09:47.256 I have not taken the patient
NOTE Confidence: 0.7826689

00:09:47.256 --> 00:09:49.518 to the lab with the stat of 55,
NOTE Confidence: 0.7826689

00:09:49.520 --> 00:09:51.008 but quite remarkable and the other
NOTE Confidence: 0.7826689

00:09:51.008 --> 00:09:52.919 thing I thought was really interesting.
NOTE Confidence: 0.7826689

00:09:52.920 --> 00:09:55.480 When you go back through some of these
NOTE Confidence: 0.7826689

00:09:55.480 --> 00:09:57.020 historical papers is apparently Hippo
NOTE Confidence: 0.7826689

00:09:57.020 --> 00:09:59.367 was not a thing and you could just
NOTE Confidence: 0.7826689

00:09:59.367 --> 00:10:01.663 use your patient's initials in the paper,
NOTE Confidence: 0.7826689

00:10:01.670 --> 00:10:04.700 which I thought was really interesting.
NOTE Confidence: 0.7826689

00:10:04.700 --> 00:10:07.492 And they also went on to describe what
NOTE Confidence: 0.7826689

00:10:07.492 --> 00:10:09.832 happens to the ductus arteriosus and
NOTE Confidence: 0.7826689

00:10:09.832 --> 00:10:12.683 what the impact of the ductus arteriosus
NOTE Confidence: 0.7826689

00:10:12.683 --> 00:10:15.245 is in coarctation of the aorta.
NOTE Confidence: 0.7826689

00:10:15.250 --> 00:10:17.266 So this was not known at the time it

NOTE Confidence: 0.7826689

00:10:17.266 --> 00:10:19.278 was known pathologically, but really,

NOTE Confidence: 0.7826689

00:10:19.278 --> 00:10:20.648 it was not understood that,

NOTE Confidence: 0.7826689

00:10:20.650 --> 00:10:22.182 as as the ductus,

NOTE Confidence: 0.7826689

00:10:22.182 --> 00:10:24.480 which is this normal connection between

NOTE Confidence: 0.7826689

00:10:24.549 --> 00:10:26.763 the aorta and the pulmonary artery

NOTE Confidence: 0.7826689

00:10:26.763 --> 00:10:29.588 which is supposed to narrow after birth,

NOTE Confidence: 0.7826689

00:10:29.590 --> 00:10:31.474 what happens if it narrows and

NOTE Confidence: 0.7826689

00:10:31.474 --> 00:10:33.399 causes a constriction or a narrowing

NOTE Confidence: 0.7826689

00:10:33.399 --> 00:10:34.615 in the aorta itself?

NOTE Confidence: 0.7826689

00:10:34.620 --> 00:10:37.164 And this was a landmark paper that said,

NOTE Confidence: 0.7826689

00:10:37.170 --> 00:10:37.848 you know,

NOTE Confidence: 0.7826689

00:10:37.848 --> 00:10:39.543 it's it's this constriction that

NOTE Confidence: 0.7826689

00:10:39.543 --> 00:10:41.960 results in in postnatal coarctation.

NOTE Confidence: 0.7826689

00:10:41.960 --> 00:10:44.200 So and again, no echo,

NOTE Confidence: 0.7826689

00:10:44.200 --> 00:10:46.320 all angiography and hemodynamics

NOTE Confidence: 0.7826689

00:10:46.320 --> 00:10:47.910 really quite amazing.
NOTE Confidence: 0.7826689

00:10:47.910 --> 00:10:50.038 And this is stuff that we now like.
NOTE Confidence: 0.7826689

00:10:50.040 --> 00:10:51.435 This is just what we talk about, right?
NOTE Confidence: 0.7826689

00:10:51.435 --> 00:10:53.155 It's not we don't question it at all,
NOTE Confidence: 0.7826689

00:10:53.160 --> 00:10:55.584 and this is this came out of here.
NOTE Confidence: 0.762778856538462

00:10:57.710 --> 00:11:00.860 So then in 1970 Bill Hellenbrand
NOTE Confidence: 0.762778856538462

00:11:00.860 --> 00:11:04.390 came to Yale as an intern I.
NOTE Confidence: 0.762778856538462

00:11:04.390 --> 00:11:06.196 I'm really sad that bill can't
NOTE Confidence: 0.762778856538462

00:11:06.196 --> 00:11:08.350 be here today and he is as well,
NOTE Confidence: 0.762778856538462

00:11:08.350 --> 00:11:11.901 but Bill is at 0 to Jazzy's son's wedding.
NOTE Confidence: 0.762778856538462

00:11:11.901 --> 00:11:14.710 So you know what are you going to do?
NOTE Confidence: 0.762778856538462

00:11:14.710 --> 00:11:16.843 So so Bill came as an intern in 1970
NOTE Confidence: 0.762778856538462

00:11:16.843 --> 00:11:19.424 and in talking to him it sounds like
NOTE Confidence: 0.762778856538462

00:11:19.424 --> 00:11:21.081 he immediately started spending time
NOTE Confidence: 0.762778856538462

00:11:21.081 --> 00:11:23.244 in the Cath lab with Mike Berman.
NOTE Confidence: 0.762778856538462

00:11:23.250 --> 00:11:24.438 Even as an intern.

NOTE Confidence: 0.762778856538462
00:11:24.438 --> 00:11:27.817 And then he went on to become a fellow here.
NOTE Confidence: 0.762778856538462
00:11:27.820 --> 00:11:28.828 Between 72 and 73,
NOTE Confidence: 0.762778856538462
00:11:28.828 --> 00:11:31.108 and then he went into the army as part
NOTE Confidence: 0.762778856538462
00:11:31.108 --> 00:11:33.444 of the Berry Plan and he was at Walter
NOTE Confidence: 0.762778856538462
00:11:33.444 --> 00:11:35.334 Reed after one year of fellowship.
NOTE Confidence: 0.762778856538462
00:11:35.340 --> 00:11:38.260 As the pediatric cardiologist between
NOTE Confidence: 0.762778856538462
00:11:38.260 --> 00:11:41.304 1973 and 1975 and had a got, you know,
NOTE Confidence: 0.762778856538462
00:11:41.304 --> 00:11:43.836 an incredible education on the ground.
NOTE Confidence: 0.762778856538462
00:11:43.840 --> 00:11:46.807 And then he came back here in 75 and he
NOTE Confidence: 0.762778856538462
00:11:46.807 --> 00:11:49.261 was allowed to complete his fellowship
NOTE Confidence: 0.762778856538462
00:11:49.261 --> 00:11:52.329 and be an attending at the same time so
NOTE Confidence: 0.762778856538462
00:11:52.329 --> 00:11:55.853 so he could sit for the boards so it will,
NOTE Confidence: 0.762778856538462
00:11:55.853 --> 00:11:57.960 we'll hear a little bit more about.
NOTE Confidence: 0.762778856538462
00:11:57.960 --> 00:11:59.860 Till later.
NOTE Confidence: 0.762778856538462
00:11:59.860 --> 00:12:04.525 So this was the section in 1976 and there
NOTE Confidence: 0.762778856538462

00:12:04.525 --> 00:12:08.695 are remarkable giants in this photograph.
NOTE Confidence: 0.762778856538462

00:12:08.700 --> 00:12:11.350 So this is Mike Berman.
NOTE Confidence: 0.762778856538462

00:12:11.350 --> 00:12:13.478 This is Norm Towner.
NOTE Confidence: 0.762778856538462

00:12:13.480 --> 00:12:17.064 And important people who who don't always
NOTE Confidence: 0.762778856538462

00:12:17.064 --> 00:12:20.600 get recognized or in this photo as well.
NOTE Confidence: 0.762778856538462

00:12:20.600 --> 00:12:22.550 So this is Alice Rollins,
NOTE Confidence: 0.762778856538462

00:12:22.550 --> 00:12:26.009 she was the.
NOTE Confidence: 0.762778856538462

00:12:26.010 --> 00:12:28.242 Sort of Cath lab.
NOTE Confidence: 0.762778856538462

00:12:28.242 --> 00:12:30.474 Tech extraordinaire from many,
NOTE Confidence: 0.762778856538462

00:12:30.480 --> 00:12:33.032 many years and worked with Mike and Norm
NOTE Confidence: 0.762778856538462

00:12:33.032 --> 00:12:35.953 on all of the studies that got done and
NOTE Confidence: 0.762778856538462

00:12:35.953 --> 00:12:38.457 really was a driving force in the lab.
NOTE Confidence: 0.762778856538462

00:12:38.460 --> 00:12:39.236 I unfortunately never had
NOTE Confidence: 0.762778856538462

00:12:39.236 --> 00:12:40.400 a chance to work with her.
NOTE Confidence: 0.762778856538462

00:12:40.400 --> 00:12:42.740 I had a chance to meet her at a reunion,
NOTE Confidence: 0.762778856538462

00:12:42.740 --> 00:12:44.600 but but never worked with her.

NOTE Confidence: 0.762778856538462
00:12:44.600 --> 00:12:47.498 This person over here is Scotty,
NOTE Confidence: 0.762778856538462
00:12:47.500 --> 00:12:49.775 who ran the office and also was
NOTE Confidence: 0.762778856538462
00:12:49.775 --> 00:12:51.435 responsible for getting the manuscripts
NOTE Confidence: 0.762778856538462
00:12:51.435 --> 00:12:53.939 out the door for all of these papers.
NOTE Confidence: 0.762778856538462
00:12:53.940 --> 00:12:55.669 So she really played an important role
NOTE Confidence: 0.762778856538462
00:12:55.669 --> 00:12:57.163 in the development of the section
NOTE Confidence: 0.762778856538462
00:12:57.163 --> 00:12:58.579 because without her I don't think.
NOTE Confidence: 0.762778856538462
00:12:58.580 --> 00:12:59.860 Anybody would have published anything?
NOTE Confidence: 0.762778856538462
00:12:59.860 --> 00:13:02.648 From what I understand.
NOTE Confidence: 0.762778856538462
00:13:02.650 --> 00:13:04.360 Up here is Ruth Whittlemore.
NOTE Confidence: 0.688339703666667
00:13:06.860 --> 00:13:09.444 This is Catherine O'Brien
NOTE Confidence: 0.688339703666667
00:13:09.444 --> 00:13:11.856 who was recruited by Ruth.
NOTE Confidence: 0.688339703666667
00:13:11.856 --> 00:13:14.460 Here in the middle is Bill Hellenbrand.
NOTE Confidence: 0.8323588275
00:13:16.940 --> 00:13:19.004 And there are a bunch of other people.
NOTE Confidence: 0.8323588275
00:13:19.010 --> 00:13:20.214 This doctor Delois Schenberg,
NOTE Confidence: 0.8323588275

00:13:20.214 --> 00:13:21.719 who is a cardiologist here
NOTE Confidence: 0.8323588275

00:13:21.719 --> 00:13:22.979 for a number of years.
NOTE Confidence: 0.8323588275

00:13:22.980 --> 00:13:24.640 There are some fellows and
NOTE Confidence: 0.8323588275

00:13:24.640 --> 00:13:26.300 some other folks as well.
NOTE Confidence: 0.8323588275

00:13:26.300 --> 00:13:27.758 I am particularly fond of this
NOTE Confidence: 0.8323588275

00:13:27.758 --> 00:13:29.469 gentleman that I don't know who he is.
NOTE Confidence: 0.859302342666667

00:13:33.540 --> 00:13:34.887 So really again,
NOTE Confidence: 0.859302342666667

00:13:34.887 --> 00:13:38.030 Giants and and this is sort of
NOTE Confidence: 0.859302342666667

00:13:38.132 --> 00:13:40.807 where the section came from.
NOTE Confidence: 0.859302342666667

00:13:40.810 --> 00:13:42.690 In in the late 1970s,
NOTE Confidence: 0.859302342666667

00:13:42.690 --> 00:13:44.855 Charlie Kleinman was recruited by
NOTE Confidence: 0.859302342666667

00:13:44.855 --> 00:13:47.626 Doctor Towner and was really a
NOTE Confidence: 0.859302342666667

00:13:47.626 --> 00:13:49.750 pioneer in echocardiography and
NOTE Confidence: 0.859302342666667

00:13:49.750 --> 00:13:51.874 particularly in fetal echocardiography
NOTE Confidence: 0.859302342666667

00:13:51.874 --> 00:13:54.300 and is sort of thought of as the
NOTE Confidence: 0.859302342666667

00:13:54.300 --> 00:13:56.220 father of fetal echo and fetal

NOTE Confidence: 0.859302342666667
00:13:56.220 --> 00:13:58.314 cardiology and this was the Seminole
NOTE Confidence: 0.859302342666667
00:13:58.314 --> 00:14:00.010 paper that was published back
NOTE Confidence: 0.859302342666667
00:14:00.010 --> 00:14:02.590 in 1980 talking about the fact
NOTE Confidence: 0.859302342666667
00:14:02.590 --> 00:14:04.850 that you could do echocardiograms
NOTE Confidence: 0.859302342666667
00:14:04.928 --> 00:14:08.350 in fetuses so again huge huge
NOTE Confidence: 0.859302342666667
00:14:08.350 --> 00:14:11.030 landmark things happening here.
NOTE Confidence: 0.859302342666667
00:14:11.030 --> 00:14:13.020 That really set the course
NOTE Confidence: 0.859302342666667
00:14:13.020 --> 00:14:15.610 for for the field at large.
NOTE Confidence: 0.859302342666667
00:14:15.610 --> 00:14:16.630 A little bit later,
NOTE Confidence: 0.859302342666667
00:14:16.630 --> 00:14:17.140 George Lister,
NOTE Confidence: 0.859302342666667
00:14:17.140 --> 00:14:19.036 who wasn't part of the section
NOTE Confidence: 0.859302342666667
00:14:19.036 --> 00:14:19.984 of Cardiology officially,
NOTE Confidence: 0.859302342666667
00:14:19.990 --> 00:14:21.574 but essentially was came.
NOTE Confidence: 0.859302342666667
00:14:21.574 --> 00:14:25.329 He was started off as a medical student.
NOTE Confidence: 0.859302342666667
00:14:25.330 --> 00:14:27.578 George is an unbelievably
NOTE Confidence: 0.859302342666667

00:14:27.578 --> 00:14:30.690 smart guy and George is thesis,
NOTE Confidence: 0.859302342666667

00:14:30.690 --> 00:14:32.490 which all yell Med students are
NOTE Confidence: 0.859302342666667

00:14:32.490 --> 00:14:34.318 required to do really described
NOTE Confidence: 0.859302342666667

00:14:34.318 --> 00:14:36.050 the development of measurement
NOTE Confidence: 0.859302342666667

00:14:36.050 --> 00:14:37.349 of oxygen consumption.
NOTE Confidence: 0.859302342666667

00:14:37.350 --> 00:14:39.480 So he described the system for
NOTE Confidence: 0.859302342666667

00:14:39.480 --> 00:14:40.900 the continuous measurement of
NOTE Confidence: 0.859302342666667

00:14:40.965 --> 00:14:42.821 oxygen consumption and measuring
NOTE Confidence: 0.859302342666667

00:14:42.821 --> 00:14:45.331 carbon dioxide production, I mean.
NOTE Confidence: 0.859302342666667

00:14:45.331 --> 00:14:47.439 He was immense student,
NOTE Confidence: 0.859302342666667

00:14:47.440 --> 00:14:50.768 so he went on to do his pediatric
NOTE Confidence: 0.859302342666667

00:14:50.768 --> 00:14:52.898 residency here and then he went
NOTE Confidence: 0.859302342666667

00:14:52.898 --> 00:14:54.970 out to San Francisco to the to the
NOTE Confidence: 0.859302342666667

00:14:55.037 --> 00:14:57.013 Cardiovascular Research Institute and
NOTE Confidence: 0.859302342666667

00:14:57.013 --> 00:14:59.977 really became interested in critical care,
NOTE Confidence: 0.859302342666667

00:14:59.980 --> 00:15:01.583 which was an evolving field at the

NOTE Confidence: 0.859302342666667
00:15:01.583 --> 00:15:03.473 time and came back here as the
NOTE Confidence: 0.859302342666667
00:15:03.473 --> 00:15:04.908 Director of Pediatric Intensive Care.
NOTE Confidence: 0.89974142875
00:15:07.260 --> 00:15:10.260 George, while he was out in San Francisco,
NOTE Confidence: 0.89974142875
00:15:10.260 --> 00:15:12.285 took his medical school thesis
NOTE Confidence: 0.89974142875
00:15:12.285 --> 00:15:14.880 and working with these two giants,
NOTE Confidence: 0.89974142875
00:15:14.880 --> 00:15:16.800 Julian Hoffman and Abe Rudolph,
NOTE Confidence: 0.89974142875
00:15:16.800 --> 00:15:17.588 actually built.
NOTE Confidence: 0.89974142875
00:15:17.588 --> 00:15:20.346 What he had described and built the
NOTE Confidence: 0.89974142875
00:15:20.346 --> 00:15:23.045 1st VO2 machine and this became sort
NOTE Confidence: 0.89974142875
00:15:23.045 --> 00:15:25.878 of the standard way that you measured
NOTE Confidence: 0.89974142875
00:15:25.878 --> 00:15:28.410 oxygen consumption and that allowed us
NOTE Confidence: 0.89974142875
00:15:28.410 --> 00:15:30.800 to really accurately do hemodynamics in
NOTE Confidence: 0.89974142875
00:15:30.800 --> 00:15:33.560 the Cath lab and understand blood flows.
NOTE Confidence: 0.89974142875
00:15:33.560 --> 00:15:35.632 If we can understand how the body
NOTE Confidence: 0.89974142875
00:15:35.632 --> 00:15:37.335 is absorbing oxygen and how much
NOTE Confidence: 0.89974142875

00:15:37.335 --> 00:15:39.092 oxygen in the body is taking in,
NOTE Confidence: 0.89974142875

00:15:39.100 --> 00:15:42.016 we can use oxygen as a way of measuring
NOTE Confidence: 0.89974142875

00:15:42.016 --> 00:15:45.362 flow in in the in the vasculature so
NOTE Confidence: 0.89974142875

00:15:45.362 --> 00:15:47.458 incredibly remarkable and John tells
NOTE Confidence: 0.89974142875

00:15:47.458 --> 00:15:50.097 me that when when George came back.
NOTE Confidence: 0.89974142875

00:15:50.100 --> 00:15:51.660 They sort of jury rigged a
NOTE Confidence: 0.89974142875

00:15:51.660 --> 00:15:52.700 couple of these machines,
NOTE Confidence: 0.89974142875

00:15:52.700 --> 00:15:53.755 one for the animal lab
NOTE Confidence: 0.89974142875

00:15:53.755 --> 00:15:55.060 and one for the Cath lab,
NOTE Confidence: 0.89974142875

00:15:55.060 --> 00:15:57.880 and we're using these machines regularly.
NOTE Confidence: 0.818021128727273

00:16:00.170 --> 00:16:02.114 So then we move to the
NOTE Confidence: 0.818021128727273

00:16:02.114 --> 00:16:03.810 late 70s and early 80s.
NOTE Confidence: 0.818021128727273

00:16:03.810 --> 00:16:07.219 Disco was raging and there were continued
NOTE Confidence: 0.818021128727273

00:16:07.219 --> 00:16:10.009 growth and contributions from the section.
NOTE Confidence: 0.818021128727273

00:16:10.010 --> 00:16:13.132 So in in the early 1970s was
NOTE Confidence: 0.818021128727273

00:16:13.132 --> 00:16:14.470 the prostaglandin study.

NOTE Confidence: 0.818021128727273
00:16:14.470 --> 00:16:17.206 So imagine being on call at night and
NOTE Confidence: 0.818021128727273
00:16:17.206 --> 00:16:20.009 not being able to start prostaglandin.
NOTE Confidence: 0.818021128727273
00:16:20.010 --> 00:16:21.582 So that was the life until
NOTE Confidence: 0.818021128727273
00:16:21.582 --> 00:16:22.663 the mid 70s, right?
NOTE Confidence: 0.818021128727273
00:16:22.663 --> 00:16:24.714 And so there was a multicenter trial
NOTE Confidence: 0.818021128727273
00:16:24.714 --> 00:16:27.182 run out of the out of the Research
NOTE Confidence: 0.818021128727273
00:16:27.182 --> 00:16:28.789 Institute in San Francisco that
NOTE Confidence: 0.818021128727273
00:16:28.789 --> 00:16:30.757 looked at the use of prostaglandin.
NOTE Confidence: 0.818021128727273
00:16:30.760 --> 00:16:33.576 And those patients came to the Cath lab.
NOTE Confidence: 0.818021128727273
00:16:33.580 --> 00:16:36.226 Had an angiogram shot that showed they
NOTE Confidence: 0.818021128727273
00:16:36.226 --> 00:16:38.940 needed prostacyclin and they had a ductal
NOTE Confidence: 0.818021128727273
00:16:38.940 --> 00:16:40.835 dependent lesion and so prostaglandin.
NOTE Confidence: 0.818021128727273
00:16:40.840 --> 00:16:43.126 For those of you who don't know is a
NOTE Confidence: 0.818021128727273
00:16:43.126 --> 00:16:44.958 medication that we can give that allows
NOTE Confidence: 0.818021128727273
00:16:44.958 --> 00:16:46.919 us to maintain the patency of the
NOTE Confidence: 0.818021128727273

00:16:46.919 --> 00:16:48.998 ductus and the ductus in these patients.
NOTE Confidence: 0.818021128727273

00:16:49.000 --> 00:16:50.988 Allows us to have either blood flow
NOTE Confidence: 0.818021128727273

00:16:50.988 --> 00:16:53.512 to the body or blood flow to the
NOTE Confidence: 0.818021128727273

00:16:53.512 --> 00:16:55.117 lungs that wouldn't otherwise be
NOTE Confidence: 0.818021128727273

00:16:55.177 --> 00:16:56.896 there so we could go to the Cath lab.
NOTE Confidence: 0.818021128727273

00:16:56.900 --> 00:16:57.893 Take a picture,
NOTE Confidence: 0.818021128727273

00:16:57.893 --> 00:17:00.210 decide that it was a ductal dependent
NOTE Confidence: 0.818021128727273

00:17:00.276 --> 00:17:02.836 lesion that would be able to be survived.
NOTE Confidence: 0.818021128727273

00:17:02.840 --> 00:17:03.538 If the.
NOTE Confidence: 0.818021128727273

00:17:03.538 --> 00:17:04.236 If the.
NOTE Confidence: 0.818021128727273

00:17:04.236 --> 00:17:06.330 Doctors were open and then prostaglandin
NOTE Confidence: 0.818021128727273

00:17:06.394 --> 00:17:08.140 was started in the Cath lab.
NOTE Confidence: 0.818021128727273

00:17:08.140 --> 00:17:09.796 After the angiogram and at that
NOTE Confidence: 0.818021128727273

00:17:09.796 --> 00:17:11.875 time the thought was you had to
NOTE Confidence: 0.818021128727273

00:17:11.875 --> 00:17:13.103 actually infuse the prostaglandin
NOTE Confidence: 0.818021128727273

00:17:13.103 --> 00:17:15.411 at the doctor so you had to have

NOTE Confidence: 0.818021128727273

00:17:15.411 --> 00:17:16.939 an arterial catheter and infuse it

NOTE Confidence: 0.818021128727273

00:17:16.939 --> 00:17:18.531 right at the duct and then you had

NOTE Confidence: 0.818021128727273

00:17:18.531 --> 00:17:20.310 to take a follow up angiogram to

NOTE Confidence: 0.818021128727273

00:17:20.310 --> 00:17:21.979 show what happened to the doctors.

NOTE Confidence: 0.818021128727273

00:17:21.980 --> 00:17:25.257 So this was a pretty involved study again.

NOTE Confidence: 0.818021128727273

00:17:25.257 --> 00:17:28.593 No echo and that was a huge contribution

NOTE Confidence: 0.818021128727273

00:17:28.593 --> 00:17:31.474 and really changed the entire field

NOTE Confidence: 0.818021128727273

00:17:31.474 --> 00:17:34.260 and the entire outlook for our.

NOTE Confidence: 0.818021128727273

00:17:34.260 --> 00:17:36.720 Patients.

NOTE Confidence: 0.818021128727273

00:17:36.720 --> 00:17:36.940 Yeah,

NOTE Confidence: 0.818021128727273

00:17:36.940 --> 00:17:38.480 it was part of the New England

NOTE Confidence: 0.818021128727273

00:17:38.480 --> 00:17:39.639 regional infant cardiac program.

NOTE Confidence: 0.818021128727273

00:17:39.640 --> 00:17:41.842 This was a program that gathered

NOTE Confidence: 0.818021128727273

00:17:41.842 --> 00:17:43.310 information about infants with

NOTE Confidence: 0.818021128727273

00:17:43.368 --> 00:17:44.812 congenital heart disease from

NOTE Confidence: 0.818021128727273

00:17:44.812 --> 00:17:46.978 all across the region and really
NOTE Confidence: 0.818021128727273

00:17:47.038 --> 00:17:49.320 allowed there to be a database of
NOTE Confidence: 0.818021128727273

00:17:49.320 --> 00:17:50.804 information from which understanding
NOTE Confidence: 0.818021128727273

00:17:50.804 --> 00:17:52.820 congenital heart disease understanding
NOTE Confidence: 0.818021128727273

00:17:52.820 --> 00:17:54.836 of it was developed,
NOTE Confidence: 0.818021128727273

00:17:54.840 --> 00:17:56.904 that more recently has kind of
NOTE Confidence: 0.818021128727273

00:17:56.904 --> 00:18:00.491 restarted in a way as the New England
NOTE Confidence: 0.818021128727273

00:18:00.491 --> 00:18:02.090 Congenital Cardiology Association.
NOTE Confidence: 0.818021128727273

00:18:02.090 --> 00:18:05.030 Which we've been an important part.
NOTE Confidence: 0.818021128727273

00:18:05.030 --> 00:18:06.614 Collaborations with surgical colleagues
NOTE Confidence: 0.818021128727273

00:18:06.614 --> 00:18:08.990 that we'll hear about Doctor Stansell,
NOTE Confidence: 0.818021128727273

00:18:08.990 --> 00:18:11.588 Dr Lax doctor Kopp all went
NOTE Confidence: 0.818021128727273

00:18:11.588 --> 00:18:13.320 on during this time.
NOTE Confidence: 0.818021128727273

00:18:13.320 --> 00:18:14.442 And I forgot to include Doctor
NOTE Confidence: 0.818021128727273

00:18:14.442 --> 00:18:15.408 Glenn because I know you're
NOTE Confidence: 0.818021128727273

00:18:15.408 --> 00:18:16.446 gonna talk a lot about it.

NOTE Confidence: 0.835630242857143
00:18:18.710 --> 00:18:20.870 And the Physiology of congenital heart
NOTE Confidence: 0.835630242857143
00:18:20.870 --> 00:18:24.814 disease stayed a major focus as did pre and
NOTE Confidence: 0.835630242857143
00:18:24.814 --> 00:18:28.139 post operative management and fetal echo.
NOTE Confidence: 0.835630242857143
00:18:28.140 --> 00:18:33.396 In 1988, John opened the exercise lab here.
NOTE Confidence: 0.835630242857143
00:18:33.400 --> 00:18:35.032 Pediatric exercise labs were few and
NOTE Confidence: 0.835630242857143
00:18:35.032 --> 00:18:36.913 far between and at that point in
NOTE Confidence: 0.835630242857143
00:18:36.913 --> 00:18:38.642 time patients were going over to the
NOTE Confidence: 0.835630242857143
00:18:38.697 --> 00:18:40.377 adult hospital for their exercise,
NOTE Confidence: 0.835630242857143
00:18:40.380 --> 00:18:42.612 stress testing and that was not
NOTE Confidence: 0.835630242857143
00:18:42.612 --> 00:18:44.100 felt to be adequate.
NOTE Confidence: 0.835630242857143
00:18:44.100 --> 00:18:47.628 This is Rita, who was the exercise
NOTE Confidence: 0.835630242857143
00:18:47.628 --> 00:18:50.539 and EKG guru at the time.
NOTE Confidence: 0.835630242857143
00:18:50.540 --> 00:18:52.574 This is the first exercise bike
NOTE Confidence: 0.835630242857143
00:18:52.574 --> 00:18:54.764 John tells me that that came in
NOTE Confidence: 0.835630242857143
00:18:54.764 --> 00:18:56.200 in 1988 and important papers.
NOTE Confidence: 0.835630242857143

00:18:56.200 --> 00:18:58.742 Came out of the lab and an understanding

NOTE Confidence: 0.835630242857143

00:18:58.742 --> 00:19:00.866 of what the Physiology for for

NOTE Confidence: 0.835630242857143

00:19:00.866 --> 00:19:02.878 our patients during exercise were,

NOTE Confidence: 0.835630242857143

00:19:02.880 --> 00:19:04.693 and John, I think we should get

NOTE Confidence: 0.835630242857143

00:19:04.693 --> 00:19:06.049 this bike for the next.

NOTE Confidence: 0.835630242857143

00:19:06.050 --> 00:19:07.485 The next one that looks really cool.

NOTE Confidence: 0.789749711

00:19:10.810 --> 00:19:13.426 And then Tina Bruckner came as

NOTE Confidence: 0.789749711

00:19:13.426 --> 00:19:15.427 a cardiology fellow in 1987.

NOTE Confidence: 0.789749711

00:19:15.427 --> 00:19:17.226 Sorry Tina, I had to do it.

NOTE Confidence: 0.735451394444445

00:19:20.720 --> 00:19:25.074 So Tina came in 1987 and and

NOTE Confidence: 0.735451394444445

00:19:25.074 --> 00:19:27.628 to her to to hear her tell it,

NOTE Confidence: 0.735451394444445

00:19:27.630 --> 00:19:29.274 she she literally stood on the

NOTE Confidence: 0.735451394444445

00:19:29.274 --> 00:19:30.680 shoulders of giants as well,

NOTE Confidence: 0.735451394444445

00:19:30.680 --> 00:19:33.490 and she encountered Rich Lifton

NOTE Confidence: 0.735451394444445

00:19:33.490 --> 00:19:36.300 and Arthur Horwich and they.

NOTE Confidence: 0.735451394444445

00:19:36.300 --> 00:19:38.890 Sort of sparked her interest in genetics,

NOTE Confidence: 0.735451394444445
00:19:38.890 --> 00:19:41.938 and she went on to become a towering
NOTE Confidence: 0.735451394444445
00:19:41.938 --> 00:19:44.689 figure in in cardiac development.
NOTE Confidence: 0.735451394444445
00:19:44.690 --> 00:19:47.021 She joined our faculty in 1991,
NOTE Confidence: 0.735451394444445
00:19:47.021 --> 00:19:50.327 and she jointly developed the congenital
NOTE Confidence: 0.735451394444445
00:19:50.327 --> 00:19:52.460 cardiac genetic service here.
NOTE Confidence: 0.735451394444445
00:19:52.460 --> 00:19:54.380 And I think it's really cool
NOTE Confidence: 0.735451394444445
00:19:54.380 --> 00:19:56.779 that your lab has a coat of arms.
NOTE Confidence: 0.735451394444445
00:19:56.780 --> 00:19:59.600 That's awesome.
NOTE Confidence: 0.735451394444445
00:19:59.600 --> 00:20:01.252 I think we need a coat of
NOTE Confidence: 0.735451394444445
00:20:01.252 --> 00:20:02.520 arms in this section,
NOTE Confidence: 0.735451394444445
00:20:02.520 --> 00:20:05.908 so her work in the early 19
NOTE Confidence: 0.735451394444445
00:20:05.908 --> 00:20:09.438 early late 90s really led to
NOTE Confidence: 0.735451394444445
00:20:09.438 --> 00:20:11.771 the understanding of left,
NOTE Confidence: 0.735451394444445
00:20:11.771 --> 00:20:13.997 right asymmetry and and how that
NOTE Confidence: 0.735451394444445
00:20:13.997 --> 00:20:16.531 happens and what the what the role
NOTE Confidence: 0.735451394444445

00:20:16.531 --> 00:20:18.553 of Celia is in that development.

NOTE Confidence: 0.735451394444445

00:20:18.560 --> 00:20:19.784 And you know,

NOTE Confidence: 0.735451394444445

00:20:19.784 --> 00:20:24.680 publishing in nature in 1997 and 19 in 2002,

NOTE Confidence: 0.735451394444445

00:20:24.680 --> 00:20:27.473 these were major major papers and the

NOTE Confidence: 0.735451394444445

00:20:27.473 --> 00:20:29.510 understanding of cardiac development.

NOTE Confidence: 0.735451394444445

00:20:29.510 --> 00:20:31.946 She went on to continue to contribute

NOTE Confidence: 0.735451394444445

00:20:31.946 --> 00:20:34.562 in in the genetics of congenital

NOTE Confidence: 0.735451394444445

00:20:34.562 --> 00:20:37.047 heart disease here and continues

NOTE Confidence: 0.735451394444445

00:20:37.047 --> 00:20:39.596 very active lab and has been our

NOTE Confidence: 0.735451394444445

00:20:39.596 --> 00:20:42.038 API and now for several years in

NOTE Confidence: 0.735451394444445

00:20:42.038 --> 00:20:43.586 the Cardiac Genomics Consortium

NOTE Confidence: 0.735451394444445

00:20:43.586 --> 00:20:45.184 and bringing our understanding

NOTE Confidence: 0.735451394444445

00:20:45.184 --> 00:20:47.094 of genetics to the bedside.

NOTE Confidence: 0.85311016875

00:20:49.170 --> 00:20:51.810 So a large cast of characters

NOTE Confidence: 0.85311016875

00:20:51.810 --> 00:20:54.394 ensued overtime. Some of these

NOTE Confidence: 0.85311016875

00:20:54.394 --> 00:20:56.980 people, you'll know. Yeah.

NOTE Confidence: 0.831644748

00:20:59.010 --> 00:21:02.556 I'll point out a few, so here's

NOTE Confidence: 0.831644748

00:21:02.556 --> 00:21:06.742 Al he he came in high school.

NOTE Confidence: 0.831644748

00:21:06.750 --> 00:21:07.659 That's pretty clear.

NOTE Confidence: 0.857452598181818

00:21:09.980 --> 00:21:11.234 John Love, who I didn't have

NOTE Confidence: 0.857452598181818

00:21:11.234 --> 00:21:12.340 that chance to work with,

NOTE Confidence: 0.857452598181818

00:21:12.340 --> 00:21:15.470 but I hear he was a force

NOTE Confidence: 0.857452598181818

00:21:15.470 --> 00:21:18.260 Tom Doyle who is Tom here.

NOTE Confidence: 0.857452598181818

00:21:18.260 --> 00:21:19.590 I didn't see him OK.

NOTE Confidence: 0.807713964285714

00:21:22.500 --> 00:21:25.202 This is Ann Dubin and her husband Rosenthal,

NOTE Confidence: 0.807713964285714

00:21:25.202 --> 00:21:27.374 who's first name I can never,

NOTE Confidence: 0.807713964285714

00:21:27.380 --> 00:21:30.080 David Rosenthal, and they're both out

NOTE Confidence: 0.807713964285714

00:21:30.080 --> 00:21:32.896 in San Francisco and Stanford now.

NOTE Confidence: 0.807713964285714

00:21:32.896 --> 00:21:35.680 Tom Doyle again, this is Elkanah

NOTE Confidence: 0.807713964285714

00:21:35.680 --> 00:21:37.360 Bruckheimer who's a pediatric

NOTE Confidence: 0.807713964285714

00:21:37.360 --> 00:21:39.070 interventional cardiologist in Israel.

NOTE Confidence: 0.807713964285714

00:21:39.070 --> 00:21:41.905 This gentleman is in the audience here.
NOTE Confidence: 0.807713964285714

00:21:41.910 --> 00:21:43.554 Where are you?
NOTE Confidence: 0.807713964285714

00:21:43.554 --> 00:21:45.570 John love, not John, I'm sorry.
NOTE Confidence: 0.778038605

00:21:48.430 --> 00:21:49.858 Nancy, where are you?
NOTE Confidence: 0.8824436

00:21:57.410 --> 00:22:01.980 Alice. Lord fight.
NOTE Confidence: 0.8824436

00:22:01.980 --> 00:22:04.470 Who's sharing a few beers with?
NOTE Confidence: 0.8824436

00:22:04.470 --> 00:22:06.935 Ruth, it was always a
NOTE Confidence: 0.8824436

00:22:06.935 --> 00:22:09.400 fun time in this section.
NOTE Confidence: 0.8824436

00:22:09.400 --> 00:22:10.989 Al came back for his bar mitzvah.
NOTE Confidence: 0.54969877

00:22:13.320 --> 00:22:13.760 For us
NOTE Confidence: 0.782946576

00:22:18.600 --> 00:22:20.439 let's see we got Emily, where are you?
NOTE Confidence: 0.87430644

00:22:23.180 --> 00:22:24.572 Rob's not a graduate,
NOTE Confidence: 0.87430644

00:22:24.572 --> 00:22:27.830 but we'll we'll take you on.
NOTE Confidence: 0.87430644

00:22:27.830 --> 00:22:31.470 Tina Christopher George.
NOTE Confidence: 0.873192081428571

00:22:33.770 --> 00:22:35.516 I don't know where you all
NOTE Confidence: 0.873192081428571

00:22:35.516 --> 00:22:36.719 were, do you remember?

NOTE Confidence: 0.455558771666667
00:22:41.450 --> 00:22:46.470 And and Scotty so.
NOTE Confidence: 0.455558771666667
00:22:46.470 --> 00:22:48.048 Over time there was this huge
NOTE Confidence: 0.455558771666667
00:22:48.048 --> 00:22:49.100 shift in the demographics
NOTE Confidence: 0.455558771666667
00:22:49.150 --> 00:22:50.490 of congenital heart disease,
NOTE Confidence: 0.455558771666667
00:22:50.490 --> 00:22:52.770 and if you look at what
NOTE Confidence: 0.455558771666667
00:22:52.770 --> 00:22:54.779 happened to the population,
NOTE Confidence: 0.455558771666667
00:22:54.779 --> 00:22:57.000 the adult patients really began
NOTE Confidence: 0.455558771666667
00:22:57.000 --> 00:22:58.770 to take over the practice and
NOTE Confidence: 0.455558771666667
00:22:58.770 --> 00:23:00.630 that was because of all of
NOTE Confidence: 0.455558771666667
00:23:00.630 --> 00:23:02.135 the successes that were coming
NOTE Confidence: 0.455558771666667
00:23:02.135 --> 00:23:03.948 out of the clinical practice.
NOTE Confidence: 0.455558771666667
00:23:03.950 --> 00:23:06.190 So in 2004 we started the adult
NOTE Confidence: 0.455558771666667
00:23:06.190 --> 00:23:07.860 General Heart disease program here
NOTE Confidence: 0.455558771666667
00:23:07.860 --> 00:23:09.804 and with John as its director.
NOTE Confidence: 0.839006881428571
00:23:11.980 --> 00:23:14.550 So what began looking like
NOTE Confidence: 0.839006881428571

00:23:14.550 --> 00:23:18.419 this in 1967? Or 76 sorry.
NOTE Confidence: 0.80289133

00:23:20.490 --> 00:23:23.580 Looked like this during the pandemic.
NOTE Confidence: 0.80289133

00:23:23.580 --> 00:23:26.148 Was a miserable time and now
NOTE Confidence: 0.80289133

00:23:26.148 --> 00:23:27.860 finally looks like this.
NOTE Confidence: 0.80289133

00:23:27.860 --> 00:23:30.244 So we all gathered last night for the
NOTE Confidence: 0.80289133

00:23:30.244 --> 00:23:32.006 graduation of our most recent fellow
NOTE Confidence: 0.80289133

00:23:32.006 --> 00:23:34.419 grads and had a bunch of you with us,
NOTE Confidence: 0.80289133

00:23:34.420 --> 00:23:36.580 which was terrific so.
NOTE Confidence: 0.80289133

00:23:36.580 --> 00:23:37.840 Thank you all for coming.
NOTE Confidence: 0.80289133

00:23:37.840 --> 00:23:40.736 I'm really excited to move through the day.
NOTE Confidence: 0.88688538375

00:23:43.750 --> 00:23:48.238 All right, so I'm going to introduce Rob,
NOTE Confidence: 0.88688538375

00:23:48.240 --> 00:23:49.630 who's going to introduce Mike.
NOTE Confidence: 0.88688538375

00:23:49.630 --> 00:23:52.126 So Rob elder. I think many,
NOTE Confidence: 0.88688538375

00:23:52.130 --> 00:23:53.468 almost everybody in the room knows,
NOTE Confidence: 0.88688538375

00:23:53.470 --> 00:23:55.306 is the director of our adult
NOTE Confidence: 0.88688538375

00:23:55.306 --> 00:23:56.530 congenital heart disease program.

NOTE Confidence: 0.88688538375

00:23:56.530 --> 00:23:59.830 He's a wonderful person and also

NOTE Confidence: 0.88688538375

00:23:59.830 --> 00:24:02.030 our fellowship program director,

NOTE Confidence: 0.88688538375

00:24:02.030 --> 00:24:03.632 and I'm you don't need any

NOTE Confidence: 0.88688538375

00:24:03.632 --> 00:24:04.700 more introduction than that.

NOTE Confidence: 0.8341307

00:24:12.160 --> 00:24:14.445 I will adjust the microphone

NOTE Confidence: 0.8341307

00:24:14.445 --> 00:24:16.273 for Michael and myself.

NOTE Confidence: 0.8341307

00:24:16.280 --> 00:24:17.332 So good morning everybody.

NOTE Confidence: 0.8341307

00:24:17.332 --> 00:24:18.910 It's so fun to be here,

NOTE Confidence: 0.8341307

00:24:18.910 --> 00:24:20.308 what a great turnout both last

NOTE Confidence: 0.8341307

00:24:20.308 --> 00:24:21.819 night and here and I appreciate

NOTE Confidence: 0.8341307

00:24:21.819 --> 00:24:23.391 in particular all the alumni that

NOTE Confidence: 0.8341307

00:24:23.391 --> 00:24:25.109 are here from around the country.

NOTE Confidence: 0.8341307

00:24:25.110 --> 00:24:28.116 So thank you guys for being here as Jeremy

NOTE Confidence: 0.8341307

00:24:28.116 --> 00:24:30.300 and I were having coffee at Blue State,

NOTE Confidence: 0.8341307

00:24:30.300 --> 00:24:32.106 which is where all important meetings happen.

NOTE Confidence: 0.8341307

00:24:32.110 --> 00:24:34.185 As many people know and
NOTE Confidence: 0.8341307

00:24:34.185 --> 00:24:35.845 thinking about this symposium,
NOTE Confidence: 0.8341307

00:24:35.850 --> 00:24:38.026 we thought well it would be important to
NOTE Confidence: 0.8341307

00:24:38.026 --> 00:24:39.882 think about the patient perspective and
NOTE Confidence: 0.8341307

00:24:39.882 --> 00:24:42.449 immediately I thought of Mr Mike Cloud Fairy.
NOTE Confidence: 0.8341307

00:24:42.450 --> 00:24:45.096 So Michael has been a patient of
NOTE Confidence: 0.8341307

00:24:45.096 --> 00:24:47.658 ours and really a friend of mine.
NOTE Confidence: 0.8341307

00:24:47.660 --> 00:24:50.462 Since I arrived here and has
NOTE Confidence: 0.8341307

00:24:50.462 --> 00:24:52.330 been a wonderful addition,
NOTE Confidence: 0.8341307

00:24:52.330 --> 00:24:54.042 he's been I'm going to let him tell
NOTE Confidence: 0.8341307

00:24:54.042 --> 00:24:55.769 you his patient experience story,
NOTE Confidence: 0.8341307

00:24:55.770 --> 00:24:58.104 but from my perspective I know
NOTE Confidence: 0.8341307

00:24:58.104 --> 00:24:59.660 him as a businessman.
NOTE Confidence: 0.8341307

00:24:59.660 --> 00:25:01.000 As a successful entrepreneur,
NOTE Confidence: 0.8341307

00:25:01.000 --> 00:25:03.010 as a philanthropist and as someone
NOTE Confidence: 0.8341307

00:25:03.071 --> 00:25:04.955 who has really been a champion

NOTE Confidence: 0.8341307

00:25:04.955 --> 00:25:06.211 for congenital heart disease.

NOTE Confidence: 0.8341307

00:25:06.220 --> 00:25:07.886 He is the person who is at

NOTE Confidence: 0.8341307

00:25:07.886 --> 00:25:09.439 all of our heart walks.

NOTE Confidence: 0.8341307

00:25:09.440 --> 00:25:12.248 He is the person who we had

NOTE Confidence: 0.8341307

00:25:12.248 --> 00:25:13.468 coffee together and we said,

NOTE Confidence: 0.8341307

00:25:13.470 --> 00:25:13.666 well,

NOTE Confidence: 0.8341307

00:25:13.666 --> 00:25:15.038 what do you need for the program

NOTE Confidence: 0.8341307

00:25:15.038 --> 00:25:16.499 to be successful and to grow?

NOTE Confidence: 0.8341307

00:25:16.500 --> 00:25:18.270 He sits on the board.

NOTE Confidence: 0.8341307

00:25:18.270 --> 00:25:21.638 Of the Children's Heart Association

NOTE Confidence: 0.8341307

00:25:21.638 --> 00:25:24.476 or or the Friends of Pediatric

NOTE Confidence: 0.8341307

00:25:24.476 --> 00:25:26.306 Cardiology and the Children's Hospital

NOTE Confidence: 0.8341307

00:25:26.306 --> 00:25:28.747 here at Yale and has always been

NOTE Confidence: 0.8341307

00:25:28.747 --> 00:25:30.583 a great supporter of our program.

NOTE Confidence: 0.8341307

00:25:30.590 --> 00:25:32.750 And so it's my honor and privilege to

NOTE Confidence: 0.8341307

00:25:32.750 --> 00:25:34.997 welcome him up here to tell his story
NOTE Confidence: 0.8341307

00:25:34.997 --> 00:25:36.709 and his experience being a patient.
NOTE Confidence: 0.8341307

00:25:36.710 --> 00:25:38.236 So thank you Michael for being here.
NOTE Confidence: 0.779709273333333

00:25:45.580 --> 00:25:48.958 Thank you Rob, I appreciate that.
NOTE Confidence: 0.779709273333333

00:25:48.960 --> 00:25:50.780 All right, so these are my disclosures.
NOTE Confidence: 0.779709273333333

00:25:50.780 --> 00:25:54.188 Jennifer said I had to have this slide.
NOTE Confidence: 0.779709273333333

00:25:54.190 --> 00:25:55.930 So we'll bypass that.
NOTE Confidence: 0.810075241666667

00:25:58.250 --> 00:26:01.463 As as you know, now my cloud fury and
NOTE Confidence: 0.810075241666667

00:26:01.463 --> 00:26:04.472 I'm going to share my perspective in
NOTE Confidence: 0.810075241666667

00:26:04.472 --> 00:26:08.007 terms of being a patient here at Yale
NOTE Confidence: 0.810075241666667

00:26:08.010 --> 00:26:10.989 and the things that it has meant to me.
NOTE Confidence: 0.810075241666667

00:26:10.990 --> 00:26:13.614 I will say that I am extremely flattered
NOTE Confidence: 0.810075241666667

00:26:13.614 --> 00:26:16.206 to to be in front of all of you,
NOTE Confidence: 0.810075241666667

00:26:16.210 --> 00:26:19.717 and it's an honor to stand here.
NOTE Confidence: 0.854246151111111

00:26:22.030 --> 00:26:26.323 I think the Giants that you spoke about are.
NOTE Confidence: 0.854246151111111

00:26:26.330 --> 00:26:29.410 I am largely the beneficiary of those giants.

NOTE Confidence: 0.8542461511111111
00:26:29.410 --> 00:26:32.233 I can say that with no doubt I did not share
NOTE Confidence: 0.8542461511111111
00:26:32.233 --> 00:26:35.005 my presentation ahead with with Doctor Asnes,
NOTE Confidence: 0.8542461511111111
00:26:35.010 --> 00:26:36.450 but you'll see some overlap.
NOTE Confidence: 0.8542461511111111
00:26:36.450 --> 00:26:37.735 Some of the photos will
NOTE Confidence: 0.8542461511111111
00:26:37.735 --> 00:26:39.020 be a little more recent.
NOTE Confidence: 0.8542461511111111
00:26:39.020 --> 00:26:43.116 As well, but let me take you back.
NOTE Confidence: 0.8542461511111111
00:26:43.120 --> 00:26:45.320 To the world in 1963,
NOTE Confidence: 0.8542461511111111
00:26:45.320 --> 00:26:48.028 some of you might remember the world in 1963.
NOTE Confidence: 0.8542461511111111
00:26:48.028 --> 00:26:49.568 As I look out here,
NOTE Confidence: 0.8542461511111111
00:26:49.570 --> 00:26:51.250 many of you would not.
NOTE Confidence: 0.8981505322222222
00:26:53.790 --> 00:26:55.165 But this was what the
NOTE Confidence: 0.8981505322222222
00:26:55.165 --> 00:26:56.587 world looked like in 1963.
NOTE Confidence: 0.8981505322222222
00:26:56.587 --> 00:26:58.489 I won't go through any detail,
NOTE Confidence: 0.8981505322222222
00:26:58.490 --> 00:27:01.890 but it was that year during the Kennedy
NOTE Confidence: 0.8981505322222222
00:27:01.890 --> 00:27:03.908 Kennedy administration that I was born.
NOTE Confidence: 0.8981505322222222

00:27:03.910 --> 00:27:07.286 And it was. This is an old photo.
NOTE Confidence: 0.898150532222222

00:27:07.290 --> 00:27:09.150 It was right here at Yale,
NOTE Confidence: 0.898150532222222

00:27:09.150 --> 00:27:10.836 New Haven Hospital and it was
NOTE Confidence: 0.898150532222222

00:27:10.836 --> 00:27:12.500 called Grace New Haven Hospital.
NOTE Confidence: 0.814980488571429

00:27:14.960 --> 00:27:19.683 So that's where life started for me. And.
NOTE Confidence: 0.814980488571429

00:27:19.683 --> 00:27:23.760 I had my first lesson early in my life.
NOTE Confidence: 0.814980488571429

00:27:23.760 --> 00:27:27.990 It's a word I am certain everyone in this.
NOTE Confidence: 0.814980488571429

00:27:27.990 --> 00:27:31.635 Room knows. And word that I came to know
NOTE Confidence: 0.814980488571429

00:27:31.635 --> 00:27:33.830 quite well, and I'll put it up here.
NOTE Confidence: 0.814980488571429

00:27:33.830 --> 00:27:36.260 This is just out of the peers in the
NOTE Confidence: 0.814980488571429

00:27:36.260 --> 00:27:37.930 dictionary as I prepared my remarks,
NOTE Confidence: 0.814980488571429

00:27:37.930 --> 00:27:40.114 I looked in the dictionary and you
NOTE Confidence: 0.814980488571429

00:27:40.114 --> 00:27:42.058 see the word congenital existing
NOTE Confidence: 0.814980488571429

00:27:42.058 --> 00:27:44.070 at birth and this is the example.
NOTE Confidence: 0.814980488571429

00:27:44.070 --> 00:27:46.282 They used a malformation of the heart
NOTE Confidence: 0.814980488571429

00:27:46.282 --> 00:27:48.757 I'm going to come back to this word.

NOTE Confidence: 0.814980488571429

00:27:48.760 --> 00:27:51.861 Later, but it's stuck because I was

NOTE Confidence: 0.814980488571429

00:27:51.861 --> 00:27:54.080 diagnosed with tetralogy of the love

NOTE Confidence: 0.814980488571429

00:27:54.080 --> 00:27:57.048 that was about three or four months old

NOTE Confidence: 0.814980488571429

00:27:57.048 --> 00:28:00.028 and that diagnosis came here at Yale.

NOTE Confidence: 0.48727283

00:28:04.810 --> 00:28:08.035 And. I learned that there were

NOTE Confidence: 0.48727283

00:28:08.035 --> 00:28:09.686 some important people in my life

NOTE Confidence: 0.48727283

00:28:09.686 --> 00:28:11.310 that I didn't know at the time.

NOTE Confidence: 0.48727283

00:28:11.310 --> 00:28:14.256 Some of them were already mentioned today,

NOTE Confidence: 0.48727283

00:28:14.256 --> 00:28:17.098 but some of the exact photos that

NOTE Confidence: 0.48727283

00:28:17.098 --> 00:28:19.670 you'll see Doctor Arthur fellow.

NOTE Confidence: 0.48727283

00:28:19.670 --> 00:28:22.400 Obviously, the person that came up

NOTE Confidence: 0.48727283

00:28:22.400 --> 00:28:24.830 with these, I believe it's four,

NOTE Confidence: 0.48727283

00:28:24.830 --> 00:28:26.950 although sometimes I've heard 54

NOTE Confidence: 0.48727283

00:28:26.950 --> 00:28:29.950 characteristics of tetralogy of fellow.

NOTE Confidence: 0.48727283

00:28:29.950 --> 00:28:33.840 Walt Lillehei I I certainly.

NOTE Confidence: 0.48727283

00:28:33.840 --> 00:28:35.916 Read about and many of you,
NOTE Confidence: 0.48727283

00:28:35.920 --> 00:28:39.091 I'm certain have heard of his tremendous
NOTE Confidence: 0.48727283

00:28:39.091 --> 00:28:41.816 advances for cardiac here when he came
NOTE Confidence: 0.48727283

00:28:41.816 --> 00:28:43.978 up with, and I'll never forget one of
NOTE Confidence: 0.48727283

00:28:43.978 --> 00:28:46.316 the doctors here at Yale described it to me.
NOTE Confidence: 0.48727283

00:28:46.320 --> 00:28:49.510 The only procedure that had a 200% mortality
NOTE Confidence: 0.48727283

00:28:49.510 --> 00:28:52.930 rate because it had crossed circulation.
NOTE Confidence: 0.48727283

00:28:52.930 --> 00:28:56.518 Initially, before the heart lung machine.
NOTE Confidence: 0.48727283

00:28:56.520 --> 00:28:58.656 And then of course, Doctor Helen,
NOTE Confidence: 0.48727283

00:28:58.660 --> 00:29:02.335 Brooke, Taussig, who is the mother of.
NOTE Confidence: 0.48727283

00:29:02.340 --> 00:29:06.530 See now of pediatric cardiology.
NOTE Confidence: 0.48727283

00:29:06.530 --> 00:29:09.400 As she teamed up with.
NOTE Confidence: 0.48727283

00:29:09.400 --> 00:29:11.905 Doctor Blaylock and Vivian Thomas
NOTE Confidence: 0.48727283

00:29:11.905 --> 00:29:15.209 for the operation that was already
NOTE Confidence: 0.48727283

00:29:15.209 --> 00:29:17.512 mentioned down at Johns Hopkins.
NOTE Confidence: 0.48727283

00:29:17.512 --> 00:29:20.245 What I found interesting about this photo

NOTE Confidence: 0.48727283

00:29:20.245 --> 00:29:22.293 is some of the folks that were in the photo.

NOTE Confidence: 0.48727283

00:29:22.300 --> 00:29:25.758 I don't know if anyone has seen

NOTE Confidence: 0.48727283

00:29:25.758 --> 00:29:28.860 this photo before and identified,

NOTE Confidence: 0.48727283

00:29:28.860 --> 00:29:31.938 but I'll use the pointer here.

NOTE Confidence: 0.48727283

00:29:31.940 --> 00:29:33.300 You probably know the positions

NOTE Confidence: 0.48727283

00:29:33.300 --> 00:29:34.116 of the doctors.

NOTE Confidence: 0.48727283

00:29:34.120 --> 00:29:36.460 Doctor Blaylock standing over the patient.

NOTE Confidence: 0.48727283

00:29:36.460 --> 00:29:39.644 This is Vivian Thomas, who at the time.

NOTE Confidence: 0.48727283

00:29:39.650 --> 00:29:43.045 Is not allowed to touch the patients

NOTE Confidence: 0.48727283

00:29:43.045 --> 00:29:47.399 because he was a black man and was then

NOTE Confidence: 0.48727283

00:29:47.399 --> 00:29:51.078 honored by Johns Hopkins later in his life.

NOTE Confidence: 0.48727283

00:29:51.080 --> 00:29:53.271 And then I found it interesting across

NOTE Confidence: 0.48727283

00:29:53.271 --> 00:29:55.640 from the patient as Doctor Denton Cooley.

NOTE Confidence: 0.48727283

00:29:55.640 --> 00:29:59.004 Who am I understanding was one of the

NOTE Confidence: 0.48727283

00:29:59.004 --> 00:30:01.860 residents or fellows I should say of

NOTE Confidence: 0.48727283

00:30:01.950 --> 00:30:05.439 Doctor Blaylock and in this photo,
NOTE Confidence: 0.48727283

00:30:05.439 --> 00:30:09.117 doctor Tausik could not be identified
NOTE Confidence: 0.48727283

00:30:09.120 --> 00:30:11.458 as one of the women because she
NOTE Confidence: 0.48727283

00:30:11.458 --> 00:30:12.460 always wore glasses.
NOTE Confidence: 0.48727283

00:30:12.460 --> 00:30:15.802 So it's suspected she's this person
NOTE Confidence: 0.48727283

00:30:15.802 --> 00:30:19.908 that was walking to the side of the.
NOTE Confidence: 0.48727283

00:30:19.910 --> 00:30:21.710 Operating area.
NOTE Confidence: 0.48727283

00:30:21.710 --> 00:30:25.814 But those names were not as important
NOTE Confidence: 0.48727283

00:30:25.814 --> 00:30:28.609 as those that I did come to know,
NOTE Confidence: 0.48727283

00:30:28.610 --> 00:30:31.284 and those that I came to know.
NOTE Confidence: 0.48727283

00:30:31.290 --> 00:30:34.335 Were were mentioned and they truly were
NOTE Confidence: 0.48727283

00:30:34.335 --> 00:30:37.816 giants and these are giants that touched me.
NOTE Confidence: 0.48727283

00:30:37.820 --> 00:30:39.876 These were my doctors,
NOTE Confidence: 0.48727283

00:30:39.876 --> 00:30:41.418 Doctor Ruth Whittemore,
NOTE Confidence: 0.48727283

00:30:41.420 --> 00:30:45.548 who you already know came as one of the
NOTE Confidence: 0.48727283

00:30:45.548 --> 00:30:48.430 proteges of those folks that were down

NOTE Confidence: 0.48727283

00:30:48.430 --> 00:30:51.220 in Baltimore and then Doctor Marie Brown.

NOTE Confidence: 0.48727283

00:30:51.220 --> 00:30:53.859 She actually I had a different photo.

NOTE Confidence: 0.48727283

00:30:53.860 --> 00:30:55.588 She was on the right hand

NOTE Confidence: 0.48727283

00:30:55.588 --> 00:30:57.180 side of Doctor Asnis photo,

NOTE Confidence: 0.48727283

00:30:57.180 --> 00:31:00.414 but I circled her here and

NOTE Confidence: 0.48727283

00:31:00.414 --> 00:31:03.738 you'll see next to her is.

NOTE Confidence: 0.48727283

00:31:03.740 --> 00:31:06.046 Ruth Whittamore I think she had this same

NOTE Confidence: 0.48727283

00:31:06.046 --> 00:31:09.868 hairstyle the entire time she was here.

NOTE Confidence: 0.48727283

00:31:09.870 --> 00:31:11.540 But Doctor Brown was instrumental

NOTE Confidence: 0.48727283

00:31:11.540 --> 00:31:13.590 in my health and my care.

NOTE Confidence: 0.48727283

00:31:13.590 --> 00:31:17.330 She saw me as a patient for over 2 decades

NOTE Confidence: 0.48727283

00:31:17.419 --> 00:31:21.494 from my birth until I was about 21 years old.

NOTE Confidence: 0.48727283

00:31:21.494 --> 00:31:22.808 And, you know,

NOTE Confidence: 0.48727283

00:31:22.810 --> 00:31:25.822 I really admired everything that she

NOTE Confidence: 0.48727283

00:31:25.822 --> 00:31:29.609 did for for me and for patients.

NOTE Confidence: 0.48727283

00:31:29.610 --> 00:31:31.642 I was actually in touch with her later

NOTE Confidence: 0.48727283

00:31:31.642 --> 00:31:33.788 in her life before she passed away,

NOTE Confidence: 0.48727283

00:31:33.790 --> 00:31:36.036 and it was very touching to be

NOTE Confidence: 0.48727283

00:31:36.036 --> 00:31:38.300 in a in in touch with the doctor

NOTE Confidence: 0.48727283

00:31:38.380 --> 00:31:40.170 that late in their life.

NOTE Confidence: 0.863179724666667

00:31:40.170 --> 00:31:43.778 In 2006, when I reached out to her

NOTE Confidence: 0.863179724666667

00:31:43.778 --> 00:31:46.854 and recalled our relationship from

NOTE Confidence: 0.863179724666667

00:31:46.854 --> 00:31:49.548 decades before and then finally.

NOTE Confidence: 0.875402430555555

00:31:51.610 --> 00:31:52.819 Doctor Horace stands.

NOTE Confidence: 0.875402430555555

00:31:52.819 --> 00:31:55.237 All this is actually a newspaper

NOTE Confidence: 0.875402430555555

00:31:55.237 --> 00:31:57.024 clipping that my parents obviously

NOTE Confidence: 0.875402430555555

00:31:57.024 --> 00:31:59.423 took out of the books called the

NOTE Confidence: 0.875402430555555

00:31:59.423 --> 00:32:01.462 New Haven Register back then,

NOTE Confidence: 0.875402430555555

00:32:01.462 --> 00:32:03.366 but Doctor Horace Stanzel,

NOTE Confidence: 0.875402430555555

00:32:03.370 --> 00:32:06.592 who did join the team with

NOTE Confidence: 0.875402430555555

00:32:06.592 --> 00:32:10.582 William Glenn at the time and

NOTE Confidence: 0.875402430555555

00:32:10.582 --> 00:32:13.494 helped lead the pediatric.

NOTE Confidence: 0.875402430555555

00:32:13.500 --> 00:32:16.986 Cardiology surgical staff at the time.

NOTE Confidence: 0.901370105

00:32:19.380 --> 00:32:23.000 And I'll take you to the summer of 1969.

NOTE Confidence: 0.901370105

00:32:23.000 --> 00:32:24.925 Still a lot of you don't remember

NOTE Confidence: 0.901370105

00:32:24.925 --> 00:32:27.380 that summer, but the summer of 69,

NOTE Confidence: 0.901370105

00:32:27.380 --> 00:32:28.964 I always think there was two

NOTE Confidence: 0.901370105

00:32:28.964 --> 00:32:30.020 events that people recognize.

NOTE Confidence: 0.901370105

00:32:30.020 --> 00:32:31.940 I'll just put the important one up here.

NOTE Confidence: 0.901370105

00:32:31.940 --> 00:32:34.292 Me and land landed on the moon

NOTE Confidence: 0.901370105

00:32:34.292 --> 00:32:36.846 and I share that to under score

NOTE Confidence: 0.901370105

00:32:36.846 --> 00:32:39.138 the gravity of where I was,

NOTE Confidence: 0.901370105

00:32:39.140 --> 00:32:40.920 where the world was,

NOTE Confidence: 0.901370105

00:32:40.920 --> 00:32:43.090 where medicine was in 1969,

NOTE Confidence: 0.901370105

00:32:43.090 --> 00:32:46.676 but it was in the summer of 1969.

NOTE Confidence: 0.901370105

00:32:46.676 --> 00:32:50.626 Shortly just three weeks after that.

NOTE Confidence: 0.901370105

00:32:50.626 --> 00:32:53.118 At this little boy.
NOTE Confidence: 0.901370105

00:32:53.120 --> 00:32:56.927 Here had his heart repaired and I know the
NOTE Confidence: 0.901370105

00:32:56.927 --> 00:33:02.606 term now is repaired by Doctor Stanzel here.
NOTE Confidence: 0.901370105

00:33:02.606 --> 00:33:03.560 Umm?
NOTE Confidence: 0.901370105

00:33:03.560 --> 00:33:05.996 The other thing that Doctor Stanzel
NOTE Confidence: 0.901370105

00:33:05.996 --> 00:33:08.717 had done prior to my full repair
NOTE Confidence: 0.901370105

00:33:08.717 --> 00:33:11.076 was a BT shunt and I remember
NOTE Confidence: 0.901370105

00:33:11.160 --> 00:33:13.536 coming back here later in life.
NOTE Confidence: 0.901370105

00:33:13.540 --> 00:33:15.937 I guess at the time was a BT shunt and I
NOTE Confidence: 0.901370105

00:33:15.937 --> 00:33:17.736 mentioned to doctor Asnis when he came
NOTE Confidence: 0.901370105

00:33:17.736 --> 00:33:19.958 back a few years later it was called.
NOTE Confidence: 0.901370105

00:33:19.960 --> 00:33:21.118 Many years later.
NOTE Confidence: 0.901370105

00:33:21.118 --> 00:33:23.820 I should say a classic BT shunt.
NOTE Confidence: 0.901370105

00:33:23.820 --> 00:33:27.573 So then I felt like an old GT Pontiac.
NOTE Confidence: 0.901370105

00:33:27.580 --> 00:33:28.096 So boy,
NOTE Confidence: 0.901370105

00:33:28.096 --> 00:33:29.128 the world has changed.

NOTE Confidence: 0.901370105

00:33:29.130 --> 00:33:30.670 When you hear that as a patient.

NOTE Confidence: 0.916358728

00:33:34.300 --> 00:33:36.250 And that was. You know,

NOTE Confidence: 0.916358728

00:33:36.250 --> 00:33:38.986 in 1969 I did go through that 70s and

NOTE Confidence: 0.916358728

00:33:38.986 --> 00:33:41.973 80s period that was mentioned, but.

NOTE Confidence: 0.916358728

00:33:41.973 --> 00:33:43.992 Pediatric cardiology was

NOTE Confidence: 0.916358728

00:33:43.992 --> 00:33:46.684 very different back then.

NOTE Confidence: 0.916358728

00:33:46.690 --> 00:33:49.861 It was annual visits and then a

NOTE Confidence: 0.916358728

00:33:49.861 --> 00:33:52.309 promotion to every other year.

NOTE Confidence: 0.916358728

00:33:52.310 --> 00:33:54.510 So it came and I walked those halls

NOTE Confidence: 0.916358728

00:33:54.510 --> 00:33:56.793 here at Yale and there was little

NOTE Confidence: 0.916358728

00:33:56.793 --> 00:33:59.175 yellow lines had to follow to get

NOTE Confidence: 0.916358728

00:33:59.175 --> 00:34:01.131 up to the pediatric department and

NOTE Confidence: 0.916358728

00:34:01.131 --> 00:34:03.546 I finally graduated to every two

NOTE Confidence: 0.916358728

00:34:03.546 --> 00:34:06.619 years and then finally as a send

NOTE Confidence: 0.916358728

00:34:06.619 --> 00:34:09.650 off in 1984 when I was 21 years old.

NOTE Confidence: 0.916358728

00:34:09.650 --> 00:34:11.890 I had a cardiac Cath and I met a young
NOTE Confidence: 0.916358728

00:34:11.952 --> 00:34:13.932 fellow sitting right here and the
NOTE Confidence: 0.916358728

00:34:13.932 --> 00:34:16.379 cardiology group and I still remember it.
NOTE Confidence: 0.916358728

00:34:16.380 --> 00:34:17.130 To this day,
NOTE Confidence: 0.916358728

00:34:17.130 --> 00:34:18.630 as he was leaning over my
NOTE Confidence: 0.916358728

00:34:18.630 --> 00:34:20.140 groin to stop the bleeding.
NOTE Confidence: 0.8730691475

00:34:22.990 --> 00:34:25.296 So you know my hats off to you, John.
NOTE Confidence: 0.8730691475

00:34:25.296 --> 00:34:27.126 In terms of the relationship
NOTE Confidence: 0.8730691475

00:34:27.126 --> 00:34:29.270 that we have had as well.
NOTE Confidence: 0.92673572625

00:34:31.820 --> 00:34:36.380 But as I said. It was a time.
NOTE Confidence: 0.92673572625

00:34:36.380 --> 00:34:37.416 That was very different.
NOTE Confidence: 0.92673572625

00:34:37.416 --> 00:34:39.584 You know you brought a note to every
NOTE Confidence: 0.92673572625

00:34:39.584 --> 00:34:40.700 physical education teacher that
NOTE Confidence: 0.92673572625

00:34:40.700 --> 00:34:42.766 you had to kind of get out of gym,
NOTE Confidence: 0.92673572625

00:34:42.770 --> 00:34:44.234 which you know maybe it was
NOTE Confidence: 0.92673572625

00:34:44.234 --> 00:34:45.740 a good in some regards.

NOTE Confidence: 0.92673572625

00:34:45.740 --> 00:34:48.806 It was caution coupled with Wari it

NOTE Confidence: 0.92673572625

00:34:48.806 --> 00:34:51.960 couldn't be in competitive leagues.

NOTE Confidence: 0.92673572625

00:34:51.960 --> 00:34:54.108 You know very different than the

NOTE Confidence: 0.92673572625

00:34:54.108 --> 00:34:56.539 things that you today tell patients.

NOTE Confidence: 0.92673572625

00:34:56.540 --> 00:34:58.773 I'm certain is very very different based

NOTE Confidence: 0.92673572625

00:34:58.773 --> 00:35:01.780 on what I now know and what you now know.

NOTE Confidence: 0.92673572625

00:35:01.780 --> 00:35:06.793 But I then became what I now know today.

NOTE Confidence: 0.92673572625

00:35:06.800 --> 00:35:08.513 Lost to care.

NOTE Confidence: 0.92673572625

00:35:08.513 --> 00:35:10.797 I was an adult.

NOTE Confidence: 0.92673572625

00:35:10.800 --> 00:35:15.920 I was carefree and I did not see

NOTE Confidence: 0.92673572625

00:35:15.920 --> 00:35:18.405 a cardiologist for many years

NOTE Confidence: 0.92673572625

00:35:18.405 --> 00:35:21.562 after my 21st birthday and after

NOTE Confidence: 0.92673572625

00:35:21.562 --> 00:35:23.390 meeting Doctor Fahey.

NOTE Confidence: 0.911599103636363

00:35:26.970 --> 00:35:28.170 And in that time I won't

NOTE Confidence: 0.911599103636363

00:35:28.170 --> 00:35:29.460 bore you with my lifetime.

NOTE Confidence: 0.911937012

00:35:31.730 --> 00:35:34.490 I did a lot before.
NOTE Confidence: 0.911937012

00:35:34.490 --> 00:35:36.640 Reemerging at the adult adult
NOTE Confidence: 0.911937012

00:35:36.640 --> 00:35:37.930 Congenital heart program.
NOTE Confidence: 0.911937012

00:35:37.930 --> 00:35:40.090 I got graduated from college
NOTE Confidence: 0.911937012

00:35:40.090 --> 00:35:44.980 actually twice I married only once.
NOTE Confidence: 0.911937012

00:35:44.980 --> 00:35:48.107 I had a boy I had a girl there they are
NOTE Confidence: 0.911937012

00:35:48.107 --> 00:35:50.669 Michael and Jocelyn and my daughter's
NOTE Confidence: 0.911937012

00:35:50.669 --> 00:35:53.230 name is Jocelyn Brooke out here.
NOTE Confidence: 0.6705766975

00:35:55.280 --> 00:35:59.008 After doctor. Towns it.
NOTE Confidence: 0.6705766975

00:35:59.010 --> 00:35:59.658 They aren't together.
NOTE Confidence: 0.6705766975

00:35:59.658 --> 00:36:01.450 I bought a farm which is another story,
NOTE Confidence: 0.6705766975

00:36:01.450 --> 00:36:03.060 but we won't go into that here.
NOTE Confidence: 0.91111309

00:36:05.120 --> 00:36:07.760 You know I went to Disney.
NOTE Confidence: 0.91111309

00:36:07.760 --> 00:36:09.304 Doesn't everyone do that?
NOTE Confidence: 0.91111309

00:36:09.304 --> 00:36:12.369 And they learned to ski as an adult.
NOTE Confidence: 0.91111309

00:36:12.370 --> 00:36:13.682 And I still remember

NOTE Confidence: 0.91111309

00:36:13.682 --> 00:36:15.650 don't go out in the cold.

NOTE Confidence: 0.91111309

00:36:15.650 --> 00:36:18.068 It could be bad for you.

NOTE Confidence: 0.91111309

00:36:18.070 --> 00:36:19.502 So that was very,

NOTE Confidence: 0.91111309

00:36:19.502 --> 00:36:20.934 very important to me.

NOTE Confidence: 0.91111309

00:36:20.940 --> 00:36:22.396 As an adult that I got to do,

NOTE Confidence: 0.91111309

00:36:22.400 --> 00:36:25.228 some of these things.

NOTE Confidence: 0.91111309

00:36:25.230 --> 00:36:27.246 You know my family life was great.

NOTE Confidence: 0.91111309

00:36:27.250 --> 00:36:30.040 I I could not say enough.

NOTE Confidence: 0.91111309

00:36:30.040 --> 00:36:30.770 About

NOTE Confidence: 0.877070163

00:36:32.780 --> 00:36:35.354 you know the cure that I had and what

NOTE Confidence: 0.877070163

00:36:35.354 --> 00:36:37.696 it you know gave me the ability to do,

NOTE Confidence: 0.877070163

00:36:37.700 --> 00:36:40.292 and really, because of those giants

NOTE Confidence: 0.877070163

00:36:40.292 --> 00:36:43.335 because of the backs of those folks

NOTE Confidence: 0.877070163

00:36:43.335 --> 00:36:47.740 that you come on come behind.

NOTE Confidence: 0.877070163

00:36:47.740 --> 00:36:50.130 But then it was time to

NOTE Confidence: 0.877070163

00:36:50.130 --> 00:36:51.930 come back to cardiology.
NOTE Confidence: 0.877070163

00:36:51.930 --> 00:36:56.417 And I call this cardiology take 2.
NOTE Confidence: 0.877070163

00:36:56.420 --> 00:36:58.429 I've seen here and at the time.
NOTE Confidence: 0.8847892525

00:37:01.170 --> 00:37:05.848 Say he was here. Doctor Perry I I
NOTE Confidence: 0.8847892525

00:37:05.848 --> 00:37:08.333 have him as the production director.
NOTE Confidence: 0.8847892525

00:37:08.333 --> 00:37:10.384 Here was the I I think at
NOTE Confidence: 0.8847892525

00:37:10.384 --> 00:37:12.596 that point was the director of
NOTE Confidence: 0.8847892525

00:37:12.596 --> 00:37:14.156 the Adult Congenital program,
NOTE Confidence: 0.8847892525

00:37:14.160 --> 00:37:17.220 Nancy I first met this evening.
NOTE Confidence: 0.8847892525

00:37:17.220 --> 00:37:19.380 It was almost 16 years of the day.
NOTE Confidence: 0.8847892525

00:37:19.380 --> 00:37:24.630 It was on June 6, June 9th, 2006.
NOTE Confidence: 0.8847892525

00:37:24.630 --> 00:37:26.510 I entered the Children's Hospital
NOTE Confidence: 0.8847892525

00:37:26.510 --> 00:37:28.640 through the ear through the ER,
NOTE Confidence: 0.8847892525

00:37:28.640 --> 00:37:34.118 and I believe my my pulse was 44 and
NOTE Confidence: 0.8847892525

00:37:34.118 --> 00:37:37.450 they asked are you a runner and I said no.
NOTE Confidence: 0.8847892525

00:37:37.450 --> 00:37:38.358 I just feel tired.

NOTE Confidence: 0.93043293

00:37:40.710 --> 00:37:43.508 So I learned a lot since that point

NOTE Confidence: 0.93043293

00:37:43.508 --> 00:37:46.171 in time and obviously have had a lot

NOTE Confidence: 0.93043293

00:37:46.171 --> 00:37:48.327 of here since that point in time,

NOTE Confidence: 0.93043293

00:37:48.330 --> 00:37:50.010 diagnosed with radial cardia

NOTE Confidence: 0.93043293

00:37:50.010 --> 00:37:51.690 and complete heart block,

NOTE Confidence: 0.93043293

00:37:51.690 --> 00:37:54.178 I came through the ER as I mentioned,

NOTE Confidence: 0.93043293

00:37:54.180 --> 00:37:57.368 they admitted me immediately.

NOTE Confidence: 0.93043293

00:37:57.370 --> 00:38:01.186 And I had a pacemaker place.

NOTE Confidence: 0.93043293

00:38:01.190 --> 00:38:03.809 Now this is my perspective of of a pacemaker.

NOTE Confidence: 0.93043293

00:38:03.810 --> 00:38:07.326 I did travel a tremendous amount.

NOTE Confidence: 0.93043293

00:38:07.330 --> 00:38:11.644 In my career, an airport nearly every

NOTE Confidence: 0.93043293

00:38:11.644 --> 00:38:15.208 day at times, certainly every week,

NOTE Confidence: 0.93043293

00:38:15.210 --> 00:38:16.610 but these are the things you get asked.

NOTE Confidence: 0.93043293

00:38:16.610 --> 00:38:17.554 You do get to go to the head

NOTE Confidence: 0.93043293

00:38:17.554 --> 00:38:18.368 of the line if you say,

NOTE Confidence: 0.93043293

00:38:18.370 --> 00:38:20.200 have a pacemaker of that little
NOTE Confidence: 0.93043293

00:38:20.200 --> 00:38:21.690 card that Medtronic gives you.
NOTE Confidence: 0.93043293

00:38:21.690 --> 00:38:22.750 But my favorite response
NOTE Confidence: 0.93043293

00:38:22.750 --> 00:38:24.075 to the questions they ask,
NOTE Confidence: 0.93043293

00:38:24.080 --> 00:38:25.988 which is always do you need a private screen?
NOTE Confidence: 0.93043293

00:38:25.990 --> 00:38:27.262 Do you have any sensitive areas
NOTE Confidence: 0.93043293

00:38:27.262 --> 00:38:29.171 and can I use any the back of my
NOTE Confidence: 0.93043293

00:38:29.171 --> 00:38:30.685 hand and they always say to them
NOTE Confidence: 0.93043293

00:38:30.685 --> 00:38:32.029 I don't need a private screen.
NOTE Confidence: 0.93043293

00:38:32.030 --> 00:38:34.454 I have no sensitive areas and you could
NOTE Confidence: 0.93043293

00:38:34.454 --> 00:38:37.318 use any side of your hand that you'd like.
NOTE Confidence: 0.93043293

00:38:37.320 --> 00:38:39.616 So that's my perspective of the pacemaker.
NOTE Confidence: 0.840018891428571

00:38:43.670 --> 00:38:46.687 Shortly after that placing of the pacemaker,
NOTE Confidence: 0.840018891428571

00:38:46.690 --> 00:38:49.642 I received a call actually was from the ANC.
NOTE Confidence: 0.840018891428571

00:38:49.650 --> 00:38:50.590 She couldn't remember placing.
NOTE Confidence: 0.840018891428571

00:38:50.590 --> 00:38:51.765 It was on my birthday.

NOTE Confidence: 0.840018891428571

00:38:51.770 --> 00:38:55.162 As I said, was August 1st and she

NOTE Confidence: 0.840018891428571

00:38:55.162 --> 00:38:58.680 said Michael they can do this medical

NOTE Confidence: 0.840018891428571

00:38:58.680 --> 00:39:00.926 procedure that they had a cancellation.

NOTE Confidence: 0.840018891428571

00:39:00.926 --> 00:39:03.150 I was actually having dinner with my wife,

NOTE Confidence: 0.840018891428571

00:39:03.150 --> 00:39:07.415 but to come to the hospital on August 3rd,

NOTE Confidence: 0.840018891428571

00:39:07.415 --> 00:39:10.385 2006, I came to the hospital.

NOTE Confidence: 0.840018891428571

00:39:10.390 --> 00:39:12.670 And I think she may have been said.

NOTE Confidence: 0.840018891428571

00:39:12.670 --> 00:39:16.226 Just pull into the little circular area.

NOTE Confidence: 0.840018891428571

00:39:16.230 --> 00:39:18.254 They have valet parking.

NOTE Confidence: 0.840018891428571

00:39:18.254 --> 00:39:20.784 So you know you're nervous.

NOTE Confidence: 0.840018891428571

00:39:20.790 --> 00:39:22.150 I drove the car myself.

NOTE Confidence: 0.840018891428571

00:39:22.150 --> 00:39:24.022 I said my wife said you need to drive.

NOTE Confidence: 0.840018891428571

00:39:24.030 --> 00:39:25.254 I said what do I need to drive?

NOTE Confidence: 0.840018891428571

00:39:25.260 --> 00:39:27.294 I said no, I can drive so I pull

NOTE Confidence: 0.840018891428571

00:39:27.294 --> 00:39:29.508 into the circle at the Children's

NOTE Confidence: 0.840018891428571

00:39:29.508 --> 00:39:31.433 Hospital and the valet immediately
NOTE Confidence: 0.840018891428571

00:39:31.497 --> 00:39:33.817 said it looks me directly in the eyes.
NOTE Confidence: 0.840018891428571

00:39:33.820 --> 00:39:34.750 Look at the window down.
NOTE Confidence: 0.840018891428571

00:39:34.750 --> 00:39:35.810 He's 18 inches away.
NOTE Confidence: 0.840018891428571

00:39:35.810 --> 00:39:37.753 Get the baby out of the car
NOTE Confidence: 0.840018891428571

00:39:37.753 --> 00:39:39.208 and head up to admitting.
NOTE Confidence: 0.840018891428571

00:39:39.210 --> 00:39:41.698 And I said you're looking at the base.
NOTE Confidence: 0.840018891428571

00:39:41.700 --> 00:39:42.004 Yeah,
NOTE Confidence: 0.840018891428571

00:39:42.004 --> 00:39:45.096 so I got out of the car and I had
NOTE Confidence: 0.840018891428571

00:39:45.096 --> 00:39:48.720 it up to to admitting and that day
NOTE Confidence: 0.840018891428571

00:39:48.720 --> 00:39:50.886 Doctor Koff and Doctor Mello performed
NOTE Confidence: 0.840018891428571

00:39:50.886 --> 00:39:53.896 what I now know is called an arvat
NOTE Confidence: 0.840018891428571

00:39:53.896 --> 00:39:56.140 procedure to you know further correct
NOTE Confidence: 0.840018891428571

00:39:56.214 --> 00:39:58.218 some of the malformations that have
NOTE Confidence: 0.840018891428571

00:39:58.218 --> 00:40:01.920 built up in my heart and hoping some
NOTE Confidence: 0.840018891428571

00:40:01.920 --> 00:40:05.460 some narrowing and they actually saved

NOTE Confidence: 0.840018891428571
00:40:05.563 --> 00:40:09.496 the valve which I'll get to in a minute.
NOTE Confidence: 0.840018891428571
00:40:09.500 --> 00:40:11.486 But you know,
NOTE Confidence: 0.840018891428571
00:40:11.486 --> 00:40:14.796 I still remember meeting Doctor
NOTE Confidence: 0.840018891428571
00:40:14.796 --> 00:40:18.220 Cough in 1984 at that cap because
NOTE Confidence: 0.840018891428571
00:40:18.220 --> 00:40:21.643 he had actually come in and gave
NOTE Confidence: 0.840018891428571
00:40:21.643 --> 00:40:24.077 me some discussion about possibly
NOTE Confidence: 0.840018891428571
00:40:24.077 --> 00:40:26.819 needing a procedure in the future.
NOTE Confidence: 0.840018891428571
00:40:26.820 --> 00:40:27.999 And, you know,
NOTE Confidence: 0.840018891428571
00:40:27.999 --> 00:40:29.178 at that point,
NOTE Confidence: 0.840018891428571
00:40:29.180 --> 00:40:31.740 those 20 odd years later,
NOTE Confidence: 0.840018891428571
00:40:31.740 --> 00:40:34.218 I couldn't believe he would be the
NOTE Confidence: 0.840018891428571
00:40:34.218 --> 00:40:36.436 man standing and doing this procedure
NOTE Confidence: 0.840018891428571
00:40:36.436 --> 00:40:38.780 on me right back here at Yale.
NOTE Confidence: 0.840018891428571
00:40:38.780 --> 00:40:40.001 So another great.
NOTE Confidence: 0.840018891428571
00:40:40.001 --> 00:40:42.409 Saw Doctor Koss name there and
NOTE Confidence: 0.840018891428571

00:40:42.409 --> 00:40:44.623 Doctor Mello I understand is back
NOTE Confidence: 0.840018891428571

00:40:44.623 --> 00:40:46.514 in Connecticut somewhere but he
NOTE Confidence: 0.840018891428571

00:40:46.514 --> 00:40:49.258 came down for the procedure as well.
NOTE Confidence: 0.840018891428571

00:40:49.260 --> 00:40:50.926 The other thing is I had to
NOTE Confidence: 0.840018891428571

00:40:50.926 --> 00:40:51.640 start blood thinners.
NOTE Confidence: 0.840018891428571

00:40:51.640 --> 00:40:52.865 I think blood thinners have
NOTE Confidence: 0.840018891428571

00:40:52.865 --> 00:40:53.845 changed over the year.
NOTE Confidence: 0.840018891428571

00:40:53.850 --> 00:40:55.596 But blood thinners, as a patient,
NOTE Confidence: 0.840018891428571

00:40:55.600 --> 00:40:56.656 are a little different as well.
NOTE Confidence: 0.840018891428571

00:40:56.660 --> 00:40:59.780 You really get to know your lab technician
NOTE Confidence: 0.840018891428571

00:40:59.780 --> 00:41:02.360 very well in terms of INR levels,
NOTE Confidence: 0.840018891428571

00:41:02.360 --> 00:41:04.880 you never have to worry about
NOTE Confidence: 0.840018891428571

00:41:04.880 --> 00:41:06.140 finishing your spinach.
NOTE Confidence: 0.840018891428571

00:41:06.140 --> 00:41:08.513 But I know that has changed with
NOTE Confidence: 0.840018891428571

00:41:08.513 --> 00:41:11.263 some of the more recent developments
NOTE Confidence: 0.840018891428571

00:41:11.263 --> 00:41:12.919 on blood thinners.

NOTE Confidence: 0.840018891428571

00:41:12.920 --> 00:41:15.720 And, you know, I had continued here.

NOTE Confidence: 0.840018891428571

00:41:15.720 --> 00:41:17.687 I do have a new appreciation for

NOTE Confidence: 0.840018891428571

00:41:17.687 --> 00:41:19.556 bovines because I came back several

NOTE Confidence: 0.840018891428571

00:41:19.556 --> 00:41:21.482 years later and doctor Asnis and

NOTE Confidence: 0.840018891428571

00:41:21.482 --> 00:41:23.932 Doctor Hellenbrand placed one of

NOTE Confidence: 0.840018891428571

00:41:23.932 --> 00:41:26.836 these valves in the pulmonary position

NOTE Confidence: 0.840018891428571

00:41:26.836 --> 00:41:29.871 through a transcatheter procedure as well,

NOTE Confidence: 0.840018891428571

00:41:29.871 --> 00:41:32.040 so those are just, you know,

NOTE Confidence: 0.840018891428571

00:41:32.040 --> 00:41:34.040 some of the things that I've had here,

NOTE Confidence: 0.840018891428571

00:41:34.040 --> 00:41:36.488 as I saw some of the reunions going on.

NOTE Confidence: 0.840018891428571

00:41:36.490 --> 00:41:38.878 With some of the other doctors

NOTE Confidence: 0.840018891428571

00:41:38.878 --> 00:41:40.470 that are here today,

NOTE Confidence: 0.840018891428571

00:41:40.470 --> 00:41:43.606 you know there was a number of

NOTE Confidence: 0.840018891428571

00:41:43.606 --> 00:41:45.819 other procedures that I've had.

NOTE Confidence: 0.840018891428571

00:41:45.820 --> 00:41:47.260 You know each of them.

NOTE Confidence: 0.840018891428571

00:41:47.260 --> 00:41:48.020 You know.
NOTE Confidence: 0.840018891428571

00:41:48.020 --> 00:41:49.160 I clearly remember,
NOTE Confidence: 0.879759371666667

00:41:49.160 --> 00:41:51.386 you know the some of the commentary
NOTE Confidence: 0.879759371666667

00:41:51.386 --> 00:41:53.260 that you know I've learned,
NOTE Confidence: 0.879759371666667

00:41:53.260 --> 00:41:56.020 and I will tell you as you go through this,
NOTE Confidence: 0.879759371666667

00:41:56.020 --> 00:41:59.709 you realize you're going to have this.
NOTE Confidence: 0.879759371666667

00:41:59.710 --> 00:42:01.950 You know condition for the for your life.
NOTE Confidence: 0.879759371666667

00:42:01.950 --> 00:42:03.530 You do learn about it.
NOTE Confidence: 0.879759371666667

00:42:03.530 --> 00:42:05.780 So I think one of the things that you
NOTE Confidence: 0.879759371666667

00:42:05.780 --> 00:42:08.719 will see is as you as you transition from
NOTE Confidence: 0.879759371666667

00:42:08.719 --> 00:42:10.510 pediatric patients to adult patients.
NOTE Confidence: 0.879759371666667

00:42:10.510 --> 00:42:12.805 The real learning that happens
NOTE Confidence: 0.879759371666667

00:42:12.805 --> 00:42:15.100 because you're really facilitating the
NOTE Confidence: 0.879759371666667

00:42:15.167 --> 00:42:17.911 parents in those early years to their
NOTE Confidence: 0.879759371666667

00:42:17.911 --> 00:42:20.089 understanding and the need for tear.
NOTE Confidence: 0.879759371666667

00:42:20.090 --> 00:42:21.970 As I said, I had that big gap,

NOTE Confidence: 0.879759371666667
00:42:21.970 --> 00:42:23.584 but the learning that I have
NOTE Confidence: 0.879759371666667
00:42:23.584 --> 00:42:25.400 to now today is tremendous.
NOTE Confidence: 0.879759371666667
00:42:25.400 --> 00:42:27.227 And it was a little bit of catch up.
NOTE Confidence: 0.879759371666667
00:42:27.230 --> 00:42:29.575 Hopefully people don't have to have that.
NOTE Confidence: 0.879759371666667
00:42:29.580 --> 00:42:30.600 In the future.
NOTE Confidence: 0.807402181428571
00:42:33.760 --> 00:42:37.480 Even I'll mention this less to do with
NOTE Confidence: 0.807402181428571
00:42:37.480 --> 00:42:40.217 the perspective in terms of bedside,
NOTE Confidence: 0.807402181428571
00:42:40.220 --> 00:42:42.692 but even my interest in reading
NOTE Confidence: 0.807402181428571
00:42:42.692 --> 00:42:45.159 habits have changed over the years.
NOTE Confidence: 0.807402181428571
00:42:45.160 --> 00:42:47.320 These are some of the things that I now read.
NOTE Confidence: 0.807402181428571
00:42:47.320 --> 00:42:49.918 I remember the doctor, Katie said,
NOTE Confidence: 0.807402181428571
00:42:49.920 --> 00:42:51.016 make the doctor, Katie,
NOTE Confidence: 0.807402181428571
00:42:51.016 --> 00:42:53.722 the head of I think it's ahead of the
NOTE Confidence: 0.807402181428571
00:42:53.722 --> 00:42:55.397 surgery or pediatric surgery here,
NOTE Confidence: 0.807402181428571
00:42:55.400 --> 00:42:57.310 he said Mike, you know,
NOTE Confidence: 0.807402181428571

00:42:57.310 --> 00:42:58.166 what are you reading?
NOTE Confidence: 0.807402181428571

00:42:58.166 --> 00:43:00.139 I said I'm reading a John Grisham novel,
NOTE Confidence: 0.807402181428571

00:43:00.140 --> 00:43:01.480 he said as a surgeon.
NOTE Confidence: 0.807402181428571

00:43:01.480 --> 00:43:03.960 I always read about surgeon.
NOTE Confidence: 0.807402181428571

00:43:03.960 --> 00:43:05.538 So I read the knife man,
NOTE Confidence: 0.807402181428571

00:43:05.540 --> 00:43:08.324 which just was an amazing historical
NOTE Confidence: 0.807402181428571

00:43:08.324 --> 00:43:10.708 perspective of how surgery developed
NOTE Confidence: 0.807402181428571

00:43:10.708 --> 00:43:12.978 and those very early years.
NOTE Confidence: 0.807402181428571

00:43:12.980 --> 00:43:15.782 I was kind of spellbound.
NOTE Confidence: 0.807402181428571

00:43:15.782 --> 00:43:19.169 And I read this and you hear a surgeon say,
NOTE Confidence: 0.807402181428571

00:43:19.170 --> 00:43:19.790 you know,
NOTE Confidence: 0.807402181428571

00:43:19.790 --> 00:43:21.960 do surgeon surgery all day and then
NOTE Confidence: 0.807402181428571

00:43:21.960 --> 00:43:24.494 I go home and read about it actually
NOTE Confidence: 0.807402181428571

00:43:24.494 --> 00:43:27.108 met him a couple weeks ago at another.
NOTE Confidence: 0.736547339625

00:43:29.200 --> 00:43:30.808 Another session or meeting
NOTE Confidence: 0.736547339625

00:43:30.808 --> 00:43:32.416 affiliated with the hospital.

NOTE Confidence: 0.736547339625

00:43:32.420 --> 00:43:33.908 Of course, he gave me more

NOTE Confidence: 0.736547339625

00:43:33.908 --> 00:43:35.660 reading lists to to take care of,

NOTE Confidence: 0.736547339625

00:43:35.660 --> 00:43:37.397 and I put some of the highlights up here.

NOTE Confidence: 0.736547339625

00:43:37.400 --> 00:43:40.248 One of the books that I just found

NOTE Confidence: 0.736547339625

00:43:40.248 --> 00:43:42.359 very interesting was healing hearts.

NOTE Confidence: 0.736547339625

00:43:42.360 --> 00:43:44.520 It's by a cardiothoracic

NOTE Confidence: 0.736547339625

00:43:44.520 --> 00:43:46.680 surgeon that's a woman,

NOTE Confidence: 0.736547339625

00:43:46.680 --> 00:43:49.356 and her name is Kathy Migliaro.

NOTE Confidence: 0.736547339625

00:43:49.360 --> 00:43:51.425 I believe she still practices on the

NOTE Confidence: 0.736547339625

00:43:51.425 --> 00:43:54.775 West Coast and really talked about her

NOTE Confidence: 0.736547339625

00:43:54.775 --> 00:43:58.440 passion in terms of helping cardiac.

NOTE Confidence: 0.736547339625

00:43:58.440 --> 00:44:00.894 Patients and I was overwhelmed by

NOTE Confidence: 0.736547339625

00:44:00.894 --> 00:44:03.579 the amount of passion that she put

NOTE Confidence: 0.736547339625

00:44:03.579 --> 00:44:05.441 into the book she talked about.

NOTE Confidence: 0.736547339625

00:44:05.441 --> 00:44:07.223 I think it's called the Greenfield

NOTE Confidence: 0.736547339625

00:44:07.223 --> 00:44:08.728 filter or something like that.

NOTE Confidence: 0.736547339625

00:44:08.730 --> 00:44:11.074 Went up to me Doctor Greenfield in Michigan,

NOTE Confidence: 0.736547339625

00:44:11.080 --> 00:44:13.726 but to see that passion by someone

NOTE Confidence: 0.736547339625

00:44:13.726 --> 00:44:16.698 and how they practiced it every

NOTE Confidence: 0.736547339625

00:44:16.698 --> 00:44:19.850 day was absolutely amazing.

NOTE Confidence: 0.736547339625

00:44:19.850 --> 00:44:22.226 I did read King of Hearts.

NOTE Confidence: 0.736547339625

00:44:22.230 --> 00:44:24.550 Some of you are many of you may

NOTE Confidence: 0.736547339625

00:44:24.550 --> 00:44:26.779 know that is the story about

NOTE Confidence: 0.736547339625

00:44:26.779 --> 00:44:28.744 about Doctor Walt Lillehei and.

NOTE Confidence: 0.736547339625

00:44:28.750 --> 00:44:29.794 To me it was,

NOTE Confidence: 0.736547339625

00:44:29.794 --> 00:44:30.316 you know,

NOTE Confidence: 0.736547339625

00:44:30.320 --> 00:44:34.108 the most intriguing thing to know

NOTE Confidence: 0.736547339625

00:44:34.108 --> 00:44:35.498 that I have been through.

NOTE Confidence: 0.736547339625

00:44:35.500 --> 00:44:37.190 Some of these heart surgeries

NOTE Confidence: 0.736547339625

00:44:37.190 --> 00:44:40.094 and to see what he had done for

NOTE Confidence: 0.736547339625

00:44:40.094 --> 00:44:42.374 the field of heart surgery was

NOTE Confidence: 0.736547339625

00:44:42.374 --> 00:44:44.169 absolutely absolutely amazing.

NOTE Confidence: 0.736547339625

00:44:44.170 --> 00:44:45.886 And one other that I received

NOTE Confidence: 0.736547339625

00:44:45.886 --> 00:44:46.744 from Doctor Elder,

NOTE Confidence: 0.736547339625

00:44:46.750 --> 00:44:50.075 he gave me this book and I

NOTE Confidence: 0.736547339625

00:44:50.075 --> 00:44:51.100 read it cover to cover.

NOTE Confidence: 0.736547339625

00:44:51.100 --> 00:44:52.564 I think I read it in one day

NOTE Confidence: 0.736547339625

00:44:52.564 --> 00:44:54.089 because I found it so compelling.

NOTE Confidence: 0.736547339625

00:44:54.090 --> 00:44:56.889 And thank you Rob for giving it to me.

NOTE Confidence: 0.736547339625

00:44:56.890 --> 00:45:00.425 But Doctor Denton Cooley who wrote 1100

NOTE Confidence: 0.736547339625

00:45:00.425 --> 00:45:02.785 thousand hearts and it's really about

NOTE Confidence: 0.736547339625

00:45:02.785 --> 00:45:05.095 the 100,000 patients and the 100,000

NOTE Confidence: 0.736547339625

00:45:05.095 --> 00:45:07.853 hearts that he touched as a surgery

NOTE Confidence: 0.736547339625

00:45:07.853 --> 00:45:10.103 and of obviously say Denton Cooley.

NOTE Confidence: 0.736547339625

00:45:10.110 --> 00:45:12.250 Everyone knows that name.

NOTE Confidence: 0.736547339625

00:45:12.250 --> 00:45:14.168 But as I read the book and

NOTE Confidence: 0.736547339625

00:45:14.168 --> 00:45:15.310 the perspective I had,
NOTE Confidence: 0.736547339625

00:45:15.310 --> 00:45:17.249 this was the one line that stuck
NOTE Confidence: 0.736547339625

00:45:17.249 --> 00:45:19.544 with me and the entire book is
NOTE Confidence: 0.736547339625

00:45:19.544 --> 00:45:22.500 on page 163 and I want to sound
NOTE Confidence: 0.736547339625

00:45:22.500 --> 00:45:23.844 like citation English teacher.
NOTE Confidence: 0.736547339625

00:45:23.844 --> 00:45:26.553 But I'll read it because I think
NOTE Confidence: 0.736547339625

00:45:26.553 --> 00:45:28.883 it's that important for each of
NOTE Confidence: 0.736547339625

00:45:28.883 --> 00:45:31.593 you to understand what it means to
NOTE Confidence: 0.736547339625

00:45:31.593 --> 00:45:33.903 the patient that is being touched.
NOTE Confidence: 0.736547339625

00:45:33.910 --> 00:45:36.529 At the same time that I touched their hearts.
NOTE Confidence: 0.736547339625

00:45:36.530 --> 00:45:38.230 They also touched mine.
NOTE Confidence: 0.830843128333333

00:45:40.800 --> 00:45:42.750 I found that so so compelling.
NOTE Confidence: 0.873921484333333

00:45:46.430 --> 00:45:48.488 The last thing in terms of our
NOTE Confidence: 0.873921484333333

00:45:48.488 --> 00:45:50.697 reading habits had to do with kind of
NOTE Confidence: 0.873921484333333

00:45:50.697 --> 00:45:52.599 staying up on all these acronyms that
NOTE Confidence: 0.873921484333333

00:45:52.599 --> 00:45:54.903 I use every time I come to clinic.

NOTE Confidence: 0.873921484333333

00:45:54.910 --> 00:45:58.610 It's amazing, you know you.

NOTE Confidence: 0.873921484333333

00:45:58.610 --> 00:46:00.680 I I think you all talk in acronyms and you

NOTE Confidence: 0.873921484333333

00:46:00.730 --> 00:46:02.850 know know what each other is talking about.

NOTE Confidence: 0.873921484333333

00:46:02.850 --> 00:46:04.260 But as a patient and doctor

NOTE Confidence: 0.873921484333333

00:46:04.260 --> 00:46:05.390 Elder knows this about me,

NOTE Confidence: 0.873921484333333

00:46:05.390 --> 00:46:08.646 I tried to keep pace to some degree

NOTE Confidence: 0.873921484333333

00:46:08.646 --> 00:46:12.310 so I did reach out to. I did read.

NOTE Confidence: 0.873921484333333

00:46:12.310 --> 00:46:14.876 I don't know if I've ever said

NOTE Confidence: 0.873921484333333

00:46:14.876 --> 00:46:17.210 this to the doctors that know me.

NOTE Confidence: 0.873921484333333

00:46:17.210 --> 00:46:18.170 I don't think I had,

NOTE Confidence: 0.873921484333333

00:46:18.170 --> 00:46:19.602 but they always said it home, Mike,

NOTE Confidence: 0.873921484333333

00:46:19.602 --> 00:46:21.330 you seem to know a little bit about this.

NOTE Confidence: 0.873921484333333

00:46:21.330 --> 00:46:24.201 I did find out that the father of adult

NOTE Confidence: 0.873921484333333

00:46:24.201 --> 00:46:26.296 congenital heart disease was Doctor

NOTE Confidence: 0.873921484333333

00:46:26.296 --> 00:46:28.970 Joseph Perloff, so I bought his book.

NOTE Confidence: 0.873921484333333

00:46:28.970 --> 00:46:31.260 Now this one I could not read in one day

NOTE Confidence: 0.873921484333333

00:46:31.322 --> 00:46:33.554 because I'm not as smart as all of you,

NOTE Confidence: 0.873921484333333

00:46:33.560 --> 00:46:36.568 but I took my time and I read

NOTE Confidence: 0.873921484333333

00:46:36.568 --> 00:46:38.548 through it and it just.

NOTE Confidence: 0.873921484333333

00:46:38.550 --> 00:46:39.085 Again,

NOTE Confidence: 0.873921484333333

00:46:39.085 --> 00:46:42.295 it was compelling to see someone

NOTE Confidence: 0.873921484333333

00:46:42.295 --> 00:46:45.221 an individual developed this whole

NOTE Confidence: 0.873921484333333

00:46:45.221 --> 00:46:48.306 entire practice around the disease

NOTE Confidence: 0.873921484333333

00:46:48.306 --> 00:46:52.727 that I had and helping people like me.

NOTE Confidence: 0.873921484333333

00:46:52.730 --> 00:46:56.133 So I couldn't help myself and I wrote

NOTE Confidence: 0.873921484333333

00:46:56.133 --> 00:46:59.080 to Doctor Perloff and I just wrote

NOTE Confidence: 0.873921484333333

00:46:59.179 --> 00:47:02.475 to thank him for what he's done for.

NOTE Confidence: 0.873921484333333

00:47:02.480 --> 00:47:04.472 This profession and he got back

NOTE Confidence: 0.873921484333333

00:47:04.472 --> 00:47:08.960 to me right away. I put up here.

NOTE Confidence: 0.873921484333333

00:47:08.960 --> 00:47:13.838 His quote and I'm just going to read the.

NOTE Confidence: 0.873921484333333

00:47:13.840 --> 00:47:16.552 The part in green here that he mentioned

NOTE Confidence: 0.873921484333333

00:47:16.552 --> 00:47:19.386 back to me once and it's really about

NOTE Confidence: 0.873921484333333

00:47:19.386 --> 00:47:22.620 this field of adult congenital heart disease.

NOTE Confidence: 0.873921484333333

00:47:22.620 --> 00:47:24.400 Once the truth is known,

NOTE Confidence: 0.873921484333333

00:47:24.400 --> 00:47:26.068 the fool sees it,

NOTE Confidence: 0.873921484333333

00:47:26.068 --> 00:47:28.570 but the early days of development

NOTE Confidence: 0.873921484333333

00:47:28.652 --> 00:47:31.147 of congenital heart disease and

NOTE Confidence: 0.873921484333333

00:47:31.147 --> 00:47:33.143 adults were a struggle.

NOTE Confidence: 0.873921484333333

00:47:33.150 --> 00:47:35.322 And that just stuck out to

NOTE Confidence: 0.873921484333333

00:47:35.322 --> 00:47:38.000 me that this person.

NOTE Confidence: 0.873921484333333

00:47:38.000 --> 00:47:40.256 And in his career has affected

NOTE Confidence: 0.873921484333333

00:47:40.256 --> 00:47:42.420 so many so many people.

NOTE Confidence: 0.873921484333333

00:47:42.420 --> 00:47:43.302 I mean,

NOTE Confidence: 0.873921484333333

00:47:43.302 --> 00:47:45.948 hear the numbers today of millions

NOTE Confidence: 0.873921484333333

00:47:45.948 --> 00:47:49.170 of adult congenital heart patients.

NOTE Confidence: 0.873921484333333

00:47:49.170 --> 00:47:50.070 So there was, I thought,

NOTE Confidence: 0.873921484333333

00:47:50.070 --> 00:47:55.929 a very touching message in terms of.
NOTE Confidence: 0.873921484333333

00:47:55.930 --> 00:47:58.288 His message immediately back to me.
NOTE Confidence: 0.873921484333333

00:47:58.290 --> 00:47:58.822 Of course,
NOTE Confidence: 0.873921484333333

00:47:58.822 --> 00:48:01.190 he gave me a little more reading to do,
NOTE Confidence: 0.873921484333333

00:48:01.190 --> 00:48:03.090 read the 6th edition Michael
NOTE Confidence: 0.873921484333333

00:48:03.090 --> 00:48:05.592 and you'll find out about some
NOTE Confidence: 0.873921484333333

00:48:05.592 --> 00:48:08.000 of the historical background.
NOTE Confidence: 0.873921484333333

00:48:08.000 --> 00:48:09.950 But I mentioned that in terms
NOTE Confidence: 0.873921484333333

00:48:09.950 --> 00:48:10.925 of these habits,
NOTE Confidence: 0.873921484333333

00:48:10.930 --> 00:48:12.515 you know it wasn't really
NOTE Confidence: 0.873921484333333

00:48:12.515 --> 00:48:14.470 reading that changed in my life.
NOTE Confidence: 0.873921484333333

00:48:14.470 --> 00:48:16.996 But my perspective on life changed
NOTE Confidence: 0.873921484333333

00:48:16.996 --> 00:48:19.586 because of the relationship I have and
NOTE Confidence: 0.873921484333333

00:48:19.586 --> 00:48:22.150 the care that I had right here at Yale.
NOTE Confidence: 0.8545939975

00:48:27.450 --> 00:48:31.554 These are my latest friends and true heroes.
NOTE Confidence: 0.8545939975

00:48:31.560 --> 00:48:33.744 I'm going to actually show more recent

NOTE Confidence: 0.8545939975

00:48:33.744 --> 00:48:36.285 pictures, but each of these folks

NOTE Confidence: 0.8545939975

00:48:36.285 --> 00:48:39.118 have had a hand in touching my heart.

NOTE Confidence: 0.8545939975

00:48:39.120 --> 00:48:42.742 Some of them truly physically Doctor Fahey,

NOTE Confidence: 0.8545939975

00:48:42.742 --> 00:48:45.249 who I'm first met in 1984.

NOTE Confidence: 0.8545939975

00:48:45.249 --> 00:48:46.296 Doctor Jim Perry,

NOTE Confidence: 0.8545939975

00:48:46.296 --> 00:48:48.916 who I mentioned was that the director

NOTE Confidence: 0.8545939975

00:48:48.916 --> 00:48:51.206 of the Adult Congenital program.

NOTE Confidence: 0.8545939975

00:48:51.210 --> 00:48:51.886 Nancy Rollinson,

NOTE Confidence: 0.8545939975

00:48:51.886 --> 00:48:53.914 who I personally want to give

NOTE Confidence: 0.8545939975

00:48:53.914 --> 00:48:55.548 another round of applause for.

NOTE Confidence: 0.788279456666667

00:49:05.060 --> 00:49:07.604 And then Doctor Koff and Doctor

NOTE Confidence: 0.788279456666667

00:49:07.604 --> 00:49:11.220 Mello I mentioned did my I guess.

NOTE Confidence: 0.788279456666667

00:49:11.220 --> 00:49:13.560 Third open heart surgery.

NOTE Confidence: 0.788279456666667

00:49:13.560 --> 00:49:15.280 And then the Doctor Elder,

NOTE Confidence: 0.788279456666667

00:49:15.280 --> 00:49:16.708 who have become very,

NOTE Confidence: 0.788279456666667

00:49:16.708 --> 00:49:19.300 very well acquainted with over the years.

NOTE Confidence: 0.788279456666667

00:49:19.300 --> 00:49:22.120 Doctor Fish Burger, who is now,

NOTE Confidence: 0.788279456666667

00:49:22.120 --> 00:49:23.200 I think down to Miami,

NOTE Confidence: 0.788279456666667

00:49:23.200 --> 00:49:25.377 although used to be here in Miami,

NOTE Confidence: 0.788279456666667

00:49:25.380 --> 00:49:27.072 used to ask them how the

NOTE Confidence: 0.788279456666667

00:49:27.072 --> 00:49:28.200 how's that flight situation.

NOTE Confidence: 0.788279456666667

00:49:28.200 --> 00:49:29.592 I know he did.

NOTE Confidence: 0.788279456666667

00:49:29.592 --> 00:49:34.528 That doctor, doctor Marieb who.

NOTE Confidence: 0.788279456666667

00:49:34.530 --> 00:49:36.290 I couldn't believe how much

NOTE Confidence: 0.788279456666667

00:49:36.290 --> 00:49:38.050 he writes on his scrubs,

NOTE Confidence: 0.788279456666667

00:49:38.050 --> 00:49:40.815 but I believe it's now elsewhere and

NOTE Confidence: 0.788279456666667

00:49:40.815 --> 00:49:44.454 taught me a little bit about Figure 8

NOTE Confidence: 0.788279456666667

00:49:44.454 --> 00:49:48.108 circuits and things like that Doctor Gruber.

NOTE Confidence: 0.788279456666667

00:49:48.110 --> 00:49:51.662 And then Doctor Hillenbrand,

NOTE Confidence: 0.788279456666667

00:49:51.662 --> 00:49:54.306 doctor asnes and Jacoby.

NOTE Confidence: 0.788279456666667

00:49:54.306 --> 00:49:57.648 I think he's not here at Yale anymore,

NOTE Confidence: 0.788279456666667
00:49:57.648 --> 00:50:00.132 but Doctor Jacobi, Dr Beach,
NOTE Confidence: 0.788279456666667
00:50:00.132 --> 00:50:02.040 and Doctor Vinikour,
NOTE Confidence: 0.788279456666667
00:50:02.040 --> 00:50:06.320 all of you truly have touched my heart
NOTE Confidence: 0.788279456666667
00:50:06.320 --> 00:50:09.345 in a fashion that it will never forget.
NOTE Confidence: 0.788279456666667
00:50:09.350 --> 00:50:11.014 And truly, our heroes,
NOTE Confidence: 0.788279456666667
00:50:11.014 --> 00:50:12.532 I remember, I think,
NOTE Confidence: 0.788279456666667
00:50:12.532 --> 00:50:14.919 was the last clinic I came to.
NOTE Confidence: 0.788279456666667
00:50:14.920 --> 00:50:19.528 And I was outside walking to my
NOTE Confidence: 0.788279456666667
00:50:19.528 --> 00:50:21.832 appointment and doctor Alder passed me
NOTE Confidence: 0.788279456666667
00:50:21.832 --> 00:50:24.900 and the on the street in front of the.
NOTE Confidence: 0.788279456666667
00:50:24.900 --> 00:50:27.162 The parking lot and I looked
NOTE Confidence: 0.788279456666667
00:50:27.162 --> 00:50:29.859 over my shoulder and it said and
NOTE Confidence: 0.788279456666667
00:50:29.859 --> 00:50:32.067 it still says heroes work here.
NOTE Confidence: 0.788279456666667
00:50:32.070 --> 00:50:35.654 And I I know that was put up
NOTE Confidence: 0.788279456666667
00:50:35.654 --> 00:50:38.148 more recently for COVID and.
NOTE Confidence: 0.788279456666667

00:50:38.150 --> 00:50:40.934 You know to really shed light on what
NOTE Confidence: 0.788279456666667

00:50:40.934 --> 00:50:44.106 you all have done during this pandemic,
NOTE Confidence: 0.788279456666667

00:50:44.110 --> 00:50:47.606 but it hit me that there's always been
NOTE Confidence: 0.788279456666667

00:50:47.606 --> 00:50:51.294 heroes in these buildings and you know,
NOTE Confidence: 0.788279456666667

00:50:51.294 --> 00:50:54.246 that wasn't something that was new.
NOTE Confidence: 0.788279456666667

00:50:54.250 --> 00:50:55.766 So so to me.
NOTE Confidence: 0.788279456666667

00:50:55.766 --> 00:50:58.621 You know that notion of heroes working
NOTE Confidence: 0.788279456666667

00:50:58.621 --> 00:51:02.402 here has been here since August 1st, 1963,
NOTE Confidence: 0.788279456666667

00:51:02.402 --> 00:51:05.314 when it was Grace New Haven Hospital.
NOTE Confidence: 0.788279456666667

00:51:05.320 --> 00:51:06.368 We can't say enough.
NOTE Confidence: 0.81921296

00:51:09.210 --> 00:51:10.498 And in terms of.
NOTE Confidence: 0.9459947

00:51:12.970 --> 00:51:14.580 Recognition that.
NOTE Confidence: 0.885125571428572

00:51:16.790 --> 00:51:18.596 This hospital has given me so much.
NOTE Confidence: 0.885125571428572

00:51:18.600 --> 00:51:20.044 Rob has mentioned this.
NOTE Confidence: 0.885125571428572

00:51:20.044 --> 00:51:22.210 There is no better gift than
NOTE Confidence: 0.885125571428572

00:51:22.286 --> 00:51:24.650 paying it forward and giving back.

NOTE Confidence: 0.885125571428572
00:51:24.650 --> 00:51:27.938 I've had you know such a long relationship
NOTE Confidence: 0.885125571428572
00:51:27.938 --> 00:51:31.110 with the hospital and I have only been
NOTE Confidence: 0.885125571428572
00:51:31.110 --> 00:51:34.223 able to give back a very small portion
NOTE Confidence: 0.885125571428572
00:51:34.223 --> 00:51:36.894 of what you have all given to me.
NOTE Confidence: 0.885125571428572
00:51:36.894 --> 00:51:39.388 So I am part my wife and I were founding
NOTE Confidence: 0.885125571428572
00:51:39.388 --> 00:51:41.944 members of the Children's Hospital Council,
NOTE Confidence: 0.885125571428572
00:51:41.950 --> 00:51:44.718 which is the philanthropic.
NOTE Confidence: 0.885125571428572
00:51:44.720 --> 00:51:46.232 Engine of the hospital.
NOTE Confidence: 0.885125571428572
00:51:46.232 --> 00:51:47.708 There are many other
NOTE Confidence: 0.885125571428572
00:51:47.708 --> 00:51:48.722 hearings of philanthropy,
NOTE Confidence: 0.885125571428572
00:51:48.722 --> 00:51:51.467 but my wife and I joined as founding
NOTE Confidence: 0.885125571428572
00:51:51.467 --> 00:51:53.423 members and worked with some of
NOTE Confidence: 0.885125571428572
00:51:53.423 --> 00:51:55.270 the senior leadership over the
NOTE Confidence: 0.885125571428572
00:51:55.270 --> 00:51:58.470 years on that Council in terms of
NOTE Confidence: 0.885125571428572
00:51:58.470 --> 00:52:00.008 developing philanthropic endeavors,
NOTE Confidence: 0.885125571428572

00:52:00.008 --> 00:52:03.596 my heart is more closely aligned
NOTE Confidence: 0.885125571428572

00:52:03.596 --> 00:52:06.999 to the adult and pediatric.
NOTE Confidence: 0.885125571428572

00:52:07.000 --> 00:52:10.324 Entities and most of my donations
NOTE Confidence: 0.885125571428572

00:52:10.324 --> 00:52:12.540 have gone towards that.
NOTE Confidence: 0.885125571428572

00:52:12.540 --> 00:52:15.084 They featured us in a giving
NOTE Confidence: 0.885125571428572

00:52:15.084 --> 00:52:18.960 from the heart not too long ago.
NOTE Confidence: 0.885125571428572

00:52:18.960 --> 00:52:21.450 Which you know was unbeknown,
NOTE Confidence: 0.885125571428572

00:52:21.450 --> 00:52:21.692 really.
NOTE Confidence: 0.885125571428572

00:52:21.692 --> 00:52:23.628 I did not know that I would be
NOTE Confidence: 0.885125571428572

00:52:23.628 --> 00:52:24.909 featured in terms of giving.
NOTE Confidence: 0.885125571428572

00:52:24.910 --> 00:52:26.632 It is truly something that is a
NOTE Confidence: 0.885125571428572

00:52:26.632 --> 00:52:28.848 privilege and I don't look for recognition,
NOTE Confidence: 0.885125571428572

00:52:28.850 --> 00:52:31.400 but they actually presented us
NOTE Confidence: 0.885125571428572

00:52:31.400 --> 00:52:34.223 with the the magazine that was
NOTE Confidence: 0.885125571428572

00:52:34.223 --> 00:52:35.588 published and the article that
NOTE Confidence: 0.885125571428572

00:52:35.588 --> 00:52:36.970 was published about my life.

NOTE Confidence: 0.885125571428572
00:52:36.970 --> 00:52:38.870 And I you know,
NOTE Confidence: 0.885125571428572
00:52:38.870 --> 00:52:41.392 I found that again just rewarding
NOTE Confidence: 0.885125571428572
00:52:41.392 --> 00:52:42.947 in terms of the recognition
NOTE Confidence: 0.885125571428572
00:52:42.947 --> 00:52:44.543 that came with that recognition
NOTE Confidence: 0.885125571428572
00:52:44.543 --> 00:52:46.343 that I was not looking for.
NOTE Confidence: 0.885125571428572
00:52:46.350 --> 00:52:49.150 I'm looking to recognize all of you.
NOTE Confidence: 0.885125571428572
00:52:49.150 --> 00:52:51.520 Up there.
NOTE Confidence: 0.885125571428572
00:52:51.520 --> 00:52:53.074 And I'm going to just mention you
NOTE Confidence: 0.885125571428572
00:52:53.074 --> 00:52:54.120 know two other things.
NOTE Confidence: 0.885125571428572
00:52:54.120 --> 00:52:56.682 As I conclude my remarks here and
NOTE Confidence: 0.885125571428572
00:52:56.682 --> 00:52:59.356 I'll go back to the lesson in
NOTE Confidence: 0.885125571428572
00:52:59.356 --> 00:53:01.600 Latin that you have taught me,
NOTE Confidence: 0.885125571428572
00:53:01.600 --> 00:53:05.198 because I think the definition of congenital,
NOTE Confidence: 0.885125571428572
00:53:05.200 --> 00:53:07.474 a congested US or congenital as
NOTE Confidence: 0.885125571428572
00:53:07.474 --> 00:53:10.310 we know it has changed for me.
NOTE Confidence: 0.885125571428572

00:53:10.310 --> 00:53:12.410 And this is the same word.
NOTE Confidence: 0.885125571428572

00:53:12.410 --> 00:53:14.394 It's still an adjective,
NOTE Confidence: 0.885125571428572

00:53:14.394 --> 00:53:17.370 but existing at birth has changed
NOTE Confidence: 0.885125571428572

00:53:17.459 --> 00:53:20.537 from me to existing throughout life.
NOTE Confidence: 0.885125571428572

00:53:20.540 --> 00:53:22.584 And I think that.
NOTE Confidence: 0.885125571428572

00:53:22.584 --> 00:53:26.634 Is solely because I had a congenital
NOTE Confidence: 0.885125571428572

00:53:26.634 --> 00:53:29.910 yellow haven heart entirely.
NOTE Confidence: 0.89658385125

00:53:32.590 --> 00:53:36.590 And one final message, I'll leave you with.
NOTE Confidence: 0.89658385125

00:53:36.590 --> 00:53:39.450 It's something that I recognized.
NOTE Confidence: 0.89658385125

00:53:39.450 --> 00:53:41.484 You do every day and I think it's all
NOTE Confidence: 0.89658385125

00:53:41.484 --> 00:53:43.479 the professionals that technicians,
NOTE Confidence: 0.89658385125

00:53:43.480 --> 00:53:45.588 the nurses, the doctors,
NOTE Confidence: 0.89658385125

00:53:45.588 --> 00:53:47.696 everyone here at Yale.
NOTE Confidence: 0.89658385125

00:53:47.700 --> 00:53:49.604 Particularly the folks that
NOTE Confidence: 0.89658385125

00:53:49.604 --> 00:53:54.620 that I know in this section and.
NOTE Confidence: 0.89658385125

00:53:54.620 --> 00:53:58.780 You know it's a lesson about.

NOTE Confidence: 0.89658385125

00:53:58.780 --> 00:53:59.932 What you do,

NOTE Confidence: 0.89658385125

00:53:59.932 --> 00:54:03.010 and you should recognize you do every day.

NOTE Confidence: 0.89658385125

00:54:03.010 --> 00:54:07.450 And I truly believe that you have the

NOTE Confidence: 0.89658385125

00:54:07.450 --> 00:54:10.780 ability to change the trajectory of

NOTE Confidence: 0.89658385125

00:54:10.780 --> 00:54:14.680 someone's life every day you come to work.

NOTE Confidence: 0.89658385125

00:54:14.680 --> 00:54:16.540 And I thank you for that.

NOTE Confidence: 0.89658385125

00:54:16.540 --> 00:54:19.837 I'm certainly happy to answer any questions.

NOTE Confidence: 0.843085621538462

00:54:40.350 --> 00:54:42.226 Thank you so much that that was

NOTE Confidence: 0.843085621538462

00:54:42.226 --> 00:54:44.170 really just a a tremendous talk.

NOTE Confidence: 0.843085621538462

00:54:44.170 --> 00:54:45.018 I really appreciate it.

NOTE Confidence: 0.87091432

00:54:47.850 --> 00:54:51.315 Hard to follow. So if there's

NOTE Confidence: 0.87091432

00:54:51.315 --> 00:54:53.340 anybody who can follow it.

NOTE Confidence: 0.833602382222222

00:54:55.620 --> 00:54:57.905 So I'm happy to introduce

NOTE Confidence: 0.833602382222222

00:54:57.905 --> 00:54:59.733 and reintroduce Rick Kim,

NOTE Confidence: 0.833602382222222

00:54:59.740 --> 00:55:01.880 who many of you know,

NOTE Confidence: 0.833602382222222

00:55:01.880 --> 00:55:04.664 so Rick did his thoracic surgery
NOTE Confidence: 0.833602382222222

00:55:04.664 --> 00:55:07.585 fellowship at Penn was a pediatric
NOTE Confidence: 0.833602382222222

00:55:07.585 --> 00:55:10.030 cardiac surgery fellow at Chop
NOTE Confidence: 0.833602382222222

00:55:10.030 --> 00:55:12.010 and returned to Yale,
NOTE Confidence: 0.833602382222222

00:55:12.010 --> 00:55:14.320 where he had done surgery
NOTE Confidence: 0.833602382222222

00:55:14.320 --> 00:55:15.700 back when did you come back?
NOTE Confidence: 0.835550272222222

00:55:19.560 --> 00:55:23.151 2007 so we overlapped for three years
NOTE Confidence: 0.835550272222222

00:55:23.151 --> 00:55:26.735 and then left us to head out to LA
NOTE Confidence: 0.835550272222222

00:55:26.740 --> 00:55:28.702 where he was at CHL A for a number
NOTE Confidence: 0.835550272222222

00:55:28.702 --> 00:55:30.831 of years and then recently took over
NOTE Confidence: 0.835550272222222

00:55:30.831 --> 00:55:33.190 as the director of the Warren Family
NOTE Confidence: 0.835550272222222

00:55:33.190 --> 00:55:35.320 General Heart Center at Cedar Sinai,
NOTE Confidence: 0.835550272222222

00:55:35.320 --> 00:55:37.432 where he's the also the chief
NOTE Confidence: 0.835550272222222

00:55:37.432 --> 00:55:38.840 of pediatric cardiac surgery.
NOTE Confidence: 0.835550272222222

00:55:38.840 --> 00:55:41.650 So Rick's going to talk to us about the the
NOTE Confidence: 0.835550272222222

00:55:41.715 --> 00:55:44.585 history of congenital heart surgery at Yale,

NOTE Confidence: 0.835550272222222

00:55:44.590 --> 00:55:47.026 and again I think a perspective that's

NOTE Confidence: 0.835550272222222

00:55:47.026 --> 00:55:49.200 really a telling about this. Nice.

NOTE Confidence: 0.88559494

00:55:56.960 --> 00:55:58.900 Great it it's it's actually

NOTE Confidence: 0.88559494

00:55:58.900 --> 00:56:00.452 wonderful to be back.

NOTE Confidence: 0.88559494

00:56:00.460 --> 00:56:01.928 It's it's very difficult

NOTE Confidence: 0.88559494

00:56:01.928 --> 00:56:03.763 to follow that that talk.

NOTE Confidence: 0.88559494

00:56:03.770 --> 00:56:05.834 Michael's talk was was pretty amazing

NOTE Confidence: 0.88559494

00:56:05.834 --> 00:56:08.237 and and I've just been thrilled already

NOTE Confidence: 0.88559494

00:56:08.237 --> 00:56:11.479 in the in the short time that I've been back,

NOTE Confidence: 0.88559494

00:56:11.480 --> 00:56:14.399 you know they always say it's it's.

NOTE Confidence: 0.88559494

00:56:14.400 --> 00:56:19.008 It's the same, but it's not the same.

NOTE Confidence: 0.88559494

00:56:19.010 --> 00:56:20.543 Let me let me go back for

NOTE Confidence: 0.88559494

00:56:20.543 --> 00:56:21.769 just just for a minute.

NOTE Confidence: 0.88559494

00:56:21.770 --> 00:56:23.842 You know I'm going to talk a lot

NOTE Confidence: 0.88559494

00:56:23.842 --> 00:56:25.650 about about Doctor Glen and and

NOTE Confidence: 0.88559494

00:56:25.650 --> 00:56:27.486 it's great that Michael put some

NOTE Confidence: 0.88559494

00:56:27.554 --> 00:56:29.674 of the pictures up and I think I

NOTE Confidence: 0.88559494

00:56:29.674 --> 00:56:32.210 can actually fill in a little bit.

NOTE Confidence: 0.88559494

00:56:32.210 --> 00:56:34.328 Kind of some of the details

NOTE Confidence: 0.88559494

00:56:34.328 --> 00:56:36.410 surrounding some of those pictures.

NOTE Confidence: 0.88559494

00:56:36.410 --> 00:56:39.630 I I just wanna say first though

NOTE Confidence: 0.88559494

00:56:39.630 --> 00:56:43.040 that the that the.

NOTE Confidence: 0.88559494

00:56:43.040 --> 00:56:46.112 I mean the when when I think about

NOTE Confidence: 0.88559494

00:56:46.112 --> 00:56:48.158 congenital heart surgery at Yale.

NOTE Confidence: 0.88559494

00:56:48.160 --> 00:56:50.848 Actually I I think about first

NOTE Confidence: 0.88559494

00:56:50.848 --> 00:56:52.944 doctor Gary Cough. I don't.

NOTE Confidence: 0.88559494

00:56:52.944 --> 00:56:58.070 I don't know the Garry's here, but.

NOTE Confidence: 0.88559494

00:56:58.070 --> 00:56:59.016 You know,

NOTE Confidence: 0.88559494

00:56:59.016 --> 00:57:02.737 I first met Gary in the late 1990s

NOTE Confidence: 0.88559494

00:57:02.737 --> 00:57:05.586 when I was a general surgery resident,

NOTE Confidence: 0.88559494

00:57:05.590 --> 00:57:08.770 and Gary and Johnny were like

NOTE Confidence: 0.88559494

00:57:08.770 --> 00:57:12.050 the kings of the hospital.

NOTE Confidence: 0.88559494

00:57:12.050 --> 00:57:15.026 They they're like they're so cool,

NOTE Confidence: 0.88559494

00:57:15.030 --> 00:57:18.230 and but, but I was a I was a third year.

NOTE Confidence: 0.88559494

00:57:18.230 --> 00:57:19.157 I would never.

NOTE Confidence: 0.88559494

00:57:19.157 --> 00:57:21.921 I would never kind of dare to talk to

NOTE Confidence: 0.88559494

00:57:21.921 --> 00:57:25.519 to Gary and but I was my my I was a

NOTE Confidence: 0.88559494

00:57:25.519 --> 00:57:29.480 third year general surgery resident and.

NOTE Confidence: 0.88559494

00:57:29.480 --> 00:57:32.608 I was in the in the ICU taking

NOTE Confidence: 0.88559494

00:57:32.608 --> 00:57:35.214 call at night and you know,

NOTE Confidence: 0.88559494

00:57:35.214 --> 00:57:38.390 as they do a heart a cardiac patient

NOTE Confidence: 0.88559494

00:57:38.477 --> 00:57:41.667 comes back and starts exsanguinating.

NOTE Confidence: 0.88559494

00:57:41.670 --> 00:57:45.194 And and I have no idea, right?

NOTE Confidence: 0.88559494

00:57:45.194 --> 00:57:48.290 But but I, I was a very good student,

NOTE Confidence: 0.88559494

00:57:48.290 --> 00:57:52.450 as as all as all Koreans in particular,

NOTE Confidence: 0.88559494

00:57:52.450 --> 00:57:54.730 so so I had read a lot of

NOTE Confidence: 0.88559494

00:57:54.730 --> 00:57:56.768 the books and and the book.

NOTE Confidence: 0.88559494

00:57:56.770 --> 00:57:58.100 For some reason that had

NOTE Confidence: 0.88559494

00:57:58.100 --> 00:57:59.164 really stuck my mind.

NOTE Confidence: 0.88559494

00:57:59.170 --> 00:58:01.906 Was this little white book and

NOTE Confidence: 0.88559494

00:58:01.906 --> 00:58:04.744 there's this picture of how you do

NOTE Confidence: 0.88559494

00:58:04.744 --> 00:58:07.110 a reduced anatomy and and all they

NOTE Confidence: 0.88559494

00:58:07.189 --> 00:58:09.814 did is they opened the very bottom.

NOTE Confidence: 0.88559494

00:58:09.820 --> 00:58:11.650 They just took out one wire.

NOTE Confidence: 0.88559494

00:58:11.650 --> 00:58:13.366 And they put the retractor in,

NOTE Confidence: 0.88559494

00:58:13.370 --> 00:58:15.589 and it was so perfect and beautiful,

NOTE Confidence: 0.88559494

00:58:15.590 --> 00:58:17.090 and so here I am.

NOTE Confidence: 0.88559494

00:58:17.090 --> 00:58:20.852 And and I never even seen a chest close

NOTE Confidence: 0.88559494

00:58:20.852 --> 00:58:22.950 before, and I just remember this.

NOTE Confidence: 0.88559494

00:58:22.950 --> 00:58:25.386 This picture is so indeed and perfect.

NOTE Confidence: 0.88559494

00:58:25.390 --> 00:58:29.690 And so I got OK, I know what to do I.

NOTE Confidence: 0.88559494

00:58:29.690 --> 00:58:33.008 OK, I opened this little incision.

NOTE Confidence: 0.88559494

00:58:33.010 --> 00:58:34.767 And of course, you can't see anything,

NOTE Confidence: 0.88559494

00:58:34.770 --> 00:58:36.970 and so I put the retractor and and

NOTE Confidence: 0.88559494

00:58:36.970 --> 00:58:39.207 I tore the whole sternum apart.

NOTE Confidence: 0.88559494

00:58:39.210 --> 00:58:40.958 It's like bleeding everywhere.

NOTE Confidence: 0.88559494

00:58:40.958 --> 00:58:43.143 I don't Gary comes in.

NOTE Confidence: 0.88559494

00:58:43.150 --> 00:58:45.070 He doesn't know who I am,

NOTE Confidence: 0.88559494

00:58:45.070 --> 00:58:48.625 but but Gary comes in and stops the bleeding,

NOTE Confidence: 0.88559494

00:58:48.630 --> 00:58:50.640 puts everything back and he hasn't

NOTE Confidence: 0.88559494

00:58:50.640 --> 00:58:53.369 spoken a word to me this entire time.

NOTE Confidence: 0.88559494

00:58:53.370 --> 00:58:56.630 Not one, not not anything.

NOTE Confidence: 0.88559494

00:58:56.630 --> 00:58:57.809 And then finally,

NOTE Confidence: 0.88559494

00:58:57.809 --> 00:59:00.560 he's about to walk out the door

NOTE Confidence: 0.88559494

00:59:00.644 --> 00:59:04.800 again and Jerry goes he goes.

NOTE Confidence: 0.88559494

00:59:04.800 --> 00:59:05.436 Next time,

NOTE Confidence: 0.88559494

00:59:05.436 --> 00:59:07.662 just take out all the wires that

NOTE Confidence: 0.88559494

00:59:07.662 --> 00:59:08.860 was it and I go.

NOTE Confidence: 0.88559494

00:59:08.860 --> 00:59:11.219 I go this guy's like the coolest,

NOTE Confidence: 0.88559494

00:59:11.220 --> 00:59:13.760 the coolest person and so.

NOTE Confidence: 0.84125362

00:59:13.760 --> 00:59:14.960 And so I went off to.

NOTE Confidence: 0.84125362

00:59:14.960 --> 00:59:17.669 I went off to Philadelphia and and

NOTE Confidence: 0.84125362

00:59:17.669 --> 00:59:20.688 when I came back as an attending.

NOTE Confidence: 0.84125362

00:59:20.690 --> 00:59:25.625 You know Gary was the guy Gary.

NOTE Confidence: 0.84125362

00:59:25.630 --> 00:59:27.191 You know when you when you first

NOTE Confidence: 0.84125362

00:59:27.191 --> 00:59:28.803 come out you think you know but

NOTE Confidence: 0.84125362

00:59:28.803 --> 00:59:30.390 but as they always like to say,

NOTE Confidence: 0.84125362

00:59:30.390 --> 00:59:32.420 you don't know what you don't know

NOTE Confidence: 0.84125362

00:59:32.420 --> 00:59:34.392 and the the wonderful thing about

NOTE Confidence: 0.84125362

00:59:34.392 --> 00:59:36.814 Gary is that he would always make

NOTE Confidence: 0.84125362

00:59:36.885 --> 00:59:38.949 me feel like I knew what I was

NOTE Confidence: 0.84125362

00:59:38.949 --> 00:59:41.834 doing when of course I didn't.

NOTE Confidence: 0.84125362

00:59:41.834 --> 00:59:44.638 And and and Gary was the guy

NOTE Confidence: 0.84125362

00:59:44.638 --> 00:59:46.581 who really kind of got me over

NOTE Confidence: 0.84125362

00:59:46.581 --> 00:59:48.579 those those first few few things.

NOTE Confidence: 0.84125362

00:59:48.580 --> 00:59:50.650 Actually it was a great time.

NOTE Confidence: 0.84125362

00:59:50.650 --> 00:59:52.468 Jeremy was there,

NOTE Confidence: 0.84125362

00:59:52.468 --> 00:59:56.530 Tina al everyone and and and you know,

NOTE Confidence: 0.84125362

00:59:56.530 --> 00:59:58.531 I would come out of the OR and and

NOTE Confidence: 0.84125362

00:59:58.531 --> 01:00:00.109 I would have these big residual

NOTE Confidence: 0.84125362

01:00:00.110 --> 01:00:02.234 VC's would be like don't worry

NOTE Confidence: 0.84125362

01:00:02.234 --> 01:00:04.134 about that would be fine.

NOTE Confidence: 0.84125362

01:00:04.134 --> 01:00:07.911 I'd like I'd like have a you know a

NOTE Confidence: 0.84125362

01:00:07.911 --> 01:00:10.659 you know branch PA something Jeremy.

NOTE Confidence: 0.84125362

01:00:10.660 --> 01:00:13.796 Don't worry don't worry so it was.

NOTE Confidence: 0.84125362

01:00:13.800 --> 01:00:15.234 It was a really great time. OK.

NOTE Confidence: 0.84125362

01:00:15.234 --> 01:00:17.238 Anyway I'm going to talk about.

NOTE Confidence: 0.84125362

01:00:17.240 --> 01:00:18.605 I just have to say that about

NOTE Confidence: 0.84125362

01:00:18.605 --> 01:00:19.999 Gary because I haven't seen him.

NOTE Confidence: 0.84125362

01:00:20.000 --> 01:00:22.310 And and. And he he really,

NOTE Confidence: 0.84125362

01:00:22.310 --> 01:00:24.564 he really meant a lot to me.

NOTE Confidence: 0.84125362

01:00:24.570 --> 01:00:25.050 Umm?

NOTE Confidence: 0.892897206

01:00:27.070 --> 01:00:27.910 So I'm going to talk.

NOTE Confidence: 0.892897206

01:00:27.910 --> 01:00:29.070 Actually, instead of what?

NOTE Confidence: 0.892897206

01:00:29.070 --> 01:00:31.370 What Jeremy did and talk about everybody.

NOTE Confidence: 0.892897206

01:00:31.370 --> 01:00:34.352 I really want to talk about about

NOTE Confidence: 0.892897206

01:00:34.352 --> 01:00:36.751 Doctor Glenn because Glenn is really

NOTE Confidence: 0.892897206

01:00:36.751 --> 01:00:39.747 kind of the the spirit of of of

NOTE Confidence: 0.892897206

01:00:39.747 --> 01:00:42.177 how Yale cardiac surgery develops.

NOTE Confidence: 0.892897206

01:00:42.180 --> 01:00:47.995 Umm? And. The Glen that we see

NOTE Confidence: 0.892897206

01:00:47.995 --> 01:00:50.090 today and this this is one of mine

NOTE Confidence: 0.892897206

01:00:50.090 --> 01:00:51.945 is is of course very different now

NOTE Confidence: 0.892897206

01:00:52.003 --> 01:00:54.019 it's it's like a staging operation.

NOTE Confidence: 0.892897206

01:00:54.020 --> 01:00:55.889 You know we use it really commonly

NOTE Confidence: 0.892897206

01:00:55.889 --> 01:00:56.690 for single reason.

NOTE Confidence: 0.892897206

01:00:56.690 --> 01:00:59.189 This is at children's with John John

NOTE Confidence: 0.892897206

01:00:59.189 --> 01:01:02.675 Wood who I worked with for a decade or

NOTE Confidence: 0.892897206

01:01:02.675 --> 01:01:04.744 more actually and we think of it as

NOTE Confidence: 0.892897206

01:01:04.744 --> 01:01:07.299 it as a very straightforward operation.

NOTE Confidence: 0.892897206

01:01:07.300 --> 01:01:09.660 It's a bidirectional operation and

NOTE Confidence: 0.892897206

01:01:09.660 --> 01:01:12.499 of course the operation that Glenn

NOTE Confidence: 0.892897206

01:01:12.499 --> 01:01:14.875 is known for is very different.

NOTE Confidence: 0.892897206

01:01:14.880 --> 01:01:16.896 It was a. It was a classic.

NOTE Confidence: 0.892897206

01:01:16.900 --> 01:01:21.015 Granny classic Glenn and and it's

NOTE Confidence: 0.892897206

01:01:21.015 --> 01:01:24.164 a unilateral glend to to one side

NOTE Confidence: 0.892897206

01:01:24.164 --> 01:01:27.244 and and of course it was done for.

NOTE Confidence: 0.892897206

01:01:27.250 --> 01:01:29.340 For very different things, right?

NOTE Confidence: 0.892897206

01:01:29.340 --> 01:01:30.852 Yes, it was done for tricuspid

NOTE Confidence: 0.892897206

01:01:30.852 --> 01:01:32.150 atresia and things like that,

NOTE Confidence: 0.892897206

01:01:32.150 --> 01:01:33.608 but it's also done for tech.
NOTE Confidence: 0.892897206

01:01:33.610 --> 01:01:36.160 PS You know it's done for
NOTE Confidence: 0.892897206

01:01:36.160 --> 01:01:37.010 corrected transposition.
NOTE Confidence: 0.892897206

01:01:37.010 --> 01:01:39.838 It's done for Epstein's and and the
NOTE Confidence: 0.892897206

01:01:39.838 --> 01:01:42.269 first time they did it clinically
NOTE Confidence: 0.892897206

01:01:42.269 --> 01:01:43.385 was in 1958.
NOTE Confidence: 0.892897206

01:01:43.385 --> 01:01:45.515 But he had been thinking about
NOTE Confidence: 0.892897206

01:01:45.515 --> 01:01:47.565 it since 1948 and he had been
NOTE Confidence: 0.892897206

01:01:47.565 --> 01:01:49.190 working on it through the lab.
NOTE Confidence: 0.892897206

01:01:49.190 --> 01:01:50.398 And of course he.
NOTE Confidence: 0.892897206

01:01:50.398 --> 01:01:53.128 He did it for a single VPS's like the
NOTE Confidence: 0.892897206

01:01:53.128 --> 01:01:55.610 perfect patient to do it on the the.
NOTE Confidence: 0.892897206

01:01:55.610 --> 01:01:57.530 The thing I love about this.
NOTE Confidence: 0.892897206

01:01:57.530 --> 01:01:59.438 Initial description here though
NOTE Confidence: 0.892897206

01:01:59.438 --> 01:02:02.920 is is is when you look at it,
NOTE Confidence: 0.892897206

01:02:02.920 --> 01:02:06.094 you immediately know why a classic

NOTE Confidence: 0.892897206

01:02:06.094 --> 01:02:10.209 lennis to one side is because you had,

NOTE Confidence: 0.892897206

01:02:10.210 --> 01:02:11.920 you know there's no cardio pulmonary

NOTE Confidence: 0.892897206

01:02:11.920 --> 01:02:13.260 bypass support for for us,

NOTE Confidence: 0.892897206

01:02:13.260 --> 01:02:14.994 it's easy because we're draining the

NOTE Confidence: 0.892897206

01:02:14.994 --> 01:02:16.801 head and we're kind of bypassing

NOTE Confidence: 0.892897206

01:02:16.801 --> 01:02:17.698 that whole area,

NOTE Confidence: 0.892897206

01:02:17.700 --> 01:02:19.860 but he had to put a clamp on it so

NOTE Confidence: 0.892897206

01:02:19.933 --> 01:02:22.165 you know you you put a clamp on the

NOTE Confidence: 0.892897206

01:02:22.165 --> 01:02:24.741 SVC and a synodic patient that that

NOTE Confidence: 0.892897206

01:02:24.741 --> 01:02:27.702 patients headsets are going to go to 0.

NOTE Confidence: 0.892897206

01:02:27.702 --> 01:02:29.880 So the other the other reason

NOTE Confidence: 0.892897206

01:02:29.975 --> 01:02:32.369 why I love this is that it.

NOTE Confidence: 0.892897206

01:02:32.370 --> 01:02:36.292 There's the the technique involved so.

NOTE Confidence: 0.892897206

01:02:36.292 --> 01:02:39.420 If you ask most.

NOTE Confidence: 0.892897206

01:02:39.420 --> 01:02:42.794 Pediatric heart surgeons in the world today,

NOTE Confidence: 0.892897206

01:02:42.800 --> 01:02:43.344 they said,
NOTE Confidence: 0.892897206

01:02:43.344 --> 01:02:45.248 how do you technically do your Glen
NOTE Confidence: 0.892897206

01:02:45.248 --> 01:02:47.360 and they say, oh, I just run it?
NOTE Confidence: 0.892897206

01:02:47.360 --> 01:02:47.864 No problem.
NOTE Confidence: 0.892897206

01:02:47.864 --> 01:02:49.880 I just I just run run means you
NOTE Confidence: 0.892897206

01:02:49.938 --> 01:02:52.066 just do a continuous suture over and
NOTE Confidence: 0.892897206

01:02:52.066 --> 01:02:54.040 over around the new to S Madonna.
NOTE Confidence: 0.892897206

01:02:54.040 --> 01:02:58.780 That's so so The thing is is what
NOTE Confidence: 0.892897206

01:02:58.780 --> 01:03:00.668 I what I found, at least for me,
NOTE Confidence: 0.892897206

01:03:00.668 --> 01:03:02.420 is that if I was truly,
NOTE Confidence: 0.892897206

01:03:02.420 --> 01:03:05.360 truly honest with myself when those
NOTE Confidence: 0.892897206

01:03:05.360 --> 01:03:09.270 patients came back for their Prefontaine cat.
NOTE Confidence: 0.892897206

01:03:09.270 --> 01:03:10.050 Two more,
NOTE Confidence: 0.892897206

01:03:10.050 --> 01:03:13.056 often more often than you'd like, you see,
NOTE Confidence: 0.892897206

01:03:13.056 --> 01:03:15.095 like a little narrowing and and the
NOTE Confidence: 0.892897206

01:03:15.095 --> 01:03:16.970 cardiologists of course be very nice to you,

NOTE Confidence: 0.892897206

01:03:16.970 --> 01:03:17.840 and they'll be like, oh,

NOTE Confidence: 0.892897206

01:03:17.840 --> 01:03:19.010 don't worry about it, you know,

NOTE Confidence: 0.892897206

01:03:19.010 --> 01:03:21.266 do dilate at the time or do something,

NOTE Confidence: 0.892897206

01:03:21.270 --> 01:03:23.433 but you you have like this little

NOTE Confidence: 0.892897206

01:03:23.433 --> 01:03:24.830 tiny pinch in there.

NOTE Confidence: 0.892897206

01:03:24.830 --> 01:03:26.978 And I said, well.

NOTE Confidence: 0.892897206

01:03:26.980 --> 01:03:27.754 You know,

NOTE Confidence: 0.892897206

01:03:27.754 --> 01:03:30.076 I so so we tried everything.

NOTE Confidence: 0.91760111

01:03:30.080 --> 01:03:32.312 We kind of like pull it open we're

NOTE Confidence: 0.91760111

01:03:32.312 --> 01:03:34.070 very cognizant we're trying not to.

NOTE Confidence: 0.91760111

01:03:34.070 --> 01:03:36.788 We call this a purse string.

NOTE Confidence: 0.91760111

01:03:36.790 --> 01:03:39.350 And I said, you know something so about

NOTE Confidence: 0.91760111

01:03:39.350 --> 01:03:42.340 3-4 years ago I said I'm going to run the

NOTE Confidence: 0.91760111

01:03:42.340 --> 01:03:44.975 back and interrupt the front and and when

NOTE Confidence: 0.91760111

01:03:44.975 --> 01:03:47.900 you run the back and you interrupt the front.

NOTE Confidence: 0.91760111

01:03:47.900 --> 01:03:49.958 Like it essentially takes it away,
NOTE Confidence: 0.91760111

01:03:49.960 --> 01:03:52.660 and so you you get a really kind of
NOTE Confidence: 0.91760111

01:03:52.660 --> 01:03:55.200 nice anastomosis and then and then.
NOTE Confidence: 0.91760111

01:03:55.200 --> 01:03:57.692 Sure enough I look at this and
NOTE Confidence: 0.91760111

01:03:57.692 --> 01:03:59.374 so this is in 1958.
NOTE Confidence: 0.91760111

01:03:59.374 --> 01:04:01.498 This is only 60 years ago.
NOTE Confidence: 0.91760111

01:04:01.500 --> 01:04:06.036 Glenn runs the back and interrupts the front.
NOTE Confidence: 0.91760111

01:04:06.040 --> 01:04:09.310 So so it took me took me a long time,
NOTE Confidence: 0.91760111

01:04:09.310 --> 01:04:10.554 but but you know,
NOTE Confidence: 0.91760111

01:04:10.554 --> 01:04:13.800 I've kind of I've kind of gone back to that.
NOTE Confidence: 0.91760111

01:04:13.800 --> 01:04:15.594 OK here. Here's the other major
NOTE Confidence: 0.91760111

01:04:15.594 --> 01:04:17.080 thing that he's known for.
NOTE Confidence: 0.91760111

01:04:17.080 --> 01:04:20.080 And really, this is a you know he.
NOTE Confidence: 0.91760111

01:04:20.080 --> 01:04:22.054 He worked with a Yale medical student
NOTE Confidence: 0.91760111

01:04:22.054 --> 01:04:24.280 on his on his graduation thesis,
NOTE Confidence: 0.91760111

01:04:24.280 --> 01:04:25.213 which was the.

NOTE Confidence: 0.91760111

01:04:25.213 --> 01:04:27.390 This it everybody calls it a pump,

NOTE Confidence: 0.91760111

01:04:27.390 --> 01:04:29.414 but really it was a total artificial heart.

NOTE Confidence: 0.91760111

01:04:29.420 --> 01:04:31.148 It was a.

NOTE Confidence: 0.91760111

01:04:31.148 --> 01:04:34.028 It was famously modeled on

NOTE Confidence: 0.91760111

01:04:34.028 --> 01:04:38.560 an erector set and and. Umm?

NOTE Confidence: 0.91760111

01:04:38.560 --> 01:04:40.250 There's no oxygenator for it

NOTE Confidence: 0.91760111

01:04:40.250 --> 01:04:42.200 and and Glenn never used it.

NOTE Confidence: 0.91760111

01:04:42.200 --> 01:04:43.499 There's only one,

NOTE Confidence: 0.91760111

01:04:43.499 --> 01:04:46.097 actually a commercial model ever made.

NOTE Confidence: 0.91760111

01:04:46.100 --> 01:04:47.350 Never used on a human.

NOTE Confidence: 0.91760111

01:04:47.350 --> 01:04:51.058 They did a coronary blood flow study on it.

NOTE Confidence: 0.91760111

01:04:51.060 --> 01:04:53.748 But it's it's important to note that

NOTE Confidence: 0.91760111

01:04:53.748 --> 01:04:56.209 when DeBakey put in the first bed,

NOTE Confidence: 0.91760111

01:04:56.210 --> 01:04:57.930 actually he used a bad.

NOTE Confidence: 0.91760111

01:04:57.930 --> 01:04:59.748 That was a ventricular assist device.

NOTE Confidence: 0.91760111

01:04:59.750 --> 01:05:02.637 It was exactly the same kind
NOTE Confidence: 0.91760111

01:05:02.637 --> 01:05:05.079 of model that that Glen used.
NOTE Confidence: 0.9071562

01:05:08.280 --> 01:05:12.897 But when you think about those two things,
NOTE Confidence: 0.9071562

01:05:12.900 --> 01:05:16.465 those two accomplishments that that
NOTE Confidence: 0.9071562

01:05:16.465 --> 01:05:19.282 everybody talks about. It doesn't.
NOTE Confidence: 0.9071562

01:05:19.282 --> 01:05:21.970 It doesn't really tell the story of Glen,
NOTE Confidence: 0.9071562

01:05:21.970 --> 01:05:24.578 you know, it tells two things and what
NOTE Confidence: 0.9071562

01:05:24.578 --> 01:05:26.841 I found really interesting about when
NOTE Confidence: 0.9071562

01:05:26.841 --> 01:05:29.927 I started to kind of put this whole
NOTE Confidence: 0.9071562

01:05:29.927 --> 01:05:32.767 thing together is is when I think about
NOTE Confidence: 0.9071562

01:05:32.770 --> 01:05:35.066 the time and I think about the person.
NOTE Confidence: 0.9071562

01:05:35.070 --> 01:05:37.545 I had this one image in my mind of
NOTE Confidence: 0.9071562

01:05:37.545 --> 01:05:40.657 of who Glenn was and then once it
NOTE Confidence: 0.9071562

01:05:40.657 --> 01:05:43.036 started learning about Glenn I I
NOTE Confidence: 0.9071562

01:05:43.036 --> 01:05:45.268 realized I had it completely wrong.
NOTE Confidence: 0.9071562

01:05:45.270 --> 01:05:46.233 And that's it.

NOTE Confidence: 0.9071562

01:05:46.233 --> 01:05:48.480 The image in my mind of Glenn

NOTE Confidence: 0.9071562

01:05:48.557 --> 01:05:51.112 was was not the same person who

NOTE Confidence: 0.9071562

01:05:51.112 --> 01:05:53.449 really started the department here.

NOTE Confidence: 0.9071562

01:05:53.450 --> 01:05:56.698 And the big lesson to me was is

NOTE Confidence: 0.9071562

01:05:56.698 --> 01:05:58.669 those characteristics that Glen had,

NOTE Confidence: 0.9071562

01:05:58.670 --> 01:06:02.709 and that that he started this department

NOTE Confidence: 0.9071562

01:06:02.709 --> 01:06:05.377 with those characteristics are like

NOTE Confidence: 0.9071562

01:06:05.377 --> 01:06:08.324 a the the the paradigm of charisma.

NOTE Confidence: 0.9071562

01:06:08.330 --> 01:06:10.415 And they're the they're those

NOTE Confidence: 0.9071562

01:06:10.415 --> 01:06:12.083 important characteristics that you

NOTE Confidence: 0.9071562

01:06:12.083 --> 01:06:13.817 would look for in a leader.

NOTE Confidence: 0.9071562

01:06:13.820 --> 01:06:15.686 And they're obviously just as relevant.

NOTE Confidence: 0.9071562

01:06:15.690 --> 01:06:17.826 Today, as they were back then.

NOTE Confidence: 0.9071562

01:06:17.830 --> 01:06:21.004 So, So what was the origin

NOTE Confidence: 0.9071562

01:06:21.004 --> 01:06:23.550 story of the department so?

NOTE Confidence: 0.9071562

01:06:23.550 --> 01:06:26.260 So Glen.
NOTE Confidence: 0.9071562

01:06:26.260 --> 01:06:28.510 When he was asked to come back to Yale,
NOTE Confidence: 0.9071562

01:06:28.510 --> 01:06:30.570 this is this is 1948,
NOTE Confidence: 0.9071562

01:06:30.570 --> 01:06:33.986 so he he had already finished his
NOTE Confidence: 0.9071562

01:06:33.986 --> 01:06:36.848 his training at at the MGH and
NOTE Confidence: 0.9071562

01:06:36.848 --> 01:06:39.044 he was back in in Philadelphia
NOTE Confidence: 0.9071562

01:06:39.044 --> 01:06:41.570 and Philadelphia at Jefferson,
NOTE Confidence: 0.9071562

01:06:41.570 --> 01:06:43.808 actually working with with John Gibbon,
NOTE Confidence: 0.9071562

01:06:43.810 --> 01:06:45.028 I guess they called him Jack Gibbon,
NOTE Confidence: 0.9071562

01:06:45.030 --> 01:06:46.410 who who famously,
NOTE Confidence: 0.9071562

01:06:46.410 --> 01:06:47.330 you know,
NOTE Confidence: 0.9071562

01:06:47.330 --> 01:06:49.927 developed that was one of the developers
NOTE Confidence: 0.9071562

01:06:49.927 --> 01:06:52.830 of the cardio pulmonary bypass circuit.
NOTE Confidence: 0.9071562

01:06:52.830 --> 01:06:54.140 But.
NOTE Confidence: 0.9071562

01:06:54.140 --> 01:06:57.875 So so Glenn agrees to come back and and
NOTE Confidence: 0.9071562

01:06:57.875 --> 01:07:01.508 or come here in 1948 and he immediately

NOTE Confidence: 0.9071562

01:07:01.508 --> 01:07:04.400 walks into like a big problem.

NOTE Confidence: 0.9071562

01:07:04.400 --> 01:07:06.364 And the big problem.

NOTE Confidence: 0.9071562

01:07:06.364 --> 01:07:09.310 It's actually 2 problems is not

NOTE Confidence: 0.9071562

01:07:09.310 --> 01:07:13.046 starting pediatric heart surgery.

NOTE Confidence: 0.9071562

01:07:13.046 --> 01:07:15.552 Because contrary to what?

NOTE Confidence: 0.9071562

01:07:15.552 --> 01:07:18.172 What people believed pediatric heart

NOTE Confidence: 0.9071562

01:07:18.172 --> 01:07:22.306 surgery 1948 New Haven was the the

NOTE Confidence: 0.9071562

01:07:22.306 --> 01:07:27.248 place to be it it had already it.

NOTE Confidence: 0.9071562

01:07:27.248 --> 01:07:29.216 It was at the very forefront.

NOTE Confidence: 0.9071562

01:07:29.220 --> 01:07:31.405 They were doing closed heart

NOTE Confidence: 0.9071562

01:07:31.405 --> 01:07:33.153 operations for pulmonary stenosis.

NOTE Confidence: 0.9071562

01:07:33.160 --> 01:07:36.580 They were doing blailock operations.

NOTE Confidence: 0.9071562

01:07:36.580 --> 01:07:38.780 They were doing, you know,

NOTE Confidence: 0.9071562

01:07:38.780 --> 01:07:41.340 coarctation they were doing PDA.

NOTE Confidence: 0.9071562

01:07:41.340 --> 01:07:43.769 Everything that. You could you could do.

NOTE Confidence: 0.9071562

01:07:43.770 --> 01:07:46.330 They were already doing here.
NOTE Confidence: 0.9071562

01:07:46.330 --> 01:07:48.375 Ruth Whitemore was already here
NOTE Confidence: 0.9071562

01:07:48.375 --> 01:07:51.180 and she had a vibrant practice.
NOTE Confidence: 0.9071562

01:07:51.180 --> 01:07:52.746 I was talking earlier with Jeremy.
NOTE Confidence: 0.9071562

01:07:52.750 --> 01:07:53.962 There's a, you know,
NOTE Confidence: 0.9071562

01:07:53.962 --> 01:07:55.780 one of the fathers of pediatric
NOTE Confidence: 0.9071562

01:07:55.847 --> 01:07:57.249 cardiac catheterization.
NOTE Confidence: 0.9071562

01:07:57.250 --> 01:08:00.183 Paul Lurie was here and and Paul
NOTE Confidence: 0.9071562

01:08:00.183 --> 01:08:02.788 Laurie actually went out to to CHL
NOTE Confidence: 0.9071562

01:08:02.788 --> 01:08:05.639 and was there for for many many years.
NOTE Confidence: 0.9071562

01:08:05.640 --> 01:08:08.195 So the problem was not starting the
NOTE Confidence: 0.9071562

01:08:08.195 --> 01:08:10.827 program the the problem when he got
NOTE Confidence: 0.9071562

01:08:10.827 --> 01:08:13.422 here and the two major problems one
NOTE Confidence: 0.9071562

01:08:13.422 --> 01:08:15.725 is is that the person who started
NOTE Confidence: 0.9071562

01:08:15.725 --> 01:08:17.959 this guy named Harry Schumacher.
NOTE Confidence: 0.9071562

01:08:17.959 --> 01:08:21.097 Harry Schumacher had just left and

NOTE Confidence: 0.9071562

01:08:21.097 --> 01:08:24.164 Harry Schumacher was one of the only

NOTE Confidence: 0.9071562

01:08:24.164 --> 01:08:27.440 people and I'll get to him in a second.

NOTE Confidence: 0.9071562

01:08:27.440 --> 01:08:29.609 Who really knew how to do or had any

NOTE Confidence: 0.9071562

01:08:29.609 --> 01:08:31.300 experience to any of these operations.

NOTE Confidence: 0.9071562

01:08:31.300 --> 01:08:33.045 And then the second major

NOTE Confidence: 0.9071562

01:08:33.045 --> 01:08:35.060 problem that that Glenn had is.

NOTE Confidence: 0.9071562

01:08:35.060 --> 01:08:38.010 Glenn had absolutely zero training

NOTE Confidence: 0.9071562

01:08:38.010 --> 01:08:40.960 in cardiac surgery like none

NOTE Confidence: 0.8779030075

01:08:41.054 --> 01:08:43.505 like Nada. He he he,

NOTE Confidence: 0.8779030075

01:08:43.505 --> 01:08:45.525 he hadn't done anything.

NOTE Confidence: 0.8779030075

01:08:45.530 --> 01:08:48.716 And and so, so the story of of of

NOTE Confidence: 0.8779030075

01:08:48.716 --> 01:08:51.657 Harry Schumacher is is that Harry

NOTE Confidence: 0.8779030075

01:08:51.657 --> 01:08:54.754 was with Blaylock with with denting

NOTE Confidence: 0.8779030075

01:08:54.754 --> 01:08:58.310 Kuli and with another kind of West

NOTE Confidence: 0.8779030075

01:08:58.310 --> 01:09:00.278 Coast surgery named Bill Longmire.

NOTE Confidence: 0.8446884814

01:09:02.540 --> 01:09:06.420 And he had been there and and but
NOTE Confidence: 0.8446884814

01:09:06.420 --> 01:09:09.663 Harry wanted to kind of start his
NOTE Confidence: 0.8446884814

01:09:09.663 --> 01:09:13.204 own thing and and so Harry had come
NOTE Confidence: 0.8446884814

01:09:13.204 --> 01:09:16.666 up to to Yale to start the program.
NOTE Confidence: 0.8446884814

01:09:16.670 --> 01:09:17.990 And he started the program
NOTE Confidence: 0.8446884814

01:09:17.990 --> 01:09:19.730 and he was in two years.
NOTE Confidence: 0.8446884814

01:09:19.730 --> 01:09:24.578 He was already really successful and.
NOTE Confidence: 0.8446884814

01:09:24.580 --> 01:09:27.625 But as it is the those kind
NOTE Confidence: 0.8446884814

01:09:27.625 --> 01:09:30.637 of people are prone to to be.
NOTE Confidence: 0.8446884814

01:09:30.640 --> 01:09:34.100 Harry wanted to be chair,
NOTE Confidence: 0.8446884814

01:09:34.100 --> 01:09:37.088 and if you know anything about
NOTE Confidence: 0.8446884814

01:09:37.088 --> 01:09:40.540 the history of of Yale surgery,
NOTE Confidence: 0.8446884814

01:09:40.540 --> 01:09:42.480 Harry didn't become chair.
NOTE Confidence: 0.8446884814

01:09:42.480 --> 01:09:45.800 A guy named Gus Linscott became
NOTE Confidence: 0.8446884814

01:09:45.800 --> 01:09:50.875 chair and so and so Harry left any
NOTE Confidence: 0.8446884814

01:09:50.875 --> 01:09:55.110 and he left and he started Indiana.

NOTE Confidence: 0.8446884814

01:09:55.110 --> 01:09:59.830 And so if you can just imagine the

NOTE Confidence: 0.8446884814

01:09:59.830 --> 01:10:03.178 situation that Glenn walks into.

NOTE Confidence: 0.8446884814

01:10:03.180 --> 01:10:06.006 So the first thing he's got to face is

NOTE Confidence: 0.8446884814

01:10:06.006 --> 01:10:09.088 he's got to face the patients you know.

NOTE Confidence: 0.8446884814

01:10:09.088 --> 01:10:12.800 So unlike it is today where there's there's,

NOTE Confidence: 0.8446884814

01:10:12.800 --> 01:10:14.662 you know more than 100 places where

NOTE Confidence: 0.8446884814

01:10:14.662 --> 01:10:16.879 you can get pediatric heart surgery.

NOTE Confidence: 0.8446884814

01:10:16.880 --> 01:10:18.728 In those days, there were very few.

NOTE Confidence: 0.8446884814

01:10:18.730 --> 01:10:20.755 There are only actually the

NOTE Confidence: 0.8446884814

01:10:20.755 --> 01:10:22.780 places that were all descendants

NOTE Confidence: 0.8446884814

01:10:22.851 --> 01:10:24.539 of the Blaylock trainees.

NOTE Confidence: 0.8446884814

01:10:24.540 --> 01:10:25.940 And on top of that,

NOTE Confidence: 0.8446884814

01:10:25.940 --> 01:10:29.531 you know as as we learned from from Ruth

NOTE Confidence: 0.8446884814

01:10:29.531 --> 01:10:32.132 Whittemore and Tina Adult or congenital

NOTE Confidence: 0.8446884814

01:10:32.132 --> 01:10:34.822 heart disease is the most common

NOTE Confidence: 0.8446884814

01:10:34.822 --> 01:10:37.774 form of congenital disease out there.
NOTE Confidence: 0.8446884814

01:10:37.780 --> 01:10:39.598 But there's never been any surgery,
NOTE Confidence: 0.8446884814

01:10:39.600 --> 01:10:42.806 so there's this huge backlog of patients.
NOTE Confidence: 0.8446884814

01:10:42.810 --> 01:10:45.820 And after the Blaylock operation,
NOTE Confidence: 0.8446884814

01:10:45.820 --> 01:10:47.335 within six weeks,
NOTE Confidence: 0.8446884814

01:10:47.335 --> 01:10:49.355 you know congenital heart
NOTE Confidence: 0.8446884814

01:10:49.355 --> 01:10:51.200 surgery became the OR.
NOTE Confidence: 0.8446884814

01:10:51.200 --> 01:10:54.595 Hopkins became the center of the universe.
NOTE Confidence: 0.8446884814

01:10:54.600 --> 01:10:55.984 For congenital heart patients,
NOTE Confidence: 0.8446884814

01:10:55.984 --> 01:10:58.829 and Yale became one of those places also,
NOTE Confidence: 0.8446884814

01:10:58.830 --> 01:11:02.349 and so so there's a huge volume of patients
NOTE Confidence: 0.8446884814

01:11:02.350 --> 01:11:05.131 here and so and so so you can only
NOTE Confidence: 0.8446884814

01:11:05.131 --> 01:11:07.729 imagine that Glenn's walking in there.
NOTE Confidence: 0.8446884814

01:11:07.730 --> 01:11:10.404 And he's got to talk to these
NOTE Confidence: 0.8446884814

01:11:10.404 --> 01:11:12.569 families of desperately ill patients,
NOTE Confidence: 0.8446884814

01:11:12.570 --> 01:11:15.810 and there's tons of them around in New Haven.

NOTE Confidence: 0.8446884814

01:11:15.810 --> 01:11:16.502 And he,

NOTE Confidence: 0.8446884814

01:11:16.502 --> 01:11:19.270 he's got a he's got to face them.

NOTE Confidence: 0.8446884814

01:11:19.270 --> 01:11:21.041 The other thing he's got to face

NOTE Confidence: 0.8446884814

01:11:21.041 --> 01:11:23.127 is he's got to face Ruth Whitmore.

NOTE Confidence: 0.8446884814

01:11:23.130 --> 01:11:25.790 And and if you read the things

NOTE Confidence: 0.8446884814

01:11:25.790 --> 01:11:26.930 about about her,

NOTE Confidence: 0.8446884814

01:11:26.930 --> 01:11:28.868 you know she's she's like a

NOTE Confidence: 0.8446884814

01:11:28.868 --> 01:11:30.712 lovely woman and she's completely

NOTE Confidence: 0.8446884814

01:11:30.712 --> 01:11:32.628 dedicated to her patients.

NOTE Confidence: 0.8446884814

01:11:32.630 --> 01:11:35.465 But she is like no shrinking Violet.

NOTE Confidence: 0.8446884814

01:11:35.470 --> 01:11:38.026 She is like a a really.

NOTE Confidence: 0.8446884814

01:11:38.030 --> 01:11:41.220 Like determined like powerful woman.

NOTE Confidence: 0.8446884814

01:11:41.220 --> 01:11:44.682 And actually there's a great story

NOTE Confidence: 0.8446884814

01:11:44.682 --> 01:11:48.249 about denting Cooley and and about

NOTE Confidence: 0.8446884814

01:11:48.249 --> 01:11:51.711 how denting Cooley got his his

NOTE Confidence: 0.8446884814

01:11:51.711 --> 01:11:54.520 residency position at at at Hopkins.

NOTE Confidence: 0.8446884814

01:11:54.520 --> 01:11:57.700 I'll bring it up because because

NOTE Confidence: 0.8446884814

01:11:57.700 --> 01:11:59.649 Michael brought it up so.

NOTE Confidence: 0.8446884814

01:11:59.650 --> 01:12:01.394 So I don't know if any of you

NOTE Confidence: 0.8446884814

01:12:01.394 --> 01:12:03.308 have to have seen them to court,

NOTE Confidence: 0.8446884814

01:12:03.310 --> 01:12:05.410 but he's a really handsome guy and

NOTE Confidence: 0.8446884814

01:12:05.410 --> 01:12:07.522 he's like super well spoken and so

NOTE Confidence: 0.8446884814

01:12:07.522 --> 01:12:09.690 he's an intern at Hopkins and he

NOTE Confidence: 0.8446884814

01:12:09.690 --> 01:12:11.590 gets called into blaylock's office.

NOTE Confidence: 0.8446884814

01:12:11.590 --> 01:12:14.446 This this from this is from

NOTE Confidence: 0.8446884814

01:12:14.446 --> 01:12:18.550 Denton Chuy's mouth. And and.

NOTE Confidence: 0.8446884814

01:12:18.550 --> 01:12:20.126 Blaylock goes to him.

NOTE Confidence: 0.8446884814

01:12:20.126 --> 01:12:22.346 He goes Denton, he goes.

NOTE Confidence: 0.8446884814

01:12:22.346 --> 01:12:25.972 I've heard that you are really popular

NOTE Confidence: 0.8446884814

01:12:25.972 --> 01:12:29.287 with the women in this hospital.

NOTE Confidence: 0.8446884814

01:12:29.290 --> 01:12:30.103 And he goes.

NOTE Confidence: 0.8446884814

01:12:30.103 --> 01:12:31.187 I don't know Sir,

NOTE Confidence: 0.8446884814

01:12:31.190 --> 01:12:33.238 but but maybe yeah,

NOTE Confidence: 0.8446884814

01:12:33.238 --> 01:12:33.750 maybe.

NOTE Confidence: 0.73670185625

01:12:36.020 --> 01:12:39.460 He goes and and black goes he goes.

NOTE Confidence: 0.73670185625

01:12:39.460 --> 01:12:42.120 I've got a big problem.

NOTE Confidence: 0.73670185625

01:12:42.120 --> 01:12:44.404 But the problem is,

NOTE Confidence: 0.73670185625

01:12:44.404 --> 01:12:48.769 is that Helen Taussig and her and her

NOTE Confidence: 0.73670185625

01:12:48.770 --> 01:12:51.290 residence and he lists off a bunch of them,

NOTE Confidence: 0.73670185625

01:12:51.290 --> 01:12:54.350 including Ruth Whittemore.

NOTE Confidence: 0.73670185625

01:12:54.350 --> 01:12:56.968 They are constantly on top of me.

NOTE Confidence: 0.73670185625

01:12:56.970 --> 01:12:59.154 They are always telling me what to do.

NOTE Confidence: 0.73670185625

01:12:59.160 --> 01:13:01.256 They're always doing this.

NOTE Confidence: 0.73670185625

01:13:01.256 --> 01:13:02.828 He goes Denton.

NOTE Confidence: 0.73670185625

01:13:02.830 --> 01:13:05.332 Do you think you can help

NOTE Confidence: 0.73670185625

01:13:05.332 --> 01:13:07.000 me handle these women?

NOTE Confidence: 0.554598662

01:13:09.090 --> 01:13:12.670 And and Denton Cooley goes.
NOTE Confidence: 0.554598662

01:13:12.670 --> 01:13:17.044 I don't know, but I'll try and but anyway,
NOTE Confidence: 0.554598662

01:13:17.050 --> 01:13:19.708 that's the story and and I'm
NOTE Confidence: 0.554598662

01:13:19.708 --> 01:13:21.820 pretty sure that there's no.
NOTE Confidence: 0.554598662

01:13:21.820 --> 01:13:23.432 There's no controlling anybody,
NOTE Confidence: 0.554598662

01:13:23.432 --> 01:13:25.447 but that's how Denton Cooley
NOTE Confidence: 0.554598662

01:13:25.447 --> 01:13:27.050 got got his residency.
NOTE Confidence: 0.554598662

01:13:27.050 --> 01:13:29.690 According to Denton. Cool, OK,
NOTE Confidence: 0.554598662

01:13:29.690 --> 01:13:32.963 so so there's a Helen house, or there's a.
NOTE Confidence: 0.554598662

01:13:32.963 --> 01:13:35.018 Glenn Glenn comes to Yale.
NOTE Confidence: 0.554598662

01:13:35.020 --> 01:13:36.952 He's got a problem.
NOTE Confidence: 0.554598662

01:13:36.952 --> 01:13:39.850 He's never done any heart operations.
NOTE Confidence: 0.554598662

01:13:39.850 --> 01:13:42.694 Harry Schumacher the the only the
NOTE Confidence: 0.554598662

01:13:42.694 --> 01:13:45.474 only person who's who's really ever
NOTE Confidence: 0.554598662

01:13:45.474 --> 01:13:48.666 done any of these cases is now gone.
NOTE Confidence: 0.554598662

01:13:48.670 --> 01:13:51.250 Gus Lindskog he he's not.

NOTE Confidence: 0.554598662

01:13:51.250 --> 01:13:52.699 He's not stupid.

NOTE Confidence: 0.554598662

01:13:52.699 --> 01:13:57.803 He knows what a deficit it is at Yale to

NOTE Confidence: 0.554598662

01:13:57.803 --> 01:14:01.555 have to have Harry Schumacher leave and.

NOTE Confidence: 0.554598662

01:14:01.560 --> 01:14:04.080 And so you can only imagine he's

NOTE Confidence: 0.554598662

01:14:04.080 --> 01:14:09.149 putting some pressure on on on Glenn.

NOTE Confidence: 0.554598662

01:14:09.150 --> 01:14:11.719 And then there's the world with what's

NOTE Confidence: 0.554598662

01:14:11.719 --> 01:14:14.594 the world in the late 40s, early 50s?

NOTE Confidence: 0.554598662

01:14:14.594 --> 01:14:17.268 What's the world of of cardiac surgery?

NOTE Confidence: 0.554598662

01:14:17.270 --> 01:14:18.395 It's kind of.

NOTE Confidence: 0.554598662

01:14:18.395 --> 01:14:19.895 It's kind of this.

NOTE Confidence: 0.554598662

01:14:19.900 --> 01:14:22.228 And and Michael was saying about

NOTE Confidence: 0.554598662

01:14:22.228 --> 01:14:24.474 cross circulation and so so cross

NOTE Confidence: 0.554598662

01:14:24.474 --> 01:14:26.209 circulation actually is is they

NOTE Confidence: 0.554598662

01:14:26.209 --> 01:14:28.019 didn't haven't the the problem?

NOTE Confidence: 0.554598662

01:14:28.020 --> 01:14:29.535 Wasn't the pump the problem

NOTE Confidence: 0.554598662

01:14:29.535 --> 01:14:30.444 was the oxygenator.
NOTE Confidence: 0.554598662

01:14:30.450 --> 01:14:32.286 They couldn't get a good oxygenator
NOTE Confidence: 0.554598662

01:14:32.286 --> 01:14:34.418 and So what they would do is
NOTE Confidence: 0.554598662

01:14:34.418 --> 01:14:35.818 they'd hook the parent up.
NOTE Confidence: 0.554598662

01:14:35.820 --> 01:14:39.941 To the baby and they would pump assist,
NOTE Confidence: 0.554598662

01:14:39.941 --> 01:14:42.188 assist the pump but the the the
NOTE Confidence: 0.554598662

01:14:42.188 --> 01:14:43.960 parent was actually the oxygenator
NOTE Confidence: 0.554598662

01:14:43.960 --> 01:14:46.431 but I mean this was like crazy.
NOTE Confidence: 0.554598662

01:14:46.440 --> 01:14:48.525 Alright this this is like
NOTE Confidence: 0.554598662

01:14:48.525 --> 01:14:49.776 some original footage.
NOTE Confidence: 0.554598662

01:14:49.780 --> 01:14:53.776 OK so this is a BSD that's being closed.
NOTE Confidence: 0.554598662

01:14:53.780 --> 01:14:57.062 Umm no patch.
NOTE Confidence: 0.554598662

01:14:57.062 --> 01:15:00.264 Interrupted suture like this
NOTE Confidence: 0.554598662

01:15:00.264 --> 01:15:02.799 humongous incision in the RV.
NOTE Confidence: 0.554598662

01:15:02.800 --> 01:15:06.950 No cardioplegia, obviously, no arrest.
NOTE Confidence: 0.554598662

01:15:06.950 --> 01:15:11.740 No vents, no cardiotomy suction.

NOTE Confidence: 0.554598662

01:15:11.740 --> 01:15:15.868 No defibrillator, no pacemaker.

NOTE Confidence: 0.554598662

01:15:15.870 --> 01:15:18.480 But I mean, that's that's pretty.

NOTE Confidence: 0.79144514

01:15:20.800 --> 01:15:26.930 OK. So. But, and in the days of the

NOTE Confidence: 0.79144514

01:15:26.930 --> 01:15:30.760 Giants like it was bedlam right,

NOTE Confidence: 0.79144514

01:15:30.760 --> 01:15:34.400 so this this first one up on the upper left.

NOTE Confidence: 0.79144514

01:15:34.400 --> 01:15:39.080 Is is is Doctor Lewis who is closing an ASD

NOTE Confidence: 0.79144514

01:15:39.192 --> 01:15:43.434 he he closed it under deep hypothermia?

NOTE Confidence: 0.79144514

01:15:43.440 --> 01:15:45.456 You know, you know you know that is he.

NOTE Confidence: 0.79144514

01:15:45.460 --> 01:15:49.960 He takes a girl, he he puts her in a on

NOTE Confidence: 0.79144514

01:15:49.960 --> 01:15:54.080 top of a block of ice in a in a huge.

NOTE Confidence: 0.79144514

01:15:54.080 --> 01:15:57.603 It was a it was a it was a trough for

NOTE Confidence: 0.79144514

01:15:57.603 --> 01:16:00.012 feeding horses and they would blow.

NOTE Confidence: 0.79144514

01:16:00.012 --> 01:16:02.458 They would take a fan and they

NOTE Confidence: 0.79144514

01:16:02.458 --> 01:16:04.838 they cool the the the child off.

NOTE Confidence: 0.79144514

01:16:04.840 --> 01:16:07.620 Put her on the table.

NOTE Confidence: 0.79144514

01:16:07.620 --> 01:16:09.009 Open her up.
NOTE Confidence: 0.79144514

01:16:09.009 --> 01:16:11.787 It was a clamshell bilateral thoracotomy?
NOTE Confidence: 0.79144514

01:16:11.790 --> 01:16:12.996 Inflow occlusion,
NOTE Confidence: 0.79144514

01:16:12.996 --> 01:16:17.090 which means they basically clamp the KV,
NOTE Confidence: 0.79144514

01:16:17.090 --> 01:16:19.890 no blood flowing in there.
NOTE Confidence: 0.79144514

01:16:19.890 --> 01:16:21.892 Close at the best you can close
NOTE Confidence: 0.79144514

01:16:21.892 --> 01:16:24.147 it up and then rewarm her in.
NOTE Confidence: 0.79144514

01:16:24.150 --> 01:16:27.822 In warm water you can only imagine the
NOTE Confidence: 0.79144514

01:16:27.822 --> 01:16:30.706 sterility involved in this right and then
NOTE Confidence: 0.79144514

01:16:30.706 --> 01:16:34.050 of course this down here is is Lehigh.
NOTE Confidence: 0.79144514

01:16:34.050 --> 01:16:38.040 Right and and just from the
NOTE Confidence: 0.79144514

01:16:38.040 --> 01:16:39.030 number of pictures,
NOTE Confidence: 0.79144514

01:16:39.030 --> 01:16:40.660 the number of people around
NOTE Confidence: 0.79144514

01:16:40.660 --> 01:16:41.964 here that Donald Ross,
NOTE Confidence: 0.79144514

01:16:41.970 --> 01:16:44.406 who's famous for the the Ross procedure.
NOTE Confidence: 0.79144514

01:16:44.410 --> 01:16:46.810 He he, he writes.

NOTE Confidence: 0.79144514

01:16:46.810 --> 01:16:48.010 He goes.

NOTE Confidence: 0.79144514

01:16:48.010 --> 01:16:49.826 He goes when when he went in there

NOTE Confidence: 0.79144514

01:16:49.826 --> 01:16:51.470 he said it was like a circus.

NOTE Confidence: 0.79144514

01:16:51.470 --> 01:16:54.396 There's like 50 people kind of running

NOTE Confidence: 0.79144514

01:16:54.396 --> 01:16:57.310 around and you can imagine because what

NOTE Confidence: 0.79144514

01:16:57.310 --> 01:17:00.629 what kind of guy is doing this right?

NOTE Confidence: 0.79144514

01:17:00.630 --> 01:17:03.290 200% mortality.

NOTE Confidence: 0.79144514

01:17:03.290 --> 01:17:05.528 It's this guy walk little high,

NOTE Confidence: 0.79144514

01:17:05.530 --> 01:17:06.630 but look at him he.

NOTE Confidence: 0.79144514

01:17:06.630 --> 01:17:09.265 He's kind of like demanding

NOTE Confidence: 0.79144514

01:17:09.265 --> 01:17:10.846 attention this this.

NOTE Confidence: 0.79144514

01:17:10.850 --> 01:17:13.450 This is what loher here boom, right?

NOTE Confidence: 0.79144514

01:17:13.450 --> 01:17:16.048 It's pretty clear like he's like OK?

NOTE Confidence: 0.79144514

01:17:16.048 --> 01:17:18.238 John Lewis, you're doing this,

NOTE Confidence: 0.79144514

01:17:18.240 --> 01:17:19.930 but I'm better than you,

NOTE Confidence: 0.79144514

01:17:19.930 --> 01:17:22.130 he's like.
NOTE Confidence: 0.79144514

01:17:22.130 --> 01:17:24.570 And and so I I think it's important
NOTE Confidence: 0.79144514

01:17:24.570 --> 01:17:26.813 to help lay the scene also is
NOTE Confidence: 0.79144514

01:17:26.813 --> 01:17:29.369 because if you look at this picture,
NOTE Confidence: 0.79144514

01:17:29.370 --> 01:17:31.590 especially this picture down here,
NOTE Confidence: 0.79144514

01:17:31.590 --> 01:17:35.910 he's looking through the picture at you like.
NOTE Confidence: 0.79144514

01:17:35.910 --> 01:17:39.830 This is how intense this guy is and
NOTE Confidence: 0.79144514

01:17:39.830 --> 01:17:42.594 and Denton Cooley clearly marks in in
NOTE Confidence: 0.79144514

01:17:42.594 --> 01:17:45.339 addition to being this this kind of guy.
NOTE Confidence: 0.79144514

01:17:45.340 --> 01:17:48.480 He's like he's emotionally Hardy,
NOTE Confidence: 0.79144514

01:17:48.480 --> 01:17:52.218 basically because so many people died but.
NOTE Confidence: 0.79144514

01:17:52.220 --> 01:17:54.386 He could just keep going right?
NOTE Confidence: 0.79144514

01:17:54.390 --> 01:17:56.250 He changed the world but but,
NOTE Confidence: 0.79144514

01:17:56.250 --> 01:17:58.042 but also you know what kind of guys
NOTE Confidence: 0.79144514

01:17:58.042 --> 01:17:59.667 this the this is going to make.
NOTE Confidence: 0.79144514

01:17:59.670 --> 01:18:01.362 Tina cringe said.

NOTE Confidence: 0.79144514

01:18:01.362 --> 01:18:04.182 Avoid libraries and literature searches

NOTE Confidence: 0.79144514

01:18:04.182 --> 01:18:06.804 because that doesn't matter because

NOTE Confidence: 0.79144514

01:18:06.804 --> 01:18:09.360 let me just let me just go for it.

NOTE Confidence: 0.79144514

01:18:09.360 --> 01:18:13.160 OK, that and all that stuff doesn't matter.

NOTE Confidence: 0.79144514

01:18:13.160 --> 01:18:13.613 Right,

NOTE Confidence: 0.79144514

01:18:13.613 --> 01:18:15.878 But what does he do?

NOTE Confidence: 0.79144514

01:18:15.880 --> 01:18:18.808 He he gets pretty amazing results,

NOTE Confidence: 0.79144514

01:18:18.810 --> 01:18:21.762 but he goes through the entire

NOTE Confidence: 0.79144514

01:18:21.762 --> 01:18:24.850 learning curve in this thing like.

NOTE Confidence: 0.79144514

01:18:24.850 --> 01:18:26.680 Like you close the VSD.

NOTE Confidence: 0.79144514

01:18:26.680 --> 01:18:29.086 You you trap the air valve,

NOTE Confidence: 0.79144514

01:18:29.090 --> 01:18:32.154 it's right there you saw how big this

NOTE Confidence: 0.79144514

01:18:32.154 --> 01:18:35.286 this this whole incision on the RV is.

NOTE Confidence: 0.79144514

01:18:35.290 --> 01:18:37.060 There's he talks about residual

NOTE Confidence: 0.79144514

01:18:37.060 --> 01:18:39.242 VSD's because he sold to this

NOTE Confidence: 0.79144514

01:18:39.242 --> 01:18:40.610 limb of muscle tissue.
NOTE Confidence: 0.79144514

01:18:40.610 --> 01:18:42.178 Madonna knows that happens,
NOTE Confidence: 0.79144514

01:18:42.178 --> 01:18:44.530 that's that's easy to do right?
NOTE Confidence: 0.79144514

01:18:44.530 --> 01:18:46.273 And a third of all his deaths
NOTE Confidence: 0.79144514

01:18:46.273 --> 01:18:47.597 were complete heart block because
NOTE Confidence: 0.79144514

01:18:47.597 --> 01:18:48.645 he had no Pacers,
NOTE Confidence: 0.80404254

01:18:48.650 --> 01:18:51.310 right? There's no cross clamping
NOTE Confidence: 0.80404254

01:18:51.310 --> 01:18:54.190 and and actually when, when?
NOTE Confidence: 0.80404254

01:18:54.190 --> 01:18:58.690 When it comes down to it.
NOTE Confidence: 0.80404254

01:18:58.690 --> 01:19:01.224 There's there's a number of different things,
NOTE Confidence: 0.80404254

01:19:01.230 --> 01:19:04.402 number of different. Umm?
NOTE Confidence: 0.80404254

01:19:04.402 --> 01:19:08.056 Writings where where him and his associates
NOTE Confidence: 0.80404254

01:19:08.056 --> 01:19:10.820 minimize the risk to the donors.
NOTE Confidence: 0.80404254

01:19:10.820 --> 01:19:12.400 It really just said, uh,
NOTE Confidence: 0.80404254

01:19:12.400 --> 01:19:14.311 nothing's going to happen and and actually
NOTE Confidence: 0.80404254

01:19:14.311 --> 01:19:16.349 one of them had a had a big stroke.

NOTE Confidence: 0.93372564

01:19:20.430 --> 01:19:23.986 But it was a magical time, right? It?

NOTE Confidence: 0.93372564

01:19:23.986 --> 01:19:27.156 It was a time when the the heart lung

NOTE Confidence: 0.93372564

01:19:27.156 --> 01:19:30.196 machine kind of was coming on and everybody

NOTE Confidence: 0.93372564

01:19:30.196 --> 01:19:32.807 was like entranced with this whole thing.

NOTE Confidence: 0.93372564

01:19:32.810 --> 01:19:35.568 But these are the 1st 18 cases

NOTE Confidence: 0.93372564

01:19:35.568 --> 01:19:38.330 done on cardio pulmonary bypass.

NOTE Confidence: 0.93372564

01:19:38.330 --> 01:19:42.150 17 out of 18 died right it

NOTE Confidence: 0.93372564

01:19:42.150 --> 01:19:44.392 it changed the world right?

NOTE Confidence: 0.93372564

01:19:44.392 --> 01:19:48.326 But but this is the the scenario.

NOTE Confidence: 0.93372564

01:19:48.330 --> 01:19:49.638 It it's fascinating reading.

NOTE Confidence: 0.93372564

01:19:49.638 --> 01:19:52.318 What was going on in Minnesota at the time?

NOTE Confidence: 0.93372564

01:19:52.320 --> 01:19:53.745 Because everybody's entrance.

NOTE Confidence: 0.93372564

01:19:53.745 --> 01:19:56.595 Hundreds of surgeons are going up

NOTE Confidence: 0.93372564

01:19:56.595 --> 01:19:59.308 to Minnesota to learn about this,

NOTE Confidence: 0.93372564

01:19:59.310 --> 01:20:00.910 and they're they're looking at.

NOTE Confidence: 0.93372564

01:20:00.910 --> 01:20:02.446 There's 50 people in the room.
NOTE Confidence: 0.93372564

01:20:02.450 --> 01:20:04.010 They're coming all the time,
NOTE Confidence: 0.93372564

01:20:04.010 --> 01:20:05.820 and after their operation they
NOTE Confidence: 0.93372564

01:20:05.820 --> 01:20:08.019 would have lunch and then they
NOTE Confidence: 0.93372564

01:20:08.019 --> 01:20:09.957 would go down to the basement.
NOTE Confidence: 0.93372564

01:20:09.960 --> 01:20:12.858 And there's a guy named Vincent God.
NOTE Confidence: 0.93372564

01:20:12.860 --> 01:20:15.872 Who became head of of cardiac
NOTE Confidence: 0.93372564

01:20:15.872 --> 01:20:18.810 surgery at at Johns Hopkins?
NOTE Confidence: 0.93372564

01:20:18.810 --> 01:20:22.170 Vincent got another guy, DeWitt.
NOTE Confidence: 0.93372564

01:20:22.170 --> 01:20:22.992 They would.
NOTE Confidence: 0.93372564

01:20:22.992 --> 01:20:25.458 They would give him a demonstration
NOTE Confidence: 0.93372564

01:20:25.458 --> 01:20:27.650 about the DeWitt oxygenator,
NOTE Confidence: 0.93372564

01:20:27.650 --> 01:20:29.450 like it was the first.
NOTE Confidence: 0.93372564

01:20:29.450 --> 01:20:30.458 It was the 1st.
NOTE Confidence: 0.845019945454546

01:20:32.580 --> 01:20:34.775 Disposable oxygenator and and it
NOTE Confidence: 0.845019945454546

01:20:34.775 --> 01:20:37.498 really changed the world and and

NOTE Confidence: 0.845019945454546
01:20:37.498 --> 01:20:39.286 after this presentation after
NOTE Confidence: 0.845019945454546
01:20:39.286 --> 01:20:42.207 seeing little high there and this
NOTE Confidence: 0.845019945454546
01:20:42.207 --> 01:20:44.905 presentation by by DeWitt and and
NOTE Confidence: 0.845019945454546
01:20:44.905 --> 01:20:47.721 Vincent Cott they would have the
NOTE Confidence: 0.845019945454546
01:20:47.721 --> 01:20:49.875 opportunity to buy the tubing and
NOTE Confidence: 0.845019945454546
01:20:49.875 --> 01:20:52.579 to buy the the kind of whole thing.
NOTE Confidence: 0.845019945454546
01:20:52.580 --> 01:20:54.260 And of course everybody did.
NOTE Confidence: 0.845019945454546
01:20:54.260 --> 01:20:55.220 Everybody did this,
NOTE Confidence: 0.845019945454546
01:20:55.220 --> 01:20:57.460 they wanted to start this whole program.
NOTE Confidence: 0.755132497285714
01:20:59.830 --> 01:21:02.588 Umm? But yet this this is it.
NOTE Confidence: 0.755132497285714
01:21:02.590 --> 01:21:06.528 Every surgeon was self taught right by,
NOTE Confidence: 0.755132497285714
01:21:06.528 --> 01:21:08.936 by the way. But then you know,
NOTE Confidence: 0.755132497285714
01:21:08.936 --> 01:21:10.730 nowadays we get seven O needles.
NOTE Confidence: 0.755132497285714
01:21:10.730 --> 01:21:12.820 We use, you know, high,
NOTE Confidence: 0.755132497285714
01:21:12.820 --> 01:21:13.432 high magnification.
NOTE Confidence: 0.755132497285714

01:21:13.432 --> 01:21:14.656 There's none of that.
NOTE Confidence: 0.755132497285714

01:21:14.660 --> 01:21:16.660 You know, the the needles are kind of,
NOTE Confidence: 0.755132497285714

01:21:16.660 --> 01:21:20.156 you know, not, not kind of put on.
NOTE Confidence: 0.755132497285714

01:21:20.160 --> 01:21:23.052 And because heart surgery had such
NOTE Confidence: 0.755132497285714

01:21:23.052 --> 01:21:25.925 a high mortality, only the sickest
NOTE Confidence: 0.755132497285714

01:21:25.925 --> 01:21:28.775 people were were getting this done.
NOTE Confidence: 0.755132497285714

01:21:28.780 --> 01:21:30.676 And actually word of mouth suggested
NOTE Confidence: 0.755132497285714

01:21:30.676 --> 01:21:32.630 that the number of additional.
NOTE Confidence: 0.755132497285714

01:21:32.630 --> 01:21:34.982 There were a number of additional
NOTE Confidence: 0.755132497285714

01:21:34.982 --> 01:21:37.366 temps they just didn't report it
NOTE Confidence: 0.755132497285714

01:21:37.366 --> 01:21:39.977 because the deaths were like too high.
NOTE Confidence: 0.755132497285714

01:21:39.980 --> 01:21:41.657 So what what,
NOTE Confidence: 0.755132497285714

01:21:41.657 --> 01:21:46.260 what situation do we have for Glenn here,
NOTE Confidence: 0.755132497285714

01:21:46.260 --> 01:21:47.874 right? So Glenn,
NOTE Confidence: 0.755132497285714

01:21:47.874 --> 01:21:53.250 as he's trying to to build out this program.
NOTE Confidence: 0.755132497285714

01:21:53.250 --> 01:21:56.218 He's got this legacy from Harry Schumacher.

NOTE Confidence: 0.755132497285714
01:21:56.220 --> 01:21:58.986 He's got like a very tough
NOTE Confidence: 0.755132497285714
01:21:58.986 --> 01:22:00.369 pediatric cardiology group.
NOTE Confidence: 0.755132497285714
01:22:00.370 --> 01:22:03.242 They're generally very easy.
NOTE Confidence: 0.755132497285714
01:22:03.242 --> 01:22:05.396 Maybe not right?
NOTE Confidence: 0.755132497285714
01:22:05.400 --> 01:22:08.613 He's he's got all the hopes of
NOTE Confidence: 0.755132497285714
01:22:08.613 --> 01:22:11.523 the the hospital and and Gus
NOTE Confidence: 0.755132497285714
01:22:11.523 --> 01:22:13.903 Linscott and he's got this.
NOTE Confidence: 0.755132497285714
01:22:13.910 --> 01:22:16.088 You know this world of cardiac
NOTE Confidence: 0.755132497285714
01:22:16.088 --> 01:22:18.290 surgery that is opening around it,
NOTE Confidence: 0.755132497285714
01:22:18.290 --> 01:22:21.178 but it's a world that is really risky.
NOTE Confidence: 0.755132497285714
01:22:21.180 --> 01:22:22.575 It's risk personified,
NOTE Confidence: 0.755132497285714
01:22:22.575 --> 01:22:24.990 but it's entranced, everybody it's.
NOTE Confidence: 0.755132497285714
01:22:24.990 --> 01:22:27.030 It's entranced the world.
NOTE Confidence: 0.755132497285714
01:22:27.030 --> 01:22:30.012 And there's got to be tremendous
NOTE Confidence: 0.755132497285714
01:22:30.012 --> 01:22:33.390 pressure on Glen to bring, you know,
NOTE Confidence: 0.755132497285714

01:22:33.390 --> 01:22:37.270 cardiac surgery to the to the forefront.
NOTE Confidence: 0.755132497285714

01:22:37.270 --> 01:22:39.890 And So what happens?
NOTE Confidence: 0.755132497285714

01:22:39.890 --> 01:22:40.824 Well.
NOTE Confidence: 0.755132497285714

01:22:40.824 --> 01:22:46.580 So the easy thing would be is to assume
NOTE Confidence: 0.755132497285714

01:22:46.580 --> 01:22:51.510 that Glen was very much like lillehei, right?
NOTE Confidence: 0.755132497285714

01:22:51.510 --> 01:22:52.905 But he wasn't,
NOTE Confidence: 0.755132497285714

01:22:52.905 --> 01:22:55.230 that's that's that's not Glenn.
NOTE Confidence: 0.755132497285714

01:22:55.230 --> 01:23:00.238 Actually, you know and.
NOTE Confidence: 0.755132497285714

01:23:00.240 --> 01:23:04.490 Glen he does bring the oxygen.
NOTE Confidence: 0.755132497285714

01:23:04.490 --> 01:23:06.912 This is the first cardio pulmonary bypass
NOTE Confidence: 0.755132497285714

01:23:06.912 --> 01:23:09.005 circuit that came to Yale in 1959.
NOTE Confidence: 0.755132497285714

01:23:09.005 --> 01:23:11.840 This is her name is Marjorie St.
NOTE Confidence: 0.755132497285714

01:23:11.840 --> 01:23:12.523 John.
NOTE Confidence: 0.755132497285714

01:23:12.523 --> 01:23:15.938 She's she's a specialty nurse,
NOTE Confidence: 0.755132497285714

01:23:15.940 --> 01:23:18.614 but it only came after he did
NOTE Confidence: 0.755132497285714

01:23:18.614 --> 01:23:20.649 his own experiments and and

NOTE Confidence: 0.755132497285714

01:23:20.649 --> 01:23:22.654 he took a bubble oxygenator.

NOTE Confidence: 0.755132497285714

01:23:22.660 --> 01:23:25.020 What they were doing to the lab and

NOTE Confidence: 0.755132497285714

01:23:25.020 --> 01:23:27.151 he decided that it wasn't time and

NOTE Confidence: 0.755132497285714

01:23:27.151 --> 01:23:29.270 he waded into the late late 50s.

NOTE Confidence: 0.684785318333333

01:23:32.980 --> 01:23:35.938 Uh. And what does he do?

NOTE Confidence: 0.684785318333333

01:23:35.940 --> 01:23:38.204 He goes, we know, we, we.

NOTE Confidence: 0.684785318333333

01:23:38.204 --> 01:23:41.960 We know the history, he does.

NOTE Confidence: 0.684785318333333

01:23:41.960 --> 01:23:45.092 105 Operations his first 105 operations

NOTE Confidence: 0.684785318333333

01:23:45.092 --> 01:23:48.102 with a less than 5% mortality,

NOTE Confidence: 0.684785318333333

01:23:48.102 --> 01:23:51.266 and then he does 110 PDA's

NOTE Confidence: 0.684785318333333

01:23:51.266 --> 01:23:53.054 in a row with no mortality,

NOTE Confidence: 0.684785318333333

01:23:53.060 --> 01:23:57.218 which is like in incredible incredible.

NOTE Confidence: 0.684785318333333

01:23:57.220 --> 01:24:02.358 And at the end in 1959 Ruth

NOTE Confidence: 0.684785318333333

01:24:02.358 --> 01:24:05.290 Whittemore calls him the foremost

NOTE Confidence: 0.684785318333333

01:24:05.290 --> 01:24:08.370 cardiac surgeon in America.

NOTE Confidence: 0.684785318333333

01:24:08.370 --> 01:24:10.344 To his patient and and so how
NOTE Confidence: 0.684785318333333

01:24:10.344 --> 01:24:12.789 does he do it is is he like
NOTE Confidence: 0.684785318333333

01:24:12.789 --> 01:24:14.309 this kind of lillehei guy?
NOTE Confidence: 0.871791080769231

01:24:17.160 --> 01:24:18.804 Let me just give you an
NOTE Confidence: 0.871791080769231

01:24:18.804 --> 01:24:20.860 example of of of kind of what?
NOTE Confidence: 0.871791080769231

01:24:20.860 --> 01:24:23.350 What Glenn, what Glenn was like.
NOTE Confidence: 0.871791080769231

01:24:23.350 --> 01:24:26.248 So this is a great picture in front of
NOTE Confidence: 0.871791080769231

01:24:26.250 --> 01:24:28.114 333 Cedar St which is kind of right.
NOTE Confidence: 0.871791080769231

01:24:28.120 --> 01:24:29.938 There we pass it every day.
NOTE Confidence: 0.871791080769231

01:24:29.940 --> 01:24:31.320 This is the Department of Surgery.
NOTE Confidence: 0.871791080769231

01:24:31.320 --> 01:24:35.971 In 1959 Glenn is already the man right? He?
NOTE Confidence: 0.871791080769231

01:24:35.971 --> 01:24:39.400 He's like at the peak of his his powers.
NOTE Confidence: 0.871791080769231

01:24:39.400 --> 01:24:42.718 He he has reinvigorated the department,
NOTE Confidence: 0.871791080769231

01:24:42.720 --> 01:24:44.304 Yale, cardiac surgeries already.
NOTE Confidence: 0.871791080769231

01:24:44.304 --> 01:24:47.030 Kind of back to where it was.
NOTE Confidence: 0.871791080769231

01:24:47.030 --> 01:24:49.628 If you look at this picture.

NOTE Confidence: 0.871791080769231
01:24:49.630 --> 01:24:51.454 Everybody's everybody's looking at
NOTE Confidence: 0.871791080769231
01:24:51.454 --> 01:24:53.734 the camera everybody's like yes,
NOTE Confidence: 0.871791080769231
01:24:53.740 --> 01:24:56.220 I'm here for the camera this is Glenn.
NOTE Confidence: 0.871791080769231
01:24:56.220 --> 01:24:58.212 Glenn is the only guy who's
NOTE Confidence: 0.871791080769231
01:24:58.212 --> 01:24:59.900 not looking at he's shy.
NOTE Confidence: 0.871791080769231
01:24:59.900 --> 01:25:01.121 Maybe he's maybe,
NOTE Confidence: 0.871791080769231
01:25:01.121 --> 01:25:03.563 maybe he's even a little embarrassed
NOTE Confidence: 0.871791080769231
01:25:03.563 --> 01:25:05.947 he's kind of looking off to the
NOTE Confidence: 0.871791080769231
01:25:05.947 --> 01:25:08.003 side he's like that this this
NOTE Confidence: 0.871791080769231
01:25:08.003 --> 01:25:09.778 not see Walton lohi right?
NOTE Confidence: 0.77866818
01:25:12.590 --> 01:25:16.650 What is see? He's a lab rat, right?
NOTE Confidence: 0.77866818
01:25:16.650 --> 01:25:19.986 He? He spends many hours happily
NOTE Confidence: 0.77866818
01:25:19.986 --> 01:25:22.210 engaged in the laboratory,
NOTE Confidence: 0.77866818
01:25:22.210 --> 01:25:25.085 and actually, he still cautious, right?
NOTE Confidence: 0.77866818
01:25:25.085 --> 01:25:27.290 He wants the things to move forward,
NOTE Confidence: 0.77866818

01:25:27.290 --> 01:25:30.662 but but as as Bill Sewer said, you know,
NOTE Confidence: 0.77866818

01:25:30.662 --> 01:25:32.790 Bill Bill, he he said that you know,
NOTE Confidence: 0.77866818

01:25:32.790 --> 01:25:35.974 Bill remarked him that that he that Glenn
NOTE Confidence: 0.77866818

01:25:35.974 --> 01:25:38.355 was preventing him from moving ahead
NOTE Confidence: 0.77866818

01:25:38.355 --> 01:25:41.259 too fast and and Glenn suspects he goes.
NOTE Confidence: 0.77866818

01:25:41.260 --> 01:25:43.619 Yeah, you know, that's that's probably true.
NOTE Confidence: 0.77866818

01:25:43.620 --> 01:25:45.690 That's probably true.
NOTE Confidence: 0.77866818

01:25:45.690 --> 01:25:47.895 And and do you know what a
NOTE Confidence: 0.77866818

01:25:47.895 --> 01:25:50.340 A a happy Saturday is for?
NOTE Confidence: 0.77866818

01:25:50.340 --> 01:25:53.844 For Glenn, happy Saturday is going to the
NOTE Confidence: 0.77866818

01:25:53.844 --> 01:25:56.190 Sterling Memorial Library and reading
NOTE Confidence: 0.77866818

01:25:56.190 --> 01:25:58.962 the collected works of Ben Franklin,
NOTE Confidence: 0.77866818

01:25:58.970 --> 01:26:00.341 the Franklin Papers,
NOTE Confidence: 0.77866818

01:26:00.341 --> 01:26:03.540 and he loves the the the two
NOTE Confidence: 0.77866818

01:26:03.637 --> 01:26:06.807 virtues of industry and frugality.
NOTE Confidence: 0.765793571428571

01:26:11.490 --> 01:26:13.849 And so, and so this is this

NOTE Confidence: 0.765793571428571
01:26:13.849 --> 01:26:16.390 is Glenn and and I'm going to,
NOTE Confidence: 0.765793571428571
01:26:16.390 --> 01:26:18.988 you know, I'm I'm trying to.
NOTE Confidence: 0.765793571428571
01:26:18.990 --> 01:26:21.054 When I when I before I I heard
NOTE Confidence: 0.765793571428571
01:26:21.054 --> 01:26:23.346 this this interview I was I was
NOTE Confidence: 0.765793571428571
01:26:23.346 --> 01:26:25.056 thinking about all the pressure
NOTE Confidence: 0.765793571428571
01:26:25.122 --> 01:26:27.264 and I was like what kind of guy he
NOTE Confidence: 0.765793571428571
01:26:27.264 --> 01:26:29.274 is and just just like listen to
NOTE Confidence: 0.765793571428571
01:26:29.274 --> 01:26:31.747 kind of how he kind of comes off.
NOTE Confidence: 0.92258401
01:26:35.180 --> 01:26:35.900 Can you hear this?
NOTE Confidence: 0.85930657375
01:28:06.970 --> 01:28:10.498 I I mean? What what what strike me
NOTE Confidence: 0.85930657375
01:28:10.498 --> 01:28:14.500 struck me most about about this is that.
NOTE Confidence: 0.85930657375
01:28:14.500 --> 01:28:16.796 And and these are the kind of takeaways,
NOTE Confidence: 0.85930657375
01:28:16.800 --> 01:28:19.302 despite having never performed this case
NOTE Confidence: 0.85930657375
01:28:19.302 --> 01:28:22.568 and and he really he kind of relished
NOTE Confidence: 0.85930657375
01:28:22.568 --> 01:28:25.360 the opportunity and made the most of it.
NOTE Confidence: 0.85930657375

01:28:25.360 --> 01:28:27.212 He was really grateful.
NOTE Confidence: 0.85930657375

01:28:27.212 --> 01:28:30.723 He was grateful he felt fortunate and lucky
NOTE Confidence: 0.85930657375

01:28:30.723 --> 01:28:34.460 to to kind of be in this place at this time,
NOTE Confidence: 0.85930657375

01:28:34.460 --> 01:28:37.260 and kind of he saw he saw Helen,
NOTE Confidence: 0.85930657375

01:28:37.260 --> 01:28:41.495 Taussig and and and and Bill Seward.
NOTE Confidence: 0.85930657375

01:28:41.500 --> 01:28:44.614 They they were his team and and he felt.
NOTE Confidence: 0.85930657375

01:28:44.620 --> 01:28:47.742 Empowered by them and and he empowered
NOTE Confidence: 0.85930657375

01:28:47.742 --> 01:28:50.222 them also throughout his whole career
NOTE Confidence: 0.85930657375

01:28:50.222 --> 01:28:53.262 and and then he believed in in industry
NOTE Confidence: 0.85930657375

01:28:53.262 --> 01:28:56.118 and practice and learning and working
NOTE Confidence: 0.85930657375

01:28:56.118 --> 01:28:59.234 problems out and and the you know,
NOTE Confidence: 0.85930657375

01:28:59.234 --> 01:29:00.497 the the laboratory.
NOTE Confidence: 0.85930657375

01:29:00.500 --> 01:29:01.692 As it turns out,
NOTE Confidence: 0.85930657375

01:29:01.692 --> 01:29:03.480 would be really a lifelong source
NOTE Confidence: 0.85930657375

01:29:03.546 --> 01:29:04.738 of strength for him.
NOTE Confidence: 0.85930657375

01:29:04.740 --> 01:29:05.240 So.

NOTE Confidence: 0.78929437375

01:29:07.610 --> 01:29:11.930 Did you know Yale? Since since that time,

NOTE Confidence: 0.78929437375

01:29:11.930 --> 01:29:14.009 Yale kind of turned over and it

NOTE Confidence: 0.78929437375

01:29:14.009 --> 01:29:16.276 and it's really led to to other

NOTE Confidence: 0.78929437375

01:29:16.276 --> 01:29:18.070 great surgeons, including horror.

NOTE Confidence: 0.78929437375

01:29:18.070 --> 01:29:21.490 Stancil, who, who most famously is,

NOTE Confidence: 0.78929437375

01:29:21.490 --> 01:29:23.653 is known for a variation on on

NOTE Confidence: 0.78929437375

01:29:23.653 --> 01:29:25.810 what we call a damask stanza,

NOTE Confidence: 0.78929437375

01:29:25.810 --> 01:29:28.396 which is which which we use

NOTE Confidence: 0.78929437375

01:29:28.396 --> 01:29:29.689 for Norwood modification.

NOTE Confidence: 0.78929437375

01:29:29.690 --> 01:29:31.727 But he used that at that time,

NOTE Confidence: 0.78929437375

01:29:31.730 --> 01:29:34.782 which is another story entirely for an

NOTE Confidence: 0.78929437375

01:29:34.782 --> 01:29:37.420 extra cardiac repair of transposition.

NOTE Confidence: 0.78929437375

01:29:37.420 --> 01:29:40.185 With great arteries, so young Hill lacks,

NOTE Confidence: 0.78929437375

01:29:40.190 --> 01:29:44.460 and of course our own Gary cough.

NOTE Confidence: 0.78929437375

01:29:44.460 --> 01:29:47.884 But but the the thing that I found

NOTE Confidence: 0.78929437375

01:29:47.884 --> 01:29:51.031 most struggling is is that those
NOTE Confidence: 0.78929437375

01:29:51.031 --> 01:29:52.732 characteristics that Glen embodied
NOTE Confidence: 0.78929437375

01:29:52.732 --> 01:29:56.385 and and the way that he saw life the
NOTE Confidence: 0.78929437375

01:29:56.385 --> 01:29:59.013 way that he treated other people,
NOTE Confidence: 0.78929437375

01:29:59.020 --> 01:30:02.380 the the way that he saw life as
NOTE Confidence: 0.78929437375

01:30:02.380 --> 01:30:04.777 an opportunity to be to be had,
NOTE Confidence: 0.78929437375

01:30:04.780 --> 01:30:08.056 rather than rather than an obstacle.
NOTE Confidence: 0.78929437375

01:30:08.060 --> 01:30:10.166 Those are the things that really
NOTE Confidence: 0.78929437375

01:30:10.166 --> 01:30:11.219 made Glenn great.
NOTE Confidence: 0.78929437375

01:30:11.220 --> 01:30:14.658 Not not a single procedure that has his name.
NOTE Confidence: 0.78929437375

01:30:14.660 --> 01:30:17.844 And and I think it's really kind of it.
NOTE Confidence: 0.78929437375

01:30:17.844 --> 01:30:20.328 It inspired the the Department of
NOTE Confidence: 0.78929437375

01:30:20.328 --> 01:30:23.011 cardiac surgery here at Yale and and
NOTE Confidence: 0.78929437375

01:30:23.011 --> 01:30:25.463 really is the the centerpiece of what
NOTE Confidence: 0.78929437375

01:30:25.463 --> 01:30:28.234 makes Yale what it is, what it is today.
NOTE Confidence: 0.78929437375

01:30:28.234 --> 01:30:30.270 And so and so I'm going to.

NOTE Confidence: 0.78929437375

01:30:30.270 --> 01:30:31.280 I'm going to end there,

NOTE Confidence: 0.78929437375

01:30:31.280 --> 01:30:33.640 but but I'm going to leave you with

NOTE Confidence: 0.78929437375

01:30:33.640 --> 01:30:36.548 what I think is is a great great movie.

NOTE Confidence: 0.78929437375

01:30:36.550 --> 01:30:38.428 Also a little video and it.

NOTE Confidence: 0.78929437375

01:30:38.430 --> 01:30:39.434 It's a.

NOTE Confidence: 0.78929437375

01:30:39.434 --> 01:30:42.948 It's a clip of of Harry Schumacher

NOTE Confidence: 0.78929437375

01:30:42.948 --> 01:30:45.698 when when he was telling.

NOTE Confidence: 0.78929437375

01:30:45.700 --> 01:30:47.104 Alfred Blaylock that he was going

NOTE Confidence: 0.78929437375

01:30:47.104 --> 01:30:48.040 to come to Yale.

NOTE Confidence: 0.8744062

01:31:36.290 --> 01:31:37.358 All right, thank you.

NOTE Confidence: 0.65307152

01:31:47.400 --> 01:31:50.220 Thanks Rick, that was really tremendous.

NOTE Confidence: 0.65307152

01:31:50.220 --> 01:31:52.698 I think it's.

NOTE Confidence: 0.65307152

01:31:52.700 --> 01:31:55.108 It's so interesting to see how these

NOTE Confidence: 0.65307152

01:31:55.108 --> 01:31:56.820 stories overlap and interlace,

NOTE Confidence: 0.65307152

01:31:56.820 --> 01:32:02.294 and it's really fun to hear about.

NOTE Confidence: 0.65307152

01:32:02.300 --> 01:32:06.580 I think an interesting time.
NOTE Confidence: 0.65307152

01:32:06.580 --> 01:32:09.982 I'm gonna go through my next
NOTE Confidence: 0.65307152

01:32:09.982 --> 01:32:12.148 presentation fairly quickly.
NOTE Confidence: 0.95173365

01:32:16.700 --> 01:32:22.030 Well, maybe. Maybe not.
NOTE Confidence: 0.95173365

01:32:22.030 --> 01:32:24.558 Does anybody need coffee?
NOTE Confidence: 0.95173365

01:32:24.560 --> 01:32:26.422 So why don't we take five minutes
NOTE Confidence: 0.95173365

01:32:26.422 --> 01:32:28.169 and we'll grab a cup of coffee?
NOTE Confidence: 0.95173365

01:32:28.170 --> 01:32:30.262 We'll get this to work, and then
NOTE Confidence: 0.95173365

01:32:30.262 --> 01:32:32.380 we'll come back and and get going.
NOTE Confidence: 0.8853372775

01:32:41.220 --> 01:32:44.570 Take your seats and settle in.
NOTE Confidence: 0.703621246

01:33:03.770 --> 01:33:09.160 So. An area that that Yale is incredibly
NOTE Confidence: 0.703621246

01:33:09.160 --> 01:33:12.154 well known for is fetal echocardiography
NOTE Confidence: 0.703621246

01:33:12.154 --> 01:33:17.470 and and fetal cardiology, and I.
NOTE Confidence: 0.703621246

01:33:17.470 --> 01:33:19.846 I'm really honored to have these
NOTE Confidence: 0.703621246

01:33:19.846 --> 01:33:22.171 next three folks talk about the
NOTE Confidence: 0.703621246

01:33:22.171 --> 01:33:24.433 history and the future of that.

NOTE Confidence: 0.703621246

01:33:24.440 --> 01:33:27.944 The going to really all Friedman

NOTE Confidence: 0.703621246

01:33:27.944 --> 01:33:30.860 needs no introduction around here.

NOTE Confidence: 0.703621246

01:33:30.860 --> 01:33:32.519 Having been here for his bar Mitzvah,

NOTE Confidence: 0.703621246

01:33:32.520 --> 01:33:33.972 high school graduation,

NOTE Confidence: 0.703621246

01:33:33.972 --> 01:33:35.908 and all the rest,

NOTE Confidence: 0.703621246

01:33:35.910 --> 01:33:38.563 so Al has been a member of

NOTE Confidence: 0.703621246

01:33:38.563 --> 01:33:40.650 the section since the 1980s.

NOTE Confidence: 0.703621246

01:33:40.650 --> 01:33:44.034 As a fellow and then subsequently

NOTE Confidence: 0.703621246

01:33:44.034 --> 01:33:46.640 an attending and then section

NOTE Confidence: 0.703621246

01:33:46.640 --> 01:33:48.040 chief more than once.

NOTE Confidence: 0.856950689

01:33:51.190 --> 01:33:53.518 Residency program director and

NOTE Confidence: 0.856950689

01:33:53.518 --> 01:33:57.010 now is our Chief Medical Officer,

NOTE Confidence: 0.856950689

01:33:57.010 --> 01:33:59.824 so he's had a tremendous rise through

NOTE Confidence: 0.856950689

01:33:59.824 --> 01:34:03.304 the ranks and is a wonderful friend and

NOTE Confidence: 0.856950689

01:34:03.304 --> 01:34:06.062 leader and clinician and and cardiologist.

NOTE Confidence: 0.856950689

01:34:06.062 --> 01:34:09.018 So with that Al, please take it away.
NOTE Confidence: 0.94899935

01:34:16.420 --> 01:34:21.825 Thank you. I can't, I really can't
NOTE Confidence: 0.94899935

01:34:21.825 --> 01:34:25.650 express how wonderful it is to see.
NOTE Confidence: 0.94899935

01:34:25.650 --> 01:34:27.910 All of these familiar faces,
NOTE Confidence: 0.94899935

01:34:27.910 --> 01:34:31.530 some of which I get to see almost every day,
NOTE Confidence: 0.94899935

01:34:31.530 --> 01:34:33.938 but some of you we haven't had a
NOTE Confidence: 0.94899935

01:34:33.938 --> 01:34:36.629 chance to connect in person for years,
NOTE Confidence: 0.94899935

01:34:36.630 --> 01:34:38.018 and it really is.
NOTE Confidence: 0.94899935

01:34:38.018 --> 01:34:40.860 It really is fantastic to be together.
NOTE Confidence: 0.94298504

01:34:43.530 --> 01:34:45.458 Before we move forward,
NOTE Confidence: 0.94298504

01:34:45.458 --> 01:34:49.013 I do want to introduce my two
NOTE Confidence: 0.94298504

01:34:49.013 --> 01:34:51.249 Co presenters Dr. Josh copell.
NOTE Confidence: 0.94298504

01:34:51.249 --> 01:34:55.310 I'm sure many if not all of you know Josh
NOTE Confidence: 0.94298504

01:34:55.310 --> 01:34:58.482 is a professor of obstetrics, gynecology,
NOTE Confidence: 0.94298504

01:34:58.482 --> 01:35:02.050 reproductive sciences and Pediatrics.
NOTE Confidence: 0.94298504

01:35:02.050 --> 01:35:05.922 And Josh is a vice chair in his

NOTE Confidence: 0.94298504

01:35:05.922 --> 01:35:09.152 department and I have the privilege

NOTE Confidence: 0.94298504

01:35:09.152 --> 01:35:12.786 of working with Josh in my new role.

NOTE Confidence: 0.94298504

01:35:12.786 --> 01:35:15.585 Because he is the assistant Dean for

NOTE Confidence: 0.94298504

01:35:15.585 --> 01:35:18.085 clinical affairs for Yale Medicine,

NOTE Confidence: 0.94298504

01:35:18.090 --> 01:35:22.167 so any of us who have spent any time

NOTE Confidence: 0.94298504

01:35:22.170 --> 01:35:24.722 at Yale know that we sort of straddle

NOTE Confidence: 0.94298504

01:35:24.722 --> 01:35:27.773 the two sides of Cedar and York Street

NOTE Confidence: 0.94298504

01:35:27.773 --> 01:35:30.470 between the hospital and the university,

NOTE Confidence: 0.94298504

01:35:30.470 --> 01:35:33.193 and it's kind of ironic that one

NOTE Confidence: 0.94298504

01:35:33.193 --> 01:35:35.841 of the people who I worked with

NOTE Confidence: 0.94298504

01:35:35.841 --> 01:35:38.690 early in the 90s when I arrived.

NOTE Confidence: 0.94298504

01:35:38.690 --> 01:35:42.666 Is now someone that I work with every

NOTE Confidence: 0.94298504

01:35:42.666 --> 01:35:45.781 day in in how we move our hospital

NOTE Confidence: 0.94298504

01:35:45.781 --> 01:35:48.972 and our medical practice forward and.

NOTE Confidence: 0.94298504

01:35:48.972 --> 01:35:53.064 Following Josh will be Dina Ferdinand,

NOTE Confidence: 0.94298504

01:35:53.070 --> 01:35:56.087 who is an associate professor of clinical
NOTE Confidence: 0.94298504

01:35:56.087 --> 01:35:59.288 Pediatrics in our Department of Pediatrics,
NOTE Confidence: 0.94298504

01:35:59.290 --> 01:36:02.370 and she is the director of our
NOTE Confidence: 0.94298504

01:36:02.370 --> 01:36:04.780 Pediatric Echo program and nothing.
NOTE Confidence: 0.94298504

01:36:04.780 --> 01:36:10.300 Gave me more happiness than being able to
NOTE Confidence: 0.94298504

01:36:10.300 --> 01:36:16.520 pass the Echo lab from me to Bevan to Dina.
NOTE Confidence: 0.94298504

01:36:16.520 --> 01:36:20.617 So it's wonderful to have Dina presenting
NOTE Confidence: 0.94298504

01:36:20.617 --> 01:36:22.416 with us today and talking about this.
NOTE Confidence: 0.94298504

01:36:22.420 --> 01:36:24.484 The current and future
NOTE Confidence: 0.94298504

01:36:24.484 --> 01:36:27.064 state of our fetal program.
NOTE Confidence: 0.835182328888889

01:36:29.940 --> 01:36:33.819 So Dina and I have no disclosures to make.
NOTE Confidence: 0.835182328888889

01:36:33.820 --> 01:36:37.385 I'm sure we wish we did, but we don't.
NOTE Confidence: 0.835182328888889

01:36:37.385 --> 01:36:42.436 Josh does do work for on an Advisory Board.
NOTE Confidence: 0.835182328888889

01:36:42.436 --> 01:36:44.531 It has absolutely no connection
NOTE Confidence: 0.835182328888889

01:36:44.531 --> 01:36:46.600 to today's presentation.
NOTE Confidence: 0.884612144

01:36:48.610 --> 01:36:49.910 So, as you've heard already,

NOTE Confidence: 0.884612144

01:36:49.910 --> 01:36:53.948 this morning we cannot begin the

NOTE Confidence: 0.884612144

01:36:53.948 --> 01:36:58.674 discussion of fetal cardiology and fetal

NOTE Confidence: 0.884612144

01:36:58.674 --> 01:37:01.560 echocardiography without beginning.

NOTE Confidence: 0.884612144

01:37:01.560 --> 01:37:04.689 With Charlie Kleinman and many in the

NOTE Confidence: 0.884612144

01:37:04.689 --> 01:37:08.237 audience had the pleasure and the privilege

NOTE Confidence: 0.884612144

01:37:08.237 --> 01:37:11.417 of working and learning from Charlie,

NOTE Confidence: 0.884612144

01:37:11.420 --> 01:37:14.916 some of you have only heard the stories.

NOTE Confidence: 0.884612144

01:37:14.920 --> 01:37:17.115 The stories about Charlie and

NOTE Confidence: 0.884612144

01:37:17.115 --> 01:37:19.310 the stories that came from

NOTE Confidence: 0.884612144

01:37:19.391 --> 01:37:21.977 Charlie that have been passed on.

NOTE Confidence: 0.884612144

01:37:21.980 --> 01:37:26.663 Charlie came to Yale in 1977.

NOTE Confidence: 0.884612144

01:37:26.663 --> 01:37:29.904 He was a resident and chief resident

NOTE Confidence: 0.884612144

01:37:29.904 --> 01:37:33.324 at Cornell in New York and then went

NOTE Confidence: 0.884612144

01:37:33.324 --> 01:37:36.246 to San Francisco for cardio pediatric

NOTE Confidence: 0.884612144

01:37:36.246 --> 01:37:39.301 Cardiology Fellowship where he studied

NOTE Confidence: 0.884612144

01:37:39.301 --> 01:37:43.102 with a Rudolph and Julian Hoffman
NOTE Confidence: 0.884612144

01:37:43.102 --> 01:37:47.680 and really became one of the leading
NOTE Confidence: 0.884612144

01:37:47.805 --> 01:37:51.970 fetal physiologists in the country.
NOTE Confidence: 0.884612144

01:37:51.970 --> 01:37:54.466 Charlie would also use the same
NOTE Confidence: 0.884612144

01:37:54.466 --> 01:37:56.130 quote that Jeremy did.
NOTE Confidence: 0.884612144

01:37:56.130 --> 01:37:58.881 He would tell you that he stood
NOTE Confidence: 0.884612144

01:37:58.881 --> 01:38:00.990 on the shoulder of giants,
NOTE Confidence: 0.884612144

01:38:00.990 --> 01:38:06.075 but I think Charlie would also say that his.
NOTE Confidence: 0.884612144

01:38:06.080 --> 01:38:09.615 His success in setting up the fetal
NOTE Confidence: 0.884612144

01:38:09.615 --> 01:38:14.274 program here in New Haven was in some
NOTE Confidence: 0.884612144

01:38:14.274 --> 01:38:20.400 ways a bit of luck and circumstance and fate.
NOTE Confidence: 0.884612144

01:38:20.400 --> 01:38:23.700 Charlie would all often tell me
NOTE Confidence: 0.884612144

01:38:23.700 --> 01:38:26.626 that he was in the right place.
NOTE Confidence: 0.884612144

01:38:26.630 --> 01:38:30.094 At the right time with the right people.
NOTE Confidence: 0.884612144

01:38:30.100 --> 01:38:34.140 I think that was true for Charlie in 1977.
NOTE Confidence: 0.884612144

01:38:34.140 --> 01:38:37.318 That was certainly true for me in 1991,

NOTE Confidence: 0.884612144

01:38:37.318 --> 01:38:40.342 and I'm sure that each of you can

NOTE Confidence: 0.884612144

01:38:40.342 --> 01:38:42.945 think that that was likely true

NOTE Confidence: 0.884612144

01:38:42.945 --> 01:38:45.085 for your arrival at Yale.

NOTE Confidence: 0.848610013333333

01:38:48.590 --> 01:38:50.810 So why did Charlie say that?

NOTE Confidence: 0.848610013333333

01:38:50.810 --> 01:38:53.966 Why? Why did he revert to

NOTE Confidence: 0.848610013333333

01:38:53.966 --> 01:38:56.070 that expression so often?

NOTE Confidence: 0.848610013333333

01:38:56.070 --> 01:38:58.446 Well, as you heard from Jeremy,

NOTE Confidence: 0.848610013333333

01:38:58.450 --> 01:39:01.330 Norm Towner was the section Chief

NOTE Confidence: 0.848610013333333

01:39:01.330 --> 01:39:03.890 of Pediatric Cardiology in the 70s

NOTE Confidence: 0.848610013333333

01:39:03.890 --> 01:39:06.800 and he recruited Young Charlie

NOTE Confidence: 0.848610013333333

01:39:06.800 --> 01:39:10.365 Kleinman from San Francisco as an

NOTE Confidence: 0.848610013333333

01:39:10.365 --> 01:39:13.135 echocardiographer and to begin research

NOTE Confidence: 0.848610013333333

01:39:13.135 --> 01:39:17.070 in the world of fetal Physiology.

NOTE Confidence: 0.848610013333333

01:39:17.070 --> 01:39:19.200 Norm was certainly one of the

NOTE Confidence: 0.848610013333333

01:39:19.200 --> 01:39:22.790 right people at the right place.

NOTE Confidence: 0.848610013333333

01:39:22.790 --> 01:39:27.046 Charlie always loved to be a collaborator.
NOTE Confidence: 0.848610013333333

01:39:27.050 --> 01:39:28.958 He loved to work.
NOTE Confidence: 0.848610013333333

01:39:28.958 --> 01:39:31.820 In the section in the department
NOTE Confidence: 0.848610013333333

01:39:31.925 --> 01:39:34.409 and across the department,
NOTE Confidence: 0.848610013333333

01:39:34.410 --> 01:39:36.024 I think Charlie would tell you
NOTE Confidence: 0.848610013333333

01:39:36.024 --> 01:39:38.212 what I would tell you, and that is.
NOTE Confidence: 0.848610013333333

01:39:38.212 --> 01:39:41.139 That is one of the jewels of being at Yale.
NOTE Confidence: 0.848610013333333

01:39:41.140 --> 01:39:42.844 There are no borders.
NOTE Confidence: 0.848610013333333

01:39:42.844 --> 01:39:46.064 There are no speed bumps between our
NOTE Confidence: 0.848610013333333

01:39:46.064 --> 01:39:48.400 sections between our departments,
NOTE Confidence: 0.848610013333333

01:39:48.400 --> 01:39:50.830 and even between our schools and
NOTE Confidence: 0.848610013333333

01:39:50.830 --> 01:39:53.652 our response to COVID is a perfect
NOTE Confidence: 0.848610013333333

01:39:53.652 --> 01:39:56.277 example of how the School of Medicine
NOTE Confidence: 0.848610013333333

01:39:56.354 --> 01:39:59.574 partnered with the School of Public Health.
NOTE Confidence: 0.848610013333333

01:39:59.580 --> 01:40:01.600 Which partnered with the School
NOTE Confidence: 0.848610013333333

01:40:01.600 --> 01:40:04.045 of Nursing and partnered with the

NOTE Confidence: 0.848610013333333
01:40:04.045 --> 01:40:06.544 hospital to have one of the lowest
NOTE Confidence: 0.848610013333333
01:40:06.544 --> 01:40:08.475 mortality rates for an academic
NOTE Confidence: 0.848610013333333
01:40:08.475 --> 01:40:10.380 Medical Center in the country.
NOTE Confidence: 0.848610013333333
01:40:10.380 --> 01:40:11.074 And.
NOTE Confidence: 0.848610013333333
01:40:11.074 --> 01:40:11.768 Norm.
NOTE Confidence: 0.848610013333333
01:40:11.768 --> 01:40:15.238 Towner brought John Hobbins who
NOTE Confidence: 0.848610013333333
01:40:15.238 --> 01:40:19.309 was the chief of maternal fetal
NOTE Confidence: 0.848610013333333
01:40:19.309 --> 01:40:23.649 medicine and a leader in OB GYN.
NOTE Confidence: 0.848610013333333
01:40:23.650 --> 01:40:26.775 To Charlie and establish this
NOTE Confidence: 0.848610013333333
01:40:26.775 --> 01:40:28.706 cross departmental relationship
NOTE Confidence: 0.848610013333333
01:40:28.706 --> 01:40:31.410 that Charlie so enjoyed,
NOTE Confidence: 0.848610013333333
01:40:31.410 --> 01:40:33.978 Charlie used the equipment
NOTE Confidence: 0.848610013333333
01:40:33.978 --> 01:40:36.546 in the OB department.
NOTE Confidence: 0.848610013333333
01:40:36.550 --> 01:40:38.410 He used the nursing staff.
NOTE Confidence: 0.848610013333333
01:40:38.410 --> 01:40:41.860 He used the sonographers and
NOTE Confidence: 0.848610013333333

01:40:41.860 --> 01:40:45.310 he was a wonderful partner.
NOTE Confidence: 0.848610013333333

01:40:45.310 --> 01:40:47.926 And just like in real estate
NOTE Confidence: 0.848610013333333

01:40:47.926 --> 01:40:50.450 and just like in comedy,
NOTE Confidence: 0.848610013333333

01:40:50.450 --> 01:40:55.050 fetal cardiology is also it.
NOTE Confidence: 0.848610013333333

01:40:55.050 --> 01:40:58.326 It is also true that timing is
NOTE Confidence: 0.848610013333333

01:40:58.326 --> 01:41:00.811 everything and just before Charlie
NOTE Confidence: 0.848610013333333

01:41:00.811 --> 01:41:04.234 arrived at Yale in the late 70s.
NOTE Confidence: 0.848610013333333

01:41:04.240 --> 01:41:06.104 A man by the name of a very
NOTE Confidence: 0.848610013333333

01:41:06.104 --> 01:41:07.398 young man at the time,
NOTE Confidence: 0.848610013333333

01:41:07.400 --> 01:41:09.218 by the name of Rick Morin,
NOTE Confidence: 0.848610013333333

01:41:09.220 --> 01:41:11.775 was a medical student here at Yale.
NOTE Confidence: 0.848610013333333

01:41:11.780 --> 01:41:14.210 And as we've heard several
NOTE Confidence: 0.848610013333333

01:41:14.210 --> 01:41:16.154 examples already this morning,
NOTE Confidence: 0.848610013333333

01:41:16.160 --> 01:41:20.496 Yale is for many people the right place.
NOTE Confidence: 0.848610013333333

01:41:20.500 --> 01:41:24.814 Because Yale requires a senior medical
NOTE Confidence: 0.848610013333333

01:41:24.814 --> 01:41:28.979 thesis before graduation and Rick Moran,

NOTE Confidence: 0.848610013333333
01:41:28.980 --> 01:41:32.040 who would go on to be a pediatrician and
NOTE Confidence: 0.848610013333333
01:41:32.040 --> 01:41:35.458 a neonatologist before becoming a Dean.
NOTE Confidence: 0.848610013333333
01:41:35.460 --> 01:41:37.860 At the University of Vermont,
NOTE Confidence: 0.848610013333333
01:41:37.860 --> 01:41:40.475 Rick wrote his senior thesis
NOTE Confidence: 0.848610013333333
01:41:40.475 --> 01:41:43.726 on how this new technology of
NOTE Confidence: 0.848610013333333
01:41:43.726 --> 01:41:45.858 ultrasound could be used,
NOTE Confidence: 0.848610013333333
01:41:45.860 --> 01:41:48.132 potentially to assess the
NOTE Confidence: 0.848610013333333
01:41:48.132 --> 01:41:50.972 function of the fetal heart.
NOTE Confidence: 0.848610013333333
01:41:50.980 --> 01:41:55.346 And so these three people on the
NOTE Confidence: 0.848610013333333
01:41:55.346 --> 01:41:58.126 right of the screen really were the
NOTE Confidence: 0.848610013333333
01:41:58.126 --> 01:42:00.940 right people in the right place at
NOTE Confidence: 0.848610013333333
01:42:01.030 --> 01:42:03.963 the right time for Charlie to take
NOTE Confidence: 0.848610013333333
01:42:03.963 --> 01:42:06.670 his expertise and fetal Physiology.
NOTE Confidence: 0.848610013333333
01:42:06.670 --> 01:42:09.622 And develop the field of fetal
NOTE Confidence: 0.848610013333333
01:42:09.622 --> 01:42:11.191 echocardiography and it didn't
NOTE Confidence: 0.848610013333333

01:42:11.191 --> 01:42:12.976 take Charlie long to publish.

NOTE Confidence: 0.848610013333333

01:42:12.980 --> 01:42:15.367 I think Jeremy showed this study which

NOTE Confidence: 0.848610013333333

01:42:15.367 --> 01:42:17.713 was published in Pediatrics in 1980

NOTE Confidence: 0.848610013333333

01:42:17.713 --> 01:42:20.884 and it really is the first clinical

NOTE Confidence: 0.848610013333333

01:42:20.884 --> 01:42:24.275 example of how fetal echo can be used.

NOTE Confidence: 0.848610013333333

01:42:24.280 --> 01:42:28.276 And I again I I'm taking some liberty here,

NOTE Confidence: 0.848610013333333

01:42:28.280 --> 01:42:29.978 but I have no doubt if

NOTE Confidence: 0.848610013333333

01:42:29.978 --> 01:42:31.110 Charlie were standing here,

NOTE Confidence: 0.848610013333333

01:42:31.110 --> 01:42:34.090 he would tell you what are the odds of a

NOTE Confidence: 0.848610013333333

01:42:34.168 --> 01:42:37.300 young pediatric cardiologist in a section.

NOTE Confidence: 0.848610013333333

01:42:37.300 --> 01:42:40.737 In the Department of Pediatrics to partner

NOTE Confidence: 0.848610013333333

01:42:40.737 --> 01:42:43.620 with an obstetrician and John Hobbins.

NOTE Confidence: 0.848610013333333

01:42:43.620 --> 01:42:46.620 A mentor in Norm Telnor,

NOTE Confidence: 0.896732984285714

01:42:46.620 --> 01:42:49.512 a radiologist in Carl Jaffe who

NOTE Confidence: 0.896732984285714

01:42:49.512 --> 01:42:52.190 used his radiologic skill to

NOTE Confidence: 0.896732984285714

01:42:52.190 --> 01:42:54.158 become an echocardiographer.

NOTE Confidence: 0.896732984285714
01:42:54.160 --> 01:42:57.680 He was not a cardiologist and a
NOTE Confidence: 0.896732984285714
01:42:57.680 --> 01:43:00.740 nurse who really functioned as the
NOTE Confidence: 0.896732984285714
01:43:00.740 --> 01:43:02.901 original sonographer and coordinator
NOTE Confidence: 0.896732984285714
01:43:02.901 --> 01:43:05.930 for the fetal program, and again,
NOTE Confidence: 0.896732984285714
01:43:05.930 --> 01:43:09.115 it's that ability to collaborate that so
NOTE Confidence: 0.896732984285714
01:43:09.115 --> 01:43:12.080 inspired Charlie and so many of us after.
NOTE Confidence: 0.896732984285714
01:43:12.080 --> 01:43:13.910 And if you read through this.
NOTE Confidence: 0.896732984285714
01:43:13.910 --> 01:43:16.030 Article and it's worth reading.
NOTE Confidence: 0.896732984285714
01:43:16.030 --> 01:43:18.862 It won't surprise you to learn
NOTE Confidence: 0.896732984285714
01:43:18.862 --> 01:43:21.430 that in that first paper.
NOTE Confidence: 0.896732984285714
01:43:21.430 --> 01:43:23.118 Patients with pulmonary atresia,
NOTE Confidence: 0.896732984285714
01:43:23.118 --> 01:43:24.806 you need ventricular heart,
NOTE Confidence: 0.896732984285714
01:43:24.810 --> 01:43:27.430 complete heart block atrial flutter
NOTE Confidence: 0.896732984285714
01:43:27.430 --> 01:43:29.526 are all described accurately
NOTE Confidence: 0.896732984285714
01:43:29.526 --> 01:43:31.598 and the field was born.
NOTE Confidence: 0.891045151111111

01:43:36.720 --> 01:43:38.995 Charlie soon thereafter set out
NOTE Confidence: 0.8910451511111111

01:43:38.995 --> 01:43:43.871 to build his team. And in 1986,
NOTE Confidence: 0.8910451511111111

01:43:43.871 --> 01:43:50.990 three 1983 Josh Copel came as a.
NOTE Confidence: 0.8910451511111111

01:43:50.990 --> 01:43:55.708 Fellow in maternal fetal medicine and
NOTE Confidence: 0.8910451511111111

01:43:55.708 --> 01:44:01.156 quickly became a student of Charlie's.
NOTE Confidence: 0.8910451511111111

01:44:01.160 --> 01:44:03.950 A colleague of Charlies and a
NOTE Confidence: 0.8910451511111111

01:44:03.950 --> 01:44:05.810 lifelong friend of Charlies.
NOTE Confidence: 0.8910451511111111

01:44:05.810 --> 01:44:07.445 And you'll hear more about
NOTE Confidence: 0.8910451511111111

01:44:07.445 --> 01:44:09.080 that in a few minutes.
NOTE Confidence: 0.8910451511111111

01:44:09.080 --> 01:44:13.240 I do think it is worth taking just
NOTE Confidence: 0.8910451511111111

01:44:13.240 --> 01:44:16.521 a moment to recognize that for
NOTE Confidence: 0.8910451511111111

01:44:16.521 --> 01:44:19.825 any of us who were students of
NOTE Confidence: 0.8910451511111111

01:44:19.825 --> 01:44:22.195 Charlies in the fetal Echo lab,
NOTE Confidence: 0.8910451511111111

01:44:22.200 --> 01:44:25.764 who were students or colleagues of
NOTE Confidence: 0.8910451511111111

01:44:25.764 --> 01:44:28.544 Charlies in pediatric cardiology or
NOTE Confidence: 0.8910451511111111

01:44:28.544 --> 01:44:30.968 who were friends and colleagues with

NOTE Confidence: 0.8910451511111111
01:44:30.968 --> 01:44:34.130 Charlie in the Department of Pediatrics.
NOTE Confidence: 0.8910451511111111
01:44:34.130 --> 01:44:37.532 We learned so much more than the
NOTE Confidence: 0.8910451511111111
01:44:37.532 --> 01:44:40.350 science of congenital heart disease,
NOTE Confidence: 0.8910451511111111
01:44:40.350 --> 01:44:42.938 the science around imaging
NOTE Confidence: 0.8910451511111111
01:44:42.938 --> 01:44:45.526 and around fetal cardiology,
NOTE Confidence: 0.8910451511111111
01:44:45.530 --> 01:44:50.330 and you can see that here we are.
NOTE Confidence: 0.8910451511111111
01:44:50.330 --> 01:44:52.470 Rounding in the old neonatal
NOTE Confidence: 0.8910451511111111
01:44:52.470 --> 01:44:55.774 ICU which was on the 4th floor
NOTE Confidence: 0.8910451511111111
01:44:55.774 --> 01:44:57.926 of the Children's Hospital.
NOTE Confidence: 0.8910451511111111
01:44:57.930 --> 01:45:02.238 And you can see and Dubin in the
NOTE Confidence: 0.8910451511111111
01:45:02.238 --> 01:45:04.722 sort of back left center who's
NOTE Confidence: 0.8910451511111111
01:45:04.722 --> 01:45:07.667 the chief of the EPA at Stanford.
NOTE Confidence: 0.8910451511111111
01:45:07.670 --> 01:45:08.580 David Rosenthal,
NOTE Confidence: 0.8910451511111111
01:45:08.580 --> 01:45:11.765 her future husband sitting next to her
NOTE Confidence: 0.8910451511111111
01:45:11.765 --> 01:45:15.204 who's the chief of heart failure at Stanford.
NOTE Confidence: 0.8910451511111111

01:45:15.210 --> 01:45:18.000 John love with his omnipresence,
NOTE Confidence: 0.8910451511111111

01:45:18.000 --> 01:45:20.152 smirk sitting right behind,
NOTE Confidence: 0.8910451511111111

01:45:20.152 --> 01:45:22.304 Charlie and Ziad Bobel,
NOTE Confidence: 0.8910451511111111

01:45:22.310 --> 01:45:24.823 who was a senior fellow when this
NOTE Confidence: 0.8910451511111111

01:45:24.823 --> 01:45:29.170 picture was taken in the winter of 1994.
NOTE Confidence: 0.8910451511111111

01:45:29.170 --> 01:45:32.621 And you can see that there was
NOTE Confidence: 0.8910451511111111

01:45:32.621 --> 01:45:36.270 someone very much inspired by Charlie,
NOTE Confidence: 0.8910451511111111

01:45:36.270 --> 01:45:40.722 who wanted to be as smart and
NOTE Confidence: 0.8910451511111111

01:45:40.722 --> 01:45:44.665 as engaged and really wanted to
NOTE Confidence: 0.8910451511111111

01:45:44.665 --> 01:45:46.648 practice like Charlie.
NOTE Confidence: 0.8910451511111111

01:45:46.650 --> 01:45:50.534 I I have no no shame in admitting
NOTE Confidence: 0.8910451511111111

01:45:50.534 --> 01:45:53.160 that I really wanted to follow in
NOTE Confidence: 0.8910451511111111

01:45:53.160 --> 01:45:55.272 his footsteps and and take care
NOTE Confidence: 0.8910451511111111

01:45:55.272 --> 01:45:57.178 of patients the way he did.
NOTE Confidence: 0.8910451511111111

01:45:57.180 --> 01:45:59.686 And apparently I even wanted to sit.
NOTE Confidence: 0.8910451511111111

01:45:59.690 --> 01:46:04.120 In the middle of rounds, exactly like he did.

NOTE Confidence: 0.8910451511111111

01:46:04.120 --> 01:46:06.640 We always learned the patients were

NOTE Confidence: 0.8910451511111111

01:46:06.640 --> 01:46:09.360 always 1st and we almost always

NOTE Confidence: 0.8910451511111111

01:46:09.360 --> 01:46:10.788 were having fun.

NOTE Confidence: 0.913461439285714

01:46:13.220 --> 01:46:16.380 Little did we know that the way Charlie

NOTE Confidence: 0.913461439285714

01:46:16.380 --> 01:46:19.280 took care of patients and families,

NOTE Confidence: 0.913461439285714

01:46:19.280 --> 01:46:22.852 every patient, every time,

NOTE Confidence: 0.913461439285714

01:46:22.852 --> 01:46:26.732 was really foundational for for many

NOTE Confidence: 0.913461439285714

01:46:26.732 --> 01:46:31.070 of us I had the pleasure of taking over

NOTE Confidence: 0.913461439285714

01:46:31.070 --> 01:46:34.394 Charlie Clinic when he left Yale in 1999,

NOTE Confidence: 0.913461439285714

01:46:34.394 --> 01:46:38.346 and to this day some of his patients

NOTE Confidence: 0.913461439285714

01:46:38.350 --> 01:46:40.228 who I've provided care for over

NOTE Confidence: 0.913461439285714

01:46:40.228 --> 01:46:42.252 the last couple of decades will

NOTE Confidence: 0.913461439285714

01:46:42.252 --> 01:46:44.364 remind me that when Charlie was.

NOTE Confidence: 0.913461439285714

01:46:44.370 --> 01:46:48.024 In the room taking care of them.

NOTE Confidence: 0.913461439285714

01:46:48.030 --> 01:46:50.697 They felt like they were the only

NOTE Confidence: 0.913461439285714

01:46:50.697 --> 01:46:53.635 patient in the world and the only
NOTE Confidence: 0.913461439285714

01:46:53.635 --> 01:46:56.530 family that Charlie was seeing that day
NOTE Confidence: 0.913461439285714

01:46:56.530 --> 01:46:59.519 and that really gets to the comments
NOTE Confidence: 0.913461439285714

01:46:59.519 --> 01:47:02.448 that Mr Alfieri made earlier today.
NOTE Confidence: 0.913461439285714

01:47:02.450 --> 01:47:04.112 Charlie had.
NOTE Confidence: 0.913461439285714

01:47:04.112 --> 01:47:07.436 Unbelievable medical knowledge and
NOTE Confidence: 0.913461439285714

01:47:07.436 --> 01:47:11.490 exquisite technical and clinical skill.
NOTE Confidence: 0.913461439285714

01:47:11.490 --> 01:47:14.994 But what he had that separated him from
NOTE Confidence: 0.913461439285714

01:47:14.994 --> 01:47:18.308 so many other people was an ability
NOTE Confidence: 0.913461439285714

01:47:18.308 --> 01:47:21.950 to care for people and his patients.
NOTE Confidence: 0.913461439285714

01:47:21.950 --> 01:47:23.870 And so for many of us,
NOTE Confidence: 0.913461439285714

01:47:23.870 --> 01:47:26.747 that's really what was modeled to us.
NOTE Confidence: 0.913461439285714

01:47:26.750 --> 01:47:29.270 We had no idea what patient
NOTE Confidence: 0.913461439285714

01:47:29.270 --> 01:47:30.530 centered care was.
NOTE Confidence: 0.913461439285714

01:47:30.530 --> 01:47:31.890 It wasn't a term,
NOTE Confidence: 0.913461439285714

01:47:31.890 --> 01:47:34.570 it wasn't a thing that we taught.

NOTE Confidence: 0.913461439285714
01:47:34.570 --> 01:47:38.028 It wasn't an expectation that we held
NOTE Confidence: 0.913461439285714
01:47:38.028 --> 01:47:41.424 each other to back in the 90s the way
NOTE Confidence: 0.913461439285714
01:47:41.424 --> 01:47:45.208 it is part of our everyday activity today.
NOTE Confidence: 0.913461439285714
01:47:45.210 --> 01:47:47.118 But Charlie was practicing
NOTE Confidence: 0.913461439285714
01:47:47.118 --> 01:47:48.549 patient centered care,
NOTE Confidence: 0.913461439285714
01:47:48.550 --> 01:47:52.094 and he really was ahead of his time.
NOTE Confidence: 0.913461439285714
01:47:52.100 --> 01:47:54.851 In putting the patient in family in
NOTE Confidence: 0.913461439285714
01:47:54.851 --> 01:47:57.934 the center and making sure that every
NOTE Confidence: 0.913461439285714
01:47:57.934 --> 01:48:00.670 element of their care was provided.
NOTE Confidence: 0.913461439285714
01:48:00.670 --> 01:48:02.566 And he wasn't just ahead of his time.
NOTE Confidence: 0.913461439285714
01:48:02.570 --> 01:48:03.458 In my opinion,
NOTE Confidence: 0.913461439285714
01:48:03.458 --> 01:48:06.032 he was ahead of his time in the
NOTE Confidence: 0.913461439285714
01:48:06.032 --> 01:48:08.624 Institute of Medicines Opinion as well,
NOTE Confidence: 0.913461439285714
01:48:08.630 --> 01:48:11.780 because it wasn't until the early
NOTE Confidence: 0.913461439285714
01:48:11.780 --> 01:48:14.814 2000s in 2001 in the crossing.
NOTE Confidence: 0.913461439285714

01:48:14.814 --> 01:48:16.999 The Quality chasm report.
NOTE Confidence: 0.913461439285714

01:48:16.999 --> 01:48:19.814 Where they promoted patient and
NOTE Confidence: 0.913461439285714

01:48:19.814 --> 01:48:21.957 family centered care and made
NOTE Confidence: 0.913461439285714

01:48:21.957 --> 01:48:24.127 it a part of what we do.
NOTE Confidence: 0.913461439285714

01:48:24.130 --> 01:48:26.566 So I'm going to close here with
NOTE Confidence: 0.913461439285714

01:48:26.566 --> 01:48:29.796 one of my favorite pictures again.
NOTE Confidence: 0.913461439285714

01:48:29.796 --> 01:48:35.385 Time back to Mr Alfieri who who referenced
NOTE Confidence: 0.913461439285714

01:48:35.385 --> 01:48:39.748 JFK earlier in September of 1997.
NOTE Confidence: 0.913461439285714

01:48:39.748 --> 01:48:43.252 I had the privilege of joining my friends
NOTE Confidence: 0.913461439285714

01:48:43.252 --> 01:48:46.363 and colleagues as a new faculty member
NOTE Confidence: 0.913461439285714

01:48:46.363 --> 01:48:49.492 when we went up to the JFK library
NOTE Confidence: 0.913461439285714

01:48:49.492 --> 01:48:53.188 as part of the very first picks Conference,
NOTE Confidence: 0.913461439285714

01:48:53.190 --> 01:48:53.618 John.
NOTE Confidence: 0.913461439285714

01:48:53.618 --> 01:48:55.758 And Bill performed caves all
NOTE Confidence: 0.913461439285714

01:48:55.758 --> 01:48:59.100 day here in New Haven that were
NOTE Confidence: 0.913461439285714

01:48:59.100 --> 01:49:01.670 televised to the picks audience.

NOTE Confidence: 0.913461439285714
01:49:01.670 --> 01:49:03.469 Charlie and I were at the head
NOTE Confidence: 0.913461439285714
01:49:03.469 --> 01:49:05.559 of the bed elbowing each other,
NOTE Confidence: 0.913461439285714
01:49:05.560 --> 01:49:08.850 trying to do TE at the same time and then
NOTE Confidence: 0.913461439285714
01:49:08.936 --> 01:49:11.960 through the graciousness of Tina Bruckner,
NOTE Confidence: 0.913461439285714
01:49:11.960 --> 01:49:14.100 who covered the service.
NOTE Confidence: 0.913461439285714
01:49:14.100 --> 01:49:16.991 The five of us got to drive
NOTE Confidence: 0.913461439285714
01:49:16.991 --> 01:49:19.480 up to Boston that night,
NOTE Confidence: 0.913461439285714
01:49:19.480 --> 01:49:22.384 and we had a great couple of days.
NOTE Confidence: 0.913461439285714
01:49:22.390 --> 01:49:23.650 I think in the end,
NOTE Confidence: 0.913461439285714
01:49:23.650 --> 01:49:25.440 what separates a great program
NOTE Confidence: 0.913461439285714
01:49:25.440 --> 01:49:27.230 and you know it's it's.
NOTE Confidence: 0.913461439285714
01:49:27.230 --> 01:49:29.570 It's wonderful to talk about
NOTE Confidence: 0.913461439285714
01:49:29.570 --> 01:49:31.910 the history of of cardiology,
NOTE Confidence: 0.913461439285714
01:49:31.910 --> 01:49:33.242 of congenital heart disease,
NOTE Confidence: 0.913461439285714
01:49:33.242 --> 01:49:35.438 of echo, of Cath of surgery.
NOTE Confidence: 0.913461439285714

01:49:35.438 --> 01:49:37.730 What we really should be doing
NOTE Confidence: 0.913461439285714

01:49:37.815 --> 01:49:40.503 and and what I can only hope that
NOTE Confidence: 0.913461439285714

01:49:40.503 --> 01:49:43.006 we've done as we as we have so
NOTE Confidence: 0.913461439285714

01:49:43.006 --> 01:49:44.998 many of our fellow graduates here
NOTE Confidence: 0.913461439285714

01:49:44.998 --> 01:49:47.482 is the history is important and
NOTE Confidence: 0.913461439285714

01:49:47.482 --> 01:49:49.500 we should acknowledge it.
NOTE Confidence: 0.913461439285714

01:49:49.500 --> 01:49:52.620 But but any good program developer,
NOTE Confidence: 0.913461439285714

01:49:52.620 --> 01:49:53.835 any good leader?
NOTE Confidence: 0.913461439285714

01:49:53.835 --> 01:49:56.670 Sets up the future and it's really
NOTE Confidence: 0.87736336

01:49:56.755 --> 01:49:59.995 the next 100 years that are far more
NOTE Confidence: 0.87736336

01:49:59.995 --> 01:50:02.397 important than the past 100 years.
NOTE Confidence: 0.87736336

01:50:02.400 --> 01:50:06.080 And I think Charlie again led by example.
NOTE Confidence: 0.87736336

01:50:06.080 --> 01:50:09.433 He followed this quote from Wayne Gretzky
NOTE Confidence: 0.87736336

01:50:09.433 --> 01:50:12.658 long before Wayne Gretzky ever said it.
NOTE Confidence: 0.87736336

01:50:12.660 --> 01:50:16.048 Charlie had a unique.
NOTE Confidence: 0.87736336

01:50:16.048 --> 01:50:19.400 And wonderful ability to know

NOTE Confidence: 0.87736336

01:50:19.400 --> 01:50:21.830 where the puck was going to

NOTE Confidence: 0.87736336

01:50:21.830 --> 01:50:24.826 be and to take us all there.

NOTE Confidence: 0.87736336

01:50:24.830 --> 01:50:27.218 So I'm going to.

NOTE Confidence: 0.87736336

01:50:27.220 --> 01:50:30.223 And the podium over to my friend

NOTE Confidence: 0.87736336

01:50:30.223 --> 01:50:32.190 and colleague Josh Copell,

NOTE Confidence: 0.87736336

01:50:32.190 --> 01:50:35.585 who will tell us what he and

NOTE Confidence: 0.87736336

01:50:35.585 --> 01:50:37.845 Charlie did with that puck through

NOTE Confidence: 0.87736336

01:50:37.845 --> 01:50:39.620 the last couple of decades.

NOTE Confidence: 0.860105341052632

01:50:49.030 --> 01:50:52.531 Thanks Sal, as as you were telling some of

NOTE Confidence: 0.860105341052632

01:50:52.531 --> 01:50:56.224 that I was reminded of an email that I sent.

NOTE Confidence: 0.860105341052632

01:50:56.230 --> 01:50:59.310 A couple months ago to Jessica Kleinman

NOTE Confidence: 0.860105341052632

01:50:59.310 --> 01:51:02.474 because I was doing a fetal scan.

NOTE Confidence: 0.860105341052632

01:51:02.480 --> 01:51:06.104 On a woman whose brother had congenital heart

NOTE Confidence: 0.860105341052632

01:51:06.104 --> 01:51:09.010 disease and she told me that her brother

NOTE Confidence: 0.860105341052632

01:51:09.010 --> 01:51:12.426 was born 38 years ago and she remembered

NOTE Confidence: 0.860105341052632

01:51:12.426 --> 01:51:15.450 Doctor Kleinman and the efforts that Doctor

NOTE Confidence: 0.860105341052632

01:51:15.450 --> 01:51:18.630 Kleinman took to save her brother's life.

NOTE Confidence: 0.860105341052632

01:51:18.630 --> 01:51:20.774 So she remembered his name 38 years later,

NOTE Confidence: 0.860105341052632

01:51:20.780 --> 01:51:23.264 and that that's a lot of

NOTE Confidence: 0.860105341052632

01:51:23.264 --> 01:51:24.920 what that patient centered.

NOTE Confidence: 0.860105341052632

01:51:24.920 --> 01:51:28.120 Thing was about now.

NOTE Confidence: 0.860105341052632

01:51:28.120 --> 01:51:32.546 Al told you part of the story of this paper.

NOTE Confidence: 0.860105341052632

01:51:32.546 --> 01:51:34.478 There are two other things that

NOTE Confidence: 0.860105341052632

01:51:34.478 --> 01:51:36.799 you need to know about this paper.

NOTE Confidence: 0.860105341052632

01:51:36.800 --> 01:51:39.473 One is that the way Charlie claims he got

NOTE Confidence: 0.860105341052632

01:51:39.473 --> 01:51:41.543 involved in the fetal scans was that he

NOTE Confidence: 0.860105341052632

01:51:41.543 --> 01:51:44.059 got a call from John Hobbins saying hey,

NOTE Confidence: 0.860105341052632

01:51:44.060 --> 01:51:47.228 would you like to work on a project together?

NOTE Confidence: 0.860105341052632

01:51:47.230 --> 01:51:48.256 And Charlie said,

NOTE Confidence: 0.860105341052632

01:51:48.256 --> 01:51:49.624 sure and John said,

NOTE Confidence: 0.860105341052632

01:51:49.630 --> 01:51:51.114 come over my office,

NOTE Confidence: 0.860105341052632
01:51:51.114 --> 01:51:52.969 which was on East pavilion.
NOTE Confidence: 0.860105341052632
01:51:52.970 --> 01:51:55.287 3 And Charlie walked in and John
NOTE Confidence: 0.860105341052632
01:51:55.287 --> 01:51:57.420 handed him a huge cardboard box
NOTE Confidence: 0.860105341052632
01:51:57.420 --> 01:51:59.891 full of M modes and sit here.
NOTE Confidence: 0.860105341052632
01:51:59.900 --> 01:52:00.880 Do something with this.
NOTE Confidence: 0.898002976923077
01:52:03.170 --> 01:52:05.284 Charlie did. And we we are going
NOTE Confidence: 0.898002976923077
01:52:05.284 --> 01:52:07.300 to see some of the results.
NOTE Confidence: 0.86407282625
01:52:09.800 --> 01:52:11.765 Al also talked about the
NOTE Confidence: 0.86407282625
01:52:11.765 --> 01:52:12.944 importance of timing.
NOTE Confidence: 0.86407282625
01:52:12.950 --> 01:52:15.526 And of course, being as an obstetrician,
NOTE Confidence: 0.86407282625
01:52:15.530 --> 01:52:17.970 we want everybody who can to get pregnant
NOTE Confidence: 0.86407282625
01:52:17.970 --> 01:52:20.346 as often as they want to be pregnant.
NOTE Confidence: 0.86407282625
01:52:20.350 --> 01:52:22.906 And it worked out for me
NOTE Confidence: 0.86407282625
01:52:22.906 --> 01:52:24.522 that Diana Lynch had,
NOTE Confidence: 0.86407282625
01:52:24.522 --> 01:52:26.846 I believe it was her third baby
NOTE Confidence: 0.86407282625

01:52:26.850 --> 01:52:29.508 just before I started my fellowship.
NOTE Confidence: 0.86407282625

01:52:29.510 --> 01:52:31.940 So Charlie didn't have a sonographer.
NOTE Confidence: 0.86407282625

01:52:31.940 --> 01:52:34.780 And I became his stenographer.
NOTE Confidence: 0.86407282625

01:52:34.780 --> 01:52:37.762 So for the next, I think roughly
NOTE Confidence: 0.86407282625

01:52:37.762 --> 01:52:40.720 5 years I did all the fetal echos.
NOTE Confidence: 0.86407282625

01:52:40.720 --> 01:52:43.080 If you want to learn how to do fetal echo,
NOTE Confidence: 0.86407282625

01:52:43.080 --> 01:52:46.020 have Charlie Kleiman reviewing every video
NOTE Confidence: 0.86407282625

01:52:46.020 --> 01:52:49.384 and critiquing everything you do and took.
NOTE Confidence: 0.86407282625

01:52:49.384 --> 01:52:50.836 It took a good five years,
NOTE Confidence: 0.86407282625

01:52:50.840 --> 01:52:52.976 so I'm I estimate roughly 2000
NOTE Confidence: 0.86407282625

01:52:52.976 --> 01:52:55.394 or so fetal echoes before I was
NOTE Confidence: 0.86407282625

01:52:55.394 --> 01:52:57.900 even allowed to do them on my own.
NOTE Confidence: 0.86407282625

01:52:57.900 --> 01:53:00.380 So we've seen this paper.
NOTE Confidence: 0.86407282625

01:53:00.380 --> 01:53:02.753 I'm going to review some of the
NOTE Confidence: 0.86407282625

01:53:02.753 --> 01:53:04.763 other things that that that came
NOTE Confidence: 0.86407282625

01:53:04.763 --> 01:53:06.898 out of the work here at Yale.

NOTE Confidence: 0.86407282625

01:53:06.900 --> 01:53:08.418 Because the Charlie's next big splash

NOTE Confidence: 0.86407282625

01:53:08.418 --> 01:53:10.109 paper actually is one of the things

NOTE Confidence: 0.86407282625

01:53:10.109 --> 01:53:11.369 that inspired me to come here.

NOTE Confidence: 0.86407282625

01:53:11.370 --> 01:53:13.800 Just before I started fellowship,

NOTE Confidence: 0.86407282625

01:53:13.800 --> 01:53:16.050 this was around when we were

NOTE Confidence: 0.86407282625

01:53:16.050 --> 01:53:17.175 interviewing and matching,

NOTE Confidence: 0.86407282625

01:53:17.180 --> 01:53:20.764 and this was a much broader description

NOTE Confidence: 0.86407282625

01:53:20.764 --> 01:53:23.080 that I think brought more attention,

NOTE Confidence: 0.86407282625

01:53:23.080 --> 01:53:24.875 because knowing one journal obviously

NOTE Confidence: 0.86407282625

01:53:24.875 --> 01:53:27.590 gets read by not just pediatricians.

NOTE Confidence: 0.86407282625

01:53:27.590 --> 01:53:29.221 The rest of the world started to

NOTE Confidence: 0.86407282625

01:53:29.221 --> 01:53:31.067 recognize what was what was happening here,

NOTE Confidence: 0.86407282625

01:53:31.070 --> 01:53:34.094 and again we see the collaboration

NOTE Confidence: 0.86407282625

01:53:34.094 --> 01:53:36.110 that AL talked about.

NOTE Confidence: 0.86407282625

01:53:36.110 --> 01:53:38.930 Greg Devore was an MFM fellow,

NOTE Confidence: 0.86407282625

01:53:38.930 --> 01:53:39.970 Diana was still here.
NOTE Confidence: 0.86407282625

01:53:39.970 --> 01:53:42.770 **** Berkowitz was an MFM attending
NOTE Confidence: 0.86407282625

01:53:42.770 --> 01:53:43.786 who waited,
NOTE Confidence: 0.86407282625

01:53:43.790 --> 01:53:46.472 became chair at Mount Sinai and
NOTE Confidence: 0.86407282625

01:53:46.472 --> 01:53:49.160 then moved over to Columbia.
NOTE Confidence: 0.86407282625

01:53:49.160 --> 01:53:51.524 And then we started working together
NOTE Confidence: 0.86407282625

01:53:51.524 --> 01:53:53.904 and described a number of things
NOTE Confidence: 0.86407282625

01:53:53.904 --> 01:53:55.739 in this collaborative group with
NOTE Confidence: 0.86407282625

01:53:55.739 --> 01:53:57.180 John Luigi P Lou,
NOTE Confidence: 0.86407282625

01:53:57.180 --> 01:53:59.466 who is the professor in charge
NOTE Confidence: 0.86407282625

01:53:59.466 --> 01:54:00.990 at the in Bologna.
NOTE Confidence: 0.86407282625

01:54:00.990 --> 01:54:04.464 Now we reported on four Chamber
NOTE Confidence: 0.86407282625

01:54:04.464 --> 01:54:07.470 view as a screening tool.
NOTE Confidence: 0.86407282625

01:54:07.470 --> 01:54:09.180 Actually, even after that point,
NOTE Confidence: 0.86407282625

01:54:09.180 --> 01:54:10.932 looking at the heart was not
NOTE Confidence: 0.86407282625

01:54:10.932 --> 01:54:12.870 a part of routine obstet 12%.

NOTE Confidence: 0.86407282625

01:54:12.870 --> 01:54:14.730 Identifying that the fetus was

NOTE Confidence: 0.86407282625

01:54:14.730 --> 01:54:17.450 alive was part of the ultrasound,

NOTE Confidence: 0.86407282625

01:54:17.450 --> 01:54:21.274 but structured looking at the heart was not.

NOTE Confidence: 0.86407282625

01:54:21.280 --> 01:54:21.822 Since then,

NOTE Confidence: 0.86407282625

01:54:21.822 --> 01:54:23.719 this has been expanded and we now,

NOTE Confidence: 0.86407282625

01:54:23.720 --> 01:54:26.018 in our routine scans look at

NOTE Confidence: 0.86407282625

01:54:26.018 --> 01:54:28.020 the outflow tracts as well,

NOTE Confidence: 0.86407282625

01:54:28.020 --> 01:54:32.255 and that's led to a significant improvement.

NOTE Confidence: 0.86407282625

01:54:32.260 --> 01:54:33.132 Not perfection,

NOTE Confidence: 0.86407282625

01:54:33.132 --> 01:54:35.748 but an improvement in across the

NOTE Confidence: 0.86407282625

01:54:35.748 --> 01:54:38.697 country in detection of heart disease.

NOTE Confidence: 0.86407282625

01:54:38.700 --> 01:54:40.098 One of the things that we're

NOTE Confidence: 0.86407282625

01:54:40.098 --> 01:54:41.220 about to start looking at.

NOTE Confidence: 0.86407282625

01:54:41.220 --> 01:54:43.215 I don't think it's in Dinah's presentation,

NOTE Confidence: 0.86407282625

01:54:43.220 --> 01:54:45.551 but we're going to be looking at the the

NOTE Confidence: 0.86407282625

01:54:45.551 --> 01:54:47.149 incidence of of unexpected congenital
NOTE Confidence: 0.86407282625

01:54:47.149 --> 01:54:49.075 heart disease in the nursery here,
NOTE Confidence: 0.86407282625

01:54:49.080 --> 01:54:50.328 which I suspect is quite low.
NOTE Confidence: 0.043645144

01:54:52.780 --> 01:54:55.756 Umm? Now we're going to
NOTE Confidence: 0.043645144

01:54:55.756 --> 01:54:57.850 hear a talk that I had to.
NOTE Confidence: 0.043645144

01:54:57.850 --> 01:54:59.859 Good fortune to see the slides from
NOTE Confidence: 0.043645144

01:54:59.859 --> 01:55:02.225 but I I'm looking forward to seeing
NOTE Confidence: 0.043645144

01:55:02.225 --> 01:55:04.760 the recording of the talk from Martina
NOTE Confidence: 0.043645144

01:55:04.760 --> 01:55:06.993 Bruckner and in a little bit on.
NOTE Confidence: 0.043645144

01:55:07.000 --> 01:55:10.115 On the genetics of congenital heart disease.
NOTE Confidence: 0.043645144

01:55:10.120 --> 01:55:13.725 When we started working on this together
NOTE Confidence: 0.043645144

01:55:13.725 --> 01:55:16.520 with Jeremiah Mahoney from genetics.
NOTE Confidence: 0.043645144

01:55:16.520 --> 01:55:19.465 The frequency of aneuploidy in
NOTE Confidence: 0.043645144

01:55:19.465 --> 01:55:22.410 congenital heart disease in the
NOTE Confidence: 0.043645144

01:55:22.508 --> 01:55:25.168 pediatric literature was 5%.
NOTE Confidence: 0.043645144

01:55:25.170 --> 01:55:26.696 We know that's not true now because

NOTE Confidence: 0.043645144

01:55:26.696 --> 01:55:28.329 of the more advanced techniques,

NOTE Confidence: 0.043645144

01:55:28.330 --> 01:55:30.304 but nobody had looked at fetal heart

NOTE Confidence: 0.043645144

01:55:30.304 --> 01:55:34.310 disease and we found it was about 33%.

NOTE Confidence: 0.043645144

01:55:34.310 --> 01:55:35.717 Now, why would that be the case?

NOTE Confidence: 0.043645144

01:55:35.720 --> 01:55:36.689 What makes sense?

NOTE Confidence: 0.043645144

01:55:36.689 --> 01:55:39.561 We see a different population than you do.

NOTE Confidence: 0.043645144

01:55:39.561 --> 01:55:43.000 We see fetuses that don't survive to term.

NOTE Confidence: 0.043645144

01:55:43.000 --> 01:55:44.990 We see fetuses that because

NOTE Confidence: 0.043645144

01:55:44.990 --> 01:55:46.980 of the severity of disease,

NOTE Confidence: 0.043645144

01:55:46.980 --> 01:55:48.138 terminate or terminated,

NOTE Confidence: 0.043645144

01:55:48.138 --> 01:55:50.454 so they don't make it into

NOTE Confidence: 0.043645144

01:55:50.454 --> 01:55:51.540 pediatric databases.

NOTE Confidence: 0.043645144

01:55:51.540 --> 01:55:52.775 This hadn't been described before

NOTE Confidence: 0.043645144

01:55:52.775 --> 01:55:54.281 and now it's it's obviously even

NOTE Confidence: 0.043645144

01:55:54.281 --> 01:55:55.619 more important to be looking at

NOTE Confidence: 0.043645144

01:55:55.619 --> 01:55:56.968 genetics with some of the work
NOTE Confidence: 0.043645144

01:55:56.968 --> 01:55:58.240 that we'll hear about from Martina.
NOTE Confidence: 0.85204807

01:56:00.640 --> 01:56:03.120 After I finished my two year MFM fellowship,
NOTE Confidence: 0.85204807

01:56:03.120 --> 01:56:04.416 sorry Yale MFM Fellows.
NOTE Confidence: 0.85204807

01:56:04.416 --> 01:56:06.760 But it was two years back then.
NOTE Confidence: 0.85204807

01:56:06.760 --> 01:56:09.776 Now it's three years I did an additional
NOTE Confidence: 0.85204807

01:56:09.776 --> 01:56:13.070 2 year funded research fellowship on
NOTE Confidence: 0.85204807

01:56:13.070 --> 01:56:15.180 fetal cardiology which I think was
NOTE Confidence: 0.85204807

01:56:15.180 --> 01:56:17.175 really a way for the Yale to get me
NOTE Confidence: 0.85204807

01:56:17.175 --> 01:56:18.820 to be an attending but not pay me.
NOTE Confidence: 0.85204807

01:56:18.820 --> 01:56:21.295 But anyway, so everybody shocked
NOTE Confidence: 0.85204807

01:56:21.295 --> 01:56:23.770 that would happen to GAIL.
NOTE Confidence: 0.85204807

01:56:23.770 --> 01:56:26.722 And and we were also one of the the
NOTE Confidence: 0.85204807

01:56:26.722 --> 01:56:29.993 original centers doing fetal injury during
NOTE Confidence: 0.85204807

01:56:29.993 --> 01:56:33.006 transfusions through the umbilical cord.
NOTE Confidence: 0.85204807

01:56:33.006 --> 01:56:36.051 So with a visiting cardiology

NOTE Confidence: 0.85204807

01:56:36.051 --> 01:56:39.068 fellow named Nagahama and some of

NOTE Confidence: 0.85204807

01:56:39.068 --> 01:56:41.024 the other names that are familiar

NOTE Confidence: 0.85204807

01:56:41.024 --> 01:56:42.709 already from previous slides,

NOTE Confidence: 0.85204807

01:56:42.710 --> 01:56:44.162 we looked at our.

NOTE Confidence: 0.85204807

01:56:44.162 --> 01:56:45.977 I assuming ice population before

NOTE Confidence: 0.85204807

01:56:45.977 --> 01:56:48.089 and after fetal transfusions.

NOTE Confidence: 0.85204807

01:56:48.090 --> 01:56:49.650 Because we we thought that we

NOTE Confidence: 0.85204807

01:56:49.650 --> 01:56:51.087 knew that kids became hydropic

NOTE Confidence: 0.85204807

01:56:51.087 --> 01:56:52.787 when they were severely anemic.

NOTE Confidence: 0.85204807

01:56:52.790 --> 01:56:53.910 We were learning that that.

NOTE Confidence: 0.85204807

01:56:53.910 --> 01:56:56.810 Happened when the hematocrit of

NOTE Confidence: 0.85204807

01:56:56.810 --> 01:57:00.469 the fetus was below 15 to 20.

NOTE Confidence: 0.85204807

01:57:00.470 --> 01:57:02.157 It should be similar to what you

NOTE Confidence: 0.85204807

01:57:02.157 --> 01:57:04.454 see in in the nursery and what

NOTE Confidence: 0.85204807

01:57:04.454 --> 01:57:07.990 we were able to show is that that

NOTE Confidence: 0.85204807

01:57:08.097 --> 01:57:11.147 the cardiac output of fetuses
NOTE Confidence: 0.85204807

01:57:11.150 --> 01:57:14.298 before transfusion was high.
NOTE Confidence: 0.85204807

01:57:14.300 --> 01:57:17.268 And it was largely due to contractility
NOTE Confidence: 0.85204807

01:57:17.268 --> 01:57:20.280 and that the day after transfusion
NOTE Confidence: 0.85204807

01:57:20.280 --> 01:57:23.592 already when the fetuses were repleted,
NOTE Confidence: 0.85204807

01:57:23.600 --> 01:57:25.075 the cardiac output dropped back
NOTE Confidence: 0.85204807

01:57:25.075 --> 01:57:26.550 towards a more normal level.
NOTE Confidence: 0.867349876666667

01:57:29.330 --> 01:57:30.786 And these are all the things I'm going
NOTE Confidence: 0.867349876666667

01:57:30.786 --> 01:57:32.418 through here are first, say Yale.
NOTE Confidence: 0.867349876666667

01:57:32.418 --> 01:57:35.192 Another first was looking at color flow
NOTE Confidence: 0.867349876666667

01:57:35.192 --> 01:57:38.230 mapping and I I know none of you that do.
NOTE Confidence: 0.867349876666667

01:57:38.230 --> 01:57:40.012 ECHO can imagine not using color
NOTE Confidence: 0.867349876666667

01:57:40.012 --> 01:57:42.866 flow mapping, but that was not a tool
NOTE Confidence: 0.867349876666667

01:57:42.866 --> 01:57:45.202 that was available when I started
NOTE Confidence: 0.867349876666667

01:57:45.202 --> 01:57:47.834 in fellowship in in 83 that they
NOTE Confidence: 0.867349876666667

01:57:47.834 --> 01:57:50.610 just it was some spectral Doppler.

NOTE Confidence: 0.867349876666667
01:57:50.610 --> 01:57:53.305 The machine for spectral Doppler was I
NOTE Confidence: 0.867349876666667
01:57:53.305 --> 01:57:56.505 think if you took those pictures that Rick
NOTE Confidence: 0.867349876666667
01:57:56.505 --> 01:57:59.508 Kim just showed of the of the perfusion.
NOTE Confidence: 0.867349876666667
01:57:59.508 --> 01:58:02.190 Machine stacked another one on top of it.
NOTE Confidence: 0.867349876666667
01:58:02.190 --> 01:58:04.122 Put that on wheels.
NOTE Confidence: 0.867349876666667
01:58:04.122 --> 01:58:07.020 That was the the spectral Doppler
NOTE Confidence: 0.867349876666667
01:58:07.112 --> 01:58:08.638 machine that we had.
NOTE Confidence: 0.867349876666667
01:58:08.638 --> 01:58:10.118 So as color became available,
NOTE Confidence: 0.867349876666667
01:58:10.120 --> 01:58:13.180 this was one of the first looks at what it
NOTE Confidence: 0.867349876666667
01:58:13.253 --> 01:58:16.258 does and and I think it's evolved since then.
NOTE Confidence: 0.867349876666667
01:58:16.258 --> 01:58:19.313 What we found at the time was that
NOTE Confidence: 0.867349876666667
01:58:19.313 --> 01:58:21.248 it helped us perfect diagnosis,
NOTE Confidence: 0.867349876666667
01:58:21.248 --> 01:58:24.122 but really the mainstay of diagnosis
NOTE Confidence: 0.867349876666667
01:58:24.122 --> 01:58:27.290 was the 2D imaging we found the VSD.
NOTE Confidence: 0.867349876666667
01:58:27.290 --> 01:58:30.587 We found the abnormally small blood vessels.
NOTE Confidence: 0.867349876666667

01:58:30.590 --> 01:58:31.583 With spectral Doppler.
NOTE Confidence: 0.867349876666667

01:58:31.583 --> 01:58:33.238 I'm sorry with with 2D,
NOTE Confidence: 0.867349876666667

01:58:33.240 --> 01:58:34.620 but with with color Doppler we
NOTE Confidence: 0.867349876666667

01:58:34.620 --> 01:58:36.511 were able to to do things more
NOTE Confidence: 0.867349876666667

01:58:36.511 --> 01:58:37.739 quickly and more accurately.
NOTE Confidence: 0.912568892

01:58:40.890 --> 01:58:44.260 This was the first report of trying
NOTE Confidence: 0.912568892

01:58:44.260 --> 01:58:47.725 to treat fetal heart block in utero.
NOTE Confidence: 0.912568892

01:58:47.730 --> 01:58:53.835 We had a patient who had a a
NOTE Confidence: 0.912568892

01:58:53.835 --> 01:58:55.710 fetus with second degree block.
NOTE Confidence: 0.912568892

01:58:55.710 --> 01:58:59.483 She had anti Rowan law and basically
NOTE Confidence: 0.912568892

01:58:59.483 --> 01:59:02.620 she said I'll try anything.
NOTE Confidence: 0.912568892

01:59:02.620 --> 01:59:04.228 And Charlie and I looked at
NOTE Confidence: 0.912568892

01:59:04.228 --> 01:59:05.700 each other and said, well,
NOTE Confidence: 0.912568892

01:59:05.700 --> 01:59:07.300 we could try steroids.
NOTE Confidence: 0.912568892

01:59:07.300 --> 01:59:09.320 It's an anti-inflammatory drugs.
NOTE Confidence: 0.912568892

01:59:09.320 --> 01:59:11.845 We could use dexamethasone because

NOTE Confidence: 0.912568892

01:59:11.845 --> 01:59:13.698 that'll cross the placenta.

NOTE Confidence: 0.912568892

01:59:13.700 --> 01:59:16.370 We've been using betamethasone and

NOTE Confidence: 0.912568892

01:59:16.370 --> 01:59:19.040 dexamethasone at that point for.

NOTE Confidence: 0.912568892

01:59:19.040 --> 01:59:21.966 15 plus years for enhanced fetal lung

NOTE Confidence: 0.912568892

01:59:21.966 --> 01:59:25.009 maturation and we thought that we saw

NOTE Confidence: 0.912568892

01:59:25.009 --> 01:59:27.565 some improvement in the heart block.

NOTE Confidence: 0.912568892

01:59:27.570 --> 01:59:29.537 We had a series of five patients.

NOTE Confidence: 0.912568892

01:59:29.540 --> 01:59:31.016 I'm not sure that that we

NOTE Confidence: 0.912568892

01:59:31.016 --> 01:59:32.750 made much of a difference,

NOTE Confidence: 0.912568892

01:59:32.750 --> 01:59:36.028 but we we thought we did the fetuses with

NOTE Confidence: 0.912568892

01:59:36.028 --> 01:59:38.044 complete heart block did not respond,

NOTE Confidence: 0.912568892

01:59:38.050 --> 01:59:40.930 but this led to a lot of work

NOTE Confidence: 0.912568892

01:59:40.930 --> 01:59:43.572 since then on the ability to treat

NOTE Confidence: 0.912568892

01:59:43.572 --> 01:59:45.258 first and second degree block and

NOTE Confidence: 0.912568892

01:59:45.258 --> 01:59:47.230 and now as we'll hear from Dina.

NOTE Confidence: 0.912568892

01:59:47.230 --> 01:59:49.174 There are other work going on here on that.
NOTE Confidence: 0.860294930714286

01:59:52.710 --> 01:59:55.566 When we started looking at this with Ann
NOTE Confidence: 0.860294930714286

01:59:55.566 --> 01:59:58.668 Tan who was visiting from Singapore I,
NOTE Confidence: 0.860294930714286

01:59:58.668 --> 02:00:00.456 I looked at the obstetrical literature
NOTE Confidence: 0.860294930714286

02:00:00.456 --> 02:00:01.712 and the pediatric literature
NOTE Confidence: 0.860294930714286

02:00:01.712 --> 02:00:03.506 and again for the fellows. Here.
NOTE Confidence: 0.860294930714286

02:00:03.506 --> 02:00:04.922 You have to remember that this
NOTE Confidence: 0.860294930714286

02:00:04.922 --> 02:00:06.689 is sort of Perry Internet days,
NOTE Confidence: 0.860294930714286

02:00:06.690 --> 02:00:08.949 so that meant going to the stacks in the
NOTE Confidence: 0.860294930714286

02:00:08.949 --> 02:00:11.198 library and looking through index Medicus on.
NOTE Confidence: 0.860294930714286

02:00:11.200 --> 02:00:14.470 And it was a printed book.
NOTE Confidence: 0.860294930714286

02:00:14.470 --> 02:00:18.264 I couldn't find any reports of improved
NOTE Confidence: 0.860294930714286

02:00:18.264 --> 02:00:21.869 outcomes of any prenatal diagnosis.
NOTE Confidence: 0.860294930714286

02:00:21.870 --> 02:00:23.606 Like with one exception,
NOTE Confidence: 0.860294930714286

02:00:23.606 --> 02:00:26.579 there was a series from Yale of
NOTE Confidence: 0.860294930714286

02:00:26.579 --> 02:00:28.450 10 cases of duodenal atresia,

NOTE Confidence: 0.860294930714286
02:00:28.450 --> 02:00:30.975 and the fetuses had fewer.
NOTE Confidence: 0.860294930714286
02:00:30.980 --> 02:00:33.437 The neonates were less likely to be
NOTE Confidence: 0.860294930714286
02:00:33.437 --> 02:00:35.690 alkalotic if there was a prenatal
NOTE Confidence: 0.860294930714286
02:00:35.690 --> 02:00:37.952 diagnosis because they didn't have to
NOTE Confidence: 0.860294930714286
02:00:37.952 --> 02:00:40.068 start barfing up all their stomach
NOTE Confidence: 0.860294930714286
02:00:40.068 --> 02:00:41.624 acid to have a diagnosis made,
NOTE Confidence: 0.860294930714286
02:00:41.624 --> 02:00:43.560 so that was it in the literature.
NOTE Confidence: 0.860294930714286
02:00:43.560 --> 02:00:46.624 And this paper we were able to show
NOTE Confidence: 0.860294930714286
02:00:46.624 --> 02:00:49.652 that there was a better survival and
NOTE Confidence: 0.860294930714286
02:00:49.652 --> 02:00:52.740 lower cost with a prenatal diagnosis.
NOTE Confidence: 0.860294930714286
02:00:52.740 --> 02:00:55.170 The then, with the postnatal diagnosis,
NOTE Confidence: 0.860294930714286
02:00:55.170 --> 02:00:56.736 at least in two ventricle repairs,
NOTE Confidence: 0.860294930714286
02:00:56.740 --> 02:00:58.820 I think our our failure to find a
NOTE Confidence: 0.860294930714286
02:00:58.820 --> 02:01:00.243 difference in in single ventricle
NOTE Confidence: 0.860294930714286
02:01:00.243 --> 02:01:02.590 repairs had more to do with the outcomes
NOTE Confidence: 0.860294930714286

02:01:02.590 --> 02:01:04.480 of the single ventricle repairs at
NOTE Confidence: 0.860294930714286

02:01:04.480 --> 02:01:06.286 the time then that there there isn't
NOTE Confidence: 0.860294930714286

02:01:06.286 --> 02:01:07.889 a difference and there's a lot of
NOTE Confidence: 0.860294930714286

02:01:07.889 --> 02:01:09.269 literature since then suggesting that,
NOTE Confidence: 0.860294930714286

02:01:09.270 --> 02:01:10.878 particularly with one ventricle
NOTE Confidence: 0.860294930714286

02:01:10.878 --> 02:01:12.888 repairs we have better outcomes.
NOTE Confidence: 0.839677724827586

02:01:15.860 --> 02:01:18.218 We have seen and continue to see a lot
NOTE Confidence: 0.839677724827586

02:01:18.218 --> 02:01:20.497 of fetuses with irregular heartbeats and
NOTE Confidence: 0.839677724827586

02:01:20.497 --> 02:01:23.181 up to this point nobody had actually
NOTE Confidence: 0.839677724827586

02:01:23.181 --> 02:01:26.640 looked at that in a structured way with
NOTE Confidence: 0.839677724827586

02:01:26.640 --> 02:01:29.880 the cardiology database that that was
NOTE Confidence: 0.839677724827586

02:01:29.880 --> 02:01:32.000 available in our prenatal information,
NOTE Confidence: 0.839677724827586

02:01:32.000 --> 02:01:34.742 we were able to show that the there was
NOTE Confidence: 0.839677724827586

02:01:34.742 --> 02:01:36.518 no increased risk of structural heart
NOTE Confidence: 0.839677724827586

02:01:36.518 --> 02:01:38.670 disease and that the kids were fine
NOTE Confidence: 0.839677724827586

02:01:38.670 --> 02:01:40.175 when they were irregular heartbeats,

NOTE Confidence: 0.839677724827586
02:01:40.180 --> 02:01:42.068 but that roughly 2% of them who were
NOTE Confidence: 0.839677724827586
02:01:42.068 --> 02:01:43.867 sent in for irregular heartbeats
NOTE Confidence: 0.839677724827586
02:01:43.867 --> 02:01:45.555 actually had very significant.
NOTE Confidence: 0.839677724827586
02:01:45.560 --> 02:01:47.320 Rhythmus that needed care.
NOTE Confidence: 0.891534384705882
02:01:50.200 --> 02:01:52.824 This is just to conclude a couple of
NOTE Confidence: 0.891534384705882
02:01:52.824 --> 02:01:55.500 slides where we were and where we are now.
NOTE Confidence: 0.891534384705882
02:01:55.500 --> 02:01:58.416 This is the original database that
NOTE Confidence: 0.891534384705882
02:01:58.416 --> 02:02:01.250 I started keeping as a fellow.
NOTE Confidence: 0.891534384705882
02:02:01.250 --> 02:02:03.189 This is HIPAA compliant because number one.
NOTE Confidence: 0.891534384705882
02:02:03.190 --> 02:02:05.968 You can't read my handwriting and
NOTE Confidence: 0.891534384705882
02:02:05.970 --> 02:02:08.022 #2 we use a totally different
NOTE Confidence: 0.891534384705882
02:02:08.022 --> 02:02:09.690 medical record number system now,
NOTE Confidence: 0.891534384705882
02:02:09.690 --> 02:02:11.448 so none of these actually are
NOTE Confidence: 0.891534384705882
02:02:11.448 --> 02:02:12.327 medical record numbers,
NOTE Confidence: 0.891534384705882
02:02:12.330 --> 02:02:15.151 but we've kept track of all of
NOTE Confidence: 0.891534384705882

02:02:15.151 --> 02:02:17.306 the patients that we've done
NOTE Confidence: 0.891534384705882

02:02:17.306 --> 02:02:19.886 fetal echoes on since the 80s,
NOTE Confidence: 0.891534384705882

02:02:19.890 --> 02:02:24.012 and at present we do it a little more.
NOTE Confidence: 0.891534384705882

02:02:24.020 --> 02:02:26.450 The little more contemporary method,
NOTE Confidence: 0.891534384705882

02:02:26.450 --> 02:02:29.266 but we've got all of these these patients.
NOTE Confidence: 0.734659777333333

02:02:31.750 --> 02:02:33.253 Collected, including some
NOTE Confidence: 0.734659777333333

02:02:33.253 --> 02:02:34.756 information about that.
NOTE Confidence: 0.734659777333333

02:02:34.760 --> 02:02:36.400 The biometry and the indications,
NOTE Confidence: 0.734659777333333

02:02:36.400 --> 02:02:38.962 and the findings and this has been
NOTE Confidence: 0.734659777333333

02:02:38.962 --> 02:02:41.836 been great for us to be able to to
NOTE Confidence: 0.734659777333333

02:02:41.836 --> 02:02:43.578 continue to do projects based on
NOTE Confidence: 0.734659777333333

02:02:43.578 --> 02:02:45.650 the the prenatal and and having the
NOTE Confidence: 0.734659777333333

02:02:45.707 --> 02:02:47.827 collaboration of pediatric cardiology.
NOTE Confidence: 0.734659777333333

02:02:47.830 --> 02:02:49.811 So we have the the postnatal outcome
NOTE Confidence: 0.734659777333333

02:02:49.811 --> 02:02:51.997 has has really kept us going all these
NOTE Confidence: 0.734659777333333

02:02:51.997 --> 02:02:54.119 years and will keep us going into the

NOTE Confidence: 0.734659777333333

02:02:54.119 --> 02:02:56.347 future and I think with that I'm going.

NOTE Confidence: 0.734659777333333

02:02:56.347 --> 02:02:58.729 Oh no. I have two more.

NOTE Confidence: 0.734659777333333

02:02:58.730 --> 02:03:00.170 One of these I think is a surprise

NOTE Confidence: 0.734659777333333

02:03:00.170 --> 02:03:01.270 because Tina changed the slide.

NOTE Confidence: 0.734659777333333

02:03:01.270 --> 02:03:02.898 After I made it,

NOTE Confidence: 0.734659777333333

02:03:02.898 --> 02:03:05.080 did you add just the numbers?

NOTE Confidence: 0.734659777333333

02:03:05.080 --> 02:03:07.346 Oh OK, so this is the number of

NOTE Confidence: 0.734659777333333

02:03:07.346 --> 02:03:09.080 fetal echoes that we've done by

NOTE Confidence: 0.734659777333333

02:03:09.080 --> 02:03:10.856 year when I started in fellowship.

NOTE Confidence: 0.734659777333333

02:03:10.860 --> 02:03:12.530 Doing the echoes for Charlie

NOTE Confidence: 0.734659777333333

02:03:12.530 --> 02:03:14.200 was 300 in a year.

NOTE Confidence: 0.734659777333333

02:03:14.200 --> 02:03:16.140 Grew slowly until about 2000,

NOTE Confidence: 0.734659777333333

02:03:16.140 --> 02:03:18.672 then really expanded over

NOTE Confidence: 0.734659777333333

02:03:18.672 --> 02:03:21.020 the next dozen years.

NOTE Confidence: 0.734659777333333

02:03:21.020 --> 02:03:24.791 And the number for 2021 I believe

NOTE Confidence: 0.734659777333333

02:03:24.791 --> 02:03:28.550 was right around the same as 2012.
NOTE Confidence: 0.7346597773333333

02:03:28.550 --> 02:03:31.730 But Dina added the the pediatric
NOTE Confidence: 0.7346597773333333

02:03:31.730 --> 02:03:33.320 cardiology fetal echoes,
NOTE Confidence: 0.7346597773333333

02:03:33.320 --> 02:03:36.876 so we've continued to grow our population
NOTE Confidence: 0.7346597773333333

02:03:36.876 --> 02:03:39.997 in this collaboration and and we're
NOTE Confidence: 0.7346597773333333

02:03:39.997 --> 02:03:42.517 looking forward to continued growth.
NOTE Confidence: 0.7346597773333333

02:03:42.520 --> 02:03:46.348 This is a comparison of the
NOTE Confidence: 0.7346597773333333

02:03:46.348 --> 02:03:48.900 indications for fetal echo,
NOTE Confidence: 0.7346597773333333

02:03:48.900 --> 02:03:52.689 the one that I think is the most interesting.
NOTE Confidence: 0.7346597773333333

02:03:52.690 --> 02:03:55.924 In terms of changing proportions as diabetes,
NOTE Confidence: 0.7346597773333333

02:03:55.930 --> 02:03:56.378 right?
NOTE Confidence: 0.7346597773333333

02:03:56.378 --> 02:03:58.734 There are far more diabetics
NOTE Confidence: 0.7346597773333333

02:03:58.734 --> 02:04:00.990 in the population now.
NOTE Confidence: 0.7346597773333333

02:04:00.990 --> 02:04:03.254 We've had a lot more referred for because
NOTE Confidence: 0.7346597773333333

02:04:03.254 --> 02:04:05.068 somebody thinks things don't look right,
NOTE Confidence: 0.7346597773333333

02:04:05.070 --> 02:04:06.888 which is exactly what we want.

NOTE Confidence: 0.734659777333333
02:04:06.890 --> 02:04:09.386 The IVF population went from nothing
NOTE Confidence: 0.734659777333333
02:04:09.386 --> 02:04:12.746 to a good portion of our of our volume,
NOTE Confidence: 0.734659777333333
02:04:12.750 --> 02:04:15.930 so we continue to be tracking
NOTE Confidence: 0.734659777333333
02:04:15.930 --> 02:04:18.630 all this information over time.
NOTE Confidence: 0.734659777333333
02:04:18.630 --> 02:04:20.654 And I think that's those are my slides.
NOTE Confidence: 0.734659777333333
02:04:20.660 --> 02:04:21.488 I'll turn it over to Deanna.
NOTE Confidence: 0.734659777333333
02:04:21.490 --> 02:04:22.540 Thank you for your attention.
NOTE Confidence: 0.901676193333333
02:04:27.540 --> 02:04:28.578 Thank you Josh.
NOTE Confidence: 0.901676193333333
02:04:28.578 --> 02:04:30.654 So just a couple of minutes.
NOTE Confidence: 0.901676193333333
02:04:30.660 --> 02:04:31.818 I just want to sort of
NOTE Confidence: 0.901676193333333
02:04:31.818 --> 02:04:32.760 quickly go through sort of.
NOTE Confidence: 0.901676193333333
02:04:32.760 --> 02:04:34.476 Where are we at within the
NOTE Confidence: 0.901676193333333
02:04:34.476 --> 02:04:35.620 field for beetle cardiology,
NOTE Confidence: 0.901676193333333
02:04:35.620 --> 02:04:37.584 particularly for things that
NOTE Confidence: 0.901676193333333
02:04:37.584 --> 02:04:40.530 where we at here at Yale.
NOTE Confidence: 0.901676193333333

02:04:40.530 --> 02:04:41.762 So here at Yale,
NOTE Confidence: 0.9016761933333333

02:04:41.762 --> 02:04:44.015 all clinical care for our sort of
NOTE Confidence: 0.9016761933333333

02:04:44.015 --> 02:04:46.055 our fetal cardiac program is under
NOTE Confidence: 0.9016761933333333

02:04:46.055 --> 02:04:48.588 the purview of the fetal care center,
NOTE Confidence: 0.9016761933333333

02:04:48.590 --> 02:04:50.510 and this is a coordinated program
NOTE Confidence: 0.9016761933333333

02:04:50.510 --> 02:04:51.790 between maternal fetal medicine
NOTE Confidence: 0.9016761933333333

02:04:51.847 --> 02:04:53.128 and pediatric specialties,
NOTE Confidence: 0.9016761933333333

02:04:53.130 --> 02:04:55.110 and I really sort of look at it as
NOTE Confidence: 0.9016761933333333

02:04:55.110 --> 02:04:57.088 sort of the true intersection of
NOTE Confidence: 0.9016761933333333

02:04:57.088 --> 02:04:58.783 our Children's Heart Center with
NOTE Confidence: 0.9016761933333333

02:04:58.844 --> 02:05:01.049 maternal fetal medicine and obstetrics.
NOTE Confidence: 0.9016761933333333

02:05:01.050 --> 02:05:02.070 You can see sort of here.
NOTE Confidence: 0.9016761933333333

02:05:02.070 --> 02:05:03.274 Many of the components,
NOTE Confidence: 0.9016761933333333

02:05:03.274 --> 02:05:05.510 but the real goal of the fetal
NOTE Confidence: 0.9016761933333333

02:05:05.510 --> 02:05:07.300 care center is provide coordinated
NOTE Confidence: 0.9016761933333333

02:05:07.300 --> 02:05:09.869 care for the the pregnant patient,

NOTE Confidence: 0.9016761933333333
02:05:09.870 --> 02:05:10.496 the mother.
NOTE Confidence: 0.9016761933333333
02:05:10.496 --> 02:05:11.748 The prenatal pediatric patient
NOTE Confidence: 0.9016761933333333
02:05:11.748 --> 02:05:13.921 and the family and just sort of
NOTE Confidence: 0.9016761933333333
02:05:13.921 --> 02:05:15.361 really helped guide that family
NOTE Confidence: 0.9016761933333333
02:05:15.361 --> 02:05:16.634 through the transition from
NOTE Confidence: 0.9016761933333333
02:05:16.634 --> 02:05:18.249 prenatal to post Natal care.
NOTE Confidence: 0.87049768625
02:05:20.520 --> 02:05:22.035 It's really focuses on the
NOTE Confidence: 0.87049768625
02:05:22.035 --> 02:05:22.944 patient centered model,
NOTE Confidence: 0.87049768625
02:05:22.950 --> 02:05:24.390 which sort of I wanted to bring back.
NOTE Confidence: 0.87049768625
02:05:24.390 --> 02:05:26.546 As you know, Doctor Friedman had mentioned,
NOTE Confidence: 0.87049768625
02:05:26.550 --> 02:05:27.642 you know it's really.
NOTE Confidence: 0.87049768625
02:05:27.642 --> 02:05:29.280 It's not just the legacy of
NOTE Confidence: 0.87049768625
02:05:29.340 --> 02:05:30.704 the diagnosis and imaging
NOTE Confidence: 0.87049768625
02:05:30.704 --> 02:05:32.409 that Doctor Kleinman left us,
NOTE Confidence: 0.87049768625
02:05:32.410 --> 02:05:34.130 but it's really a sort of the true
NOTE Confidence: 0.87049768625

02:05:34.130 --> 02:05:35.298 patient centered model and patient
NOTE Confidence: 0.87049768625

02:05:35.298 --> 02:05:36.678 centered care that we do today.
NOTE Confidence: 0.823934485

02:05:39.160 --> 02:05:41.570 So since there we've had
NOTE Confidence: 0.823934485

02:05:41.570 --> 02:05:43.016 sort of foundational,
NOTE Confidence: 0.823934485

02:05:43.020 --> 02:05:44.556 we've seen the foundations of imaging
NOTE Confidence: 0.823934485

02:05:44.556 --> 02:05:46.575 come from here with Doctor Kleiman, Dr.
NOTE Confidence: 0.823934485

02:05:46.575 --> 02:05:47.400 Cappell and others.
NOTE Confidence: 0.823934485

02:05:47.400 --> 02:05:48.775 There's been served several advances.
NOTE Confidence: 0.823934485

02:05:48.780 --> 02:05:50.526 I'm just going to go through
NOTE Confidence: 0.823934485

02:05:50.526 --> 02:05:52.100 some brief examples of these.
NOTE Confidence: 0.823934485

02:05:52.100 --> 02:05:54.326 This is an advanced color Doppler
NOTE Confidence: 0.823934485

02:05:54.326 --> 02:05:56.740 signal showing a small muscular VSD.
NOTE Confidence: 0.823934485

02:05:56.740 --> 02:05:58.564 This is some what we call stick imaging.
NOTE Confidence: 0.823934485

02:05:58.570 --> 02:06:01.406 Looking at multi planner imaging to look
NOTE Confidence: 0.823934485

02:06:01.406 --> 02:06:04.004 at 3D structures in multiple views.
NOTE Confidence: 0.823934485

02:06:04.010 --> 02:06:05.900 When you sort of take that one step further,

NOTE Confidence: 0.823934485

02:06:05.900 --> 02:06:07.634 you can sort of use multiplanar

NOTE Confidence: 0.823934485

02:06:07.634 --> 02:06:09.890 imaging to sort of eventually get to.

NOTE Confidence: 0.823934485

02:06:09.890 --> 02:06:12.109 A live 3D imaging going to show

NOTE Confidence: 0.823934485

02:06:12.109 --> 02:06:14.119 some examples of that mentioned.

NOTE Confidence: 0.823934485

02:06:14.120 --> 02:06:16.370 These are all there we go.

NOTE Confidence: 0.823934485

02:06:16.370 --> 02:06:17.749 These are all from our own fetal

NOTE Confidence: 0.823934485

02:06:17.749 --> 02:06:19.548 Paco lab and I'd like to sort of

NOTE Confidence: 0.823934485

02:06:19.548 --> 02:06:20.708 give a special acknowledgement to

NOTE Confidence: 0.823934485

02:06:20.757 --> 02:06:22.377 Sharon Abraham who's our lead fields.

NOTE Confidence: 0.823934485

02:06:22.380 --> 02:06:23.211 Another was obtained.

NOTE Confidence: 0.823934485

02:06:23.211 --> 02:06:25.630 All the images I'm going to go through.

NOTE Confidence: 0.823934485

02:06:25.630 --> 02:06:26.620 This is a.

NOTE Confidence: 0.751935991818182

02:06:31.400 --> 02:06:33.178 So this is a fetus with a

NOTE Confidence: 0.751935991818182

02:06:33.178 --> 02:06:34.320 nature of ventricular canal.

NOTE Confidence: 0.751935991818182

02:06:34.320 --> 02:06:37.085 At mid gestation you can see the.

NOTE Confidence: 0.751935991818182

02:06:37.090 --> 02:06:38.010 Sort of the Multiplan
NOTE Confidence: 0.751935991818182

02:06:38.010 --> 02:06:39.160 review into the 3D view,
NOTE Confidence: 0.751935991818182

02:06:39.160 --> 02:06:41.408 as here a nicer image of that when
NOTE Confidence: 0.751935991818182

02:06:41.408 --> 02:06:43.446 you clean that up as shown here.
NOTE Confidence: 0.751935991818182

02:06:43.450 --> 02:06:46.850 This is a about 20 week fetus just to
NOTE Confidence: 0.751935991818182

02:06:46.850 --> 02:06:48.937 Orient you the apex of the heart is at
NOTE Confidence: 0.751935991818182

02:06:48.937 --> 02:06:50.793 the top with the actor at the bottom,
NOTE Confidence: 0.751935991818182

02:06:50.800 --> 02:06:51.946 so the light source is really
NOTE Confidence: 0.751935991818182

02:06:51.946 --> 02:06:53.483 at the crux of the heart and you
NOTE Confidence: 0.751935991818182

02:06:53.483 --> 02:06:54.871 can see how that sort of enters
NOTE Confidence: 0.751935991818182

02:06:54.871 --> 02:06:56.359 all four of the cardiac chambers,
NOTE Confidence: 0.751935991818182

02:06:56.360 --> 02:06:57.878 which is gives really gives you
NOTE Confidence: 0.751935991818182

02:06:57.878 --> 02:06:59.460 the diagnosis of the complete
NOTE Confidence: 0.751935991818182

02:06:59.460 --> 02:07:00.498 atrioventricular canal.
NOTE Confidence: 0.751935991818182

02:07:00.500 --> 02:07:02.285 You can also appreciate the
NOTE Confidence: 0.751935991818182

02:07:02.285 --> 02:07:04.070 single AV valve as well.

NOTE Confidence: 0.716973181052632
02:07:06.140 --> 02:07:08.275 Here's just an image of an right
NOTE Confidence: 0.716973181052632
02:07:08.275 --> 02:07:10.230 ventricular outflow tract with some good
NOTE Confidence: 0.716973181052632
02:07:10.230 --> 02:07:12.192 anatomy of the branch pulmonary arteries.
NOTE Confidence: 0.716973181052632
02:07:12.200 --> 02:07:13.604 And then lastly,
NOTE Confidence: 0.716973181052632
02:07:13.604 --> 02:07:16.880 a very normal and obstructed aortic arch.
NOTE Confidence: 0.716973181052632
02:07:16.880 --> 02:07:19.358 So serve as we've seen imaging advancements.
NOTE Confidence: 0.716973181052632
02:07:19.360 --> 02:07:20.837 You know what? What have we seen
NOTE Confidence: 0.716973181052632
02:07:20.837 --> 02:07:22.480 sort of for in utero management,
NOTE Confidence: 0.716973181052632
02:07:22.480 --> 02:07:24.640 so actually sort of what sort of has
NOTE Confidence: 0.716973181052632
02:07:24.640 --> 02:07:26.429 really been in place for decades,
NOTE Confidence: 0.716973181052632
02:07:26.430 --> 02:07:28.453 you know, as doctor Cappell and others
NOTE Confidence: 0.716973181052632
02:07:28.453 --> 02:07:29.989 that are described for a while,
NOTE Confidence: 0.716973181052632
02:07:29.990 --> 02:07:32.310 it's the medical therapy for
NOTE Confidence: 0.716973181052632
02:07:32.310 --> 02:07:33.668 fetal tachyarrhythmias, really,
NOTE Confidence: 0.716973181052632
02:07:33.668 --> 02:07:34.952 through maternal administration.
NOTE Confidence: 0.716973181052632

02:07:34.952 --> 02:07:36.236 For transplacental treatment,
NOTE Confidence: 0.716973181052632

02:07:36.240 --> 02:07:37.170 the therapies that we're giving
NOTE Confidence: 0.716973181052632

02:07:37.170 --> 02:07:38.488 are really sort of the same that
NOTE Confidence: 0.716973181052632

02:07:38.488 --> 02:07:39.544 have been in place for decades.
NOTE Confidence: 0.716973181052632

02:07:39.550 --> 02:07:41.209 The only thing that is being worked
NOTE Confidence: 0.716973181052632

02:07:41.209 --> 02:07:43.722 on now is sort of studies to look at
NOTE Confidence: 0.716973181052632

02:07:43.722 --> 02:07:45.607 optimal therapy depending on sort of
NOTE Confidence: 0.716973181052632

02:07:45.607 --> 02:07:47.267 what is the specific antiarrhythmic?
NOTE Confidence: 0.716973181052632

02:07:47.270 --> 02:07:49.078 Medication and really targeting
NOTE Confidence: 0.716973181052632

02:07:49.078 --> 02:07:50.886 towards the arrhythmia itself.
NOTE Confidence: 0.716973181052632

02:07:50.890 --> 02:07:53.753 I'll very briefly mention that in utero
NOTE Confidence: 0.716973181052632

02:07:53.753 --> 02:07:55.840 fetal cardiac catheter intervention
NOTE Confidence: 0.716973181052632

02:07:55.840 --> 02:07:58.438 is being performed at some centers.
NOTE Confidence: 0.716973181052632

02:07:58.440 --> 02:07:59.436 This is very, very,
NOTE Confidence: 0.716973181052632

02:07:59.436 --> 02:08:00.681 very specific subset of lesions
NOTE Confidence: 0.716973181052632

02:08:00.681 --> 02:08:02.042 and therefore only applies to

NOTE Confidence: 0.716973181052632
02:08:02.042 --> 02:08:03.372 a small subset of patients.
NOTE Confidence: 0.883051020526316
02:08:06.480 --> 02:08:08.118 So what's sort of the next sort
NOTE Confidence: 0.883051020526316
02:08:08.118 --> 02:08:10.145 of her on the horizon for sort
NOTE Confidence: 0.883051020526316
02:08:10.145 --> 02:08:11.730 of research within the field?
NOTE Confidence: 0.883051020526316
02:08:11.730 --> 02:08:13.410 Sort of goals moving forward and
NOTE Confidence: 0.883051020526316
02:08:13.410 --> 02:08:14.915 fetal cardiac research is really
NOTE Confidence: 0.883051020526316
02:08:14.915 --> 02:08:16.560 looking at variables relating to
NOTE Confidence: 0.883051020526316
02:08:16.560 --> 02:08:18.275 commuter progression as well as
NOTE Confidence: 0.883051020526316
02:08:18.275 --> 02:08:19.667 prediction of postnatal outcomes.
NOTE Confidence: 0.883051020526316
02:08:19.670 --> 02:08:20.510 Of course limitation.
NOTE Confidence: 0.883051020526316
02:08:20.510 --> 02:08:22.190 As we know congenital heart disease
NOTE Confidence: 0.883051020526316
02:08:22.190 --> 02:08:23.388 solutions can be rare diseases,
NOTE Confidence: 0.883051020526316
02:08:23.390 --> 02:08:25.215 and of course there's variable
NOTE Confidence: 0.883051020526316
02:08:25.215 --> 02:08:26.675 treatment strategies that can
NOTE Confidence: 0.883051020526316
02:08:26.675 --> 02:08:28.498 be very centered dependent.
NOTE Confidence: 0.883051020526316

02:08:28.500 --> 02:08:30.040 This is an editorial published
NOTE Confidence: 0.883051020526316

02:08:30.040 --> 02:08:31.980 in 2016 by the founding board.
NOTE Confidence: 0.883051020526316

02:08:31.980 --> 02:08:33.792 Members of the Fetal Heart society
NOTE Confidence: 0.883051020526316

02:08:33.792 --> 02:08:36.062 and sort of one of their primary
NOTE Confidence: 0.883051020526316

02:08:36.062 --> 02:08:38.054 aims is really to establish a
NOTE Confidence: 0.883051020526316

02:08:38.054 --> 02:08:40.480 platform to be able to promote
NOTE Confidence: 0.883051020526316

02:08:40.480 --> 02:08:41.695 multiple disciplinary collaboration
NOTE Confidence: 0.883051020526316

02:08:41.695 --> 02:08:44.940 and fetal cardiovascular research.
NOTE Confidence: 0.883051020526316

02:08:44.940 --> 02:08:46.221 So sort of what are we doing
NOTE Confidence: 0.883051020526316

02:08:46.221 --> 02:08:47.000 here at Yale now?
NOTE Confidence: 0.883051020526316

02:08:47.000 --> 02:08:48.596 Sort of to be part of these
NOTE Confidence: 0.883051020526316

02:08:48.596 --> 02:08:49.280 multi institutional studies,
NOTE Confidence: 0.883051020526316

02:08:49.280 --> 02:08:50.712 so I'm just going to sort of run
NOTE Confidence: 0.883051020526316

02:08:50.712 --> 02:08:52.544 through a couple of examples of things
NOTE Confidence: 0.883051020526316

02:08:52.544 --> 02:08:54.632 that were that are ongoing here.
NOTE Confidence: 0.883051020526316

02:08:54.640 --> 02:08:56.348 So within the fetal heart society itself.

NOTE Confidence: 0.883051020526316
02:08:56.350 --> 02:08:57.445 As I mentioned,
NOTE Confidence: 0.883051020526316
02:08:57.445 --> 02:08:59.270 there are several multi institutional
NOTE Confidence: 0.883051020526316
02:08:59.270 --> 02:09:00.404 studies we've contributed
NOTE Confidence: 0.883051020526316
02:09:00.404 --> 02:09:01.796 to several of these.
NOTE Confidence: 0.883051020526316
02:09:01.800 --> 02:09:03.780 Another one of their aims in
NOTE Confidence: 0.883051020526316
02:09:03.780 --> 02:09:05.661 addition to research has been
NOTE Confidence: 0.883051020526316
02:09:05.661 --> 02:09:07.655 educational so both our MFM faculty
NOTE Confidence: 0.883051020526316
02:09:07.655 --> 02:09:09.607 as well as Peach cardiology faculty
NOTE Confidence: 0.883051020526316
02:09:09.607 --> 02:09:11.572 have been involved in seminars
NOTE Confidence: 0.883051020526316
02:09:11.572 --> 02:09:13.144 as presenters and panelists.
NOTE Confidence: 0.8248088733333333
02:09:15.340 --> 02:09:17.200 Sort of as as Josh mentions,
NOTE Confidence: 0.8248088733333333
02:09:17.200 --> 02:09:18.900 the importance of sort of
NOTE Confidence: 0.8248088733333333
02:09:18.900 --> 02:09:20.260 studying fetal heart block.
NOTE Confidence: 0.8248088733333333
02:09:20.260 --> 02:09:21.940 So stop block is an important
NOTE Confidence: 0.8248088733333333
02:09:21.940 --> 02:09:23.599 trial that we are part of.
NOTE Confidence: 0.8248088733333333

02:09:23.600 --> 02:09:25.574 Yale is one of 31 institutions
NOTE Confidence: 0.8248088733333333

02:09:25.574 --> 02:09:27.440 across the US and Canada.
NOTE Confidence: 0.8248088733333333

02:09:27.440 --> 02:09:29.420 This is looking at women who are at high
NOTE Confidence: 0.8248088733333333

02:09:29.420 --> 02:09:31.432 risk of fetal heart block where they're
NOTE Confidence: 0.8248088733333333

02:09:31.432 --> 02:09:33.114 doing daily home Doppler screenings and
NOTE Confidence: 0.8248088733333333

02:09:33.114 --> 02:09:35.424 really the goal is to pick up any screen,
NOTE Confidence: 0.8248088733333333

02:09:35.424 --> 02:09:37.544 any Doppler signal that shows
NOTE Confidence: 0.8248088733333333

02:09:37.544 --> 02:09:39.720 signs of developing heart block,
NOTE Confidence: 0.8248088733333333

02:09:39.720 --> 02:09:40.614 treat that woman.
NOTE Confidence: 0.8248088733333333

02:09:40.614 --> 02:09:43.098 Therefore treat that fetus with the goal to
NOTE Confidence: 0.8248088733333333

02:09:43.098 --> 02:09:45.168 prevent progression to complete heart block.
NOTE Confidence: 0.8248088733333333

02:09:45.170 --> 02:09:47.438 And then last but certainly not least,
NOTE Confidence: 0.8248088733333333

02:09:47.440 --> 02:09:49.540 is the cardiac strain twin study,
NOTE Confidence: 0.8248088733333333

02:09:49.540 --> 02:09:51.479 which is being led out of Yale.
NOTE Confidence: 0.8248088733333333

02:09:51.480 --> 02:09:53.736 This is collaboration between
NOTE Confidence: 0.8248088733333333

02:09:53.736 --> 02:09:55.600 cardiology led by Katya Kosiv

NOTE Confidence: 0.824808873333333
02:09:55.600 --> 02:09:57.920 and MFM from led by Emily Lee,
NOTE Confidence: 0.824808873333333
02:09:57.920 --> 02:10:01.412 and this is focused on Monochorionic
NOTE Confidence: 0.824808873333333
02:10:01.412 --> 02:10:03.158 diamniotic twin pregnancies,
NOTE Confidence: 0.824808873333333
02:10:03.160 --> 02:10:04.752 which are those who are at risk of
NOTE Confidence: 0.824808873333333
02:10:04.752 --> 02:10:06.188 twin twin transfusion syndrome and
NOTE Confidence: 0.824808873333333
02:10:06.188 --> 02:10:08.174 therefore at risk of cardiac dysfunction.
NOTE Confidence: 0.824808873333333
02:10:08.180 --> 02:10:09.657 And so the goal is by doing
NOTE Confidence: 0.824808873333333
02:10:09.657 --> 02:10:10.740 strain in these fetuses,
NOTE Confidence: 0.824808873333333
02:10:10.740 --> 02:10:12.504 are we able to pick up kind of early
NOTE Confidence: 0.824808873333333
02:10:12.504 --> 02:10:13.708 predictors of cardiac dysfunction?
NOTE Confidence: 0.875065253793103
02:10:16.010 --> 02:10:17.954 And then last just sort of and sort
NOTE Confidence: 0.875065253793103
02:10:17.954 --> 02:10:20.046 of where do we see sort of the field
NOTE Confidence: 0.875065253793103
02:10:20.046 --> 02:10:22.119 going in the next couple of years
NOTE Confidence: 0.875065253793103
02:10:22.119 --> 02:10:23.809 in terms of diagnostic standpoint,
NOTE Confidence: 0.875065253793103
02:10:23.810 --> 02:10:25.280 I think first trimester fetal
NOTE Confidence: 0.875065253793103

02:10:25.280 --> 02:10:26.750 echo is something that's growing.
NOTE Confidence: 0.875065253793103

02:10:26.750 --> 02:10:28.688 This is when a fetal echocardiogram
NOTE Confidence: 0.875065253793103

02:10:28.688 --> 02:10:30.749 is performed between 11 and 14 weeks,
NOTE Confidence: 0.875065253793103

02:10:30.750 --> 02:10:31.562 typically gestation,
NOTE Confidence: 0.875065253793103

02:10:31.562 --> 02:10:33.592 and certainly while there's sort
NOTE Confidence: 0.875065253793103

02:10:33.592 --> 02:10:35.671 of inherent limitations in the size
NOTE Confidence: 0.875065253793103

02:10:35.671 --> 02:10:37.285 of the fetal heart and structures.
NOTE Confidence: 0.875065253793103

02:10:37.290 --> 02:10:38.705 Many major lesions actually can
NOTE Confidence: 0.875065253793103

02:10:38.705 --> 02:10:40.450 be picked up at this time,
NOTE Confidence: 0.875065253793103

02:10:40.450 --> 02:10:41.970 and then fetal cardiac MRI,
NOTE Confidence: 0.875065253793103

02:10:41.970 --> 02:10:43.930 which also has many limitations.
NOTE Confidence: 0.875065253793103

02:10:43.930 --> 02:10:45.736 As you can imagine due to sort
NOTE Confidence: 0.875065253793103

02:10:45.736 --> 02:10:46.510 of the constantly.
NOTE Confidence: 0.875065253793103

02:10:46.510 --> 02:10:48.533 Shifting fetal heart position as well as
NOTE Confidence: 0.875065253793103

02:10:48.533 --> 02:10:50.778 high fetal heart rate makes it a challenge,
NOTE Confidence: 0.875065253793103

02:10:50.780 --> 02:10:53.118 but I think it is becoming a

NOTE Confidence: 0.875065253793103
02:10:53.118 --> 02:10:54.940 new modality for diagnosis.
NOTE Confidence: 0.875065253793103
02:10:54.940 --> 02:11:00.016 And I think with that we'd like to conclude.
NOTE Confidence: 0.875065253793103
02:11:00.020 --> 02:11:01.532 And say thank you and I just sort of
NOTE Confidence: 0.875065253793103
02:11:01.532 --> 02:11:02.920 wanted to add that I think it's been,
NOTE Confidence: 0.875065253793103
02:11:02.920 --> 02:11:03.408 you know,
NOTE Confidence: 0.875065253793103
02:11:03.408 --> 02:11:05.360 an honor to be part of an institution
NOTE Confidence: 0.875065253793103
02:11:05.421 --> 02:11:07.419 that's really had such sort of
NOTE Confidence: 0.875065253793103
02:11:07.419 --> 02:11:09.120 foundational contributions to the field.
NOTE Confidence: 0.875065253793103
02:11:09.120 --> 02:11:10.528 And I look forward to what's to come.
NOTE Confidence: 0.861184810588235
02:11:21.590 --> 02:11:23.903 I'd really like to thank the three of you
NOTE Confidence: 0.861184810588235
02:11:23.903 --> 02:11:26.676 so much for for bringing that to us, really.
NOTE Confidence: 0.861184810588235
02:11:26.676 --> 02:11:30.358 Fascinating to see the history and and
NOTE Confidence: 0.861184810588235
02:11:30.358 --> 02:11:33.167 the interweaving of things yet again.
NOTE Confidence: 0.861184810588235
02:11:33.170 --> 02:11:36.930 And for sure, through through AL and others.
NOTE Confidence: 0.861184810588235
02:11:36.930 --> 02:11:39.884 Charlie definitely lives on in this section
NOTE Confidence: 0.861184810588235

02:11:39.884 --> 02:11:42.924 without without a doubt. I'm going to.
NOTE Confidence: 0.861184810588235

02:11:42.924 --> 02:11:46.509 I'm not doing it, I'm going to.
NOTE Confidence: 0.861184810588235

02:11:46.510 --> 02:11:48.620 Jump backwards for a moment.
NOTE Confidence: 0.8252487825

02:11:51.020 --> 02:11:52.308 You're doing it OK.
NOTE Confidence: 0.860839155555556

02:11:56.360 --> 02:11:59.184 I'm going to jump backwards for a moment
NOTE Confidence: 0.860839155555556

02:11:59.184 --> 02:12:03.789 and go very quickly through a history of
NOTE Confidence: 0.860839155555556

02:12:03.789 --> 02:12:06.880 congenital catheterization and intervention.
NOTE Confidence: 0.860839155555556

02:12:06.880 --> 02:12:09.760 The the goal had been to try and lay out
NOTE Confidence: 0.860839155555556

02:12:09.839 --> 02:12:12.533 a historical perspective and then look
NOTE Confidence: 0.860839155555556

02:12:12.533 --> 02:12:15.585 toward the future and I I still would
NOTE Confidence: 0.860839155555556

02:12:15.585 --> 02:12:18.829 like to sort of hone to that a bit so.
NOTE Confidence: 0.922887728333333

02:12:21.010 --> 02:12:22.288 But in the interest of time,
NOTE Confidence: 0.922887728333333

02:12:22.290 --> 02:12:24.845 we will go through this pretty quickly.
NOTE Confidence: 0.922887728333333

02:12:24.850 --> 02:12:26.494 So congenital cardiac
NOTE Confidence: 0.922887728333333

02:12:26.494 --> 02:12:28.138 catheterization at Yale.
NOTE Confidence: 0.922887728333333

02:12:28.140 --> 02:12:29.918 We sort of touched on before and

NOTE Confidence: 0.922887728333333
02:12:29.918 --> 02:12:31.868 and what the history looked like.
NOTE Confidence: 0.922887728333333
02:12:31.870 --> 02:12:34.954 And again, these were some some
NOTE Confidence: 0.922887728333333
02:12:34.954 --> 02:12:37.455 folks who were instrumental in
NOTE Confidence: 0.922887728333333
02:12:37.455 --> 02:12:40.319 the work that was done in the lab.
NOTE Confidence: 0.922887728333333
02:12:40.320 --> 02:12:41.870 And this is Alice Rollins.
NOTE Confidence: 0.922887728333333
02:12:41.870 --> 02:12:44.915 Again, I believe this person's
NOTE Confidence: 0.922887728333333
02:12:44.915 --> 02:12:48.940 name is Deborah Nixon and she was.
NOTE Confidence: 0.922887728333333
02:12:48.940 --> 02:12:52.258 She was working with Norm Towner in
NOTE Confidence: 0.922887728333333
02:12:52.258 --> 02:12:56.032 the lab early on and this person in
NOTE Confidence: 0.922887728333333
02:12:56.032 --> 02:12:59.184 the back is Joyce Sterling who was also
NOTE Confidence: 0.922887728333333
02:12:59.184 --> 02:13:01.738 an assistant to Doctor Towner early on.
NOTE Confidence: 0.8717414
02:13:03.790 --> 02:13:06.462 So the early days in the lab really
NOTE Confidence: 0.8717414
02:13:06.462 --> 02:13:09.188 in 1960s and 70s when Doctor Towner
NOTE Confidence: 0.8717414
02:13:09.190 --> 02:13:11.290 got here and and got Mike Berman
NOTE Confidence: 0.8717414
02:13:11.290 --> 02:13:13.603 up to Yale and again just to
NOTE Confidence: 0.8717414

02:13:13.603 --> 02:13:15.990 remind you there was there was no

NOTE Confidence: 0.8717414

02:13:15.990 --> 02:13:18.125 pulse ox or oximeter to rely on.

NOTE Confidence: 0.8717414

02:13:18.130 --> 02:13:19.906 There was no echocardiogram

NOTE Confidence: 0.8717414

02:13:19.906 --> 02:13:22.126 and there was no prostaglandin.

NOTE Confidence: 0.8717414

02:13:22.130 --> 02:13:24.559 So to hear the stories of those

NOTE Confidence: 0.8717414

02:13:24.559 --> 02:13:26.909 nights is really quite remarkable.

NOTE Confidence: 0.8717414

02:13:26.910 --> 02:13:28.982 If a child came in and was blue

NOTE Confidence: 0.8717414

02:13:28.982 --> 02:13:31.458 or had a murmur and was suspected

NOTE Confidence: 0.8717414

02:13:31.458 --> 02:13:33.338 to have major heart disease.

NOTE Confidence: 0.8717414

02:13:33.340 --> 02:13:34.468 Team came in,

NOTE Confidence: 0.8717414

02:13:34.468 --> 02:13:37.100 went to the Cath lab and either

NOTE Confidence: 0.8717414

02:13:37.187 --> 02:13:40.050 made a diagnosis which in in some

NOTE Confidence: 0.8717414

02:13:40.050 --> 02:13:43.040 cases from from what I've been told,

NOTE Confidence: 0.8717414

02:13:43.040 --> 02:13:44.090 the diagnosis might even get

NOTE Confidence: 0.8717414

02:13:44.090 --> 02:13:44.930 made in the NICU.

NOTE Confidence: 0.8717414

02:13:44.930 --> 02:13:46.710 They would inject contrast through

NOTE Confidence: 0.8717414

02:13:46.710 --> 02:13:48.921 the umbilical artery line if if

NOTE Confidence: 0.8717414

02:13:48.921 --> 02:13:50.786 hypoplastic left heart syndrome was

NOTE Confidence: 0.8717414

02:13:50.786 --> 02:13:52.744 diagnosed by that injection that

NOTE Confidence: 0.8717414

02:13:52.744 --> 02:13:55.556 no care was given that was in an

NOTE Confidence: 0.8717414

02:13:55.556 --> 02:13:57.378 era before we had surgery that that

NOTE Confidence: 0.8717414

02:13:57.378 --> 02:13:59.048 could bring those children through

NOTE Confidence: 0.8717414

02:13:59.048 --> 02:14:01.559 other babies would come down to the Cath lab.

NOTE Confidence: 0.8717414

02:14:01.560 --> 02:14:03.200 Have a picture taken.

NOTE Confidence: 0.8717414

02:14:03.200 --> 02:14:04.840 And if there was.

NOTE Confidence: 0.8717414

02:14:04.840 --> 02:14:07.246 Nothing that could be done to

NOTE Confidence: 0.8717414

02:14:07.246 --> 02:14:08.449 stabilize the patient.

NOTE Confidence: 0.8717414

02:14:08.450 --> 02:14:10.228 Then the patient would go to the

NOTE Confidence: 0.8717414

02:14:10.228 --> 02:14:12.268 operating room in the middle of the night.

NOTE Confidence: 0.8717414

02:14:12.270 --> 02:14:15.090 In 1965, Bill Rashkin came out

NOTE Confidence: 0.8717414

02:14:15.090 --> 02:14:16.970 with the rashkin procedure,

NOTE Confidence: 0.8717414

02:14:16.970 --> 02:14:18.308 the atrial septostomy,
NOTE Confidence: 0.8717414

02:14:18.308 --> 02:14:21.430 so that allowed some intervention to be
NOTE Confidence: 0.8717414

02:14:21.506 --> 02:14:24.530 done in the Cath lab for specific regions.
NOTE Confidence: 0.8717414

02:14:24.530 --> 02:14:28.138 So the Cath lab was able to provide
NOTE Confidence: 0.8717414

02:14:28.138 --> 02:14:30.461 diagnostic information and and soon
NOTE Confidence: 0.8717414

02:14:30.461 --> 02:14:32.750 thereafter soon after angiography came
NOTE Confidence: 0.8717414

02:14:32.750 --> 02:14:35.510 the the evaluation of human dynamics.
NOTE Confidence: 0.8717414

02:14:35.510 --> 02:14:37.701 So and this is baby with transposition
NOTE Confidence: 0.8717414

02:14:37.701 --> 02:14:40.235 and VSD you can see the pulmonary
NOTE Confidence: 0.8717414

02:14:40.235 --> 02:14:42.527 arteries coming off the left ventricle.
NOTE Confidence: 0.8717414

02:14:42.530 --> 02:14:44.842 Here this is a some form of single
NOTE Confidence: 0.8717414

02:14:44.842 --> 02:14:45.876 ventricle with transposition
NOTE Confidence: 0.8717414

02:14:45.876 --> 02:14:48.246 can see the aorta coming off
NOTE Confidence: 0.8717414

02:14:48.246 --> 02:14:49.790 anteriorly within battle line,
NOTE Confidence: 0.8717414

02:14:49.790 --> 02:14:51.074 septum and pulmonary atresia.
NOTE Confidence: 0.8717414

02:14:51.074 --> 02:14:53.000 So this is sort of the

NOTE Confidence: 0.8717414

02:14:53.071 --> 02:14:56.630 information that they had. And.

NOTE Confidence: 0.8717414

02:14:56.630 --> 02:14:59.528 This was the blood gas machine.

NOTE Confidence: 0.8717414

02:14:59.530 --> 02:15:00.727 Now it's the I stat right that

NOTE Confidence: 0.8717414

02:15:00.727 --> 02:15:01.690 you hold in your hand.

NOTE Confidence: 0.8717414

02:15:01.690 --> 02:15:04.758 It's basically your iPhone.

NOTE Confidence: 0.8717414

02:15:04.760 --> 02:15:10.730 This is a a green dye dilution curve so pre

NOTE Confidence: 0.8717414

02:15:10.869 --> 02:15:14.356 oximetry you would inject some green dye.

NOTE Confidence: 0.8717414

02:15:14.360 --> 02:15:17.396 You would sample the blood at

NOTE Confidence: 0.8717414

02:15:17.396 --> 02:15:19.420 a downstream site overtime.

NOTE Confidence: 0.8717414

02:15:19.420 --> 02:15:20.716 Multiple samples measure the

NOTE Confidence: 0.8717414

02:15:20.716 --> 02:15:22.979 concentration of the dye and you would

NOTE Confidence: 0.8717414

02:15:22.979 --> 02:15:25.059 look and see what happened to the dye.

NOTE Confidence: 0.8717414

02:15:25.060 --> 02:15:26.676 How did it first show up and then

NOTE Confidence: 0.8717414

02:15:26.676 --> 02:15:28.408 how did it go away in that sample

NOTE Confidence: 0.8717414

02:15:28.408 --> 02:15:29.954 over time and you could measure

NOTE Confidence: 0.8717414

02:15:29.954 --> 02:15:31.238 cardiac output from that.
NOTE Confidence: 0.8717414

02:15:31.240 --> 02:15:33.208 So that was sort of pre
NOTE Confidence: 0.8717414

02:15:33.208 --> 02:15:33.864 thermodilution prefix.
NOTE Confidence: 0.792776704

02:15:36.110 --> 02:15:37.800 It's doctor Lister's oxygen machine.
NOTE Confidence: 0.792776704

02:15:37.800 --> 02:15:39.780 As I like to call it.
NOTE Confidence: 0.792776704

02:15:39.780 --> 02:15:41.860 And then we talked about this paper earlier,
NOTE Confidence: 0.792776704

02:15:41.860 --> 02:15:43.140 so I'm not going to mention it again,
NOTE Confidence: 0.792776704

02:15:43.140 --> 02:15:44.565 these these two landmark papers
NOTE Confidence: 0.792776704

02:15:44.565 --> 02:15:46.540 that came out of the Cath lab.
NOTE Confidence: 0.792776704

02:15:46.540 --> 02:15:48.535 So Mike Berman's catheters that I mentioned
NOTE Confidence: 0.792776704

02:15:48.535 --> 02:15:50.778 briefly so there were no pediatric catheters.
NOTE Confidence: 0.792776704

02:15:50.780 --> 02:15:52.432 Obviously in the 1970s,
NOTE Confidence: 0.792776704

02:15:52.432 --> 02:15:55.620 so Mike Berman developed the Berman catheter,
NOTE Confidence: 0.792776704

02:15:55.620 --> 02:15:57.340 which is an angiographic catheter.
NOTE Confidence: 0.792776704

02:15:57.340 --> 02:15:58.812 So it had a balloon at the end
NOTE Confidence: 0.792776704

02:15:58.812 --> 02:16:00.335 and it had multiple holes before

NOTE Confidence: 0.792776704

02:16:00.335 --> 02:16:01.715 the end of the catheter,

NOTE Confidence: 0.792776704

02:16:01.720 --> 02:16:03.880 so that contrast could be injected.

NOTE Confidence: 0.792776704

02:16:03.880 --> 02:16:06.379 And he invented a small wedge catheter.

NOTE Confidence: 0.792776704

02:16:06.380 --> 02:16:08.704 So the story goes that most of

NOTE Confidence: 0.792776704

02:16:08.704 --> 02:16:10.870 the work was actually done.

NOTE Confidence: 0.792776704

02:16:10.870 --> 02:16:13.810 By Bill Helen Brandon, Joe Brennan Brenner,

NOTE Confidence: 0.792776704

02:16:13.810 --> 02:16:15.434 who was another pediatric

NOTE Confidence: 0.792776704

02:16:15.434 --> 02:16:17.464 cardiology fellow at the time.

NOTE Confidence: 0.792776704

02:16:17.470 --> 02:16:19.560 Mike got all the royalties

NOTE Confidence: 0.792776704

02:16:19.560 --> 02:16:21.650 and took Bill to dinner.

NOTE Confidence: 0.792776704

02:16:21.650 --> 02:16:22.003 Basically,

NOTE Confidence: 0.792776704

02:16:22.003 --> 02:16:24.474 sound Bill tells you that that's true,

NOTE Confidence: 0.792776704

02:16:24.480 --> 02:16:27.416 so the lab always came back to Physiology,

NOTE Confidence: 0.792776704

02:16:27.420 --> 02:16:29.760 and this was really an incredible

NOTE Confidence: 0.792776704

02:16:29.760 --> 02:16:32.560 paper in the history of understanding

NOTE Confidence: 0.792776704

02:16:32.560 --> 02:16:34.340 hemodynamics and congenital heart disease,

NOTE Confidence: 0.792776704

02:16:34.340 --> 02:16:36.044 and this was another New England

NOTE Confidence: 0.792776704

02:16:36.044 --> 02:16:37.180 Journal of Medicine publication,

NOTE Confidence: 0.792776704

02:16:37.180 --> 02:16:39.136 and you'll note Doctor Kleinman again,

NOTE Confidence: 0.792776704

02:16:39.140 --> 02:16:41.032 normal tallinder, George Lister,

NOTE Confidence: 0.792776704

02:16:41.032 --> 02:16:41.978 and Bill,

NOTE Confidence: 0.792776704

02:16:41.980 --> 02:16:44.708 and this is 1982 and really the the

NOTE Confidence: 0.792776704

02:16:44.708 --> 02:16:47.060 development of the understanding of

NOTE Confidence: 0.792776704

02:16:47.060 --> 02:16:49.188 how hematocrit impacted pulmonary

NOTE Confidence: 0.792776704

02:16:49.188 --> 02:16:51.680 vascular resistance and why infants.

NOTE Confidence: 0.792776704

02:16:51.680 --> 02:16:52.768 Presented with heart failure

NOTE Confidence: 0.792776704

02:16:52.768 --> 02:16:54.400 at the time that they do.

NOTE Confidence: 0.792776704

02:16:54.400 --> 02:16:55.640 And really you know,

NOTE Confidence: 0.792776704

02:16:55.640 --> 02:16:57.190 I think there was clinical

NOTE Confidence: 0.792776704

02:16:57.190 --> 02:16:58.520 understanding that this happened,

NOTE Confidence: 0.792776704

02:16:58.520 --> 02:17:01.944 but this was the Physiology and the lab

NOTE Confidence: 0.792776704

02:17:01.944 --> 02:17:04.330 continually came back to Physiology.

NOTE Confidence: 0.792776704

02:17:04.330 --> 02:17:06.052 1980 saw really the development and

NOTE Confidence: 0.792776704

02:17:06.052 --> 02:17:08.179 the dawn of of more interventions

NOTE Confidence: 0.792776704

02:17:08.179 --> 02:17:10.015 other than raskins procedure.

NOTE Confidence: 0.792776704

02:17:10.020 --> 02:17:13.806 So so Bill Rashkin developed the

NOTE Confidence: 0.792776704

02:17:13.806 --> 02:17:16.790 first PDA device, the patent ductus,

NOTE Confidence: 0.792776704

02:17:16.790 --> 02:17:18.668 is this connection that we mentioned

NOTE Confidence: 0.792776704

02:17:18.668 --> 02:17:20.525 before between the aorta and the

NOTE Confidence: 0.792776704

02:17:20.525 --> 02:17:22.187 lung artery that in most infants

NOTE Confidence: 0.792776704

02:17:22.187 --> 02:17:23.819 closes within a few days of birth.

NOTE Confidence: 0.792776704

02:17:23.820 --> 02:17:26.580 But in some children stays open.

NOTE Confidence: 0.792776704

02:17:26.580 --> 02:17:27.784 On a personal note,

NOTE Confidence: 0.792776704

02:17:27.784 --> 02:17:29.918 my my mother-in-law had a ductus and

NOTE Confidence: 0.792776704

02:17:29.918 --> 02:17:32.046 was large enough that she was in bad

NOTE Confidence: 0.792776704

02:17:32.046 --> 02:17:34.223 heart failure at age 6 and was one of.

NOTE Confidence: 0.792776704

02:17:34.230 --> 02:17:36.468 Gross's first PDA ligations in Boston.
NOTE Confidence: 0.792776704

02:17:36.470 --> 02:17:38.072 She traveled from New Orleans to
NOTE Confidence: 0.792776704

02:17:38.072 --> 02:17:39.530 Boston to have product closed.
NOTE Confidence: 0.792776704

02:17:39.530 --> 02:17:40.906 She was in the hospital for a month.
NOTE Confidence: 0.767556455384615

02:17:42.960 --> 02:17:44.409 So now we send kids home from
NOTE Confidence: 0.767556455384615

02:17:44.409 --> 02:17:45.718 the Cath lab the same day.
NOTE Confidence: 0.767556455384615

02:17:45.720 --> 02:17:47.080 Think Britain somewhere scheduling
NOTE Confidence: 0.767556455384615

02:17:47.080 --> 02:17:49.944 a calf on a 1K baby with a
NOTE Confidence: 0.767556455384615

02:17:49.944 --> 02:17:51.824 ductus so it's really evolved.
NOTE Confidence: 0.843904521666667

02:17:54.760 --> 02:17:57.988 Raskins sort of concepts got translated,
NOTE Confidence: 0.843904521666667

02:17:57.990 --> 02:17:59.630 then into atrial septal
NOTE Confidence: 0.843904521666667

02:17:59.630 --> 02:18:00.860 defect closure devices.
NOTE Confidence: 0.843904521666667

02:18:00.860 --> 02:18:02.924 So an atrial septal defect is a hole
NOTE Confidence: 0.843904521666667

02:18:02.924 --> 02:18:05.199 in the wall between the top 2 chambers
NOTE Confidence: 0.843904521666667

02:18:05.199 --> 02:18:07.426 and that a crew of people who in
NOTE Confidence: 0.843904521666667

02:18:07.426 --> 02:18:09.620 the Cath world are sort of giants.

NOTE Confidence: 0.843904521666667
02:18:09.620 --> 02:18:12.820 So Bill Hellenbrand, Chuck Mullins,
NOTE Confidence: 0.843904521666667
02:18:12.820 --> 02:18:15.824 Larry Latson and Jim Lock and Bob
NOTE Confidence: 0.843904521666667
02:18:15.824 --> 02:18:17.659 Beekman descended on New Haven
NOTE Confidence: 0.843904521666667
02:18:17.659 --> 02:18:20.277 and we're in the Cath lab for
NOTE Confidence: 0.843904521666667
02:18:20.277 --> 02:18:22.077 the first day of disclosure.
NOTE Confidence: 0.843904521666667
02:18:22.080 --> 02:18:23.856 John tells me he got access.
NOTE Confidence: 0.843904521666667
02:18:23.860 --> 02:18:25.786 For the case as the fellow.
NOTE Confidence: 0.898674128
02:18:32.430 --> 02:18:35.270 So these these devices are, you know,
NOTE Confidence: 0.898674128
02:18:35.270 --> 02:18:36.470 they're for the history books,
NOTE Confidence: 0.898674128
02:18:36.470 --> 02:18:39.676 but this is where it all began.
NOTE Confidence: 0.898674128
02:18:39.680 --> 02:18:42.590 And the collaboration that Al and
NOTE Confidence: 0.898674128
02:18:42.590 --> 02:18:45.482 Josh Dina spoke about really started
NOTE Confidence: 0.898674128
02:18:45.482 --> 02:18:48.506 back then and in the Cath lab
NOTE Confidence: 0.898674128
02:18:48.506 --> 02:18:51.893 bill and Charlie and John started
NOTE Confidence: 0.898674128
02:18:51.893 --> 02:18:54.185 using echocardiography to help
NOTE Confidence: 0.898674128

02:18:54.185 --> 02:18:55.436 guide transcatheter interventions,
NOTE Confidence: 0.898674128

02:18:55.436 --> 02:18:57.464 and this was the first report
NOTE Confidence: 0.898674128

02:18:57.464 --> 02:18:58.887 of using Transesophageal Echo
NOTE Confidence: 0.898674128

02:18:58.887 --> 02:19:00.617 to help guide ASD closures.
NOTE Confidence: 0.898674128

02:19:00.620 --> 02:19:03.388 So this is the this is a rashkin
NOTE Confidence: 0.898674128

02:19:03.388 --> 02:19:05.400 ASD device that probably at this
NOTE Confidence: 0.898674128

02:19:05.400 --> 02:19:07.380 point was the 2nd generation device.
NOTE Confidence: 0.898674128

02:19:07.380 --> 02:19:09.214 You can see the that the echo
NOTE Confidence: 0.898674128

02:19:09.214 --> 02:19:10.310 probe I think was.
NOTE Confidence: 0.898674128

02:19:10.310 --> 02:19:12.368 14 millimeters in diameter so it can
NOTE Confidence: 0.898674128

02:19:12.368 --> 02:19:14.814 only be done in in larger adults and
NOTE Confidence: 0.898674128

02:19:14.814 --> 02:19:17.159 this was the image quality so not great.
NOTE Confidence: 0.898674128

02:19:17.160 --> 02:19:18.666 You certainly couldn't project it on
NOTE Confidence: 0.898674128

02:19:18.666 --> 02:19:20.320 the catch screen, so I don't know.
NOTE Confidence: 0.898674128

02:19:20.320 --> 02:19:22.100 We we keep complaining we can't do that,
NOTE Confidence: 0.898674128

02:19:22.100 --> 02:19:24.500 but back then I don't know how you

NOTE Confidence: 0.898674128

02:19:24.500 --> 02:19:27.046 must have turned a thing around or

NOTE Confidence: 0.898674128

02:19:27.046 --> 02:19:29.812 something and and so developed this sort

NOTE Confidence: 0.898674128

02:19:29.812 --> 02:19:32.266 of field of of interventional imaging.

NOTE Confidence: 0.898674128

02:19:32.270 --> 02:19:33.986 And again, back to the hemodynamics,

NOTE Confidence: 0.898674128

02:19:33.990 --> 02:19:34.285 right?

NOTE Confidence: 0.898674128

02:19:34.285 --> 02:19:36.940 So in the 1990s there was a big debate

NOTE Confidence: 0.898674128

02:19:37.012 --> 02:19:39.168 and it continues on now about when

NOTE Confidence: 0.898674128

02:19:39.168 --> 02:19:41.608 do you close a Fontan fenestration.

NOTE Confidence: 0.898674128

02:19:41.610 --> 02:19:43.122 So there were some papers coming

NOTE Confidence: 0.898674128

02:19:43.122 --> 02:19:44.130 out at the time,

NOTE Confidence: 0.898674128

02:19:44.130 --> 02:19:46.650 and the team here went back to the lab.

NOTE Confidence: 0.898674128

02:19:46.650 --> 02:19:48.312 Ziyad Hijazi was a fellow at

NOTE Confidence: 0.898674128

02:19:48.312 --> 02:19:49.910 the time John was junior.

NOTE Confidence: 0.898674128

02:19:49.910 --> 02:19:51.610 Attending Charlie's on this paper,

NOTE Confidence: 0.898674128

02:19:51.610 --> 02:19:54.788 Gary Koff as the surgeon and bill,

NOTE Confidence: 0.898674128

02:19:54.790 --> 02:19:57.706 and they really evaluated the hemodynamics.

NOTE Confidence: 0.898674128

02:19:57.710 --> 02:19:59.838 What happens when you test include the

NOTE Confidence: 0.898674128

02:19:59.838 --> 02:20:01.225 Fontan fenestration and showed that

NOTE Confidence: 0.898674128

02:20:01.225 --> 02:20:03.110 it may not be the best thing to do?

NOTE Confidence: 0.898674128

02:20:03.110 --> 02:20:05.234 For the patient, you may compromise

NOTE Confidence: 0.898674128

02:20:05.234 --> 02:20:07.130 your ability to deliver oxygen.

NOTE Confidence: 0.898674128

02:20:07.130 --> 02:20:09.146 Even though the saturations go up,

NOTE Confidence: 0.898674128

02:20:09.150 --> 02:20:11.130 so the debate continued and you

NOTE Confidence: 0.898674128

02:20:11.130 --> 02:20:12.450 kind of wonder well,

NOTE Confidence: 0.898674128

02:20:12.450 --> 02:20:14.386 So what does anybody even read this paper?

NOTE Confidence: 0.898674128

02:20:14.390 --> 02:20:15.320 It's circulation.

NOTE Confidence: 0.898674128

02:20:15.320 --> 02:20:18.110 It's not that great at JOURNAL,

NOTE Confidence: 0.898674128

02:20:18.110 --> 02:20:20.483 but if you look at the number

NOTE Confidence: 0.898674128

02:20:20.483 --> 02:20:22.390 of downloads for this paper,

NOTE Confidence: 0.898674128

02:20:22.390 --> 02:20:25.170 this is 2006 to 2022.

NOTE Confidence: 0.898674128

02:20:25.170 --> 02:20:27.095 The paper still being downloaded

NOTE Confidence: 0.898674128

02:20:27.095 --> 02:20:28.250 all the time.

NOTE Confidence: 0.898674128

02:20:28.250 --> 02:20:29.250 These are like, you know,

NOTE Confidence: 0.898674128

02:20:29.250 --> 02:20:30.690 major papers in this field,

NOTE Confidence: 0.898674128

02:20:30.690 --> 02:20:32.626 not you know it's not 50 a day,

NOTE Confidence: 0.898674128

02:20:32.630 --> 02:20:34.110 but it's congenital heart disease.

NOTE Confidence: 0.898674128

02:20:34.110 --> 02:20:35.410 You know they're like 10.

NOTE Confidence: 0.898674128

02:20:35.410 --> 02:20:38.440 You know not that many.

NOTE Confidence: 0.898674128

02:20:38.440 --> 02:20:40.260 Collaboration continued so similar study

NOTE Confidence: 0.898674128

02:20:40.260 --> 02:20:42.859 you know sort of cross pollinating between

NOTE Confidence: 0.898674128

02:20:42.859 --> 02:20:45.372 the operating room and the Cath lab.

NOTE Confidence: 0.898674128

02:20:45.380 --> 02:20:48.138 You know how did Fontaine fenestration impact

NOTE Confidence: 0.898674128

02:20:48.138 --> 02:20:50.720 survival in high risk Fontan patients,

NOTE Confidence: 0.898674128

02:20:50.720 --> 02:20:53.465 so this is Gary Kopf as the lead author,

NOTE Confidence: 0.898674128

02:20:53.470 --> 02:20:55.514 and Charlie and Ziad and John you

NOTE Confidence: 0.898674128

02:20:55.514 --> 02:20:57.798 know guys kind of recycled the paper.

NOTE Confidence: 0.898674128

02:20:57.800 --> 02:20:58.810 I think for another journal,
NOTE Confidence: 0.898674128

02:20:58.810 --> 02:21:01.841 but like this was the stuff that
NOTE Confidence: 0.898674128

02:21:01.841 --> 02:21:03.140 was going on.
NOTE Confidence: 0.898674128

02:21:03.140 --> 02:21:05.236 So this was the lab and you know,
NOTE Confidence: 0.898674128

02:21:05.240 --> 02:21:06.465 here's Scotty helping me get
NOTE Confidence: 0.898674128

02:21:06.465 --> 02:21:08.030 the papers out the door again.
NOTE Confidence: 0.898674128

02:21:08.030 --> 02:21:09.698 Mike Berman and now is making
NOTE Confidence: 0.898674128

02:21:09.698 --> 02:21:11.596 the to developing this catheter.
NOTE Confidence: 0.898674128

02:21:11.596 --> 02:21:14.020 This is Norm Towner and Alice
NOTE Confidence: 0.898674128

02:21:14.094 --> 02:21:16.266 at the dedication of the Towner
NOTE Confidence: 0.898674128

02:21:16.266 --> 02:21:19.530 Library and John nor crew.
NOTE Confidence: 0.898674128

02:21:19.530 --> 02:21:21.990 Bill receiving a lifetime achievement award.
NOTE Confidence: 0.898674128

02:21:21.990 --> 02:21:24.140 It picks and again these
NOTE Confidence: 0.898674128

02:21:24.140 --> 02:21:26.290 three gentlemen who who's met
NOTE Confidence: 0.756459324545455

02:21:26.372 --> 02:21:28.338 before. So that's the history.
NOTE Confidence: 0.837947456

02:21:30.580 --> 02:21:32.180 I think we're going to.

NOTE Confidence: 0.837947456

02:21:32.180 --> 02:21:35.528 We're going to move forward now.

NOTE Confidence: 0.837947456

02:21:35.530 --> 02:21:37.085 Let's see where we jumped

NOTE Confidence: 0.837947456

02:21:37.085 --> 02:21:38.329 around a little bit,

NOTE Confidence: 0.837947456

02:21:38.330 --> 02:21:40.360 so I'm going to bring Rob back

NOTE Confidence: 0.837947456

02:21:40.360 --> 02:21:42.589 up and we're going to talk about

NOTE Confidence: 0.837947456

02:21:42.590 --> 02:21:44.475 the evolution of congenital adult

NOTE Confidence: 0.837947456

02:21:44.475 --> 02:21:46.360 congenital heart disease here because,

NOTE Confidence: 0.837947456

02:21:46.360 --> 02:21:47.708 as we mentioned earlier,

NOTE Confidence: 0.837947456

02:21:47.708 --> 02:21:49.730 all of these developments and all

NOTE Confidence: 0.837947456

02:21:49.791 --> 02:21:52.108 of the work was really directed at

NOTE Confidence: 0.837947456

02:21:52.108 --> 02:21:53.920 improving outcomes for our patients.

NOTE Confidence: 0.837947456

02:21:53.920 --> 02:21:57.128 And we were successful.

NOTE Confidence: 0.837947456

02:21:57.130 --> 02:21:58.058 Now we need Rob.

NOTE Confidence: 0.764289226666667

02:22:07.590 --> 02:22:09.228 What a great morning of talks.

NOTE Confidence: 0.764289226666667

02:22:09.230 --> 02:22:11.246 I have learned a tremendous amount.

NOTE Confidence: 0.764289226666667

02:22:11.250 --> 02:22:14.586 Oops, I guess I'm I'm not control.
NOTE Confidence: 0.764289226666667

02:22:14.590 --> 02:22:15.610 You're starting my slides.
NOTE Confidence: 0.88186284

02:22:18.610 --> 02:22:19.458 I'll leave it alone.
NOTE Confidence: 0.886511471428571

02:22:21.750 --> 02:22:23.486 So thanks so much for the invitation.
NOTE Confidence: 0.886511471428571

02:22:23.490 --> 02:22:25.155 I get to talk a little bit about the
NOTE Confidence: 0.886511471428571

02:22:25.155 --> 02:22:26.924 past and a little bit about the future,
NOTE Confidence: 0.886511471428571

02:22:26.930 --> 02:22:28.202 and I'm going to try to do those
NOTE Confidence: 0.886511471428571

02:22:28.202 --> 02:22:29.599 and and move us forward with time.
NOTE Confidence: 0.903273861666667

02:22:32.000 --> 02:22:34.226 As we go through this talk,
NOTE Confidence: 0.903273861666667

02:22:34.230 --> 02:22:36.216 I have taken the opportunity to
NOTE Confidence: 0.903273861666667

02:22:36.216 --> 02:22:38.789 include a lot of pictures because,
NOTE Confidence: 0.903273861666667

02:22:38.790 --> 02:22:41.406 as you've heard, the theme of the morning,
NOTE Confidence: 0.903273861666667

02:22:41.410 --> 02:22:43.346 I'm so grateful to work with all of
NOTE Confidence: 0.903273861666667

02:22:43.346 --> 02:22:45.150 the people here in this auditorium.
NOTE Confidence: 0.903273861666667

02:22:45.150 --> 02:22:47.366 My colleagues, but I also want to give
NOTE Confidence: 0.903273861666667

02:22:47.366 --> 02:22:49.334 a particular shout out to the patients

NOTE Confidence: 0.903273861666667
02:22:49.334 --> 02:22:51.458 and the families that we take care of,
NOTE Confidence: 0.903273861666667
02:22:51.460 --> 02:22:53.134 because this really is a partnership
NOTE Confidence: 0.903273861666667
02:22:53.134 --> 02:22:55.453 with them and so you'll see some
NOTE Confidence: 0.903273861666667
02:22:55.453 --> 02:22:56.985 pictures sprinkled throughout here,
NOTE Confidence: 0.903273861666667
02:22:56.990 --> 02:22:58.001 including our staff.
NOTE Confidence: 0.903273861666667
02:22:58.001 --> 02:22:59.349 This is Kristen Cowenhoven,
NOTE Confidence: 0.903273861666667
02:22:59.350 --> 02:23:01.694 one of our wonderful nurses, and one of our.
NOTE Confidence: 0.903273861666667
02:23:01.694 --> 02:23:03.440 Patients are Dallas who recently had
NOTE Confidence: 0.903273861666667
02:23:03.502 --> 02:23:05.518 a a Fontaine revision or conversion.
NOTE Confidence: 0.903273861666667
02:23:05.520 --> 02:23:06.798 One of our last patients to
NOTE Confidence: 0.903273861666667
02:23:06.798 --> 02:23:07.650 have a classic Fontan,
NOTE Confidence: 0.903273861666667
02:23:07.650 --> 02:23:08.898 and I love her shirt here.
NOTE Confidence: 0.903273861666667
02:23:08.900 --> 02:23:11.972 Don't judge my disability by its
NOTE Confidence: 0.903273861666667
02:23:11.972 --> 02:23:14.425 visibility CHD, so you'll see a lot
NOTE Confidence: 0.903273861666667
02:23:14.425 --> 02:23:16.210 of these throughout the talk here.
NOTE Confidence: 0.903273861666667

02:23:16.210 --> 02:23:19.098 I have no disclosures.
NOTE Confidence: 0.903273861666667

02:23:19.100 --> 02:23:21.620 So we know everyone in this room knows that
NOTE Confidence: 0.903273861666667

02:23:21.620 --> 02:23:23.560 congenital heart disease is a big problem.
NOTE Confidence: 0.903273861666667

02:23:23.560 --> 02:23:25.800 It occurs about one in 100 live bursts.
NOTE Confidence: 0.903273861666667

02:23:25.800 --> 02:23:27.557 The most common birth defect and about
NOTE Confidence: 0.903273861666667

02:23:27.557 --> 02:23:29.533 1/4 of those infants will require surgery
NOTE Confidence: 0.903273861666667

02:23:29.533 --> 02:23:31.580 within the first year of their life.
NOTE Confidence: 0.903273861666667

02:23:31.580 --> 02:23:33.300 And you heard some of this before that.
NOTE Confidence: 0.903273861666667

02:23:33.300 --> 02:23:34.994 The current estimates in the US is
NOTE Confidence: 0.903273861666667

02:23:34.994 --> 02:23:36.486 that there's about million children
NOTE Confidence: 0.903273861666667

02:23:36.486 --> 02:23:37.918 with congenital heart disease,
NOTE Confidence: 0.903273861666667

02:23:37.920 --> 02:23:40.480 but there's about 1.4 million.
NOTE Confidence: 0.903273861666667

02:23:40.480 --> 02:23:43.366 This is as of 2016 adults living
NOTE Confidence: 0.903273861666667

02:23:43.366 --> 02:23:44.978 with congenital heart disease.
NOTE Confidence: 0.903273861666667

02:23:44.980 --> 02:23:46.550 Many of those are severe,
NOTE Confidence: 0.903273861666667

02:23:46.550 --> 02:23:48.524 and what's changing over time is

NOTE Confidence: 0.903273861666667
02:23:48.524 --> 02:23:50.299 that the proportion of adults
NOTE Confidence: 0.903273861666667
02:23:50.299 --> 02:23:51.879 who have more complicated.
NOTE Confidence: 0.903273861666667
02:23:51.880 --> 02:23:54.085 Forms of congenital heart disease
NOTE Confidence: 0.903273861666667
02:23:54.085 --> 02:23:55.408 are growing tremendously,
NOTE Confidence: 0.903273861666667
02:23:55.410 --> 02:23:56.640 so Michael and I were talking
NOTE Confidence: 0.903273861666667
02:23:56.640 --> 02:23:57.460 about this this morning.
NOTE Confidence: 0.903273861666667
02:23:57.460 --> 02:23:58.944 We don't have really good access to
NOTE Confidence: 0.903273861666667
02:23:58.944 --> 02:24:00.829 data in this country because we don't
NOTE Confidence: 0.903273861666667
02:24:00.829 --> 02:24:02.329 have universal access to healthcare.
NOTE Confidence: 0.903273861666667
02:24:02.330 --> 02:24:04.268 It's a different talk of different
NOTE Confidence: 0.903273861666667
02:24:04.268 --> 02:24:05.840 problem for a different day.
NOTE Confidence: 0.903273861666667
02:24:05.840 --> 02:24:07.751 So we we rely on our neighbors
NOTE Confidence: 0.903273861666667
02:24:07.751 --> 02:24:09.340 to the North and Canada,
NOTE Confidence: 0.903273861666667
02:24:09.340 --> 02:24:11.876 so this is data that comes out of
NOTE Confidence: 0.903273861666667
02:24:11.880 --> 02:24:14.976 Quebec looking at the population there.
NOTE Confidence: 0.903273861666667

02:24:14.980 --> 02:24:16.443 And if you just pay attention to
NOTE Confidence: 0.903273861666667

02:24:16.443 --> 02:24:17.980 the bar graph here on the bottom,
NOTE Confidence: 0.903273861666667

02:24:17.980 --> 02:24:19.900 you can see that even as of 2000
NOTE Confidence: 0.903273861666667

02:24:19.900 --> 02:24:22.003 there were more adults living with
NOTE Confidence: 0.903273861666667

02:24:22.003 --> 02:24:23.958 congenital heart disease than children,
NOTE Confidence: 0.903273861666667

02:24:23.960 --> 02:24:25.790 and that proportion has just
NOTE Confidence: 0.903273861666667

02:24:25.790 --> 02:24:27.810 continued to increase so that by
NOTE Confidence: 0.903273861666667

02:24:27.810 --> 02:24:30.274 2010 2/3 of those living in Quebec
NOTE Confidence: 0.903273861666667

02:24:30.274 --> 02:24:32.459 with penalties are actually adults,
NOTE Confidence: 0.903273861666667

02:24:32.460 --> 02:24:34.525 which changing over time again
NOTE Confidence: 0.903273861666667

02:24:34.525 --> 02:24:36.590 is the complexity of those.
NOTE Confidence: 0.903273861666667

02:24:36.590 --> 02:24:38.462 Another way of looking at this is to look
NOTE Confidence: 0.903273861666667

02:24:38.462 --> 02:24:40.664 at something a little more scary and morbid,
NOTE Confidence: 0.903273861666667

02:24:40.670 --> 02:24:42.770 but look at the the patients who
NOTE Confidence: 0.903273861666667

02:24:42.770 --> 02:24:44.529 died with congenital heart disease.
NOTE Confidence: 0.903273861666667

02:24:44.530 --> 02:24:45.912 If you look in the 1980s,

NOTE Confidence: 0.903273861666667
02:24:45.912 --> 02:24:47.724 you can see that this population
NOTE Confidence: 0.903273861666667
02:24:47.724 --> 02:24:49.679 skewed and there is a lot of
NOTE Confidence: 0.903273861666667
02:24:49.679 --> 02:24:51.167 people in this younger group here.
NOTE Confidence: 0.903273861666667
02:24:51.170 --> 02:24:52.941 These are the you heard about this
NOTE Confidence: 0.903273861666667
02:24:52.941 --> 02:24:54.948 before the the patients that we didn't
NOTE Confidence: 0.903273861666667
02:24:54.948 --> 02:24:56.742 have good care for the hypoplastic
NOTE Confidence: 0.903273861666667
02:24:56.798 --> 02:24:58.532 or the complicated forms of heart
NOTE Confidence: 0.903273861666667
02:24:58.532 --> 02:25:00.098 disease or didn't have options.
NOTE Confidence: 0.903273861666667
02:25:00.098 --> 02:25:02.954 If you looked at the curve now
NOTE Confidence: 0.903273861666667
02:25:02.954 --> 02:25:05.040 into more recently 2004 2005
NOTE Confidence: 0.903273861666667
02:25:05.040 --> 02:25:06.825 that has shifted to a much more.
NOTE Confidence: 0.903273861666667
02:25:06.830 --> 02:25:08.635 A typical looking curve for
NOTE Confidence: 0.903273861666667
02:25:08.635 --> 02:25:09.718 the general population,
NOTE Confidence: 0.850685707
02:25:09.720 --> 02:25:10.672 so we have moved.
NOTE Confidence: 0.850685707
02:25:10.672 --> 02:25:12.410 We have done such a tremendous job
NOTE Confidence: 0.850685707

02:25:12.410 --> 02:25:14.181 of caring for those in fetal land

NOTE Confidence: 0.850685707

02:25:14.181 --> 02:25:15.715 and pediatric land and neonates that

NOTE Confidence: 0.850685707

02:25:15.715 --> 02:25:17.659 the burden of much of this heart

NOTE Confidence: 0.850685707

02:25:17.659 --> 02:25:20.533 disease now falls into the adults

NOTE Confidence: 0.850685707

02:25:20.533 --> 02:25:22.680 with congenital heart disease.

NOTE Confidence: 0.850685707

02:25:22.680 --> 02:25:24.944 Here's a paper that came out by one

NOTE Confidence: 0.850685707

02:25:24.944 --> 02:25:26.964 of my colleagues, Sasha Okonski,

NOTE Confidence: 0.850685707

02:25:26.964 --> 02:25:28.836 and I think a medical student

NOTE Confidence: 0.850685707

02:25:28.836 --> 02:25:31.153 at the time in Boston looking

NOTE Confidence: 0.850685707

02:25:31.153 --> 02:25:32.777 at hospitalizations and again,

NOTE Confidence: 0.850685707

02:25:32.780 --> 02:25:34.096 if you look at the light grade,

NOTE Confidence: 0.850685707

02:25:34.100 --> 02:25:35.225 these are these are children

NOTE Confidence: 0.850685707

02:25:35.225 --> 02:25:36.350 under the age of 18.

NOTE Confidence: 0.850685707

02:25:36.350 --> 02:25:38.216 It's been relatively constant over time,

NOTE Confidence: 0.850685707

02:25:38.220 --> 02:25:39.312 but if you look at the dark

NOTE Confidence: 0.850685707

02:25:39.312 --> 02:25:40.260 Gray here on the bottom,

NOTE Confidence: 0.850685707

02:25:40.260 --> 02:25:42.090 the growth over time has increased

NOTE Confidence: 0.850685707

02:25:42.090 --> 02:25:43.655 substantially so that you have

NOTE Confidence: 0.850685707

02:25:43.655 --> 02:25:45.419 nearly a doubling in a decade

NOTE Confidence: 0.850685707

02:25:45.419 --> 02:25:46.735 of hospitalizations for adults

NOTE Confidence: 0.850685707

02:25:46.735 --> 02:25:48.239 with congenital heart disease.

NOTE Confidence: 0.850685707

02:25:48.240 --> 02:25:49.860 So these patients are out there

NOTE Confidence: 0.850685707

02:25:49.860 --> 02:25:51.280 and they need our care,

NOTE Confidence: 0.850685707

02:25:51.280 --> 02:25:52.906 and so this is our triumph.

NOTE Confidence: 0.850685707

02:25:52.910 --> 02:25:54.722 That these patients are surviving to

NOTE Confidence: 0.850685707

02:25:54.722 --> 02:25:56.510 adulthood and thriving and doing well,

NOTE Confidence: 0.850685707

02:25:56.510 --> 02:25:57.470 here's one of my patients,

NOTE Confidence: 0.850685707

02:25:57.470 --> 02:25:59.528 Chris with Don or wonderful social workers,

NOTE Confidence: 0.850685707

02:25:59.530 --> 02:26:00.606 medical student and me.

NOTE Confidence: 0.850685707

02:26:00.606 --> 02:26:02.810 And this is one of our patients.

NOTE Confidence: 0.850685707

02:26:02.810 --> 02:26:03.064 Well,

NOTE Confidence: 0.850685707

02:26:03.064 --> 02:26:05.350 who took his free time to to make huge

NOTE Confidence: 0.850685707

02:26:05.409 --> 02:26:07.054 donations to the Children's Hospital

NOTE Confidence: 0.850685707

02:26:07.054 --> 02:26:10.027 in terms of toys and gifts for the holiday.

NOTE Confidence: 0.850685707

02:26:10.030 --> 02:26:10.970 These patients are out there,

NOTE Confidence: 0.850685707

02:26:10.970 --> 02:26:12.536 they're doing, well,

NOTE Confidence: 0.850685707

02:26:12.536 --> 02:26:13.580 they're thriving.

NOTE Confidence: 0.850685707

02:26:13.580 --> 02:26:15.380 And I think many people have

NOTE Confidence: 0.850685707

02:26:15.380 --> 02:26:16.580 heard this story before.

NOTE Confidence: 0.850685707

02:26:16.580 --> 02:26:17.860 The triumph of Sean White,

NOTE Confidence: 0.850685707

02:26:17.860 --> 02:26:18.760 and I say to my patients,

NOTE Confidence: 0.850685707

02:26:18.760 --> 02:26:20.020 you could be Olympic snowboarder.

NOTE Confidence: 0.850685707

02:26:20.020 --> 02:26:21.676 Tina was whispering this to me,

NOTE Confidence: 0.850685707

02:26:21.680 --> 02:26:23.184 but I thought I would show you the

NOTE Confidence: 0.850685707

02:26:23.184 --> 02:26:24.818 triumph of one of our own patients here.

NOTE Confidence: 0.850685707

02:26:24.820 --> 02:26:26.160 Hope this video works.

NOTE Confidence: 0.850685707

02:26:26.160 --> 02:26:27.835 Is one of our patients.

NOTE Confidence: 0.850685707

02:26:27.840 --> 02:26:30.666 I think John knows that David.

NOTE Confidence: 0.850685707

02:26:30.670 --> 02:26:32.690 David has a raw procedure.

NOTE Confidence: 0.9248144975

02:26:36.680 --> 02:26:40.904 So David is a champion barefoot water skier.

NOTE Confidence: 0.9248144975

02:26:40.910 --> 02:26:44.398 And you can be anything you wanna be.

NOTE Confidence: 0.9248144975

02:26:44.400 --> 02:26:45.368 You can be successful,

NOTE Confidence: 0.9248144975

02:26:45.368 --> 02:26:46.820 so this is our triumph right?

NOTE Confidence: 0.9248144975

02:26:46.820 --> 02:26:47.936 You could have complex

NOTE Confidence: 0.9248144975

02:26:47.936 --> 02:26:49.331 congenital heart disease and be

NOTE Confidence: 0.9248144975

02:26:49.331 --> 02:26:51.159 a champion barefoot water skier.

NOTE Confidence: 0.9248144975

02:26:51.160 --> 02:26:54.310 Sorry, too loud, sorry about that.

NOTE Confidence: 0.9248144975

02:26:54.310 --> 02:26:55.878 So we have our own version of

NOTE Confidence: 0.9248144975

02:26:55.878 --> 02:26:57.508 Sean White right here in the

NOTE Confidence: 0.9248144975

02:26:57.508 --> 02:26:58.708 adult congenital heart program,

NOTE Confidence: 0.9248144975

02:26:58.710 --> 02:27:01.158 but as we have learned and heard and

NOTE Confidence: 0.9248144975

02:27:01.158 --> 02:27:03.409 heard very eloquently from Michael,

NOTE Confidence: 0.9248144975

02:27:03.410 --> 02:27:05.030 you know the way of saying,
NOTE Confidence: 0.9248144975

02:27:05.030 --> 02:27:06.458 you know you have a discharge
NOTE Confidence: 0.9248144975

02:27:06.458 --> 02:27:07.749 Cath when you're 18 or 20,
NOTE Confidence: 0.9248144975

02:27:07.750 --> 02:27:09.430 and saying have a nice life
NOTE Confidence: 0.9248144975

02:27:09.430 --> 02:27:11.222 doesn't really cut it and we know.
NOTE Confidence: 0.9248144975

02:27:11.222 --> 02:27:12.790 And one of the mantras in my
NOTE Confidence: 0.9248144975

02:27:12.850 --> 02:27:14.554 field of adults that aren't sees
NOTE Confidence: 0.9248144975

02:27:14.554 --> 02:27:16.300 is that repaired is not cured.
NOTE Confidence: 0.9248144975

02:27:16.300 --> 02:27:18.064 This is a patient, not my patient,
NOTE Confidence: 0.9248144975

02:27:18.070 --> 02:27:20.268 but they tattooed a reminder on their
NOTE Confidence: 0.9248144975

02:27:20.268 --> 02:27:22.906 chest of their of their tetralogy of flow.
NOTE Confidence: 0.9248144975

02:27:22.910 --> 02:27:23.920 You can see the VSD,
NOTE Confidence: 0.9248144975

02:27:23.920 --> 02:27:24.840 you can see the pulmonary.
NOTE Confidence: 0.9248144975

02:27:24.840 --> 02:27:25.880 Analysis and overriding era,
NOTE Confidence: 0.9248144975

02:27:25.880 --> 02:27:27.901 and even a little zipper here at the
NOTE Confidence: 0.9248144975

02:27:27.901 --> 02:27:29.549 top of their scar just to remind people

NOTE Confidence: 0.9248144975

02:27:29.599 --> 02:27:31.075 when they came into the hospital.

NOTE Confidence: 0.9248144975

02:27:31.080 --> 02:27:33.870 That repaired is not cured.

NOTE Confidence: 0.9248144975

02:27:33.870 --> 02:27:36.005 And so we we have these triumphs.

NOTE Confidence: 0.9248144975

02:27:36.010 --> 02:27:36.842 But we have challenges.

NOTE Confidence: 0.9248144975

02:27:36.842 --> 02:27:38.090 And so I think you know,

NOTE Confidence: 0.9248144975

02:27:38.090 --> 02:27:40.316 we have the 30,000 feet view

NOTE Confidence: 0.9248144975

02:27:40.316 --> 02:27:41.429 of the challenges.

NOTE Confidence: 0.9248144975

02:27:41.430 --> 02:27:42.672 Do we have the resources to

NOTE Confidence: 0.9248144975

02:27:42.672 --> 02:27:43.870 take care of these people?

NOTE Confidence: 0.9248144975

02:27:43.870 --> 02:27:46.486 Do we have the experts who are knowledgeable

NOTE Confidence: 0.9248144975

02:27:46.486 --> 02:27:49.018 about adult internal medicine and Canaries?

NOTE Confidence: 0.9248144975

02:27:49.020 --> 02:27:51.268 Do we have the facilities and the surgeons?

NOTE Confidence: 0.9248144975

02:27:51.270 --> 02:27:53.142 Do we have the quality metrics for the

NOTE Confidence: 0.9248144975

02:27:53.142 --> 02:27:55.047 knowledge all the way down to the individual?

NOTE Confidence: 0.9248144975

02:27:55.050 --> 02:27:55.934 Aspects of the patient.

NOTE Confidence: 0.9248144975

02:27:55.934 --> 02:27:57.619 This is one of my patients with
NOTE Confidence: 0.9248144975

02:27:57.619 --> 02:27:58.859 severe cyanosis and isometric.
NOTE Confidence: 0.9248144975

02:27:58.860 --> 02:28:01.135 See the clubbing and her fingertips and
NOTE Confidence: 0.9248144975

02:28:01.135 --> 02:28:03.280 we're dealing with patients who are
NOTE Confidence: 0.9248144975

02:28:03.280 --> 02:28:05.130 living with the unforeseen complications
NOTE Confidence: 0.9248144975

02:28:05.130 --> 02:28:07.498 of early surgical repairs procedures.
NOTE Confidence: 0.9248144975

02:28:07.500 --> 02:28:10.288 We don't even do anymore that have a high
NOTE Confidence: 0.9248144975

02:28:10.288 --> 02:28:12.040 risk of heart rhythm issues over time.
NOTE Confidence: 0.9248144975

02:28:12.040 --> 02:28:12.341 Cyanosis,
NOTE Confidence: 0.9248144975

02:28:12.341 --> 02:28:12.642 pregnancy.
NOTE Confidence: 0.9248144975

02:28:12.642 --> 02:28:14.749 Many of my patients want to start
NOTE Confidence: 0.9248144975

02:28:14.749 --> 02:28:16.371 families with their own and have
NOTE Confidence: 0.9248144975

02:28:16.371 --> 02:28:17.902 families knows what does that mean
NOTE Confidence: 0.9248144975

02:28:17.902 --> 02:28:19.372 for them long term and then some
NOTE Confidence: 0.9248144975

02:28:19.372 --> 02:28:21.024 of the unforeseen complications
NOTE Confidence: 0.9248144975

02:28:21.024 --> 02:28:24.340 from their early surgeries.

NOTE Confidence: 0.9248144975

02:28:24.340 --> 02:28:31.866 So in 2004, yeah in 2004 or thereabouts,

NOTE Confidence: 0.9248144975

02:28:31.870 --> 02:28:34.740 Doctor John Fahey was working on an

NOTE Confidence: 0.9248144975

02:28:34.740 --> 02:28:36.842 with George Lister and realizing

NOTE Confidence: 0.9248144975

02:28:36.842 --> 02:28:39.607 that this is a population that we

NOTE Confidence: 0.9248144975

02:28:39.607 --> 02:28:42.525 need to take care of and put together

NOTE Confidence: 0.9248144975

02:28:42.525 --> 02:28:44.668 a proposal to the Yale School of

NOTE Confidence: 0.9248144975

02:28:44.668 --> 02:28:46.678 Medicine that we needed to have a

NOTE Confidence: 0.9248144975

02:28:46.678 --> 02:28:48.574 dedicated program to take care of

NOTE Confidence: 0.9248144975

02:28:48.574 --> 02:28:50.180 adults with congenital heart disease

NOTE Confidence: 0.9248144975

02:28:50.180 --> 02:28:52.280 and right around that time Jim Perry

NOTE Confidence: 0.9248144975

02:28:52.280 --> 02:28:54.008 came and together they established.

NOTE Confidence: 0.9248144975

02:28:54.008 --> 02:28:56.624 One of the first programs in adults

NOTE Confidence: 0.9248144975

02:28:56.624 --> 02:28:58.679 with the first integrated program

NOTE Confidence: 0.9248144975

02:28:58.679 --> 02:29:00.725 in congenital heart disease here

NOTE Confidence: 0.9248144975

02:29:00.725 --> 02:29:02.390 in the state of Connecticut.

NOTE Confidence: 0.9248144975

02:29:02.390 --> 02:29:05.470 So this was in 2004 and I really like this.

NOTE Confidence: 0.9248144975

02:29:05.470 --> 02:29:07.801 I I John shared with me some of the

NOTE Confidence: 0.9248144975

02:29:07.801 --> 02:29:09.832 early literature and they really honed

NOTE Confidence: 0.9248144975

02:29:09.832 --> 02:29:12.555 in on this concept of a medical home

NOTE Confidence: 0.9248144975

02:29:12.555 --> 02:29:14.767 for these patients and I think that

NOTE Confidence: 0.9248144975

02:29:14.770 --> 02:29:16.777 we have really tried to stay true to that.

NOTE Confidence: 0.9248144975

02:29:16.780 --> 02:29:18.240 So the medical home was

NOTE Confidence: 0.9248144975

02:29:18.240 --> 02:29:19.408 supposed to be patient,

NOTE Confidence: 0.8887656

02:29:19.410 --> 02:29:20.254 family centered.

NOTE Confidence: 0.8887656

02:29:20.254 --> 02:29:23.208 It was supposed to be comprehensive and

NOTE Confidence: 0.8887656

02:29:23.208 --> 02:29:26.711 so it would offer all of the services

NOTE Confidence: 0.8887656

02:29:26.711 --> 02:29:28.650 from electrophysiology to imaging,

NOTE Confidence: 0.8887656

02:29:28.650 --> 02:29:29.798 even including social work,

NOTE Confidence: 0.8887656

02:29:29.798 --> 02:29:31.520 which I thought was really revolutionary

NOTE Confidence: 0.8887656

02:29:31.571 --> 02:29:33.006 and important at the time and and.

NOTE Confidence: 0.8887656

02:29:33.010 --> 02:29:34.515 Realization that the adults were

NOTE Confidence: 0.8887656

02:29:34.515 --> 02:29:36.362 coming to our practice or dealing

NOTE Confidence: 0.8887656

02:29:36.362 --> 02:29:37.976 with their own set of issues,

NOTE Confidence: 0.8887656

02:29:37.976 --> 02:29:38.984 which may be complicated.

NOTE Confidence: 0.8887656

02:29:38.990 --> 02:29:40.760 They need wrap around support and

NOTE Confidence: 0.8887656

02:29:40.760 --> 02:29:42.238 really coordinated care to make

NOTE Confidence: 0.8887656

02:29:42.238 --> 02:29:43.714 their time and their effort to

NOTE Confidence: 0.8887656

02:29:43.714 --> 02:29:45.289 come to clinic very worthwhile.

NOTE Confidence: 0.8887656

02:29:45.290 --> 02:29:46.900 So I think it was a really

NOTE Confidence: 0.8887656

02:29:46.900 --> 02:29:50.400 revolutionary concept at the time.

NOTE Confidence: 0.8887656

02:29:50.400 --> 02:29:52.938 And and So what has happened over that time?

NOTE Confidence: 0.8887656

02:29:52.940 --> 02:29:55.112 So with the stewardship of John

NOTE Confidence: 0.8887656

02:29:55.112 --> 02:29:56.984 and Nancy Robinson and many

NOTE Confidence: 0.8887656

02:29:56.984 --> 02:29:59.147 other people in the group, here,

NOTE Confidence: 0.8887656

02:29:59.147 --> 02:30:02.136 there was the arrival of Dan Jacoby.

NOTE Confidence: 0.8887656

02:30:02.140 --> 02:30:03.995 One of our colleagues in adult cardiology

NOTE Confidence: 0.8887656

02:30:03.995 --> 02:30:05.595 who brought a different expertise

NOTE Confidence: 0.8887656

02:30:05.595 --> 02:30:07.485 about heart failure and transplant,

NOTE Confidence: 0.8887656

02:30:07.490 --> 02:30:09.233 was one of the early partners in

NOTE Confidence: 0.8887656

02:30:09.233 --> 02:30:11.076 the world of adults with digital

NOTE Confidence: 0.8887656

02:30:11.076 --> 02:30:12.464 heart disease with John.

NOTE Confidence: 0.8887656

02:30:12.470 --> 02:30:14.924 I came in 2013 after after

NOTE Confidence: 0.8887656

02:30:14.924 --> 02:30:17.230 training in adults 200 season.

NOTE Confidence: 0.8887656

02:30:17.230 --> 02:30:18.566 Here I am with one of my patients,

NOTE Confidence: 0.8887656

02:30:18.570 --> 02:30:20.390 Collette,

NOTE Confidence: 0.8887656

02:30:20.390 --> 02:30:22.232 who recently had a heart transplant

NOTE Confidence: 0.8887656

02:30:22.232 --> 02:30:24.353 and is doing great and actually came

NOTE Confidence: 0.8887656

02:30:24.353 --> 02:30:26.648 to our heart block and walk the the

NOTE Confidence: 0.8887656

02:30:26.648 --> 02:30:28.636 5K distance and is doing quite well.

NOTE Confidence: 0.8887656

02:30:28.640 --> 02:30:30.458 We had our own fearless leader,

NOTE Confidence: 0.8887656

02:30:30.460 --> 02:30:31.309 doctor Jeremy Asnes,

NOTE Confidence: 0.8887656

02:30:31.309 --> 02:30:33.007 who decided that he would study

NOTE Confidence: 0.8887656

02:30:33.007 --> 02:30:34.755 hard and take the boards and

NOTE Confidence: 0.8887656

02:30:34.755 --> 02:30:36.170 adults with general heart disease

NOTE Confidence: 0.8887656

02:30:36.221 --> 02:30:38.033 because he was seeing more adults

NOTE Confidence: 0.8887656

02:30:38.033 --> 02:30:39.241 with general heart disease.

NOTE Confidence: 0.8887656

02:30:39.250 --> 02:30:41.525 Here he is working with Laura Matos

NOTE Confidence: 0.8887656

02:30:41.525 --> 02:30:43.987 and the Cath lab and then more

NOTE Confidence: 0.8887656

02:30:43.987 --> 02:30:45.955 recently the hiring of Jeff Vinokur

NOTE Confidence: 0.8887656

02:30:45.955 --> 02:30:47.974 who came from Rochester and had

NOTE Confidence: 0.8887656

02:30:47.974 --> 02:30:50.020 a wealth of expertise and caring

NOTE Confidence: 0.8887656

02:30:50.020 --> 02:30:51.524 for the increasingly complicated

NOTE Confidence: 0.8887656

02:30:51.524 --> 02:30:53.619 rhythm issues of our patients.

NOTE Confidence: 0.8887656

02:30:53.620 --> 02:30:56.336 And so we've had this wonderful growth

NOTE Confidence: 0.8887656

02:30:56.336 --> 02:30:59.600 of the program over time and here we are.

NOTE Confidence: 0.8887656

02:30:59.600 --> 02:31:00.620 Recently doing training,

NOTE Confidence: 0.8887656

02:31:00.620 --> 02:31:03.399 the team that trains together stays together,

NOTE Confidence: 0.8887656

02:31:03.400 --> 02:31:06.000 so this is a recent photo from our
NOTE Confidence: 0.8887656

02:31:06.000 --> 02:31:08.485 group where we went to do advanced
NOTE Confidence: 0.8887656

02:31:08.485 --> 02:31:11.030 cardiac life support and we have Jeff,
NOTE Confidence: 0.8887656

02:31:11.030 --> 02:31:13.286 Nancy, Amanda, one of our nurse,
NOTE Confidence: 0.8887656

02:31:13.290 --> 02:31:15.234 wonderful nurses, Cheyenne Beach,
NOTE Confidence: 0.8887656

02:31:15.234 --> 02:31:17.178 our electrophysiologist Britton Keeshan
NOTE Confidence: 0.8887656

02:31:17.180 --> 02:31:18.980 Jeremy or Phyllis leader myself.
NOTE Confidence: 0.8887656

02:31:18.980 --> 02:31:19.658 Jess Santora,
NOTE Confidence: 0.8887656

02:31:19.658 --> 02:31:21.692 our unsung hero of adult fiction
NOTE Confidence: 0.8887656

02:31:21.692 --> 02:31:23.705 artists who gets everything done for
NOTE Confidence: 0.8887656

02:31:23.705 --> 02:31:27.660 us and of course Doctor. John Fahey.
NOTE Confidence: 0.8887656

02:31:27.660 --> 02:31:29.448 And our team has grown overtime.
NOTE Confidence: 0.8887656

02:31:29.450 --> 02:31:31.207 So you heard about some of the
NOTE Confidence: 0.8887656

02:31:31.207 --> 02:31:32.590 people here Nancy, of course,
NOTE Confidence: 0.8887656

02:31:32.590 --> 02:31:34.795 the new hiring of Kingdom are wonderful.
NOTE Confidence: 0.8887656

02:31:34.800 --> 02:31:37.495 Nurse who's out here in the audience,

NOTE Confidence: 0.8887656

02:31:37.500 --> 02:31:39.385 somewhere Amanda and many of

NOTE Confidence: 0.8887656

02:31:39.385 --> 02:31:41.650 our nurses who help us out.

NOTE Confidence: 0.8887656

02:31:41.650 --> 02:31:43.562 Don who is our go to social worker

NOTE Confidence: 0.8887656

02:31:43.562 --> 02:31:45.406 who's so grateful to have as part

NOTE Confidence: 0.8887656

02:31:45.406 --> 02:31:47.713 of our program and has been such a

NOTE Confidence: 0.8887656

02:31:47.713 --> 02:31:49.278 tremendous asset to our patients,

NOTE Confidence: 0.8887656

02:31:49.280 --> 02:31:50.388 our families, our staff.

NOTE Confidence: 0.8887656

02:31:50.388 --> 02:31:52.581 I think that Don cares for us as

NOTE Confidence: 0.8887656

02:31:52.581 --> 02:31:54.219 a physicians and staff as much as

NOTE Confidence: 0.8887656

02:31:54.219 --> 02:31:56.196 she does the patients and families.

NOTE Confidence: 0.8887656

02:31:56.200 --> 02:31:56.806 Jest, of course,

NOTE Confidence: 0.8887656

02:31:56.806 --> 02:31:58.220 who I just turned to and say.

NOTE Confidence: 0.8887656

02:31:58.220 --> 02:31:58.492 Yes,

NOTE Confidence: 0.8887656

02:31:58.492 --> 02:32:00.396 please figure out a way to schedule

NOTE Confidence: 0.8887656

02:32:00.396 --> 02:32:02.249 this and she manages to get it

NOTE Confidence: 0.8887656

02:32:02.249 --> 02:32:04.122 done and then Steve and all of
NOTE Confidence: 0.8887656

02:32:04.122 --> 02:32:05.537 our wonderful echo texters too
NOTE Confidence: 0.8887656

02:32:05.537 --> 02:32:06.386 many names to
NOTE Confidence: 0.866443382413793

02:32:06.390 --> 02:32:08.307 put up there, but we really rely on your
NOTE Confidence: 0.866443382413793

02:32:08.307 --> 02:32:09.525 expertise and it's interesting because
NOTE Confidence: 0.866443382413793

02:32:09.525 --> 02:32:11.715 I have patients come in all the time who
NOTE Confidence: 0.866443382413793

02:32:11.715 --> 02:32:13.137 have gone to the adult cardiologists.
NOTE Confidence: 0.866443382413793

02:32:13.140 --> 02:32:14.729 They've had three or four or five
NOTE Confidence: 0.866443382413793

02:32:14.729 --> 02:32:16.110 tests that they probably need.
NOTE Confidence: 0.866443382413793

02:32:16.110 --> 02:32:18.042 All they really needed was a good
NOTE Confidence: 0.866443382413793

02:32:18.042 --> 02:32:19.611 quality congenital echo to be done
NOTE Confidence: 0.866443382413793

02:32:19.611 --> 02:32:21.207 to figure out what the diagnosis is,
NOTE Confidence: 0.866443382413793

02:32:21.210 --> 02:32:23.130 so I appreciate you guys and and you
NOTE Confidence: 0.866443382413793

02:32:23.130 --> 02:32:24.708 know you've heard about this too,
NOTE Confidence: 0.866443382413793

02:32:24.710 --> 02:32:26.684 but there really is a collaborative approach
NOTE Confidence: 0.866443382413793

02:32:26.684 --> 02:32:28.920 and one of the things I have learned.

NOTE Confidence: 0.866443382413793
02:32:28.920 --> 02:32:31.132 John Fahey is that how to reach
NOTE Confidence: 0.866443382413793
02:32:31.132 --> 02:32:33.204 across the aisle and get to know
NOTE Confidence: 0.866443382413793
02:32:33.204 --> 02:32:34.782 who the go to person is.
NOTE Confidence: 0.866443382413793
02:32:34.790 --> 02:32:37.232 So when you need surgery or
NOTE Confidence: 0.866443382413793
02:32:37.232 --> 02:32:38.860 Cath or an electrophysiologist,
NOTE Confidence: 0.866443382413793
02:32:38.860 --> 02:32:40.676 but even outside of those lines bounds when
NOTE Confidence: 0.866443382413793
02:32:40.676 --> 02:32:42.538 you need a nephrologist or hepatologist.
NOTE Confidence: 0.866443382413793
02:32:42.540 --> 02:32:44.277 And so I think one of the things that
NOTE Confidence: 0.866443382413793
02:32:44.277 --> 02:32:46.383 we have tried to do in that concept of
NOTE Confidence: 0.866443382413793
02:32:46.383 --> 02:32:48.091 medical home is to build a team and
NOTE Confidence: 0.866443382413793
02:32:48.091 --> 02:32:50.168 figure out who the resource and the
NOTE Confidence: 0.866443382413793
02:32:50.168 --> 02:32:52.298 referrals are for those individuals.
NOTE Confidence: 0.866443382413793
02:32:52.300 --> 02:32:54.070 And if you look at the growth of our program,
NOTE Confidence: 0.866443382413793
02:32:54.070 --> 02:32:56.406 this is again a little bit older data
NOTE Confidence: 0.866443382413793
02:32:56.406 --> 02:32:58.957 but from 2013 to 2016 looking at total.
NOTE Confidence: 0.866443382413793

02:32:58.960 --> 02:33:00.860 Because it's up over 1000,
NOTE Confidence: 0.866443382413793

02:33:00.860 --> 02:33:02.449 which I looked at a recent data
NOTE Confidence: 0.866443382413793

02:33:02.449 --> 02:33:03.410 where were around here.
NOTE Confidence: 0.866443382413793

02:33:03.410 --> 02:33:06.738 It's still growing in spite of the pandemic.
NOTE Confidence: 0.866443382413793

02:33:06.740 --> 02:33:08.908 And this is new visits to the adult
NOTE Confidence: 0.866443382413793

02:33:08.908 --> 02:33:10.859 congenital heart programs you can see here,
NOTE Confidence: 0.866443382413793

02:33:10.860 --> 02:33:11.091 right?
NOTE Confidence: 0.866443382413793

02:33:11.091 --> 02:33:11.784 We started out.
NOTE Confidence: 0.866443382413793

02:33:11.784 --> 02:33:12.939 We had our patient population,
NOTE Confidence: 0.866443382413793

02:33:12.940 --> 02:33:14.924 but we have been growing and we become
NOTE Confidence: 0.866443382413793

02:33:14.924 --> 02:33:16.873 a resource for people around the state
NOTE Confidence: 0.866443382413793

02:33:16.873 --> 02:33:18.828 and even beyond the borders of the
NOTE Confidence: 0.866443382413793

02:33:18.828 --> 02:33:20.346 state for new consults and complex
NOTE Confidence: 0.866443382413793

02:33:20.346 --> 02:33:22.183 forms of congenital heart disease,
NOTE Confidence: 0.866443382413793

02:33:22.183 --> 02:33:25.270 resulting in about 1/3 of the Cath
NOTE Confidence: 0.866443382413793

02:33:25.349 --> 02:33:28.349 lab volume and about a third of the

NOTE Confidence: 0.866443382413793

02:33:28.349 --> 02:33:30.280 surgical volume to the program.

NOTE Confidence: 0.866443382413793

02:33:30.280 --> 02:33:31.869 So this is an important and growing

NOTE Confidence: 0.866443382413793

02:33:31.869 --> 02:33:33.809 part of our business and our program.

NOTE Confidence: 0.9531389025

02:33:35.910 --> 02:33:38.326 So if you look at our program now,

NOTE Confidence: 0.9531389025

02:33:38.330 --> 02:33:40.230 we have our main location

NOTE Confidence: 0.9531389025

02:33:40.230 --> 02:33:42.130 in New Haven of course,

NOTE Confidence: 0.9531389025

02:33:42.130 --> 02:33:45.378 but we have clinics in Hartford and

NOTE Confidence: 0.9531389025

02:33:45.378 --> 02:33:48.679 Greenwich and have become a resource for

NOTE Confidence: 0.9531389025

02:33:48.679 --> 02:33:52.190 the for patients in those areas as well.

NOTE Confidence: 0.9531389025

02:33:52.190 --> 02:33:53.822 From a national standpoint,

NOTE Confidence: 0.9531389025

02:33:53.822 --> 02:33:57.170 what has been going on well nationally,

NOTE Confidence: 0.9531389025

02:33:57.170 --> 02:33:59.150 there are adults with congenital heart

NOTE Confidence: 0.9531389025

02:33:59.150 --> 02:34:00.830 disease resources and this specialty

NOTE Confidence: 0.9531389025

02:34:00.830 --> 02:34:02.355 has been more formally recognized

NOTE Confidence: 0.9531389025

02:34:02.355 --> 02:34:04.395 so that in 2015 board certification

NOTE Confidence: 0.9531389025

02:34:04.395 --> 02:34:06.270 for adults with general heart
NOTE Confidence: 0.9531389025

02:34:06.270 --> 02:34:08.482 disease became a reality through the
NOTE Confidence: 0.9531389025

02:34:08.482 --> 02:34:10.232 American Board of Internal Medicine.
NOTE Confidence: 0.9531389025

02:34:10.240 --> 02:34:11.878 This was something that was available
NOTE Confidence: 0.9531389025

02:34:11.878 --> 02:34:13.708 for people that had either gone
NOTE Confidence: 0.9531389025

02:34:13.708 --> 02:34:15.413 through a training pathway through
NOTE Confidence: 0.9531389025

02:34:15.413 --> 02:34:17.265 pediatric cardiology and then a CHD
NOTE Confidence: 0.9531389025

02:34:17.265 --> 02:34:18.568 or adult internal medicine, ADHD,
NOTE Confidence: 0.9531389025

02:34:18.568 --> 02:34:20.632 and currently I looked this up a couple
NOTE Confidence: 0.9531389025

02:34:20.632 --> 02:34:23.049 of nights ago in preparation of this talk.
NOTE Confidence: 0.9531389025

02:34:23.050 --> 02:34:25.864 Just over 300 people that are board
NOTE Confidence: 0.9531389025

02:34:25.864 --> 02:34:27.860 certified and adults anachies,
NOTE Confidence: 0.9531389025

02:34:27.860 --> 02:34:29.420 which sounds like a lot.
NOTE Confidence: 0.9531389025

02:34:29.420 --> 02:34:30.524 But when you think about the
NOTE Confidence: 0.9531389025

02:34:30.524 --> 02:34:31.879 numbers that I showed you at the
NOTE Confidence: 0.9531389025

02:34:31.879 --> 02:34:33.031 beginning of talk where you have

NOTE Confidence: 0.9531389025

02:34:33.031 --> 02:34:34.220 probably close to 2,000,000 adults,

NOTE Confidence: 0.9531389025

02:34:34.220 --> 02:34:35.102 congenital heart disease,

NOTE Confidence: 0.9531389025

02:34:35.102 --> 02:34:37.160 it's really not that much and I

NOTE Confidence: 0.9531389025

02:34:37.220 --> 02:34:39.208 I heard a talk recently by Karen

NOTE Confidence: 0.9531389025

02:34:39.208 --> 02:34:40.607 Stout who's estimating that only

NOTE Confidence: 0.9531389025

02:34:40.607 --> 02:34:42.208 about 10% of adults with 200.

NOTE Confidence: 0.9531389025

02:34:42.208 --> 02:34:44.309 These are actually getting care by someone

NOTE Confidence: 0.9531389025

02:34:44.309 --> 02:34:46.637 who really understands their disease process.

NOTE Confidence: 0.9531389025

02:34:46.640 --> 02:34:48.680 So although we have made efforts,

NOTE Confidence: 0.9531389025

02:34:48.680 --> 02:34:51.109 there's a lot more work to do.

NOTE Confidence: 0.9531389025

02:34:51.110 --> 02:34:53.470 The adult Congenital Heart Association,

NOTE Confidence: 0.9531389025

02:34:53.470 --> 02:34:55.720 which is started as a patient

NOTE Confidence: 0.9531389025

02:34:55.720 --> 02:34:56.470 advocacy organization,

NOTE Confidence: 0.9531389025

02:34:56.470 --> 02:34:58.708 has really been at the forefront

NOTE Confidence: 0.9531389025

02:34:58.708 --> 02:34:59.827 of ensuring quality.

NOTE Confidence: 0.9531389025

02:34:59.830 --> 02:35:01.447 We are a part of that group.
NOTE Confidence: 0.9531389025

02:35:01.450 --> 02:35:02.806 We participate in the national meetings
NOTE Confidence: 0.9531389025

02:35:02.806 --> 02:35:04.559 and they have one of the most useful
NOTE Confidence: 0.9531389025

02:35:04.559 --> 02:35:06.210 things they have put together is directory,
NOTE Confidence: 0.9531389025

02:35:06.210 --> 02:35:08.026 so that if we have a patient that's
NOTE Confidence: 0.9531389025

02:35:08.026 --> 02:35:09.599 moving to Hawaii or California,
NOTE Confidence: 0.9531389025

02:35:09.600 --> 02:35:10.224 we can say, well,
NOTE Confidence: 0.9531389025

02:35:10.224 --> 02:35:11.670 why don't you go find the expert there?
NOTE Confidence: 0.9531389025

02:35:11.670 --> 02:35:14.136 And so that this is a recent list of
NOTE Confidence: 0.9531389025

02:35:14.136 --> 02:35:16.585 places that have identified as expertise
NOTE Confidence: 0.9531389025

02:35:16.585 --> 02:35:19.270 and adults with congenital heart disease.
NOTE Confidence: 0.9531389025

02:35:19.270 --> 02:35:21.418 So there is a.
NOTE Confidence: 0.9531389025

02:35:21.418 --> 02:35:24.103 There progress going on nationwide
NOTE Confidence: 0.9531389025

02:35:24.103 --> 02:35:27.018 to improve the resources.
NOTE Confidence: 0.9531389025

02:35:27.020 --> 02:35:30.146 This is again data from Montreal and
NOTE Confidence: 0.9531389025

02:35:30.146 --> 02:35:32.504 looking at their population data and

NOTE Confidence: 0.9531389025

02:35:32.504 --> 02:35:35.436 so the black line here is looking

NOTE Confidence: 0.9531389025

02:35:35.436 --> 02:35:37.506 at referrals to adult congenital

NOTE Confidence: 0.9531389025

02:35:37.582 --> 02:35:39.618 heart disease programs there,

NOTE Confidence: 0.9531389025

02:35:39.620 --> 02:35:41.756 and they had the initial preparation

NOTE Confidence: 0.9531389025

02:35:41.756 --> 02:35:44.235 of guidelines for how to manage these

NOTE Confidence: 0.9531389025

02:35:44.235 --> 02:35:46.830 patients in 1996 and then publication 1998.

NOTE Confidence: 0.9531389025

02:35:46.830 --> 02:35:48.570 You can see this inflection point

NOTE Confidence: 0.9531389025

02:35:48.570 --> 02:35:50.491 here where they see the sharp

NOTE Confidence: 0.9531389025

02:35:50.491 --> 02:35:52.241 inflection of increased referrals of

NOTE Confidence: 0.9531389025

02:35:52.241 --> 02:35:54.359 the population to a specialized care

NOTE Confidence: 0.9531389025

02:35:54.359 --> 02:35:56.369 for adults with Cajun heart disease.

NOTE Confidence: 0.9531389025

02:35:56.370 --> 02:35:59.261 In the light Gray here is mortality

NOTE Confidence: 0.9531389025

02:35:59.261 --> 02:36:00.773 of their patients. Again.

NOTE Confidence: 0.9531389025

02:36:00.773 --> 02:36:02.411 They have universal access to care

NOTE Confidence: 0.9531389025

02:36:02.411 --> 02:36:04.548 and can keep track of this population.

NOTE Confidence: 0.9531389025

02:36:04.550 --> 02:36:07.826 And around 2000 you see this inflection
NOTE Confidence: 0.9531389025

02:36:07.826 --> 02:36:10.270 of decreasing mortality for patients.
NOTE Confidence: 0.9531389025

02:36:10.270 --> 02:36:12.118 So this was a very powerful paper in
NOTE Confidence: 0.9531389025

02:36:12.118 --> 02:36:13.858 our field because this is published
NOTE Confidence: 0.9531389025

02:36:13.858 --> 02:36:15.086 in circulation in 2014.
NOTE Confidence: 0.9531389025

02:36:15.090 --> 02:36:17.491 This is some of the first data
NOTE Confidence: 0.9531389025

02:36:17.491 --> 02:36:19.741 to suggest that specialized care
NOTE Confidence: 0.9531389025

02:36:19.741 --> 02:36:22.029 for adults with disabilities.
NOTE Confidence: 0.9531389025

02:36:22.030 --> 02:36:23.878 At a center where they know what
NOTE Confidence: 0.9531389025

02:36:23.878 --> 02:36:25.421 they're doing can actually make
NOTE Confidence: 0.9531389025

02:36:25.421 --> 02:36:27.156 a difference in their mortality.
NOTE Confidence: 0.678897944

02:36:27.160 --> 02:36:29.050 And so this is supported.
NOTE Confidence: 0.678897944

02:36:29.050 --> 02:36:32.620 Some of the national trends of of
NOTE Confidence: 0.678897944

02:36:32.620 --> 02:36:35.500 board certification and accreditation.
NOTE Confidence: 0.678897944

02:36:35.500 --> 02:36:38.659 And along that lines in the US we have
NOTE Confidence: 0.678897944

02:36:38.659 --> 02:36:41.698 had now two versions of guidelines.

NOTE Confidence: 0.678897944

02:36:41.700 --> 02:36:42.620 You know pediatric cardiology.

NOTE Confidence: 0.678897944

02:36:42.620 --> 02:36:44.380 We learned a lot from our mentors,

NOTE Confidence: 0.678897944

02:36:44.380 --> 02:36:45.730 but there's not a national guideline

NOTE Confidence: 0.678897944

02:36:45.730 --> 02:36:47.256 about what to do and adults

NOTE Confidence: 0.678897944

02:36:47.256 --> 02:36:48.416 with congenital heart disease.

NOTE Confidence: 0.678897944

02:36:48.420 --> 02:36:50.148 In 2018 they published the second

NOTE Confidence: 0.678897944

02:36:50.148 --> 02:36:51.300 version of these guidelines

NOTE Confidence: 0.678897944

02:36:51.355 --> 02:36:52.678 through major organizations,

NOTE Confidence: 0.678897944

02:36:52.680 --> 02:36:54.400 the American College of Cardiology

NOTE Confidence: 0.678897944

02:36:54.400 --> 02:36:56.120 and the American Heart Association

NOTE Confidence: 0.678897944

02:36:56.120 --> 02:36:57.940 to support what you should be doing,

NOTE Confidence: 0.678897944

02:36:57.940 --> 02:36:59.795 what the best evidence of practice is

NOTE Confidence: 0.678897944

02:36:59.795 --> 02:37:01.898 for adults with congenital heart disease.

NOTE Confidence: 0.678897944

02:37:01.900 --> 02:37:03.684 And if you look one of the main

NOTE Confidence: 0.678897944

02:37:03.684 --> 02:37:05.320 features that they always talk about,

NOTE Confidence: 0.678897944

02:37:05.320 --> 02:37:06.072 is that.

NOTE Confidence: 0.678897944

02:37:06.072 --> 02:37:07.952 Patients with complicated forms of

NOTE Confidence: 0.678897944

02:37:07.952 --> 02:37:10.290 Doctor John Hartsy should be managed

NOTE Confidence: 0.678897944

02:37:10.290 --> 02:37:12.190 in collaboration with an expert.

NOTE Confidence: 0.678897944

02:37:12.190 --> 02:37:13.050 We do that well here.

NOTE Confidence: 0.831212005

02:37:15.520 --> 02:37:17.627 One of the other triumphs is the

NOTE Confidence: 0.831212005

02:37:17.627 --> 02:37:19.580 growth of knowledge and publications.

NOTE Confidence: 0.831212005

02:37:19.580 --> 02:37:21.938 Is there so I did a pub Med search

NOTE Confidence: 0.831212005

02:37:21.938 --> 02:37:24.532 and looked, and maybe Ruth Whitmore's

NOTE Confidence: 0.831212005

02:37:24.532 --> 02:37:26.747 paper that Jeremy referenced was

NOTE Confidence: 0.831212005

02:37:26.747 --> 02:37:28.877 somewhere here in the 1960s or 1970s,

NOTE Confidence: 0.831212005

02:37:28.877 --> 02:37:30.970 but you can see that there's been

NOTE Confidence: 0.831212005

02:37:31.033 --> 02:37:33.258 this exponential growth that people

NOTE Confidence: 0.831212005

02:37:33.258 --> 02:37:35.038 studying adults with congenital

NOTE Confidence: 0.831212005

02:37:35.038 --> 02:37:37.137 heart disease with more to come.

NOTE Confidence: 0.831212005

02:37:37.140 --> 02:37:39.260 So you know, as a as a nation,

NOTE Confidence: 0.831212005

02:37:39.260 --> 02:37:41.297 we are making some improvements in strides

NOTE Confidence: 0.831212005

02:37:41.297 --> 02:37:43.858 to try to take care of this population.

NOTE Confidence: 0.831212005

02:37:43.860 --> 02:37:45.668 So I thought I would just close with

NOTE Confidence: 0.831212005

02:37:45.668 --> 02:37:47.329 a couple of the exciting things.

NOTE Confidence: 0.831212005

02:37:47.330 --> 02:37:48.746 And pivoting from the the past

NOTE Confidence: 0.831212005

02:37:48.746 --> 02:37:50.050 and looking toward the future.

NOTE Confidence: 0.831212005

02:37:50.050 --> 02:37:51.454 A couple of the exciting things

NOTE Confidence: 0.831212005

02:37:51.454 --> 02:37:52.840 going on in our program.

NOTE Confidence: 0.831212005

02:37:52.840 --> 02:37:53.980 I'm going to talk briefly

NOTE Confidence: 0.831212005

02:37:53.980 --> 02:37:54.664 about the fellowship.

NOTE Confidence: 0.831212005

02:37:54.670 --> 02:37:57.005 Think about our single ventricle

NOTE Confidence: 0.831212005

02:37:57.005 --> 02:37:58.406 comprehensive Fontaine clinic,

NOTE Confidence: 0.831212005

02:37:58.410 --> 02:38:00.270 our collaboration with our maternal

NOTE Confidence: 0.831212005

02:38:00.270 --> 02:38:01.386 fetal medicine colleagues,

NOTE Confidence: 0.831212005

02:38:01.390 --> 02:38:03.504 heart camp, which I have to mention,

NOTE Confidence: 0.831212005

02:38:03.510 --> 02:38:04.390 cardiac transplantation,
NOTE Confidence: 0.831212005

02:38:04.390 --> 02:38:06.150 and then some research.
NOTE Confidence: 0.831212005

02:38:06.150 --> 02:38:09.125 So we have had the great fortune
NOTE Confidence: 0.831212005

02:38:09.125 --> 02:38:11.090 of training outstanding fellows,
NOTE Confidence: 0.831212005

02:38:11.090 --> 02:38:14.390 and I want to in.
NOTE Confidence: 0.831212005

02:38:14.390 --> 02:38:15.500 This is one of our fellows,
NOTE Confidence: 0.831212005

02:38:15.500 --> 02:38:16.756 Abigail Simmons who did.
NOTE Confidence: 0.831212005

02:38:16.756 --> 02:38:19.778 Was a yell was it yell for a long time.
NOTE Confidence: 0.831212005

02:38:19.780 --> 02:38:21.442 She did a Med PEDs residency
NOTE Confidence: 0.831212005

02:38:21.442 --> 02:38:22.550 followed by pediatric cardiology
NOTE Confidence: 0.831212005

02:38:22.599 --> 02:38:24.015 and she said I want to stay here
NOTE Confidence: 0.831212005

02:38:24.015 --> 02:38:25.726 and we said we'd love to train you
NOTE Confidence: 0.831212005

02:38:25.726 --> 02:38:27.580 in adults with heart disease so
NOTE Confidence: 0.831212005

02:38:27.580 --> 02:38:30.520 around 2018 we created a fellowship.
NOTE Confidence: 0.831212005

02:38:30.520 --> 02:38:32.475 The first Advanced fellowship training
NOTE Confidence: 0.831212005

02:38:32.475 --> 02:38:35.122 here and she is now practicing as

NOTE Confidence: 0.831212005

02:38:35.122 --> 02:38:38.020 an AC HD faculty out in the West and

NOTE Confidence: 0.831212005

02:38:38.020 --> 02:38:40.780 then of course our own graduate this year,

NOTE Confidence: 0.831212005

02:38:40.780 --> 02:38:41.860 David Leoni,

NOTE Confidence: 0.831212005

02:38:41.860 --> 02:38:44.162 who's finishing his training in

NOTE Confidence: 0.831212005

02:38:44.162 --> 02:38:45.867 pediatric cardiology and headed off.

NOTE Confidence: 0.831212005

02:38:45.870 --> 02:38:47.226 We're sad to lose in Seattle,

NOTE Confidence: 0.831212005

02:38:47.230 --> 02:38:48.374 headed off to be.

NOTE Confidence: 0.831212005

02:38:48.374 --> 02:38:49.804 Adult control heart disease specialist

NOTE Confidence: 0.831212005

02:38:49.804 --> 02:38:51.689 to do his advanced training in Seattle

NOTE Confidence: 0.831212005

02:38:51.689 --> 02:38:53.549 so I'm very proud of our trainees.

NOTE Confidence: 0.831212005

02:38:53.550 --> 02:38:54.726 There are a few people across

NOTE Confidence: 0.831212005

02:38:54.726 --> 02:38:55.750 the country that you know,

NOTE Confidence: 0.831212005

02:38:55.750 --> 02:38:57.136 and I think there's on the order

NOTE Confidence: 0.831212005

02:38:57.136 --> 02:38:59.190 of 10 to 12 fellows going into this

NOTE Confidence: 0.831212005

02:38:59.190 --> 02:39:00.876 specialty across the country so the

NOTE Confidence: 0.831212005

02:39:00.876 --> 02:39:02.500 numbers are few and far between so
NOTE Confidence: 0.831212005

02:39:02.500 --> 02:39:05.090 we should take great pride and joy
NOTE Confidence: 0.831212005

02:39:05.090 --> 02:39:07.830 in each of the accomplishments of
NOTE Confidence: 0.831212005

02:39:07.830 --> 02:39:10.143 these individuals. We established with.
NOTE Confidence: 0.831212005

02:39:10.143 --> 02:39:12.132 With John's help, a Fontan,
NOTE Confidence: 0.831212005

02:39:12.132 --> 02:39:14.012 multidisciplinary clinic where we had
NOTE Confidence: 0.831212005

02:39:14.012 --> 02:39:16.060 the involvement of a hepatologist.
NOTE Confidence: 0.831212005

02:39:16.060 --> 02:39:17.650 We realized that although we were
NOTE Confidence: 0.831212005

02:39:17.650 --> 02:39:19.740 sending patients to see the liver specialist,
NOTE Confidence: 0.831212005

02:39:19.740 --> 02:39:21.004 it was a lot of back and forth.
NOTE Confidence: 0.831212005

02:39:21.010 --> 02:39:23.215 And so we brought all the specialty
NOTE Confidence: 0.831212005

02:39:23.215 --> 02:39:24.160 care to them.
NOTE Confidence: 0.831212005

02:39:24.160 --> 02:39:25.736 So they had a comprehensive day of testing,
NOTE Confidence: 0.831212005

02:39:25.740 --> 02:39:26.940 and that the cardiologists,
NOTE Confidence: 0.831212005

02:39:26.940 --> 02:39:27.840 the liver specialist,
NOTE Confidence: 0.831212005

02:39:27.840 --> 02:39:30.451 we've been able to do that and

NOTE Confidence: 0.831212005

02:39:30.451 --> 02:39:33.039 recently had new referrals to that

NOTE Confidence: 0.831212005

02:39:33.039 --> 02:39:35.344 group of complex patients with

NOTE Confidence: 0.831212005

02:39:35.344 --> 02:39:37.380 liver and heart issues,

NOTE Confidence: 0.831212005

02:39:37.380 --> 02:39:39.256 which has resulted in a number of.

NOTE Confidence: 0.831212005

02:39:39.260 --> 02:39:40.864 Of publications over time.

NOTE Confidence: 0.831212005

02:39:40.864 --> 02:39:43.930 Looking at the management of these patients.

NOTE Confidence: 0.916830191428571

02:39:46.100 --> 02:39:48.375 We have realized, as I mentioned before,

NOTE Confidence: 0.916830191428571

02:39:48.380 --> 02:39:49.826 you know you heard before about

NOTE Confidence: 0.916830191428571

02:39:49.826 --> 02:39:51.622 the fetal side, but many of my

NOTE Confidence: 0.916830191428571

02:39:51.622 --> 02:39:53.230 patients want to have families of

NOTE Confidence: 0.916830191428571

02:39:53.292 --> 02:39:55.245 their own and want to get pregnant,

NOTE Confidence: 0.916830191428571

02:39:55.250 --> 02:39:56.657 and so I've had the great fortune

NOTE Confidence: 0.916830191428571

02:39:56.657 --> 02:39:58.387 of working with some of my maternal

NOTE Confidence: 0.916830191428571

02:39:58.387 --> 02:39:59.197 fetal medicine colleagues.

NOTE Confidence: 0.916830191428571

02:39:59.200 --> 02:40:00.256 Kat Campbell in particular.

NOTE Confidence: 0.916830191428571

02:40:00.256 --> 02:40:01.576 I don't think she's here,
NOTE Confidence: 0.916830191428571

02:40:01.580 --> 02:40:03.400 but has really been a wonderful partner
NOTE Confidence: 0.916830191428571

02:40:03.400 --> 02:40:05.617 and we've been able to manage very
NOTE Confidence: 0.916830191428571

02:40:05.617 --> 02:40:07.352 complicated patients through their pregnancy.
NOTE Confidence: 0.916830191428571

02:40:07.360 --> 02:40:09.180 Again with a lot of good collaboration
NOTE Confidence: 0.916830191428571

02:40:09.180 --> 02:40:11.062 between the two groups, resulting in
NOTE Confidence: 0.916830191428571

02:40:11.062 --> 02:40:13.198 a number of publications over time.
NOTE Confidence: 0.916830191428571

02:40:13.200 --> 02:40:14.100 Looking at this group.
NOTE Confidence: 0.76474622

02:40:18.510 --> 02:40:20.208 And then of course, heart camp.
NOTE Confidence: 0.76474622

02:40:20.210 --> 02:40:22.184 So we kind of fell into this.
NOTE Confidence: 0.76474622

02:40:22.190 --> 02:40:23.905 But this is really a wonderful thing,
NOTE Confidence: 0.76474622

02:40:23.910 --> 02:40:27.306 and is someone who's interested in
NOTE Confidence: 0.76474622

02:40:27.306 --> 02:40:30.390 transition and successful adulting hartkamp.
NOTE Confidence: 0.76474622

02:40:30.390 --> 02:40:31.430 You know the hartkamp is
NOTE Confidence: 0.76474622

02:40:31.430 --> 02:40:32.470 supposed to be about fun,
NOTE Confidence: 0.76474622

02:40:32.470 --> 02:40:34.535 but the secret agenda is

NOTE Confidence: 0.76474622

02:40:34.535 --> 02:40:36.187 knowledge and empowerment and

NOTE Confidence: 0.76474622

02:40:36.187 --> 02:40:38.000 transition to successful adults.

NOTE Confidence: 0.76474622

02:40:38.000 --> 02:40:40.324 And so we started this program about

NOTE Confidence: 0.76474622

02:40:40.324 --> 02:40:43.092 five or six years ago and have offered

NOTE Confidence: 0.76474622

02:40:43.092 --> 02:40:45.634 free camp to any child with condolences

NOTE Confidence: 0.76474622

02:40:45.634 --> 02:40:48.329 between the ages of eight and 15.

NOTE Confidence: 0.76474622

02:40:48.330 --> 02:40:49.926 It really is a wonderful experience.

NOTE Confidence: 0.76474622

02:40:49.930 --> 02:40:52.514 See these kids come bond over these days.

NOTE Confidence: 0.76474622

02:40:52.520 --> 02:40:53.540 Go down to the waterfront,

NOTE Confidence: 0.76474622

02:40:53.540 --> 02:40:54.548 take off their shirts to go.

NOTE Confidence: 0.76474622

02:40:54.550 --> 02:40:56.370 You have a scar and I have a scar and

NOTE Confidence: 0.76474622

02:40:56.429 --> 02:40:58.475 sort of make these connections and

NOTE Confidence: 0.76474622

02:40:58.475 --> 02:40:59.839 eventually transition into adults.

NOTE Confidence: 0.76474622

02:40:59.840 --> 02:41:02.072 Many of them come back and they act

NOTE Confidence: 0.76474622

02:41:02.072 --> 02:41:03.704 as junior counselors before they

NOTE Confidence: 0.76474622

02:41:03.704 --> 02:41:06.049 go off and one of the wonderful
NOTE Confidence: 0.76474622

02:41:06.116 --> 02:41:08.052 things that we do that is I often
NOTE Confidence: 0.76474622

02:41:08.052 --> 02:41:10.360 and I always invite one of my
NOTE Confidence: 0.76474622

02:41:10.360 --> 02:41:12.180 patients back for Fireside chat,
NOTE Confidence: 0.76474622

02:41:12.180 --> 02:41:14.340 and so it's usually towards the end of camp.
NOTE Confidence: 0.76474622

02:41:14.340 --> 02:41:15.440 It's late at night,
NOTE Confidence: 0.76474622

02:41:15.440 --> 02:41:17.090 kids are all tired and they're
NOTE Confidence: 0.76474622

02:41:17.147 --> 02:41:18.953 excited and the the sun is setting
NOTE Confidence: 0.76474622

02:41:18.953 --> 02:41:20.560 this is this is an example.
NOTE Confidence: 0.76474622

02:41:20.560 --> 02:41:21.538 This is one of my patients.
NOTE Confidence: 0.76474622

02:41:21.540 --> 02:41:22.704 Indie game with Kristen
NOTE Confidence: 0.76474622

02:41:22.704 --> 02:41:23.868 sitting around a campfire.
NOTE Confidence: 0.76474622

02:41:23.870 --> 02:41:25.292 I just do a little interview
NOTE Confidence: 0.76474622

02:41:25.292 --> 02:41:27.318 and then I open up and the kids
NOTE Confidence: 0.76474622

02:41:27.318 --> 02:41:28.842 start to ask questions and they
NOTE Confidence: 0.76474622

02:41:28.897 --> 02:41:30.652 asked the most wonderful intimate

NOTE Confidence: 0.76474622

02:41:30.652 --> 02:41:32.407 questions that you can imagine.

NOTE Confidence: 0.76474622

02:41:32.410 --> 02:41:34.346 And and many of them say many of

NOTE Confidence: 0.76474622

02:41:34.346 --> 02:41:36.450 the my adult patients mechanism.

NOTE Confidence: 0.76474622

02:41:36.450 --> 02:41:37.806 I wish I had this experience

NOTE Confidence: 0.76474622

02:41:37.806 --> 02:41:38.710 when I was younger.

NOTE Confidence: 0.76474622

02:41:38.710 --> 02:41:40.085 I never knew anyone growing

NOTE Confidence: 0.76474622

02:41:40.085 --> 02:41:41.185 up with this experience.

NOTE Confidence: 0.76474622

02:41:41.190 --> 02:41:43.118 I hope that we are helping them to

NOTE Confidence: 0.76474622

02:41:43.118 --> 02:41:44.862 realize they're not alone in the world

NOTE Confidence: 0.76474622

02:41:44.862 --> 02:41:46.850 and there are resources out there for them.

NOTE Confidence: 0.76474622

02:41:46.850 --> 02:41:48.182 It's also been a great opportunity

NOTE Confidence: 0.76474622

02:41:48.182 --> 02:41:49.330 for our fellows to come.

NOTE Confidence: 0.76474622

02:41:49.330 --> 02:41:50.680 Usually our senior fellows come

NOTE Confidence: 0.76474622

02:41:50.680 --> 02:41:52.030 and participate in the camp,

NOTE Confidence: 0.76474622

02:41:52.030 --> 02:41:53.902 and we even had one of our fellows come

NOTE Confidence: 0.76474622

02:41:53.902 --> 02:41:55.903 back from California to be a part of camp.

NOTE Confidence: 0.76474622

02:41:55.910 --> 02:41:56.910 Laura maitoza.

NOTE Confidence: 0.76474622

02:41:56.910 --> 02:41:58.410 Here's Ben Eddleman,

NOTE Confidence: 0.76474622

02:41:58.410 --> 02:42:01.770 our other outstanding graduate.

NOTE Confidence: 0.76474622

02:42:01.770 --> 02:42:03.618 I also want to celebrate the

NOTE Confidence: 0.76474622

02:42:03.618 --> 02:42:05.258 collaboration we have had through

NOTE Confidence: 0.76474622

02:42:05.258 --> 02:42:07.346 Dan Jacoby's work and others with

NOTE Confidence: 0.76474622

02:42:07.346 --> 02:42:09.362 the adults Advanced Heart Failure

NOTE Confidence: 0.76474622

02:42:09.362 --> 02:42:11.186 Group and cardiac transplantation.

NOTE Confidence: 0.76474622

02:42:11.190 --> 02:42:13.550 I got this mug, which I love 500.

NOTE Confidence: 0.76474622

02:42:13.550 --> 02:42:14.400 Heart transplant,

NOTE Confidence: 0.76474622

02:42:14.400 --> 02:42:16.950 so Yale has celebrated their 500

NOTE Confidence: 0.76474622

02:42:16.950 --> 02:42:18.988 heart transplants on the adult side,

NOTE Confidence: 0.76474622

02:42:18.990 --> 02:42:21.144 and this has become an increasing

NOTE Confidence: 0.76474622

02:42:21.144 --> 02:42:22.580 resource for our complicated

NOTE Confidence: 0.76474622

02:42:22.645 --> 02:42:24.270 adult patients that need it.

NOTE Confidence: 0.76474622

02:42:24.270 --> 02:42:25.810 When I first got here,

NOTE Confidence: 0.76474622

02:42:25.810 --> 02:42:28.450 we had to send patients out

NOTE Confidence: 0.76474622

02:42:28.450 --> 02:42:29.770 for cardiac transplantation.

NOTE Confidence: 0.76474622

02:42:29.770 --> 02:42:30.240 There was.

NOTE Confidence: 0.900589533

02:42:32.660 --> 02:42:34.412 Hesitancy to take on some of

NOTE Confidence: 0.900589533

02:42:34.412 --> 02:42:35.580 the more complicated patients.

NOTE Confidence: 0.900589533

02:42:35.580 --> 02:42:38.236 But over my time here and in collaboration,

NOTE Confidence: 0.900589533

02:42:38.240 --> 02:42:40.120 working with some of the people you've heard,

NOTE Confidence: 0.900589533

02:42:40.120 --> 02:42:42.325 we have been able to do successful

NOTE Confidence: 0.900589533

02:42:42.325 --> 02:42:44.338 transplants which are life changing for.

NOTE Confidence: 0.900589533

02:42:44.340 --> 02:42:46.615 Fontan, patient the patient with the mustard,

NOTE Confidence: 0.900589533

02:42:46.620 --> 02:42:48.000 the patient with L transposition,

NOTE Confidence: 0.900589533

02:42:48.000 --> 02:42:49.300 which is really revolutionary.

NOTE Confidence: 0.900589533

02:42:49.300 --> 02:42:51.830 And here's Colette recently at the Heart Walk

NOTE Confidence: 0.900589533

02:42:51.830 --> 02:42:53.950 with her shirt powered by a donated heart,

NOTE Confidence: 0.900589533

02:42:53.950 --> 02:42:56.220 blocking her her five Ki.
NOTE Confidence: 0.900589533

02:42:56.220 --> 02:42:58.482 Think that's really remarkable testament to
NOTE Confidence: 0.900589533

02:42:58.482 --> 02:43:01.418 the the good work that's been done here.
NOTE Confidence: 0.900589533

02:43:01.420 --> 02:43:03.670 So what is on the horizon?
NOTE Confidence: 0.900589533

02:43:03.670 --> 02:43:06.220 Well, good things are coming.
NOTE Confidence: 0.900589533

02:43:06.220 --> 02:43:07.420 So we recently hired.
NOTE Confidence: 0.900589533

02:43:07.420 --> 02:43:09.540 Of course, Tony Pastor, who's just
NOTE Confidence: 0.900589533

02:43:09.540 --> 02:43:12.659 completed his PG Y 10 year in Boston.
NOTE Confidence: 0.900589533

02:43:12.660 --> 02:43:14.610 That's ten years of postgraduate
NOTE Confidence: 0.900589533

02:43:14.610 --> 02:43:16.170 training after medical school,
NOTE Confidence: 0.900589533

02:43:16.170 --> 02:43:17.844 and he's coming to join our
NOTE Confidence: 0.900589533

02:43:17.844 --> 02:43:18.960 faculty starting in August.
NOTE Confidence: 0.900589533

02:43:18.960 --> 02:43:19.875 Thank goodness Jess,
NOTE Confidence: 0.900589533

02:43:19.875 --> 02:43:21.095 because we need more,
NOTE Confidence: 0.900589533

02:43:21.100 --> 02:43:24.070 more places to schedule patients.
NOTE Confidence: 0.900589533

02:43:24.070 --> 02:43:26.821 We hired a woman named Sarah Goldstein

NOTE Confidence: 0.900589533

02:43:26.821 --> 02:43:30.209 who is an adult cardiologist who did

NOTE Confidence: 0.900589533

02:43:30.210 --> 02:43:31.962 a CHD training and his expertise

NOTE Confidence: 0.900589533

02:43:31.962 --> 02:43:33.414 in pregnancy and congenital heart

NOTE Confidence: 0.900589533

02:43:33.414 --> 02:43:35.045 disease and will be coming to be

NOTE Confidence: 0.900589533

02:43:35.045 --> 02:43:36.851 a partner with us and be a nice

NOTE Confidence: 0.900589533

02:43:36.851 --> 02:43:38.063 bridge between the two groups.

NOTE Confidence: 0.900589533

02:43:38.063 --> 02:43:40.534 And we have completed all of our

NOTE Confidence: 0.900589533

02:43:40.534 --> 02:43:43.029 paperwork and our scheduling our site

NOTE Confidence: 0.900589533

02:43:43.029 --> 02:43:45.615 visit for our accreditation for adulthood,

NOTE Confidence: 0.900589533

02:43:45.620 --> 02:43:47.450 causing heart disease in July.

NOTE Confidence: 0.900589533

02:43:47.450 --> 02:43:48.830 So I think that's hopefully soon

NOTE Confidence: 0.900589533

02:43:48.830 --> 02:43:50.210 to be coming down the Pike.

NOTE Confidence: 0.900589533

02:43:50.210 --> 02:43:52.422 So a lot of good things coming

NOTE Confidence: 0.900589533

02:43:52.422 --> 02:43:53.370 to this program.

NOTE Confidence: 0.900589533

02:43:53.370 --> 02:43:54.790 So you know another reminder

NOTE Confidence: 0.900589533

02:43:54.790 --> 02:43:56.550 of the repair does not cure.
NOTE Confidence: 0.900589533

02:43:56.550 --> 02:43:58.534 This is a ad campaign I think through
NOTE Confidence: 0.900589533

02:43:58.534 --> 02:43:59.951 mended little hearts also supported
NOTE Confidence: 0.900589533

02:43:59.951 --> 02:44:01.697 by the adult casual heart disease
NOTE Confidence: 0.900589533

02:44:01.697 --> 02:44:03.354 that talks about rocking your scar
NOTE Confidence: 0.900589533

02:44:03.354 --> 02:44:04.967 and they have this photo competition
NOTE Confidence: 0.900589533

02:44:04.967 --> 02:44:07.343 once a year for patients to show off
NOTE Confidence: 0.900589533

02:44:07.343 --> 02:44:09.725 their scars as a way of promoting advocacy.
NOTE Confidence: 0.900589533

02:44:09.730 --> 02:44:11.732 And I think it's a important reminder
NOTE Confidence: 0.900589533

02:44:11.732 --> 02:44:13.890 that from the majority of our patients
NOTE Confidence: 0.900589533

02:44:13.890 --> 02:44:16.061 prepared is not cured and they should
NOTE Confidence: 0.900589533

02:44:16.061 --> 02:44:18.383 be in care or the tattoo on your chest.
NOTE Confidence: 0.900589533

02:44:18.390 --> 02:44:20.446 But really, at the end of the day,
NOTE Confidence: 0.900589533

02:44:20.450 --> 02:44:22.400 this is a wonderful ability to
NOTE Confidence: 0.900589533

02:44:22.400 --> 02:44:23.700 be a partnership between.
NOTE Confidence: 0.900589533

02:44:23.700 --> 02:44:26.100 US as providers and cardiologists

NOTE Confidence: 0.900589533

02:44:26.100 --> 02:44:28.500 and the patients and families.

NOTE Confidence: 0.900589533

02:44:28.500 --> 02:44:30.800 And here is, of course,

NOTE Confidence: 0.900589533

02:44:30.800 --> 02:44:32.832 Michael and Lisa and Nancy and I at

NOTE Confidence: 0.900589533

02:44:32.832 --> 02:44:35.156 one of the heart blocks in the past.

NOTE Confidence: 0.900589533

02:44:35.160 --> 02:44:37.020 So thank you guys very much.

NOTE Confidence: 0.900589533

02:44:37.020 --> 02:44:38.567 It's been fun. I've learned a lot.

NOTE Confidence: 0.786627466

02:44:49.420 --> 02:44:51.250 That was tremendous. Thank you.

NOTE Confidence: 0.5562966613333333

02:44:53.450 --> 02:44:55.739 That I think.

NOTE Confidence: 0.871767942

02:44:57.820 --> 02:45:00.196 Seeing the the numbers and knowing

NOTE Confidence: 0.871767942

02:45:00.196 --> 02:45:02.762 that we're sort of opening the

NOTE Confidence: 0.871767942

02:45:02.762 --> 02:45:06.800 doors in a lot of ways to make sure

NOTE Confidence: 0.871767942

02:45:06.800 --> 02:45:08.900 first of all that we don't have

NOTE Confidence: 0.871767942

02:45:08.900 --> 02:45:10.700 patients who wind up in that gap,

NOTE Confidence: 0.871767942

02:45:10.700 --> 02:45:12.608 but also that patients have a place to come

NOTE Confidence: 0.871767942

02:45:12.608 --> 02:45:14.414 back to should they wind up in that gap.

NOTE Confidence: 0.871767942

02:45:14.420 --> 02:45:16.836 Is is really great and it's
NOTE Confidence: 0.871767942

02:45:16.836 --> 02:45:18.616 great to see the work,
NOTE Confidence: 0.871767942

02:45:18.620 --> 02:45:24.102 so we're going to pivot a little bit now to
NOTE Confidence: 0.871767942

02:45:24.102 --> 02:45:27.828 looking more toward where the field is going.
NOTE Confidence: 0.871767942

02:45:27.830 --> 02:45:32.015 I am so happy to introduce Sean Lang Sean,
NOTE Confidence: 0.871767942

02:45:32.020 --> 02:45:32.512 where are you?
NOTE Confidence: 0.871767942

02:45:32.512 --> 02:45:33.496 I don't see there he is.
NOTE Confidence: 0.860482336666667

02:45:38.340 --> 02:45:40.258 So Sean was a fellow here and
NOTE Confidence: 0.860482336666667

02:45:40.258 --> 02:45:41.740 depending on who you asked,
NOTE Confidence: 0.860482336666667

02:45:41.740 --> 02:45:45.748 you graduated in 2013, you think?
NOTE Confidence: 0.860482336666667

02:45:45.750 --> 02:45:47.049 And after fellowship,
NOTE Confidence: 0.860482336666667

02:45:47.049 --> 02:45:49.214 Sean went out to Cincinnati
NOTE Confidence: 0.860482336666667

02:45:49.214 --> 02:45:52.092 and did an additional year of
NOTE Confidence: 0.860482336666667

02:45:52.092 --> 02:45:54.028 training in advanced imaging.
NOTE Confidence: 0.860482336666667

02:45:54.030 --> 02:45:56.430 So for us, advanced imaging is
NOTE Confidence: 0.860482336666667

02:45:56.430 --> 02:45:58.337 generally considered to be MRI

NOTE Confidence: 0.860482336666667
02:45:58.337 --> 02:46:00.793 of the heart and CT of the heart.
NOTE Confidence: 0.860482336666667
02:46:00.800 --> 02:46:02.809 And then Sean went to Little Rock,
NOTE Confidence: 0.860482336666667
02:46:02.810 --> 02:46:04.560 AR and attending for a couple of
NOTE Confidence: 0.860482336666667
02:46:04.560 --> 02:46:06.330 years and then recently returned.
NOTE Confidence: 0.860482336666667
02:46:06.330 --> 02:46:08.794 Or it's not that recently just Cincinnati
NOTE Confidence: 0.860482336666667
02:46:08.794 --> 02:46:12.346 is as the head of MRI imaging for Cincinnati,
NOTE Confidence: 0.860482336666667
02:46:12.350 --> 02:46:15.325 so it's great to have you back.
NOTE Confidence: 0.860482336666667
02:46:15.330 --> 02:46:16.668 We wish you would come back,
NOTE Confidence: 0.860482336666667
02:46:16.670 --> 02:46:18.562 but Cincinnati still you.
NOTE Confidence: 0.860482336666667
02:46:18.562 --> 02:46:20.940 So here he is, Sean.
NOTE Confidence: 0.758735873333333
02:46:31.350 --> 02:46:35.040 Right, OK, I'm doing it OK.
NOTE Confidence: 0.758735873333333
02:46:35.040 --> 02:46:36.816 Thank you Jeremy for inviting me.
NOTE Confidence: 0.758735873333333
02:46:36.820 --> 02:46:38.850 This is been just I like to
NOTE Confidence: 0.758735873333333
02:46:38.850 --> 02:46:39.720 echo everyone's comments.
NOTE Confidence: 0.758735873333333
02:46:39.720 --> 02:46:40.920 This has been such a great,
NOTE Confidence: 0.758735873333333

02:46:40.920 --> 02:46:44.248 amazing event and I'll say like you just
NOTE Confidence: 0.7587358733333333

02:46:44.248 --> 02:46:47.416 never leave here because I went to Little
NOTE Confidence: 0.7587358733333333

02:46:47.416 --> 02:46:50.518 Rock and I worked with Michelle Moss,
NOTE Confidence: 0.7587358733333333

02:46:50.520 --> 02:46:53.800 a great critical care person who had trained.
NOTE Confidence: 0.7587358733333333

02:46:53.800 --> 02:46:56.110 I think with you John and worked
NOTE Confidence: 0.7587358733333333

02:46:56.110 --> 02:46:58.390 with like had plenty of stories
NOTE Confidence: 0.7587358733333333

02:46:58.390 --> 02:47:00.963 about Bill and Norm and all those
NOTE Confidence: 0.7587358733333333

02:47:00.963 --> 02:47:03.326 people and in Little Rock I got to
NOTE Confidence: 0.7587358733333333

02:47:03.326 --> 02:47:05.309 meet Katya Kosaf who was a young.
NOTE Confidence: 0.7587358733333333

02:47:05.310 --> 02:47:07.575 Trainee now a vibrant young
NOTE Confidence: 0.7587358733333333

02:47:07.575 --> 02:47:10.443 faculty member and then went to
NOTE Confidence: 0.7587358733333333

02:47:10.443 --> 02:47:13.008 Cincinnati where my colleagues are.
NOTE Confidence: 0.7587358733333333

02:47:13.010 --> 02:47:16.146 David Spar and Eunice Han to residents
NOTE Confidence: 0.7587358733333333

02:47:16.146 --> 02:47:20.532 here who you know are now plenty of time.
NOTE Confidence: 0.7587358733333333

02:47:20.532 --> 02:47:22.501 We argue about which was the best pizza
NOTE Confidence: 0.7587358733333333

02:47:22.501 --> 02:47:24.337 place to go to or you know and talk

NOTE Confidence: 0.7587358733333333
02:47:24.394 --> 02:47:26.426 about all about the halls that we walk
NOTE Confidence: 0.7587358733333333
02:47:26.426 --> 02:47:28.240 through here and then in Cincinnati.
NOTE Confidence: 0.7587358733333333
02:47:28.240 --> 02:47:31.207 Also got to meet Jeremy Steele as a trainee
NOTE Confidence: 0.7587358733333333
02:47:31.207 --> 02:47:33.440 who's now a vibrant faculty member here.
NOTE Confidence: 0.7587358733333333
02:47:33.440 --> 02:47:34.632 So and I think.
NOTE Confidence: 0.7587358733333333
02:47:34.632 --> 02:47:36.924 This kind of goes along with the
NOTE Confidence: 0.7587358733333333
02:47:36.924 --> 02:47:38.656 whole thing about evolution,
NOTE Confidence: 0.7587358733333333
02:47:38.660 --> 02:47:40.438 you know, and I hope through the
NOTE Confidence: 0.7587358733333333
02:47:40.438 --> 02:47:42.048 talk to kind of talk about.
NOTE Confidence: 0.7587358733333333
02:47:42.050 --> 02:47:43.100 Yeah, I have no disclosures.
NOTE Confidence: 0.7587358733333333
02:47:43.100 --> 02:47:45.330 Forget it.
NOTE Confidence: 0.7587358733333333
02:47:45.330 --> 02:47:47.430 How we got where we are.
NOTE Confidence: 0.7587358733333333
02:47:47.430 --> 02:47:49.014 I even wanted to take it even back
NOTE Confidence: 0.7587358733333333
02:47:49.014 --> 02:47:50.740 because we were talking about 100 years.
NOTE Confidence: 0.7587358733333333
02:47:50.740 --> 02:47:53.948 You know where were we 100 years ago?
NOTE Confidence: 0.7587358733333333

02:47:53.950 --> 02:47:56.838 How did we get from an imaging modality

NOTE Confidence: 0.7587358733333333

02:47:56.838 --> 02:47:59.400 where the only way we could see the

NOTE Confidence: 0.7587358733333333

02:47:59.400 --> 02:48:02.426 heart was in a surgical theater or an

NOTE Confidence: 0.7587358733333333

02:48:02.426 --> 02:48:04.886 autopsy to now being able to see the

NOTE Confidence: 0.7587358733333333

02:48:04.886 --> 02:48:06.989 heart and manipulate it even worlds away?

NOTE Confidence: 0.869016757

02:48:09.380 --> 02:48:11.576 So it's hard to talk about

NOTE Confidence: 0.869016757

02:48:11.576 --> 02:48:13.040 evolution without mentioning Darwin,

NOTE Confidence: 0.869016757

02:48:13.040 --> 02:48:15.326 so he was quoted as saying in the long

NOTE Confidence: 0.869016757

02:48:15.326 --> 02:48:17.237 history of humankind and animal kind.

NOTE Confidence: 0.869016757

02:48:17.240 --> 02:48:19.556 To those who learn to collaborate

NOTE Confidence: 0.869016757

02:48:19.556 --> 02:48:21.100 and improvise most effectively,

NOTE Confidence: 0.869016757

02:48:21.100 --> 02:48:23.291 have prevailed, and I really like the

NOTE Confidence: 0.869016757

02:48:23.291 --> 02:48:27.050 kind of mantra that's been, you know.

NOTE Confidence: 0.869016757

02:48:27.050 --> 02:48:29.784 Been the themes of this kind of 100

NOTE Confidence: 0.869016757

02:48:29.784 --> 02:48:31.908 years of Yale Pediatrics to heal,

NOTE Confidence: 0.869016757

02:48:31.910 --> 02:48:33.545 innovate and collaborate.

NOTE Confidence: 0.869016757

02:48:33.545 --> 02:48:36.672 And it's really those pillars that

NOTE Confidence: 0.869016757

02:48:36.672 --> 02:48:39.084 have advanced the field of imaging.

NOTE Confidence: 0.869016757

02:48:39.090 --> 02:48:40.890 You know, it's collaboration

NOTE Confidence: 0.869016757

02:48:40.890 --> 02:48:42.378 between scientists, clinicians,

NOTE Confidence: 0.869016757

02:48:42.378 --> 02:48:44.730 industry, all with like,

NOTE Confidence: 0.869016757

02:48:44.730 --> 02:48:45.897 disruptive, innovative thinking,

NOTE Confidence: 0.869016757

02:48:45.897 --> 02:48:48.959 all with the primary goal of patient care

NOTE Confidence: 0.869016757

02:48:48.959 --> 02:48:51.443 and how we improve the care of our patients.

NOTE Confidence: 0.869016757

02:48:51.450 --> 02:48:52.730 Which is never stopping

NOTE Confidence: 0.869016757

02:48:52.730 --> 02:48:54.010 and going to continue.

NOTE Confidence: 0.869016757

02:48:54.010 --> 02:48:57.106 Hopefully over the next 100 years.

NOTE Confidence: 0.869016757

02:48:57.110 --> 02:48:59.210 So this is an I borrowed

NOTE Confidence: 0.869016757

02:48:59.210 --> 02:49:02.310 this from Doctor Pearson's.

NOTE Confidence: 0.869016757

02:49:02.310 --> 02:49:03.938 Article that got published.

NOTE Confidence: 0.869016757

02:49:03.938 --> 02:49:07.109 This was the 3rd floor plan in the

NOTE Confidence: 0.869016757

02:49:07.109 --> 02:49:10.840 Grover Powers era in the 1920s.

NOTE Confidence: 0.869016757

02:49:10.840 --> 02:49:13.580 Back then, really like cardiac

NOTE Confidence: 0.869016757

02:49:13.580 --> 02:49:17.020 imaging was only a chest X ray.

NOTE Confidence: 0.869016757

02:49:17.020 --> 02:49:18.460 I had this joke that I was going to say,

NOTE Confidence: 0.869016757

02:49:18.460 --> 02:49:19.520 oh, this is John Fahey,

NOTE Confidence: 0.869016757

02:49:19.520 --> 02:49:21.662 but I'm still so afraid of you

NOTE Confidence: 0.869016757

02:49:21.662 --> 02:49:24.007 that I was like I don't know.

NOTE Confidence: 0.869016757

02:49:24.010 --> 02:49:26.500 I'm like ohhhhhh. I don't know.

NOTE Confidence: 0.869016757

02:49:26.500 --> 02:49:27.450 We just go for it.

NOTE Confidence: 0.869016757

02:49:27.450 --> 02:49:30.198 Let's just do it.

NOTE Confidence: 0.869016757

02:49:30.200 --> 02:49:31.418 There's just so many times in

NOTE Confidence: 0.869016757

02:49:31.418 --> 02:49:32.922 the Cath lab that was just like

NOTE Confidence: 0.869016757

02:49:32.922 --> 02:49:34.218 shaking and I think you probably

NOTE Confidence: 0.869016757

02:49:34.218 --> 02:49:35.577 had to hold pressure for patients

NOTE Confidence: 0.869016757

02:49:35.577 --> 02:49:37.470 because I was like on the floor.

NOTE Confidence: 0.899201010555556

02:49:39.870 --> 02:49:41.970 So quickly I realized that I was

NOTE Confidence: 0.899201010555556
02:49:41.970 --> 02:49:43.820 going to transition to more like
NOTE Confidence: 0.899201010555556
02:49:43.820 --> 02:49:45.300 non invasive sort of things.
NOTE Confidence: 0.829757316551724
02:49:48.620 --> 02:49:50.660 So ultrasound, you know.
NOTE Confidence: 0.829757316551724
02:49:50.660 --> 02:49:53.210 Ultrasound technology had been known
NOTE Confidence: 0.829757316551724
02:49:53.210 --> 02:49:55.933 since 1915 for underwater detection and
NOTE Confidence: 0.829757316551724
02:49:55.933 --> 02:49:59.907 sonar in World War Two is used by the
NOTE Confidence: 0.829757316551724
02:49:59.907 --> 02:50:02.107 Navy for identification of airplanes.
NOTE Confidence: 0.829757316551724
02:50:02.110 --> 02:50:04.427 But really, and at that time we're
NOTE Confidence: 0.829757316551724
02:50:04.427 --> 02:50:06.289 really just talking about a mode.
NOTE Confidence: 0.829757316551724
02:50:06.290 --> 02:50:08.873 You know where you could tell the
NOTE Confidence: 0.829757316551724
02:50:08.873 --> 02:50:10.505 different reflections and their
NOTE Confidence: 0.829757316551724
02:50:10.505 --> 02:50:12.800 distance from an emitting transmitter.
NOTE Confidence: 0.829757316551724
02:50:12.800 --> 02:50:15.746 KT Dusik used ultrasound to evaluate
NOTE Confidence: 0.829757316551724
02:50:15.746 --> 02:50:18.320 the ventricle of the brain.
NOTE Confidence: 0.829757316551724
02:50:18.320 --> 02:50:20.200 It's near and dear to my family's heart,
NOTE Confidence: 0.829757316551724

02:50:20.200 --> 02:50:22.770 my wife is on neuroradiologist.

NOTE Confidence: 0.829757316551724

02:50:22.770 --> 02:50:25.623 And then in the late 40s WD Keitel described

NOTE Confidence: 0.829757316551724

02:50:25.623 --> 02:50:27.694 the rhythmic ultrasound signals when

NOTE Confidence: 0.829757316551724

02:50:27.694 --> 02:50:30.960 you put the ultrasound probe on the chest,

NOTE Confidence: 0.829757316551724

02:50:30.960 --> 02:50:32.466 but was later quoted as saying,

NOTE Confidence: 0.829757316551724

02:50:32.470 --> 02:50:35.158 you know the the work involved

NOTE Confidence: 0.829757316551724

02:50:35.158 --> 02:50:36.950 was hardly that productive.

NOTE Confidence: 0.829757316551724

02:50:36.950 --> 02:50:39.170 So it really.

NOTE Confidence: 0.829757316551724

02:50:39.170 --> 02:50:43.552 Stalled cardiac imaging until really,

NOTE Confidence: 0.829757316551724

02:50:43.552 --> 02:50:46.360 these two gentlemen Dr Inga Elder

NOTE Confidence: 0.829757316551724

02:50:46.443 --> 02:50:48.710 and Carl Helmuth Hurst really were

NOTE Confidence: 0.829757316551724

02:50:48.710 --> 02:50:50.915 pioneers in the birth of what was

NOTE Confidence: 0.829757316551724

02:50:50.915 --> 02:50:53.050 called then ultrasound cardiography.

NOTE Confidence: 0.829757316551724

02:50:53.050 --> 02:50:55.830 Now Elder was director Edler.

NOTE Confidence: 0.829757316551724

02:50:55.830 --> 02:50:58.428 Sorry not elder.

NOTE Confidence: 0.829757316551724

02:50:58.430 --> 02:51:00.190 Was director of the Cardiovascular

NOTE Confidence: 0.829757316551724

02:51:00.190 --> 02:51:01.685 Lab in Lund, Sweden,

NOTE Confidence: 0.829757316551724

02:51:01.685 --> 02:51:04.295 where the physicians were perfecting the

NOTE Confidence: 0.829757316551724

02:51:04.295 --> 02:51:07.035 procedure of closed commissure automy for

NOTE Confidence: 0.829757316551724

02:51:07.035 --> 02:51:09.765 those patients with mitral valve stenosis.

NOTE Confidence: 0.829757316551724

02:51:09.770 --> 02:51:14.450 And so Elle Edler was tasked with the.

NOTE Confidence: 0.829757316551724

02:51:14.450 --> 02:51:16.098 The goal is to try to find the

NOTE Confidence: 0.829757316551724

02:51:16.098 --> 02:51:17.040 optimal surgical candidates.

NOTE Confidence: 0.829757316551724

02:51:17.040 --> 02:51:19.734 Those with just pure mitral stenosis

NOTE Confidence: 0.829757316551724

02:51:19.734 --> 02:51:21.530 and without significant insufficiency.

NOTE Confidence: 0.829757316551724

02:51:21.530 --> 02:51:24.390 So he enlisted the help of family,

NOTE Confidence: 0.829757316551724

02:51:24.390 --> 02:51:26.150 family of famous physicists.

NOTE Confidence: 0.829757316551724

02:51:26.150 --> 02:51:28.796 This one Carl Hellmuth hurts to try

NOTE Confidence: 0.829757316551724

02:51:28.796 --> 02:51:30.970 to investigate this non invasively

NOTE Confidence: 0.829757316551724

02:51:30.970 --> 02:51:33.393 and it was heard through his family

NOTE Confidence: 0.829757316551724

02:51:33.393 --> 02:51:35.654 connections who was able to borrow a

NOTE Confidence: 0.829757316551724

02:51:35.654 --> 02:51:37.924 machine from the Siemens company which
NOTE Confidence: 0.829757316551724

02:51:37.924 --> 02:51:39.879 was an ultrasound reflective scope.
NOTE Confidence: 0.829757316551724

02:51:39.880 --> 02:51:41.472 Now at that time,
NOTE Confidence: 0.829757316551724

02:51:41.472 --> 02:51:44.405 we realized that a mode in a
NOTE Confidence: 0.829757316551724

02:51:44.405 --> 02:51:47.117 moving heart was only so limited,
NOTE Confidence: 0.829757316551724

02:51:47.120 --> 02:51:49.532 so it was Edler who figured out that if
NOTE Confidence: 0.829757316551724

02:51:49.532 --> 02:51:52.098 he could pass film at a constant rate,
NOTE Confidence: 0.829757316551724

02:51:52.100 --> 02:51:54.620 he could create that motion image,
NOTE Confidence: 0.829757316551724

02:51:54.620 --> 02:51:57.392 which was what we now know as M mode.
NOTE Confidence: 0.829757316551724

02:51:57.400 --> 02:52:00.696 So that first M mode image was obtained
NOTE Confidence: 0.829757316551724

02:52:00.696 --> 02:52:03.303 and published in October 29th of 1953.
NOTE Confidence: 0.829757316551724

02:52:03.303 --> 02:52:06.030 Now it's easy to look back now and say,
NOTE Confidence: 0.829757316551724

02:52:06.030 --> 02:52:07.906 oh that was groundbreaking.
NOTE Confidence: 0.829757316551724

02:52:07.906 --> 02:52:10.720 And and I'm certain just accelerated
NOTE Confidence: 0.829757316551724

02:52:10.797 --> 02:52:13.940 the field, but actually.
NOTE Confidence: 0.829757316551724

02:52:13.940 --> 02:52:16.112 These two gentlemen of Edler and

NOTE Confidence: 0.829757316551724
02:52:16.112 --> 02:52:17.560 Hertz became really disenfranchised
NOTE Confidence: 0.829757316551724
02:52:17.614 --> 02:52:19.588 by lack of support and from their
NOTE Confidence: 0.829757316551724
02:52:19.588 --> 02:52:21.499 colleagues and also from grant funding.
NOTE Confidence: 0.829757316551724
02:52:21.500 --> 02:52:24.548 So Edler became a little hesitant
NOTE Confidence: 0.829757316551724
02:52:24.548 --> 02:52:26.072 to further publish,
NOTE Confidence: 0.829757316551724
02:52:26.080 --> 02:52:28.960 and Carl Hellmuth Hertz actually went
NOTE Confidence: 0.829757316551724
02:52:28.960 --> 02:52:32.088 into inkjet printing so it stalled for
NOTE Confidence: 0.829757316551724
02:52:32.088 --> 02:52:35.658 a little bit until this 1960s mid 60s,
NOTE Confidence: 0.829757316551724
02:52:35.658 --> 02:52:39.054 with Doctor Harvey Feigenbaum from Indiana,
NOTE Confidence: 0.829757316551724
02:52:39.060 --> 02:52:42.090 who's now kind of recognized as
NOTE Confidence: 0.829757316551724
02:52:42.090 --> 02:52:44.110 the father of echocardiography.
NOTE Confidence: 0.829757316551724
02:52:44.110 --> 02:52:47.148 He was training to be an electrophysiologist,
NOTE Confidence: 0.829757316551724
02:52:47.150 --> 02:52:49.670 then became an interventional cardiologist,
NOTE Confidence: 0.829757316551724
02:52:49.670 --> 02:52:51.848 but was very interested in trying
NOTE Confidence: 0.829757316551724
02:52:51.848 --> 02:52:54.405 to figure out non invasive ways
NOTE Confidence: 0.829757316551724

02:52:54.405 --> 02:52:56.975 to understand the dynamics of
NOTE Confidence: 0.829757316551724

02:52:56.975 --> 02:52:58.003 ventricular function.
NOTE Confidence: 0.829757316551724

02:52:58.010 --> 02:53:00.954 In 1963 he was the first to document
NOTE Confidence: 0.829757316551724

02:53:00.954 --> 02:53:02.819 pericardial effusions using cardiac
NOTE Confidence: 0.829757316551724

02:53:02.819 --> 02:53:04.283 ultrasound, whereas story goes.
NOTE Confidence: 0.829757316551724

02:53:04.283 --> 02:53:06.149 He borrowed one of the ultrasound
NOTE Confidence: 0.829757316551724

02:53:06.149 --> 02:53:07.601 machines from a neurologist and
NOTE Confidence: 0.829757316551724

02:53:07.601 --> 02:53:09.227 just happened to have a patient
NOTE Confidence: 0.829757316551724

02:53:09.281 --> 02:53:10.986 with a known pericardial effusion.
NOTE Confidence: 0.895140561538462

02:53:13.240 --> 02:53:16.005 He then proceeded to advance that research
NOTE Confidence: 0.895140561538462

02:53:16.005 --> 02:53:18.560 with his fellow doctor Richard Pop.
NOTE Confidence: 0.895140561538462

02:53:18.560 --> 02:53:20.624 They traveled down to
NOTE Confidence: 0.895140561538462

02:53:20.624 --> 02:53:22.688 Alabama with Harold Dodge,
NOTE Confidence: 0.895140561538462

02:53:22.690 --> 02:53:25.336 who was doing Sidney angiography in
NOTE Confidence: 0.895140561538462

02:53:25.336 --> 02:53:28.873 the Cath lab and tried to correlate
NOTE Confidence: 0.895140561538462

02:53:28.873 --> 02:53:31.673 their mode measurements with with

NOTE Confidence: 0.895140561538462
02:53:31.673 --> 02:53:34.144 Doctor Dodges volumes and although
NOTE Confidence: 0.895140561538462
02:53:34.144 --> 02:53:36.136 like what seems like landmark at
NOTE Confidence: 0.895140561538462
02:53:36.136 --> 02:53:38.705 that time it was rejected by every
NOTE Confidence: 0.895140561538462
02:53:38.705 --> 02:53:40.545 single journal because people didn't
NOTE Confidence: 0.895140561538462
02:53:40.612 --> 02:53:43.940 really understand echo at that time.
NOTE Confidence: 0.895140561538462
02:53:43.940 --> 02:53:45.960 Though not to be deterred,
NOTE Confidence: 0.895140561538462
02:53:45.960 --> 02:53:48.578 Dr Feigenbaum kind of started a real
NOTE Confidence: 0.895140561538462
02:53:48.578 --> 02:53:50.854 grassroots campaign and really did that
NOTE Confidence: 0.895140561538462
02:53:50.854 --> 02:53:53.020 through the training of of trainees.
NOTE Confidence: 0.895140561538462
02:53:53.020 --> 02:53:54.619 So in 1968,
NOTE Confidence: 0.895140561538462
02:53:54.619 --> 02:53:57.284 he created the first dedicated
NOTE Confidence: 0.895140561538462
02:53:57.284 --> 02:53:59.050 cardiac ultrasound course.
NOTE Confidence: 0.895140561538462
02:53:59.050 --> 02:54:02.530 He helped adopt the name change
NOTE Confidence: 0.895140561538462
02:54:02.530 --> 02:54:03.690 to echocardiography.
NOTE Confidence: 0.895140561538462
02:54:03.690 --> 02:54:06.375 And published the first book of ECHO in 1972.
NOTE Confidence: 0.895140561538462

02:54:06.375 --> 02:54:09.840 He was also the first person to hire non
NOTE Confidence: 0.895140561538462

02:54:09.924 --> 02:54:12.910 physicians to work to acquire these images.
NOTE Confidence: 0.895140561538462

02:54:12.910 --> 02:54:16.010 So really started the field of stenography.
NOTE Confidence: 0.895140561538462

02:54:16.010 --> 02:54:18.558 And this is him receiving a lifetime
NOTE Confidence: 0.895140561538462

02:54:18.558 --> 02:54:21.029 achievement award at the ACC by and he
NOTE Confidence: 0.895140561538462

02:54:21.029 --> 02:54:23.299 was presented it by his fellow Dr Pop.
NOTE Confidence: 0.895140561538462

02:54:23.300 --> 02:54:25.687 And then he also established the American
NOTE Confidence: 0.895140561538462

02:54:25.687 --> 02:54:27.408 Society of Echocardiography in 1975.
NOTE Confidence: 0.895140561538462

02:54:27.408 --> 02:54:31.244 So it was really through that clinical.
NOTE Confidence: 0.895140561538462

02:54:31.250 --> 02:54:34.309 Push that we saw a lot of
NOTE Confidence: 0.895140561538462

02:54:34.309 --> 02:54:35.183 technical advancements.
NOTE Confidence: 0.895140561538462

02:54:35.190 --> 02:54:37.801 In 1971 Nicholas Bomb from the Netherlands
NOTE Confidence: 0.895140561538462

02:54:37.801 --> 02:54:40.212 used multi crystal array to produce the
NOTE Confidence: 0.895140561538462

02:54:40.212 --> 02:54:42.480 first real time images of the heart.
NOTE Confidence: 0.895140561538462

02:54:42.480 --> 02:54:43.354 In 73,
NOTE Confidence: 0.895140561538462

02:54:43.354 --> 02:54:45.539 Doctor Johnson combined 2D imaging

NOTE Confidence: 0.895140561538462
02:54:45.539 --> 02:54:48.348 with pulsed wave Doppler and in 79
NOTE Confidence: 0.895140561538462
02:54:48.348 --> 02:54:50.124 Holland and Hattle used the modified
NOTE Confidence: 0.895140561538462
02:54:50.124 --> 02:54:52.149 Bernoulli equation to estimate pressure
NOTE Confidence: 0.895140561538462
02:54:52.149 --> 02:54:53.817 gradients across stenotic valves.
NOTE Confidence: 0.895140561538462
02:54:53.820 --> 02:54:56.132 So really this was a time period where
NOTE Confidence: 0.895140561538462
02:54:56.132 --> 02:54:58.152 we were finally able to at least
NOTE Confidence: 0.895140561538462
02:54:58.152 --> 02:55:00.383 have a piece of the hemodynamic data
NOTE Confidence: 0.895140561538462
02:55:00.383 --> 02:55:02.735 that was being uncovered by calf.
NOTE Confidence: 0.895140561538462
02:55:02.740 --> 02:55:03.769 And in 1985,
NOTE Confidence: 0.895140561538462
02:55:03.769 --> 02:55:05.827 Doctor Amato from Japan with the
NOTE Confidence: 0.895140561538462
02:55:05.827 --> 02:55:07.861 Aloca company helped pioneer color
NOTE Confidence: 0.895140561538462
02:55:07.861 --> 02:55:10.760 Doppler kind of setting up that final
NOTE Confidence: 0.895140561538462
02:55:10.760 --> 02:55:12.780 foundational piece to the traditional
NOTE Confidence: 0.895140561538462
02:55:12.780 --> 02:55:17.100 echo that we all know about now.
NOTE Confidence: 0.895140561538462
02:55:17.100 --> 02:55:19.396 And so it was really all of these
NOTE Confidence: 0.895140561538462

02:55:19.396 --> 02:55:20.749 interventions that extremely helped
NOTE Confidence: 0.895140561538462

02:55:20.749 --> 02:55:22.903 the field of imaging of congenital
NOTE Confidence: 0.895140561538462

02:55:22.903 --> 02:55:24.976 heart disease where so much of what
NOTE Confidence: 0.895140561538462

02:55:24.976 --> 02:55:26.736 we're interested in is far more
NOTE Confidence: 0.895140561538462

02:55:26.736 --> 02:55:28.332 than just what the size of the
NOTE Confidence: 0.895140561538462

02:55:28.332 --> 02:55:29.519 ventricles are in the function.
NOTE Confidence: 0.83773421625

02:55:32.000 --> 02:55:33.880 But to take a step back the again,
NOTE Confidence: 0.83773421625

02:55:33.880 --> 02:55:36.440 the results were slow.
NOTE Confidence: 0.83773421625

02:55:36.440 --> 02:55:39.272 Initially in 1959 effort published the
NOTE Confidence: 0.83773421625

02:55:39.272 --> 02:55:41.600 first ultrasound results in patients with
NOTE Confidence: 0.83773421625

02:55:41.663 --> 02:55:44.036 a wide range of congenital heart disease.
NOTE Confidence: 0.83773421625

02:55:44.040 --> 02:55:46.368 But in this paper he was unable to
NOTE Confidence: 0.83773421625

02:55:46.368 --> 02:55:48.025 demonstrate consistent patterns or even
NOTE Confidence: 0.83773421625

02:55:48.025 --> 02:55:49.720 differentiate it from normal hearts.
NOTE Confidence: 0.83773421625

02:55:49.720 --> 02:55:52.568 So it took a whole another decade before
NOTE Confidence: 0.83773421625

02:55:52.568 --> 02:55:54.759 another paper on congenital heart imaging

NOTE Confidence: 0.83773421625
02:55:54.759 --> 02:55:57.456 came out that was in 1969 with Lundstrom,
NOTE Confidence: 0.83773421625
02:55:57.456 --> 02:55:59.016 who had worked in Lund,
NOTE Confidence: 0.83773421625
02:55:59.020 --> 02:56:00.457 Sweden with Edler,
NOTE Confidence: 0.83773421625
02:56:00.457 --> 02:56:04.311 and he described the mode findings of RV
NOTE Confidence: 0.83773421625
02:56:04.311 --> 02:56:08.010 and LV dilation in patients with ASD and VSD.
NOTE Confidence: 0.83773421625
02:56:08.010 --> 02:56:10.234 Fast forwarding a little bit in 1974,
NOTE Confidence: 0.83773421625
02:56:10.234 --> 02:56:12.304 Norm Silverman observed that left
NOTE Confidence: 0.83773421625
02:56:12.304 --> 02:56:14.463 atrial enlargement occurred in premature
NOTE Confidence: 0.83773421625
02:56:14.463 --> 02:56:16.653 infants with Peyton ductus arteriosus
NOTE Confidence: 0.83773421625
02:56:16.653 --> 02:56:19.318 and started a conversation that will
NOTE Confidence: 0.83773421625
02:56:19.318 --> 02:56:21.022 continue between cardiologists and
NOTE Confidence: 0.83773421625
02:56:21.022 --> 02:56:25.769 neonatologists that to this day, thanks norm.
NOTE Confidence: 0.83773421625
02:56:25.770 --> 02:56:27.348 I just came off console service,
NOTE Confidence: 0.83773421625
02:56:27.350 --> 02:56:28.410 so I was like, man,
NOTE Confidence: 0.83773421625
02:56:28.410 --> 02:56:29.985 if only I had a time machine,
NOTE Confidence: 0.83773421625

02:56:29.990 --> 02:56:30.640 you know.
NOTE Confidence: 0.854638132666667

02:56:34.930 --> 02:56:37.540 And then there was a real shift in the
NOTE Confidence: 0.854638132666667

02:56:37.540 --> 02:56:39.723 transition from M mode to real time echo
NOTE Confidence: 0.854638132666667

02:56:39.723 --> 02:56:42.105 this is Doctor Davidson who is a resident
NOTE Confidence: 0.854638132666667

02:56:42.105 --> 02:56:45.123 and house officer here at Yale who then
NOTE Confidence: 0.854638132666667

02:56:45.123 --> 02:56:48.069 did Cardiology fellowship in San Diego.
NOTE Confidence: 0.854638132666667

02:56:48.070 --> 02:56:51.870 So while in San Diego both he and
NOTE Confidence: 0.854638132666667

02:56:51.870 --> 02:56:54.930 Richard Pop both got the multi Crystal
NOTE Confidence: 0.854638132666667

02:56:54.930 --> 02:56:57.300 Echo technology for real time Echo
NOTE Confidence: 0.854638132666667

02:56:57.371 --> 02:56:59.786 delivered to them but there was no
NOTE Confidence: 0.854638132666667

02:56:59.786 --> 02:57:02.448 manual so they were the story has it?
NOTE Confidence: 0.854638132666667

02:57:02.450 --> 02:57:04.385 They were on the phone with each other trying
NOTE Confidence: 0.854638132666667

02:57:04.385 --> 02:57:06.438 to figure out how to get the thing to work.
NOTE Confidence: 0.854638132666667

02:57:06.440 --> 02:57:10.260 And in 1972, he was the first person to use
NOTE Confidence: 0.854638132666667

02:57:10.260 --> 02:57:12.596 real time 2D echo in the United States.
NOTE Confidence: 0.854638132666667

02:57:12.600 --> 02:57:15.066 But he'll say the only reason that was true

NOTE Confidence: 0.854638132666667
02:57:15.066 --> 02:57:17.626 was because he found the on button sooner.
NOTE Confidence: 0.854638132666667
02:57:17.630 --> 02:57:18.878 These are life lessons.
NOTE Confidence: 0.885430853076923
02:57:21.560 --> 02:57:23.527 And these are some of the original
NOTE Confidence: 0.885430853076923
02:57:23.527 --> 02:57:25.260 pictures of that real time Echo,
NOTE Confidence: 0.885430853076923
02:57:25.260 --> 02:57:27.078 and I think we've advanced the
NOTE Confidence: 0.885430853076923
02:57:27.078 --> 02:57:29.040 fields quite a bit from there.
NOTE Confidence: 0.794307488333333
02:57:31.300 --> 02:57:35.836 In 1974, **** Mayer from Cincinnati
NOTE Confidence: 0.794307488333333
02:57:35.840 --> 02:57:37.168 assessed congenital heart disease
NOTE Confidence: 0.794307488333333
02:57:37.168 --> 02:57:39.160 using ECHO and chest X ray,
NOTE Confidence: 0.794307488333333
02:57:39.160 --> 02:57:41.336 and in his summary hope to avoid invasive
NOTE Confidence: 0.794307488333333
02:57:41.336 --> 02:57:43.088 human dynamic and angiographic assessment
NOTE Confidence: 0.794307488333333
02:57:43.088 --> 02:57:45.398 for all congenital heart disease patients.
NOTE Confidence: 0.794307488333333
02:57:45.400 --> 02:57:47.744 And I think the younger people in the
NOTE Confidence: 0.794307488333333
02:57:47.744 --> 02:57:50.168 room take this for granted because up
NOTE Confidence: 0.794307488333333
02:57:50.168 --> 02:57:52.391 until that point anyone would surgically
NOTE Confidence: 0.794307488333333

02:57:52.391 --> 02:57:55.439 needed heart repair was going to get capped.
NOTE Confidence: 0.794307488333333

02:57:55.440 --> 02:57:57.496 In 1978, Doctor Silverman
NOTE Confidence: 0.794307488333333

02:57:57.496 --> 02:58:00.066 proposed the apical imaging plan.
NOTE Confidence: 0.794307488333333

02:58:00.070 --> 02:58:02.374 This is when we started to try to catch
NOTE Confidence: 0.794307488333333

02:58:02.374 --> 02:58:05.007 up with Cav and angiographic information.
NOTE Confidence: 0.794307488333333

02:58:05.010 --> 02:58:07.863 We had to figure out our own plans outside
NOTE Confidence: 0.794307488333333

02:58:07.863 --> 02:58:10.868 of parasternal long axis and short axis.
NOTE Confidence: 0.794307488333333

02:58:10.870 --> 02:58:12.945 So in 78, Silverman proposed
NOTE Confidence: 0.794307488333333

02:58:12.945 --> 02:58:15.088 apical imaging plane in 1979,
NOTE Confidence: 0.794307488333333

02:58:15.088 --> 02:58:17.956 subcostal views were introduced by Roberta
NOTE Confidence: 0.794307488333333

02:58:17.956 --> 02:58:21.320 Williams to nicely outline the atrial septum,
NOTE Confidence: 0.794307488333333

02:58:21.320 --> 02:58:24.278 which which in her paper was
NOTE Confidence: 0.794307488333333

02:58:24.278 --> 02:58:26.730 particularly helpful for patients with.
NOTE Confidence: 0.794307488333333

02:58:26.730 --> 02:58:29.106 Before ballooney trials have passed me
NOTE Confidence: 0.794307488333333

02:58:29.110 --> 02:58:31.279 and she was also the first one to think
NOTE Confidence: 0.794307488333333

02:58:31.279 --> 02:58:33.633 about inverting the plane to create more

NOTE Confidence: 0.794307488333333
02:58:33.633 --> 02:58:35.380 of the anatomical appropriate image.
NOTE Confidence: 0.885648462727273
02:58:38.090 --> 02:58:40.394 And these are some of the
NOTE Confidence: 0.885648462727273
02:58:40.394 --> 02:58:42.450 pictures from her original paper.
NOTE Confidence: 0.885648462727273
02:58:42.450 --> 02:58:44.880 In 1981, Rebecca Snyder and Norm
NOTE Confidence: 0.885648462727273
02:58:44.880 --> 02:58:46.500 Silverman introduced the Super
NOTE Confidence: 0.885648462727273
02:58:46.571 --> 02:58:48.731 sternal views so that we could
NOTE Confidence: 0.885648462727273
02:58:48.731 --> 02:58:50.702 evaluate the complex arch anatomy
NOTE Confidence: 0.885648462727273
02:58:50.702 --> 02:58:53.007 issues that our patients encounter,
NOTE Confidence: 0.885648462727273
02:58:53.010 --> 02:58:56.524 and in 1989 a colleague of mine,
NOTE Confidence: 0.885648462727273
02:58:56.530 --> 02:58:57.910 Tom Kimball in Cincinnati,
NOTE Confidence: 0.885648462727273
02:58:57.910 --> 02:58:59.980 published the 1st Paper on the
NOTE Confidence: 0.885648462727273
02:59:00.044 --> 02:59:01.820 benefits of color Doppler to rule
NOTE Confidence: 0.885648462727273
02:59:01.820 --> 02:59:03.824 in or out total anomalous pulmonary
NOTE Confidence: 0.885648462727273
02:59:03.824 --> 02:59:06.074 venous return in those neonates who
NOTE Confidence: 0.885648462727273
02:59:06.074 --> 02:59:08.270 are in pulmonary hypertensive crisis.
NOTE Confidence: 0.909978928

02:59:10.570 --> 02:59:12.194 So it's easy to take all of
NOTE Confidence: 0.909978928

02:59:12.194 --> 02:59:13.770 that for granted, you know.
NOTE Confidence: 0.909978928

02:59:13.770 --> 02:59:15.970 But and then kind of
NOTE Confidence: 0.909978928

02:59:15.970 --> 02:59:18.009 looking at cardiac CT MRI,
NOTE Confidence: 0.909978928

02:59:18.010 --> 02:59:20.166 we're still in our infancy with this,
NOTE Confidence: 0.909978928

02:59:20.170 --> 02:59:22.786 but we're barring borrowing the same
NOTE Confidence: 0.909978928

02:59:22.786 --> 02:59:24.530 themes of innovation collaboration
NOTE Confidence: 0.909978928

02:59:24.597 --> 02:59:26.805 all with the game game plan to like,
NOTE Confidence: 0.909978928

02:59:26.810 --> 02:59:29.468 improve the care of our patients.
NOTE Confidence: 0.909978928

02:59:29.470 --> 02:59:31.618 So in the interest of time,
NOTE Confidence: 0.909978928

02:59:31.620 --> 02:59:32.555 I'm going to go through
NOTE Confidence: 0.909978928

02:59:32.555 --> 02:59:33.490 this a little bit quickly,
NOTE Confidence: 0.909978928

02:59:33.490 --> 02:59:35.500 but really it was up until
NOTE Confidence: 0.909978928

02:59:35.500 --> 02:59:37.350 the nine before the 1970s.
NOTE Confidence: 0.909978928

02:59:37.350 --> 02:59:40.985 MRI was nothing more than theoretical 1946
NOTE Confidence: 0.909978928

02:59:40.985 --> 02:59:43.050 block and Purcell won the Nobel Prize,

NOTE Confidence: 0.909978928

02:59:43.050 --> 02:59:44.892 reporting the phenomenon of being able

NOTE Confidence: 0.909978928

02:59:44.892 --> 02:59:47.414 to put a solid through a magnetic field

NOTE Confidence: 0.909978928

02:59:47.414 --> 02:59:49.670 and being able to emit radio waves.

NOTE Confidence: 0.909978928

02:59:49.670 --> 02:59:52.086 And in 66 Richard Ernst won the Nobel

NOTE Confidence: 0.909978928

02:59:52.086 --> 02:59:54.787 Prize by performing having a computer

NOTE Confidence: 0.909978928

02:59:54.787 --> 02:59:56.811 perform complex mathematical operations

NOTE Confidence: 0.909978928

02:59:56.811 --> 02:59:59.410 known as Fourier transformation.

NOTE Confidence: 0.909978928

02:59:59.410 --> 03:00:01.010 To improve the sensitivity

NOTE Confidence: 0.909978928

03:00:01.010 --> 03:00:02.610 of that received signal.

NOTE Confidence: 0.909978928

03:00:02.610 --> 03:00:05.460 In 1970s Lauterburg and Mansfield

NOTE Confidence: 0.909978928

03:00:05.460 --> 03:00:07.740 demonstrated the possibility of

NOTE Confidence: 0.909978928

03:00:07.740 --> 03:00:09.929 creating an MRI image signal.

NOTE Confidence: 0.909978928

03:00:09.930 --> 03:00:11.790 Excuse me using that MRI signal

NOTE Confidence: 0.909978928

03:00:11.790 --> 03:00:14.488 to create an image and in 1970

NOTE Confidence: 0.909978928

03:00:14.488 --> 03:00:15.946 Godfrey Hounsfield theorized

NOTE Confidence: 0.909978928

03:00:15.946 --> 03:00:18.789 by using multiple X ray beams,
NOTE Confidence: 0.909978928

03:00:18.790 --> 03:00:21.350 he could create computed tomography.
NOTE Confidence: 0.909978928

03:00:21.350 --> 03:00:24.860 So in 72 the 1st CT Scan was performed
NOTE Confidence: 0.909978928

03:00:24.860 --> 03:00:27.708 and in 1977 the first human MRI image
NOTE Confidence: 0.909978928

03:00:27.708 --> 03:00:29.959 was published which took five hours.
NOTE Confidence: 0.909978928

03:00:29.960 --> 03:00:31.478 That's a bad day for Jeremy
NOTE Confidence: 0.909978928

03:00:31.478 --> 03:00:33.209 and trying if he's trying to do
NOTE Confidence: 0.909978928

03:00:33.209 --> 03:00:36.590 that in today's day and age.
NOTE Confidence: 0.909978928

03:00:36.590 --> 03:00:37.600 In 1981,
NOTE Confidence: 0.909978928

03:00:37.600 --> 03:00:40.125 segmented data acquisition was introduced,
NOTE Confidence: 0.909978928

03:00:40.130 --> 03:00:42.979 which allowed us to take cardiac sinae
NOTE Confidence: 0.909978928

03:00:42.979 --> 03:00:45.290 imaging like that scene up here.
NOTE Confidence: 0.909978928

03:00:45.290 --> 03:00:47.786 This is actually an image of SSFP imaging,
NOTE Confidence: 0.909978928

03:00:47.790 --> 03:00:49.650 which was introduced in 1999,
NOTE Confidence: 0.909978928

03:00:49.650 --> 03:00:52.350 which is still become remains the
NOTE Confidence: 0.909978928

03:00:52.350 --> 03:00:54.870 backbone of cardiac MRI imaging.

NOTE Confidence: 0.909978928

03:00:54.870 --> 03:00:56.766 And I'm going to borrow this

NOTE Confidence: 0.909978928

03:00:56.766 --> 03:00:58.430 from a colleague of mine.

NOTE Confidence: 0.909978928

03:00:58.430 --> 03:01:01.215 Even the innovations haven't stopped

NOTE Confidence: 0.909978928

03:01:01.215 --> 03:01:04.274 in the 2010 CTS technology with

NOTE Confidence: 0.909978928

03:01:04.274 --> 03:01:06.704 multidetector scanners or dual source

NOTE Confidence: 0.909978928

03:01:06.704 --> 03:01:09.005 scanners have been able to improve

NOTE Confidence: 0.909978928

03:01:09.005 --> 03:01:11.450 their shutter speed to as much as

NOTE Confidence: 0.909978928

03:01:11.450 --> 03:01:13.655 like 60 milliseconds to able to take

NOTE Confidence: 0.909978928

03:01:13.655 --> 03:01:15.806 a snapshot of the heart and time.

NOTE Confidence: 0.909978928

03:01:15.810 --> 03:01:18.110 And this is for those who get a little dizzy.

NOTE Confidence: 0.909978928

03:01:18.110 --> 03:01:18.899 Just be careful.

NOTE Confidence: 0.857359978571428

03:01:23.080 --> 03:01:25.215 And so we take what we learned.

NOTE Confidence: 0.857359978571428

03:01:25.220 --> 03:01:26.810 And now where do we go?

NOTE Confidence: 0.857359978571428

03:01:26.810 --> 03:01:29.339 Where are we now and where do we go?

NOTE Confidence: 0.857359978571428

03:01:29.340 --> 03:01:32.935 This is a paper from Shay Anderson who

NOTE Confidence: 0.857359978571428

03:01:32.935 --> 03:01:35.665 had trained with us in Cincinnati.
NOTE Confidence: 0.857359978571428

03:01:35.670 --> 03:01:38.328 This is looking at all inpatient
NOTE Confidence: 0.857359978571428

03:01:38.330 --> 03:01:39.610 imaging modalities and all
NOTE Confidence: 0.857359978571428

03:01:39.610 --> 03:01:41.530 of them are on the rise,
NOTE Confidence: 0.857359978571428

03:01:41.530 --> 03:01:43.066 whether it be echo,
NOTE Confidence: 0.857359978571428

03:01:43.066 --> 03:01:45.982 MRI and we've seen a huge inflection
NOTE Confidence: 0.857359978571428

03:01:45.982 --> 03:01:49.126 point since 2014 of inpatient CT
NOTE Confidence: 0.857359978571428

03:01:49.130 --> 03:01:51.018 utilization for cardiac imaging.
NOTE Confidence: 0.700221084285714

03:01:54.090 --> 03:01:57.044 Where we in ECHO where we are,
NOTE Confidence: 0.700221084285714

03:01:57.050 --> 03:01:58.085 you know where.
NOTE Confidence: 0.700221084285714

03:01:58.085 --> 03:02:00.976 Once we are trying to prove our worth
NOTE Confidence: 0.700221084285714

03:02:00.976 --> 03:02:03.370 compared to Cath with regards to
NOTE Confidence: 0.700221084285714

03:02:03.370 --> 03:02:06.190 correlations of sizes and function,
NOTE Confidence: 0.700221084285714

03:02:06.190 --> 03:02:08.500 I think now with Z scores like
NOTE Confidence: 0.700221084285714

03:02:08.500 --> 03:02:10.619 this from the PHN we're now.
NOTE Confidence: 0.700221084285714

03:02:10.620 --> 03:02:12.350 Solely responsible for a majority

NOTE Confidence: 0.700221084285714
03:02:12.350 --> 03:02:14.080 of the clinical decision making,
NOTE Confidence: 0.700221084285714
03:02:14.080 --> 03:02:15.610 whether valves are adequate in
NOTE Confidence: 0.700221084285714
03:02:15.610 --> 03:02:17.460 size vessels or adequate in size,
NOTE Confidence: 0.700221084285714
03:02:17.460 --> 03:02:19.400 and whether people are going
NOTE Confidence: 0.700221084285714
03:02:19.400 --> 03:02:21.340 to be progressing to single
NOTE Confidence: 0.700221084285714
03:02:21.415 --> 03:02:23.080 or biventricular repair.
NOTE Confidence: 0.700221084285714
03:02:23.080 --> 03:02:24.436 Echoes also becoming smaller.
NOTE Confidence: 0.700221084285714
03:02:24.436 --> 03:02:26.131 Now we have handheld ECHO
NOTE Confidence: 0.700221084285714
03:02:26.131 --> 03:02:27.730 probes where we're hoping to.
NOTE Confidence: 0.930283764117647
03:02:30.250 --> 03:02:32.825 Decrease the socioeconomic gap and
NOTE Confidence: 0.930283764117647
03:02:32.825 --> 03:02:35.980 provide care for patients with limited
NOTE Confidence: 0.930283764117647
03:02:35.980 --> 03:02:38.968 resources here and around the world.
NOTE Confidence: 0.930283764117647
03:02:38.970 --> 03:02:41.250 And ECHO technology continues to improve,
NOTE Confidence: 0.930283764117647
03:02:41.250 --> 03:02:43.150 whether it be 3D echo.
NOTE Confidence: 0.930283764117647
03:02:43.150 --> 03:02:46.255 This is an image of a patient with a
NOTE Confidence: 0.930283764117647

03:02:46.255 --> 03:02:48.718 bioprosthetic mitral valve with severe
NOTE Confidence: 0.930283764117647

03:02:48.718 --> 03:02:50.758 stenosis and then postoperatively.
NOTE Confidence: 0.793211214

03:02:53.400 --> 03:02:56.200 And then newer ECHO technology,
NOTE Confidence: 0.793211214

03:02:56.200 --> 03:02:58.840 which this is a picture of
NOTE Confidence: 0.793211214

03:02:58.840 --> 03:03:00.160 ultrasound ultrafast ECHO,
NOTE Confidence: 0.793211214

03:03:00.160 --> 03:03:01.735 which has the capability of
NOTE Confidence: 0.793211214

03:03:01.735 --> 03:03:03.812 frame rates that are 100 times
NOTE Confidence: 0.793211214

03:03:03.812 --> 03:03:05.556 faster than conventional echo.
NOTE Confidence: 0.793211214

03:03:05.560 --> 03:03:07.906 So people are extremely excited about
NOTE Confidence: 0.793211214

03:03:07.906 --> 03:03:10.240 this technology and and the kind of
NOTE Confidence: 0.793211214

03:03:10.240 --> 03:03:11.790 cardiac interactions that maybe we've
NOTE Confidence: 0.793211214

03:03:11.790 --> 03:03:13.710 never been able to appreciate before.
NOTE Confidence: 0.844764997142857

03:03:16.480 --> 03:03:19.294 This is a paper from Jeremy Steele
NOTE Confidence: 0.844764997142857

03:03:19.300 --> 03:03:21.988 where we reviewed the kind of
NOTE Confidence: 0.844764997142857

03:03:21.988 --> 03:03:23.332 advanced imaging indications.
NOTE Confidence: 0.844764997142857

03:03:23.340 --> 03:03:25.476 The bottom line is from MRI and CT.

NOTE Confidence: 0.844764997142857
03:03:25.480 --> 03:03:28.198 It's continuing to grow and grow.
NOTE Confidence: 0.844764997142857
03:03:28.200 --> 03:03:29.850 And that's kind of indicative of
NOTE Confidence: 0.844764997142857
03:03:29.850 --> 03:03:31.659 I didn't have your guys volume,
NOTE Confidence: 0.844764997142857
03:03:31.660 --> 03:03:35.260 but in our own volume here in Cincinnati.
NOTE Confidence: 0.844764997142857
03:03:35.260 --> 03:03:36.792 Where we were doing,
NOTE Confidence: 0.844764997142857
03:03:36.792 --> 03:03:38.720 you know 50 and 2420,
NOTE Confidence: 0.844764997142857
03:03:38.720 --> 03:03:41.919 2004 to now doing over 1000 in 2021.
NOTE Confidence: 0.844764997142857
03:03:41.919 --> 03:03:44.264 The volume keeps growing and
NOTE Confidence: 0.844764997142857
03:03:44.264 --> 03:03:46.770 I think around the world.
NOTE Confidence: 0.844764997142857
03:03:46.770 --> 03:03:51.229 The need for better imaging is vital.
NOTE Confidence: 0.844764997142857
03:03:51.230 --> 03:03:53.590 Given all the successes of all of our
NOTE Confidence: 0.844764997142857
03:03:53.590 --> 03:03:55.670 colleagues in the invasive and adult
NOTE Confidence: 0.844764997142857
03:03:55.670 --> 03:03:57.460 congenital world where our patients
NOTE Confidence: 0.844764997142857
03:03:57.460 --> 03:03:59.845 are not only living longer and longer,
NOTE Confidence: 0.844764997142857
03:03:59.850 --> 03:04:02.325 but our capabilities to perform
NOTE Confidence: 0.844764997142857

03:04:02.325 --> 03:04:04.800 some of these procedures that
NOTE Confidence: 0.844764997142857

03:04:04.887 --> 03:04:07.422 were only theoretical decades ago
NOTE Confidence: 0.844764997142857

03:04:07.422 --> 03:04:11.500 are now actually really reality.
NOTE Confidence: 0.844764997142857

03:04:11.500 --> 03:04:13.320 So with cardiac MRI,
NOTE Confidence: 0.844764997142857

03:04:13.320 --> 03:04:16.050 we're trying to kind of again.
NOTE Confidence: 0.844764997142857

03:04:16.050 --> 03:04:18.864 Prove we're as good as or better
NOTE Confidence: 0.844764997142857

03:04:18.864 --> 03:04:21.300 than cat that hemodynamics.
NOTE Confidence: 0.844764997142857

03:04:21.300 --> 03:04:23.502 And it wasn't this that was
NOTE Confidence: 0.844764997142857

03:04:23.502 --> 03:04:25.400 a slide from an SMR.
NOTE Confidence: 0.844764997142857

03:04:25.400 --> 03:04:29.688 Sorry where it's only imagers in the dark.
NOTE Confidence: 0.844764997142857

03:04:29.690 --> 03:04:31.727 This is a patient who has pulmonary
NOTE Confidence: 0.844764997142857

03:04:31.727 --> 03:04:33.230 hypertension with a pot shunt
NOTE Confidence: 0.844764997142857

03:04:33.230 --> 03:04:34.940 where we were calculating the QS.
NOTE Confidence: 0.850706195

03:04:37.260 --> 03:04:40.172 This is a patient who was a
NOTE Confidence: 0.850706195

03:04:40.172 --> 03:04:42.599 transposition status post atrial switch,
NOTE Confidence: 0.850706195

03:04:42.600 --> 03:04:44.560 where we were doing 40 flow to

NOTE Confidence: 0.850706195

03:04:44.560 --> 03:04:46.211 evaluate wall stress and you can

NOTE Confidence: 0.850706195

03:04:46.211 --> 03:04:47.975 see the narrowing of the SVC here.

NOTE Confidence: 0.825760018

03:04:50.820 --> 03:04:53.913 My primary interest is in cardiomyopathies,

NOTE Confidence: 0.825760018

03:04:53.913 --> 03:04:56.778 so we're using improved technology,

NOTE Confidence: 0.825760018

03:04:56.780 --> 03:04:59.185 whether it be late gadolinium

NOTE Confidence: 0.825760018

03:04:59.185 --> 03:05:01.109 enhancement or T1 mapping,

NOTE Confidence: 0.825760018

03:05:01.110 --> 03:05:02.289 and our cardiomyopathy.

NOTE Confidence: 0.825760018

03:05:02.289 --> 03:05:05.102 Patients hoping to kind of have better

NOTE Confidence: 0.825760018

03:05:05.102 --> 03:05:08.049 ideas of of when their function will

NOTE Confidence: 0.825760018

03:05:08.049 --> 03:05:10.995 rapidly decline and when interventions and

NOTE Confidence: 0.825760018

03:05:10.995 --> 03:05:14.120 newer drug modalities might be helpful.

NOTE Confidence: 0.825760018

03:05:14.120 --> 03:05:17.180 These are also strain imaging,

NOTE Confidence: 0.825760018

03:05:17.180 --> 03:05:19.231 you know, in some of our duchenne's

NOTE Confidence: 0.825760018

03:05:19.231 --> 03:05:20.110 muscular dystrophy patients.

NOTE Confidence: 0.862539250714286

03:05:22.530 --> 03:05:25.402 We're also trying to make MRI faster or

NOTE Confidence: 0.862539250714286

03:05:25.402 --> 03:05:28.029 more feasible for our younger population.

NOTE Confidence: 0.862539250714286

03:05:28.030 --> 03:05:30.949 Our group has been trying to use.

NOTE Confidence: 0.862539250714286

03:05:30.950 --> 03:05:32.516 Respiratory triggered sequences,

NOTE Confidence: 0.862539250714286

03:05:32.516 --> 03:05:36.170 but another idea is to do 4D

NOTE Confidence: 0.862539250714286

03:05:36.264 --> 03:05:38.594 flow or this is 3D CA Echo?

NOTE Confidence: 0.862539250714286

03:05:38.594 --> 03:05:40.334 I mean excuse me MRI.

NOTE Confidence: 0.862539250714286

03:05:40.340 --> 03:05:42.685 Where the patient sits in the scanner

NOTE Confidence: 0.862539250714286

03:05:42.685 --> 03:05:45.216 for 15 minutes and has a full data

NOTE Confidence: 0.862539250714286

03:05:45.216 --> 03:05:47.406 set acquired and then afterwards

NOTE Confidence: 0.862539250714286

03:05:47.406 --> 03:05:49.578 through post processing you can

NOTE Confidence: 0.862539250714286

03:05:49.578 --> 03:05:51.538 do unlimited post processing to

NOTE Confidence: 0.862539250714286

03:05:51.538 --> 03:05:53.598 kind of manipulate and create

NOTE Confidence: 0.862539250714286

03:05:53.598 --> 03:05:55.638 all different planes and volume.

NOTE Confidence: 0.862539250714286

03:05:55.640 --> 03:05:57.360 This is my patient Jordan,

NOTE Confidence: 0.862539250714286

03:05:57.360 --> 03:05:59.866 who as a repaired tetralogy of fellow

NOTE Confidence: 0.862539250714286

03:05:59.866 --> 03:06:02.378 who has severe RV dilation prior

NOTE Confidence: 0.862539250714286
03:06:02.378 --> 03:06:04.658 to his pulmonary valve replacement.
NOTE Confidence: 0.85307051
03:06:07.440 --> 03:06:09.132 With CT now that the technology
NOTE Confidence: 0.85307051
03:06:09.132 --> 03:06:10.580 has improved more and more,
NOTE Confidence: 0.85307051
03:06:10.580 --> 03:06:12.185 we're able to visualize small
NOTE Confidence: 0.85307051
03:06:12.185 --> 03:06:13.469 and fast moving structures
NOTE Confidence: 0.85307051
03:06:13.469 --> 03:06:15.000 like the coronary arteries.
NOTE Confidence: 0.85307051
03:06:15.000 --> 03:06:16.980 This is a patient with an
NOTE Confidence: 0.85307051
03:06:16.980 --> 03:06:18.300 anomalous coronary artery origin,
NOTE Confidence: 0.85307051
03:06:18.300 --> 03:06:20.082 and we can look with endoscopy
NOTE Confidence: 0.85307051
03:06:20.082 --> 03:06:22.440 and look at the coronary orifice.
NOTE Confidence: 0.923725881666667
03:06:24.450 --> 03:06:27.228 Let's see if this will play.
NOTE Confidence: 0.923725881666667
03:06:27.230 --> 03:06:30.966 Sorry this this is an example of that.
NOTE Confidence: 0.923725881666667
03:06:30.970 --> 03:06:33.542 You won't see virtual dissection.
NOTE Confidence: 0.923725881666667
03:06:33.542 --> 03:06:35.126 One of my colleagues,
NOTE Confidence: 0.923725881666667
03:06:35.130 --> 03:06:36.670 my former colleague Justin Treder,
NOTE Confidence: 0.923725881666667

03:06:36.670 --> 03:06:39.778 who's now leading the group at the
NOTE Confidence: 0.923725881666667

03:06:39.778 --> 03:06:42.029 Cleveland Clinic, is using this.
NOTE Confidence: 0.923725881666667

03:06:42.029 --> 03:06:44.747 Our improved CT technology to help
NOTE Confidence: 0.923725881666667

03:06:44.747 --> 03:06:47.158 our surgeons better understand repairs
NOTE Confidence: 0.923725881666667

03:06:47.158 --> 03:06:49.930 or when repairs need to be fixed.
NOTE Confidence: 0.923725881666667

03:06:49.930 --> 03:06:51.870 And this is another joining
NOTE Confidence: 0.923725881666667

03:06:51.870 --> 03:06:53.810 him is my current training.
NOTE Confidence: 0.923725881666667

03:06:53.810 --> 03:06:54.570 Nicholas sugi.
NOTE Confidence: 0.923725881666667

03:06:54.570 --> 03:06:56.850 He and my colleague Ryan Moore.
NOTE Confidence: 0.923725881666667

03:06:56.850 --> 03:06:58.860 Are using kind of video game
NOTE Confidence: 0.923725881666667

03:06:58.860 --> 03:07:00.594 technology where they were taking
NOTE Confidence: 0.923725881666667

03:07:00.594 --> 03:07:02.897 these CT data sets with our surgeons
NOTE Confidence: 0.923725881666667

03:07:02.897 --> 03:07:04.958 and trying to plan out surgeries.
NOTE Confidence: 0.923725881666667

03:07:04.960 --> 03:07:08.624 This was a patient who had needed a
NOTE Confidence: 0.923725881666667

03:07:08.624 --> 03:07:10.354 complex baffling of their pulmonary
NOTE Confidence: 0.923725881666667

03:07:10.354 --> 03:07:12.380 and systemic venous return as well

NOTE Confidence: 0.923725881666667
03:07:12.380 --> 03:07:14.920 as the creation of an RV PA conduit.
NOTE Confidence: 0.923725881666667
03:07:14.920 --> 03:07:17.055 So this we're able to manipulate the
NOTE Confidence: 0.923725881666667
03:07:17.055 --> 03:07:19.235 data set here and have our surgeon
NOTE Confidence: 0.923725881666667
03:07:19.235 --> 03:07:21.455 kind of play around with the anatomy
NOTE Confidence: 0.923725881666667
03:07:21.455 --> 03:07:23.968 before they go into the operating room.
NOTE Confidence: 0.887042319
03:07:28.290 --> 03:07:31.090 So I didn't have like a lot of old pictures,
NOTE Confidence: 0.887042319
03:07:31.090 --> 03:07:34.478 but I found one of Jeremy Steele.
NOTE Confidence: 0.887042319
03:07:34.480 --> 03:07:36.320 This was I was just trying to get
NOTE Confidence: 0.887042319
03:07:36.320 --> 03:07:37.778 coffee and so I walked through
NOTE Confidence: 0.887042319
03:07:37.778 --> 03:07:39.510 this room and I saw these guys.
NOTE Confidence: 0.887042319
03:07:39.510 --> 03:07:40.311 This is Jeremy.
NOTE Confidence: 0.887042319
03:07:40.311 --> 03:07:41.913 This is my other colleague Ryan
NOTE Confidence: 0.887042319
03:07:41.913 --> 03:07:44.086 Moore and this is our surgeon David
NOTE Confidence: 0.887042319
03:07:44.086 --> 03:07:45.318 Morales all wearing sunglasses.
NOTE Confidence: 0.887042319
03:07:45.320 --> 03:07:47.000 It just was really unnerving to me.
NOTE Confidence: 0.887042319

03:07:47.000 --> 03:07:49.682 I didn't know whether we were
NOTE Confidence: 0.887042319

03:07:49.682 --> 03:07:53.130 like in a matrix like cosplay or.
NOTE Confidence: 0.887042319

03:07:53.130 --> 03:07:55.002 You know or this was some sort of cult?
NOTE Confidence: 0.887042319

03:07:55.010 --> 03:07:56.228 I mean, I should just backed away,
NOTE Confidence: 0.887042319

03:07:56.230 --> 03:07:57.566 but I mean I did take a picture,
NOTE Confidence: 0.887042319

03:07:57.570 --> 03:08:00.426 you know, just like you never know when
NOTE Confidence: 0.887042319

03:08:00.426 --> 03:08:02.108 those opportunities will come back.
NOTE Confidence: 0.887042319

03:08:02.110 --> 03:08:03.503 But I I've I've come to think
NOTE Confidence: 0.887042319

03:08:03.503 --> 03:08:04.899 later that this continues to prove
NOTE Confidence: 0.887042319

03:08:04.899 --> 03:08:06.144 that the future is bright.
NOTE Confidence: 0.887042319

03:08:06.150 --> 03:08:06.654 You know,
NOTE Confidence: 0.887042319

03:08:06.654 --> 03:08:08.418 I think if we borrow from the
NOTE Confidence: 0.887042319

03:08:08.418 --> 03:08:09.911 lessons of our predecessors and
NOTE Confidence: 0.887042319

03:08:09.911 --> 03:08:11.681 we continue to push the boulder
NOTE Confidence: 0.887042319

03:08:11.743 --> 03:08:13.507 up the hill a little bit better
NOTE Confidence: 0.887042319

03:08:13.507 --> 03:08:15.582 and continue to make the care of

NOTE Confidence: 0.887042319

03:08:15.582 --> 03:08:17.550 our patients all that much better.

NOTE Confidence: 0.887042319

03:08:17.550 --> 03:08:19.210 So with that, I'll end.

NOTE Confidence: 0.887042319

03:08:19.210 --> 03:08:21.037 And thank you guys so much for inviting me.

NOTE Confidence: 0.885740836

03:08:34.420 --> 03:08:36.820 That was also great talk.

NOTE Confidence: 0.885740836

03:08:36.820 --> 03:08:38.362 I feel like I keep saying

NOTE Confidence: 0.885740836

03:08:38.362 --> 03:08:39.760 that was a great talk.

NOTE Confidence: 0.885740836

03:08:39.760 --> 03:08:41.340 Thank you also for training.

NOTE Confidence: 0.885740836

03:08:41.340 --> 03:08:42.070 Jeremy Steele.

NOTE Confidence: 0.82301376

03:08:44.170 --> 03:08:46.180 Really like rely on him.

NOTE Confidence: 0.768337810666667

03:08:49.840 --> 03:08:51.856 I don't think he's still here.

NOTE Confidence: 0.768337810666667

03:08:51.860 --> 03:08:53.498 We can say whatever he wants.

NOTE Confidence: 0.768337810666667

03:08:53.500 --> 03:08:54.208 Oh, there he is.

NOTE Confidence: 0.745450224285714

03:08:56.770 --> 03:08:58.610 We were complimenting Sean

NOTE Confidence: 0.745450224285714

03:08:58.610 --> 03:09:00.410 on your training. Refund

NOTE Confidence: 0.772419548444444

03:09:04.150 --> 03:09:06.446 all right. So next I spoke about

NOTE Confidence: 0.772419548444444

03:09:06.446 --> 03:09:07.970 Tina earlier, so I'm going to
NOTE Confidence: 0.772419548444444

03:09:07.970 --> 03:09:08.830 cut this introduction short.
NOTE Confidence: 0.772419548444444

03:09:08.830 --> 03:09:11.170 Tina is a fantastic geneticist and
NOTE Confidence: 0.772419548444444

03:09:11.170 --> 03:09:13.422 researcher who's part of our section
NOTE Confidence: 0.772419548444444

03:09:13.422 --> 03:09:15.910 and she's going to talk to us about
NOTE Confidence: 0.772419548444444

03:09:15.910 --> 03:09:17.510 genetics of congenital heart disease.
NOTE Confidence: 0.936643154333333

03:09:30.000 --> 03:09:31.722 First of all, it's amazing to be
NOTE Confidence: 0.936643154333333

03:09:31.722 --> 03:09:33.502 here and see people I haven't seen
NOTE Confidence: 0.936643154333333

03:09:33.502 --> 03:09:35.551 in a long long time and be reminded
NOTE Confidence: 0.936643154333333

03:09:35.551 --> 03:09:37.350 of a lot of things that happened
NOTE Confidence: 0.936643154333333

03:09:37.350 --> 03:09:40.151 in the last 30 years that I had
NOTE Confidence: 0.936643154333333

03:09:40.151 --> 03:09:42.409 forgotten about by choice or not.
NOTE Confidence: 0.867282017037037

03:09:44.770 --> 03:09:47.101 So I'm going to talk about a Yale centric
NOTE Confidence: 0.867282017037037

03:09:47.101 --> 03:09:48.977 perspective on our understanding of the
NOTE Confidence: 0.867282017037037

03:09:48.977 --> 03:09:50.872 genetics of congenital heart disease and
NOTE Confidence: 0.867282017037037

03:09:50.872 --> 03:09:52.546 just starting with this cover slide.

NOTE Confidence: 0.867282017037037
03:09:52.550 --> 03:09:55.623 This is actually a drawing of a
NOTE Confidence: 0.867282017037037
03:09:55.623 --> 03:09:57.670 patient with heterotaxy from 1920
NOTE Confidence: 0.867282017037037
03:09:57.670 --> 03:09:59.650 something done by an amazing artist
NOTE Confidence: 0.867282017037037
03:09:59.650 --> 03:10:01.888 here at Yale Army and Hamburger.
NOTE Confidence: 0.867282017037037
03:10:01.890 --> 03:10:03.570 I found this in the archives,
NOTE Confidence: 0.867282017037037
03:10:03.570 --> 03:10:04.932 buried in the depths and this
NOTE Confidence: 0.867282017037037
03:10:04.932 --> 03:10:06.856 is how a lot of these patients
NOTE Confidence: 0.867282017037037
03:10:06.856 --> 03:10:08.446 were diagnosed in those days.
NOTE Confidence: 0.867282017037037
03:10:08.450 --> 03:10:09.974 This person had.
NOTE Confidence: 0.867282017037037
03:10:09.974 --> 03:10:12.514 Died of and complicated atrioventricular
NOTE Confidence: 0.867282017037037
03:10:12.514 --> 03:10:15.600 canal and endocarditis and the anatomy
NOTE Confidence: 0.867282017037037
03:10:15.600 --> 03:10:18.085 was very nicely outlined here.
NOTE Confidence: 0.867282017037037
03:10:18.090 --> 03:10:20.781 Here's the defect and it has some sort of
NOTE Confidence: 0.867282017037037
03:10:20.781 --> 03:10:23.437 cause that we don't completely understand.
NOTE Confidence: 0.867282017037037
03:10:23.440 --> 03:10:26.366 I have no conflicts other than whatever.
NOTE Confidence: 0.884072615833333

03:10:28.510 --> 03:10:30.238 So I know this slide has
NOTE Confidence: 0.884072615833333

03:10:30.238 --> 03:10:31.870 already been brought up by Rob,
NOTE Confidence: 0.884072615833333

03:10:31.870 --> 03:10:33.130 the prep congenital heart
NOTE Confidence: 0.884072615833333

03:10:33.130 --> 03:10:34.390 disease is super common.
NOTE Confidence: 0.884072615833333

03:10:34.390 --> 03:10:38.390 It is currently about 8 to 12 per.
NOTE Confidence: 0.884072615833333

03:10:38.390 --> 03:10:40.550 1000 depending on who you ask and I
NOTE Confidence: 0.884072615833333

03:10:40.550 --> 03:10:42.790 always like to say 1% of people are born
NOTE Confidence: 0.884072615833333

03:10:42.790 --> 03:10:44.696 with a congenital heart malformation of 1.
NOTE Confidence: 0.884072615833333

03:10:44.696 --> 03:10:45.744 Sort of the other.
NOTE Confidence: 0.884072615833333

03:10:45.750 --> 03:10:47.990 I hate to call it a defect because
NOTE Confidence: 0.884072615833333

03:10:47.990 --> 03:10:49.999 that kind of has aspersions on
NOTE Confidence: 0.884072615833333

03:10:49.999 --> 03:10:52.063 our patients that I'd rather not.
NOTE Confidence: 0.884072615833333

03:10:52.070 --> 03:10:54.632 It is a congenital disease and
NOTE Confidence: 0.884072615833333

03:10:54.632 --> 03:10:56.340 is a lifelong disease.
NOTE Confidence: 0.884072615833333

03:10:56.340 --> 03:10:58.608 The increase in the incidence of
NOTE Confidence: 0.884072615833333

03:10:58.608 --> 03:11:00.476 congenital heart disease here is

NOTE Confidence: 0.884072615833333
03:11:00.476 --> 03:11:02.772 really over time due to the first the
NOTE Confidence: 0.884072615833333
03:11:02.772 --> 03:11:04.829 advent of congenital heart disease
NOTE Confidence: 0.884072615833333
03:11:04.829 --> 03:11:06.964 surgery that the patients survived,
NOTE Confidence: 0.884072615833333
03:11:06.970 --> 03:11:07.916 then echocardiography.
NOTE Confidence: 0.884072615833333
03:11:07.916 --> 03:11:10.754 That we actually diagnosed the patients
NOTE Confidence: 0.884072615833333
03:11:10.754 --> 03:11:13.580 with slightly less severe congenital heart.
NOTE Confidence: 0.884072615833333
03:11:13.580 --> 03:11:17.076 Disease and there is continuing a slow rise,
NOTE Confidence: 0.884072615833333
03:11:17.080 --> 03:11:19.504 which may be due to the fact that
NOTE Confidence: 0.884072615833333
03:11:19.504 --> 03:11:21.706 the patients of reproductive age are
NOTE Confidence: 0.884072615833333
03:11:21.706 --> 03:11:24.453 surviving and having kids who also are
NOTE Confidence: 0.884072615833333
03:11:24.453 --> 03:11:26.769 at risk for congenital heart disease.
NOTE Confidence: 0.884072615833333
03:11:26.770 --> 03:11:28.970 So when I started fellowship,
NOTE Confidence: 0.884072615833333
03:11:28.970 --> 03:11:31.412 what was our understanding of what
NOTE Confidence: 0.884072615833333
03:11:31.412 --> 03:11:33.610 really causes congenital heart disease?
NOTE Confidence: 0.884072615833333
03:11:33.610 --> 03:11:35.806 And this paper was published by
NOTE Confidence: 0.884072615833333

03:11:35.806 --> 03:11:38.305 a guy named James Nora in 1968,
NOTE Confidence: 0.884072615833333

03:11:38.305 --> 03:11:41.350 and that was really the prevailing model
NOTE Confidence: 0.884072615833333

03:11:41.350 --> 03:11:46.246 that persisted for probably 25 or 30 years.
NOTE Confidence: 0.884072615833333

03:11:46.250 --> 03:11:47.786 And when you read this paper,
NOTE Confidence: 0.884072615833333

03:11:47.790 --> 03:11:49.962 it was very interesting.
NOTE Confidence: 0.884072615833333

03:11:49.962 --> 03:11:51.048 Hypothesis one,
NOTE Confidence: 0.884072615833333

03:11:51.050 --> 03:11:52.994 there is no genetic basis to
NOTE Confidence: 0.884072615833333

03:11:52.994 --> 03:11:53.966 congenital heart disease,
NOTE Confidence: 0.884072615833333

03:11:53.970 --> 03:11:56.838 and he actually generously rejected that.
NOTE Confidence: 0.884072615833333

03:11:56.840 --> 03:11:58.886 Because there was a high incidence
NOTE Confidence: 0.884072615833333

03:11:58.886 --> 03:12:00.726 of affected relative and more
NOTE Confidence: 0.884072615833333

03:12:00.726 --> 03:12:02.796 congenital heart disease and siblings.
NOTE Confidence: 0.884072615833333

03:12:02.800 --> 03:12:03.194 However,
NOTE Confidence: 0.884072615833333

03:12:03.194 --> 03:12:05.164 now he starts getting into
NOTE Confidence: 0.884072615833333

03:12:05.164 --> 03:12:07.060 some deep water hypothesis too.
NOTE Confidence: 0.884072615833333

03:12:07.060 --> 03:12:08.608 Chromosomal aberrations cause

NOTE Confidence: 0.884072615833333
03:12:08.608 --> 03:12:10.156 congenital heart disease,
NOTE Confidence: 0.884072615833333
03:12:10.160 --> 03:12:12.372 and I think Dina and Josh and
NOTE Confidence: 0.884072615833333
03:12:12.372 --> 03:12:14.090 Charlie and many other people
NOTE Confidence: 0.884072615833333
03:12:14.090 --> 03:12:16.190 people here presented a lot of
NOTE Confidence: 0.884072615833333
03:12:16.190 --> 03:12:18.818 data to say that the answer is yes,
NOTE Confidence: 0.884072615833333
03:12:18.820 --> 03:12:20.899 but he went ahead and carry a
NOTE Confidence: 0.884072615833333
03:12:20.899 --> 03:12:22.868 typed 104 congenital heart disease.
NOTE Confidence: 0.884072615833333
03:12:22.868 --> 03:12:24.953 Patients showed no abnormalities and
NOTE Confidence: 0.884072615833333
03:12:24.953 --> 03:12:27.227 the conclusion was no chromosomal.
NOTE Confidence: 0.884072615833333
03:12:27.230 --> 03:12:29.070 Aberrations do not cause congenital
NOTE Confidence: 0.884072615833333
03:12:29.070 --> 03:12:29.806 heart disease.
NOTE Confidence: 0.884072615833333
03:12:29.810 --> 03:12:31.954 I think we start getting into some hot
NOTE Confidence: 0.884072615833333
03:12:31.954 --> 03:12:34.009 water due to inadequate measurement,
NOTE Confidence: 0.884072615833333
03:12:34.010 --> 03:12:36.214 measurement techniques and very
NOTE Confidence: 0.884072615833333
03:12:36.214 --> 03:12:37.867 small sample size.
NOTE Confidence: 0.884072615833333

03:12:37.870 --> 03:12:40.060 Hypothesis 3 single mutant genes
NOTE Confidence: 0.884072615833333

03:12:40.060 --> 03:12:42.250 cause congenital heart disease also
NOTE Confidence: 0.884072615833333

03:12:42.316 --> 03:12:44.927 rejected because he looked at a few
NOTE Confidence: 0.884072615833333

03:12:44.927 --> 03:12:46.834 pedigrees of different congenital heart
NOTE Confidence: 0.884072615833333

03:12:46.834 --> 03:12:49.340 lesions and found that Oh my God,
NOTE Confidence: 0.884072615833333

03:12:49.340 --> 03:12:50.570 some of them are dominant.
NOTE Confidence: 0.884072615833333

03:12:50.570 --> 03:12:52.350 Some of them are recessive, some
NOTE Confidence: 0.884072615833333

03:12:52.350 --> 03:12:54.310 of them don't show really clear penetrance.
NOTE Confidence: 0.884072615833333

03:12:54.310 --> 03:12:55.362 So wait a second.
NOTE Confidence: 0.884072615833333

03:12:55.362 --> 03:12:57.240 This can't be a single gene and.
NOTE Confidence: 0.884072615833333

03:12:57.240 --> 03:12:58.924 He rejected that model.
NOTE Confidence: 0.884072615833333

03:12:58.924 --> 03:13:02.750 Hypothesis 4 was that it was multifactorial,
NOTE Confidence: 0.884072615833333

03:13:02.750 --> 03:13:05.150 and he said no, this is not rejected.
NOTE Confidence: 0.884072615833333

03:13:05.150 --> 03:13:07.607 The environment plays a very important role,
NOTE Confidence: 0.884072615833333

03:13:07.610 --> 03:13:09.302 but depends on the balance of
NOTE Confidence: 0.884072615833333

03:13:09.302 --> 03:13:10.850 genes predisposing to the defect.

NOTE Confidence: 0.884072615833333
03:13:10.850 --> 03:13:13.145 So at least he sort of melded in his
NOTE Confidence: 0.884072615833333
03:13:13.145 --> 03:13:14.793 hypothesis one and four, and said, no.
NOTE Confidence: 0.884072615833333
03:13:14.793 --> 03:13:15.848 This is how it happens.
NOTE Confidence: 0.884072615833333
03:13:15.850 --> 03:13:19.707 But the major emphasis was on an
NOTE Confidence: 0.884072615833333
03:13:19.707 --> 03:13:21.850 important predominant environmental role,
NOTE Confidence: 0.884072615833333
03:13:21.850 --> 03:13:25.728 and I think this was the model.
NOTE Confidence: 0.884072615833333
03:13:25.730 --> 03:13:27.557 That was in all of the textbooks,
NOTE Confidence: 0.884072615833333
03:13:27.560 --> 03:13:29.348 at least when I started fellowship,
NOTE Confidence: 0.884072615833333
03:13:29.350 --> 03:13:31.186 and I think persisted for at
NOTE Confidence: 0.884072615833333
03:13:31.186 --> 03:13:32.410 least a decade after
NOTE Confidence: 0.854466364666667
03:13:32.472 --> 03:13:34.467 that that it was multifactorial.
NOTE Confidence: 0.854466364666667
03:13:34.470 --> 03:13:36.330 The environment was a major contributor.
NOTE Confidence: 0.854466364666667
03:13:36.330 --> 03:13:37.710 There was maybe a little chromosome,
NOTE Confidence: 0.854466364666667
03:13:37.710 --> 03:13:39.768 or maybe a little single mutant gene,
NOTE Confidence: 0.854466364666667
03:13:39.770 --> 03:13:41.732 and this little pie diagram was
NOTE Confidence: 0.854466364666667

03:13:41.732 --> 03:13:43.538 our understanding of the etiology
NOTE Confidence: 0.854466364666667

03:13:43.538 --> 03:13:45.270 of congenital heart disease,
NOTE Confidence: 0.854466364666667

03:13:45.270 --> 03:13:49.134 and from 1968 probably to the late 90s.
NOTE Confidence: 0.854466364666667

03:13:49.140 --> 03:13:50.932 Important thing to keep in mind is where
NOTE Confidence: 0.854466364666667

03:13:50.932 --> 03:13:52.656 did this leave our patients at left?
NOTE Confidence: 0.854466364666667

03:13:52.660 --> 03:13:54.898 Most of them, especially the mothers,
NOTE Confidence: 0.854466364666667

03:13:54.900 --> 03:13:56.725 because mothers tend to feel
NOTE Confidence: 0.854466364666667

03:13:56.725 --> 03:13:58.570 much more responsible here.
NOTE Confidence: 0.854466364666667

03:13:58.570 --> 03:14:02.455 Guilty that I did something that caused
NOTE Confidence: 0.854466364666667

03:14:02.455 --> 03:14:06.070 my child's congenital heart disease.
NOTE Confidence: 0.854466364666667

03:14:06.070 --> 03:14:08.302 And I think we had a lot to learn
NOTE Confidence: 0.854466364666667

03:14:08.302 --> 03:14:10.971 at the time and needed to take the
NOTE Confidence: 0.854466364666667

03:14:10.971 --> 03:14:13.615 blinders off so the person who actually
NOTE Confidence: 0.854466364666667

03:14:13.615 --> 03:14:15.870 began taking the blinders off was
NOTE Confidence: 0.854466364666667

03:14:15.870 --> 03:14:19.122 the progeny of the sort of original
NOTE Confidence: 0.854466364666667

03:14:19.122 --> 03:14:21.650 congenital heart disease people.

NOTE Confidence: 0.854466364666667
03:14:21.650 --> 03:14:23.910 So Blaylock housing and Thomas,
NOTE Confidence: 0.854466364666667
03:14:23.910 --> 03:14:26.070 who were already mentioned earlier,
NOTE Confidence: 0.854466364666667
03:14:26.070 --> 03:14:28.020 initiated the field of congenital
NOTE Confidence: 0.854466364666667
03:14:28.020 --> 03:14:30.833 heart disease care and one of their
NOTE Confidence: 0.854466364666667
03:14:30.833 --> 03:14:32.828 first fellows was Ruth Whittmore,
NOTE Confidence: 0.854466364666667
03:14:32.830 --> 03:14:35.686 who ended up establishing her career.
NOTE Confidence: 0.854466364666667
03:14:35.690 --> 03:14:36.177 Harry,
NOTE Confidence: 0.854466364666667
03:14:36.177 --> 03:14:38.612 Yale and actually Ruth retired
NOTE Confidence: 0.854466364666667
03:14:38.612 --> 03:14:42.028 the year I came in as a fellow,
NOTE Confidence: 0.854466364666667
03:14:42.030 --> 03:14:44.230 so I never really had a chance to
NOTE Confidence: 0.854466364666667
03:14:44.230 --> 03:14:46.155 interact with her and learn from her
NOTE Confidence: 0.854466364666667
03:14:46.155 --> 03:14:48.469 and I think doing this current project,
NOTE Confidence: 0.854466364666667
03:14:48.470 --> 03:14:50.110 which really terrified me when
NOTE Confidence: 0.854466364666667
03:14:50.110 --> 03:14:51.422 I started doing it,
NOTE Confidence: 0.854466364666667
03:14:51.430 --> 03:14:54.097 really made me step back and develop
NOTE Confidence: 0.854466364666667

03:14:54.097 --> 03:14:56.207 some humility and realize all
NOTE Confidence: 0.854466364666667

03:14:56.207 --> 03:14:58.427 the opportunities that I missed,
NOTE Confidence: 0.854466364666667

03:14:58.430 --> 03:15:00.145 some of which may have been due
NOTE Confidence: 0.854466364666667

03:15:00.145 --> 03:15:01.340 to the prevailing culture.
NOTE Confidence: 0.854466364666667

03:15:01.340 --> 03:15:03.704 When I started congenital
NOTE Confidence: 0.854466364666667

03:15:03.704 --> 03:15:05.477 heart disease training.
NOTE Confidence: 0.854466364666667

03:15:05.480 --> 03:15:07.154 So Ruth started out working with
NOTE Confidence: 0.854466364666667

03:15:07.154 --> 03:15:09.310 Bill Glenn and a lot of other
NOTE Confidence: 0.854466364666667

03:15:09.310 --> 03:15:11.260 people to develop better care for
NOTE Confidence: 0.854466364666667

03:15:11.260 --> 03:15:12.958 congenital heart disease patients.
NOTE Confidence: 0.854466364666667

03:15:12.960 --> 03:15:15.710 But she started questioning what
NOTE Confidence: 0.854466364666667

03:15:15.710 --> 03:15:18.460 causes congenital heart disease and
NOTE Confidence: 0.854466364666667

03:15:18.548 --> 03:15:21.215 looking at it in a very unbiased,
NOTE Confidence: 0.854466364666667

03:15:21.220 --> 03:15:23.180 rigorous scientific way by doing
NOTE Confidence: 0.854466364666667

03:15:23.180 --> 03:15:25.647 a prospective study of a large
NOTE Confidence: 0.854466364666667

03:15:25.647 --> 03:15:26.937 number of patients,

NOTE Confidence: 0.854466364666667
03:15:26.940 --> 03:15:29.400 and that was actually a super
NOTE Confidence: 0.854466364666667
03:15:29.400 --> 03:15:32.200 challenging thing to do in those days,
NOTE Confidence: 0.854466364666667
03:15:32.200 --> 03:15:36.106 she recruited eight 427 pro bands.
NOTE Confidence: 0.854466364666667
03:15:36.110 --> 03:15:38.114 With congenital heart defects,
NOTE Confidence: 0.854466364666667
03:15:38.114 --> 03:15:39.592 there are 837 children.
NOTE Confidence: 0.854466364666667
03:15:39.592 --> 03:15:40.300 In other words,
NOTE Confidence: 0.854466364666667
03:15:40.300 --> 03:15:42.030 she started with mothers that
NOTE Confidence: 0.854466364666667
03:15:42.030 --> 03:15:43.414 had congenital heart disease,
NOTE Confidence: 0.854466364666667
03:15:43.420 --> 03:15:46.787 then studied their offspring to see who
NOTE Confidence: 0.854466364666667
03:15:46.787 --> 03:15:50.159 had congenital heart disease and who didn't.
NOTE Confidence: 0.854466364666667
03:15:50.160 --> 03:15:52.140 This study took a long time.
NOTE Confidence: 0.854466364666667
03:15:52.140 --> 03:15:55.072 She started it in 1962 and
NOTE Confidence: 0.854466364666667
03:15:55.072 --> 03:15:57.678 the publication was in 1993.
NOTE Confidence: 0.854466364666667
03:15:57.678 --> 03:16:00.666 Now here's one of the reasons
NOTE Confidence: 0.854466364666667
03:16:00.666 --> 03:16:03.080 why this took so long,
NOTE Confidence: 0.854466364666667

03:16:03.080 --> 03:16:05.264 so Jeremy actually found this yesterday
NOTE Confidence: 0.854466364666667

03:16:05.264 --> 03:16:07.820 in the in the Fellows Office,
NOTE Confidence: 0.854466364666667

03:16:07.820 --> 03:16:10.406 hiding in the back corner of
NOTE Confidence: 0.854466364666667

03:16:10.406 --> 03:16:12.130 the mess back there.
NOTE Confidence: 0.854466364666667

03:16:12.130 --> 03:16:14.209 And you know the Fellows office here
NOTE Confidence: 0.854466364666667

03:16:14.209 --> 03:16:16.652 and I can tell you from my days
NOTE Confidence: 0.854466364666667

03:16:16.652 --> 03:16:19.488 starting out as a fellow was never
NOTE Confidence: 0.854466364666667

03:16:19.488 --> 03:16:22.858 an example of Good Housekeeping.
NOTE Confidence: 0.854466364666667

03:16:22.860 --> 03:16:25.320 And but what was back there
NOTE Confidence: 0.854466364666667

03:16:25.320 --> 03:16:27.490 were these boxes of like,
NOTE Confidence: 0.854466364666667

03:16:27.490 --> 03:16:31.795 the box was labeled jellied cranberry sauce,
NOTE Confidence: 0.854466364666667

03:16:31.800 --> 03:16:35.690 containing the records of her.
NOTE Confidence: 0.854466364666667

03:16:35.690 --> 03:16:37.490 430 congenital heart disease patients
NOTE Confidence: 0.854466364666667

03:16:37.490 --> 03:16:40.120 these were not on Excel spreadsheets.
NOTE Confidence: 0.854466364666667

03:16:40.120 --> 03:16:42.129 These had to be amalgamated by hand,
NOTE Confidence: 0.854466364666667

03:16:42.130 --> 03:16:44.130 probably with the help of a lot of

NOTE Confidence: 0.854466364666667
03:16:44.130 --> 03:16:46.002 medical students to come up with
NOTE Confidence: 0.854466364666667
03:16:46.002 --> 03:16:48.800 the data that she did come up with.
NOTE Confidence: 0.854466364666667
03:16:48.800 --> 03:16:51.464 But her findings ended up being
NOTE Confidence: 0.854466364666667
03:16:51.464 --> 03:16:53.240 remarkably prescient of what
NOTE Confidence: 0.914023768333333
03:16:53.314 --> 03:16:56.276 we found, using much more sophisticated
NOTE Confidence: 0.914023768333333
03:16:56.276 --> 03:16:57.998 technology going forward.
NOTE Confidence: 0.914023768333333
03:16:58.000 --> 03:16:59.740 The incidence of congenital heart disease
NOTE Confidence: 0.914023768333333
03:16:59.740 --> 03:17:01.955 in the offspring of parents with congenital
NOTE Confidence: 0.914023768333333
03:17:01.955 --> 03:17:03.953 heart disease was higher than expected.
NOTE Confidence: 0.914023768333333
03:17:03.960 --> 03:17:07.280 14% now we used to quote people and
NOTE Confidence: 0.914023768333333
03:17:07.280 --> 03:17:09.072 routine recurrence risk of three
NOTE Confidence: 0.914023768333333
03:17:09.072 --> 03:17:11.424 to 5% in families, and obviously,
NOTE Confidence: 0.914023768333333
03:17:11.424 --> 03:17:14.570 that turns out to be fantastically wrong.
NOTE Confidence: 0.914023768333333
03:17:14.570 --> 03:17:17.069 She also identified a subset of of
NOTE Confidence: 0.914023768333333
03:17:17.069 --> 03:17:19.250 her probands that were high risk.
NOTE Confidence: 0.914023768333333

03:17:19.250 --> 03:17:21.301 These were parents who had a quote
NOTE Confidence: 0.914023768333333

03:17:21.301 --> 03:17:23.179 UN quote diagnosed genetic syndrome,
NOTE Confidence: 0.914023768333333

03:17:23.180 --> 03:17:24.956 which is again something that we need to
NOTE Confidence: 0.914023768333333

03:17:24.956 --> 03:17:26.770 think about much more carefully these days.
NOTE Confidence: 0.914023768333333

03:17:26.770 --> 03:17:28.534 But she recognized that there was
NOTE Confidence: 0.914023768333333

03:17:28.534 --> 03:17:30.728 more going on than the heart lesion,
NOTE Confidence: 0.914023768333333

03:17:30.730 --> 03:17:32.758 and in those patients,
NOTE Confidence: 0.914023768333333

03:17:32.758 --> 03:17:35.129 the offspring risk was 53%,
NOTE Confidence: 0.914023768333333

03:17:35.129 --> 03:17:37.841 which turns out to be almost exactly right
NOTE Confidence: 0.914023768333333

03:17:37.841 --> 03:17:40.466 because a lot of these things are inherited.
NOTE Confidence: 0.914023768333333

03:17:40.470 --> 03:17:42.702 As autosomal dominance and in which
NOTE Confidence: 0.914023768333333

03:17:42.702 --> 03:17:46.108 case you will have 50% of your kids.
NOTE Confidence: 0.914023768333333

03:17:46.108 --> 03:17:49.850 Having some version of what you had
NOTE Confidence: 0.914023768333333

03:17:49.850 --> 03:17:52.144 and 41% in the ones with affected
NOTE Confidence: 0.914023768333333

03:17:52.144 --> 03:17:53.800 siblings and all the others,
NOTE Confidence: 0.914023768333333

03:17:53.800 --> 03:17:54.646 it was lower.

NOTE Confidence: 0.914023768333333
03:17:54.646 --> 03:17:57.150 It was around 10% but it was still a
NOTE Confidence: 0.914023768333333
03:17:57.150 --> 03:18:01.040 lot higher than the three to 5% we quoted.
NOTE Confidence: 0.914023768333333
03:18:01.040 --> 03:18:02.618 So her conclusions,
NOTE Confidence: 0.914023768333333
03:18:02.618 --> 03:18:04.196 unlike Nora's conclusions,
NOTE Confidence: 0.914023768333333
03:18:04.200 --> 03:18:06.665 were genetic liability is apparent
NOTE Confidence: 0.914023768333333
03:18:06.665 --> 03:18:09.130 in some families consistent with
NOTE Confidence: 0.914023768333333
03:18:09.212 --> 03:18:10.760 a single gene defect.
NOTE Confidence: 0.914023768333333
03:18:10.760 --> 03:18:12.692 Simple reliance on the three to
NOTE Confidence: 0.914023768333333
03:18:12.692 --> 03:18:14.892 5% recurrence risk is inaccurate.
NOTE Confidence: 0.914023768333333
03:18:14.892 --> 03:18:17.232 There might be some molecular
NOTE Confidence: 0.914023768333333
03:18:17.232 --> 03:18:18.885 abnormalities such as chromosomal
NOTE Confidence: 0.914023768333333
03:18:18.885 --> 03:18:21.496 deletions and certain genes that in the
NOTE Confidence: 0.914023768333333
03:18:21.562 --> 03:18:24.217 early 90s we were just not able to detect.
NOTE Confidence: 0.914023768333333
03:18:24.220 --> 03:18:26.383 And all recognized that the role of
NOTE Confidence: 0.914023768333333
03:18:26.383 --> 03:18:28.045 genes will become better understood
NOTE Confidence: 0.914023768333333

03:18:28.045 --> 03:18:30.073 in the future with the rapid
NOTE Confidence: 0.9140237683333333

03:18:30.073 --> 03:18:31.860 progress of molecular biology.
NOTE Confidence: 0.9140237683333333

03:18:31.860 --> 03:18:35.160 So she retired when I started
NOTE Confidence: 0.9140237683333333

03:18:35.160 --> 03:18:36.504 and when I started,
NOTE Confidence: 0.9140237683333333

03:18:36.504 --> 03:18:39.829 I walked into the lab of an outstanding
NOTE Confidence: 0.9140237683333333

03:18:39.829 --> 03:18:42.277 human geneticist aren't horwitch,
NOTE Confidence: 0.9140237683333333

03:18:42.280 --> 03:18:47.096 who then became my husband after teaching me.
NOTE Confidence: 0.9140237683333333

03:18:47.100 --> 03:18:49.564 How to do rigorous,
NOTE Confidence: 0.9140237683333333

03:18:49.564 --> 03:18:52.644 thoughtful science that had a
NOTE Confidence: 0.9140237683333333

03:18:52.644 --> 03:18:55.950 relationship to care of human patients,
NOTE Confidence: 0.9140237683333333

03:18:55.950 --> 03:18:59.055 and he had hidden in the depths of the
NOTE Confidence: 0.9140237683333333

03:18:59.055 --> 03:19:01.440 medical school a mouse, the IV mouse.
NOTE Confidence: 0.9140237683333333

03:19:01.440 --> 03:19:03.760 And you can see this little mouse here.
NOTE Confidence: 0.9140237683333333

03:19:03.760 --> 03:19:05.326 These are identical.
NOTE Confidence: 0.9140237683333333

03:19:05.326 --> 03:19:07.936 These are genetically identical mice.
NOTE Confidence: 0.9140237683333333

03:19:07.940 --> 03:19:09.676 One has the stomach on the right

NOTE Confidence: 0.914023768333333
03:19:09.676 --> 03:19:11.838 and one has the stomach on the left.
NOTE Confidence: 0.914023768333333
03:19:11.840 --> 03:19:14.400 A lot of their little mousy offspring died
NOTE Confidence: 0.914023768333333
03:19:14.400 --> 03:19:16.898 of pretty bad congenital heart disease.
NOTE Confidence: 0.914023768333333
03:19:16.900 --> 03:19:19.476 And in mice you die of congenital heart
NOTE Confidence: 0.914023768333333
03:19:19.476 --> 03:19:22.378 disease in utero usually and not postnatally.
NOTE Confidence: 0.914023768333333
03:19:22.380 --> 03:19:24.532 So he gave me this mouse and says
NOTE Confidence: 0.914023768333333
03:19:24.532 --> 03:19:26.361 you figure out what's going on
NOTE Confidence: 0.914023768333333
03:19:26.361 --> 03:19:28.684 with this mouse and that'll be a
NOTE Confidence: 0.914023768333333
03:19:28.684 --> 03:19:30.794 great ticket to understanding human
NOTE Confidence: 0.914023768333333
03:19:30.794 --> 03:19:33.059 congenital heart disease at that time.
NOTE Confidence: 0.914023768333333
03:19:33.059 --> 03:19:35.390 How to do mouse genetics was quite
NOTE Confidence: 0.914023768333333
03:19:35.466 --> 03:19:38.160 challenging, just like Human Genetics we ran,
NOTE Confidence: 0.914023768333333
03:19:38.160 --> 03:19:41.240 gels, gels were radioactive, they were nasty.
NOTE Confidence: 0.914023768333333
03:19:41.240 --> 03:19:41.988 I got really lucky.
NOTE Confidence: 0.914023768333333
03:19:41.988 --> 03:19:43.752 I got a result in my first year
NOTE Confidence: 0.914023768333333

03:19:43.752 --> 03:19:44.338 of fellowship,
NOTE Confidence: 0.914023768333333

03:19:44.340 --> 03:19:45.954 which is probably the only reason
NOTE Confidence: 0.914023768333333

03:19:45.954 --> 03:19:47.679 why I kept doing it because.
NOTE Confidence: 0.914023768333333

03:19:47.680 --> 03:19:48.760 If you don't get a result,
NOTE Confidence: 0.914023768333333

03:19:48.760 --> 03:19:51.946 it's super frustrating and you quit.
NOTE Confidence: 0.914023768333333

03:19:51.950 --> 03:19:53.798 And we map this gene to
NOTE Confidence: 0.914023768333333

03:19:53.798 --> 03:19:54.722 a chromosomal location.
NOTE Confidence: 0.914023768333333

03:19:54.730 --> 03:19:56.898 So at that point in time we knew
NOTE Confidence: 0.914023768333333

03:19:56.898 --> 03:19:59.051 that there was a gene that caused
NOTE Confidence: 0.914023768333333

03:19:59.051 --> 03:20:00.596 a type of congenital heart
NOTE Confidence: 0.89823765

03:20:00.660 --> 03:20:02.742 disease and mice actually turned out
NOTE Confidence: 0.89823765

03:20:02.742 --> 03:20:05.096 to be little furry humans when it
NOTE Confidence: 0.89823765

03:20:05.096 --> 03:20:07.044 comes to their hearts, they're small,
NOTE Confidence: 0.89823765

03:20:07.044 --> 03:20:09.006 they beat 500 times a minute,
NOTE Confidence: 0.89823765

03:20:09.010 --> 03:20:11.506 but they develop very much like ours do.
NOTE Confidence: 0.89823765

03:20:11.510 --> 03:20:12.665 So if it's there in the mouse,

NOTE Confidence: 0.89823765

03:20:12.670 --> 03:20:14.158 that's probably there in the human.

NOTE Confidence: 0.89823765

03:20:14.160 --> 03:20:16.169 Then we publish this and I remember

NOTE Confidence: 0.89823765

03:20:16.169 --> 03:20:17.360 Charlie Kleinman standing there.

NOTE Confidence: 0.89823765

03:20:17.360 --> 03:20:19.320 You know, we had to give these little

NOTE Confidence: 0.89823765

03:20:19.320 --> 03:20:20.860 fellow conferences where you talked to

NOTE Confidence: 0.89823765

03:20:20.860 --> 03:20:22.360 the other fellows about your project.

NOTE Confidence: 0.89823765

03:20:22.360 --> 03:20:24.296 And I was actually able to bring my

NOTE Confidence: 0.89823765

03:20:24.296 --> 03:20:26.484 mice to the conference, which nowadays

NOTE Confidence: 0.89823765

03:20:26.484 --> 03:20:28.866 you would get killed for doing.

NOTE Confidence: 0.89823765

03:20:28.870 --> 03:20:30.364 But Norman, Charlie and all they

NOTE Confidence: 0.89823765

03:20:30.364 --> 03:20:31.850 looked at the mice and said,

NOTE Confidence: 0.89823765

03:20:31.850 --> 03:20:34.510 Oh my gosh, you're going to identify

NOTE Confidence: 0.89823765

03:20:34.510 --> 03:20:35.650 the dextrocardia gene.

NOTE Confidence: 0.89823765

03:20:35.650 --> 03:20:39.378 They were much more optimistic than I was.

NOTE Confidence: 0.89823765

03:20:39.380 --> 03:20:41.090 So the problem with genetics

NOTE Confidence: 0.89823765

03:20:41.090 --> 03:20:42.458 of congenital heart disease.
NOTE Confidence: 0.89823765

03:20:42.460 --> 03:20:45.292 If Ruth was right.
NOTE Confidence: 0.89823765

03:20:45.292 --> 03:20:46.000 And.
NOTE Confidence: 0.89823765

03:20:46.000 --> 03:20:47.956 There is a major genetic contribution
NOTE Confidence: 0.89823765

03:20:47.956 --> 03:20:50.987 you had to find those genes and to be
NOTE Confidence: 0.89823765

03:20:50.987 --> 03:20:53.024 perfectly honest it wasn't going to
NOTE Confidence: 0.89823765

03:20:53.024 --> 03:20:55.180 turn out to be the dextrocardia gene.
NOTE Confidence: 0.89823765

03:20:55.180 --> 03:20:57.028 So how do you find the needle in
NOTE Confidence: 0.89823765

03:20:57.028 --> 03:20:58.979 the haystack to find the genetic
NOTE Confidence: 0.89823765

03:20:58.979 --> 03:21:00.774 abnormalities and congenital heart disease?
NOTE Confidence: 0.89823765

03:21:00.780 --> 03:21:03.810 There's 22 pairs of chromosomes.
NOTE Confidence: 0.89823765

03:21:03.810 --> 03:21:05.322 This is a karyotype which is
NOTE Confidence: 0.89823765

03:21:05.322 --> 03:21:06.330 what Nora thought was.
NOTE Confidence: 0.89823765

03:21:06.330 --> 03:21:07.926 Oh, if the carry type is normal,
NOTE Confidence: 0.89823765

03:21:07.930 --> 03:21:09.210 everything's cool.
NOTE Confidence: 0.89823765

03:21:09.210 --> 03:21:10.490 It's not,

NOTE Confidence: 0.89823765

03:21:10.490 --> 03:21:13.364 it's over 3,000,000 base pairs

NOTE Confidence: 0.89823765

03:21:13.364 --> 03:21:15.749 or three billion base pairs.

NOTE Confidence: 0.89823765

03:21:15.750 --> 03:21:18.950 And you have to find out one little

NOTE Confidence: 0.89823765

03:21:18.950 --> 03:21:21.595 mistake that screwed up your mouse

NOTE Confidence: 0.89823765

03:21:21.595 --> 03:21:23.704 or your patient 21,000 genes.

NOTE Confidence: 0.89823765

03:21:23.704 --> 03:21:26.056 And how do we do this?

NOTE Confidence: 0.89823765

03:21:26.060 --> 03:21:28.154 When we started with genomic analysis

NOTE Confidence: 0.89823765

03:21:28.154 --> 03:21:29.550 of congenital heart disease,

NOTE Confidence: 0.89823765

03:21:29.550 --> 03:21:32.082 we started with these very nasty

NOTE Confidence: 0.89823765

03:21:32.082 --> 03:21:33.770 things called sequencing gels.

NOTE Confidence: 0.89823765

03:21:33.770 --> 03:21:35.450 They were like this big.

NOTE Confidence: 0.89823765

03:21:35.450 --> 03:21:37.750 They were also profoundly radioactive,

NOTE Confidence: 0.89823765

03:21:37.750 --> 03:21:39.210 which means you got radioactive.

NOTE Confidence: 0.89823765

03:21:39.210 --> 03:21:40.598 Your lab got radioactive.

NOTE Confidence: 0.89823765

03:21:40.598 --> 03:21:43.050 We actually had a postdoc who's here?

NOTE Confidence: 0.89823765

03:21:43.050 --> 03:21:45.000 Urine got radioactive because she
NOTE Confidence: 0.89823765

03:21:45.000 --> 03:21:47.729 had her coffee cup on her bench.
NOTE Confidence: 0.89823765

03:21:47.730 --> 03:21:52.347 And you would get about 300 base pairs of.
NOTE Confidence: 0.89823765

03:21:52.350 --> 03:21:53.487 Sequence from this,
NOTE Confidence: 0.89823765

03:21:53.487 --> 03:21:55.761 and basically you sat there and
NOTE Confidence: 0.89823765

03:21:55.761 --> 03:21:58.382 you read off a CTG to the person
NOTE Confidence: 0.89823765

03:21:58.382 --> 03:21:59.660 standing next to you,
NOTE Confidence: 0.89823765

03:21:59.660 --> 03:22:02.868 who recorded it on a piece of paper
NOTE Confidence: 0.89823765

03:22:02.870 --> 03:22:05.246 until my first Mac computer arrived.
NOTE Confidence: 0.89823765

03:22:05.250 --> 03:22:06.630 This was incredibly laborious.
NOTE Confidence: 0.89823765

03:22:06.630 --> 03:22:09.128 You'd get about 300 to 500 base
NOTE Confidence: 0.89823765

03:22:09.128 --> 03:22:11.306 pairs per gel when everything worked,
NOTE Confidence: 0.89823765

03:22:11.310 --> 03:22:12.614 which it never did,
NOTE Confidence: 0.89823765

03:22:12.614 --> 03:22:15.024 and my first NIH grant came back
NOTE Confidence: 0.89823765

03:22:15.024 --> 03:22:16.167 as they're crazy.
NOTE Confidence: 0.89823765

03:22:16.170 --> 03:22:17.976 They're going to sequence a gene

NOTE Confidence: 0.89823765

03:22:17.976 --> 03:22:19.550 in 10 strains of mice.

NOTE Confidence: 0.89823765

03:22:19.550 --> 03:22:23.710 Are you kidding me rejected?

NOTE Confidence: 0.89823765

03:22:23.710 --> 03:22:26.475 But along came second generation

NOTE Confidence: 0.89823765

03:22:26.475 --> 03:22:28.687 DNA sequencing which really

NOTE Confidence: 0.89823765

03:22:28.687 --> 03:22:31.167 completely altered the landscape of

NOTE Confidence: 0.89823765

03:22:31.167 --> 03:22:33.927 how we analyze genetics in humans,

NOTE Confidence: 0.89823765

03:22:33.930 --> 03:22:36.394 mice or anything else.

NOTE Confidence: 0.89823765

03:22:36.394 --> 03:22:37.010 Basically,

NOTE Confidence: 0.89823765

03:22:37.010 --> 03:22:39.625 you change the reaction to

NOTE Confidence: 0.89823765

03:22:39.625 --> 03:22:43.058 something that can be adhered to

NOTE Confidence: 0.89823765

03:22:43.058 --> 03:22:45.230 modern substrate technology,

NOTE Confidence: 0.89823765

03:22:45.230 --> 03:22:47.150 and instead of having this huge

NOTE Confidence: 0.89823765

03:22:47.150 --> 03:22:49.310 radioactive gel that is read manually,

NOTE Confidence: 0.89823765

03:22:49.310 --> 03:22:52.478 everything is fed into a bunch of machines.

NOTE Confidence: 0.89823765

03:22:52.480 --> 03:22:54.109 Sequencing capabilities between

NOTE Confidence: 0.89823765

03:22:54.109 --> 03:22:56.913 2000 and four 2010 doubled every
NOTE Confidence: 0.89823765

03:22:56.913 --> 03:22:59.259 five months and you could get
NOTE Confidence: 0.89823765

03:22:59.259 --> 03:23:01.358 giga bases of data per run.
NOTE Confidence: 0.89823765

03:23:01.360 --> 03:23:03.916 We also had computers and computing
NOTE Confidence: 0.89823765

03:23:03.916 --> 03:23:05.986 clusters and data specialists who
NOTE Confidence: 0.89823765

03:23:05.986 --> 03:23:07.792 can analyze all this stuff for
NOTE Confidence: 0.89823765

03:23:07.792 --> 03:23:09.969 you so that you no longer have
NOTE Confidence: 0.89823765

03:23:09.969 --> 03:23:11.775 to sit there and read gels.
NOTE Confidence: 0.861001249411765

03:23:11.780 --> 03:23:14.126 But you basically got reports back
NOTE Confidence: 0.861001249411765

03:23:14.126 --> 03:23:16.108 from the sequencing center that
NOTE Confidence: 0.861001249411765

03:23:16.108 --> 03:23:18.196 gave you what you're looking for.
NOTE Confidence: 0.861001249411765

03:23:18.200 --> 03:23:21.215 So in February of 2001, the first draft
NOTE Confidence: 0.861001249411765

03:23:21.215 --> 03:23:22.925 of the human genome was published,
NOTE Confidence: 0.861001249411765

03:23:22.930 --> 03:23:24.778 and what's really kind of cool about this?
NOTE Confidence: 0.861001249411765

03:23:24.780 --> 03:23:26.684 If you look at this nature publication,
NOTE Confidence: 0.861001249411765

03:23:26.690 --> 03:23:29.275 the Human genome nuclear fission

NOTE Confidence: 0.861001249411765
03:23:29.275 --> 03:23:32.120 actually took a second seat to
NOTE Confidence: 0.861001249411765
03:23:32.120 --> 03:23:34.590 publication of the human genome.
NOTE Confidence: 0.861001249411765
03:23:34.590 --> 03:23:37.625 Umm? So from there,
NOTE Confidence: 0.861001249411765
03:23:37.625 --> 03:23:40.040 Yale got very involved in this process
NOTE Confidence: 0.861001249411765
03:23:40.109 --> 03:23:42.453 and this is the next group of people
NOTE Confidence: 0.861001249411765
03:23:42.453 --> 03:23:44.435 on who's on whose shoulders all
NOTE Confidence: 0.861001249411765
03:23:44.435 --> 03:23:46.779 of this work really stand is Rick
NOTE Confidence: 0.861001249411765
03:23:46.779 --> 03:23:49.222 Lifton was brought in to Yale and
NOTE Confidence: 0.861001249411765
03:23:49.222 --> 03:23:51.765 ran genetics here from 1998 to 2016.
NOTE Confidence: 0.861001249411765
03:23:51.765 --> 03:23:54.460 He left here to become the President
NOTE Confidence: 0.861001249411765
03:23:54.544 --> 03:23:56.548 of Rockefeller University,
NOTE Confidence: 0.861001249411765
03:23:56.550 --> 03:23:58.950 but despite running an entire university,
NOTE Confidence: 0.861001249411765
03:23:58.950 --> 03:24:01.092 he is still intimately involved with
NOTE Confidence: 0.861001249411765
03:24:01.092 --> 03:24:03.581 this project and spends hours with us
NOTE Confidence: 0.861001249411765
03:24:03.581 --> 03:24:05.579 on the phone reviewing manuscripts that
NOTE Confidence: 0.861001249411765

03:24:05.579 --> 03:24:07.879 we have to try to get out the door.
NOTE Confidence: 0.861001249411765

03:24:07.880 --> 03:24:11.387 But Rick really first started taking the
NOTE Confidence: 0.861001249411765

03:24:11.387 --> 03:24:13.891 new sequencing technology and applying
NOTE Confidence: 0.861001249411765

03:24:13.891 --> 03:24:17.132 it to clinical medicine and clinical care,
NOTE Confidence: 0.861001249411765

03:24:17.140 --> 03:24:19.760 and he saw when.
NOTE Confidence: 0.861001249411765

03:24:19.760 --> 03:24:21.625 When this process started happening
NOTE Confidence: 0.861001249411765

03:24:21.625 --> 03:24:24.187 that this is something we could apply
NOTE Confidence: 0.861001249411765

03:24:24.187 --> 03:24:26.413 to congenital heart disease and set up
NOTE Confidence: 0.861001249411765

03:24:26.413 --> 03:24:28.718 a collaboration with me and Rick Kim
NOTE Confidence: 0.861001249411765

03:24:28.718 --> 03:24:31.448 here to sort of initiate one of the
NOTE Confidence: 0.861001249411765

03:24:31.448 --> 03:24:34.744 real strengths of Yale is that there is
NOTE Confidence: 0.861001249411765

03:24:34.744 --> 03:24:37.029 cross not only departmental collaboration,
NOTE Confidence: 0.861001249411765

03:24:37.030 --> 03:24:38.654 but cross institutional collaboration
NOTE Confidence: 0.861001249411765

03:24:38.654 --> 03:24:40.684 where the basic scientists and
NOTE Confidence: 0.861001249411765

03:24:40.684 --> 03:24:42.788 the clinicians all work together.
NOTE Confidence: 0.861001249411765

03:24:42.790 --> 03:24:45.016 The first grant that we put out

NOTE Confidence: 0.861001249411765
03:24:45.016 --> 03:24:46.854 on this congenital heart disease
NOTE Confidence: 0.861001249411765
03:24:46.854 --> 03:24:48.899 program was done with rickheim.
NOTE Confidence: 0.861001249411765
03:24:48.900 --> 03:24:50.964 We had to actually.
NOTE Confidence: 0.861001249411765
03:24:50.964 --> 03:24:53.128 Right, put everything on paper.
NOTE Confidence: 0.861001249411765
03:24:53.128 --> 03:24:54.364 Send 8 copies,
NOTE Confidence: 0.861001249411765
03:24:54.370 --> 03:24:58.178 2 double sided to the NIH by like.
NOTE Confidence: 0.861001249411765
03:24:58.180 --> 03:25:01.486 5:00 AM and I know Rick.
NOTE Confidence: 0.861001249411765
03:25:01.490 --> 03:25:06.178 Came over here, drove me out to the.
NOTE Confidence: 0.861001249411765
03:25:06.180 --> 03:25:09.060 One of the FedEx store in in North Haven.
NOTE Confidence: 0.861001249411765
03:25:09.060 --> 03:25:13.029 In my first trip ever in a Porsche Cayman.
NOTE Confidence: 0.884848249230769
03:25:15.260 --> 03:25:17.262 To get it there before the 7:00
NOTE Confidence: 0.884848249230769
03:25:17.262 --> 03:25:18.738 o'clock receipt deadline and we did,
NOTE Confidence: 0.884848249230769
03:25:18.740 --> 03:25:22.358 we got there at 658 and they took it.
NOTE Confidence: 0.884848249230769
03:25:22.360 --> 03:25:23.680 And Rick Lifton was on the
NOTE Confidence: 0.884848249230769
03:25:23.680 --> 03:25:25.116 phone with us and says, well,
NOTE Confidence: 0.884848249230769

03:25:25.116 --> 03:25:26.346 if you missed the deadline,
NOTE Confidence: 0.884848249230769

03:25:26.350 --> 03:25:27.390 don't worry about it.
NOTE Confidence: 0.884848249230769

03:25:27.390 --> 03:25:29.485 It only takes 5 hours to drive down
NOTE Confidence: 0.884848249230769

03:25:29.485 --> 03:25:31.381 to the NIH and you all are used
NOTE Confidence: 0.884848249230769

03:25:31.445 --> 03:25:33.197 to staying up all night anyway,
NOTE Confidence: 0.884848249230769

03:25:33.200 --> 03:25:34.010 so just go do it.
NOTE Confidence: 0.88717212

03:25:36.630 --> 03:25:38.808 But at the same time also they were building
NOTE Confidence: 0.88717212

03:25:38.808 --> 03:25:40.958 up the Yale Center for Genome Analysis,
NOTE Confidence: 0.88717212

03:25:40.960 --> 03:25:45.939 which is off of exit 42 on I-95.
NOTE Confidence: 0.88717212

03:25:45.940 --> 03:25:49.125 Which has really built the capacity to
NOTE Confidence: 0.88717212

03:25:49.125 --> 03:25:51.889 sequence huge numbers of human genetic
NOTE Confidence: 0.88717212

03:25:51.889 --> 03:25:54.969 data and mouse genetic data very rapidly.
NOTE Confidence: 0.88717212

03:25:54.970 --> 03:25:58.604 We can now spend \$125 get
NOTE Confidence: 0.88717212

03:25:58.604 --> 03:26:01.466 every exon in a human genome,
NOTE Confidence: 0.88717212

03:26:01.470 --> 03:26:03.646 get it back to us within if you
NOTE Confidence: 0.88717212

03:26:03.646 --> 03:26:05.035 need it emergently clinically

NOTE Confidence: 0.88717212

03:26:05.035 --> 03:26:07.744 they can do it in five days.

NOTE Confidence: 0.88717212

03:26:07.750 --> 03:26:09.334 For research purposes.

NOTE Confidence: 0.88717212

03:26:09.334 --> 03:26:12.135 We do about 1000 to 2000.

NOTE Confidence: 0.88717212

03:26:12.135 --> 03:26:13.755 Congenital heart disease exomes

NOTE Confidence: 0.88717212

03:26:13.755 --> 03:26:15.970 over the course of four weeks.

NOTE Confidence: 0.88717212

03:26:15.970 --> 03:26:18.652 The data comes back as a whole ton of

NOTE Confidence: 0.88717212

03:26:18.652 --> 03:26:20.897 files and gets processed by informatics

NOTE Confidence: 0.88717212

03:26:20.897 --> 03:26:23.399 people and students and postdocs that

NOTE Confidence: 0.88717212

03:26:23.399 --> 03:26:25.870 are much better at that than I am.

NOTE Confidence: 0.88717212

03:26:25.870 --> 03:26:27.830 So what did we find out from that?

NOTE Confidence: 0.88717212

03:26:27.830 --> 03:26:28.946 So the first thing you've got

NOTE Confidence: 0.88717212

03:26:28.946 --> 03:26:29.941 to realize when you're looking

NOTE Confidence: 0.88717212

03:26:29.941 --> 03:26:31.225 through this needle in a haystack,

NOTE Confidence: 0.88717212

03:26:31.230 --> 03:26:33.024 we all have genetic variation because

NOTE Confidence: 0.88717212

03:26:33.024 --> 03:26:35.068 you and I don't look the same.

NOTE Confidence: 0.88717212

03:26:35.070 --> 03:26:37.730 So what we have to distinguish is
NOTE Confidence: 0.88717212

03:26:37.730 --> 03:26:39.696 what matters and causes congenital
NOTE Confidence: 0.88717212

03:26:39.696 --> 03:26:41.706 heart disease versus what is
NOTE Confidence: 0.88717212

03:26:41.706 --> 03:26:43.730 normal human genetic variation.
NOTE Confidence: 0.88717212

03:26:43.730 --> 03:26:45.403 So the first thing we looked at
NOTE Confidence: 0.88717212

03:26:45.403 --> 03:26:47.110 is looking for de Novo mutations.
NOTE Confidence: 0.88717212

03:26:47.110 --> 03:26:49.140 DENOVO mutations are mutations that
NOTE Confidence: 0.88717212

03:26:49.140 --> 03:26:51.524 are present in the affected patient
NOTE Confidence: 0.88717212

03:26:51.524 --> 03:26:53.240 but not in the patient's parents.
NOTE Confidence: 0.88717212

03:26:53.240 --> 03:26:54.977 In other words, they happened randomly.
NOTE Confidence: 0.88717212

03:26:54.977 --> 03:26:57.000 And when a gene is altered by
NOTE Confidence: 0.88717212

03:26:57.054 --> 03:26:58.090 a de Novo mutation,
NOTE Confidence: 0.88717212

03:26:58.090 --> 03:27:00.764 this is really one of Rick Lifton's
NOTE Confidence: 0.88717212

03:27:00.764 --> 03:27:02.670 greatest contributions to this field.
NOTE Confidence: 0.88717212

03:27:02.670 --> 03:27:04.692 It is much more likely to
NOTE Confidence: 0.88717212

03:27:04.692 --> 03:27:05.703 be clinically damaging,

NOTE Confidence: 0.88717212

03:27:05.710 --> 03:27:07.854 and we use that actually on the clinical

NOTE Confidence: 0.88717212

03:27:07.854 --> 03:27:09.686 service when we get a mutation back

NOTE Confidence: 0.88717212

03:27:09.686 --> 03:27:11.739 where we don't really know what it causes.

NOTE Confidence: 0.88717212

03:27:11.740 --> 03:27:14.071 If you look to see what the

NOTE Confidence: 0.88717212

03:27:14.071 --> 03:27:15.070 unaffected parents have,

NOTE Confidence: 0.88717212

03:27:15.070 --> 03:27:16.530 in other words that you're

NOTE Confidence: 0.88717212

03:27:16.530 --> 03:27:17.990 comparing the patient to parents,

NOTE Confidence: 0.88717212

03:27:17.990 --> 03:27:20.006 it's that you will be able to

NOTE Confidence: 0.88717212

03:27:20.006 --> 03:27:21.410 determine much more cleanly.

NOTE Confidence: 0.88717212

03:27:21.410 --> 03:27:23.222 Whether that mutation contributed

NOTE Confidence: 0.88717212

03:27:23.222 --> 03:27:25.034 to disease or not.

NOTE Confidence: 0.88717212

03:27:25.040 --> 03:27:27.504 So we found that de Novo mutations

NOTE Confidence: 0.88717212

03:27:27.504 --> 03:27:29.399 actually account for eight to 10%

NOTE Confidence: 0.88717212

03:27:29.400 --> 03:27:31.660 of all congenital heart disease,

NOTE Confidence: 0.88717212

03:27:31.660 --> 03:27:34.060 3% of isolated congenital heart disease,

NOTE Confidence: 0.88717212

03:27:34.060 --> 03:27:37.189 but 28% of congenital heart disease who
NOTE Confidence: 0.88717212

03:27:37.189 --> 03:27:40.525 have also extracardiac anomalies or and
NOTE Confidence: 0.88717212

03:27:40.525 --> 03:27:42.439 or neurodevelopmental abnormalities.
NOTE Confidence: 0.88717212

03:27:42.440 --> 03:27:45.440 So in those multiply affected patients,
NOTE Confidence: 0.88717212

03:27:45.440 --> 03:27:47.585 these very damaging mutations of
NOTE Confidence: 0.88717212

03:27:47.585 --> 03:27:49.730 very large effects that happened
NOTE Confidence: 0.88717212

03:27:49.799 --> 03:27:52.340 spontaneously in the proband and are not
NOTE Confidence: 0.88717212

03:27:52.340 --> 03:27:55.277 present in the parents are a much greater.
NOTE Confidence: 0.88717212

03:27:55.280 --> 03:27:58.888 Contributor we also learned that it's not the
NOTE Confidence: 0.88717212

03:27:58.888 --> 03:28:01.730 dextrocardia gene congenital heart diseases,
NOTE Confidence: 0.88717212

03:28:01.730 --> 03:28:03.890 insanely complex and many,
NOTE Confidence: 0.88717212

03:28:03.890 --> 03:28:04.430 many,
NOTE Confidence: 0.88717212

03:28:04.430 --> 03:28:06.062 many genes contribute to
NOTE Confidence: 0.88717212

03:28:06.062 --> 03:28:07.286 congenital heart disease.
NOTE Confidence: 0.88717212

03:28:07.290 --> 03:28:11.970 At least 400 by the denovo mechanism alone.
NOTE Confidence: 0.88717212

03:28:11.970 --> 03:28:13.626 So where does this leave you?

NOTE Confidence: 0.88717212

03:28:13.630 --> 03:28:15.916 This leaves you with really having

NOTE Confidence: 0.88717212

03:28:15.916 --> 03:28:17.920 to use contemporary big data

NOTE Confidence: 0.88717212

03:28:17.920 --> 03:28:19.950 approaches to solve the problem.

NOTE Confidence: 0.88717212

03:28:19.950 --> 03:28:23.358 You can't go one patient at a time.

NOTE Confidence: 0.88717212

03:28:23.360 --> 03:28:24.596 So to do that,

NOTE Confidence: 0.88717212

03:28:24.596 --> 03:28:26.985 Yale has been a participant in the

NOTE Confidence: 0.88717212

03:28:26.985 --> 03:28:28.849 NIH pediatric Cardiac Genomics

NOTE Confidence: 0.88717212

03:28:28.849 --> 03:28:31.600 Consortium since its inception in 2009,

NOTE Confidence: 0.88717212

03:28:31.600 --> 03:28:34.370 and you'll recognize some of the

NOTE Confidence: 0.88717212

03:28:34.370 --> 03:28:36.140 people on this slide on George

NOTE Confidence: 0.88717212

03:28:36.140 --> 03:28:37.960 Porter sitting out there somewhere.

NOTE Confidence: 0.88717212

03:28:37.960 --> 03:28:38.888 Rick Kim,

NOTE Confidence: 0.88717212

03:28:38.888 --> 03:28:39.816 right there.

NOTE Confidence: 0.88717212

03:28:39.816 --> 03:28:42.600 And there's Rick Lifton and Peter

NOTE Confidence: 0.88717212

03:28:42.690 --> 03:28:44.350 Gruber if he's here.

NOTE Confidence: 0.88717212

03:28:44.350 --> 03:28:46.672 And this is a multi center
NOTE Confidence: 0.88717212

03:28:46.672 --> 03:28:48.220 program that has encompassed
NOTE Confidence: 0.835432837647059

03:28:48.294 --> 03:28:51.038 quite a few institutions across the US.
NOTE Confidence: 0.835432837647059

03:28:51.040 --> 03:28:53.068 We're now trying to establish an
NOTE Confidence: 0.835432837647059

03:28:53.068 --> 03:28:55.310 international collaboration. Also.
NOTE Confidence: 0.835432837647059

03:28:55.310 --> 03:28:57.715 To discover all genes involved
NOTE Confidence: 0.835432837647059

03:28:57.715 --> 03:28:59.639 in congenital heart disease.
NOTE Confidence: 0.835432837647059

03:28:59.640 --> 03:29:01.565 To identify the mutations to
NOTE Confidence: 0.835432837647059

03:29:01.565 --> 03:29:03.105 correlate to the phenotype.
NOTE Confidence: 0.835432837647059

03:29:03.110 --> 03:29:04.415 And most importantly,
NOTE Confidence: 0.835432837647059

03:29:04.415 --> 03:29:06.590 now to start developing the
NOTE Confidence: 0.835432837647059

03:29:06.590 --> 03:29:08.395 connections between the genetic
NOTE Confidence: 0.835432837647059

03:29:08.395 --> 03:29:10.560 variation and the clinical outcomes.
NOTE Confidence: 0.835432837647059

03:29:10.560 --> 03:29:12.940 So so far we've got 15,000
NOTE Confidence: 0.835432837647059

03:29:12.940 --> 03:29:14.780 congenital heart disease patients
NOTE Confidence: 0.835432837647059

03:29:14.780 --> 03:29:16.762 and about 14,000 relatives,

NOTE Confidence: 0.835432837647059
03:29:16.762 --> 03:29:19.948 and this will allow congenital heart
NOTE Confidence: 0.835432837647059
03:29:19.948 --> 03:29:22.454 disease research to start becoming
NOTE Confidence: 0.835432837647059
03:29:22.454 --> 03:29:24.734 more statistically rigorous and not
NOTE Confidence: 0.835432837647059
03:29:24.734 --> 03:29:27.517 rely on very small sample sizes.
NOTE Confidence: 0.835432837647059
03:29:27.520 --> 03:29:29.900 We've done very detailed echocardiographic
NOTE Confidence: 0.835432837647059
03:29:29.900 --> 03:29:32.920 phenotyping of all of the patients
NOTE Confidence: 0.835432837647059
03:29:32.920 --> 03:29:35.356 and are currently there is work in
NOTE Confidence: 0.835432837647059
03:29:35.356 --> 03:29:37.767 progress to link the genomics and
NOTE Confidence: 0.835432837647059
03:29:37.767 --> 03:29:39.487 electronic medical records data
NOTE Confidence: 0.835432837647059
03:29:39.487 --> 03:29:42.303 which gives me hope that all those
NOTE Confidence: 0.835432837647059
03:29:42.303 --> 03:29:44.475 hours we spend entering things in
NOTE Confidence: 0.835432837647059
03:29:44.480 --> 03:29:48.884 God darned Epic will eventually come
NOTE Confidence: 0.835432837647059
03:29:48.884 --> 03:29:52.930 to some useful clinical outcome.
NOTE Confidence: 0.835432837647059
03:29:52.930 --> 03:29:54.855 So we've done a lot of whole
NOTE Confidence: 0.835432837647059
03:29:54.855 --> 03:29:55.405 exome sequencing.
NOTE Confidence: 0.835432837647059

03:29:55.410 --> 03:29:58.130 We've done whole genome sequencing,
NOTE Confidence: 0.835432837647059

03:29:58.130 --> 03:29:58.958 targeted sequencing,
NOTE Confidence: 0.835432837647059

03:29:58.958 --> 03:30:01.028 and there's actually surgical tissue
NOTE Confidence: 0.835432837647059

03:30:01.028 --> 03:30:03.388 being banked on an increasing number
NOTE Confidence: 0.835432837647059

03:30:03.388 --> 03:30:05.500 of probands when this tissue that's
NOTE Confidence: 0.835432837647059

03:30:05.500 --> 03:30:07.415 being discarded as part of the
NOTE Confidence: 0.835432837647059

03:30:07.415 --> 03:30:09.274 procedure is flash frozen in the
NOTE Confidence: 0.835432837647059

03:30:09.274 --> 03:30:11.398 OR stored and then available for
NOTE Confidence: 0.835432837647059

03:30:11.398 --> 03:30:15.038 analysis at a later date. So so far.
NOTE Confidence: 0.835432837647059

03:30:15.038 --> 03:30:17.918 It's not the dextrocardia gene.
NOTE Confidence: 0.835432837647059

03:30:17.920 --> 03:30:20.878 There's 400 or more genes that
NOTE Confidence: 0.835432837647059

03:30:20.878 --> 03:30:23.580 contribute to congenital heart disease.
NOTE Confidence: 0.835432837647059

03:30:23.580 --> 03:30:26.238 There are some subclasses of genes
NOTE Confidence: 0.835432837647059

03:30:26.238 --> 03:30:29.222 that contribute more and give more
NOTE Confidence: 0.835432837647059

03:30:29.222 --> 03:30:31.478 insight into associated phenotypes.
NOTE Confidence: 0.835432837647059

03:30:31.480 --> 03:30:33.230 The most notable ones are

NOTE Confidence: 0.835432837647059
03:30:33.230 --> 03:30:34.280 chromatin remodeling genes,
NOTE Confidence: 0.835432837647059
03:30:34.280 --> 03:30:35.594 which globally regulate
NOTE Confidence: 0.835432837647059
03:30:35.594 --> 03:30:37.346 transcription when you don't.
NOTE Confidence: 0.835432837647059
03:30:37.350 --> 03:30:38.540 When you have a mutation
NOTE Confidence: 0.835432837647059
03:30:38.540 --> 03:30:39.492 affecting one of those,
NOTE Confidence: 0.835432837647059
03:30:39.500 --> 03:30:40.720 it's not just your heart,
NOTE Confidence: 0.835432837647059
03:30:40.720 --> 03:30:41.884 it affects your brain.
NOTE Confidence: 0.835432837647059
03:30:41.884 --> 03:30:43.339 It can affect your kidneys,
NOTE Confidence: 0.835432837647059
03:30:43.340 --> 03:30:45.866 and it probably has some really.
NOTE Confidence: 0.835432837647059
03:30:45.870 --> 03:30:48.295 Major impacts on the lifelong
NOTE Confidence: 0.835432837647059
03:30:48.295 --> 03:30:50.720 disease of congenital heart disease
NOTE Confidence: 0.835432837647059
03:30:50.802 --> 03:30:53.147 because it's not something that
NOTE Confidence: 0.835432837647059
03:30:53.147 --> 03:30:55.059 just happens for one moment,
NOTE Confidence: 0.835432837647059
03:30:55.059 --> 03:30:56.674 and then it's surgically fixed,
NOTE Confidence: 0.835432837647059
03:30:56.680 --> 03:30:58.055 but is something that patients
NOTE Confidence: 0.835432837647059

03:30:58.055 --> 03:31:00.128 live with and that we have to
NOTE Confidence: 0.835432837647059

03:31:00.128 --> 03:31:01.718 manage throughout their life span.
NOTE Confidence: 0.835432837647059

03:31:01.720 --> 03:31:05.425 A core set of 60 genes explains 8% of
NOTE Confidence: 0.835432837647059

03:31:05.425 --> 03:31:07.950 congenital heart disease recessive mutations.
NOTE Confidence: 0.835432837647059

03:31:07.950 --> 03:31:08.900 This is a manuscript that's
NOTE Confidence: 0.835432837647059

03:31:08.900 --> 03:31:10.040 sort of out there right now,
NOTE Confidence: 0.835432837647059

03:31:10.040 --> 03:31:11.624 not yet published.
NOTE Confidence: 0.835432837647059

03:31:11.624 --> 03:31:14.068 About 2.2% of congenital heart disease.
NOTE Confidence: 0.835432837647059

03:31:14.068 --> 03:31:16.660 And we're also finding an overlap between.
NOTE Confidence: 0.835432837647059

03:31:16.660 --> 03:31:17.162 Cardiomyopathy,
NOTE Confidence: 0.835432837647059

03:31:17.162 --> 03:31:17.664 genes,
NOTE Confidence: 0.835432837647059

03:31:17.664 --> 03:31:19.672 and structural congenital heart
NOTE Confidence: 0.835432837647059

03:31:19.672 --> 03:31:22.503 disease genes that may give some
NOTE Confidence: 0.835432837647059

03:31:22.503 --> 03:31:24.393 insight into why some patients
NOTE Confidence: 0.835432837647059

03:31:24.393 --> 03:31:26.396 end up developing myocardial
NOTE Confidence: 0.835432837647059

03:31:26.396 --> 03:31:29.860 dysfunction later in life.

NOTE Confidence: 0.835432837647059
03:31:29.860 --> 03:31:32.722 So I'd like to say it's a lot of
NOTE Confidence: 0.835432837647059
03:31:32.722 --> 03:31:35.299 genes that cause a broken heart.
NOTE Confidence: 0.835432837647059
03:31:35.300 --> 03:31:37.670 But an example of 1 gene.
NOTE Confidence: 0.9561294
03:31:39.770 --> 03:31:43.389 OK. I think I screwed something up here.
NOTE Confidence: 0.858661599090909
03:31:45.910 --> 03:31:49.126 One gene can cause a lot of different
NOTE Confidence: 0.858661599090909
03:31:49.126 --> 03:31:53.100 congenital heart defects. And just.
NOTE Confidence: 0.858661599090909
03:31:53.100 --> 03:31:55.627 OK, so there's I'm not touching it.
NOTE Confidence: 0.878639282
03:31:58.130 --> 03:31:59.270 So there's a lot going
NOTE Confidence: 0.878639282
03:31:59.270 --> 03:32:00.410 on that I don't know,
NOTE Confidence: 0.878639282
03:32:00.410 --> 03:32:02.678 but it magically reappeared,
NOTE Confidence: 0.878639282
03:32:02.678 --> 03:32:06.780 so this is. That was then 1968.
NOTE Confidence: 0.878639282
03:32:06.780 --> 03:32:08.380 Now just keep in mind,
NOTE Confidence: 0.878639282
03:32:08.380 --> 03:32:10.284 I just want to put in one more
NOTE Confidence: 0.878639282
03:32:10.284 --> 03:32:11.050 little advertisement here.
NOTE Confidence: 0.849029026
03:32:13.530 --> 03:32:17.006 Ruth Whittemore was one was one
NOTE Confidence: 0.849029026

03:32:17.006 --> 03:32:20.206 of six out of 72 students in her
NOTE Confidence: 0.849029026

03:32:20.206 --> 03:32:22.870 medical school class who were women.
NOTE Confidence: 0.849029026

03:32:22.870 --> 03:32:26.710 I was one of 21 out of 140 who
NOTE Confidence: 0.849029026

03:32:26.710 --> 03:32:29.952 are women and we now have 50%
NOTE Confidence: 0.849029026

03:32:29.952 --> 03:32:33.800 women starting medical school.
NOTE Confidence: 0.849029026

03:32:33.800 --> 03:32:36.383 We're going to keep pushing this field
NOTE Confidence: 0.849029026

03:32:36.383 --> 03:32:38.716 ahead and not let some prejudices
NOTE Confidence: 0.849029026

03:32:38.716 --> 03:32:41.397 cloud how we view what's been done
NOTE Confidence: 0.849029026

03:32:41.477 --> 03:32:43.679 by the people that preceded us.
NOTE Confidence: 0.849029026

03:32:43.680 --> 03:32:46.053 But what we have now is an
NOTE Confidence: 0.849029026

03:32:46.053 --> 03:32:47.769 expansion of what we know.
NOTE Confidence: 0.849029026

03:32:47.770 --> 03:32:49.570 There's still a lot left.
NOTE Confidence: 0.849029026

03:32:49.570 --> 03:32:52.355 Notice that the Gray zone 56%.
NOTE Confidence: 0.849029026

03:32:52.355 --> 03:32:54.280 We don't know our current
NOTE Confidence: 0.849029026

03:32:54.280 --> 03:32:56.501 efforts here with the congenital
NOTE Confidence: 0.849029026

03:32:56.501 --> 03:32:58.929 heart disease Genetics Clinic,

NOTE Confidence: 0.849029026

03:32:58.930 --> 03:33:01.202 which is one of the first congenital heart

NOTE Confidence: 0.849029026

03:33:01.202 --> 03:33:02.930 disease genetics clinics in the country,

NOTE Confidence: 0.849029026

03:33:02.930 --> 03:33:04.920 coupled with very aggressive genetic

NOTE Confidence: 0.849029026

03:33:04.920 --> 03:33:06.910 testing of patients that present

NOTE Confidence: 0.849029026

03:33:06.976 --> 03:33:08.708 with congenital heart disease,

NOTE Confidence: 0.849029026

03:33:08.710 --> 03:33:11.272 we can probably wear up to

NOTE Confidence: 0.849029026

03:33:11.272 --> 03:33:13.680 making diagnosis in 30 to 40%.

NOTE Confidence: 0.849029026

03:33:13.680 --> 03:33:15.720 But we have a long ways to go,

NOTE Confidence: 0.849029026

03:33:15.720 --> 03:33:18.339 and here's some of the things we can do.

NOTE Confidence: 0.849029026

03:33:18.340 --> 03:33:19.354 Multigenic contribution,

NOTE Confidence: 0.849029026

03:33:19.354 --> 03:33:21.889 and then most importantly evaluating

NOTE Confidence: 0.849029026

03:33:21.889 --> 03:33:24.302 the contribution of genetic data

NOTE Confidence: 0.849029026

03:33:24.302 --> 03:33:25.954 to patient outcome eventually

NOTE Confidence: 0.849029026

03:33:25.954 --> 03:33:28.100 hopefully being able to modulate

NOTE Confidence: 0.849029026

03:33:28.100 --> 03:33:30.240 some of the lifelong phenotypes,

NOTE Confidence: 0.849029026

03:33:30.240 --> 03:33:31.890 pharmacologically or otherwise,
NOTE Confidence: 0.849029026

03:33:31.890 --> 03:33:34.640 and really have this impact.
NOTE Confidence: 0.849029026

03:33:34.640 --> 03:33:36.650 We're going to we're collaborating with
NOTE Confidence: 0.849029026

03:33:36.650 --> 03:33:38.679 the Europeans and increasing our data set,
NOTE Confidence: 0.849029026

03:33:38.680 --> 03:33:41.200 hopefully to over 20,000 patients,
NOTE Confidence: 0.849029026

03:33:41.200 --> 03:33:44.086 so we can really draw some
NOTE Confidence: 0.849029026

03:33:44.086 --> 03:33:45.048 statistically significant.
NOTE Confidence: 0.849029026

03:33:45.050 --> 03:33:47.180 Conclusions and I'd like to thank
NOTE Confidence: 0.849029026

03:33:47.180 --> 03:33:49.642 all the people that help do this
NOTE Confidence: 0.849029026

03:33:49.642 --> 03:33:51.574 work from my husband to Rick
NOTE Confidence: 0.849029026

03:33:51.574 --> 03:33:53.308 Lifton to Charlie Kleinman,
NOTE Confidence: 0.849029026

03:33:53.310 --> 03:33:56.694 who's and Bill Helen Brand and all the
NOTE Confidence: 0.849029026

03:33:56.694 --> 03:33:59.672 people here who trained us and who
NOTE Confidence: 0.849029026

03:33:59.672 --> 03:34:02.654 probably scared some of us more than.
NOTE Confidence: 0.849029026

03:34:02.660 --> 03:34:04.169 Was always necessary.
NOTE Confidence: 0.891315003

03:34:09.060 --> 03:34:11.517 And I really am honored to be

NOTE Confidence: 0.891315003

03:34:11.517 --> 03:34:14.216 able to speak to this whole group

NOTE Confidence: 0.891315003

03:34:14.216 --> 03:34:16.562 and see all the people back.

NOTE Confidence: 0.891315003

03:34:16.570 --> 03:34:18.938 This is my lab and some of the

NOTE Confidence: 0.891315003

03:34:18.940 --> 03:34:20.340 people involved in the project.

NOTE Confidence: 0.891315003

03:34:20.340 --> 03:34:21.844 Most importantly the patients

NOTE Confidence: 0.891315003

03:34:21.844 --> 03:34:23.724 and families who contributed to

NOTE Confidence: 0.891315003

03:34:23.724 --> 03:34:26.519 this effort to begin to develop a

NOTE Confidence: 0.891315003

03:34:26.519 --> 03:34:27.698 contemporary scientific understanding

NOTE Confidence: 0.891315003

03:34:27.698 --> 03:34:29.579 of congenital heart disease.

NOTE Confidence: 0.891315003

03:34:29.580 --> 03:34:30.210 Thank you.

NOTE Confidence: 0.932231432

03:34:39.930 --> 03:34:41.730 Tina, thank you so much.

NOTE Confidence: 0.932231432

03:34:41.730 --> 03:34:44.458 I think Tina has a gift for taking

NOTE Confidence: 0.932231432

03:34:44.458 --> 03:34:47.424 stuff that most people don't understand

NOTE Confidence: 0.932231432

03:34:47.424 --> 03:34:49.624 and making it understandable,

NOTE Confidence: 0.932231432

03:34:49.630 --> 03:34:51.918 and I think all of her talks that

NOTE Confidence: 0.932231432

03:34:51.918 --> 03:34:54.624 I've seen over the last 20 years

NOTE Confidence: 0.932231432

03:34:54.624 --> 03:34:58.206 or so have have demonstrated that.

NOTE Confidence: 0.932231432

03:34:58.210 --> 03:35:00.030 So thank you all right.

NOTE Confidence: 0.932231432

03:35:00.030 --> 03:35:01.370 We're going to move on.

NOTE Confidence: 0.932231432

03:35:01.370 --> 03:35:06.410 Our next talk is going to be by Madonna Lee.

NOTE Confidence: 0.932231432

03:35:06.410 --> 03:35:09.195 Madonna joined us last summer

NOTE Confidence: 0.932231432

03:35:09.195 --> 03:35:11.423 as our cardiothoracic surgeon.

NOTE Confidence: 0.932231432

03:35:11.430 --> 03:35:12.900 She's trained in Seattle and

NOTE Confidence: 0.932231432

03:35:12.900 --> 03:35:14.370 now is here with us,

NOTE Confidence: 0.932231432

03:35:14.370 --> 03:35:16.659 so please take it away with dot.

NOTE Confidence: 0.818647925882353

03:35:31.280 --> 03:35:33.170 Hi, I've been here since August

NOTE Confidence: 0.818647925882353

03:35:33.170 --> 03:35:35.523 but I actually this is the first

NOTE Confidence: 0.818647925882353

03:35:35.523 --> 03:35:37.147 time seeing people's faces so

NOTE Confidence: 0.818647925882353

03:35:37.147 --> 03:35:38.876 please come and say hi to me.

NOTE Confidence: 0.818647925882353

03:35:38.880 --> 03:35:41.442 After this my name is Madonna Lee

NOTE Confidence: 0.818647925882353

03:35:41.442 --> 03:35:44.339 and I've been here less than a year.

NOTE Confidence: 0.818647925882353
03:35:44.340 --> 03:35:46.045 I don't have any stories
NOTE Confidence: 0.818647925882353
03:35:46.045 --> 03:35:47.750 from the 1950s or 19.
NOTE Confidence: 0.818647925882353
03:35:47.750 --> 03:35:50.312 16 So I'll be talking mostly
NOTE Confidence: 0.818647925882353
03:35:50.312 --> 03:35:52.690 about what we do today,
NOTE Confidence: 0.818647925882353
03:35:52.690 --> 03:35:54.698 and some of the new things on the
NOTE Confidence: 0.818647925882353
03:35:54.698 --> 03:35:56.648 horizon for congenital valve surgery.
NOTE Confidence: 0.818647925882353
03:35:56.650 --> 03:35:58.846 I don't have any financial disclosures
NOTE Confidence: 0.818647925882353
03:35:58.846 --> 03:36:01.322 or conflicts of interest as this is a
NOTE Confidence: 0.818647925882353
03:36:01.322 --> 03:36:03.507 photo of me in the operating room with
NOTE Confidence: 0.818647925882353
03:36:03.507 --> 03:36:05.943 Doctor Peter Gruber who's my senior partner.
NOTE Confidence: 0.818647925882353
03:36:05.950 --> 03:36:09.198 We will be talking very specifically today
NOTE Confidence: 0.818647925882353
03:36:09.198 --> 03:36:11.923 about Valve repair replacement options,
NOTE Confidence: 0.818647925882353
03:36:11.923 --> 03:36:14.401 and we'll be looking specifically at
NOTE Confidence: 0.818647925882353
03:36:14.401 --> 03:36:17.265 the Ozaukee procedure and also the core
NOTE Confidence: 0.818647925882353
03:36:17.265 --> 03:36:19.599 matrix trial for tricuspid valve replacement.
NOTE Confidence: 0.818647925882353

03:36:19.600 --> 03:36:21.460 So currently for Valve replacement
NOTE Confidence: 0.818647925882353

03:36:21.460 --> 03:36:23.789 options we have a mechanical prosthesis
NOTE Confidence: 0.818647925882353

03:36:23.789 --> 03:36:26.201 or a tissue valve prosthesis and
NOTE Confidence: 0.818647925882353

03:36:26.201 --> 03:36:27.835 the pediatric cardiology fellows
NOTE Confidence: 0.818647925882353

03:36:27.835 --> 03:36:29.660 have already seen this slide.
NOTE Confidence: 0.818647925882353

03:36:29.660 --> 03:36:31.860 But you know when we think about what's
NOTE Confidence: 0.818647925882353

03:36:31.860 --> 03:36:33.880 the ideal valve replacement option.
NOTE Confidence: 0.818647925882353

03:36:33.880 --> 03:36:35.940 Unfortunately it doesn't doesn't exist.
NOTE Confidence: 0.818647925882353

03:36:35.940 --> 03:36:37.998 So for adults we want it
NOTE Confidence: 0.818647925882353

03:36:37.998 --> 03:36:39.370 to be readily available.
NOTE Confidence: 0.818647925882353

03:36:39.370 --> 03:36:41.926 We want it to be inexpensive.
NOTE Confidence: 0.818647925882353

03:36:41.930 --> 03:36:43.122 Great hemodynamics,
NOTE Confidence: 0.818647925882353

03:36:43.122 --> 03:36:46.698 durable and a minimal thromboembolic risk.
NOTE Confidence: 0.818647925882353

03:36:46.700 --> 03:36:48.695 When we think about our pediatric patients,
NOTE Confidence: 0.818647925882353

03:36:48.700 --> 03:36:50.416 we need smaller sizes.
NOTE Confidence: 0.818647925882353

03:36:50.416 --> 03:36:52.990 Hopefully the valve will grow overtime

NOTE Confidence: 0.818647925882353
03:36:53.060 --> 03:36:55.860 have a non immunogenic response be even
NOTE Confidence: 0.818647925882353
03:36:55.860 --> 03:36:59.320 more durable than in the adults and still
NOTE Confidence: 0.818647925882353
03:36:59.320 --> 03:37:01.500 carry a minimal thrombotic thrombotic.
NOTE Confidence: 0.818647925882353
03:37:01.500 --> 03:37:02.212 Thromboembolic risk,
NOTE Confidence: 0.818647925882353
03:37:02.212 --> 03:37:03.636 which again would this.
NOTE Confidence: 0.818647925882353
03:37:03.640 --> 03:37:05.998 Currently we we don't have something
NOTE Confidence: 0.818647925882353
03:37:05.998 --> 03:37:08.759 that fits all of these criteria.
NOTE Confidence: 0.818647925882353
03:37:08.760 --> 03:37:11.245 One of the limitations we have specifically
NOTE Confidence: 0.818647925882353
03:37:11.245 --> 03:37:13.292 in Pediatrics is that the valve
NOTE Confidence: 0.818647925882353
03:37:13.292 --> 03:37:15.441 sizes that we create are are limited,
NOTE Confidence: 0.818647925882353
03:37:15.450 --> 03:37:17.790 so this is an example I I think I
NOTE Confidence: 0.818647925882353
03:37:17.790 --> 03:37:19.364 showed the pediatric cardiology
NOTE Confidence: 0.818647925882353
03:37:19.364 --> 03:37:21.439 fellows a shoe size chart,
NOTE Confidence: 0.818647925882353
03:37:21.440 --> 03:37:23.659 but for each product that we have,
NOTE Confidence: 0.818647925882353
03:37:23.660 --> 03:37:27.089 so each specific valve there is a range
NOTE Confidence: 0.818647925882353

03:37:27.089 --> 03:37:29.099 of sizes that exist and what we have
NOTE Confidence: 0.818647925882353

03:37:29.099 --> 03:37:31.340 to look at is the size of the patient.
NOTE Confidence: 0.818647925882353

03:37:31.340 --> 03:37:33.636 So how much they weigh and there's the
NOTE Confidence: 0.818647925882353

03:37:33.636 --> 03:37:35.349 calculation and called the body surface
NOTE Confidence: 0.818647925882353

03:37:35.349 --> 03:37:37.614 area that really gives us a range for
NOTE Confidence: 0.818647925882353

03:37:37.614 --> 03:37:39.366 whether the opening and the valve.
NOTE Confidence: 0.818647925882353

03:37:39.370 --> 03:37:41.260 Would be adequate to provide enough
NOTE Confidence: 0.818647925882353

03:37:41.260 --> 03:37:43.677 blood flow to the patient and you can
NOTE Confidence: 0.818647925882353

03:37:43.677 --> 03:37:45.860 see in the green that this is good,
NOTE Confidence: 0.818647925882353

03:37:45.860 --> 03:37:48.422 and then as you increase the
NOTE Confidence: 0.818647925882353

03:37:48.422 --> 03:37:50.130 size of the patient,
NOTE Confidence: 0.818647925882353

03:37:50.130 --> 03:37:53.082 the size is going to be
NOTE Confidence: 0.818647925882353

03:37:53.082 --> 03:37:55.050 inadequate for the patient.
NOTE Confidence: 0.818647925882353

03:37:55.050 --> 03:37:57.194 We then also for a congenital heart disease.
NOTE Confidence: 0.818647925882353

03:37:57.200 --> 03:37:59.286 Sometimes it's not just the valve that's
NOTE Confidence: 0.818647925882353

03:37:59.286 --> 03:38:01.297 dysplastic or that needs to be replaced,

NOTE Confidence: 0.818647925882353
03:38:01.300 --> 03:38:03.358 but that other structures around the heart
NOTE Confidence: 0.818647925882353
03:38:03.358 --> 03:38:05.750 may also limit the size that we can put in.
NOTE Confidence: 0.818647925882353
03:38:05.750 --> 03:38:06.860 And unfortunately currently
NOTE Confidence: 0.818647925882353
03:38:06.860 --> 03:38:09.450 any valve that we put in it,
NOTE Confidence: 0.818647925882353
03:38:09.450 --> 03:38:12.019 it's not the same as having your
NOTE Confidence: 0.818647925882353
03:38:12.019 --> 03:38:14.589 native valve tissue or a normally
NOTE Confidence: 0.818647925882353
03:38:14.589 --> 03:38:16.445 functioning native valve tissue.
NOTE Confidence: 0.818647925882353
03:38:16.450 --> 03:38:17.822 So we don't have time to get
NOTE Confidence: 0.818647925882353
03:38:17.822 --> 03:38:19.130 into all the details today,
NOTE Confidence: 0.818647925882353
03:38:19.130 --> 03:38:21.076 but one of the options is someone
NOTE Confidence: 0.818647925882353
03:38:21.076 --> 03:38:22.789 had mentioned the Ross procedure,
NOTE Confidence: 0.818647925882353
03:38:22.790 --> 03:38:25.114 so taking a pulmonary valve and putting
NOTE Confidence: 0.818647925882353
03:38:25.114 --> 03:38:27.608 it into the aortic valve position.
NOTE Confidence: 0.86654555
03:38:27.610 --> 03:38:29.098 Gives us at least an option
NOTE Confidence: 0.86654555
03:38:29.098 --> 03:38:30.090 for the aortic valve,
NOTE Confidence: 0.86654555

03:38:30.090 --> 03:38:32.218 but then we have to replace the
NOTE Confidence: 0.86654555

03:38:32.218 --> 03:38:33.568 pulmonary valve with another
NOTE Confidence: 0.86654555

03:38:33.568 --> 03:38:35.438 conduit or another prosthesis so
NOTE Confidence: 0.86654555

03:38:35.438 --> 03:38:37.410 it's still an imperfect option.
NOTE Confidence: 0.86654555

03:38:37.410 --> 03:38:39.426 We also don't have time to talk today,
NOTE Confidence: 0.86654555

03:38:39.430 --> 03:38:41.680 but Doctor Arner gearson he's
NOTE Confidence: 0.86654555

03:38:41.680 --> 03:38:44.569 done over 200 mitral valve robotic
NOTE Confidence: 0.86654555

03:38:44.569 --> 03:38:47.319 repair replacements here at Yale,
NOTE Confidence: 0.86654555

03:38:47.320 --> 03:38:49.424 and so this is something that I think
NOTE Confidence: 0.86654555

03:38:49.424 --> 03:38:51.384 that as a surgical program we're
NOTE Confidence: 0.86654555

03:38:51.384 --> 03:38:53.856 excited about because it offers us the
NOTE Confidence: 0.86654555

03:38:53.856 --> 03:38:55.908 ability to avoid a median sternotomy,
NOTE Confidence: 0.86654555

03:38:55.910 --> 03:38:57.086 especially for our patients
NOTE Confidence: 0.86654555

03:38:57.086 --> 03:38:58.850 who later on May need more.
NOTE Confidence: 0.86654555

03:38:58.850 --> 03:38:59.879 Surgical intervention and
NOTE Confidence: 0.86654555

03:38:59.879 --> 03:39:02.280 really you can see in this view.

NOTE Confidence: 0.86654555

03:39:02.280 --> 03:39:04.121 I mean you can see the mitral

NOTE Confidence: 0.86654555

03:39:04.121 --> 03:39:05.700 valve better than even through

NOTE Confidence: 0.86654555

03:39:05.700 --> 03:39:07.156 an open median sternotomy,

NOTE Confidence: 0.86654555

03:39:07.160 --> 03:39:09.155 but it doesn't necessarily change

NOTE Confidence: 0.86654555

03:39:09.155 --> 03:39:11.150 the valve replacement or repair

NOTE Confidence: 0.86654555

03:39:11.212 --> 03:39:13.300 options that we have for patients.

NOTE Confidence: 0.86654555

03:39:13.300 --> 03:39:15.022 And so I think the other concept

NOTE Confidence: 0.86654555

03:39:15.022 --> 03:39:17.094 that we really need to start thinking

NOTE Confidence: 0.86654555

03:39:17.094 --> 03:39:19.008 about specifically for our patients is

NOTE Confidence: 0.86654555

03:39:19.070 --> 03:39:21.218 looking at the valve leaflets themselves,

NOTE Confidence: 0.86654555

03:39:21.220 --> 03:39:23.848 and how can we recreate the

NOTE Confidence: 0.86654555

03:39:23.848 --> 03:39:26.280 function of native valve tissue?

NOTE Confidence: 0.86654555

03:39:26.280 --> 03:39:27.612 So Doctor Marcus crane.

NOTE Confidence: 0.86654555

03:39:27.612 --> 03:39:29.955 He actually I have to mention it

NOTE Confidence: 0.86654555

03:39:29.955 --> 03:39:31.690 comes to us from Munich, Germany.

NOTE Confidence: 0.86654555

03:39:31.690 --> 03:39:33.610 We're excited because he will be
NOTE Confidence: 0.86654555

03:39:33.610 --> 03:39:35.829 staying on his faculty here at Yale.
NOTE Confidence: 0.86654555

03:39:35.830 --> 03:39:38.308 He has been someone who goes around.
NOTE Confidence: 0.86654555

03:39:38.310 --> 03:39:40.896 Actually the entire world and country
NOTE Confidence: 0.86654555

03:39:40.896 --> 03:39:43.340 teaching surgeons about this technique.
NOTE Confidence: 0.86654555

03:39:43.340 --> 03:39:45.212 So in terms of the aortic
NOTE Confidence: 0.86654555

03:39:45.212 --> 03:39:46.460 valve replacement in general,
NOTE Confidence: 0.86654555

03:39:46.460 --> 03:39:48.860 we had mentioned have two options,
NOTE Confidence: 0.86654555

03:39:48.860 --> 03:39:50.648 but the limitations to these two
NOTE Confidence: 0.86654555

03:39:50.648 --> 03:39:52.998 options we really have to think about
NOTE Confidence: 0.86654555

03:39:52.998 --> 03:39:54.470 full anticoagulation for mechanical
NOTE Confidence: 0.86654555

03:39:54.470 --> 03:39:56.751 valve in exchange for durability and
NOTE Confidence: 0.86654555

03:39:56.751 --> 03:39:58.243 then having structural degeneration
NOTE Confidence: 0.86654555

03:39:58.243 --> 03:40:00.345 over time with the tissue valve.
NOTE Confidence: 0.86654555

03:40:00.345 --> 03:40:03.121 So we see ourselves going back and forth
NOTE Confidence: 0.86654555

03:40:03.121 --> 03:40:05.306 between these two imperfect options.

NOTE Confidence: 0.86654555

03:40:05.310 --> 03:40:07.002 We also don't have time to talk about it,

NOTE Confidence: 0.86654555

03:40:07.010 --> 03:40:09.383 but there are some aortic valve repair

NOTE Confidence: 0.86654555

03:40:09.383 --> 03:40:11.409 techniques that really have limitations,

NOTE Confidence: 0.86654555

03:40:11.410 --> 03:40:13.880 mostly with durability and also

NOTE Confidence: 0.86654555

03:40:13.880 --> 03:40:15.458 with anatomic limitations.

NOTE Confidence: 0.86654555

03:40:15.458 --> 03:40:17.810 So the Ozaukee procedure,

NOTE Confidence: 0.86654555

03:40:17.810 --> 03:40:19.490 I think in the ICU they said

NOTE Confidence: 0.86654555

03:40:19.490 --> 03:40:21.127 that this was a made up word,

NOTE Confidence: 0.86654555

03:40:21.130 --> 03:40:22.490 which it's not made up.

NOTE Confidence: 0.86654555

03:40:22.490 --> 03:40:25.382 It's actually named after the Japanese

NOTE Confidence: 0.86654555

03:40:25.382 --> 03:40:28.160 surgeon who created this procedure.

NOTE Confidence: 0.86654555

03:40:28.160 --> 03:40:29.904 And and I told them I said when

NOTE Confidence: 0.86654555

03:40:29.904 --> 03:40:31.489 you create a surgical procedure,

NOTE Confidence: 0.86654555

03:40:31.490 --> 03:40:33.940 they'll name something after you.

NOTE Confidence: 0.86654555

03:40:33.940 --> 03:40:37.100 So this is looking at the Ozaukee template.

NOTE Confidence: 0.86654555

03:40:37.100 --> 03:40:38.165 Looking at how,
NOTE Confidence: 0.86654555

03:40:38.165 --> 03:40:41.400 how do we create the aortic valve leaflets?
NOTE Confidence: 0.86654555

03:40:41.400 --> 03:40:43.528 So this is also now called the
NOTE Confidence: 0.86654555

03:40:43.528 --> 03:40:44.440 AB NEO technique,
NOTE Confidence: 0.86654555

03:40:44.440 --> 03:40:47.398 and NEO really means NEO customization.
NOTE Confidence: 0.86654555

03:40:47.400 --> 03:40:49.424 So we're able to take the template and
NOTE Confidence: 0.86654555

03:40:49.424 --> 03:40:51.689 we size each of the aortic valve cusps.
NOTE Confidence: 0.86654555

03:40:51.690 --> 03:40:53.552 So that's the left right and non
NOTE Confidence: 0.86654555

03:40:53.552 --> 03:40:55.690 coronary cusp and we're able to use
NOTE Confidence: 0.86654555

03:40:55.690 --> 03:40:57.290 autologous pericardium and treat it.
NOTE Confidence: 0.86654555

03:40:57.290 --> 03:40:58.470 So this is the patients.
NOTE Confidence: 0.86654555

03:40:58.470 --> 03:41:01.476 Bone tissue, then for each cusp.
NOTE Confidence: 0.86654555

03:41:01.480 --> 03:41:03.466 This gets future to the aortic
NOTE Confidence: 0.86654555

03:41:03.466 --> 03:41:05.707 valve annulus in the position that
NOTE Confidence: 0.86654555

03:41:05.707 --> 03:41:07.395 it would anatomically be.
NOTE Confidence: 0.86654555

03:41:07.400 --> 03:41:09.890 And looking at it once it's

NOTE Confidence: 0.86654555

03:41:09.890 --> 03:41:12.020 created through the aortic root,

NOTE Confidence: 0.86654555

03:41:12.020 --> 03:41:13.700 this is how it looks.

NOTE Confidence: 0.86654555

03:41:13.700 --> 03:41:16.260 This video is from Doctor Crane and from

NOTE Confidence: 0.86654555

03:41:16.260 --> 03:41:19.280 his they've done over 160 patients in Munich,

NOTE Confidence: 0.86654555

03:41:19.280 --> 03:41:19.720 Germany,

NOTE Confidence: 0.86654555

03:41:19.720 --> 03:41:20.980 and through the aortic root.

NOTE Confidence: 0.86654555

03:41:20.980 --> 03:41:22.840 Once you're on cardio pulmonary bypass,

NOTE Confidence: 0.772416706666667

03:41:22.840 --> 03:41:24.916 you excise the aortic valve leaflets.

NOTE Confidence: 0.772416706666667

03:41:24.920 --> 03:41:27.216 Then, each sizer is put in each of

NOTE Confidence: 0.772416706666667

03:41:27.216 --> 03:41:29.614 the cusps and the template is used to

NOTE Confidence: 0.772416706666667

03:41:29.614 --> 03:41:31.900 be able to create the pericardial.

NOTE Confidence: 0.772416706666667

03:41:31.900 --> 03:41:35.272 Neo cusp and it's a little

NOTE Confidence: 0.772416706666667

03:41:35.272 --> 03:41:37.702 bit like connect the dots.

NOTE Confidence: 0.772416706666667

03:41:37.702 --> 03:41:41.080 You put your sutures in place and you

NOTE Confidence: 0.772416706666667

03:41:41.080 --> 03:41:44.412 suture each separate cusp into the aortic

NOTE Confidence: 0.772416706666667

03:41:44.412 --> 03:41:46.649 valve annulus in that configuration,
NOTE Confidence: 0.772416706666667

03:41:46.649 --> 03:41:49.761 and then so the costs to each other
NOTE Confidence: 0.772416706666667

03:41:49.761 --> 03:41:52.316 and secure it to the aortic root.
NOTE Confidence: 0.772416706666667

03:41:52.320 --> 03:41:53.855 What this allows is actually
NOTE Confidence: 0.772416706666667

03:41:53.855 --> 03:41:55.860 preservation of the ortic valve annulus.
NOTE Confidence: 0.772416706666667

03:41:55.860 --> 03:41:58.935 It also allows the creation
NOTE Confidence: 0.772416706666667

03:41:58.935 --> 03:42:02.010 of the cups for coaptation.
NOTE Confidence: 0.772416706666667

03:42:02.010 --> 03:42:03.850 And also when you suture
NOTE Confidence: 0.772416706666667

03:42:03.850 --> 03:42:05.322 the two cups together,
NOTE Confidence: 0.772416706666667

03:42:05.330 --> 03:42:07.922 the valves are able to have a very
NOTE Confidence: 0.772416706666667

03:42:07.922 --> 03:42:14.490 large and long coaptation zone, so the.
NOTE Confidence: 0.772416706666667

03:42:14.490 --> 03:42:17.274 Learning curve I think takes a little bit.
NOTE Confidence: 0.772416706666667

03:42:17.280 --> 03:42:19.037 You can see that it is more
NOTE Confidence: 0.772416706666667

03:42:19.037 --> 03:42:19.790 challenging I think,
NOTE Confidence: 0.772416706666667

03:42:19.790 --> 03:42:22.640 and more difficult than putting in
NOTE Confidence: 0.772416706666667

03:42:22.640 --> 03:42:25.090 a mechanical or prosthetic valve.

NOTE Confidence: 0.772416706666667
03:42:25.090 --> 03:42:28.002 But as Doctor Crane has gone around
NOTE Confidence: 0.772416706666667
03:42:28.002 --> 03:42:30.240 and and even using this technique,
NOTE Confidence: 0.772416706666667
03:42:30.240 --> 03:42:32.220 for example in a truncus arteriosus
NOTE Confidence: 0.772416706666667
03:42:32.220 --> 03:42:34.045 or in other congenital heart
NOTE Confidence: 0.772416706666667
03:42:34.045 --> 03:42:35.835 disease that really needs another
NOTE Confidence: 0.772416706666667
03:42:35.835 --> 03:42:37.850 valve replacement repair technique,
NOTE Confidence: 0.772416706666667
03:42:37.850 --> 03:42:40.694 this is actually a short access
NOTE Confidence: 0.772416706666667
03:42:40.694 --> 03:42:42.590 image of after implantation,
NOTE Confidence: 0.772416706666667
03:42:42.590 --> 03:42:44.312 and you can see that there is
NOTE Confidence: 0.772416706666667
03:42:44.312 --> 03:42:44.804 no regurgitation.
NOTE Confidence: 0.772416706666667
03:42:44.810 --> 03:42:46.616 You know leakage and the competency
NOTE Confidence: 0.772416706666667
03:42:46.616 --> 03:42:47.820 is is very good.
NOTE Confidence: 0.874571985555556
03:42:50.240 --> 03:42:52.022 So one of the questions because
NOTE Confidence: 0.874571985555556
03:42:52.022 --> 03:42:53.754 this technique is relatively new is
NOTE Confidence: 0.874571985555556
03:42:53.754 --> 03:42:55.236 what is the long term durability,
NOTE Confidence: 0.874571985555556

03:42:55.240 --> 03:42:56.974 and unfortunately we will have to
NOTE Confidence: 0.874571985555556

03:42:56.974 --> 03:42:58.959 wait another five or ten years before
NOTE Confidence: 0.874571985555556

03:42:58.959 --> 03:43:00.758 I'll be able to report on that.
NOTE Confidence: 0.874571985555556

03:43:00.760 --> 03:43:03.778 But currently we have about midterm
NOTE Confidence: 0.874571985555556

03:43:03.780 --> 03:43:05.580 follow-up which is looking at really
NOTE Confidence: 0.874571985555556

03:43:05.580 --> 03:43:07.118 patients who've had this procedure
NOTE Confidence: 0.874571985555556

03:43:07.118 --> 03:43:08.804 done over three to five years,
NOTE Confidence: 0.874571985555556

03:43:08.810 --> 03:43:11.414 and this is all in adult patients
NOTE Confidence: 0.874571985555556

03:43:11.420 --> 03:43:13.618 here at Yale, we've been able to
NOTE Confidence: 0.874571985555556

03:43:13.618 --> 03:43:15.591 offer this procedure to 6 adults
NOTE Confidence: 0.874571985555556

03:43:15.591 --> 03:43:16.879 and one pediatric patient,
NOTE Confidence: 0.874571985555556

03:43:16.880 --> 03:43:20.108 and the freedom from REOPERATION is.
NOTE Confidence: 0.874571985555556

03:43:20.110 --> 03:43:23.134 Low we know this so far and the durability
NOTE Confidence: 0.874571985555556

03:43:23.134 --> 03:43:26.389 we think is also very good and very high,
NOTE Confidence: 0.874571985555556

03:43:26.390 --> 03:43:30.045 but this is limited limited time frame
NOTE Confidence: 0.874571985555556

03:43:30.045 --> 03:43:32.740 for follow-up because of how how long

NOTE Confidence: 0.874571985555556
03:43:32.811 --> 03:43:35.699 it's taken for us to adopt this technique.
NOTE Confidence: 0.874571985555556
03:43:35.700 --> 03:43:37.980 You talked about the advantages
NOTE Confidence: 0.874571985555556
03:43:37.980 --> 03:43:41.340 which I think you can see in the
NOTE Confidence: 0.874571985555556
03:43:41.340 --> 03:43:43.810 in the video and what I like about
NOTE Confidence: 0.874571985555556
03:43:43.810 --> 03:43:45.960 thinking about this type of procedure,
NOTE Confidence: 0.874571985555556
03:43:45.960 --> 03:43:47.700 especially for our adult congenital
NOTE Confidence: 0.874571985555556
03:43:47.700 --> 03:43:49.092 patients is that it?
NOTE Confidence: 0.874571985555556
03:43:49.100 --> 03:43:51.326 Even if the durability for this
NOTE Confidence: 0.874571985555556
03:43:51.326 --> 03:43:53.812 type of procedure is 10 years when
NOTE Confidence: 0.874571985555556
03:43:53.812 --> 03:43:55.666 we look at all the other.
NOTE Confidence: 0.874571985555556
03:43:55.670 --> 03:43:57.070 Options that we have now,
NOTE Confidence: 0.874571985555556
03:43:57.070 --> 03:43:59.080 so that includes transcatheter aortic
NOTE Confidence: 0.874571985555556
03:43:59.080 --> 03:44:01.024 valve replacement and that continues
NOTE Confidence: 0.874571985555556
03:44:01.024 --> 03:44:03.696 into a valve and valve even giving our
NOTE Confidence: 0.874571985555556
03:44:03.696 --> 03:44:06.140 patients another 10 or 15 years before that,
NOTE Confidence: 0.874571985555556

03:44:06.140 --> 03:44:08.330 and not excluding them from these
NOTE Confidence: 0.874571985555556

03:44:08.330 --> 03:44:10.162 other procedures that can offer
NOTE Confidence: 0.874571985555556

03:44:10.162 --> 03:44:11.707 us again some some time,
NOTE Confidence: 0.874571985555556

03:44:11.710 --> 03:44:14.200 which is usually what we need
NOTE Confidence: 0.874571985555556

03:44:14.200 --> 03:44:15.445 in our patients.
NOTE Confidence: 0.874571985555556

03:44:15.450 --> 03:44:19.426 Doctor Crane also gave me this video
NOTE Confidence: 0.874571985555556

03:44:19.430 --> 03:44:21.082 and what he really wanted to emphasize
NOTE Confidence: 0.874571985555556

03:44:21.082 --> 03:44:23.231 and this is one of the advantages is
NOTE Confidence: 0.874571985555556

03:44:23.231 --> 03:44:24.621 that throughout the cardiac cycle,
NOTE Confidence: 0.874571985555556

03:44:24.630 --> 03:44:27.030 the aortic valve annulus itself
NOTE Confidence: 0.874571985555556

03:44:27.030 --> 03:44:28.950 actually expands and contracts,
NOTE Confidence: 0.874571985555556

03:44:28.950 --> 03:44:31.428 and you can see that in his
NOTE Confidence: 0.874571985555556

03:44:31.430 --> 03:44:32.909 post repair video.
NOTE Confidence: 0.874571985555556

03:44:32.909 --> 03:44:35.867 He actually then states that because
NOTE Confidence: 0.874571985555556

03:44:35.867 --> 03:44:38.095 because this is naturally what
NOTE Confidence: 0.874571985555556

03:44:38.095 --> 03:44:41.090 occurs when we whenever we put in

NOTE Confidence: 0.874571985555556
03:44:41.090 --> 03:44:43.634 a tissue valve or mechanical valve,
NOTE Confidence: 0.874571985555556
03:44:43.640 --> 03:44:45.610 we're actually limiting and restricting.
NOTE Confidence: 0.874571985555556
03:44:45.610 --> 03:44:48.130 The motion to the aortic valve annulus,
NOTE Confidence: 0.874571985555556
03:44:48.130 --> 03:44:51.418 and so we think, and we have shown,
NOTE Confidence: 0.874571985555556
03:44:51.420 --> 03:44:52.936 that there's actually better
NOTE Confidence: 0.874571985555556
03:44:52.936 --> 03:44:55.210 hemodynamics with this type of repair.
NOTE Confidence: 0.874571985555556
03:44:55.210 --> 03:44:58.090 Also, we can use the patient's own tissue.
NOTE Confidence: 0.874571985555556
03:44:58.090 --> 03:45:00.508 Patients do not require full anticoagulation.
NOTE Confidence: 0.874571985555556
03:45:00.510 --> 03:45:01.458 They're on aspirin,
NOTE Confidence: 0.874571985555556
03:45:01.458 --> 03:45:03.670 and there is a low rate of
NOTE Confidence: 0.874571985555556
03:45:03.741 --> 03:45:06.009 permanent pacemaker implantation,
NOTE Confidence: 0.874571985555556
03:45:06.010 --> 03:45:09.194 and right now it is a good option
NOTE Confidence: 0.874571985555556
03:45:09.194 --> 03:45:11.354 in relation to other aortic
NOTE Confidence: 0.874571985555556
03:45:11.354 --> 03:45:12.650 valve repair techniques.
NOTE Confidence: 0.858173907272727
03:45:22.190 --> 03:45:24.199 So I think that when we look
NOTE Confidence: 0.858173907272727

03:45:24.199 --> 03:45:25.850 at Valve repair techniques,
NOTE Confidence: 0.858173907272727

03:45:25.850 --> 03:45:28.834 the Ozaki procedure makes sense to us because
NOTE Confidence: 0.858173907272727

03:45:28.834 --> 03:45:31.029 we're recreating the the valve leaflets.
NOTE Confidence: 0.858173907272727

03:45:31.030 --> 03:45:32.920 The core matrix trial is a little
NOTE Confidence: 0.858173907272727

03:45:32.920 --> 03:45:34.887 bit different and is looking at the
NOTE Confidence: 0.858173907272727

03:45:34.887 --> 03:45:36.537 tricuspid valve and also really we
NOTE Confidence: 0.858173907272727

03:45:36.597 --> 03:45:38.631 we're not recreating the leaflets or
NOTE Confidence: 0.858173907272727

03:45:38.631 --> 03:45:40.800 recreating the mechanism of the valve.
NOTE Confidence: 0.858173907272727

03:45:40.800 --> 03:45:43.230 Yale is currently a Center for
NOTE Confidence: 0.858173907272727

03:45:43.230 --> 03:45:45.289 this study that's ongoing.
NOTE Confidence: 0.858173907272727

03:45:45.290 --> 03:45:47.520 In pediatric patients looking at
NOTE Confidence: 0.858173907272727

03:45:47.520 --> 03:45:50.136 core matrix for the tricuspid valve
NOTE Confidence: 0.858173907272727

03:45:50.136 --> 03:45:52.334 and we also call this an ECM,
NOTE Confidence: 0.858173907272727

03:45:52.340 --> 03:45:53.696 an extracellular matrix.
NOTE Confidence: 0.858173907272727

03:45:53.696 --> 03:45:55.956 And So what is that?
NOTE Confidence: 0.858173907272727

03:45:55.960 --> 03:45:57.868 This is a material that's in

NOTE Confidence: 0.858173907272727
03:45:57.868 --> 03:45:59.859 a rectangular shape and it's a
NOTE Confidence: 0.858173907272727
03:45:59.859 --> 03:46:01.479 harvested from pig and Tustin,
NOTE Confidence: 0.858173907272727
03:46:01.480 --> 03:46:03.377 but then the pig cells are actually
NOTE Confidence: 0.858173907272727
03:46:03.377 --> 03:46:05.222 removed and so it's a scaffolding
NOTE Confidence: 0.858173907272727
03:46:05.222 --> 03:46:06.197 for native cells.
NOTE Confidence: 0.858173907272727
03:46:06.200 --> 03:46:08.136 This is used in other types of surgery.
NOTE Confidence: 0.858173907272727
03:46:08.140 --> 03:46:09.612 Other types of repair,
NOTE Confidence: 0.858173907272727
03:46:09.612 --> 03:46:13.198 not just in the heart but in our mind.
NOTE Confidence: 0.858173907272727
03:46:13.200 --> 03:46:15.576 We think of it as a matrix, a scaffolding.
NOTE Confidence: 0.858173907272727
03:46:15.576 --> 03:46:18.362 And so one of the potential benefits
NOTE Confidence: 0.858173907272727
03:46:18.362 --> 03:46:21.227 is that the patients native tissue can
NOTE Confidence: 0.858173907272727
03:46:21.227 --> 03:46:24.298 start to grow into the into the valve.
NOTE Confidence: 0.858173907272727
03:46:24.300 --> 03:46:26.556 This is an example of a case that
NOTE Confidence: 0.858173907272727
03:46:26.556 --> 03:46:28.538 this valve replacement was used,
NOTE Confidence: 0.858173907272727
03:46:28.540 --> 03:46:30.628 and this is a 2 year old female who
NOTE Confidence: 0.858173907272727

03:46:30.628 --> 03:46:32.822 had a history of a transitional AB
NOTE Confidence: 0.858173907272727

03:46:32.822 --> 03:46:35.399 canal and a dysplastic right sided 80 valve.
NOTE Confidence: 0.858173907272727

03:46:35.400 --> 03:46:38.250 How to repair an infancy?
NOTE Confidence: 0.858173907272727

03:46:38.250 --> 03:46:39.456 Take it off for one second.
NOTE Confidence: 0.858173907272727

03:46:39.460 --> 03:46:39.778 I have to.
NOTE Confidence: 0.84251331875

03:47:29.960 --> 03:47:32.416 I just don't know where you left off.
NOTE Confidence: 0.84251331875

03:47:32.420 --> 03:47:34.960 OK, we'll keep going.
NOTE Confidence: 0.84251331875

03:47:34.960 --> 03:47:37.640 Thank you. So this is a case
NOTE Confidence: 0.84251331875

03:47:37.640 --> 03:47:39.050 example for the core matrix,
NOTE Confidence: 0.84251331875

03:47:39.050 --> 03:47:40.706 tricuspid valve and this was a
NOTE Confidence: 0.84251331875

03:47:40.706 --> 03:47:43.278 patient who is now 2 years old with
NOTE Confidence: 0.84251331875

03:47:43.278 --> 03:47:44.686 severe right sided regurgitation.
NOTE Confidence: 0.84251331875

03:47:44.690 --> 03:47:46.814 After two attempts at repair so
NOTE Confidence: 0.84251331875

03:47:46.814 --> 03:47:49.258 especially in a patient with this size,
NOTE Confidence: 0.84251331875

03:47:49.260 --> 03:47:52.084 we're limited by the size of prostheses that
NOTE Confidence: 0.84251331875

03:47:52.084 --> 03:47:55.184 are available and so this is an example

NOTE Confidence: 0.84251331875

03:47:55.184 --> 03:47:58.570 of case that we can use the ECM matrix.

NOTE Confidence: 0.84251331875

03:47:58.570 --> 03:48:01.050 So because it comes in a rectangular shape,

NOTE Confidence: 0.84251331875

03:48:01.050 --> 03:48:03.978 we can customize this to the size based

NOTE Confidence: 0.84251331875

03:48:03.978 --> 03:48:07.074 off of the annulus and we take the.

NOTE Confidence: 0.84251331875

03:48:07.074 --> 03:48:10.653 A sheet and we roll it into a tubular

NOTE Confidence: 0.84251331875

03:48:10.653 --> 03:48:13.866 structure and we suture the edge and

NOTE Confidence: 0.84251331875

03:48:13.963 --> 03:48:17.347 then you have to turn the triangle in

NOTE Confidence: 0.84251331875

03:48:17.347 --> 03:48:20.594 your head and you fix the two points

NOTE Confidence: 0.84251331875

03:48:20.594 --> 03:48:23.640 of fixation into the right ventricle.

NOTE Confidence: 0.84251331875

03:48:23.640 --> 03:48:26.740 This line shows you at the top where it opens

NOTE Confidence: 0.84251331875

03:48:26.813 --> 03:48:29.774 up and then that is sutured to the annulus.

NOTE Confidence: 0.84251331875

03:48:29.780 --> 03:48:31.880 So how does this work?

NOTE Confidence: 0.84251331875

03:48:31.880 --> 03:48:33.320 In the thoracic world,

NOTE Confidence: 0.84251331875

03:48:33.320 --> 03:48:34.760 there's something called the

NOTE Confidence: 0.84251331875

03:48:34.760 --> 03:48:35.654 Heimlich Heimlich valve,

NOTE Confidence: 0.84251331875

03:48:35.654 --> 03:48:36.989 and this is actually connected
NOTE Confidence: 0.84251331875

03:48:36.989 --> 03:48:38.080 to a chest tube.
NOTE Confidence: 0.84251331875

03:48:38.080 --> 03:48:39.991 This is for patients who have an
NOTE Confidence: 0.84251331875

03:48:39.991 --> 03:48:42.119 air leak or persistent air leak,
NOTE Confidence: 0.84251331875

03:48:42.120 --> 03:48:44.208 and when the pressure builds up in the
NOTE Confidence: 0.84251331875

03:48:44.208 --> 03:48:46.290 chest and the air escapes out but then
NOTE Confidence: 0.84251331875

03:48:46.290 --> 03:48:48.504 is unable to come back in because of
NOTE Confidence: 0.84251331875

03:48:48.504 --> 03:48:50.470 this long tube that then collapses in.
NOTE Confidence: 0.84251331875

03:48:50.470 --> 03:48:52.310 So if we think about this and we
NOTE Confidence: 0.84251331875

03:48:52.310 --> 03:48:54.393 turn it and we put it into the heart,
NOTE Confidence: 0.84251331875

03:48:54.400 --> 03:48:57.037 then this is how the core matrix valve works.
NOTE Confidence: 0.84251331875

03:48:57.040 --> 03:48:58.828 The top is the right atrium,
NOTE Confidence: 0.84251331875

03:48:58.830 --> 03:49:00.552 the bottom would be the right ventricle
NOTE Confidence: 0.84251331875

03:49:00.552 --> 03:49:02.370 and the blood is allowed to come in.
NOTE Confidence: 0.84251331875

03:49:02.370 --> 03:49:03.486 Through through the valve,
NOTE Confidence: 0.84251331875

03:49:03.486 --> 03:49:05.949 but then it's unable to go to go back in.

NOTE Confidence: 0.84251331875

03:49:05.950 --> 03:49:07.936 Given that long area of Coaptation

NOTE Confidence: 0.84251331875

03:49:07.936 --> 03:49:09.949 and so we can see this,

NOTE Confidence: 0.84251331875

03:49:09.950 --> 03:49:11.882 this is a core matrix valve that's

NOTE Confidence: 0.84251331875

03:49:11.882 --> 03:49:13.639 been placed in the same patient

NOTE Confidence: 0.84251331875

03:49:13.639 --> 03:49:15.367 and you can see the competency

NOTE Confidence: 0.84251331875

03:49:15.367 --> 03:49:17.533 for this type of valve without

NOTE Confidence: 0.84251331875

03:49:17.533 --> 03:49:18.989 actually creating the leaflets.

NOTE Confidence: 0.84251331875

03:49:18.990 --> 03:49:21.790 This is just showing you the mechanism

NOTE Confidence: 0.84251331875

03:49:21.790 --> 03:49:25.186 of the valve that we're able to achieve.

NOTE Confidence: 0.84251331875

03:49:25.190 --> 03:49:26.930 So the advantages are that we

NOTE Confidence: 0.84251331875

03:49:26.930 --> 03:49:28.480 can produce a competent valve.

NOTE Confidence: 0.84251331875

03:49:28.480 --> 03:49:30.286 We can customize this and place it

NOTE Confidence: 0.84251331875

03:49:30.286 --> 03:49:32.328 into a small size for our patients.

NOTE Confidence: 0.84251331875

03:49:32.330 --> 03:49:34.238 There's also no requirement

NOTE Confidence: 0.84251331875

03:49:34.238 --> 03:49:35.669 for full anticoagulation,

NOTE Confidence: 0.84251331875

03:49:35.670 --> 03:49:37.460 and it's not considered a
NOTE Confidence: 0.84251331875

03:49:37.460 --> 03:49:38.892 synthetic material because they've
NOTE Confidence: 0.84251331875

03:49:38.892 --> 03:49:40.607 taken out all the other cells.
NOTE Confidence: 0.84251331875

03:49:40.610 --> 03:49:42.760 Supposedly there's a potential for
NOTE Confidence: 0.84251331875

03:49:42.760 --> 03:49:44.910 growth and also for remodeling
NOTE Confidence: 0.84251331875

03:49:44.982 --> 03:49:46.867 because the patient's own cells
NOTE Confidence: 0.84251331875

03:49:46.867 --> 03:49:49.431 can grow into this matrix as the
NOTE Confidence: 0.84251331875

03:49:49.431 --> 03:49:51.559 patient grows and you can see that
NOTE Confidence: 0.84251331875

03:49:51.559 --> 03:49:53.500 from our perspective in surgery we
NOTE Confidence: 0.84251331875

03:49:53.500 --> 03:49:55.530 are still starting to think about.
NOTE Confidence: 0.84251331875

03:49:55.530 --> 03:49:56.649 Out of best,
NOTE Confidence: 0.84251331875

03:49:56.649 --> 03:49:58.887 come up with different tools that
NOTE Confidence: 0.84251331875

03:49:58.887 --> 03:50:01.345 are creative for our patients that
NOTE Confidence: 0.84251331875

03:50:01.345 --> 03:50:04.467 we can extend the years that we can
NOTE Confidence: 0.84251331875

03:50:04.467 --> 03:50:06.868 offer them a good quality of life.
NOTE Confidence: 0.84251331875

03:50:06.870 --> 03:50:09.214 I do want to mention that we do

NOTE Confidence: 0.84251331875

03:50:09.214 --> 03:50:11.215 really all kinds of surgery here

NOTE Confidence: 0.84251331875

03:50:11.215 --> 03:50:13.225 and I think as Rob showed,

NOTE Confidence: 0.84251331875

03:50:13.230 --> 03:50:16.074 the adult congenital patients really are

NOTE Confidence: 0.84251331875

03:50:16.074 --> 03:50:18.803 contributing to this increase in the

NOTE Confidence: 0.84251331875

03:50:18.803 --> 03:50:21.089 amount of procedures that we're doing.

NOTE Confidence: 0.849065325384615

03:50:21.090 --> 03:50:23.786 Also, we what we do takes a lot

NOTE Confidence: 0.849065325384615

03:50:23.786 --> 03:50:26.618 of people to do that, and so I do

NOTE Confidence: 0.849065325384615

03:50:26.618 --> 03:50:28.370 want to thank Doctor Peter Gruber.

NOTE Confidence: 0.849065325384615

03:50:28.370 --> 03:50:31.247 He gave me the core matrix material.

NOTE Confidence: 0.849065325384615

03:50:31.250 --> 03:50:32.258 Also Doctor Marcus Crane,

NOTE Confidence: 0.849065325384615

03:50:32.258 --> 03:50:34.385 who is now going to join our faculty

NOTE Confidence: 0.849065325384615

03:50:34.385 --> 03:50:36.345 and lend his expertise with the Ozaki.

NOTE Confidence: 0.849065325384615

03:50:36.350 --> 03:50:38.650 Procedure and doctor Erner Gearson,

NOTE Confidence: 0.849065325384615

03:50:38.650 --> 03:50:42.297 who performs all the robotic cardiac surgery.

NOTE Confidence: 0.849065325384615

03:50:42.300 --> 03:50:44.967 There are more people than I can

NOTE Confidence: 0.849065325384615

03:50:44.967 --> 03:50:48.050 list here for us to be able to offer
NOTE Confidence: 0.849065325384615

03:50:48.050 --> 03:50:50.260 our excellent care to our pediatric
NOTE Confidence: 0.849065325384615

03:50:50.260 --> 03:50:51.780 surgical patients and everyone
NOTE Confidence: 0.849065325384615

03:50:51.780 --> 03:50:53.778 has been very supportive of me,
NOTE Confidence: 0.849065325384615

03:50:53.780 --> 03:50:55.760 so I'll steal from ALS talk to say that
NOTE Confidence: 0.849065325384615

03:50:55.760 --> 03:50:57.977 I feel like I'm in the right place at
NOTE Confidence: 0.849065325384615

03:50:57.977 --> 03:51:00.322 the right time and so I wanted to thank
NOTE Confidence: 0.849065325384615

03:51:00.322 --> 03:51:02.084 everyone for their help and support
NOTE Confidence: 0.849065325384615

03:51:02.084 --> 03:51:04.820 as I start my career here at Yale.
NOTE Confidence: 0.849065325384615

03:51:04.820 --> 03:51:05.628 So thank you very.
NOTE Confidence: 0.881193678571428

03:51:15.600 --> 03:51:17.000 Thank you Madonna. It's great to have
NOTE Confidence: 0.881193678571428

03:51:17.000 --> 03:51:18.493 you on board and you're definitely in
NOTE Confidence: 0.881193678571428

03:51:18.493 --> 03:51:20.010 the right place at the right time.
NOTE Confidence: 0.7554140276

03:51:22.360 --> 03:51:25.560 Next, I'm pleased to introduce,
NOTE Confidence: 0.7554140276

03:51:25.560 --> 03:51:27.394 although most of you all know him,
NOTE Confidence: 0.7554140276

03:51:27.400 --> 03:51:29.640 Doctor Britton Keeshan who is

NOTE Confidence: 0.7554140276

03:51:29.640 --> 03:51:32.320 my partner in the Cath lab.

NOTE Confidence: 0.7554140276

03:51:32.320 --> 03:51:34.882 Written, trained with Tom Jones out in

NOTE Confidence: 0.7554140276

03:51:34.882 --> 03:51:37.655 Seattle and then came to us and he's

NOTE Confidence: 0.7554140276

03:51:37.655 --> 03:51:39.894 been a fantastic addition to the lab

NOTE Confidence: 0.7554140276

03:51:39.894 --> 03:51:42.182 and he's going to speak to us about

NOTE Confidence: 0.7554140276

03:51:42.190 --> 03:51:44.032 innovations in the cast space and

NOTE Confidence: 0.7554140276

03:51:44.032 --> 03:51:46.129 where the future of Cath is going.

NOTE Confidence: 0.7554140276

03:51:46.130 --> 03:51:47.299 And then I'm happy to say we'll

NOTE Confidence: 0.7554140276

03:51:47.299 --> 03:51:48.280 be able to have lunch.

NOTE Confidence: 0.845624087142857

03:51:56.910 --> 03:51:59.298 I realize I'm standing between everybody

NOTE Confidence: 0.845624087142857

03:51:59.298 --> 03:52:02.427 and lunch and so for that I apologize.

NOTE Confidence: 0.845624087142857

03:52:02.430 --> 03:52:05.085 Let you know that I tried to trim my

NOTE Confidence: 0.845624087142857

03:52:05.085 --> 03:52:08.140 talk down from 122 slides to 114 slides.

NOTE Confidence: 0.7276446

03:52:11.320 --> 03:52:12.680 Guessing I just click.

NOTE Confidence: 0.8199064683333333

03:52:18.510 --> 03:52:19.866 Maybe someone will click for me.

NOTE Confidence: 0.892586885

03:52:26.310 --> 03:52:27.878 Maybe I don't have to give the talk.
NOTE Confidence: 0.761098946

03:52:32.060 --> 03:52:33.468 Ah, there we go.
NOTE Confidence: 0.761098946

03:52:33.468 --> 03:52:35.772 Uh, so I'm going to speak to you guys
NOTE Confidence: 0.761098946

03:52:35.772 --> 03:52:37.080 about innovations in transcatheter
NOTE Confidence: 0.761098946

03:52:37.080 --> 03:52:38.995 therapies for congenital heart disease.
NOTE Confidence: 0.761098946

03:52:39.000 --> 03:52:40.730 I don't have any financial
NOTE Confidence: 0.761098946

03:52:40.730 --> 03:52:42.460 disclosures except to say that
NOTE Confidence: 0.761098946

03:52:42.460 --> 03:52:45.106 really there aren't many FDA approved
NOTE Confidence: 0.761098946

03:52:45.106 --> 03:52:47.360 devices in the congenital space.
NOTE Confidence: 0.761098946

03:52:47.360 --> 03:52:49.556 There are some which I will be talking about,
NOTE Confidence: 0.761098946

03:52:49.560 --> 03:52:51.396 but I will talk about some
NOTE Confidence: 0.761098946

03:52:51.396 --> 03:52:53.620 off label use of some devices.
NOTE Confidence: 0.761098946

03:52:53.620 --> 03:52:56.804 I think Jeremy laid the groundwork for the
NOTE Confidence: 0.761098946

03:52:56.804 --> 03:52:59.298 historical context of where we've come from,
NOTE Confidence: 0.761098946

03:52:59.300 --> 03:53:01.260 which helps us understand where we're going.
NOTE Confidence: 0.761098946

03:53:01.260 --> 03:53:03.580 But rather than talk about all the crazy.

NOTE Confidence: 0.761098946

03:53:03.580 --> 03:53:05.540 Innovations that we have in

NOTE Confidence: 0.761098946

03:53:05.540 --> 03:53:07.108 the past cat space.

NOTE Confidence: 0.761098946

03:53:07.110 --> 03:53:09.070 I think I'll talk about how innovation

NOTE Confidence: 0.761098946

03:53:09.070 --> 03:53:10.770 comes in multiple different forms,

NOTE Confidence: 0.761098946

03:53:10.770 --> 03:53:11.871 including pushing boundaries,

NOTE Confidence: 0.761098946

03:53:11.871 --> 03:53:14.710 looking at the management of the premium PDA,

NOTE Confidence: 0.761098946

03:53:14.710 --> 03:53:18.084 changing our paradigms for how we deal

NOTE Confidence: 0.761098946

03:53:18.084 --> 03:53:20.170 with RV outflow tract dysfunction,

NOTE Confidence: 0.761098946

03:53:20.170 --> 03:53:22.570 and then where the new frontiers

NOTE Confidence: 0.761098946

03:53:22.636 --> 03:53:24.826 are and how we're exploring those.

NOTE Confidence: 0.761098946

03:53:24.830 --> 03:53:28.320 So from a historical perspective.

NOTE Confidence: 0.761098946

03:53:28.320 --> 03:53:32.254 The congenital Cath space is in infancy.

NOTE Confidence: 0.761098946

03:53:32.260 --> 03:53:35.236 We only have a short 70 year history

NOTE Confidence: 0.761098946

03:53:35.240 --> 03:53:38.089 from the initial use of a ureteral

NOTE Confidence: 0.761098946

03:53:38.089 --> 03:53:40.294 catheter catheter to perform a

NOTE Confidence: 0.761098946

03:53:40.294 --> 03:53:42.564 pulmonary valvotomy in the 1950s,
NOTE Confidence: 0.761098946

03:53:42.570 --> 03:53:44.882 and it's only been 70 short years and
NOTE Confidence: 0.761098946

03:53:44.882 --> 03:53:47.189 now we have transcatheter valves devices
NOTE Confidence: 0.761098946

03:53:47.189 --> 03:53:50.010 to close ASD devices to close PDA,
NOTE Confidence: 0.761098946

03:53:50.010 --> 03:53:52.180 and I'm really excited about where the
NOTE Confidence: 0.761098946

03:53:52.180 --> 03:53:56.180 future is going to go from here so.
NOTE Confidence: 0.761098946

03:53:56.180 --> 03:53:59.124 I think I'd like to start by talking
NOTE Confidence: 0.761098946

03:53:59.124 --> 03:54:02.176 about how we're using kind of pushing
NOTE Confidence: 0.761098946

03:54:02.176 --> 03:54:05.431 boundaries with old technology and
NOTE Confidence: 0.761098946

03:54:05.431 --> 03:54:07.777 really pushing the envelope of taking
NOTE Confidence: 0.761098946

03:54:07.777 --> 03:54:10.360 care of our premature infants.
NOTE Confidence: 0.761098946

03:54:10.360 --> 03:54:12.509 I think everybody in the room knows
NOTE Confidence: 0.761098946

03:54:12.509 --> 03:54:13.815 about PDA's and how they're left
NOTE Confidence: 0.761098946

03:54:13.815 --> 03:54:15.206 to right shunt that results in
NOTE Confidence: 0.761098946

03:54:15.206 --> 03:54:15.918 pulmonary overcirculation,
NOTE Confidence: 0.761098946

03:54:15.920 --> 03:54:16.738 systemic hypoperfusion,

NOTE Confidence: 0.761098946

03:54:16.738 --> 03:54:20.010 and the PDA is poses a real problem

NOTE Confidence: 0.761098946

03:54:20.086 --> 03:54:21.958 in our neonatal population,

NOTE Confidence: 0.761098946

03:54:21.960 --> 03:54:24.560 with increased incidences of neck

NOTE Confidence: 0.761098946

03:54:24.560 --> 03:54:26.120 acute kidney injury.

NOTE Confidence: 0.761098946

03:54:26.120 --> 03:54:27.904 Worsening of bronchopulmonary dysplasia

NOTE Confidence: 0.761098946

03:54:27.904 --> 03:54:31.619 and so eliminating the PDA in this very

NOTE Confidence: 0.761098946

03:54:31.619 --> 03:54:33.559 vulnerable population is important,

NOTE Confidence: 0.761098946

03:54:33.560 --> 03:54:35.642 and the technique is really only

NOTE Confidence: 0.761098946

03:54:35.642 --> 03:54:37.480 been around since the 1990s,

NOTE Confidence: 0.761098946

03:54:37.480 --> 03:54:40.580 mainly initially through a surgical

NOTE Confidence: 0.761098946

03:54:40.580 --> 03:54:43.060 management which involves thoracoscopic

NOTE Confidence: 0.761098946

03:54:43.060 --> 03:54:45.184 technique, lateral thoracotomy,

NOTE Confidence: 0.761098946

03:54:45.184 --> 03:54:47.440 and complication rate.

NOTE Confidence: 0.761098946

03:54:47.440 --> 03:54:48.780 Even in the current era,

NOTE Confidence: 0.761098946

03:54:48.780 --> 03:54:51.216 remains high as high as 5%,

NOTE Confidence: 0.761098946

03:54:51.220 --> 03:54:53.650 so can we do better?
NOTE Confidence: 0.761098946

03:54:53.650 --> 03:54:55.120 And how we manage this?
NOTE Confidence: 0.761098946

03:54:55.120 --> 03:54:58.328 And I think a lot of the impetus
NOTE Confidence: 0.761098946

03:54:58.328 --> 03:55:00.752 for innovation has come from the
NOTE Confidence: 0.761098946

03:55:00.752 --> 03:55:02.840 fact that the complication rate is
NOTE Confidence: 0.761098946

03:55:02.840 --> 03:55:05.410 high and as a result our neonatology
NOTE Confidence: 0.761098946

03:55:05.410 --> 03:55:07.975 colleagues have turned away from
NOTE Confidence: 0.761098946

03:55:07.975 --> 03:55:10.027 performing a surgical ligation.
NOTE Confidence: 0.761098946

03:55:10.030 --> 03:55:13.030 So the end argument for Transcatheter
NOTE Confidence: 0.761098946

03:55:13.030 --> 03:55:15.089 PDA closure we've had tremendous
NOTE Confidence: 0.761098946

03:55:15.089 --> 03:55:17.207 success and evolution in the procedure
NOTE Confidence: 0.761098946

03:55:17.207 --> 03:55:19.246 initially described in the 1960s,
NOTE Confidence: 0.761098946

03:55:19.246 --> 03:55:22.510 but the initial technique,
NOTE Confidence: 0.761098946

03:55:22.510 --> 03:55:24.410 which involved large arterial and
NOTE Confidence: 0.761098946

03:55:24.410 --> 03:55:25.930 venous sheaths would preclude
NOTE Confidence: 0.761098946

03:55:25.930 --> 03:55:27.728 its use in smaller children.

NOTE Confidence: 0.761098946
03:55:27.730 --> 03:55:29.505 But there's been an evolution
NOTE Confidence: 0.761098946
03:55:29.505 --> 03:55:30.925 of devices over time.
NOTE Confidence: 0.761098946
03:55:30.930 --> 03:55:31.983 Doctor Hellenbrand participated
NOTE Confidence: 0.761098946
03:55:31.983 --> 03:55:34.089 in many of the initial trials,
NOTE Confidence: 0.761098946
03:55:34.090 --> 03:55:36.050 getting these devices up and
NOTE Confidence: 0.761098946
03:55:36.050 --> 03:55:38.010 writing running here at Yale,
NOTE Confidence: 0.761098946
03:55:38.010 --> 03:55:39.265 and it's become the standard
NOTE Confidence: 0.761098946
03:55:39.265 --> 03:55:40.269 of care for children.
NOTE Confidence: 0.761098946
03:55:40.270 --> 03:55:41.394 Greater than 6 kilos,
NOTE Confidence: 0.761098946
03:55:41.394 --> 03:55:43.526 but we like to push the boundaries
NOTE Confidence: 0.761098946
03:55:43.526 --> 03:55:45.050 of possibility and beginning
NOTE Confidence: 0.761098946
03:55:45.050 --> 03:55:47.270 in the early 2000 and 10s,
NOTE Confidence: 0.761098946
03:55:47.270 --> 03:55:48.625 many of our colleagues around
NOTE Confidence: 0.761098946
03:55:48.625 --> 03:55:49.980 the world started to try
NOTE Confidence: 0.883119267894737
03:55:50.035 --> 03:55:51.877 and use this technology in smaller
NOTE Confidence: 0.883119267894737

03:55:51.877 --> 03:55:53.191 and smaller infants, demonstrating
NOTE Confidence: 0.883119267894737

03:55:53.191 --> 03:55:56.319 that an infants as small as 700 grams.
NOTE Confidence: 0.883119267894737

03:55:56.320 --> 03:55:59.302 You could get good transcatheter closure
NOTE Confidence: 0.883119267894737

03:55:59.302 --> 03:56:01.782 with minimal complications and what
NOTE Confidence: 0.883119267894737

03:56:01.782 --> 03:56:05.240 this looks like is now a procedural
NOTE Confidence: 0.883119267894737

03:56:05.332 --> 03:56:08.178 success rate that approaches 9596%,
NOTE Confidence: 0.883119267894737

03:56:08.178 --> 03:56:10.926 so at least not inferior to.
NOTE Confidence: 0.883119267894737

03:56:10.930 --> 03:56:14.460 Surgery. And perhaps even better.
NOTE Confidence: 0.883119267894737

03:56:14.460 --> 03:56:17.340 In understanding how to treat this,
NOTE Confidence: 0.883119267894737

03:56:17.340 --> 03:56:20.154 we have to understand that the premature
NOTE Confidence: 0.883119267894737

03:56:20.154 --> 03:56:22.340 ductus is different than the ductus
NOTE Confidence: 0.883119267894737

03:56:22.340 --> 03:56:24.580 that exists in our one year olds.
NOTE Confidence: 0.883119267894737

03:56:24.580 --> 03:56:27.526 Most duct dye are this type,
NOTE Confidence: 0.883119267894737

03:56:27.530 --> 03:56:28.769 a conical ductus.
NOTE Confidence: 0.883119267894737

03:56:28.769 --> 03:56:31.660 It has somewhat of a tornado shape,
NOTE Confidence: 0.883119267894737

03:56:31.660 --> 03:56:34.042 but the premature and the devices

NOTE Confidence: 0.883119267894737
03:56:34.042 --> 03:56:36.435 were designed and made to fit
NOTE Confidence: 0.883119267894737
03:56:36.435 --> 03:56:38.260 that shape and that geometry.
NOTE Confidence: 0.883119267894737
03:56:38.260 --> 03:56:38.650 Unfortunately,
NOTE Confidence: 0.883119267894737
03:56:38.650 --> 03:56:40.600 the fetal ductus and the
NOTE Confidence: 0.883119267894737
03:56:40.600 --> 03:56:42.160 premature ductus is different.
NOTE Confidence: 0.883119267894737
03:56:42.160 --> 03:56:44.464 We call it now an F type ductus.
NOTE Confidence: 0.883119267894737
03:56:44.470 --> 03:56:45.138 It's tubular,
NOTE Confidence: 0.883119267894737
03:56:45.138 --> 03:56:47.810 it looks like a hockey stick and so
NOTE Confidence: 0.883119267894737
03:56:47.879 --> 03:56:50.129 our traditional devices that have
NOTE Confidence: 0.883119267894737
03:56:50.129 --> 03:56:52.379 that tornado like conical shape,
NOTE Confidence: 0.883119267894737
03:56:52.380 --> 03:56:55.800 really don't fit the bill here.
NOTE Confidence: 0.883119267894737
03:56:55.800 --> 03:56:59.022 And I think this is a a great story
NOTE Confidence: 0.883119267894737
03:56:59.022 --> 03:57:01.998 about how our field has collaborated
NOTE Confidence: 0.883119267894737
03:57:01.998 --> 03:57:04.924 with industry to take vascular plugs
NOTE Confidence: 0.883119267894737
03:57:04.924 --> 03:57:07.636 and really talk to the companies
NOTE Confidence: 0.883119267894737

03:57:07.636 --> 03:57:10.540 and develop a device that is
NOTE Confidence: 0.883119267894737

03:57:10.540 --> 03:57:12.456 specifically for this population.
NOTE Confidence: 0.883119267894737

03:57:12.460 --> 03:57:16.508 So I'm happy to report that through
NOTE Confidence: 0.883119267894737

03:57:16.508 --> 03:57:19.098 partnering with Amplatzer and Abbott,
NOTE Confidence: 0.883119267894737

03:57:19.100 --> 03:57:22.016 we've been engineered the Piccolo device,
NOTE Confidence: 0.883119267894737

03:57:22.020 --> 03:57:23.875 which really came into fruition
NOTE Confidence: 0.883119267894737

03:57:23.875 --> 03:57:25.730 in the later twenty 10s.
NOTE Confidence: 0.883119267894737

03:57:25.730 --> 03:57:27.977 And this is the first trial that
NOTE Confidence: 0.883119267894737

03:57:27.977 --> 03:57:30.882 looked at a a premature duck specific
NOTE Confidence: 0.883119267894737

03:57:30.882 --> 03:57:34.602 device and showed tremendous success
NOTE Confidence: 0.883119267894737

03:57:34.602 --> 03:57:38.515 with a 95.5% success rate in terms
NOTE Confidence: 0.883119267894737

03:57:38.515 --> 03:57:41.130 of implant with a relatively low
NOTE Confidence: 0.883119267894737

03:57:41.130 --> 03:57:46.430 complication rate, less than 2%,
NOTE Confidence: 0.883119267894737

03:57:46.430 --> 03:57:48.548 and so for the first time.
NOTE Confidence: 0.883119267894737

03:57:48.550 --> 03:57:52.598 We now have an FDA approved device for
NOTE Confidence: 0.883119267894737

03:57:52.598 --> 03:57:55.860 premature PDA closures here at Yale.

NOTE Confidence: 0.883119267894737
03:57:55.860 --> 03:57:58.824 We've also relied on using adult
NOTE Confidence: 0.883119267894737
03:57:58.824 --> 03:58:01.830 technology in the premium population,
NOTE Confidence: 0.883119267894737
03:58:01.830 --> 03:58:03.645 so the Medtronic microvascular plug
NOTE Confidence: 0.883119267894737
03:58:03.645 --> 03:58:06.407 is a device that we tend to use
NOTE Confidence: 0.883119267894737
03:58:06.407 --> 03:58:08.498 because of its soft nature and its
NOTE Confidence: 0.883119267894737
03:58:08.498 --> 03:58:10.334 ability to go through small sheaths.
NOTE Confidence: 0.883119267894737
03:58:10.340 --> 03:58:11.524 You can see that,
NOTE Confidence: 0.883119267894737
03:58:11.524 --> 03:58:13.930 similar to the Piccolo in relation to a dime,
NOTE Confidence: 0.883119267894737
03:58:13.930 --> 03:58:15.780 these devices are incredibly small
NOTE Confidence: 0.883119267894737
03:58:15.780 --> 03:58:18.397 and flexible and as a result we
NOTE Confidence: 0.883119267894737
03:58:18.397 --> 03:58:20.497 can get them into the premature
NOTE Confidence: 0.883119267894737
03:58:20.497 --> 03:58:22.751 infant with relative ease and
NOTE Confidence: 0.883119267894737
03:58:22.751 --> 03:58:24.236 not significant difficulty.
NOTE Confidence: 0.883119267894737
03:58:24.240 --> 03:58:26.260 So this is a catheter.
NOTE Confidence: 0.883119267894737
03:58:26.260 --> 03:58:27.400 A premature infant,
NOTE Confidence: 0.883119267894737

03:58:27.400 --> 03:58:30.060 less than a kilogram in size that
NOTE Confidence: 0.883119267894737

03:58:30.134 --> 03:58:32.689 we've been able to put a forefront
NOTE Confidence: 0.883119267894737

03:58:32.689 --> 03:58:34.782 sheath in direct A4 French
NOTE Confidence: 0.883119267894737

03:58:34.782 --> 03:58:36.766 catheter easily across the ductus,
NOTE Confidence: 0.883119267894737

03:58:36.766 --> 03:58:38.584 with the help of a wire.
NOTE Confidence: 0.883119267894737

03:58:38.590 --> 03:58:40.732 We do use fluoroscopy and echo
NOTE Confidence: 0.883119267894737

03:58:40.732 --> 03:58:43.169 guidance to help guide the procedure.
NOTE Confidence: 0.883119267894737

03:58:43.170 --> 03:58:45.263 Here's a picture of the ductus you
NOTE Confidence: 0.883119267894737

03:58:45.263 --> 03:58:47.231 can see that hockey stick shape
NOTE Confidence: 0.883119267894737

03:58:47.231 --> 03:58:49.647 on the angiogram on the left and
NOTE Confidence: 0.883119267894737

03:58:49.647 --> 03:58:52.149 we're able to place a device.
NOTE Confidence: 0.883119267894737

03:58:52.150 --> 03:58:53.734 Nicely within the ductus,
NOTE Confidence: 0.883119267894737

03:58:53.734 --> 03:58:56.591 it doesn't obstruct flow to either of
NOTE Confidence: 0.883119267894737

03:58:56.591 --> 03:58:59.075 the pulmonary arteries and on echocardiogram.
NOTE Confidence: 0.883119267894737

03:58:59.075 --> 03:59:01.150 Once the device is released,
NOTE Confidence: 0.883119267894737

03:59:01.150 --> 03:59:04.910 we see that we've relieved the.

NOTE Confidence: 0.883119267894737
03:59:04.910 --> 03:59:07.073 Have to write shunt and this is
NOTE Confidence: 0.883119267894737
03:59:07.073 --> 03:59:09.463 all we're left with no longer do
NOTE Confidence: 0.883119267894737
03:59:09.463 --> 03:59:11.557 we have a big lateral thoracotomy,
NOTE Confidence: 0.883119267894737
03:59:11.560 --> 03:59:12.248 but really,
NOTE Confidence: 0.883119267894737
03:59:12.248 --> 03:59:14.312 just a tiny little pinhole that
NOTE Confidence: 0.883119267894737
03:59:14.312 --> 03:59:16.227 doesn't even require a band aid.
NOTE Confidence: 0.883119267894737
03:59:16.230 --> 03:59:18.534 So just because we can doesn't
NOTE Confidence: 0.883119267894737
03:59:18.534 --> 03:59:20.070 mean that we should.
NOTE Confidence: 0.792181821176471
03:59:20.070 --> 03:59:22.014 I think there's an evolving body
NOTE Confidence: 0.792181821176471
03:59:22.014 --> 03:59:24.022 of literature that shows on some
NOTE Confidence: 0.792181821176471
03:59:24.022 --> 03:59:25.647 real promise in this technology.
NOTE Confidence: 0.792181821176471
03:59:25.650 --> 03:59:29.058 This paper looks at group of
NOTE Confidence: 0.792181821176471
03:59:29.058 --> 03:59:31.330 premature infants who's ducked.
NOTE Confidence: 0.792181821176471
03:59:31.330 --> 03:59:34.599 I were closed before 4 weeks versus
NOTE Confidence: 0.792181821176471
03:59:34.599 --> 03:59:38.829 later in life after eight weeks of age,
NOTE Confidence: 0.792181821176471

03:59:38.830 --> 03:59:41.495 they show that there's really
NOTE Confidence: 0.792181821176471

03:59:41.495 --> 03:59:43.920 decreased incidence of neck
NOTE Confidence: 0.792181821176471

03:59:43.920 --> 03:59:46.440 decrease incidence of sepsis.
NOTE Confidence: 0.792181821176471

03:59:46.440 --> 03:59:49.420 Uh. PVR or pulmonary vascular
NOTE Confidence: 0.792181821176471

03:59:49.420 --> 03:59:51.208 resistance is lower.
NOTE Confidence: 0.792181821176471

03:59:51.210 --> 03:59:55.891 The sooner that these ductus are closed and
NOTE Confidence: 0.792181821176471

03:59:55.891 --> 03:59:58.177 we improve the respiratory severity score.
NOTE Confidence: 0.792181821176471

03:59:58.180 --> 04:00:00.292 They're shorter times to
NOTE Confidence: 0.792181821176471

04:00:00.292 --> 04:00:02.404 extubation in these infants,
NOTE Confidence: 0.792181821176471

04:00:02.410 --> 04:00:06.098 and the amount of support that they need
NOTE Confidence: 0.792181821176471

04:00:06.098 --> 04:00:09.370 decreases more frequently or more rapidly.
NOTE Confidence: 0.792181821176471

04:00:09.370 --> 04:00:10.945 Similarly pictured here
NOTE Confidence: 0.792181821176471

04:00:10.945 --> 04:00:13.570 on a Kaplan Meier curve,
NOTE Confidence: 0.792181821176471

04:00:13.570 --> 04:00:17.427 and I think one of the exciting
NOTE Confidence: 0.792181821176471

04:00:17.430 --> 04:00:18.930 pieces of information that comes
NOTE Confidence: 0.792181821176471

04:00:18.930 --> 04:00:20.890 out of this paper is growth.

NOTE Confidence: 0.792181821176471
04:00:20.890 --> 04:00:23.180 These duck dye increase the
NOTE Confidence: 0.792181821176471
04:00:23.180 --> 04:00:25.470 caloric needs of these infants,
NOTE Confidence: 0.792181821176471
04:00:25.470 --> 04:00:27.870 particularly at critical times of growth.
NOTE Confidence: 0.792181821176471
04:00:27.870 --> 04:00:29.694 And when you close these duck
NOTE Confidence: 0.792181821176471
04:00:29.694 --> 04:00:30.606 die early earlier,
NOTE Confidence: 0.792181821176471
04:00:30.610 --> 04:00:32.720 you have a quicker weight
NOTE Confidence: 0.792181821176471
04:00:32.720 --> 04:00:34.830 gain that is more normal.
NOTE Confidence: 0.792181821176471
04:00:34.830 --> 04:00:37.374 At 25 grams per day compared to 14
NOTE Confidence: 0.792181821176471
04:00:37.374 --> 04:00:39.889 grams per day pre and I think that.
NOTE Confidence: 0.792181821176471
04:00:39.890 --> 04:00:42.105 Our NICU colleagues would corroborate
NOTE Confidence: 0.792181821176471
04:00:42.105 --> 04:00:44.430 that growth earlier on in development
NOTE Confidence: 0.792181821176471
04:00:44.430 --> 04:00:47.109 and in the NICU results in better
NOTE Confidence: 0.792181821176471
04:00:47.109 --> 04:00:49.287 outcomes overall and so I think
NOTE Confidence: 0.792181821176471
04:00:49.287 --> 04:00:51.666 that there's an evolving body of
NOTE Confidence: 0.792181821176471
04:00:51.666 --> 04:00:54.042 literature that supports us doing this.
NOTE Confidence: 0.792181821176471

04:00:54.050 --> 04:00:55.730 And here at Yale,
NOTE Confidence: 0.792181821176471

04:00:55.730 --> 04:00:58.250 I think we've managed to collaborate
NOTE Confidence: 0.792181821176471

04:00:58.335 --> 04:01:01.058 with our NICU colleagues and I think
NOTE Confidence: 0.792181821176471

04:01:01.058 --> 04:01:04.085 that before I arrived here in 2018
NOTE Confidence: 0.792181821176471

04:01:04.085 --> 04:01:06.749 there have been 4 surgical closures.
NOTE Confidence: 0.792181821176471

04:01:06.750 --> 04:01:09.006 Since that time we've done none.
NOTE Confidence: 0.792181821176471

04:01:09.010 --> 04:01:10.826 I'm happy to report.
NOTE Confidence: 0.792181821176471

04:01:10.826 --> 04:01:13.096 That in terms of our
NOTE Confidence: 0.792181821176471

04:01:13.096 --> 04:01:15.208 transcatheter PDA closure volume,
NOTE Confidence: 0.792181821176471

04:01:15.210 --> 04:01:16.958 it continues to increase,
NOTE Confidence: 0.792181821176471

04:01:16.958 --> 04:01:19.143 and now we're doing somewhere
NOTE Confidence: 0.792181821176471

04:01:19.143 --> 04:01:21.248 between one to three per month.
NOTE Confidence: 0.792181821176471

04:01:21.250 --> 04:01:23.850 I did 2 this week and doing one on Monday,
NOTE Confidence: 0.792181821176471

04:01:23.850 --> 04:01:26.170 so that volume continues
NOTE Confidence: 0.792181821176471

04:01:26.170 --> 04:01:27.910 to potentially increase,
NOTE Confidence: 0.792181821176471

04:01:27.910 --> 04:01:31.158 and I think that people are beginning to

NOTE Confidence: 0.792181821176471
04:01:31.158 --> 04:01:34.026 buy into doing these closures even earlier,
NOTE Confidence: 0.792181821176471
04:01:34.026 --> 04:01:36.138 so the referral that came in
NOTE Confidence: 0.792181821176471
04:01:36.138 --> 04:01:37.908 today is for a two week old,
NOTE Confidence: 0.792181821176471
04:01:37.910 --> 04:01:39.296 and I think that that is really
NOTE Confidence: 0.792181821176471
04:01:39.296 --> 04:01:40.690 going to make a big difference.
NOTE Confidence: 0.792181821176471
04:01:40.690 --> 04:01:42.520 All of these infants we've done
NOTE Confidence: 0.792181821176471
04:01:42.520 --> 04:01:44.330 infants as small as 670 grams,
NOTE Confidence: 0.792181821176471
04:01:44.330 --> 04:01:46.100 and I think that when you
NOTE Confidence: 0.792181821176471
04:01:46.100 --> 04:01:47.500 look around the country,
NOTE Confidence: 0.792181821176471
04:01:47.500 --> 04:01:49.678 I've talked to colleagues anecdotally who
NOTE Confidence: 0.792181821176471
04:01:49.678 --> 04:01:52.317 have done this down to about 400 grams,
NOTE Confidence: 0.792181821176471
04:01:52.320 --> 04:01:53.445 which you know,
NOTE Confidence: 0.792181821176471
04:01:53.445 --> 04:01:54.945 gives me some pause.
NOTE Confidence: 0.792181821176471
04:01:54.950 --> 04:01:57.440 But as people are doing it,
NOTE Confidence: 0.792181821176471
04:01:57.440 --> 04:01:58.775 I guess we'll become more
NOTE Confidence: 0.792181821176471

04:01:58.775 --> 04:02:00.110 and more comfortable with it,
NOTE Confidence: 0.792181821176471

04:02:00.110 --> 04:02:03.539 and I think that this is an area of
NOTE Confidence: 0.792181821176471

04:02:03.539 --> 04:02:05.876 innovation because we do transcatheter
NOTE Confidence: 0.792181821176471

04:02:05.876 --> 04:02:09.320 PDA closure at every age group here,
NOTE Confidence: 0.792181821176471

04:02:09.320 --> 04:02:11.144 and it's only recently that we're
NOTE Confidence: 0.792181821176471

04:02:11.144 --> 04:02:12.550 finally beginning to recommend it.
NOTE Confidence: 0.792181821176471

04:02:12.550 --> 04:02:14.900 Here at this premature population,
NOTE Confidence: 0.792181821176471

04:02:14.900 --> 04:02:17.104 it makes sense physiologically,
NOTE Confidence: 0.792181821176471

04:02:17.104 --> 04:02:19.308 and I think anatomically.
NOTE Confidence: 0.792181821176471

04:02:19.310 --> 04:02:22.214 So I think it's time to rethink that
NOTE Confidence: 0.792181821176471

04:02:22.214 --> 04:02:24.529 paradigm of not closing the PDA.
NOTE Confidence: 0.792181821176471

04:02:24.530 --> 04:02:25.862 Speaking of paradigms,
NOTE Confidence: 0.792181821176471

04:02:25.862 --> 04:02:29.470 I think R VOT disrupt dysfunction in
NOTE Confidence: 0.792181821176471

04:02:29.470 --> 04:02:33.419 congenital heart disease is a great story,
NOTE Confidence: 0.792181821176471

04:02:33.420 --> 04:02:34.750 especially in the Cath lab.
NOTE Confidence: 0.792181821176471

04:02:34.750 --> 04:02:39.986 So out of all congenital heart disease,

NOTE Confidence: 0.792181821176471

04:02:39.990 --> 04:02:42.372 22% of it includes dysfunction of

NOTE Confidence: 0.792181821176471

04:02:42.372 --> 04:02:44.980 the RBOT diagnosis like tetralogy of

NOTE Confidence: 0.792181821176471

04:02:44.980 --> 04:02:47.310 fellow critical PS, pulmonary atresia,

NOTE Confidence: 0.792181821176471

04:02:47.310 --> 04:02:48.810 attachment circular septum.

NOTE Confidence: 0.89867732

04:02:48.810 --> 04:02:49.956 And when you look at the.

NOTE Confidence: 0.89867732

04:02:49.960 --> 04:02:52.020 Lifespan of these patients you

NOTE Confidence: 0.89867732

04:02:52.020 --> 04:02:54.828 typically have to have initiation of PG

NOTE Confidence: 0.89867732

04:02:54.828 --> 04:02:56.856 E to stabilize pulmonary blood flow,

NOTE Confidence: 0.89867732

04:02:56.860 --> 04:02:58.924 then you have to surgically manage

NOTE Confidence: 0.89867732

04:02:58.924 --> 04:03:01.536 that with a BT shunt followed by

NOTE Confidence: 0.89867732

04:03:01.536 --> 04:03:04.238 either a complete repair or a conduit

NOTE Confidence: 0.89867732

04:03:04.318 --> 04:03:06.778 placement around six months of age,

NOTE Confidence: 0.89867732

04:03:06.780 --> 04:03:08.523 and then there are set up for

NOTE Confidence: 0.89867732

04:03:08.523 --> 04:03:09.625 needing multiple surgical revisions

NOTE Confidence: 0.89867732

04:03:09.625 --> 04:03:11.135 throughout the course of life.

NOTE Confidence: 0.89867732

04:03:11.140 --> 04:03:12.223 At least three.
NOTE Confidence: 0.89867732

04:03:12.223 --> 04:03:13.306 If they're conduits,
NOTE Confidence: 0.89867732

04:03:13.310 --> 04:03:14.900 you may even need to have
NOTE Confidence: 0.89867732

04:03:14.900 --> 04:03:15.695 further surgeries there,
NOTE Confidence: 0.89867732

04:03:15.700 --> 04:03:18.125 so you're looking at somewhere
NOTE Confidence: 0.89867732

04:03:18.125 --> 04:03:20.065 between 5:00 and 8:00.
NOTE Confidence: 0.89867732

04:03:20.070 --> 04:03:21.690 Economies over the course of
NOTE Confidence: 0.89867732

04:03:21.690 --> 04:03:24.074 a patient's life and so how do
NOTE Confidence: 0.89867732

04:03:24.074 --> 04:03:25.819 we innovate and eliminate that
NOTE Confidence: 0.89867732

04:03:25.819 --> 04:03:27.509 lifetime burden of surgical
NOTE Confidence: 0.89867732

04:03:27.509 --> 04:03:29.240 intervention and sternotomy?
NOTE Confidence: 0.89867732

04:03:29.240 --> 04:03:31.368 We've covered the history of the BT
NOTE Confidence: 0.89867732

04:03:31.368 --> 04:03:33.380 shunt a little bit here already,
NOTE Confidence: 0.89867732

04:03:33.380 --> 04:03:35.216 but obviously it has its drawbacks.
NOTE Confidence: 0.89867732

04:03:35.220 --> 04:03:37.855 With concern for Shannon collusion
NOTE Confidence: 0.89867732

04:03:37.855 --> 04:03:39.963 and the perioperative risk

NOTE Confidence: 0.89867732

04:03:39.963 --> 04:03:42.558 of morbidity and mortality,

NOTE Confidence: 0.89867732

04:03:42.560 --> 04:03:47.516 it's not a mortality free procedure,

NOTE Confidence: 0.89867732

04:03:47.520 --> 04:03:49.925 as people will obviously cite

NOTE Confidence: 0.89867732

04:03:49.925 --> 04:03:51.849 with as much as.

NOTE Confidence: 0.89867732

04:03:51.850 --> 04:03:54.735 16% mortality to discharge and

NOTE Confidence: 0.89867732

04:03:54.735 --> 04:03:57.043 the pulmonary atresia intact

NOTE Confidence: 0.89867732

04:03:57.043 --> 04:03:59.170 ventricular septum population.

NOTE Confidence: 0.89867732

04:03:59.170 --> 04:04:01.026 When you look at patients who need a

NOTE Confidence: 0.89867732

04:04:01.026 --> 04:04:02.797 BT shunt with chromosomal abnormalities

NOTE Confidence: 0.89867732

04:04:02.797 --> 04:04:05.305 for stabilization of pulmonary blood flow,

NOTE Confidence: 0.89867732

04:04:05.310 --> 04:04:07.515 that mortality risk increases to

NOTE Confidence: 0.89867732

04:04:07.515 --> 04:04:09.279 as much as 50%.

NOTE Confidence: 0.89867732

04:04:09.280 --> 04:04:11.488 So how can we do better?

NOTE Confidence: 0.89867732

04:04:11.490 --> 04:04:11.819 Well,

NOTE Confidence: 0.89867732

04:04:11.819 --> 04:04:14.122 early in the 1990s with the advent

NOTE Confidence: 0.89867732

04:04:14.122 --> 04:04:16.108 of more lower profile stents
NOTE Confidence: 0.89867732

04:04:16.108 --> 04:04:18.198 and people pushing the envelope
NOTE Confidence: 0.89867732

04:04:18.198 --> 04:04:20.207 in terms of the Cath lab,
NOTE Confidence: 0.89867732

04:04:20.210 --> 04:04:22.429 it was proposed that you could stent
NOTE Confidence: 0.89867732

04:04:22.429 --> 04:04:24.290 the neonatal ductus as opposed to
NOTE Confidence: 0.89867732

04:04:24.290 --> 04:04:26.271 included in the last set of patients
NOTE Confidence: 0.89867732

04:04:26.332 --> 04:04:28.402 that we were talking about and
NOTE Confidence: 0.89867732

04:04:28.402 --> 04:04:30.712 stabilize pulmonary blood flow that way.
NOTE Confidence: 0.89867732

04:04:30.712 --> 04:04:33.017 As this procedure has become
NOTE Confidence: 0.89867732

04:04:33.017 --> 04:04:35.110 more and more common,
NOTE Confidence: 0.89867732

04:04:35.110 --> 04:04:38.038 we have more and more data on this
NOTE Confidence: 0.89867732

04:04:38.038 --> 04:04:41.175 coming out of a registry from the
NOTE Confidence: 0.89867732

04:04:41.175 --> 04:04:43.495 UK that shows significant survival
NOTE Confidence: 0.89867732

04:04:43.576 --> 04:04:46.108 benefit when you look at stenting
NOTE Confidence: 0.89867732

04:04:46.108 --> 04:04:49.576 of the ductus versus BTT shunt.
NOTE Confidence: 0.89867732

04:04:49.580 --> 04:04:51.932 With significantly significantly

NOTE Confidence: 0.89867732

04:04:51.932 --> 04:04:53.500 improved survival,

NOTE Confidence: 0.89867732

04:04:53.500 --> 04:04:56.230 decreased risk for the need for

NOTE Confidence: 0.89867732

04:04:56.230 --> 04:04:58.006 ECMO following procedure, which is,

NOTE Confidence: 0.89867732

04:04:58.006 --> 04:04:59.224 I think, always good for patients.

NOTE Confidence: 0.89867732

04:04:59.230 --> 04:05:01.990 Despite how good you are, Madonna.

NOTE Confidence: 0.89867732

04:05:01.990 --> 04:05:03.875 Hadn't decreased length of stay

NOTE Confidence: 0.89867732

04:05:03.875 --> 04:05:06.334 further when you look at the

NOTE Confidence: 0.89867732

04:05:06.334 --> 04:05:08.396 potential complications of a surgical

NOTE Confidence: 0.89867732

04:05:08.396 --> 04:05:10.307 shunt versus that of a PDA stent.

NOTE Confidence: 0.89867732

04:05:10.310 --> 04:05:12.088 When you look at this list of

NOTE Confidence: 0.89867732

04:05:12.088 --> 04:05:13.541 complications and the surgical category

NOTE Confidence: 0.89867732

04:05:13.541 --> 04:05:15.449 it extends to really scary stuff,

NOTE Confidence: 0.89867732

04:05:15.450 --> 04:05:17.898 arrhythmias, cardiac arrest, ECMO,

NOTE Confidence: 0.89867732

04:05:17.898 --> 04:05:19.762 thrombosis, wound infection, et cetera.

NOTE Confidence: 0.89867732

04:05:19.762 --> 04:05:22.488 And when you look at the ductal stent,

NOTE Confidence: 0.89867732

04:05:22.488 --> 04:05:24.418 you're mostly looking at vascular
NOTE Confidence: 0.89867732

04:05:24.418 --> 04:05:26.210 access injury as the predominant
NOTE Confidence: 0.89867732

04:05:26.210 --> 04:05:27.230 form of complication,
NOTE Confidence: 0.89867732

04:05:27.230 --> 04:05:30.898 which I would argue is certainly less
NOTE Confidence: 0.89867732

04:05:30.898 --> 04:05:34.099 severe and something I would tolerate.
NOTE Confidence: 0.89867732

04:05:34.100 --> 04:05:36.398 This is a similar data from
NOTE Confidence: 0.89867732

04:05:36.398 --> 04:05:38.380 the US from the CIC,
NOTE Confidence: 0.89867732

04:05:38.380 --> 04:05:40.618 which is a collaboration of several
NOTE Confidence: 0.89867732

04:05:40.618 --> 04:05:42.744 hospitals looking at freedom from
NOTE Confidence: 0.89867732

04:05:42.744 --> 04:05:45.254 death or reintervention for cyanosis.
NOTE Confidence: 0.89867732

04:05:45.260 --> 04:05:45.665 Again,
NOTE Confidence: 0.89867732

04:05:45.665 --> 04:05:48.500 the PDA stent appears to be superior
NOTE Confidence: 0.89867732

04:05:48.500 --> 04:05:51.179 at least on univariate analysis,
NOTE Confidence: 0.89867732

04:05:51.180 --> 04:05:53.748 and when you look at propensity
NOTE Confidence: 0.89867732

04:05:53.748 --> 04:05:55.032 score adjusted analysis,
NOTE Confidence: 0.89867732

04:05:55.040 --> 04:05:57.830 the risk of procedural complications is

NOTE Confidence: 0.89867732

04:05:57.830 --> 04:06:01.198 less need for diuretic discharge is lower.

NOTE Confidence: 0.89867732

04:06:01.200 --> 04:06:04.040 ICU stay is shorter.

NOTE Confidence: 0.89867732

04:06:04.040 --> 04:06:07.014 And growth of the PA's as a result of

NOTE Confidence: 0.89867732

04:06:07.014 --> 04:06:08.958 the PDA stent appeared to be better,

NOTE Confidence: 0.89867732

04:06:08.960 --> 04:06:10.031 so I think.

NOTE Confidence: 0.89867732

04:06:10.031 --> 04:06:11.459 In the current era,

NOTE Confidence: 0.760481784166667

04:06:11.460 --> 04:06:13.836 PDA stenting is a reasonable opportunity

NOTE Confidence: 0.760481784166667

04:06:13.836 --> 04:06:16.230 to palliative therapy in these patients

NOTE Confidence: 0.760481784166667

04:06:16.230 --> 04:06:18.834 that need ductal dependent or that have

NOTE Confidence: 0.760481784166667

04:06:18.834 --> 04:06:21.157 ductal dependent pulmonary blood flow.

NOTE Confidence: 0.760481784166667

04:06:21.160 --> 04:06:22.480 And so the question then becomes,

NOTE Confidence: 0.760481784166667

04:06:22.480 --> 04:06:24.200 should it become the new standard of care?

NOTE Confidence: 0.760481784166667

04:06:24.200 --> 04:06:25.690 And while we don't know

NOTE Confidence: 0.760481784166667

04:06:25.690 --> 04:06:27.180 the answer to that yet,

NOTE Confidence: 0.760481784166667

04:06:27.180 --> 04:06:29.604 and at least appears to be non inferior

NOTE Confidence: 0.760481784166667

04:06:29.604 --> 04:06:32.258 and might ultimately prove to be superior,
NOTE Confidence: 0.760481784166667

04:06:32.260 --> 04:06:34.812 I think one of the great things about
NOTE Confidence: 0.760481784166667

04:06:34.812 --> 04:06:36.804 this community is that we're really
NOTE Confidence: 0.760481784166667

04:06:36.804 --> 04:06:39.412 trying to figure this out and I'm happy
NOTE Confidence: 0.760481784166667

04:06:39.412 --> 04:06:41.352 that the community has received NIH
NOTE Confidence: 0.760481784166667

04:06:41.352 --> 04:06:43.320 funding to launch the compass trial,
NOTE Confidence: 0.760481784166667

04:06:43.320 --> 04:06:45.679 which is launching this quarter this year,
NOTE Confidence: 0.760481784166667

04:06:45.680 --> 04:06:48.382 which is actually going to randomize patients
NOTE Confidence: 0.760481784166667

04:06:48.382 --> 04:06:51.117 to a surgical shunt versus PDA stent.
NOTE Confidence: 0.760481784166667

04:06:51.120 --> 04:06:52.686 Across the country and so single,
NOTE Confidence: 0.760481784166667

04:06:52.690 --> 04:06:54.082 similar to the single
NOTE Confidence: 0.760481784166667

04:06:54.082 --> 04:06:55.126 ventricle reconstruction trial,
NOTE Confidence: 0.760481784166667

04:06:55.130 --> 04:06:57.011 I think in three years we're going to have
NOTE Confidence: 0.760481784166667

04:06:57.011 --> 04:06:58.928 a definitive answer to this question,
NOTE Confidence: 0.760481784166667

04:06:58.930 --> 04:07:01.135 but it's just an example of how we in
NOTE Confidence: 0.760481784166667

04:07:01.135 --> 04:07:03.300 the Community continue to innovate.

NOTE Confidence: 0.760481784166667
04:07:03.300 --> 04:07:06.672 So we come back to our lifespan here
NOTE Confidence: 0.760481784166667
04:07:06.672 --> 04:07:10.074 and if we can eliminate the initial
NOTE Confidence: 0.760481784166667
04:07:10.074 --> 04:07:13.504 need for a surgical PDS BT shunt,
NOTE Confidence: 0.760481784166667
04:07:13.504 --> 04:07:16.672 we've eliminated at least least one
NOTE Confidence: 0.760481784166667
04:07:16.672 --> 04:07:19.078 sternotomy. But what about later in life?
NOTE Confidence: 0.760481784166667
04:07:19.080 --> 04:07:21.104 And I think that this is another example
NOTE Confidence: 0.760481784166667
04:07:21.104 --> 04:07:23.340 of how we're partnering with industry,
NOTE Confidence: 0.760481784166667
04:07:23.340 --> 04:07:24.600 the Natural History,
NOTE Confidence: 0.760481784166667
04:07:24.600 --> 04:07:27.306 I think of tetralogy flow repair is
NOTE Confidence: 0.760481784166667
04:07:27.306 --> 04:07:29.700 not something that people in this room
NOTE Confidence: 0.760481784166667
04:07:29.768 --> 04:07:31.728 are unfamiliar with, but essentially,
NOTE Confidence: 0.760481784166667
04:07:31.728 --> 04:07:33.398 when you do a transiently.
NOTE Confidence: 0.760481784166667
04:07:33.400 --> 04:07:35.614 Patch and you're left with chronic
NOTE Confidence: 0.760481784166667
04:07:35.614 --> 04:07:37.090 pulmonary regurgitation that leads
NOTE Confidence: 0.760481784166667
04:07:37.147 --> 04:07:38.426 to RV overload, dilation,
NOTE Confidence: 0.760481784166667

04:07:38.426 --> 04:07:40.330 and impaired systolic function.
NOTE Confidence: 0.760481784166667

04:07:40.330 --> 04:07:42.568 So ultimately we have to restore
NOTE Confidence: 0.760481784166667

04:07:42.568 --> 04:07:44.490 competence to that pulmonary valve,
NOTE Confidence: 0.760481784166667

04:07:44.490 --> 04:07:47.290 or at least where it would be.
NOTE Confidence: 0.760481784166667

04:07:47.290 --> 04:07:49.230 So traditionally this has been
NOTE Confidence: 0.760481784166667

04:07:49.230 --> 04:07:51.170 done in the operating room,
NOTE Confidence: 0.760481784166667

04:07:51.170 --> 04:07:53.879 and because of the widely variable and
NOTE Confidence: 0.760481784166667

04:07:53.879 --> 04:07:56.269 dynamic Physiology of these native ROTJ,
NOTE Confidence: 0.760481784166667

04:07:56.270 --> 04:07:58.106 it's been hard to come up
NOTE Confidence: 0.760481784166667

04:07:58.106 --> 04:07:59.330 with a percutaneous option.
NOTE Confidence: 0.760481784166667

04:07:59.330 --> 04:08:01.480 These outflow tracks come in
NOTE Confidence: 0.760481784166667

04:08:01.480 --> 04:08:03.200 various shapes and sizes.
NOTE Confidence: 0.760481784166667

04:08:03.200 --> 04:08:08.412 And this is where both Medtronic and Edwards
NOTE Confidence: 0.760481784166667

04:08:08.412 --> 04:08:12.220 have kind of listened to our community,
NOTE Confidence: 0.760481784166667

04:08:12.220 --> 04:08:15.028 and they've developed the latest generation
NOTE Confidence: 0.760481784166667

04:08:15.028 --> 04:08:16.900 of transcatheter pulmonary valves,

NOTE Confidence: 0.760481784166667
04:08:16.900 --> 04:08:19.920 which are harmony and Alterra,
NOTE Confidence: 0.760481784166667
04:08:19.920 --> 04:08:23.616 and these valves can now accommodate
NOTE Confidence: 0.760481784166667
04:08:23.620 --> 04:08:26.440 outflow tracks that were previously
NOTE Confidence: 0.760481784166667
04:08:26.440 --> 04:08:29.260 untenable with previous technology up
NOTE Confidence: 0.760481784166667
04:08:29.345 --> 04:08:32.500 to 28 to 38 millimeters in diameter.
NOTE Confidence: 0.760481784166667
04:08:32.500 --> 04:08:34.348 And I think partnering with our
NOTE Confidence: 0.760481784166667
04:08:34.348 --> 04:08:35.272 Advanced Imaging colleagues,
NOTE Confidence: 0.760481784166667
04:08:35.280 --> 04:08:37.194 we've really been able to understand
NOTE Confidence: 0.760481784166667
04:08:37.194 --> 04:08:39.711 how to best apply this technology in
NOTE Confidence: 0.760481784166667
04:08:39.711 --> 04:08:41.748 the real world and to real patients
NOTE Confidence: 0.760481784166667
04:08:41.748 --> 04:08:44.312 and bring them to the clinical need.
NOTE Confidence: 0.760481784166667
04:08:44.312 --> 04:08:46.820 We can use these dynamic systolic
NOTE Confidence: 0.760481784166667
04:08:46.904 --> 04:08:49.322 and diastolic CT scans to understand
NOTE Confidence: 0.760481784166667
04:08:49.322 --> 04:08:52.180 how the valve is going to interact
NOTE Confidence: 0.760481784166667
04:08:52.180 --> 04:08:54.896 with the RV OT during systole and
NOTE Confidence: 0.760481784166667

04:08:54.900 --> 04:08:57.456 diastole and identify the landing zone.
NOTE Confidence: 0.760481784166667

04:08:57.460 --> 04:08:59.973 We can use virtual reality software to
NOTE Confidence: 0.760481784166667

04:08:59.973 --> 04:09:02.689 actually see how the outflow track moves.
NOTE Confidence: 0.760481784166667

04:09:02.690 --> 04:09:04.694 During systole and diastole,
NOTE Confidence: 0.760481784166667

04:09:04.694 --> 04:09:07.406 and we can create artificial and
NOTE Confidence: 0.760481784166667

04:09:07.406 --> 04:09:09.171 virtual renderings of what our
NOTE Confidence: 0.760481784166667

04:09:09.171 --> 04:09:10.989 angiograms are going to look like.
NOTE Confidence: 0.760481784166667

04:09:10.990 --> 04:09:13.034 These are not actual angiograms of patients,
NOTE Confidence: 0.760481784166667

04:09:13.040 --> 04:09:15.655 they're simulated angiograms that have
NOTE Confidence: 0.760481784166667

04:09:15.655 --> 04:09:19.560 been created from the CT datasets,
NOTE Confidence: 0.760481784166667

04:09:19.560 --> 04:09:20.988 and we can see what these valves
NOTE Confidence: 0.760481784166667

04:09:20.988 --> 04:09:22.932 are now going to look like in the
NOTE Confidence: 0.760481784166667

04:09:22.932 --> 04:09:23.700 outflow tracks themselves.
NOTE Confidence: 0.94556527

04:09:23.700 --> 04:09:28.370 To understand how they're going to fit.
NOTE Confidence: 0.94556527

04:09:28.370 --> 04:09:32.010 The initial results following Harmony.
NOTE Confidence: 0.94556527

04:09:32.010 --> 04:09:34.945 The early feasibility trial showed

NOTE Confidence: 0.94556527

04:09:34.945 --> 04:09:37.480 really excellent results here,

NOTE Confidence: 0.94556527

04:09:37.480 --> 04:09:42.890 with 83% of patients having none to trace

NOTE Confidence: 0.94556527

04:09:42.890 --> 04:09:45.490 valve regurgitation over five years,

NOTE Confidence: 0.94556527

04:09:45.490 --> 04:09:48.060 but no more than mild.

NOTE Confidence: 0.94556527

04:09:48.060 --> 04:09:50.502 And that gave laid the groundwork

NOTE Confidence: 0.94556527

04:09:50.502 --> 04:09:52.130 for the pivotal trial,

NOTE Confidence: 0.94556527

04:09:52.130 --> 04:09:53.687 which we were a part of here at Yale,

NOTE Confidence: 0.94556527

04:09:53.690 --> 04:09:55.523 bringing the current

NOTE Confidence: 0.94556527

04:09:55.523 --> 04:09:57.356 generation of technology,

NOTE Confidence: 0.94556527

04:09:57.360 --> 04:10:02.016 TB 22 and TV 25 to market again.

NOTE Confidence: 0.94556527

04:10:02.020 --> 04:10:04.764 We only have one year follow up because

NOTE Confidence: 0.94556527

04:10:04.764 --> 04:10:07.758 the trial just concluded not too long ago.

NOTE Confidence: 0.94556527

04:10:07.760 --> 04:10:11.547 But at one year these valves are

NOTE Confidence: 0.94556527

04:10:11.547 --> 04:10:13.673 functioning incredibly well with

NOTE Confidence: 0.94556527

04:10:13.673 --> 04:10:16.392 very few complications or concerns.

NOTE Confidence: 0.94556527

04:10:16.392 --> 04:10:20.830 So I think in the current era we've
NOTE Confidence: 0.94556527

04:10:20.830 --> 04:10:23.030 expanded the treatment through
NOTE Confidence: 0.94556527

04:10:23.030 --> 04:10:25.780 innovation for patients with our
NOTE Confidence: 0.94556527

04:10:25.863 --> 04:10:27.636 patients with RBOT dysfunction,
NOTE Confidence: 0.94556527

04:10:27.636 --> 04:10:31.019 and we've taken what used to be 5 to 6.
NOTE Confidence: 0.94556527

04:10:31.020 --> 04:10:31.770 They're nominees.
NOTE Confidence: 0.94556527

04:10:31.770 --> 04:10:34.395 We've replaced them now in the 20s,
NOTE Confidence: 0.94556527

04:10:34.400 --> 04:10:36.045 and now we can do Valve and
NOTE Confidence: 0.94556527

04:10:36.045 --> 04:10:37.160 Valve within these valves,
NOTE Confidence: 0.94556527

04:10:37.160 --> 04:10:39.242 and hopefully we've taken the number
NOTE Confidence: 0.94556527

04:10:39.242 --> 04:10:41.726 of surgeries 5 to 6 open heart down
NOTE Confidence: 0.94556527

04:10:41.726 --> 04:10:44.299 to one to two over the patient's life,
NOTE Confidence: 0.94556527

04:10:44.300 --> 04:10:46.890 and I think that that's real innovation.
NOTE Confidence: 0.94556527

04:10:46.890 --> 04:10:48.738 I think the last thing I want
NOTE Confidence: 0.94556527

04:10:48.738 --> 04:10:50.986 to touch on is the new frontier.
NOTE Confidence: 0.94556527

04:10:50.986 --> 04:10:52.806 What's coming down the pipeline?

NOTE Confidence: 0.94556527

04:10:52.810 --> 04:10:54.976 What are we really excited about

NOTE Confidence: 0.94556527

04:10:54.976 --> 04:10:57.571 and people have always been excited

NOTE Confidence: 0.94556527

04:10:57.571 --> 04:10:59.188 about Bioresorbable devices?

NOTE Confidence: 0.94556527

04:10:59.190 --> 04:11:01.518 Metal stents pose problems for us.

NOTE Confidence: 0.94556527

04:11:01.520 --> 04:11:02.228 They're static.

NOTE Confidence: 0.94556527

04:11:02.228 --> 04:11:03.290 Once they're implanted,

NOTE Confidence: 0.94556527

04:11:03.290 --> 04:11:05.376 they need to be re dilated.

NOTE Confidence: 0.94556527

04:11:05.376 --> 04:11:06.248 With balloons,

NOTE Confidence: 0.94556527

04:11:06.248 --> 04:11:08.864 there are subject to complications such

NOTE Confidence: 0.94556527

04:11:08.864 --> 04:11:11.489 as thrombosis and instant stenosis.

NOTE Confidence: 0.94556527

04:11:11.490 --> 04:11:13.128 And when you implant these stents

NOTE Confidence: 0.94556527

04:11:13.128 --> 04:11:14.220 and little pediatric patients,

NOTE Confidence: 0.94556527

04:11:14.220 --> 04:11:15.820 they can't always be expanded

NOTE Confidence: 0.94556527

04:11:15.820 --> 04:11:17.100 up to adult sizes,

NOTE Confidence: 0.94556527

04:11:17.100 --> 04:11:18.685 leaving the Holy Grail being

NOTE Confidence: 0.94556527

04:11:18.685 --> 04:11:19.636 a biodegradable sent,
NOTE Confidence: 0.94556527

04:11:19.640 --> 04:11:22.298 that will disappear slowly over time,
NOTE Confidence: 0.94556527

04:11:22.300 --> 04:11:24.308 achieve its initial desire,
NOTE Confidence: 0.94556527

04:11:24.308 --> 04:11:26.316 opening up any narrowing,
NOTE Confidence: 0.94556527

04:11:26.320 --> 04:11:28.917 but then just kind of melt away,
NOTE Confidence: 0.94556527

04:11:28.920 --> 04:11:32.628 leaving natural tissue and natural vessel.
NOTE Confidence: 0.94556527

04:11:32.630 --> 04:11:33.674 This is a slide.
NOTE Confidence: 0.94556527

04:11:33.674 --> 04:11:36.431 I got a text from a buddy of mine or
NOTE Confidence: 0.94556527

04:11:36.431 --> 04:11:38.670 a peer over in Minnesota who's been
NOTE Confidence: 0.94556527

04:11:38.670 --> 04:11:40.350 working with the Chinese company.
NOTE Confidence: 0.94556527

04:11:40.350 --> 04:11:41.930 This is a iron based,
NOTE Confidence: 0.94556527

04:11:41.930 --> 04:11:46.238 bioresorbable stent that.
NOTE Confidence: 0.94556527

04:11:46.240 --> 04:11:48.524 Resorbs after approximately 2
NOTE Confidence: 0.94556527

04:11:48.524 --> 04:11:51.950 years in an RV outflow track.
NOTE Confidence: 0.94556527

04:11:51.950 --> 04:11:54.958 And I'm excited that we now have some
NOTE Confidence: 0.94556527

04:11:54.958 --> 04:11:56.569 bioresorbable technology here at Yale,

NOTE Confidence: 0.94556527

04:11:56.570 --> 04:11:58.859 so our traditional way of closing the

NOTE Confidence: 0.94556527

04:11:58.859 --> 04:12:01.362 ASD in patients was the amplatzer ASD

NOTE Confidence: 0.94556527

04:12:01.362 --> 04:12:03.546 occluder or the Gore septal occluder.

NOTE Confidence: 0.94556527

04:12:03.550 --> 04:12:05.305 You can see that it's a lot of metal,

NOTE Confidence: 0.94556527

04:12:05.310 --> 04:12:06.468 some Dacron mesh.

NOTE Confidence: 0.94556527

04:12:06.468 --> 04:12:07.626 It poses problems,

NOTE Confidence: 0.94556527

04:12:07.630 --> 04:12:09.890 particularly if this is implanted

NOTE Confidence: 0.94556527

04:12:09.890 --> 04:12:12.869 early in life and later in life.

NOTE Confidence: 0.94556527

04:12:12.870 --> 04:12:15.342 The patient develops A-fib or a

NOTE Confidence: 0.94556527

04:12:15.342 --> 04:12:16.990 flutter and an electrophysiologist

NOTE Confidence: 0.94556527

04:12:17.061 --> 04:12:19.245 needs to go access the left atrium.

NOTE Confidence: 0.94556527

04:12:19.250 --> 04:12:20.270 It's hard to get a catheter

NOTE Confidence: 0.94556527

04:12:20.270 --> 04:12:21.330 there when you put this big.

NOTE Confidence: 0.94556527

04:12:21.330 --> 04:12:24.170 Until the disk there.

NOTE Confidence: 0.94556527

04:12:24.170 --> 04:12:27.720 Enter the receipt ASD occluder

NOTE Confidence: 0.94556527

04:12:27.720 --> 04:12:30.790 which is the latest buy resorbable
NOTE Confidence: 0.94556527

04:12:30.790 --> 04:12:33.265 ASD device on the market.
NOTE Confidence: 0.94556527

04:12:33.270 --> 04:12:37.771 It's the first and only on device
NOTE Confidence: 0.94556527

04:12:37.771 --> 04:12:41.528 that's metal free with these
NOTE Confidence: 0.94556527

04:12:41.528 --> 04:12:43.782 polyglycol RPGLE filaments.
NOTE Confidence: 0.94556527

04:12:43.782 --> 04:12:48.408 I'm not a scientist or an engineer,
NOTE Confidence: 0.94556527

04:12:48.410 --> 04:12:51.770 but all you've left with after two
NOTE Confidence: 0.94556527

04:12:51.770 --> 04:12:54.590 years following implantation are the Dacron.
NOTE Confidence: 0.94556527

04:12:54.590 --> 04:12:57.654 Patch which makes our
NOTE Confidence: 0.94556527

04:12:57.654 --> 04:13:00.492 electrophysiologists job a lot easier,
NOTE Confidence: 0.94556527

04:13:00.492 --> 04:13:03.600 so I'm happy to report that
NOTE Confidence: 0.787798625684211

04:13:03.600 --> 04:13:06.267 we were were part of the trial
NOTE Confidence: 0.787798625684211

04:13:06.267 --> 04:13:09.080 for this device and we did our
NOTE Confidence: 0.787798625684211

04:13:09.080 --> 04:13:11.060 first implant back in April,
NOTE Confidence: 0.787798625684211

04:13:11.060 --> 04:13:12.556 so a little less than two months ago.
NOTE Confidence: 0.787798625684211

04:13:12.560 --> 04:13:15.120 So I think bioresorbable

NOTE Confidence: 0.787798625684211

04:13:15.120 --> 04:13:17.040 technology is evolving.

NOTE Confidence: 0.787798625684211

04:13:17.040 --> 04:13:18.798 But it's here and we're excited

NOTE Confidence: 0.787798625684211

04:13:18.798 --> 04:13:21.079 to be part of that innovation.

NOTE Confidence: 0.787798625684211

04:13:21.080 --> 04:13:22.208 So with that,

NOTE Confidence: 0.787798625684211

04:13:22.208 --> 04:13:25.540 I think that we continue to evolve.

NOTE Confidence: 0.787798625684211

04:13:25.540 --> 04:13:27.740 Innovate, and we're going to use

NOTE Confidence: 0.787798625684211

04:13:27.740 --> 04:13:29.863 all the technology that we have

NOTE Confidence: 0.787798625684211

04:13:29.863 --> 04:13:32.251 at our finger necks fingertips to

NOTE Confidence: 0.787798625684211

04:13:32.251 --> 04:13:34.190 reduce morbidity and mortality.

NOTE Confidence: 0.787798625684211

04:13:34.190 --> 04:13:35.915 And I think they're more

NOTE Confidence: 0.787798625684211

04:13:35.915 --> 04:13:37.295 exciting things to come.

NOTE Confidence: 0.787798625684211

04:13:37.300 --> 04:13:37.890 Thank you.

NOTE Confidence: 0.76145169

04:13:48.030 --> 04:13:48.700 Thanks Britain.

NOTE Confidence: 0.8422703875

04:13:52.360 --> 04:13:56.420 So we left time at the end for a

NOTE Confidence: 0.8422703875

04:13:56.420 --> 04:13:58.700 question answer session, or you know,

NOTE Confidence: 0.8422703875

04:13:58.700 --> 04:14:01.286 sort of time for people to.

NOTE Confidence: 0.8422703875

04:14:01.290 --> 04:14:02.406 Reminisce a bit.

NOTE Confidence: 0.8422703875

04:14:02.406 --> 04:14:05.010 There's also a lot of which is.

NOTE Confidence: 0.8422703875

04:14:05.010 --> 04:14:07.287 Outside so I I don't know if there if

NOTE Confidence: 0.8422703875

04:14:07.287 --> 04:14:09.191 people feel like they have questions

NOTE Confidence: 0.8422703875

04:14:09.191 --> 04:14:11.470 that they'd like to pitch to anybody.

NOTE Confidence: 0.8422703875

04:14:11.470 --> 04:14:12.538 Any of our speakers.

NOTE Confidence: 0.8422703875

04:14:12.538 --> 04:14:15.432 We can do that for a couple of minutes and

NOTE Confidence: 0.8422703875

04:14:15.432 --> 04:14:18.120 if not we can just mingle outside and.

NOTE Confidence: 0.8422703875

04:14:18.120 --> 04:14:21.780 Eat. OK, let's mingle outside and eat.