

WEBVTT

NOTE duration: "01:40:03.968"

NOTE Confidence: 0.99785817

00:00:00.080 --> 00:00:01.379 Is my great pleasure,

NOTE Confidence: 0.9365522

00:00:02.000 --> 00:00:04.000 to introduce our today's grand

NOTE Confidence: 0.9365522

00:00:04.000 --> 00:00:05.299 round speaker, doctor

NOTE Confidence: 0.7983373

00:00:05.759 --> 00:00:06.740 Liron Pantanovic.

NOTE Confidence: 0.9940469

00:00:07.120 --> 00:00:08.960 Actually, Liron doesn't need any

NOTE Confidence: 0.9940469

00:00:08.960 --> 00:00:10.080 introduction, but I'm going to

NOTE Confidence: 0.9940469

00:00:10.080 --> 00:00:10.820 do it anyway.

NOTE Confidence: 0.9053129

00:00:11.360 --> 00:00:11.860 So,

NOTE Confidence: 0.9707204

00:00:13.655 --> 00:00:15.355 Liron is I'll just start.

NOTE Confidence: 0.960116

00:00:15.735 --> 00:00:17.255 He's the godfather of digital

NOTE Confidence: 0.960116

00:00:17.255 --> 00:00:18.935 pathology. He's the godfather of

NOTE Confidence: 0.960116

00:00:18.935 --> 00:00:21.175 AI in pathology, and it's

NOTE Confidence: 0.960116

00:00:21.175 --> 00:00:22.055 a real blast to have

NOTE Confidence: 0.960116

00:00:22.055 --> 00:00:22.935 him here. Thank you so

NOTE Confidence: 0.960116

00:00:22.935 --> 00:00:24.454 much for coming, Liron. And,
NOTE Confidence: 0.9645693

00:00:25.415 --> 00:00:27.180 in terms of, like,
NOTE Confidence: 0.9859284

00:00:27.580 --> 00:00:28.700 you know, his education and
NOTE Confidence: 0.9859284

00:00:28.700 --> 00:00:30.780 everything, Liron actually is,
NOTE Confidence: 0.8825675

00:00:31.420 --> 00:00:33.420 is started his undergraduate and
NOTE Confidence: 0.8825675

00:00:33.420 --> 00:00:34.320 graduate studies
NOTE Confidence: 0.94729125

00:00:34.700 --> 00:00:36.380 in South Africa where he
NOTE Confidence: 0.94729125

00:00:36.380 --> 00:00:37.979 actually initially also practiced a
NOTE Confidence: 0.94729125

00:00:37.979 --> 00:00:40.140 little bit. Then, he moved
NOTE Confidence: 0.94729125

00:00:40.140 --> 00:00:41.354 to US in nineteen ninety
NOTE Confidence: 0.94729125

00:00:41.354 --> 00:00:43.034 nine where he did his
NOTE Confidence: 0.94729125

00:00:43.034 --> 00:00:43.534 residency
NOTE Confidence: 0.8793058

00:00:44.155 --> 00:00:45.915 in APN CP at Tibet
NOTE Confidence: 0.8793058

00:00:45.915 --> 00:00:47.515 Israel, so in the neighborhood
NOTE Confidence: 0.8793058

00:00:47.515 --> 00:00:48.575 in up in Boston.
NOTE Confidence: 0.9677782

00:00:49.675 --> 00:00:52.015 He, also did their hematopathology

NOTE Confidence: 0.996092
00:00:52.555 --> 00:00:53.055 fellowship
NOTE Confidence: 0.881444
00:00:53.650 --> 00:00:55.270 and followed by the cytopathology
NOTE Confidence: 0.881444
00:00:55.570 --> 00:00:56.770 fellowship in a Bay State,
NOTE Confidence: 0.9132994
00:00:57.489 --> 00:00:59.110 medical center. As a pathologist,
NOTE Confidence: 0.9132994
00:00:59.250 --> 00:01:01.090 he started his career first
NOTE Confidence: 0.9132994
00:01:01.090 --> 00:01:02.130 as an instructor in a
NOTE Confidence: 0.9132994
00:01:02.130 --> 00:01:02.950 Harvard system,
NOTE Confidence: 0.9969567
00:01:03.809 --> 00:01:04.530 and then,
NOTE Confidence: 0.96996915
00:01:05.170 --> 00:01:06.370 he moved to Tufts in
NOTE Confidence: 0.96996915
00:01:06.370 --> 00:01:08.165 two thousand five, stayed there
NOTE Confidence: 0.96996915
00:01:08.165 --> 00:01:09.465 for five years,
NOTE Confidence: 0.9196125
00:01:09.925 --> 00:01:11.545 and then came to Pittsburgh
NOTE Confidence: 0.9196125
00:01:11.765 --> 00:01:12.825 in two thousand
NOTE Confidence: 0.95112747
00:01:13.365 --> 00:01:14.405 two thousand ten. I couldn't
NOTE Confidence: 0.95112747
00:01:14.405 --> 00:01:15.285 believe it. It was two
NOTE Confidence: 0.95112747

00:01:15.285 --> 00:01:16.805 thousand ten. So it was
NOTE Confidence: 0.95112747

00:01:16.805 --> 00:01:18.725 really my great privilege to
NOTE Confidence: 0.95112747

00:01:18.725 --> 00:01:20.245 know Liron at that time
NOTE Confidence: 0.95112747

00:01:20.245 --> 00:01:20.645 and,
NOTE Confidence: 0.93911904

00:01:22.450 --> 00:01:25.810 he's absolutely brilliant pathologist. He's
NOTE Confidence: 0.93911904

00:01:25.810 --> 00:01:27.590 definitely independent thinker,
NOTE Confidence: 0.9252906

00:01:27.970 --> 00:01:29.030 progressive thinker.
NOTE Confidence: 0.98730636

00:01:30.850 --> 00:01:31.350 He
NOTE Confidence: 0.9982457

00:01:31.650 --> 00:01:32.150 published
NOTE Confidence: 0.9551912

00:01:32.530 --> 00:01:33.810 over you stopped your CV
NOTE Confidence: 0.9551912

00:01:33.810 --> 00:01:35.170 in twenty twenty three, over
NOTE Confidence: 0.9551912

00:01:35.170 --> 00:01:35.990 six hundred
NOTE Confidence: 0.94415075

00:01:36.915 --> 00:01:39.575 manuscripts, book chapters, everything else,
NOTE Confidence: 0.94415075

00:01:39.875 --> 00:01:41.975 numerous talks across the world,
NOTE Confidence: 0.94415075

00:01:42.194 --> 00:01:43.955 and he's really the one
NOTE Confidence: 0.94415075

00:01:43.955 --> 00:01:45.415 who actually paid the way

NOTE Confidence: 0.94415075
00:01:45.475 --> 00:01:47.155 for the digital pathologist to
NOTE Confidence: 0.94415075
00:01:47.155 --> 00:01:49.175 digital pathology. And he had
NOTE Confidence: 0.94415075
00:01:49.395 --> 00:01:51.335 idea of how digital pathology
NOTE Confidence: 0.94415075
00:01:51.395 --> 00:01:52.590 should work in a clinical
NOTE Confidence: 0.94415075
00:01:52.590 --> 00:01:54.829 a clinical sense twenty twenty
NOTE Confidence: 0.94415075
00:01:54.829 --> 00:01:56.590 five years ago, and it's
NOTE Confidence: 0.94415075
00:01:56.590 --> 00:01:58.270 actually great to see that
NOTE Confidence: 0.94415075
00:01:58.270 --> 00:01:59.390 this is coming now in
NOTE Confidence: 0.94415075
00:01:59.390 --> 00:02:00.750 life. So I'll stop there,
NOTE Confidence: 0.94415075
00:02:00.750 --> 00:02:02.429 Lerim, because I can go
NOTE Confidence: 0.94415075
00:02:02.429 --> 00:02:04.109 forever about you, but thank
NOTE Confidence: 0.94415075
00:02:04.109 --> 00:02:05.810 you so much. Thank you.
NOTE Confidence: 0.98110104
00:02:12.465 --> 00:02:14.005 So good afternoon, everyone.
NOTE Confidence: 0.9315623
00:02:15.025 --> 00:02:16.145 And thank you, doctor Dacek,
NOTE Confidence: 0.9315623
00:02:16.145 --> 00:02:17.185 and thank you for inviting
NOTE Confidence: 0.9315623

00:02:17.185 --> 00:02:17.985 me to be your grand
NOTE Confidence: 0.9315623

00:02:17.985 --> 00:02:18.725 round speaker.
NOTE Confidence: 0.992447

00:02:19.665 --> 00:02:21.345 So in October of two
NOTE Confidence: 0.992447

00:02:21.345 --> 00:02:22.565 thousand and thirteen,
NOTE Confidence: 0.9935821

00:02:24.370 --> 00:02:25.830 I was standing right here.
NOTE Confidence: 0.9324974

00:02:26.290 --> 00:02:28.050 So doctor Morrow had invited
NOTE Confidence: 0.9324974

00:02:28.050 --> 00:02:29.090 me for grand rounds back
NOTE Confidence: 0.9324974

00:02:29.090 --> 00:02:30.530 in two thousand thirteen. And
NOTE Confidence: 0.9324974

00:02:30.530 --> 00:02:31.810 guess what I was asked
NOTE Confidence: 0.9324974

00:02:31.810 --> 00:02:33.570 to talk about? Digital pathology
NOTE Confidence: 0.9324974

00:02:33.570 --> 00:02:34.230 at UPMC.
NOTE Confidence: 0.97648615

00:02:34.850 --> 00:02:35.810 So I'm hoping in the
NOTE Confidence: 0.97648615

00:02:35.810 --> 00:02:36.930 twelve plus years that I
NOTE Confidence: 0.97648615

00:02:36.930 --> 00:02:37.669 can update,
NOTE Confidence: 0.9668498

00:02:38.764 --> 00:02:39.724 whatever I spoke to you
NOTE Confidence: 0.9668498

00:02:39.724 --> 00:02:41.325 about then. This is not

NOTE Confidence: 0.9668498
00:02:41.325 --> 00:02:42.364 a just a rehash of
NOTE Confidence: 0.9668498
00:02:42.364 --> 00:02:43.505 the same old PowerPoint.
NOTE Confidence: 0.9983417
00:02:45.645 --> 00:02:47.105 Okay. That being said,
NOTE Confidence: 0.95410126
00:02:48.285 --> 00:02:49.165 I do wanna let you
NOTE Confidence: 0.95410126
00:02:49.165 --> 00:02:49.665 know,
NOTE Confidence: 0.94447476
00:02:49.965 --> 00:02:50.764 I work a lot with
NOTE Confidence: 0.94447476
00:02:50.764 --> 00:02:52.605 industry either on advisory boards,
NOTE Confidence: 0.94447476
00:02:52.605 --> 00:02:53.910 consult with them. I have
NOTE Confidence: 0.94447476
00:02:53.910 --> 00:02:55.430 these two startups which have
NOTE Confidence: 0.94447476
00:02:55.430 --> 00:02:56.870 gone nowhere. In fact, they've
NOTE Confidence: 0.94447476
00:02:56.870 --> 00:02:58.090 only cost me money.
NOTE Confidence: 0.96720463
00:03:00.230 --> 00:03:01.510 But I wanted to disclose
NOTE Confidence: 0.96720463
00:03:01.510 --> 00:03:02.389 that, and none of that
NOTE Confidence: 0.96720463
00:03:02.389 --> 00:03:03.830 should really influence the contents
NOTE Confidence: 0.96720463
00:03:03.830 --> 00:03:04.730 of this talk.
NOTE Confidence: 0.98858833

00:03:06.165 --> 00:03:07.764 So my objective is pretty
NOTE Confidence: 0.98858833
00:03:07.764 --> 00:03:08.264 simple.
NOTE Confidence: 0.96697885
00:03:08.645 --> 00:03:09.764 There are three of them.
NOTE Confidence: 0.96697885
00:03:09.764 --> 00:03:10.264 One,
NOTE Confidence: 0.9837481
00:03:10.645 --> 00:03:11.764 I wanted to review with
NOTE Confidence: 0.9837481
00:03:11.764 --> 00:03:12.965 you the evolution of digital
NOTE Confidence: 0.9837481
00:03:12.965 --> 00:03:14.105 pathology at UPMC,
NOTE Confidence: 0.9748601
00:03:14.885 --> 00:03:15.845 and you'll see it was
NOTE Confidence: 0.9748601
00:03:15.845 --> 00:03:17.285 not an easy pathway. And
NOTE Confidence: 0.9748601
00:03:17.285 --> 00:03:18.805 we are still on that
NOTE Confidence: 0.9748601
00:03:18.805 --> 00:03:19.305 evolutionary
NOTE Confidence: 0.86893463
00:03:19.685 --> 00:03:20.825 pathway because
NOTE Confidence: 0.9110095
00:03:21.364 --> 00:03:22.350 when when people say we're
NOTE Confidence: 0.9110095
00:03:22.350 --> 00:03:23.230 going digital or we're going
NOTE Confidence: 0.9110095
00:03:23.230 --> 00:03:24.050 to start digital,
NOTE Confidence: 0.9369899
00:03:24.590 --> 00:03:25.389 what the one thing they

NOTE Confidence: 0.9369899
00:03:25.389 --> 00:03:26.510 don't realize is it's a
NOTE Confidence: 0.9369899
00:03:26.510 --> 00:03:28.030 never ending pathway. It's like
NOTE Confidence: 0.9369899
00:03:28.030 --> 00:03:29.150 when you buy your first
NOTE Confidence: 0.9369899
00:03:29.150 --> 00:03:29.650 iPhone,
NOTE Confidence: 0.96211845
00:03:30.270 --> 00:03:31.310 you know, next year there'll
NOTE Confidence: 0.96211845
00:03:31.310 --> 00:03:32.270 be another version of an
NOTE Confidence: 0.96211845
00:03:32.270 --> 00:03:33.150 iPhone, and you're going to
NOTE Confidence: 0.96211845
00:03:33.150 --> 00:03:33.950 have to learn to use
NOTE Confidence: 0.96211845
00:03:33.950 --> 00:03:34.930 it and so forth.
NOTE Confidence: 0.9541922
00:03:35.585 --> 00:03:36.945 I do want to point
NOTE Confidence: 0.9541922
00:03:36.945 --> 00:03:38.625 out that along this journey,
NOTE Confidence: 0.9541922
00:03:38.625 --> 00:03:39.825 at UPMC, none of that
NOTE Confidence: 0.9541922
00:03:39.825 --> 00:03:40.785 was easy. None of it
NOTE Confidence: 0.9541922
00:03:40.785 --> 00:03:41.905 was perfect. We made a
NOTE Confidence: 0.9541922
00:03:41.905 --> 00:03:43.025 lot of mistakes. And so
NOTE Confidence: 0.9541922

00:03:43.025 --> 00:03:44.065 I know that you're on
NOTE Confidence: 0.9541922

00:03:44.065 --> 00:03:45.585 a digital pathology journey of
NOTE Confidence: 0.9541922

00:03:45.585 --> 00:03:46.945 your own. And so I'll
NOTE Confidence: 0.9541922

00:03:46.945 --> 00:03:48.225 share some of our lessons,
NOTE Confidence: 0.9541922

00:03:48.225 --> 00:03:48.965 and hopefully
NOTE Confidence: 0.9185248

00:03:49.505 --> 00:03:50.725 they'll benefit you.
NOTE Confidence: 0.9528036

00:03:51.040 --> 00:03:51.780 And finally,
NOTE Confidence: 0.95975584

00:03:52.800 --> 00:03:54.880 everything we did, every camera
NOTE Confidence: 0.95975584

00:03:54.880 --> 00:03:57.360 we purchased, ultimately helped build
NOTE Confidence: 0.95975584

00:03:57.360 --> 00:03:58.020 the infrastructure,
NOTE Confidence: 0.9480119

00:03:58.960 --> 00:04:00.740 helped get people more savvy,
NOTE Confidence: 0.9864031

00:04:01.120 --> 00:04:02.900 and receptive to using technology,
NOTE Confidence: 0.9864031

00:04:03.120 --> 00:04:04.560 and our own institution to
NOTE Confidence: 0.9864031

00:04:04.560 --> 00:04:06.415 understanding that we need to
NOTE Confidence: 0.9864031

00:04:06.415 --> 00:04:07.694 evolve and be flexible in
NOTE Confidence: 0.9864031

00:04:07.694 --> 00:04:08.735 order to keep up with

NOTE Confidence: 0.9864031
00:04:08.735 --> 00:04:10.254 the practice of medicine so
NOTE Confidence: 0.9864031
00:04:10.254 --> 00:04:11.295 that we can have an
NOTE Confidence: 0.9864031
00:04:11.295 --> 00:04:12.495 infrastructure in which we can
NOTE Confidence: 0.9864031
00:04:12.495 --> 00:04:14.275 actually use artificial intelligence.
NOTE Confidence: 0.8712939
00:04:16.895 --> 00:04:18.675 So my belief simply
NOTE Confidence: 0.96029747
00:04:19.089 --> 00:04:20.850 with digitizing slides, and I'll
NOTE Confidence: 0.96029747
00:04:20.850 --> 00:04:22.210 confine most of my talk
NOTE Confidence: 0.96029747
00:04:22.210 --> 00:04:23.830 to anatomical pathology,
NOTE Confidence: 0.9842332
00:04:24.529 --> 00:04:25.750 and a lot of that
NOTE Confidence: 0.9842332
00:04:25.810 --> 00:04:26.210 to,
NOTE Confidence: 0.9998909
00:04:26.850 --> 00:04:27.910 surgical pathology
NOTE Confidence: 0.9543892
00:04:28.449 --> 00:04:29.410 because there's a lot that
NOTE Confidence: 0.9543892
00:04:29.410 --> 00:04:30.690 can be said about lab
NOTE Confidence: 0.9543892
00:04:30.690 --> 00:04:31.190 medicine
NOTE Confidence: 0.8772484
00:04:31.654 --> 00:04:33.095 going digital too as well
NOTE Confidence: 0.8772484

00:04:33.095 --> 00:04:33.675 as cytology,
NOTE Confidence: 0.9460181

00:04:34.855 --> 00:04:36.055 is is the minute you
NOTE Confidence: 0.9460181

00:04:36.055 --> 00:04:37.835 digitize your glass slide,
NOTE Confidence: 0.9990288

00:04:38.375 --> 00:04:39.515 you gain the portability
NOTE Confidence: 0.99283755

00:04:40.135 --> 00:04:41.495 and the applications you can
NOTE Confidence: 0.99283755

00:04:41.495 --> 00:04:42.695 run on that. And I've
NOTE Confidence: 0.99283755

00:04:42.695 --> 00:04:43.755 had many conversations
NOTE Confidence: 0.96400195

00:04:44.689 --> 00:04:46.289 with some very serious famous
NOTE Confidence: 0.96400195

00:04:46.289 --> 00:04:46.789 pathologists,
NOTE Confidence: 0.97303236

00:04:48.050 --> 00:04:49.409 and I've told them simply
NOTE Confidence: 0.97303236

00:04:49.409 --> 00:04:51.490 that, who have were very
NOTE Confidence: 0.97303236

00:04:51.490 --> 00:04:53.110 resistant to going digital,
NOTE Confidence: 0.9992661

00:04:54.129 --> 00:04:55.650 that the reason they have
NOTE Confidence: 0.9992661

00:04:55.650 --> 00:04:57.349 their own mobile phone
NOTE Confidence: 0.9775592

00:04:58.214 --> 00:04:59.895 is, one, that they don't
NOTE Confidence: 0.9775592

00:04:59.895 --> 00:05:00.535 have to be in their

NOTE Confidence: 0.9775592

00:05:00.535 --> 00:05:01.815 office to use their landline

NOTE Confidence: 0.9775592

00:05:01.815 --> 00:05:03.035 to make a phone call

NOTE Confidence: 0.96389544

00:05:03.495 --> 00:05:04.535 even though they know that

NOTE Confidence: 0.96389544

00:05:04.535 --> 00:05:05.495 the phone call you'll make

NOTE Confidence: 0.96389544

00:05:05.495 --> 00:05:06.535 in your office is way

NOTE Confidence: 0.96389544

00:05:06.535 --> 00:05:08.214 more clear than using your

NOTE Confidence: 0.96389544

00:05:08.214 --> 00:05:10.295 mobile phone, traveling, going through

NOTE Confidence: 0.96389544

00:05:10.295 --> 00:05:12.029 a tunnel, but you you

NOTE Confidence: 0.96389544

00:05:12.029 --> 00:05:13.570 still enjoy the portability.

NOTE Confidence: 0.9397968

00:05:14.270 --> 00:05:16.029 But more than that is

NOTE Confidence: 0.9397968

00:05:16.029 --> 00:05:16.910 all the apps you have

NOTE Confidence: 0.9397968

00:05:16.910 --> 00:05:18.510 on you. Check your email,

NOTE Confidence: 0.9397968

00:05:18.510 --> 00:05:20.270 use your GPS, now chat,

NOTE Confidence: 0.9397968

00:05:20.270 --> 00:05:21.710 GPT, etcetera. And that would

NOTE Confidence: 0.9397968

00:05:21.710 --> 00:05:22.610 not be possible

NOTE Confidence: 0.99383885

00:05:23.710 --> 00:05:25.070 if you don't digitize your
NOTE Confidence: 0.99383885

00:05:25.070 --> 00:05:25.570 slides.
NOTE Confidence: 0.96800053

00:05:26.945 --> 00:05:28.385 So, as a chair, there
NOTE Confidence: 0.96800053

00:05:28.385 --> 00:05:29.505 are several things that I
NOTE Confidence: 0.96800053

00:05:29.505 --> 00:05:30.625 would like to accomplish in
NOTE Confidence: 0.96800053

00:05:30.625 --> 00:05:31.285 my department,
NOTE Confidence: 0.9774537

00:05:32.305 --> 00:05:33.345 and I think I've already
NOTE Confidence: 0.9774537

00:05:33.345 --> 00:05:34.404 shared these with,
NOTE Confidence: 0.96470195

00:05:34.945 --> 00:05:36.625 your chair. But the first
NOTE Confidence: 0.96470195

00:05:36.625 --> 00:05:38.145 is medicine is a very
NOTE Confidence: 0.96470195

00:05:38.145 --> 00:05:39.820 connected field. And, you know,
NOTE Confidence: 0.96470195

00:05:39.820 --> 00:05:40.779 unless we're going to stay
NOTE Confidence: 0.96470195

00:05:40.779 --> 00:05:41.980 in the basement with our
NOTE Confidence: 0.96470195

00:05:41.980 --> 00:05:43.900 paperwork and microscopes forever, no
NOTE Confidence: 0.96470195

00:05:43.900 --> 00:05:44.960 one will know us.
NOTE Confidence: 0.9843773

00:05:45.340 --> 00:05:46.620 So I am trying to

NOTE Confidence: 0.9843773
00:05:46.620 --> 00:05:48.540 consolidate everything where I am.
NOTE Confidence: 0.9843773
00:05:48.540 --> 00:05:50.160 We're a forty plus hospital
NOTE Confidence: 0.9843773
00:05:50.220 --> 00:05:50.720 system.
NOTE Confidence: 0.9769668
00:05:51.544 --> 00:05:52.824 Pathologists are not all in
NOTE Confidence: 0.9769668
00:05:52.824 --> 00:05:54.505 the same area. So if
NOTE Confidence: 0.9769668
00:05:54.505 --> 00:05:55.865 I can consolidate that, in
NOTE Confidence: 0.9769668
00:05:55.865 --> 00:05:57.085 fact, I have to consolidate
NOTE Confidence: 0.9769668
00:05:57.145 --> 00:05:58.105 that. I just don't have
NOTE Confidence: 0.9769668
00:05:58.105 --> 00:05:59.324 enough cytotechnologists
NOTE Confidence: 0.98587155
00:06:00.025 --> 00:06:01.005 and histotechnologists
NOTE Confidence: 0.9982036
00:06:01.544 --> 00:06:02.525 to put in labs
NOTE Confidence: 0.9966548
00:06:02.985 --> 00:06:04.125 all over the place.
NOTE Confidence: 0.99894726
00:06:04.550 --> 00:06:05.210 We definitely
NOTE Confidence: 0.83721924
00:06:05.510 --> 00:06:06.310 need to need to be
NOTE Confidence: 0.83721924
00:06:06.310 --> 00:06:06.810 efficient.
NOTE Confidence: 0.94576746

00:06:07.190 --> 00:06:09.350 Someone's working from home. Someone
NOTE Confidence: 0.94576746

00:06:09.350 --> 00:06:10.089 needs coverage.
NOTE Confidence: 0.93843216

00:06:10.550 --> 00:06:11.430 The only way I can
NOTE Confidence: 0.93843216

00:06:11.430 --> 00:06:12.310 really do that is with
NOTE Confidence: 0.93843216

00:06:12.310 --> 00:06:12.810 telepathology.
NOTE Confidence: 0.9994953

00:06:13.270 --> 00:06:14.570 The only way to reduce
NOTE Confidence: 0.93727857

00:06:15.029 --> 00:06:17.690 turnaround time, majorly between hospitals,
NOTE Confidence: 0.93727857

00:06:17.990 --> 00:06:19.850 is by using digital images.
NOTE Confidence: 0.9665543

00:06:20.525 --> 00:06:21.404 And for me to have
NOTE Confidence: 0.9665543

00:06:21.404 --> 00:06:22.605 someone pull an old slide,
NOTE Confidence: 0.9665543

00:06:22.605 --> 00:06:23.805 if someone has a resection
NOTE Confidence: 0.9665543

00:06:23.805 --> 00:06:24.525 or they're going to do
NOTE Confidence: 0.9665543

00:06:24.525 --> 00:06:25.565 a frozen section, they would
NOTE Confidence: 0.9665543

00:06:25.565 --> 00:06:26.785 love to see a prior
NOTE Confidence: 0.9665543

00:06:26.845 --> 00:06:28.845 immediately within a minute, not
NOTE Confidence: 0.9665543

00:06:28.845 --> 00:06:29.825 put in a request

NOTE Confidence: 0.9198927

00:06:30.445 --> 00:06:32.205 that may never actually deliver

NOTE Confidence: 0.9198927

00:06:32.205 --> 00:06:33.245 a slide to you is

NOTE Confidence: 0.9198927

00:06:33.245 --> 00:06:34.145 to go digital.

NOTE Confidence: 0.9556441

00:06:34.889 --> 00:06:36.089 Plus the distribution of the

NOTE Confidence: 0.9556441

00:06:36.089 --> 00:06:38.169 workload. So we, in Pittsburgh,

NOTE Confidence: 0.9556441

00:06:38.169 --> 00:06:39.150 have a very subspecialized

NOTE Confidence: 0.94244254

00:06:39.529 --> 00:06:40.970 practice, a lot of, you

NOTE Confidence: 0.94244254

00:06:40.970 --> 00:06:42.669 know, people in different areas.

NOTE Confidence: 0.9612664

00:06:43.289 --> 00:06:44.750 And to support the subspecialization,

NOTE Confidence: 0.99288005

00:06:45.289 --> 00:06:46.490 they need the cases sent

NOTE Confidence: 0.99288005

00:06:46.490 --> 00:06:47.850 to them. And throughout our

NOTE Confidence: 0.99288005

00:06:47.850 --> 00:06:49.345 system, the best way to

NOTE Confidence: 0.99288005

00:06:49.345 --> 00:06:50.705 refer cases to them is

NOTE Confidence: 0.99288005

00:06:50.705 --> 00:06:51.985 from community to do that

NOTE Confidence: 0.99288005

00:06:51.985 --> 00:06:53.205 digitally these days.

NOTE Confidence: 0.9952113

00:06:54.385 --> 00:06:55.345 And if you don't go
NOTE Confidence: 0.9952113

00:06:55.345 --> 00:06:56.964 digital and you don't integrate,
NOTE Confidence: 0.9984215

00:06:57.425 --> 00:06:58.865 you can forget about using
NOTE Confidence: 0.9984215

00:06:58.865 --> 00:06:59.764 AI effectively.
NOTE Confidence: 0.9480637

00:07:01.960 --> 00:07:03.000 Now the hospital and the
NOTE Confidence: 0.9480637

00:07:03.000 --> 00:07:04.039 dean obviously want to know
NOTE Confidence: 0.9480637

00:07:04.039 --> 00:07:05.400 from me, well, Iran, if
NOTE Confidence: 0.9480637

00:07:05.400 --> 00:07:06.279 we give you all this
NOTE Confidence: 0.9480637

00:07:06.279 --> 00:07:07.740 money to invest in technology,
NOTE Confidence: 0.9675518

00:07:08.599 --> 00:07:10.280 where's the revenue? Where can
NOTE Confidence: 0.9675518

00:07:10.280 --> 00:07:11.639 you make money out of
NOTE Confidence: 0.9675518

00:07:11.639 --> 00:07:13.000 using the technology? Or how
NOTE Confidence: 0.9675518

00:07:13.000 --> 00:07:13.960 are you going to save
NOTE Confidence: 0.9675518

00:07:13.960 --> 00:07:15.400 costs? And, you know, that
NOTE Confidence: 0.9675518

00:07:15.400 --> 00:07:16.699 is a difficult question,
NOTE Confidence: 0.95077753

00:07:17.615 --> 00:07:19.875 to answer. But also importantly

NOTE Confidence: 0.95077753

00:07:20.015 --> 00:07:21.455 is where's the quality that

NOTE Confidence: 0.95077753

00:07:21.455 --> 00:07:22.495 you add? Is there a

NOTE Confidence: 0.95077753

00:07:22.495 --> 00:07:24.035 value to doing this?

NOTE Confidence: 0.96088374

00:07:24.415 --> 00:07:26.195 And, of course, lower liability.

NOTE Confidence: 0.9601756

00:07:26.735 --> 00:07:27.855 It just takes one twenty

NOTE Confidence: 0.9601756

00:07:27.855 --> 00:07:29.615 million dollars lawsuit that could

NOTE Confidence: 0.9601756

00:07:29.615 --> 00:07:31.395 have been prevented using technology.

NOTE Confidence: 0.9803358

00:07:32.200 --> 00:07:33.640 We learned that mistake back

NOTE Confidence: 0.9803358

00:07:33.640 --> 00:07:35.320 in the barcoding era. There

NOTE Confidence: 0.9803358

00:07:35.320 --> 00:07:36.280 was no money to be

NOTE Confidence: 0.9803358

00:07:36.280 --> 00:07:37.640 made in barcoding all your

NOTE Confidence: 0.9803358

00:07:37.640 --> 00:07:39.240 slides and your blocks. But,

NOTE Confidence: 0.9803358

00:07:39.240 --> 00:07:40.120 if there was a mix

NOTE Confidence: 0.9803358

00:07:40.120 --> 00:07:41.100 up of a case,

NOTE Confidence: 0.9938329

00:07:41.560 --> 00:07:42.700 if you didn't barcode,

NOTE Confidence: 0.97995526

00:07:43.960 --> 00:07:45.000 you know, that was well
NOTE Confidence: 0.97995526

00:07:45.000 --> 00:07:46.140 worth the money spent.
NOTE Confidence: 0.9818421

00:07:46.955 --> 00:07:48.155 We are in this era
NOTE Confidence: 0.9818421

00:07:48.155 --> 00:07:49.995 of computational pathology, which is
NOTE Confidence: 0.9818421

00:07:49.995 --> 00:07:50.495 AI.
NOTE Confidence: 0.9282249

00:07:52.235 --> 00:07:53.455 And I think it's essential
NOTE Confidence: 0.99540246

00:07:53.755 --> 00:07:55.435 for pathologists and trainees to
NOTE Confidence: 0.99540246

00:07:55.435 --> 00:07:56.955 know how to create, validate,
NOTE Confidence: 0.99540246

00:07:56.955 --> 00:07:57.935 and use AI.
NOTE Confidence: 0.986948

00:07:58.970 --> 00:07:59.850 Most people don't even know
NOTE Confidence: 0.986948

00:07:59.850 --> 00:08:01.230 how to monitor AI.
NOTE Confidence: 0.9903471

00:08:01.690 --> 00:08:02.890 And there are lots of
NOTE Confidence: 0.9903471

00:08:02.890 --> 00:08:04.090 companies who want to work
NOTE Confidence: 0.9903471

00:08:04.090 --> 00:08:04.590 with
NOTE Confidence: 0.976885

00:08:05.610 --> 00:08:07.770 industry and academia to join
NOTE Confidence: 0.976885

00:08:07.770 --> 00:08:09.550 that partnership to advance technology.

NOTE Confidence: 0.976885
00:08:09.850 --> 00:08:10.810 They cannot do it on
NOTE Confidence: 0.976885
00:08:10.810 --> 00:08:12.695 their own. And frankly, the
NOTE Confidence: 0.976885
00:08:12.695 --> 00:08:14.215 way that federal funding and
NOTE Confidence: 0.976885
00:08:14.215 --> 00:08:15.735 everything else is going, it
NOTE Confidence: 0.976885
00:08:15.735 --> 00:08:16.535 makes a whole lot of
NOTE Confidence: 0.976885
00:08:16.535 --> 00:08:17.815 sense to work with industry
NOTE Confidence: 0.976885
00:08:17.815 --> 00:08:18.935 to try and get stuff
NOTE Confidence: 0.976885
00:08:18.935 --> 00:08:19.435 done.
NOTE Confidence: 0.9742966
00:08:21.095 --> 00:08:22.935 Plus, the residents that apply
NOTE Confidence: 0.9742966
00:08:22.935 --> 00:08:24.729 to our programs now, the
NOTE Confidence: 0.9742966
00:08:24.729 --> 00:08:25.610 fellows that want to come
NOTE Confidence: 0.9742966
00:08:25.610 --> 00:08:27.210 work at UPMC, and even
NOTE Confidence: 0.9742966
00:08:27.210 --> 00:08:28.909 the junior faculty who
NOTE Confidence: 0.961871
00:08:29.849 --> 00:08:31.289 went to residency programs that
NOTE Confidence: 0.961871
00:08:31.289 --> 00:08:32.490 were fully digital do not
NOTE Confidence: 0.961871

00:08:32.490 --> 00:08:33.450 want to take jobs with
NOTE Confidence: 0.961871

00:08:33.450 --> 00:08:35.070 us unless we're fully digital.
NOTE Confidence: 0.961871

00:08:35.130 --> 00:08:37.015 And so there are many
NOTE Confidence: 0.961871

00:08:37.015 --> 00:08:38.375 residents that request to speak
NOTE Confidence: 0.961871

00:08:38.375 --> 00:08:39.495 to me because they want
NOTE Confidence: 0.961871

00:08:39.495 --> 00:08:41.035 to know my digital pathology
NOTE Confidence: 0.961871

00:08:41.095 --> 00:08:42.695 roadmap before they match and
NOTE Confidence: 0.961871

00:08:42.695 --> 00:08:43.895 rank us, believe it or
NOTE Confidence: 0.961871

00:08:43.895 --> 00:08:44.395 not.
NOTE Confidence: 0.97549623

00:08:45.654 --> 00:08:46.795 And, of course, the reputation
NOTE Confidence: 0.97549623

00:08:46.855 --> 00:08:47.515 of Pitt.
NOTE Confidence: 0.988607

00:08:48.535 --> 00:08:49.415 We want to be known
NOTE Confidence: 0.988607

00:08:49.415 --> 00:08:50.455 as a place in Pittsburgh
NOTE Confidence: 0.988607

00:08:50.455 --> 00:08:51.495 where we do cutting edge
NOTE Confidence: 0.988607

00:08:51.495 --> 00:08:52.709 technology. We do not wanna
NOTE Confidence: 0.988607

00:08:52.709 --> 00:08:53.769 be known as

NOTE Confidence: 0.9837616
00:08:54.309 --> 00:08:56.230 a steel industry city like
NOTE Confidence: 0.9837616
00:08:56.230 --> 00:08:57.690 we were fifty years ago.
NOTE Confidence: 0.9993326
00:08:58.389 --> 00:09:00.149 Two, we want our clinicians
NOTE Confidence: 0.9993326
00:09:00.149 --> 00:09:01.190 and our patients to know
NOTE Confidence: 0.9993326
00:09:01.190 --> 00:09:02.550 that we can offer them
NOTE Confidence: 0.9993326
00:09:02.550 --> 00:09:04.410 the latest and greatest cancer
NOTE Confidence: 0.9923499
00:09:04.790 --> 00:09:05.290 diagnostics,
NOTE Confidence: 0.98757225
00:09:05.750 --> 00:09:06.889 prognostics, etcetera.
NOTE Confidence: 0.96324974
00:09:07.355 --> 00:09:09.115 So the next in vitro
NOTE Confidence: 0.96324974
00:09:09.115 --> 00:09:10.475 diagnostic test that comes out,
NOTE Confidence: 0.96324974
00:09:10.475 --> 00:09:11.355 and there are many that
NOTE Confidence: 0.96324974
00:09:11.355 --> 00:09:12.395 pharma are working on, if
NOTE Confidence: 0.96324974
00:09:12.395 --> 00:09:13.855 you can only do that
NOTE Confidence: 0.99543905
00:09:14.315 --> 00:09:15.675 by scoring it with a
NOTE Confidence: 0.99543905
00:09:15.675 --> 00:09:16.175 computer
NOTE Confidence: 0.9366092

00:09:16.955 --> 00:09:17.995 because look at the mess
NOTE Confidence: 0.9366092

00:09:17.995 --> 00:09:19.740 with PDL one, right, how
NOTE Confidence: 0.9366092

00:09:19.820 --> 00:09:20.620 How we have to score
NOTE Confidence: 0.9366092

00:09:20.620 --> 00:09:21.500 that manually and all the
NOTE Confidence: 0.9366092

00:09:21.500 --> 00:09:23.179 different scoring systems. We wanna
NOTE Confidence: 0.9366092

00:09:23.179 --> 00:09:24.140 be at the forefront of
NOTE Confidence: 0.9366092

00:09:24.140 --> 00:09:24.640 that.
NOTE Confidence: 0.986747

00:09:25.660 --> 00:09:26.779 And people wanna come and
NOTE Confidence: 0.986747

00:09:26.779 --> 00:09:27.899 work with us. We opened
NOTE Confidence: 0.986747

00:09:27.899 --> 00:09:29.500 an AI center just over
NOTE Confidence: 0.986747

00:09:29.500 --> 00:09:30.320 a year ago,
NOTE Confidence: 0.99954176

00:09:31.020 --> 00:09:32.480 and I get about
NOTE Confidence: 0.99982965

00:09:32.955 --> 00:09:33.455 twenty
NOTE Confidence: 0.99947053

00:09:33.915 --> 00:09:34.415 emails
NOTE Confidence: 0.99923104

00:09:34.955 --> 00:09:36.235 every month from people wanting
NOTE Confidence: 0.99923104

00:09:36.235 --> 00:09:37.215 to come and work

NOTE Confidence: 0.9712804
00:09:37.595 --> 00:09:38.875 in our AI center with
NOTE Confidence: 0.9712804
00:09:38.875 --> 00:09:40.475 us, etcetera. So we wanna
NOTE Confidence: 0.9712804
00:09:40.475 --> 00:09:42.235 attract talent. Now here's the
NOTE Confidence: 0.9712804
00:09:42.235 --> 00:09:44.155 reality, okay, which many of
NOTE Confidence: 0.9712804
00:09:44.155 --> 00:09:45.250 you know. I'm not yet
NOTE Confidence: 0.9712804
00:09:45.250 --> 00:09:47.089 to sell you your vacation
NOTE Confidence: 0.9712804
00:09:47.089 --> 00:09:47.970 on the left, which is
NOTE Confidence: 0.9712804
00:09:47.970 --> 00:09:49.089 what the postcard and the
NOTE Confidence: 0.9712804
00:09:49.089 --> 00:09:51.329 flyer does, okay, because that's
NOTE Confidence: 0.9712804
00:09:51.329 --> 00:09:53.170 what the digital pathology vendors
NOTE Confidence: 0.9712804
00:09:53.170 --> 00:09:53.829 tell you.
NOTE Confidence: 0.91279
00:09:54.850 --> 00:09:56.209 Buy the system and install
NOTE Confidence: 0.91279
00:09:56.209 --> 00:09:57.170 it, and that's what life
NOTE Confidence: 0.91279
00:09:57.170 --> 00:09:58.290 will be like. Reality is
NOTE Confidence: 0.91279
00:09:58.290 --> 00:09:59.250 what it more like on
NOTE Confidence: 0.91279

00:09:59.250 --> 00:10:00.130 the right. When you arrive
NOTE Confidence: 0.91279

00:10:00.130 --> 00:10:00.735 at your
NOTE Confidence: 0.94333696

00:10:01.375 --> 00:10:02.755 paradise beach vacation,
NOTE Confidence: 0.933288

00:10:03.934 --> 00:10:05.375 that's what digital pathology looks
NOTE Confidence: 0.933288

00:10:05.375 --> 00:10:06.815 like. Okay. It's messy and
NOTE Confidence: 0.933288

00:10:06.815 --> 00:10:08.015 it's difficult and, you know,
NOTE Confidence: 0.933288

00:10:08.015 --> 00:10:09.635 the IT systems aren't integrated
NOTE Confidence: 0.933288

00:10:09.774 --> 00:10:10.975 and things are more expensive
NOTE Confidence: 0.933288

00:10:10.975 --> 00:10:12.575 than you had anticipated. So
NOTE Confidence: 0.933288

00:10:12.575 --> 00:10:13.394 let me actually
NOTE Confidence: 0.97650075

00:10:14.220 --> 00:10:15.339 give you a reality check
NOTE Confidence: 0.97650075

00:10:15.339 --> 00:10:16.699 and not paint paradise for
NOTE Confidence: 0.97650075

00:10:16.699 --> 00:10:17.819 you. So just a little
NOTE Confidence: 0.97650075

00:10:17.819 --> 00:10:18.459 bit of what are we
NOTE Confidence: 0.97650075

00:10:18.459 --> 00:10:19.500 talking about when one talks
NOTE Confidence: 0.97650075

00:10:19.500 --> 00:10:20.959 about digital pathology workflow.

NOTE Confidence: 0.9815658
00:10:21.579 --> 00:10:23.019 So the most important thing
NOTE Confidence: 0.9815658
00:10:23.019 --> 00:10:25.199 about digital pathology, which hopefully
NOTE Confidence: 0.9815658
00:10:25.339 --> 00:10:26.779 you'll get throughout this talk,
NOTE Confidence: 0.9815658
00:10:26.779 --> 00:10:27.980 is the pre imaging part.
NOTE Confidence: 0.9815658
00:10:27.980 --> 00:10:29.324 Before a slide even gets
NOTE Confidence: 0.9815658
00:10:29.324 --> 00:10:30.545 onto a scanner,
NOTE Confidence: 0.98787665
00:10:30.925 --> 00:10:32.204 if you haven't done certain
NOTE Confidence: 0.98787665
00:10:32.204 --> 00:10:33.964 things, your digital pathology will
NOTE Confidence: 0.98787665
00:10:33.964 --> 00:10:35.725 fail. But the pre imaging
NOTE Confidence: 0.98787665
00:10:35.725 --> 00:10:37.564 side starts with scanning a
NOTE Confidence: 0.98787665
00:10:37.564 --> 00:10:38.845 slide, and if you haven't
NOTE Confidence: 0.98787665
00:10:38.845 --> 00:10:40.444 barcoded that slide, you can
NOTE Confidence: 0.98787665
00:10:40.444 --> 00:10:42.204 forget about an automated system
NOTE Confidence: 0.98787665
00:10:42.204 --> 00:10:43.490 that works well. And if
NOTE Confidence: 0.98787665
00:10:43.490 --> 00:10:44.570 you don't have the perfect
NOTE Confidence: 0.98787665

00:10:44.570 --> 00:10:46.110 barcode, believe it or not,
NOTE Confidence: 0.9977605

00:10:46.730 --> 00:10:47.470 about ten
NOTE Confidence: 0.96503204

00:10:47.929 --> 00:10:49.050 percent or more of those
NOTE Confidence: 0.96503204

00:10:49.050 --> 00:10:50.490 slides will get scanned, but
NOTE Confidence: 0.96503204

00:10:50.490 --> 00:10:52.089 they're going to cyberspace. They're
NOTE Confidence: 0.96503204

00:10:52.089 --> 00:10:52.890 not going to get linked
NOTE Confidence: 0.96503204

00:10:52.890 --> 00:10:54.089 to your LIS or wherever
NOTE Confidence: 0.96503204

00:10:54.089 --> 00:10:55.130 you want. Okay. So you
NOTE Confidence: 0.96503204

00:10:55.130 --> 00:10:56.670 really need good barcoding,
NOTE Confidence: 0.99396485

00:10:57.370 --> 00:10:58.589 practices in place.
NOTE Confidence: 0.9315904

00:10:58.965 --> 00:11:00.025 And then on the top,
NOTE Confidence: 0.9315904

00:11:00.085 --> 00:11:01.285 as you can see, how
NOTE Confidence: 0.9315904

00:11:01.285 --> 00:11:02.665 you're going to also scan
NOTE Confidence: 0.99817604

00:11:03.205 --> 00:11:04.505 cytology, microbiology,
NOTE Confidence: 0.964042

00:11:05.125 --> 00:11:05.625 hematopathology,
NOTE Confidence: 0.9839272

00:11:06.245 --> 00:11:07.925 and fluorescence images. For those,

NOTE Confidence: 0.9839272
00:11:07.925 --> 00:11:09.525 you kind of need some
NOTE Confidence: 0.9839272
00:11:09.525 --> 00:11:11.225 niche workflows and niche,
NOTE Confidence: 0.98575896
00:11:12.325 --> 00:11:13.765 scanners. But once you've scanned
NOTE Confidence: 0.98575896
00:11:13.765 --> 00:11:14.505 your slide,
NOTE Confidence: 0.9997331
00:11:15.500 --> 00:11:16.720 you can store those
NOTE Confidence: 0.9759124
00:11:17.260 --> 00:11:18.620 and ideally link it to
NOTE Confidence: 0.9759124
00:11:18.620 --> 00:11:20.220 your lab information system. I've
NOTE Confidence: 0.9759124
00:11:20.220 --> 00:11:21.760 always been a proponent of
NOTE Confidence: 0.9759124
00:11:21.820 --> 00:11:23.820 practicing pathology with an LIS
NOTE Confidence: 0.9759124
00:11:23.820 --> 00:11:25.580 driven workflow. Not that I
NOTE Confidence: 0.9759124
00:11:25.580 --> 00:11:27.100 love the lab information system,
NOTE Confidence: 0.9759124
00:11:27.100 --> 00:11:28.080 but that's where
NOTE Confidence: 0.99767023
00:11:28.824 --> 00:11:30.505 our workflow goes through. That's
NOTE Confidence: 0.99767023
00:11:30.505 --> 00:11:32.184 where we do reporting and
NOTE Confidence: 0.99767023
00:11:32.184 --> 00:11:32.684 auditing.
NOTE Confidence: 0.9945731

00:11:33.144 --> 00:11:33.545 That's,
NOTE Confidence: 0.9867717

00:11:33.945 --> 00:11:35.704 you know, where billing happens.
NOTE Confidence: 0.9867717

00:11:35.704 --> 00:11:37.545 And wherever billing happens, that's
NOTE Confidence: 0.9867717

00:11:37.545 --> 00:11:38.425 where they want you to
NOTE Confidence: 0.9867717

00:11:38.425 --> 00:11:38.925 work.
NOTE Confidence: 0.95915055

00:11:40.184 --> 00:11:41.304 You can store it with
NOTE Confidence: 0.95915055

00:11:41.304 --> 00:11:42.929 an enterprise. The The VNA
NOTE Confidence: 0.95915055

00:11:42.929 --> 00:11:44.210 stands for a vendor neutral
NOTE Confidence: 0.95915055

00:11:44.210 --> 00:11:45.990 archive. So if your institution
NOTE Confidence: 0.95915055

00:11:46.050 --> 00:11:47.570 has an imaging strategy that
NOTE Confidence: 0.95915055

00:11:47.570 --> 00:11:50.130 all images, radiology, pathology, all
NOTE Confidence: 0.95915055

00:11:50.130 --> 00:11:51.410 other ologies will be stored
NOTE Confidence: 0.95915055

00:11:51.410 --> 00:11:53.270 somewhere and either viewed
NOTE Confidence: 0.9921939

00:11:53.730 --> 00:11:55.490 by everyone in practice or
NOTE Confidence: 0.9921939

00:11:55.490 --> 00:11:56.610 at least stored and used
NOTE Confidence: 0.9921939

00:11:56.610 --> 00:11:57.915 for research, you can do

NOTE Confidence: 0.9921939
00:11:57.915 --> 00:11:58.415 that.
NOTE Confidence: 0.9914581
00:11:59.115 --> 00:11:59.995 And then, of course, when
NOTE Confidence: 0.9914581
00:11:59.995 --> 00:12:01.115 the image is available for
NOTE Confidence: 0.9914581
00:12:01.115 --> 00:12:02.255 someone on a workstation,
NOTE Confidence: 0.99289036
00:12:03.195 --> 00:12:04.715 all the applications are endless.
NOTE Confidence: 0.99289036
00:12:04.715 --> 00:12:06.015 You can share it remotely.
NOTE Confidence: 0.99289036
00:12:06.154 --> 00:12:07.054 That's telepathology.
NOTE Confidence: 0.99755585
00:12:07.915 --> 00:12:09.135 You can make a diagnosis
NOTE Confidence: 0.9833529
00:12:09.450 --> 00:12:10.570 of that image, which is
NOTE Confidence: 0.9833529
00:12:10.570 --> 00:12:12.250 primary diagnosis, meaning you don't
NOTE Confidence: 0.9833529
00:12:12.250 --> 00:12:13.630 need the glass slide anymore.
NOTE Confidence: 0.9681524
00:12:14.330 --> 00:12:15.950 You can analyze the pixels,
NOTE Confidence: 0.9681524
00:12:16.250 --> 00:12:18.350 quantitative image analysis or AI,
NOTE Confidence: 0.9681524
00:12:18.570 --> 00:12:19.690 and then use it for
NOTE Confidence: 0.9681524
00:12:19.690 --> 00:12:21.710 research, education, and so forth.
NOTE Confidence: 0.98211443

00:12:22.214 --> 00:12:23.495 Okay. So this is the
NOTE Confidence: 0.98211443

00:12:23.495 --> 00:12:25.415 evolution of how digital pathology
NOTE Confidence: 0.98211443

00:12:25.415 --> 00:12:27.255 unfolded at UPMC in this
NOTE Confidence: 0.98211443

00:12:27.255 --> 00:12:28.394 actual order.
NOTE Confidence: 0.95312804

00:12:29.495 --> 00:12:31.834 One was virtual education, two
NOTE Confidence: 0.95312804

00:12:31.894 --> 00:12:34.235 tumor boards, frozen section telepathology,
NOTE Confidence: 0.9485233

00:12:34.774 --> 00:12:35.675 then teleconsultation.
NOTE Confidence: 0.91831535

00:12:36.870 --> 00:12:38.710 Then we added telecytology for
NOTE Confidence: 0.91831535

00:12:38.710 --> 00:12:40.070 the rapid on-site e dials
NOTE Confidence: 0.91831535

00:12:40.070 --> 00:12:40.730 in cytology.
NOTE Confidence: 0.98887444

00:12:41.590 --> 00:12:42.710 Then we went to primary
NOTE Confidence: 0.98887444

00:12:42.710 --> 00:12:43.210 diagnosis.
NOTE Confidence: 0.96591085

00:12:43.750 --> 00:12:44.790 Then we opened an image
NOTE Confidence: 0.96591085

00:12:44.790 --> 00:12:46.250 analysis lab to do quantitative
NOTE Confidence: 0.96591085

00:12:46.309 --> 00:12:47.050 image analysis.
NOTE Confidence: 0.9942696

00:12:47.510 --> 00:12:48.890 And now we're using AI.

NOTE Confidence: 0.9942696

00:12:49.054 --> 00:12:50.255 So I'll run through that

NOTE Confidence: 0.9942696

00:12:50.255 --> 00:12:51.615 with you. The pictures I've

NOTE Confidence: 0.9942696

00:12:51.615 --> 00:12:52.815 shown you are actual real

NOTE Confidence: 0.9942696

00:12:52.815 --> 00:12:54.574 pictures from UPMC. We've been

NOTE Confidence: 0.9942696

00:12:54.574 --> 00:12:56.115 through every kind of hardware,

NOTE Confidence: 0.9942696

00:12:56.175 --> 00:12:57.795 software, camera, scanner,

NOTE Confidence: 0.9690207

00:12:58.495 --> 00:12:58.995 homegrown,

NOTE Confidence: 0.8960389

00:12:59.375 --> 00:12:59.875 commercial,

NOTE Confidence: 0.9950919

00:13:00.334 --> 00:13:01.535 and so we've learned from

NOTE Confidence: 0.9950919

00:13:01.535 --> 00:13:02.574 that. And not only have

NOTE Confidence: 0.9950919

00:13:02.574 --> 00:13:04.309 we learned from that, but

NOTE Confidence: 0.9950919

00:13:04.309 --> 00:13:05.830 our IT department has learned

NOTE Confidence: 0.9950919

00:13:05.830 --> 00:13:06.950 from that. We have IT

NOTE Confidence: 0.9950919

00:13:06.950 --> 00:13:08.709 analysts that have used all

NOTE Confidence: 0.9950919

00:13:08.709 --> 00:13:09.990 of these instruments and are

NOTE Confidence: 0.9950919

00:13:09.990 --> 00:13:11.929 very comfortable, you know, with
NOTE Confidence: 0.9899383

00:13:12.470 --> 00:13:14.390 modern technology having gone through
NOTE Confidence: 0.9899383

00:13:14.390 --> 00:13:15.690 this process with us.
NOTE Confidence: 0.9528319

00:13:16.245 --> 00:13:17.125 So the first thing we
NOTE Confidence: 0.9528319

00:13:17.125 --> 00:13:18.965 did was virtual education. Our
NOTE Confidence: 0.9528319

00:13:18.965 --> 00:13:20.085 residents back in the day
NOTE Confidence: 0.9528319

00:13:20.085 --> 00:13:21.445 wanted to look at slides
NOTE Confidence: 0.9528319

00:13:21.445 --> 00:13:24.485 virtually. UPMC was unfortunately very
NOTE Confidence: 0.9528319

00:13:24.485 --> 00:13:26.265 geographically dispersed. We had hospitals
NOTE Confidence: 0.9528319

00:13:26.325 --> 00:13:28.085 all over Pittsburgh. Now residents
NOTE Confidence: 0.9528319

00:13:28.085 --> 00:13:29.045 had to rotate and how
NOTE Confidence: 0.9528319

00:13:29.045 --> 00:13:30.380 are they gonna do unknown
NOTE Confidence: 0.9528319

00:13:30.380 --> 00:13:31.660 conferences and so on. So
NOTE Confidence: 0.9528319

00:13:31.660 --> 00:13:33.440 they wanted a virtual
NOTE Confidence: 0.9600217

00:13:34.620 --> 00:13:36.059 platform to do that. There
NOTE Confidence: 0.9600217

00:13:36.059 --> 00:13:37.740 was nothing commercially available. So

NOTE Confidence: 0.9600217
00:13:37.900 --> 00:13:39.260 and Neil Parwani and myself
NOTE Confidence: 0.9600217
00:13:39.260 --> 00:13:40.140 back in the day working
NOTE Confidence: 0.9600217
00:13:40.140 --> 00:13:41.020 with IT, we built our
NOTE Confidence: 0.9600217
00:13:41.020 --> 00:13:42.240 own homegrown system.
NOTE Confidence: 0.99655294
00:13:42.915 --> 00:13:43.634 I'll tell you that it's
NOTE Confidence: 0.99655294
00:13:43.634 --> 00:13:44.995 better than any commercial system
NOTE Confidence: 0.99655294
00:13:44.995 --> 00:13:46.454 out there today. Nevertheless,
NOTE Confidence: 0.99264497
00:13:46.995 --> 00:13:48.695 UPMC didn't want us to
NOTE Confidence: 0.9374627
00:13:49.394 --> 00:13:50.755 build. They wanted us to
NOTE Confidence: 0.9374627
00:13:50.755 --> 00:13:52.295 buy. So we bought PathXL,
NOTE Confidence: 0.9061893
00:13:52.755 --> 00:13:54.434 worked wonderfully. Then Philips bought
NOTE Confidence: 0.9061893
00:13:54.434 --> 00:13:55.875 it and shut it down.
NOTE Confidence: 0.9061893
00:13:55.875 --> 00:13:56.834 And now we use Path
NOTE Confidence: 0.9061893
00:13:56.834 --> 00:13:57.334 Presenter.
NOTE Confidence: 0.9695381
00:13:57.990 --> 00:13:59.270 But the picture I've shown
NOTE Confidence: 0.9695381

00:13:59.270 --> 00:14:01.830 you there is a resident
NOTE Confidence: 0.9695381

00:14:01.830 --> 00:14:02.710 who wanted to do a
NOTE Confidence: 0.9695381

00:14:02.710 --> 00:14:03.750 one month elective with me
NOTE Confidence: 0.9695381

00:14:03.750 --> 00:14:04.410 in Cytology.
NOTE Confidence: 0.9766804

00:14:05.030 --> 00:14:06.150 And that, by the way,
NOTE Confidence: 0.9766804

00:14:06.150 --> 00:14:08.010 is probably fifteen years ago.
NOTE Confidence: 0.96109843

00:14:10.584 --> 00:14:11.625 You will notice, and I
NOTE Confidence: 0.96109843

00:14:11.625 --> 00:14:12.425 took a picture as I
NOTE Confidence: 0.96109843

00:14:12.425 --> 00:14:13.705 was walking by, she has
NOTE Confidence: 0.96109843

00:14:13.705 --> 00:14:15.065 pushed the microscope off to
NOTE Confidence: 0.96109843

00:14:15.065 --> 00:14:16.505 the side and she's looking
NOTE Confidence: 0.96109843

00:14:16.505 --> 00:14:17.945 at all the cytology teaching
NOTE Confidence: 0.96109843

00:14:17.945 --> 00:14:19.705 sets on a monitor. And
NOTE Confidence: 0.96109843

00:14:19.705 --> 00:14:21.305 boy, that's a terrible monitor,
NOTE Confidence: 0.96109843

00:14:21.305 --> 00:14:23.050 such low resolution. But she
NOTE Confidence: 0.96109843

00:14:23.050 --> 00:14:24.170 spent the month going through

NOTE Confidence: 0.96109843
00:14:24.170 --> 00:14:25.610 all our teaching sets because
NOTE Confidence: 0.96109843
00:14:25.610 --> 00:14:26.890 she had a natural affinity
NOTE Confidence: 0.96109843
00:14:26.890 --> 00:14:27.870 to doing it digitally.
NOTE Confidence: 0.987578
00:14:28.410 --> 00:14:29.610 Maybe that's why she became
NOTE Confidence: 0.987578
00:14:29.610 --> 00:14:30.190 a dermatopathologist
NOTE Confidence: 0.90412354
00:14:30.730 --> 00:14:32.110 today. But, nevertheless,
NOTE Confidence: 0.98709476
00:14:32.970 --> 00:14:34.270 that was our first foray
NOTE Confidence: 0.98709476
00:14:34.330 --> 00:14:35.770 because the residents forced us
NOTE Confidence: 0.98709476
00:14:35.770 --> 00:14:36.510 to go digital,
NOTE Confidence: 0.99955827
00:14:37.005 --> 00:14:38.145 and they still do today.
NOTE Confidence: 0.9991853
00:14:39.885 --> 00:14:40.865 The next was
NOTE Confidence: 0.94421
00:14:41.725 --> 00:14:43.085 our residents and fellows got
NOTE Confidence: 0.94421
00:14:43.085 --> 00:14:45.105 tired of running tumor boards
NOTE Confidence: 0.94421
00:14:45.165 --> 00:14:46.445 the old fashioned way, and
NOTE Confidence: 0.94421
00:14:46.445 --> 00:14:47.325 they were the ones that
NOTE Confidence: 0.94421

00:14:47.325 --> 00:14:48.065 pushed us.
NOTE Confidence: 0.9324922

00:14:48.845 --> 00:14:50.225 That is Soumyk Roy.
NOTE Confidence: 0.903567

00:14:50.525 --> 00:14:51.740 He was a a resident
NOTE Confidence: 0.903567

00:14:51.740 --> 00:14:53.339 in our program. This is
NOTE Confidence: 0.903567

00:14:53.339 --> 00:14:54.060 his year when he did
NOTE Confidence: 0.903567

00:14:54.060 --> 00:14:55.260 his GU fellowship. Then he
NOTE Confidence: 0.903567

00:14:55.260 --> 00:14:56.720 became a molecular pathology,
NOTE Confidence: 0.97768426

00:14:58.220 --> 00:14:59.420 guru, and now he's a
NOTE Confidence: 0.97768426

00:14:59.420 --> 00:15:00.380 big deal at the University
NOTE Confidence: 0.97768426

00:15:00.380 --> 00:15:01.120 of Cincinnati.
NOTE Confidence: 0.9612348

00:15:01.899 --> 00:15:03.100 But what Soumyk did was
NOTE Confidence: 0.9612348

00:15:03.100 --> 00:15:04.625 Soumyk was, you know, very
NOTE Confidence: 0.9612348

00:15:04.625 --> 00:15:06.145 digitally savvy, liked to code
NOTE Confidence: 0.9612348

00:15:06.145 --> 00:15:06.945 for a hobby on the
NOTE Confidence: 0.9612348

00:15:06.945 --> 00:15:07.665 side, and he came to
NOTE Confidence: 0.9612348

00:15:07.665 --> 00:15:08.785 me and said, Doctor. Bentano,

NOTE Confidence: 0.9612348
00:15:08.785 --> 00:15:09.285 it's
NOTE Confidence: 0.96423554
00:15:10.145 --> 00:15:11.024 the worst part of my
NOTE Confidence: 0.96423554
00:15:11.024 --> 00:15:13.185 GU fellowship is every other
NOTE Confidence: 0.96423554
00:15:13.185 --> 00:15:13.985 day I've got to go
NOTE Confidence: 0.96423554
00:15:13.985 --> 00:15:15.265 and find the slides. I've
NOTE Confidence: 0.96423554
00:15:15.265 --> 00:15:16.225 got to take photos and
NOTE Confidence: 0.96423554
00:15:16.225 --> 00:15:17.365 put them in a PowerPoint
NOTE Confidence: 0.96423554
00:15:17.425 --> 00:15:17.925 presentation.
NOTE Confidence: 0.9609703
00:15:18.450 --> 00:15:19.170 And then I have to
NOTE Confidence: 0.9609703
00:15:19.170 --> 00:15:20.290 show up at the tumor
NOTE Confidence: 0.9609703
00:15:20.290 --> 00:15:20.790 boards.
NOTE Confidence: 0.9637754
00:15:21.730 --> 00:15:22.930 And every time, you know,
NOTE Confidence: 0.9637754
00:15:22.930 --> 00:15:23.890 if it's a different room,
NOTE Confidence: 0.9637754
00:15:23.890 --> 00:15:24.530 I've got to figure out
NOTE Confidence: 0.9637754
00:15:24.530 --> 00:15:25.410 how to plug in this
NOTE Confidence: 0.9637754

00:15:25.410 --> 00:15:27.250 USB, and and, it's asking
NOTE Confidence: 0.9637754

00:15:27.250 --> 00:15:28.870 me to reformat the drive.
NOTE Confidence: 0.8728188

00:15:29.250 --> 00:15:30.470 And then the GU
NOTE Confidence: 0.9611073

00:15:30.945 --> 00:15:32.705 surgeons, the urologists are asking
NOTE Confidence: 0.9611073

00:15:32.705 --> 00:15:34.145 me questions that had nothing
NOTE Confidence: 0.9611073

00:15:34.145 --> 00:15:35.025 to do with the pictures
NOTE Confidence: 0.9611073

00:15:35.025 --> 00:15:35.985 I took, and I couldn't
NOTE Confidence: 0.9611073

00:15:35.985 --> 00:15:36.725 show them.
NOTE Confidence: 0.8719406

00:15:37.185 --> 00:15:38.625 So it was embarrassing. Whereas
NOTE Confidence: 0.8719406

00:15:38.625 --> 00:15:39.985 the radiologist would just show
NOTE Confidence: 0.8719406

00:15:39.985 --> 00:15:40.485 up
NOTE Confidence: 0.91188705

00:15:40.865 --> 00:15:42.065 one minute before the a
NOTE Confidence: 0.91188705

00:15:42.065 --> 00:15:43.105 coffee in hand, log on,
NOTE Confidence: 0.91188705

00:15:43.105 --> 00:15:44.145 and they could see anything.
NOTE Confidence: 0.91188705

00:15:44.145 --> 00:15:45.025 Go back. Look at the
NOTE Confidence: 0.91188705

00:15:45.025 --> 00:15:46.385 CT, that CT. Like so

NOTE Confidence: 0.91188705

00:15:46.385 --> 00:15:47.760 can can we go digital?

NOTE Confidence: 0.91188705

00:15:47.820 --> 00:15:48.779 And so I said to

NOTE Confidence: 0.91188705

00:15:48.779 --> 00:15:50.080 Soren, let's do it.

NOTE Confidence: 0.93391025

00:15:51.260 --> 00:15:52.300 And so he used his

NOTE Confidence: 0.93391025

00:15:52.300 --> 00:15:53.900 own iPad. All the GU

NOTE Confidence: 0.93391025

00:15:53.900 --> 00:15:55.040 slides got scanned,

NOTE Confidence: 0.98075646

00:15:55.980 --> 00:15:57.339 and he was fully prepared

NOTE Confidence: 0.98075646

00:15:57.339 --> 00:15:58.080 for TumorBoard.

NOTE Confidence: 0.8641983

00:15:58.540 --> 00:15:59.279 So today,

NOTE Confidence: 0.9503647

00:16:00.485 --> 00:16:01.365 and I did this recent

NOTE Confidence: 0.9503647

00:16:01.365 --> 00:16:02.805 calculation because UPMC asked me,

NOTE Confidence: 0.9503647

00:16:02.805 --> 00:16:04.245 where's the return on investment

NOTE Confidence: 0.9503647

00:16:04.245 --> 00:16:06.165 if we digitize all forty

NOTE Confidence: 0.9503647

00:16:06.165 --> 00:16:07.145 of your hospitals?

NOTE Confidence: 0.96356237

00:16:07.605 --> 00:16:09.225 So we run fifty TumorBoard

NOTE Confidence: 0.9676047

00:16:09.925 --> 00:16:11.865 throughout our UPMC system.

NOTE Confidence: 0.9710133

00:16:12.660 --> 00:16:14.180 Many hours are invested in

NOTE Confidence: 0.9710133

00:16:14.180 --> 00:16:15.779 that. And we calculated that's

NOTE Confidence: 0.9710133

00:16:15.779 --> 00:16:17.380 three FTEs a week to

NOTE Confidence: 0.9710133

00:16:17.380 --> 00:16:18.600 run those tumor boards.

NOTE Confidence: 0.9728236

00:16:19.860 --> 00:16:20.899 Now that most of those

NOTE Confidence: 0.9728236

00:16:20.899 --> 00:16:22.339 are digital, not all, but

NOTE Confidence: 0.9728236

00:16:22.339 --> 00:16:23.459 most of those are digital,

NOTE Confidence: 0.9728236

00:16:23.459 --> 00:16:25.459 I'm saving three FTEs worth

NOTE Confidence: 0.9728236

00:16:25.459 --> 00:16:27.755 of time and obviously administrators

NOTE Confidence: 0.9728236

00:16:27.894 --> 00:16:29.355 like that. So

NOTE Confidence: 0.97716475

00:16:30.695 --> 00:16:32.214 the next advantage of going

NOTE Confidence: 0.97716475

00:16:32.214 --> 00:16:33.675 digital is that,

NOTE Confidence: 0.975581

00:16:34.135 --> 00:16:35.175 you can run your tumor

NOTE Confidence: 0.975581

00:16:35.175 --> 00:16:36.454 boards. And whether you scan

NOTE Confidence: 0.975581

00:16:36.454 --> 00:16:36.954 prospectively

NOTE Confidence: 0.99689263

00:16:37.255 --> 00:16:38.855 or retrospectively, you still can

NOTE Confidence: 0.99689263

00:16:38.855 --> 00:16:40.154 run your tumor boards.

NOTE Confidence: 0.9315768

00:16:41.300 --> 00:16:42.819 Now, the number one application

NOTE Confidence: 0.9315768

00:16:42.819 --> 00:16:44.019 for me is if you

NOTE Confidence: 0.9315768

00:16:44.019 --> 00:16:45.060 go digital is that you

NOTE Confidence: 0.9315768

00:16:45.060 --> 00:16:46.120 can share that image.

NOTE Confidence: 0.9427654

00:16:46.819 --> 00:16:47.699 And I still think that's

NOTE Confidence: 0.9427654

00:16:47.699 --> 00:16:49.139 the number one application even

NOTE Confidence: 0.9427654

00:16:49.139 --> 00:16:50.199 more so than AI.

NOTE Confidence: 0.97726697

00:16:50.899 --> 00:16:52.259 It's way easier to move

NOTE Confidence: 0.97726697

00:16:52.259 --> 00:16:53.459 an image than to tell

NOTE Confidence: 0.97726697

00:16:53.459 --> 00:16:54.805 a patient You can only

NOTE Confidence: 0.97726697

00:16:54.805 --> 00:16:56.404 get your neurosurgery done at

NOTE Confidence: 0.97726697

00:16:56.404 --> 00:16:58.324 this facility because that's where

NOTE Confidence: 0.97726697

00:16:58.324 --> 00:16:59.365 we can do the frozen

NOTE Confidence: 0.97726697

00:16:59.365 --> 00:16:59.865 sections,
NOTE Confidence: 0.93799335

00:17:00.884 --> 00:17:02.565 or a particular procedure. And
NOTE Confidence: 0.93799335

00:17:02.565 --> 00:17:04.085 it's so much easier and
NOTE Confidence: 0.93799335

00:17:04.085 --> 00:17:05.684 actually less expensive to move
NOTE Confidence: 0.93799335

00:17:05.684 --> 00:17:07.500 an image around them than
NOTE Confidence: 0.93799335

00:17:07.500 --> 00:17:08.940 to have a pathologist move
NOTE Confidence: 0.93799335

00:17:08.940 --> 00:17:09.980 around, to go do a
NOTE Confidence: 0.93799335

00:17:09.980 --> 00:17:10.859 frozen or to go look
NOTE Confidence: 0.93799335

00:17:10.859 --> 00:17:12.300 at a cytology touch grip
NOTE Confidence: 0.93799335

00:17:12.300 --> 00:17:13.040 or imprint.
NOTE Confidence: 0.97025335

00:17:13.580 --> 00:17:15.020 So in the acute setting,
NOTE Confidence: 0.97025335

00:17:15.020 --> 00:17:16.480 you can do frozen sections
NOTE Confidence: 0.8973009

00:17:16.780 --> 00:17:18.940 or wrap it on-site emails
NOTE Confidence: 0.8973009

00:17:18.940 --> 00:17:20.859 for cytology digitally. Makes a
NOTE Confidence: 0.8973009

00:17:20.859 --> 00:17:21.840 whole lot of sense.
NOTE Confidence: 0.9994119

00:17:22.804 --> 00:17:23.705 If you have time,

NOTE Confidence: 0.98551637
00:17:24.164 --> 00:17:24.885 you can send it to
NOTE Confidence: 0.98551637
00:17:24.885 --> 00:17:25.924 someone to make a primary
NOTE Confidence: 0.98551637
00:17:25.924 --> 00:17:26.424 diagnosis,
NOTE Confidence: 0.99913675
00:17:26.725 --> 00:17:27.845 or you can receive a
NOTE Confidence: 0.99913675
00:17:27.845 --> 00:17:28.984 consult. So that's
NOTE Confidence: 0.9929713
00:17:29.525 --> 00:17:30.265 the advantage.
NOTE Confidence: 0.93099034
00:17:31.845 --> 00:17:33.065 I often get calls,
NOTE Confidence: 0.96344495
00:17:33.924 --> 00:17:34.984 even from Yale,
NOTE Confidence: 0.9769548
00:17:35.500 --> 00:17:36.859 Like, which system should we
NOTE Confidence: 0.9769548
00:17:36.859 --> 00:17:38.059 use? And that's for me,
NOTE Confidence: 0.9769548
00:17:38.059 --> 00:17:39.100 like, which system are we
NOTE Confidence: 0.9769548
00:17:39.100 --> 00:17:39.980 buying? And the problem is
NOTE Confidence: 0.9769548
00:17:39.980 --> 00:17:41.100 we have so many systems
NOTE Confidence: 0.9769548
00:17:41.100 --> 00:17:42.320 now that you can pick
NOTE Confidence: 0.9377722
00:17:42.779 --> 00:17:44.539 live views, whole site imaging
NOTE Confidence: 0.9377722

00:17:44.539 --> 00:17:45.440 views, etcetera.
NOTE Confidence: 0.963289

00:17:45.980 --> 00:17:47.419 And I simplify it as
NOTE Confidence: 0.963289

00:17:47.419 --> 00:17:48.940 this. So if you're attaching
NOTE Confidence: 0.963289

00:17:48.940 --> 00:17:50.535 something to your camera mean,
NOTE Confidence: 0.963289

00:17:50.535 --> 00:17:51.494 sorry, if you're attaching something
NOTE Confidence: 0.963289

00:17:51.494 --> 00:17:52.695 to your microscope or camera,
NOTE Confidence: 0.963289

00:17:52.695 --> 00:17:53.895 whether you're streaming a video
NOTE Confidence: 0.963289

00:17:53.895 --> 00:17:54.955 or taking a picture,
NOTE Confidence: 0.9376042

00:17:55.734 --> 00:17:56.775 you need someone on the
NOTE Confidence: 0.9376042

00:17:56.775 --> 00:17:58.375 other end who knows what
NOTE Confidence: 0.9376042

00:17:58.375 --> 00:17:59.494 they're looking at, such a
NOTE Confidence: 0.9376042

00:17:59.494 --> 00:17:59.994 technologist,
NOTE Confidence: 0.97737235

00:18:00.295 --> 00:18:01.755 a pathologist, etcetera,
NOTE Confidence: 0.9981537

00:18:03.015 --> 00:18:04.715 in order to practice telepathology.
NOTE Confidence: 0.9839105

00:18:05.750 --> 00:18:06.869 But if you can scan
NOTE Confidence: 0.9839105

00:18:06.869 --> 00:18:08.310 the whole slide without having

NOTE Confidence: 0.9839105
00:18:08.310 --> 00:18:10.170 anyone skilled, just a PA,
NOTE Confidence: 0.9552439
00:18:10.869 --> 00:18:12.070 maybe a resident in their
NOTE Confidence: 0.9552439
00:18:12.070 --> 00:18:13.990 first year, or even someone
NOTE Confidence: 0.9552439
00:18:13.990 --> 00:18:15.130 who's like a radiology,
NOTE Confidence: 0.992875
00:18:17.270 --> 00:18:17.770 assistant
NOTE Confidence: 0.97149223
00:18:18.070 --> 00:18:19.270 who can just load the
NOTE Confidence: 0.97149223
00:18:19.270 --> 00:18:20.170 slide for you,
NOTE Confidence: 0.9168885
00:18:20.744 --> 00:18:21.785 then you can use robotic
NOTE Confidence: 0.9168885
00:18:21.785 --> 00:18:22.845 or whole side imaging.
NOTE Confidence: 0.9283624
00:18:23.545 --> 00:18:24.984 And and we've used and
NOTE Confidence: 0.9283624
00:18:24.984 --> 00:18:26.185 are using all of these
NOTE Confidence: 0.9283624
00:18:26.185 --> 00:18:27.085 different setups.
NOTE Confidence: 0.9838165
00:18:28.505 --> 00:18:29.785 The first time we decided
NOTE Confidence: 0.9838165
00:18:29.785 --> 00:18:31.405 to do frozen sections remotely
NOTE Confidence: 0.9838165
00:18:31.465 --> 00:18:31.965 was,
NOTE Confidence: 0.97999305

00:18:33.000 --> 00:18:34.680 in two thousand and one,
NOTE Confidence: 0.97999305

00:18:34.680 --> 00:18:35.800 which is a long time
NOTE Confidence: 0.97999305

00:18:35.800 --> 00:18:36.300 ago.
NOTE Confidence: 0.9864652

00:18:37.000 --> 00:18:37.500 And
NOTE Confidence: 0.8817108

00:18:38.440 --> 00:18:39.640 at some point, we had
NOTE Confidence: 0.8817108

00:18:39.640 --> 00:18:40.460 no option
NOTE Confidence: 0.9754935

00:18:40.920 --> 00:18:41.420 because
NOTE Confidence: 0.99941987

00:18:42.200 --> 00:18:44.140 we were covering frozen sections
NOTE Confidence: 0.85240704

00:18:44.520 --> 00:18:45.340 for transplants
NOTE Confidence: 0.99449235

00:18:45.800 --> 00:18:46.859 in Italy.
NOTE Confidence: 0.91225237

00:18:47.595 --> 00:18:49.835 Okay? So, our hospital was
NOTE Confidence: 0.91225237

00:18:49.835 --> 00:18:50.335 supporting,
NOTE Confidence: 0.9475498

00:18:51.515 --> 00:18:52.715 a hospital in Italy to
NOTE Confidence: 0.9475498

00:18:52.715 --> 00:18:54.075 do bring up transplant and
NOTE Confidence: 0.9475498

00:18:54.075 --> 00:18:55.674 do frozen sections. And they
NOTE Confidence: 0.9475498

00:18:55.674 --> 00:18:56.875 didn't know even how to

NOTE Confidence: 0.9475498

00:18:56.875 --> 00:18:58.975 interpret frozen sections for transplants.

NOTE Confidence: 0.9628904

00:18:59.990 --> 00:19:01.030 We agreed to do that.

NOTE Confidence: 0.9628904

00:19:01.030 --> 00:19:01.750 And so, we did it

NOTE Confidence: 0.9628904

00:19:01.750 --> 00:19:02.410 by telepathology.

NOTE Confidence: 0.89026755

00:19:02.710 --> 00:19:04.890 We're very dedicated transplant pathologists.

NOTE Confidence: 0.92751485

00:19:05.430 --> 00:19:07.270 Dedicated, but difficult. Right, Sonya?

NOTE Confidence: 0.92751485

00:19:07.270 --> 00:19:09.350 Yes. Okay. So, but they

NOTE Confidence: 0.92751485

00:19:09.350 --> 00:19:09.990 would wake up at two

NOTE Confidence: 0.92751485

00:19:09.990 --> 00:19:10.869 in the morning and do

NOTE Confidence: 0.92751485

00:19:10.869 --> 00:19:11.369 frozen.

NOTE Confidence: 0.9127136

00:19:11.830 --> 00:19:12.710 And, you know, through that

NOTE Confidence: 0.9127136

00:19:12.710 --> 00:19:13.670 we learned. And then our

NOTE Confidence: 0.9127136

00:19:13.670 --> 00:19:14.170 neuropathology

NOTE Confidence: 0.9665508

00:19:14.470 --> 00:19:15.885 team followed suit, too.

NOTE Confidence: 0.9271818

00:19:18.765 --> 00:19:19.585 So today,

NOTE Confidence: 0.941624

00:19:20.205 --> 00:19:21.984 we have these LV1
NOTE Confidence: 0.92655987
00:19:22.605 --> 00:19:23.984 systems from Leica.
NOTE Confidence: 0.9937337
00:19:24.685 --> 00:19:26.705 They're all around many hospitals.
NOTE Confidence: 0.97727126
00:19:28.070 --> 00:19:29.190 Some are even located, you
NOTE Confidence: 0.97727126
00:19:29.190 --> 00:19:30.630 will see, hundreds of miles
NOTE Confidence: 0.97727126
00:19:30.630 --> 00:19:32.250 away where we do
NOTE Confidence: 0.999593
00:19:32.630 --> 00:19:33.910 tons of frozen sections a
NOTE Confidence: 0.999593
00:19:33.910 --> 00:19:34.410 day
NOTE Confidence: 0.9399371
00:19:34.790 --> 00:19:35.290 remotely.
NOTE Confidence: 0.9271089
00:19:35.910 --> 00:19:37.510 We were just being told
NOTE Confidence: 0.9271089
00:19:37.510 --> 00:19:39.109 by Leica that they're no
NOTE Confidence: 0.9271089
00:19:39.109 --> 00:19:40.070 longer going to support the
NOTE Confidence: 0.9271089
00:19:40.070 --> 00:19:41.830 LV1, so we're looking at
NOTE Confidence: 0.9271089
00:19:41.830 --> 00:19:43.030 new options to do frozen
NOTE Confidence: 0.9271089
00:19:43.030 --> 00:19:43.530 sections,
NOTE Confidence: 0.98338985
00:19:44.185 --> 00:19:44.685 digitally.

NOTE Confidence: 0.97732544

00:19:45.785 --> 00:19:47.305 But what had happened over

NOTE Confidence: 0.97732544

00:19:47.305 --> 00:19:49.385 time is concordance got better.

NOTE Confidence: 0.97732544

00:19:49.385 --> 00:19:50.505 So in the beginning when

NOTE Confidence: 0.97732544

00:19:50.505 --> 00:19:52.045 we were doing this ten,

NOTE Confidence: 0.97732544

00:19:52.105 --> 00:19:53.165 twenty years ago,

NOTE Confidence: 0.9377153

00:19:53.865 --> 00:19:55.705 our pathologists made mistakes. And

NOTE Confidence: 0.9377153

00:19:55.705 --> 00:19:57.725 so concordance to the

NOTE Confidence: 0.7739526

00:19:58.260 --> 00:19:58.760 permanent,

NOTE Confidence: 0.90919435

00:19:59.220 --> 00:20:01.080 afterwards, now is way better.

NOTE Confidence: 0.99690014

00:20:01.780 --> 00:20:02.920 Two, we don't

NOTE Confidence: 0.9812188

00:20:03.380 --> 00:20:04.820 defer that many cases anymore.

NOTE Confidence: 0.9812188

00:20:04.820 --> 00:20:05.859 In the beginning, they weren't

NOTE Confidence: 0.9812188

00:20:05.859 --> 00:20:06.900 sure, so they would defer

NOTE Confidence: 0.9812188

00:20:06.900 --> 00:20:08.359 to permanent. Now they hardly

NOTE Confidence: 0.969643

00:20:08.820 --> 00:20:09.720 defer cases.

NOTE Confidence: 0.9667658

00:20:10.465 --> 00:20:11.905 But this is Pandora's box,
NOTE Confidence: 0.9667658

00:20:11.905 --> 00:20:13.025 which is a downside. The
NOTE Confidence: 0.9667658

00:20:13.025 --> 00:20:14.485 service got way busier.
NOTE Confidence: 0.9947344

00:20:14.865 --> 00:20:16.225 Now that, for example, our
NOTE Confidence: 0.9947344

00:20:16.225 --> 00:20:18.465 neurosurgeons know they can operate
NOTE Confidence: 0.9947344

00:20:18.465 --> 00:20:19.605 in any hospital
NOTE Confidence: 0.9419886

00:20:20.145 --> 00:20:21.265 and just like going to
NOTE Confidence: 0.9419886

00:20:21.265 --> 00:20:22.625 a vending machine and pushing
NOTE Confidence: 0.9419886

00:20:22.625 --> 00:20:23.345 and saying, I want a
NOTE Confidence: 0.9419886

00:20:23.345 --> 00:20:24.945 soda right now, they can
NOTE Confidence: 0.9419886

00:20:24.945 --> 00:20:26.700 do that. And so our
NOTE Confidence: 0.9419886

00:20:26.700 --> 00:20:27.200 neuropathologists
NOTE Confidence: 0.9974286

00:20:27.580 --> 00:20:29.980 are constantly barraged by frozen
NOTE Confidence: 0.9974286

00:20:29.980 --> 00:20:30.480 sections
NOTE Confidence: 0.9203313

00:20:31.020 --> 00:20:32.460 all the time every day.
NOTE Confidence: 0.9203313

00:20:32.460 --> 00:20:33.500 They basically have to have

NOTE Confidence: 0.9203313
00:20:33.500 --> 00:20:34.080 a neuropathologist
NOTE Confidence: 0.8697243
00:20:34.380 --> 00:20:35.359 uncovering frozen
NOTE Confidence: 0.9801608
00:20:35.660 --> 00:20:36.720 twenty four seven.
NOTE Confidence: 0.99635476
00:20:37.100 --> 00:20:38.320 So that is a downside,
NOTE Confidence: 0.9290827
00:20:39.020 --> 00:20:39.980 that, you know, and we've
NOTE Confidence: 0.9290827
00:20:39.980 --> 00:20:40.480 enabled.
NOTE Confidence: 0.97095984
00:20:42.075 --> 00:20:43.434 So this is, one hospital
NOTE Confidence: 0.97095984
00:20:43.434 --> 00:20:44.715 today. You can see Shadyside
NOTE Confidence: 0.97095984
00:20:44.715 --> 00:20:46.635 Hospital in this particular frozen
NOTE Confidence: 0.97095984
00:20:46.635 --> 00:20:47.434 section room just so you
NOTE Confidence: 0.97095984
00:20:47.434 --> 00:20:48.554 can see where we evolved
NOTE Confidence: 0.97095984
00:20:48.554 --> 00:20:49.755 back in the day by
NOTE Confidence: 0.97095984
00:20:49.755 --> 00:20:50.794 someone taking a picture in
NOTE Confidence: 0.97095984
00:20:50.794 --> 00:20:51.835 Italy and sending it to
NOTE Confidence: 0.97095984
00:20:51.835 --> 00:20:53.980 pathologists in Pittsburgh. Now we
NOTE Confidence: 0.97095984

00:20:53.980 --> 00:20:56.059 have two of these instruments
NOTE Confidence: 0.97095984

00:20:56.059 --> 00:20:57.260 in the frozen section room.
NOTE Confidence: 0.97095984

00:20:57.260 --> 00:20:58.700 One is for neuropathology because
NOTE Confidence: 0.97095984

00:20:58.700 --> 00:20:59.600 it's so busy.
NOTE Confidence: 0.98419714

00:21:00.299 --> 00:21:01.179 One is for all the
NOTE Confidence: 0.98419714

00:21:01.179 --> 00:21:03.500 other surgical pathology systems. Everyone's
NOTE Confidence: 0.98419714

00:21:03.500 --> 00:21:04.460 trained. We can have a
NOTE Confidence: 0.98419714

00:21:04.460 --> 00:21:05.980 first year resident who knows
NOTE Confidence: 0.98419714

00:21:05.980 --> 00:21:07.600 what to do after hours,
NOTE Confidence: 0.9272371

00:21:08.175 --> 00:21:09.615 validated, and it really works
NOTE Confidence: 0.9272371

00:21:09.615 --> 00:21:10.815 well and it's streamlined. And
NOTE Confidence: 0.9272371

00:21:10.815 --> 00:21:12.675 it's become common practice.
NOTE Confidence: 0.99084675

00:21:13.055 --> 00:21:14.115 No one sort of
NOTE Confidence: 0.9142522

00:21:14.495 --> 00:21:15.615 questions that, well, how are
NOTE Confidence: 0.9142522

00:21:15.615 --> 00:21:16.415 we doing it? Or, wow,
NOTE Confidence: 0.9142522

00:21:16.415 --> 00:21:17.555 this is modern technology.

NOTE Confidence: 0.93907243
00:21:17.855 --> 00:21:19.375 It's as like, we wouldn't
NOTE Confidence: 0.93907243
00:21:19.375 --> 00:21:20.835 have a frozen section room
NOTE Confidence: 0.97251356
00:21:21.600 --> 00:21:23.280 without a microtome. We wouldn't
NOTE Confidence: 0.97251356
00:21:23.280 --> 00:21:24.480 have a frozen section without
NOTE Confidence: 0.97251356
00:21:24.480 --> 00:21:25.700 the ability to telepathology.
NOTE Confidence: 0.98618317
00:21:28.880 --> 00:21:30.559 But what we did learn
NOTE Confidence: 0.98618317
00:21:30.559 --> 00:21:32.160 and what did happen is
NOTE Confidence: 0.98618317
00:21:32.160 --> 00:21:33.679 our surgeons missed us, believe
NOTE Confidence: 0.98618317
00:21:33.679 --> 00:21:34.420 it or not.
NOTE Confidence: 0.8984612
00:21:34.945 --> 00:21:36.145 I was just we didn't
NOTE Confidence: 0.8984612
00:21:36.145 --> 00:21:37.285 miss them, but
NOTE Confidence: 0.98764116
00:21:38.705 --> 00:21:39.905 but they missed us being
NOTE Confidence: 0.98764116
00:21:39.905 --> 00:21:40.945 there in the frozen section
NOTE Confidence: 0.98764116
00:21:40.945 --> 00:21:41.445 room.
NOTE Confidence: 0.91833264
00:21:42.865 --> 00:21:43.984 They liked to walk in
NOTE Confidence: 0.91833264

00:21:43.984 --> 00:21:44.484 there,
NOTE Confidence: 0.9949169
00:21:45.345 --> 00:21:46.885 chat, harass us,
NOTE Confidence: 0.93917406
00:21:47.419 --> 00:21:48.779 question the diagnosis, or whatever.
NOTE Confidence: 0.93917406
00:21:48.779 --> 00:21:49.980 They liked us being there
NOTE Confidence: 0.93917406
00:21:49.980 --> 00:21:51.500 physically present, and now they
NOTE Confidence: 0.93917406
00:21:51.500 --> 00:21:52.159 were not.
NOTE Confidence: 0.99469787
00:21:52.940 --> 00:21:54.220 So we were not there.
NOTE Confidence: 0.9801945
00:21:55.340 --> 00:21:56.080 And so
NOTE Confidence: 0.94756424
00:21:57.020 --> 00:21:58.220 that they wanted to still
NOTE Confidence: 0.94756424
00:21:58.220 --> 00:21:59.260 see the case. They wanted
NOTE Confidence: 0.94756424
00:21:59.260 --> 00:22:00.480 to talk to the pathologist.
NOTE Confidence: 0.9832964
00:22:00.965 --> 00:22:01.845 And so not all of
NOTE Confidence: 0.9832964
00:22:01.845 --> 00:22:03.285 them, but the neurosurgeon certainly
NOTE Confidence: 0.9832964
00:22:03.285 --> 00:22:04.645 did. So it was very
NOTE Confidence: 0.9832964
00:22:04.645 --> 00:22:05.145 simple.
NOTE Confidence: 0.97140366
00:22:05.525 --> 00:22:07.125 Here's an example at Children's

NOTE Confidence: 0.97140366
00:22:07.125 --> 00:22:08.484 Hospital where we have a
NOTE Confidence: 0.97140366
00:22:08.484 --> 00:22:10.244 pediatric neuropathologist on the bottom
NOTE Confidence: 0.97140366
00:22:10.244 --> 00:22:12.744 right with desktop screening software.
NOTE Confidence: 0.97140366
00:22:12.965 --> 00:22:13.625 We made
NOTE Confidence: 0.9372673
00:22:14.005 --> 00:22:15.705 monitors available in the OR.
NOTE Confidence: 0.86806786
00:22:16.109 --> 00:22:17.869 And that's doctor Wiley before
NOTE Confidence: 0.86806786
00:22:17.869 --> 00:22:19.170 he retired, our neuropathologist.
NOTE Confidence: 0.99239683
00:22:20.030 --> 00:22:21.869 So now the surgeons feel
NOTE Confidence: 0.99239683
00:22:21.869 --> 00:22:22.910 that they're still part of
NOTE Confidence: 0.99239683
00:22:22.910 --> 00:22:24.270 the action. They can see
NOTE Confidence: 0.99239683
00:22:24.270 --> 00:22:25.150 the case, talk to the
NOTE Confidence: 0.99239683
00:22:25.150 --> 00:22:26.609 person, just not in person.
NOTE Confidence: 0.9972526
00:22:29.975 --> 00:22:31.435 And because word got out
NOTE Confidence: 0.8197709
00:22:32.135 --> 00:22:33.115 and our neuropathologists
NOTE Confidence: 0.98986125
00:22:33.415 --> 00:22:34.775 were pretty good at doing
NOTE Confidence: 0.98986125

00:22:34.775 --> 00:22:35.994 frozen sections remotely,
NOTE Confidence: 0.98515475
00:22:36.775 --> 00:22:38.615 we got requests from outside
NOTE Confidence: 0.98515475
00:22:38.615 --> 00:22:39.275 of UPMC.
NOTE Confidence: 0.95594937
00:22:39.815 --> 00:22:40.935 And we've agreed to do
NOTE Confidence: 0.95594937
00:22:40.935 --> 00:22:41.815 that. We don't want to
NOTE Confidence: 0.95594937
00:22:41.815 --> 00:22:42.775 do too many because, as
NOTE Confidence: 0.95594937
00:22:42.775 --> 00:22:43.975 I've said, we've opened Pandora's
NOTE Confidence: 0.95594937
00:22:43.975 --> 00:22:45.175 box, and they're so busy
NOTE Confidence: 0.95594937
00:22:45.175 --> 00:22:45.660 now.
NOTE Confidence: 0.97270364
00:22:46.140 --> 00:22:47.180 And the hospital will not
NOTE Confidence: 0.97270364
00:22:47.180 --> 00:22:48.700 allow me to have too
NOTE Confidence: 0.97270364
00:22:48.700 --> 00:22:49.520 many neuropathologists.
NOTE Confidence: 0.9863048
00:22:49.820 --> 00:22:50.619 They already think I have
NOTE Confidence: 0.9863048
00:22:50.619 --> 00:22:51.440 too many neuropathologists.
NOTE Confidence: 0.9526068
00:22:52.220 --> 00:22:53.980 But now Merripath, for example,
NOTE Confidence: 0.9526068
00:22:53.980 --> 00:22:54.940 which is three hundred and

NOTE Confidence: 0.9526068
00:22:54.940 --> 00:22:56.320 seventy miles away in Indianapolis,
NOTE Confidence: 0.81964076
00:22:56.780 --> 00:22:57.900 we do their Frozen for
NOTE Confidence: 0.81964076
00:22:57.900 --> 00:22:58.720 them too.
NOTE Confidence: 0.998845
00:22:59.244 --> 00:23:00.284 And why would I do
NOTE Confidence: 0.998845
00:23:00.284 --> 00:23:01.265 that? Well,
NOTE Confidence: 0.97652596
00:23:01.645 --> 00:23:03.085 we don't make that much
NOTE Confidence: 0.97652596
00:23:03.085 --> 00:23:05.085 money through frozen sections. But
NOTE Confidence: 0.97652596
00:23:05.085 --> 00:23:06.044 what happens is now that
NOTE Confidence: 0.97652596
00:23:06.044 --> 00:23:07.085 we have a relationship with
NOTE Confidence: 0.97652596
00:23:07.085 --> 00:23:07.965 this group, we do their
NOTE Confidence: 0.97652596
00:23:07.965 --> 00:23:08.465 frozen.
NOTE Confidence: 0.98397255
00:23:09.085 --> 00:23:10.205 They send us many of
NOTE Confidence: 0.98397255
00:23:10.205 --> 00:23:11.484 their permanent cases. They send
NOTE Confidence: 0.98397255
00:23:11.484 --> 00:23:12.765 all their molecular testing to
NOTE Confidence: 0.98397255
00:23:12.765 --> 00:23:13.405 us, and we have a
NOTE Confidence: 0.98397255

00:23:13.405 --> 00:23:14.710 very good relationship. So we're

NOTE Confidence: 0.98397255

00:23:14.710 --> 00:23:15.990 their choice of lab to

NOTE Confidence: 0.98397255

00:23:15.990 --> 00:23:17.130 do all their work.

NOTE Confidence: 0.9754143

00:23:18.390 --> 00:23:19.830 And it's not easy, just

NOTE Confidence: 0.9754143

00:23:19.830 --> 00:23:21.370 so that you know, because

NOTE Confidence: 0.9792824

00:23:22.070 --> 00:23:23.050 now my pathologists

NOTE Confidence: 0.9977448

00:23:24.310 --> 00:23:25.530 need a license

NOTE Confidence: 0.98230404

00:23:25.910 --> 00:23:26.950 in a different state. They

NOTE Confidence: 0.98230404

00:23:26.950 --> 00:23:28.410 need to maintain that CME

NOTE Confidence: 0.98230404

00:23:28.470 --> 00:23:30.055 in that state. They need

NOTE Confidence: 0.98230404

00:23:30.055 --> 00:23:31.494 hospital privileges in a different

NOTE Confidence: 0.98230404

00:23:31.494 --> 00:23:33.095 hospital system. And so there

NOTE Confidence: 0.98230404

00:23:33.095 --> 00:23:34.075 are a lot of nuances.

NOTE Confidence: 0.9597716

00:23:34.775 --> 00:23:35.575 And, boy, you do not

NOTE Confidence: 0.9597716

00:23:35.575 --> 00:23:36.455 want to make a mistake

NOTE Confidence: 0.9597716

00:23:36.455 --> 00:23:37.515 when it comes to regulations.

NOTE Confidence: 0.9757664
00:23:38.455 --> 00:23:39.435 There was a lawsuit,
NOTE Confidence: 0.972662
00:23:40.215 --> 00:23:41.815 just FYI, did not happen
NOTE Confidence: 0.972662
00:23:41.815 --> 00:23:43.675 at UPMC, where a pathologist
NOTE Confidence: 0.9643554
00:23:44.400 --> 00:23:45.780 made a misdiagnosis
NOTE Confidence: 0.9262442
00:23:46.320 --> 00:23:48.160 called some something melanoma when
NOTE Confidence: 0.9262442
00:23:48.160 --> 00:23:49.300 it was a Spitz Nevis.
NOTE Confidence: 0.9262442
00:23:49.520 --> 00:23:51.380 And the reason the case,
NOTE Confidence: 0.9829784
00:23:51.920 --> 00:23:53.119 I mean, the pathologist lost
NOTE Confidence: 0.9829784
00:23:53.119 --> 00:23:54.400 the case was not because
NOTE Confidence: 0.9829784
00:23:54.400 --> 00:23:55.140 of the misdiagnosis,
NOTE Confidence: 0.9521059
00:23:55.760 --> 00:23:56.640 was the fact that they
NOTE Confidence: 0.9521059
00:23:56.640 --> 00:23:57.840 did not hold a medical
NOTE Confidence: 0.9521059
00:23:57.840 --> 00:23:59.840 license in the state where
NOTE Confidence: 0.9521059
00:23:59.840 --> 00:24:01.234 the the slide was scanned.
NOTE Confidence: 0.9521059
00:24:01.375 --> 00:24:03.315 Okay. So on that technicality,
NOTE Confidence: 0.9963664

00:24:05.055 --> 00:24:06.734 you cannot practice medicine if

NOTE Confidence: 0.9963664

00:24:06.734 --> 00:24:07.615 you don't have a license

NOTE Confidence: 0.9963664

00:24:07.615 --> 00:24:08.435 in that state.

NOTE Confidence: 0.9607814

00:24:08.895 --> 00:24:10.494 Now through the years, we've

NOTE Confidence: 0.9607814

00:24:10.494 --> 00:24:11.455 learned a lot of things,

NOTE Confidence: 0.9607814

00:24:11.455 --> 00:24:12.415 and I could stand here

NOTE Confidence: 0.9607814

00:24:12.415 --> 00:24:13.535 for another hour and give

NOTE Confidence: 0.9607814

00:24:13.535 --> 00:24:14.755 you lots of vignettes

NOTE Confidence: 0.9792002

00:24:15.970 --> 00:24:18.049 of how things were difficult

NOTE Confidence: 0.9792002

00:24:18.049 --> 00:24:19.409 and how things didn't work

NOTE Confidence: 0.9792002

00:24:19.409 --> 00:24:20.369 out that well. But I'm

NOTE Confidence: 0.9792002

00:24:20.369 --> 00:24:21.250 only going to share one

NOTE Confidence: 0.9792002

00:24:21.250 --> 00:24:22.789 vignette with you. Okay?

NOTE Confidence: 0.9651245

00:24:24.609 --> 00:24:25.809 And the scenario goes as

NOTE Confidence: 0.9651245

00:24:25.809 --> 00:24:27.490 follows. So why I'm telling

NOTE Confidence: 0.9651245

00:24:27.490 --> 00:24:29.090 you this is because you

NOTE Confidence: 0.9651245
00:24:29.090 --> 00:24:30.525 really need to use this.
NOTE Confidence: 0.9651245
00:24:30.525 --> 00:24:31.425 You're not gonna
NOTE Confidence: 0.9990414
00:24:31.805 --> 00:24:33.425 get this kind of experience
NOTE Confidence: 0.9935878
00:24:33.885 --> 00:24:35.165 through any book, through any
NOTE Confidence: 0.9935878
00:24:35.165 --> 00:24:36.445 vendor, or just having a
NOTE Confidence: 0.9935878
00:24:36.445 --> 00:24:37.805 quick conversation with someone at
NOTE Confidence: 0.9935878
00:24:37.805 --> 00:24:38.705 a peer institution.
NOTE Confidence: 0.9414332
00:24:39.165 --> 00:24:40.125 You really need to get
NOTE Confidence: 0.9414332
00:24:40.125 --> 00:24:41.665 the technology and use it,
NOTE Confidence: 0.9414332
00:24:41.725 --> 00:24:42.765 and you, you know, you
NOTE Confidence: 0.9414332
00:24:42.765 --> 00:24:43.805 will learn and people will
NOTE Confidence: 0.9414332
00:24:43.805 --> 00:24:45.565 become comfortable. And, unfortunately, you
NOTE Confidence: 0.9414332
00:24:45.565 --> 00:24:47.039 will learn from mistakes. So
NOTE Confidence: 0.9414332
00:24:47.039 --> 00:24:48.019 here's an example.
NOTE Confidence: 0.95161176
00:24:48.639 --> 00:24:49.859 We had an instructor
NOTE Confidence: 0.977255

00:24:50.399 --> 00:24:51.919 at this particular hospital, and

NOTE Confidence: 0.977255

00:24:51.919 --> 00:24:52.720 he was asked to do

NOTE Confidence: 0.977255

00:24:52.720 --> 00:24:54.320 a frozen section on a

NOTE Confidence: 0.977255

00:24:54.320 --> 00:24:55.779 Whipple for the margin.

NOTE Confidence: 0.9705342

00:24:56.080 --> 00:24:57.359 And there's the frozen section

NOTE Confidence: 0.9705342

00:24:57.359 --> 00:24:58.875 on the top. And he

NOTE Confidence: 0.9705342

00:24:58.875 --> 00:25:00.475 thought that's atypical. So he

NOTE Confidence: 0.9705342

00:25:00.475 --> 00:25:00.975 told

NOTE Confidence: 0.8869903

00:25:01.435 --> 00:25:02.494 the whipple surgeon,

NOTE Confidence: 0.9438955

00:25:03.755 --> 00:25:05.515 big deal whipple surgeon, okay,

NOTE Confidence: 0.9438955

00:25:05.515 --> 00:25:06.494 that it's atypical.

NOTE Confidence: 0.9393193

00:25:07.115 --> 00:25:08.015 And, of course,

NOTE Confidence: 0.9932997

00:25:08.395 --> 00:25:09.695 being a junior faculty,

NOTE Confidence: 0.980371

00:25:10.315 --> 00:25:11.375 the surgeon said,

NOTE Confidence: 0.94750416

00:25:11.899 --> 00:25:13.600 I want a second opinion.

NOTE Confidence: 0.94750416

00:25:13.899 --> 00:25:14.779 And I don't just want

NOTE Confidence: 0.94750416
00:25:14.779 --> 00:25:15.820 anyone. I want the head
NOTE Confidence: 0.94750416
00:25:15.820 --> 00:25:17.119 of GI at UPMC.
NOTE Confidence: 0.97076875
00:25:18.139 --> 00:25:18.940 So, of course, we had
NOTE Confidence: 0.97076875
00:25:18.940 --> 00:25:19.740 to page the head of
NOTE Confidence: 0.97076875
00:25:19.740 --> 00:25:20.960 GI at a different hospital.
NOTE Confidence: 0.97076875
00:25:21.019 --> 00:25:22.320 We had to find her.
NOTE Confidence: 0.9311678
00:25:22.859 --> 00:25:23.835 We had to get her
NOTE Confidence: 0.9311678
00:25:23.914 --> 00:25:24.554 her to log on to
NOTE Confidence: 0.9311678
00:25:24.554 --> 00:25:25.434 her computer, and she didn't
NOTE Confidence: 0.9311678
00:25:25.434 --> 00:25:26.554 really know. Okay. Show me
NOTE Confidence: 0.9311678
00:25:26.554 --> 00:25:27.355 how do I log on
NOTE Confidence: 0.9311678
00:25:27.355 --> 00:25:27.994 and how do I look
NOTE Confidence: 0.9311678
00:25:27.994 --> 00:25:29.274 at it. And so she
NOTE Confidence: 0.9311678
00:25:29.274 --> 00:25:30.154 looked at the case and
NOTE Confidence: 0.9311678
00:25:30.154 --> 00:25:31.195 she said, I'm going to
NOTE Confidence: 0.9311678

00:25:31.195 --> 00:25:32.794 call that negative. Well, it
NOTE Confidence: 0.9311678

00:25:32.794 --> 00:25:34.315 came out permanent, which is
NOTE Confidence: 0.9311678

00:25:34.315 --> 00:25:36.174 there, positive for cancer.
NOTE Confidence: 0.97495085

00:25:37.450 --> 00:25:38.650 And, you know, that's not
NOTE Confidence: 0.97495085

00:25:38.650 --> 00:25:39.550 a good scenario.
NOTE Confidence: 0.9924966

00:25:40.170 --> 00:25:41.550 And it's not the technology's
NOTE Confidence: 0.9756051

00:25:41.930 --> 00:25:43.210 fault. But the point here
NOTE Confidence: 0.9756051

00:25:43.210 --> 00:25:44.970 is that you cannot just
NOTE Confidence: 0.9756051

00:25:44.970 --> 00:25:46.490 expect to ask people to
NOTE Confidence: 0.9756051

00:25:46.490 --> 00:25:48.170 use technology. And even if
NOTE Confidence: 0.9756051

00:25:48.170 --> 00:25:49.390 you validate it,
NOTE Confidence: 0.98777837

00:25:49.835 --> 00:25:51.055 you know, it's validated
NOTE Confidence: 0.9389075

00:25:51.435 --> 00:25:52.734 so that the CAP
NOTE Confidence: 0.9600496

00:25:53.355 --> 00:25:54.635 says it's safe. But you
NOTE Confidence: 0.9600496

00:25:54.635 --> 00:25:55.595 really need to make sure
NOTE Confidence: 0.9600496

00:25:55.595 --> 00:25:57.455 that people are competent, trained,

NOTE Confidence: 0.9576041

00:25:57.835 --> 00:25:59.755 and ongoing competency and monitor

NOTE Confidence: 0.9576041

00:25:59.755 --> 00:26:01.295 them. And so our neuropathologists,

NOTE Confidence: 0.9576041

00:26:01.515 --> 00:26:02.730 for example, are very good.

NOTE Confidence: 0.9576041

00:26:02.970 --> 00:26:03.790 They monitor

NOTE Confidence: 0.95968246

00:26:04.250 --> 00:26:06.250 concordance rates, deferral rates every

NOTE Confidence: 0.95968246

00:26:06.250 --> 00:26:07.690 month. They check with faculty.

NOTE Confidence: 0.95968246

00:26:07.690 --> 00:26:08.490 So if one of the

NOTE Confidence: 0.95968246

00:26:08.490 --> 00:26:10.010 faculty's deferral rate is too

NOTE Confidence: 0.95968246

00:26:10.010 --> 00:26:10.750 high, then

NOTE Confidence: 0.8931735

00:26:11.690 --> 00:26:13.290 doctor Julia Koffler, head of

NOTE Confidence: 0.8931735

00:26:13.290 --> 00:26:15.049 neuropathology, will have a conversation.

NOTE Confidence: 0.8931735

00:26:15.049 --> 00:26:16.244 Why are you deferring everything?

NOTE Confidence: 0.8931735

00:26:16.244 --> 00:26:17.205 Or why is, you know,

NOTE Confidence: 0.8931735

00:26:17.205 --> 00:26:17.605 your,

NOTE Confidence: 0.99122936

00:26:18.244 --> 00:26:19.925 frozen versus final, you know,

NOTE Confidence: 0.99122936

00:26:19.925 --> 00:26:20.965 out of whack compared to
NOTE Confidence: 0.99122936

00:26:20.965 --> 00:26:21.785 everyone else?
NOTE Confidence: 0.99854934

00:26:22.165 --> 00:26:23.205 So it needs to be
NOTE Confidence: 0.99854934

00:26:23.205 --> 00:26:24.265 part of your QA.
NOTE Confidence: 0.97888076

00:26:25.925 --> 00:26:27.045 Well, the next thing that
NOTE Confidence: 0.97888076

00:26:27.045 --> 00:26:27.945 happened was,
NOTE Confidence: 0.9844446

00:26:28.619 --> 00:26:30.060 well, you know, UPMC said,
NOTE Confidence: 0.9844446

00:26:30.060 --> 00:26:30.859 well, if we can share
NOTE Confidence: 0.9844446

00:26:30.859 --> 00:26:32.220 images, we should allow other
NOTE Confidence: 0.9844446

00:26:32.220 --> 00:26:33.740 people outside the system to
NOTE Confidence: 0.9844446

00:26:33.740 --> 00:26:34.940 send images to us for
NOTE Confidence: 0.9844446

00:26:34.940 --> 00:26:35.760 a second opinion.
NOTE Confidence: 0.9979578

00:26:37.420 --> 00:26:39.100 And, well, we decided to
NOTE Confidence: 0.9979578

00:26:39.100 --> 00:26:41.040 get into the consultation business.
NOTE Confidence: 0.9326145

00:26:41.975 --> 00:26:43.575 Wasn't my choice. Doctor Sam
NOTE Confidence: 0.9326145

00:26:43.575 --> 00:26:45.435 Musen, the executive vice chair,

NOTE Confidence: 0.9326145

00:26:45.494 --> 00:26:46.855 instructed me. Leron, you need

NOTE Confidence: 0.9326145

00:26:46.855 --> 00:26:48.775 to build this system. Because

NOTE Confidence: 0.9326145

00:26:48.775 --> 00:26:49.895 there wasn't anything we could

NOTE Confidence: 0.9326145

00:26:49.895 --> 00:26:50.695 buy back in the day.

NOTE Confidence: 0.9326145

00:26:50.695 --> 00:26:51.494 You know, now we have

NOTE Confidence: 0.9326145

00:26:51.494 --> 00:26:53.335 Path Presenter, Choristo, many tools,

NOTE Confidence: 0.9326145

00:26:53.335 --> 00:26:54.475 but there weren't many.

NOTE Confidence: 0.9655279

00:26:54.775 --> 00:26:55.895 So we built this IT

NOTE Confidence: 0.9655279

00:26:55.895 --> 00:26:57.210 system, And I'll tell you

NOTE Confidence: 0.9655279

00:26:57.210 --> 00:26:58.650 that we customized it for

NOTE Confidence: 0.9655279

00:26:58.650 --> 00:26:59.150 ourselves.

NOTE Confidence: 0.91458213

00:26:59.690 --> 00:27:01.210 And you guys know, Peter

NOTE Confidence: 0.91458213

00:27:01.210 --> 00:27:02.490 and John, customizing, you can

NOTE Confidence: 0.91458213

00:27:02.490 --> 00:27:04.170 get things to work perfectly

NOTE Confidence: 0.91458213

00:27:04.170 --> 00:27:05.869 for you, your your institution.

NOTE Confidence: 0.9692348

00:27:06.410 --> 00:27:07.290 And we had the world's
NOTE Confidence: 0.9692348

00:27:07.290 --> 00:27:08.109 best telepathology
NOTE Confidence: 0.9344985

00:27:08.410 --> 00:27:09.805 system, I believe, and still
NOTE Confidence: 0.9344985

00:27:09.805 --> 00:27:10.925 believe even though I've seen
NOTE Confidence: 0.9344985

00:27:10.925 --> 00:27:12.605 many others, that worked very
NOTE Confidence: 0.9344985

00:27:12.605 --> 00:27:14.785 well. And we received consultations,
NOTE Confidence: 0.9901893

00:27:15.085 --> 00:27:16.285 and the vast majority of
NOTE Confidence: 0.9901893

00:27:16.285 --> 00:27:17.965 our consultations came from China.
NOTE Confidence: 0.9901893

00:27:17.965 --> 00:27:18.925 There was a reference lab
NOTE Confidence: 0.9901893

00:27:18.925 --> 00:27:20.065 in China called KingMed,
NOTE Confidence: 0.9702587

00:27:20.605 --> 00:27:21.805 and they sent us ten
NOTE Confidence: 0.9702587

00:27:21.805 --> 00:27:23.085 thousand or more images a
NOTE Confidence: 0.9702587

00:27:23.085 --> 00:27:23.585 year.
NOTE Confidence: 0.95634764

00:27:23.970 --> 00:27:25.169 And they paid very well.
NOTE Confidence: 0.95634764

00:27:25.169 --> 00:27:26.470 We had a contract basis.
NOTE Confidence: 0.9983803

00:27:26.929 --> 00:27:28.230 And we paid the pathologists

NOTE Confidence: 0.9870248

00:27:29.010 --> 00:27:29.990 to do the work.

NOTE Confidence: 0.9572422

00:27:30.450 --> 00:27:31.809 But a couple of things

NOTE Confidence: 0.9572422

00:27:31.809 --> 00:27:34.150 about that. So one, yeah,

NOTE Confidence: 0.9572422

00:27:34.450 --> 00:27:35.970 you get really cool cases,

NOTE Confidence: 0.9572422

00:27:35.970 --> 00:27:38.309 rare cases, academically very challenging.

NOTE Confidence: 0.947658

00:27:39.635 --> 00:27:40.994 But from an IT perspective,

NOTE Confidence: 0.947658

00:27:40.994 --> 00:27:41.715 it's a pain in the

NOTE Confidence: 0.947658

00:27:41.715 --> 00:27:42.215 butt.

NOTE Confidence: 0.97163814

00:27:42.595 --> 00:27:43.794 Okay? Because, you know, you

NOTE Confidence: 0.97163814

00:27:43.794 --> 00:27:45.154 need IT people to support

NOTE Confidence: 0.97163814

00:27:45.154 --> 00:27:46.595 this. Our IT people did

NOTE Confidence: 0.97163814

00:27:46.595 --> 00:27:47.554 not know how to speak,

NOTE Confidence: 0.97163814

00:27:47.554 --> 00:27:48.994 you know, Mandarin or Chinese,

NOTE Confidence: 0.97163814

00:27:48.994 --> 00:27:50.115 and all the servers were

NOTE Confidence: 0.97163814

00:27:50.115 --> 00:27:50.934 in Chinese.

NOTE Confidence: 0.9790051

00:27:51.950 --> 00:27:52.510 They had to work at
NOTE Confidence: 0.9790051

00:27:52.510 --> 00:27:53.390 different hours. So if we
NOTE Confidence: 0.9790051

00:27:53.390 --> 00:27:54.910 needed to connect something, make
NOTE Confidence: 0.9790051

00:27:54.910 --> 00:27:56.030 sure that their system was
NOTE Confidence: 0.9790051

00:27:56.030 --> 00:27:57.550 barcoded, I needed my IT
NOTE Confidence: 0.9790051

00:27:57.550 --> 00:27:58.430 analyst to wake up at
NOTE Confidence: 0.9790051

00:27:58.430 --> 00:27:59.230 four in the morning to
NOTE Confidence: 0.9790051

00:27:59.230 --> 00:28:00.030 meet with theirs. And you
NOTE Confidence: 0.9790051

00:28:00.030 --> 00:28:01.150 can imagine how well that
NOTE Confidence: 0.9790051

00:28:01.150 --> 00:28:01.890 went down.
NOTE Confidence: 0.87478733

00:28:03.309 --> 00:28:03.809 Culturally,
NOTE Confidence: 0.94212306

00:28:04.109 --> 00:28:05.150 very different the way we
NOTE Confidence: 0.94212306

00:28:05.150 --> 00:28:06.590 practice pathology and they practice
NOTE Confidence: 0.94212306

00:28:06.590 --> 00:28:07.090 pathology.
NOTE Confidence: 0.98221016

00:28:08.615 --> 00:28:10.375 Also, this reference lab, the
NOTE Confidence: 0.98221016

00:28:10.375 --> 00:28:11.434 main one, received

NOTE Confidence: 0.94888794
00:28:11.815 --> 00:28:13.734 samples from about nine hundred
NOTE Confidence: 0.94888794
00:28:13.734 --> 00:28:15.734 labs throughout China, small rural
NOTE Confidence: 0.94888794
00:28:15.734 --> 00:28:16.934 labs. And you can imagine
NOTE Confidence: 0.94888794
00:28:16.934 --> 00:28:18.875 how good their histology was.
NOTE Confidence: 0.94888794
00:28:19.014 --> 00:28:20.510 It was awful. And so
NOTE Confidence: 0.94888794
00:28:20.510 --> 00:28:21.789 people would call and complain
NOTE Confidence: 0.94888794
00:28:21.789 --> 00:28:22.830 to me, Leeron, the image
NOTE Confidence: 0.94888794
00:28:22.830 --> 00:28:24.029 is awful. Had nothing to
NOTE Confidence: 0.94888794
00:28:24.029 --> 00:28:24.830 do with the image. It
NOTE Confidence: 0.94888794
00:28:24.830 --> 00:28:26.190 was the slide site. Right?
NOTE Confidence: 0.94888794
00:28:26.190 --> 00:28:27.230 It was cut so thick
NOTE Confidence: 0.94888794
00:28:27.230 --> 00:28:28.429 and full of tissue folds
NOTE Confidence: 0.94888794
00:28:28.429 --> 00:28:29.630 and air bubbles and fingerprints.
NOTE Confidence: 0.94888794
00:28:29.630 --> 00:28:30.929 And I've so I never
NOTE Confidence: 0.989377
00:28:31.230 --> 00:28:32.609 read many of those cases.
NOTE Confidence: 0.989377

00:28:32.830 --> 00:28:33.869 Had nothing to do with
NOTE Confidence: 0.989377

00:28:33.869 --> 00:28:34.450 the image.
NOTE Confidence: 0.9675548

00:28:34.905 --> 00:28:36.265 And so we we slowly
NOTE Confidence: 0.9675548

00:28:36.265 --> 00:28:37.225 had to get them to
NOTE Confidence: 0.9675548

00:28:37.225 --> 00:28:38.745 improve all the pre imaging
NOTE Confidence: 0.9675548

00:28:38.745 --> 00:28:39.245 factors.
NOTE Confidence: 0.87273514

00:28:41.465 --> 00:28:42.345 You know, it worked very
NOTE Confidence: 0.87273514

00:28:42.345 --> 00:28:43.965 well. But people ask me,
NOTE Confidence: 0.97359467

00:28:44.505 --> 00:28:45.485 and eventually
NOTE Confidence: 0.9243227

00:28:45.945 --> 00:28:47.910 politics killed that. So, So,
NOTE Confidence: 0.9243227

00:28:47.910 --> 00:28:49.030 for example, we cannot do
NOTE Confidence: 0.9243227

00:28:49.030 --> 00:28:50.710 business with China. They contact
NOTE Confidence: 0.9243227

00:28:50.710 --> 00:28:51.510 us and say we do
NOTE Confidence: 0.9243227

00:28:51.510 --> 00:28:52.310 not want to do business
NOTE Confidence: 0.9243227

00:28:52.310 --> 00:28:54.150 with the US for political
NOTE Confidence: 0.9243227

00:28:54.150 --> 00:28:54.650 reasons,

NOTE Confidence: 0.96432877
00:28:55.030 --> 00:28:55.830 and and we don't do
NOTE Confidence: 0.96432877
00:28:55.830 --> 00:28:56.330 that,
NOTE Confidence: 0.970517
00:28:56.790 --> 00:28:58.310 that many cases. Now we
NOTE Confidence: 0.970517
00:28:58.310 --> 00:28:59.510 can still get cases if
NOTE Confidence: 0.970517
00:28:59.510 --> 00:29:00.390 people want to send them
NOTE Confidence: 0.970517
00:29:00.390 --> 00:29:01.370 to me for teleconsultation
NOTE Confidence: 0.97968596
00:29:01.670 --> 00:29:03.055 work, But it's not a
NOTE Confidence: 0.97968596
00:29:03.055 --> 00:29:03.555 very
NOTE Confidence: 0.9982601
00:29:04.175 --> 00:29:04.675 viable
NOTE Confidence: 0.95635706
00:29:04.975 --> 00:29:06.895 business because it is very
NOTE Confidence: 0.95635706
00:29:06.895 --> 00:29:08.835 demanding from an IT perspective
NOTE Confidence: 0.95635706
00:29:08.975 --> 00:29:10.335 and even from a pathology
NOTE Confidence: 0.95635706
00:29:10.335 --> 00:29:11.535 perspective. So even if a
NOTE Confidence: 0.95635706
00:29:11.535 --> 00:29:12.895 pathologist is getting paid, say,
NOTE Confidence: 0.95635706
00:29:12.895 --> 00:29:14.435 forty five or fifty bucks,
NOTE Confidence: 0.99896836

00:29:15.055 --> 00:29:16.175 it takes hours to do
NOTE Confidence: 0.99896836

00:29:16.175 --> 00:29:17.155 some of these cases.
NOTE Confidence: 0.9962585

00:29:17.600 --> 00:29:18.340 They're very
NOTE Confidence: 0.9537179

00:29:18.720 --> 00:29:19.280 hard. You know, when a
NOTE Confidence: 0.9537179

00:29:19.280 --> 00:29:20.600 textbook says you get this
NOTE Confidence: 0.9537179

00:29:20.720 --> 00:29:22.000 you'll see this one in,
NOTE Confidence: 0.9537179

00:29:22.000 --> 00:29:23.440 you know, a hundred million.
NOTE Confidence: 0.9537179

00:29:23.440 --> 00:29:24.400 Well, we got one of
NOTE Confidence: 0.9537179

00:29:24.400 --> 00:29:25.840 those a week. Right? Because
NOTE Confidence: 0.9537179

00:29:25.840 --> 00:29:27.280 there were many such difficult
NOTE Confidence: 0.9537179

00:29:27.280 --> 00:29:28.720 cases that filtered our way,
NOTE Confidence: 0.9537179

00:29:28.720 --> 00:29:29.680 and it took hours and
NOTE Confidence: 0.9537179

00:29:29.680 --> 00:29:30.480 hours to do, and you
NOTE Confidence: 0.9537179

00:29:30.480 --> 00:29:31.220 had to consult
NOTE Confidence: 0.9700987

00:29:32.080 --> 00:29:32.924 a friend, and then you
NOTE Confidence: 0.9700987

00:29:32.924 --> 00:29:33.885 felt bad that I'm getting

NOTE Confidence: 0.9700987
00:29:33.885 --> 00:29:34.924 the forty five dollars and
NOTE Confidence: 0.9700987
00:29:34.924 --> 00:29:36.605 you're not, etcetera. So it's
NOTE Confidence: 0.9700987
00:29:36.605 --> 00:29:37.265 not really
NOTE Confidence: 0.9888082
00:29:37.804 --> 00:29:39.265 the best revenue generator.
NOTE Confidence: 0.9375099
00:29:40.205 --> 00:29:41.485 But then eventually what happened
NOTE Confidence: 0.9375099
00:29:41.485 --> 00:29:42.684 at UPC was I got
NOTE Confidence: 0.9375099
00:29:42.684 --> 00:29:43.965 contacted from people all around
NOTE Confidence: 0.9375099
00:29:43.965 --> 00:29:45.585 the world, from from Chile,
NOTE Confidence: 0.9375099
00:29:45.725 --> 00:29:46.225 Tibet.
NOTE Confidence: 0.9860322
00:29:47.340 --> 00:29:48.460 We know you guys do
NOTE Confidence: 0.9860322
00:29:48.460 --> 00:29:48.960 teleconsultation.
NOTE Confidence: 0.97444904
00:29:49.260 --> 00:29:49.980 We see it on your
NOTE Confidence: 0.97444904
00:29:49.980 --> 00:29:51.260 website, but we don't own
NOTE Confidence: 0.97444904
00:29:51.260 --> 00:29:52.700 a scanner because we can't
NOTE Confidence: 0.97444904
00:29:52.700 --> 00:29:53.580 afford it, but we still
NOTE Confidence: 0.97444904

00:29:53.580 --> 00:29:54.700 want to send you digital
NOTE Confidence: 0.97444904
00:29:54.700 --> 00:29:55.200 consults.
NOTE Confidence: 0.97603303
00:29:56.059 --> 00:29:56.940 And so how do we
NOTE Confidence: 0.97603303
00:29:56.940 --> 00:29:57.820 do that? And so at
NOTE Confidence: 0.97603303
00:29:57.820 --> 00:29:58.940 that time, if many of
NOTE Confidence: 0.97603303
00:29:58.940 --> 00:29:59.820 you remember, there were all
NOTE Confidence: 0.97603303
00:29:59.820 --> 00:30:00.940 these adapters that you could
NOTE Confidence: 0.97603303
00:30:00.940 --> 00:30:02.059 attach to your microscope, and
NOTE Confidence: 0.97603303
00:30:02.059 --> 00:30:03.965 you could put your smartphone
NOTE Confidence: 0.97603303
00:30:03.965 --> 00:30:05.025 on and take pictures.
NOTE Confidence: 0.87090886
00:30:05.645 --> 00:30:06.385 And so,
NOTE Confidence: 0.9337246
00:30:08.045 --> 00:30:09.745 we built this pocket pathologist
NOTE Confidence: 0.96896017
00:30:10.445 --> 00:30:11.905 so people could take pictures
NOTE Confidence: 0.9982098
00:30:12.365 --> 00:30:13.505 and upload it.
NOTE Confidence: 0.974716
00:30:14.125 --> 00:30:15.325 The app is still available
NOTE Confidence: 0.974716
00:30:15.325 --> 00:30:16.865 on the iTunes Store, but

NOTE Confidence: 0.974716
00:30:17.090 --> 00:30:18.210 we do not support this
NOTE Confidence: 0.974716
00:30:18.210 --> 00:30:19.650 because it became so demanding.
NOTE Confidence: 0.974716
00:30:19.650 --> 00:30:20.390 And, again,
NOTE Confidence: 0.91788656
00:30:22.130 --> 00:30:23.750 if you wanna do this
NOTE Confidence: 0.94233024
00:30:24.130 --> 00:30:25.410 from a charitable point of
NOTE Confidence: 0.94233024
00:30:25.410 --> 00:30:26.450 view, makes a whole lot
NOTE Confidence: 0.94233024
00:30:26.450 --> 00:30:27.410 of sense. But if you
NOTE Confidence: 0.94233024
00:30:27.410 --> 00:30:28.370 wanna do this from a
NOTE Confidence: 0.94233024
00:30:28.370 --> 00:30:28.870 profitable
NOTE Confidence: 0.9802582
00:30:29.295 --> 00:30:30.095 profitable point of view and
NOTE Confidence: 0.9802582
00:30:30.095 --> 00:30:31.615 generate generate revenue, there's no
NOTE Confidence: 0.9802582
00:30:31.615 --> 00:30:33.555 way there's no way that
NOTE Confidence: 0.99444896
00:30:34.015 --> 00:30:35.855 a poor pathology lab in
NOTE Confidence: 0.99444896
00:30:35.855 --> 00:30:38.035 Tibet can afford US prices.
NOTE Confidence: 0.96907705
00:30:38.655 --> 00:30:39.375 And so when they, you
NOTE Confidence: 0.96907705

00:30:39.375 --> 00:30:40.335 know, found out how much
NOTE Confidence: 0.96907705

00:30:40.335 --> 00:30:41.295 we're going to charge for
NOTE Confidence: 0.96907705

00:30:41.295 --> 00:30:41.875 a consultation,
NOTE Confidence: 0.8978453

00:30:42.175 --> 00:30:43.615 like, they couldn't afford that.
NOTE Confidence: 0.8978453

00:30:43.615 --> 00:30:44.115 Alright?
NOTE Confidence: 0.9414714

00:30:45.240 --> 00:30:46.200 So many times we would
NOTE Confidence: 0.9414714

00:30:46.200 --> 00:30:47.340 just do it gratis.
NOTE Confidence: 0.96749777

00:30:49.480 --> 00:30:50.840 And it it also drove
NOTE Confidence: 0.96749777

00:30:50.840 --> 00:30:52.280 my IT people crazy, which
NOTE Confidence: 0.96749777

00:30:52.280 --> 00:30:53.400 is why I ended it.
NOTE Confidence: 0.96749777

00:30:53.400 --> 00:30:54.360 They got called all the
NOTE Confidence: 0.96749777

00:30:54.360 --> 00:30:55.800 time for help. How do
NOTE Confidence: 0.96749777

00:30:55.800 --> 00:30:56.600 I load this? How do
NOTE Confidence: 0.96749777

00:30:56.600 --> 00:30:57.960 I attach the camera? My
NOTE Confidence: 0.96749777

00:30:57.960 --> 00:30:59.640 adapter's falling. I can't focus.
NOTE Confidence: 0.96749777

00:30:59.640 --> 00:31:00.355 All of those kind of

NOTE Confidence: 0.96749777
00:31:00.355 --> 00:31:01.715 questions. It's just it was
NOTE Confidence: 0.96749777
00:31:01.715 --> 00:31:02.835 fun and gimmicky, but it
NOTE Confidence: 0.96749777
00:31:02.835 --> 00:31:04.375 doesn't really generate revenue.
NOTE Confidence: 0.9949905
00:31:04.835 --> 00:31:05.955 But I remember a really
NOTE Confidence: 0.9949905
00:31:05.955 --> 00:31:06.835 funny story is,
NOTE Confidence: 0.98170114
00:31:07.554 --> 00:31:08.855 one of our GI pathologists
NOTE Confidence: 0.98170114
00:31:09.154 --> 00:31:10.914 got twenty images sent to
NOTE Confidence: 0.98170114
00:31:10.914 --> 00:31:11.414 them.
NOTE Confidence: 0.9621535
00:31:12.529 --> 00:31:14.630 GI pathologist at Presbyterian Hospital.
NOTE Confidence: 0.9621535
00:31:14.690 --> 00:31:15.649 And it was because the
NOTE Confidence: 0.9621535
00:31:15.649 --> 00:31:17.250 person had a pancreatic neoplasm,
NOTE Confidence: 0.9621535
00:31:17.250 --> 00:31:17.970 and they weren't sure if
NOTE Confidence: 0.9621535
00:31:17.970 --> 00:31:18.789 it was adenocarcinoma
NOTE Confidence: 0.9679123
00:31:19.250 --> 00:31:20.610 or a neuroendocrine tumor or
NOTE Confidence: 0.9679123
00:31:20.610 --> 00:31:21.730 some combined tumor. It was
NOTE Confidence: 0.9679123

00:31:21.730 --> 00:31:22.630 just very confusing.
NOTE Confidence: 0.99289846

00:31:23.010 --> 00:31:24.210 And so they uploaded the
NOTE Confidence: 0.99289846

00:31:24.210 --> 00:31:24.710 images.
NOTE Confidence: 0.9927438

00:31:25.144 --> 00:31:26.105 But more than half the
NOTE Confidence: 0.9927438

00:31:26.105 --> 00:31:26.605 images
NOTE Confidence: 0.96469635

00:31:27.304 --> 00:31:28.745 were selfies because the pathologist
NOTE Confidence: 0.96469635

00:31:28.745 --> 00:31:29.784 had the camera facing the
NOTE Confidence: 0.96469635

00:31:29.784 --> 00:31:30.684 wrong way around.
NOTE Confidence: 0.92912954

00:31:32.345 --> 00:31:34.024 Right? So, you know, there
NOTE Confidence: 0.92912954

00:31:34.024 --> 00:31:34.345 was
NOTE Confidence: 0.95435655

00:31:34.825 --> 00:31:35.945 it's just it was just
NOTE Confidence: 0.95435655

00:31:35.945 --> 00:31:37.465 a huge headache. Nevertheless, we
NOTE Confidence: 0.95435655

00:31:37.465 --> 00:31:38.345 learned a lot from that.
NOTE Confidence: 0.95435655

00:31:38.345 --> 00:31:39.465 So what did we learn
NOTE Confidence: 0.95435655

00:31:39.465 --> 00:31:40.445 from our teleconsultation
NOTE Confidence: 0.9803155

00:31:42.900 --> 00:31:44.580 business? That there are not

NOTE Confidence: 0.9803155

00:31:44.580 --> 00:31:45.940 enough pathologists in the world,

NOTE Confidence: 0.9803155

00:31:45.940 --> 00:31:46.980 and there are certainly not

NOTE Confidence: 0.9803155

00:31:46.980 --> 00:31:49.860 enough expert subspecialized pathologists around

NOTE Confidence: 0.9803155

00:31:49.860 --> 00:31:50.660 the world. So if you

NOTE Confidence: 0.9803155

00:31:50.660 --> 00:31:51.720 wanna do this,

NOTE Confidence: 0.9699768

00:31:52.660 --> 00:31:54.365 you know, yes. People are

NOTE Confidence: 0.9699768

00:31:54.365 --> 00:31:55.725 desperate for help. But can

NOTE Confidence: 0.9699768

00:31:55.725 --> 00:31:57.024 they afford it? I don't

NOTE Confidence: 0.9944224

00:31:57.325 --> 00:31:58.125 know. You have to figure

NOTE Confidence: 0.9944224

00:31:58.125 --> 00:31:59.005 out a good deal with

NOTE Confidence: 0.9944224

00:31:59.005 --> 00:32:00.044 someone who will pay you,

NOTE Confidence: 0.9944224

00:32:00.044 --> 00:32:01.105 like, per capita

NOTE Confidence: 0.94354343

00:32:01.565 --> 00:32:03.485 or or contracted amount. But

NOTE Confidence: 0.94354343

00:32:03.485 --> 00:32:04.445 by case, I'm not so

NOTE Confidence: 0.94354343

00:32:04.445 --> 00:32:05.325 sure that makes a whole

NOTE Confidence: 0.94354343

00:32:05.325 --> 00:32:06.445 lot of, you know, money
NOTE Confidence: 0.94354343

00:32:06.445 --> 00:32:07.850 for you. But do you
NOTE Confidence: 0.94354343

00:32:07.850 --> 00:32:10.010 change patients' lives? Absolutely. What
NOTE Confidence: 0.94354343

00:32:10.010 --> 00:32:11.530 we found was in the
NOTE Confidence: 0.94354343

00:32:11.530 --> 00:32:12.570 beginning, the cases that were
NOTE Confidence: 0.94354343

00:32:12.570 --> 00:32:13.530 sent to us from were
NOTE Confidence: 0.94354343

00:32:13.530 --> 00:32:14.910 from pathologist to pathologist.
NOTE Confidence: 0.9496516

00:32:15.210 --> 00:32:16.570 So the pathologist was sending
NOTE Confidence: 0.9496516

00:32:16.570 --> 00:32:17.370 them to us. But then
NOTE Confidence: 0.9496516

00:32:17.370 --> 00:32:18.330 word got out because we
NOTE Confidence: 0.9496516

00:32:18.330 --> 00:32:19.710 made some major radical
NOTE Confidence: 0.9874617

00:32:20.134 --> 00:32:22.235 diagnosis that changed people's lives.
NOTE Confidence: 0.9952962

00:32:22.934 --> 00:32:24.054 I remember a case that
NOTE Confidence: 0.9952962

00:32:24.054 --> 00:32:25.674 came in as a sarcoma,
NOTE Confidence: 0.9952962

00:32:25.735 --> 00:32:26.855 and this patient was scheduled
NOTE Confidence: 0.9952962

00:32:26.855 --> 00:32:27.754 for an amputation.

NOTE Confidence: 0.95490867
00:32:28.455 --> 00:32:30.375 And and we did an
NOTE Confidence: 0.95490867
00:32:30.375 --> 00:32:31.575 AFB stain, and that's all
NOTE Confidence: 0.95490867
00:32:31.575 --> 00:32:32.215 it was. It was a
NOTE Confidence: 0.95490867
00:32:32.215 --> 00:32:33.995 mycobacterial spindle cell neoplasm.
NOTE Confidence: 0.9728135
00:32:34.300 --> 00:32:35.840 The patient just needed antibiotics
NOTE Confidence: 0.9728135
00:32:36.060 --> 00:32:36.800 for TB,
NOTE Confidence: 0.96006244
00:32:37.500 --> 00:32:38.940 not an amputation. And so
NOTE Confidence: 0.96006244
00:32:38.940 --> 00:32:40.240 eventually, clinicians
NOTE Confidence: 0.9564288
00:32:40.540 --> 00:32:42.140 realized that, wow, sending cases
NOTE Confidence: 0.9564288
00:32:42.140 --> 00:32:43.360 to UPMC in America,
NOTE Confidence: 0.98615444
00:32:44.220 --> 00:32:45.900 you know, is important when
NOTE Confidence: 0.98615444
00:32:45.900 --> 00:32:47.020 stakes are high. So then
NOTE Confidence: 0.98615444
00:32:47.020 --> 00:32:48.560 the clinicians asked for
NOTE Confidence: 0.9136063
00:32:49.075 --> 00:32:50.115 consults to get sent to
NOTE Confidence: 0.9136063
00:32:50.115 --> 00:32:52.375 us and eventually patients. Patients
NOTE Confidence: 0.9900098

00:32:53.155 --> 00:32:54.355 overseas were prepared to pay
NOTE Confidence: 0.9900098

00:32:54.355 --> 00:32:55.235 out of pocket to get
NOTE Confidence: 0.9900098

00:32:55.235 --> 00:32:56.675 a second opinion. And so,
NOTE Confidence: 0.9900098

00:32:56.675 --> 00:32:57.635 yes, it does work. But
NOTE Confidence: 0.9900098

00:32:57.635 --> 00:32:58.615 what the pathology
NOTE Confidence: 0.95332855

00:32:59.635 --> 00:33:01.075 clients valued most was not
NOTE Confidence: 0.95332855

00:33:01.075 --> 00:33:02.595 our diagnosis, but our education.
NOTE Confidence: 0.95332855

00:33:02.595 --> 00:33:03.475 The fact that we taught
NOTE Confidence: 0.95332855

00:33:03.475 --> 00:33:04.429 them about stuff. And our
NOTE Confidence: 0.95332855

00:33:04.429 --> 00:33:05.710 pathologists were generous in that
NOTE Confidence: 0.95332855

00:33:05.710 --> 00:33:06.830 they sent an article or
NOTE Confidence: 0.95332855

00:33:06.830 --> 00:33:07.710 they gave one or two
NOTE Confidence: 0.95332855

00:33:07.710 --> 00:33:08.210 references,
NOTE Confidence: 0.97759444

00:33:08.590 --> 00:33:10.110 about these novel entities and
NOTE Confidence: 0.97759444

00:33:10.110 --> 00:33:10.690 so forth.
NOTE Confidence: 0.944657

00:33:10.990 --> 00:33:12.770 But required a huge commitment,

NOTE Confidence: 0.9652932

00:33:13.230 --> 00:33:14.910 big IT lift, lots of

NOTE Confidence: 0.9652932

00:33:14.910 --> 00:33:17.005 challenges, especially cultural. And I'll

NOTE Confidence: 0.9652932

00:33:17.005 --> 00:33:17.885 tell you because a lot

NOTE Confidence: 0.9652932

00:33:17.885 --> 00:33:18.765 of people ask me, we

NOTE Confidence: 0.9652932

00:33:18.765 --> 00:33:19.565 want to get into the

NOTE Confidence: 0.9652932

00:33:19.565 --> 00:33:20.705 consultation business.

NOTE Confidence: 0.9731069

00:33:22.684 --> 00:33:23.485 How do we get these

NOTE Confidence: 0.9731069

00:33:23.485 --> 00:33:24.765 digital slides? And it's much

NOTE Confidence: 0.9731069

00:33:24.765 --> 00:33:25.965 harder than that because here's

NOTE Confidence: 0.9731069

00:33:25.965 --> 00:33:27.645 a typical example. People want

NOTE Confidence: 0.9731069

00:33:27.645 --> 00:33:28.525 to send you a small

NOTE Confidence: 0.9731069

00:33:28.525 --> 00:33:29.804 round blue cell tumor. If

NOTE Confidence: 0.9731069

00:33:29.804 --> 00:33:30.924 they send you the digital

NOTE Confidence: 0.9731069

00:33:30.924 --> 00:33:32.020 slides, all you're gonna be

NOTE Confidence: 0.9731069

00:33:32.020 --> 00:33:32.900 able to tell them is

NOTE Confidence: 0.9731069

00:33:32.900 --> 00:33:33.860 it's a small round blue
NOTE Confidence: 0.9731069
00:33:33.860 --> 00:33:34.520 cell tumor.
NOTE Confidence: 0.9533595
00:33:35.140 --> 00:33:36.340 You're gonna need the tissue
NOTE Confidence: 0.9533595
00:33:36.340 --> 00:33:37.880 to run FISH or immunos,
NOTE Confidence: 0.9157582
00:33:38.500 --> 00:33:38.980 you know.
NOTE Confidence: 0.9865359
00:33:39.620 --> 00:33:40.760 Are you gonna look
NOTE Confidence: 0.95919603
00:33:41.700 --> 00:33:43.780 for, you know, subtle signs
NOTE Confidence: 0.95919603
00:33:43.780 --> 00:33:45.304 that this is a lymphoma
NOTE Confidence: 0.95919603
00:33:45.524 --> 00:33:47.044 and be sure, are you
NOTE Confidence: 0.95919603
00:33:47.044 --> 00:33:48.325 gonna commit a hundred percent
NOTE Confidence: 0.95919603
00:33:48.325 --> 00:33:49.365 on an HNE that this
NOTE Confidence: 0.95919603
00:33:49.365 --> 00:33:50.804 is Ewing's sarcoma and not
NOTE Confidence: 0.95919603
00:33:50.804 --> 00:33:52.164 do a follow-up EWS r
NOTE Confidence: 0.95919603
00:33:52.164 --> 00:33:52.904 one study?
NOTE Confidence: 0.9980925
00:33:53.524 --> 00:33:54.024 So
NOTE Confidence: 0.9546625
00:33:54.725 --> 00:33:55.845 from that point of view,

NOTE Confidence: 0.9546625

00:33:55.845 --> 00:33:57.044 they are not sending you

NOTE Confidence: 0.9546625

00:33:57.044 --> 00:33:58.885 tubular adenomas and basal cell

NOTE Confidence: 0.9546625

00:33:58.885 --> 00:34:00.630 carcinomas. They're sending you stuff

NOTE Confidence: 0.9546625

00:34:00.630 --> 00:34:01.750 that you know today is

NOTE Confidence: 0.9546625

00:34:01.750 --> 00:34:03.450 challenging or requires ancillary studies.

NOTE Confidence: 0.98607

00:34:04.150 --> 00:34:05.030 How did we address that

NOTE Confidence: 0.98607

00:34:05.030 --> 00:34:05.770 at UPMC?

NOTE Confidence: 0.9486827

00:34:06.150 --> 00:34:07.670 Well, what we told these

NOTE Confidence: 0.9486827

00:34:07.670 --> 00:34:08.950 labs sending to us, for

NOTE Confidence: 0.9486827

00:34:08.950 --> 00:34:10.310 example, in China is you

NOTE Confidence: 0.9486827

00:34:10.310 --> 00:34:11.590 need to up your game.

NOTE Confidence: 0.9486827

00:34:11.590 --> 00:34:13.030 Because if you're gonna send

NOTE Confidence: 0.9486827

00:34:13.030 --> 00:34:13.590 us certain,

NOTE Confidence: 0.94836676

00:34:15.094 --> 00:34:16.214 you know, specimens that we

NOTE Confidence: 0.94836676

00:34:16.214 --> 00:34:17.654 need we need ancillary studies

NOTE Confidence: 0.94836676

00:34:17.654 --> 00:34:18.855 on, and you cannot send
NOTE Confidence: 0.94836676

00:34:18.855 --> 00:34:20.214 us the tissue, for example,
NOTE Confidence: 0.94836676

00:34:20.214 --> 00:34:21.894 in China, they're not allowed
NOTE Confidence: 0.94836676

00:34:21.894 --> 00:34:23.335 to send the tissue, neither
NOTE Confidence: 0.94836676

00:34:23.335 --> 00:34:24.775 data over to us, then
NOTE Confidence: 0.94836676

00:34:24.775 --> 00:34:25.494 we need to make sure
NOTE Confidence: 0.94836676

00:34:25.494 --> 00:34:26.934 that your flow lab, fish
NOTE Confidence: 0.94836676

00:34:26.934 --> 00:34:28.295 lab, immuno lab has all
NOTE Confidence: 0.94836676

00:34:28.295 --> 00:34:29.275 of these stains.
NOTE Confidence: 0.97970665

00:34:29.780 --> 00:34:31.560 We even had their technologists
NOTE Confidence: 0.97970665

00:34:31.780 --> 00:34:32.900 come spend a month with
NOTE Confidence: 0.97970665

00:34:32.900 --> 00:34:34.500 us, train them, take our
NOTE Confidence: 0.97970665

00:34:34.500 --> 00:34:36.180 SOPs and procedures, go back
NOTE Confidence: 0.97970665

00:34:36.180 --> 00:34:36.980 and get them up and
NOTE Confidence: 0.97970665

00:34:36.980 --> 00:34:39.060 running, help them validate it.
NOTE Confidence: 0.97970665

00:34:39.060 --> 00:34:40.099 So when we wanted to

NOTE Confidence: 0.97970665
00:34:40.099 --> 00:34:41.460 run ancillary studies, we told
NOTE Confidence: 0.97970665
00:34:41.460 --> 00:34:42.180 them what to run, and
NOTE Confidence: 0.97970665
00:34:42.180 --> 00:34:43.494 they would run. We didn't
NOTE Confidence: 0.97970665
00:34:43.494 --> 00:34:44.935 get any of the revenue
NOTE Confidence: 0.97970665
00:34:44.935 --> 00:34:45.994 from it, but
NOTE Confidence: 0.9600851
00:34:46.455 --> 00:34:47.835 we maintained that teleconsultation
NOTE Confidence: 0.9910841
00:34:48.215 --> 00:34:50.474 business. Alright. That being said,
NOTE Confidence: 0.9530617
00:34:52.215 --> 00:34:53.335 I was a practicing side
NOTE Confidence: 0.9530617
00:34:53.335 --> 00:34:54.935 up pathologist, and I did
NOTE Confidence: 0.9530617
00:34:54.935 --> 00:34:55.815 not like the fact that
NOTE Confidence: 0.9530617
00:34:55.815 --> 00:34:56.695 I had to run around
NOTE Confidence: 0.9530617
00:34:56.695 --> 00:34:57.895 all over the hospital doing
NOTE Confidence: 0.9530617
00:34:57.895 --> 00:34:58.795 on-site evaluations,
NOTE Confidence: 0.9265393
00:34:59.450 --> 00:35:00.250 especially if I had to
NOTE Confidence: 0.9265393
00:35:00.250 --> 00:35:01.069 leave the building,
NOTE Confidence: 0.9358571

00:35:01.450 --> 00:35:02.650 and neither did my colleague
NOTE Confidence: 0.9358571

00:35:02.650 --> 00:35:04.410 Doctor. Sarah Monaco. We're like,
NOTE Confidence: 0.9358571

00:35:04.410 --> 00:35:05.450 what the heck? We're running
NOTE Confidence: 0.9358571

00:35:05.450 --> 00:35:06.569 to fifteen places in a
NOTE Confidence: 0.9358571

00:35:06.569 --> 00:35:07.369 day, and then we've got
NOTE Confidence: 0.9358571

00:35:07.369 --> 00:35:08.250 to get back, and then
NOTE Confidence: 0.9358571

00:35:08.250 --> 00:35:09.210 I've got a huge pile
NOTE Confidence: 0.9358571

00:35:09.210 --> 00:35:10.250 of slides. I've still got
NOTE Confidence: 0.9358571

00:35:10.250 --> 00:35:11.069 to sign out.
NOTE Confidence: 0.9577573

00:35:12.155 --> 00:35:12.714 And she said to me,
NOTE Confidence: 0.9577573

00:35:12.714 --> 00:35:14.474 you're the digital pathology guy.
NOTE Confidence: 0.9577573

00:35:14.474 --> 00:35:15.775 Figure it out. So
NOTE Confidence: 0.9764553

00:35:16.234 --> 00:35:17.035 at that point, no one
NOTE Confidence: 0.9764553

00:35:17.035 --> 00:35:18.175 was really doing telesitology.
NOTE Confidence: 0.9393014

00:35:18.635 --> 00:35:20.234 So we decided I decided
NOTE Confidence: 0.9393014

00:35:20.234 --> 00:35:21.515 then, you know what? Wherever

NOTE Confidence: 0.9393014

00:35:21.515 --> 00:35:22.474 we got cam wherever we

NOTE Confidence: 0.9393014

00:35:22.474 --> 00:35:23.994 got microscopes, I'm putting cameras

NOTE Confidence: 0.9393014

00:35:23.994 --> 00:35:24.954 on them, and we're streaming

NOTE Confidence: 0.9393014

00:35:24.954 --> 00:35:25.994 them. And I'm training all

NOTE Confidence: 0.9393014

00:35:25.994 --> 00:35:26.494 the

NOTE Confidence: 0.8190561

00:35:26.850 --> 00:35:27.830 cytologists, cytotechnologists

NOTE Confidence: 0.7933861

00:35:28.370 --> 00:35:28.870 how

NOTE Confidence: 0.9485671

00:35:29.410 --> 00:35:31.110 to stream images to us.

NOTE Confidence: 0.9503854

00:35:31.570 --> 00:35:33.350 And it makes total sense.

NOTE Confidence: 0.9503854

00:35:33.410 --> 00:35:33.910 So

NOTE Confidence: 0.9860265

00:35:34.210 --> 00:35:35.030 now we have

NOTE Confidence: 0.9896395

00:35:35.730 --> 00:35:36.630 twenty sites

NOTE Confidence: 0.89993864

00:35:37.489 --> 00:35:39.110 that I do telesitology.

NOTE Confidence: 0.9911111

00:35:39.410 --> 00:35:40.850 I still practice and do

NOTE Confidence: 0.9911111

00:35:40.850 --> 00:35:41.910 cytology service.

NOTE Confidence: 0.95851827

00:35:42.585 --> 00:35:44.185 I have four computer monitors,
NOTE Confidence: 0.95851827

00:35:44.185 --> 00:35:45.244 believe it or not.
NOTE Confidence: 0.96003723

00:35:45.625 --> 00:35:47.145 Told yours your your faculty
NOTE Confidence: 0.96003723

00:35:47.145 --> 00:35:48.585 you need more monitors, and
NOTE Confidence: 0.96003723

00:35:48.585 --> 00:35:50.025 I can do three on-site
NOTE Confidence: 0.96003723

00:35:50.025 --> 00:35:51.785 evaluations simultaneously at the same
NOTE Confidence: 0.96003723

00:35:51.785 --> 00:35:52.285 time.
NOTE Confidence: 0.9151273

00:35:52.744 --> 00:35:53.724 Yes. I multitask,
NOTE Confidence: 0.99361855

00:35:54.105 --> 00:35:55.420 super crazy, but I don't
NOTE Confidence: 0.99361855

00:35:55.420 --> 00:35:56.380 have to leave my office.
NOTE Confidence: 0.99361855

00:35:56.380 --> 00:35:57.680 I'm way more efficient.
NOTE Confidence: 0.9885679

00:35:57.980 --> 00:35:59.020 But the one thing that
NOTE Confidence: 0.9885679

00:35:59.020 --> 00:36:00.300 did happen was and and
NOTE Confidence: 0.9885679

00:36:00.300 --> 00:36:01.500 you need to know about
NOTE Confidence: 0.9885679

00:36:01.500 --> 00:36:02.780 this because as you go
NOTE Confidence: 0.9885679

00:36:02.780 --> 00:36:03.280 digital,

NOTE Confidence: 0.98605186
00:36:03.820 --> 00:36:05.020 your system is gonna tell
NOTE Confidence: 0.98605186
00:36:05.020 --> 00:36:05.900 you you need less and
NOTE Confidence: 0.98605186
00:36:05.900 --> 00:36:06.719 less pathologists.
NOTE Confidence: 0.999008
00:36:07.580 --> 00:36:09.280 So what happened here is
NOTE Confidence: 0.9398672
00:36:09.815 --> 00:36:10.935 we got so busy that
NOTE Confidence: 0.9398672
00:36:10.935 --> 00:36:11.095 I requested,
NOTE Confidence: 0.9114204
00:36:13.415 --> 00:36:14.775 through hospital leadership that we
NOTE Confidence: 0.9114204
00:36:14.775 --> 00:36:16.215 need one or two more
NOTE Confidence: 0.9114204
00:36:16.215 --> 00:36:17.035 side of pathologists
NOTE Confidence: 0.9924902
00:36:17.335 --> 00:36:18.455 because we cannot cope with
NOTE Confidence: 0.9924902
00:36:18.455 --> 00:36:19.275 all the work.
NOTE Confidence: 0.97046006
00:36:20.775 --> 00:36:22.155 Then at the same time,
NOTE Confidence: 0.97046006
00:36:22.450 --> 00:36:23.250 I asked them to pay
NOTE Confidence: 0.97046006
00:36:23.250 --> 00:36:24.370 for the technology and put
NOTE Confidence: 0.97046006
00:36:24.370 --> 00:36:25.410 it in. And then when
NOTE Confidence: 0.97046006

00:36:25.410 --> 00:36:26.450 we got the technology and
NOTE Confidence: 0.97046006

00:36:26.450 --> 00:36:27.250 we were efficient, and they
NOTE Confidence: 0.97046006

00:36:27.250 --> 00:36:28.690 said, oh, you're publishing papers,
NOTE Confidence: 0.97046006

00:36:28.690 --> 00:36:29.650 and this is is we
NOTE Confidence: 0.97046006

00:36:29.650 --> 00:36:30.690 see how efficient you are
NOTE Confidence: 0.97046006

00:36:30.690 --> 00:36:31.410 and how you get all
NOTE Confidence: 0.97046006

00:36:31.410 --> 00:36:32.690 the work done. I was
NOTE Confidence: 0.97046006

00:36:32.690 --> 00:36:33.810 never allowed to hire the
NOTE Confidence: 0.97046006

00:36:33.810 --> 00:36:34.310 pathologists.
NOTE Confidence: 0.9635532

00:36:34.850 --> 00:36:36.230 Okay? Because the cameras
NOTE Confidence: 0.8053646

00:36:36.690 --> 00:36:37.750 replaced the pathologists,
NOTE Confidence: 0.97142875

00:36:38.145 --> 00:36:39.185 which is true. So I
NOTE Confidence: 0.97142875

00:36:39.185 --> 00:36:40.325 just want you to know,
NOTE Confidence: 0.9879232

00:36:41.025 --> 00:36:42.385 Angelique, that scanner in your
NOTE Confidence: 0.9879232

00:36:42.385 --> 00:36:43.665 office may be replacing a
NOTE Confidence: 0.9879232

00:36:43.665 --> 00:36:45.025 pathologist. I don't know. But

NOTE Confidence: 0.9879232
00:36:45.025 --> 00:36:46.465 at UPMC, the cameras did
NOTE Confidence: 0.9879232
00:36:46.465 --> 00:36:47.445 replace pathologists.
NOTE Confidence: 0.9866388
00:36:47.985 --> 00:36:48.485 Okay.
NOTE Confidence: 0.97466815
00:36:50.465 --> 00:36:50.864 So let's
NOTE Confidence: 0.9740985
00:36:51.500 --> 00:36:52.619 we then moved into whole
NOTE Confidence: 0.9740985
00:36:52.619 --> 00:36:54.380 site imaging at UPMC. Okay.
NOTE Confidence: 0.9740985
00:36:54.380 --> 00:36:55.980 And so currently, how do
NOTE Confidence: 0.9740985
00:36:55.980 --> 00:36:57.339 we handle whole site images?
NOTE Confidence: 0.9740985
00:36:57.339 --> 00:36:59.099 So I've shown you, yeah,
NOTE Confidence: 0.9740985
00:36:59.099 --> 00:36:59.980 sort of the way we
NOTE Confidence: 0.9740985
00:36:59.980 --> 00:37:01.099 deploy it. So let's start
NOTE Confidence: 0.9740985
00:37:01.099 --> 00:37:01.920 at the bottom.
NOTE Confidence: 0.97029275
00:37:02.219 --> 00:37:03.180 So we have scanners in
NOTE Confidence: 0.97029275
00:37:03.180 --> 00:37:04.940 our institution connected to our
NOTE Confidence: 0.97029275
00:37:04.940 --> 00:37:06.695 own Internet safe and secure
NOTE Confidence: 0.97029275

00:37:06.695 --> 00:37:08.375 behind our firewall, and those
NOTE Confidence: 0.97029275

00:37:08.375 --> 00:37:09.335 images are linked to the
NOTE Confidence: 0.97029275

00:37:09.335 --> 00:37:10.635 lab information system.
NOTE Confidence: 0.9153357

00:37:11.015 --> 00:37:11.835 That's a little,
NOTE Confidence: 0.9848716

00:37:13.094 --> 00:37:14.614 pile of circles there. So
NOTE Confidence: 0.9848716

00:37:14.614 --> 00:37:15.995 those are all linked. So
NOTE Confidence: 0.9848716

00:37:16.215 --> 00:37:17.495 those are live images in
NOTE Confidence: 0.9848716

00:37:17.495 --> 00:37:18.535 the LIS, and we can
NOTE Confidence: 0.9848716

00:37:18.535 --> 00:37:19.915 use those for primary diagnosis,
NOTE Confidence: 0.9848716

00:37:20.055 --> 00:37:21.594 tumor board, whatever we want.
NOTE Confidence: 0.9848716

00:37:21.869 --> 00:37:22.989 But we also scan a
NOTE Confidence: 0.9848716

00:37:22.989 --> 00:37:23.809 lot of slides,
NOTE Confidence: 0.9448757

00:37:24.670 --> 00:37:25.710 and we don't link all
NOTE Confidence: 0.9448757

00:37:25.710 --> 00:37:26.430 of those to the,
NOTE Confidence: 0.94325846

00:37:26.989 --> 00:37:27.809 to the LIS,
NOTE Confidence: 0.95813113

00:37:28.269 --> 00:37:29.150 and we use those for

NOTE Confidence: 0.95813113
00:37:29.150 --> 00:37:30.049 many other things:
NOTE Confidence: 0.96639746
00:37:30.670 --> 00:37:32.450 teaching, education, and so forth.
NOTE Confidence: 0.96639746
00:37:32.670 --> 00:37:33.869 We are able to accept
NOTE Confidence: 0.96639746
00:37:33.869 --> 00:37:35.809 wholesale images outside the system.
NOTE Confidence: 0.98304343
00:37:36.875 --> 00:37:37.835 I do that less and
NOTE Confidence: 0.98304343
00:37:37.835 --> 00:37:38.875 less now because of our
NOTE Confidence: 0.98304343
00:37:38.875 --> 00:37:40.015 experience through teleconsultation.
NOTE Confidence: 0.97988284
00:37:40.555 --> 00:37:41.835 It's not that profitable, and
NOTE Confidence: 0.97988284
00:37:41.835 --> 00:37:43.295 it's a big IT lift.
NOTE Confidence: 0.94504464
00:37:43.835 --> 00:37:44.954 But we are willing to
NOTE Confidence: 0.94504464
00:37:44.954 --> 00:37:45.835 do that, and I often
NOTE Confidence: 0.94504464
00:37:45.835 --> 00:37:47.275 do that if someone's asking
NOTE Confidence: 0.94504464
00:37:47.275 --> 00:37:48.395 as a favor. We have
NOTE Confidence: 0.94504464
00:37:48.395 --> 00:37:49.675 someone, they're desperate for a
NOTE Confidence: 0.94504464
00:37:49.675 --> 00:37:51.035 diagnosis. They know that we
NOTE Confidence: 0.94504464

00:37:51.114 --> 00:37:52.180 you have an expert at
NOTE Confidence: 0.94504464

00:37:52.180 --> 00:37:53.540 UPMC. Please, can they look
NOTE Confidence: 0.94504464

00:37:53.540 --> 00:37:54.500 at the case? Fine. We'll
NOTE Confidence: 0.94504464

00:37:54.500 --> 00:37:55.480 do that for you.
NOTE Confidence: 0.95222104

00:37:56.020 --> 00:37:57.540 We allow our pathologists to
NOTE Confidence: 0.95222104

00:37:57.540 --> 00:37:58.440 sign out remotely.
NOTE Confidence: 0.99634176

00:37:58.900 --> 00:37:59.400 So
NOTE Confidence: 0.9597152

00:37:59.780 --> 00:38:00.660 am I allowed to let
NOTE Confidence: 0.9597152

00:38:00.660 --> 00:38:02.580 people? USCAP is coming up.
NOTE Confidence: 0.9597152

00:38:02.580 --> 00:38:03.380 I know that many of
NOTE Confidence: 0.9597152

00:38:03.380 --> 00:38:04.760 our faculty will be there.
NOTE Confidence: 0.9597152

00:38:05.015 --> 00:38:06.295 Our system is validated for
NOTE Confidence: 0.9597152

00:38:06.295 --> 00:38:07.815 primary diagnosis. Can they sign
NOTE Confidence: 0.9597152

00:38:07.815 --> 00:38:08.935 out from their hotel room
NOTE Confidence: 0.9597152

00:38:08.935 --> 00:38:09.675 with the laptop?
NOTE Confidence: 0.9992203

00:38:10.375 --> 00:38:10.875 Yes.

NOTE Confidence: 0.9895539
00:38:11.815 --> 00:38:13.355 Can people work from home?
NOTE Confidence: 0.9895539
00:38:13.575 --> 00:38:14.075 Yes.
NOTE Confidence: 0.98362064
00:38:14.935 --> 00:38:16.055 And we do upload some
NOTE Confidence: 0.98362064
00:38:16.055 --> 00:38:17.015 of our images to the
NOTE Confidence: 0.98362064
00:38:17.015 --> 00:38:19.219 cloud. That's for AI analysis
NOTE Confidence: 0.98362064
00:38:19.219 --> 00:38:20.339 because some of the vendors
NOTE Confidence: 0.98362064
00:38:20.339 --> 00:38:21.700 that we contract with require
NOTE Confidence: 0.98362064
00:38:21.700 --> 00:38:23.460 the the AI to be
NOTE Confidence: 0.98362064
00:38:23.460 --> 00:38:25.540 run-in their environment, not our
NOTE Confidence: 0.98362064
00:38:25.540 --> 00:38:26.980 environment. And so, you know,
NOTE Confidence: 0.98362064
00:38:26.980 --> 00:38:27.480 that's
NOTE Confidence: 0.97099143
00:38:28.579 --> 00:38:29.619 not easy, but we do
NOTE Confidence: 0.97099143
00:38:29.619 --> 00:38:30.579 that. So that's kind of
NOTE Confidence: 0.97099143
00:38:30.579 --> 00:38:32.505 the topology of how how
NOTE Confidence: 0.97099143
00:38:32.505 --> 00:38:33.864 wholesale images do move around
NOTE Confidence: 0.97099143

00:38:33.864 --> 00:38:34.364 the
NOTE Confidence: 0.99922216
00:38:35.464 --> 00:38:36.204 system. Now
NOTE Confidence: 0.96946627
00:38:37.385 --> 00:38:38.984 about ten years ago, UPMC
NOTE Confidence: 0.96946627
00:38:38.984 --> 00:38:40.344 and GE went into business,
NOTE Confidence: 0.96946627
00:38:40.344 --> 00:38:41.704 and they started this digital
NOTE Confidence: 0.96946627
00:38:41.704 --> 00:38:43.484 pathology company called Omnix.
NOTE Confidence: 0.9485376
00:38:45.400 --> 00:38:46.920 And UPMC did this study,
NOTE Confidence: 0.9485376
00:38:46.920 --> 00:38:47.900 which was published,
NOTE Confidence: 0.9949748
00:38:48.280 --> 00:38:50.619 and they convinced themselves that
NOTE Confidence: 0.98644465
00:38:51.000 --> 00:38:52.680 if they install the Omnix
NOTE Confidence: 0.98644465
00:38:52.680 --> 00:38:54.060 digital pathology system,
NOTE Confidence: 0.9316509
00:38:54.520 --> 00:38:55.640 the whole sign imaging, and
NOTE Confidence: 0.9316509
00:38:55.640 --> 00:38:56.840 they roll it out over
NOTE Confidence: 0.9316509
00:38:56.840 --> 00:38:57.580 five years,
NOTE Confidence: 0.9446877
00:38:57.960 --> 00:38:58.545 and And they look at
NOTE Confidence: 0.9446877
00:38:58.545 --> 00:38:59.825 how will the system benefit

NOTE Confidence: 0.9446877
00:38:59.825 --> 00:39:00.864 from it, how much does
NOTE Confidence: 0.9446877
00:39:00.864 --> 00:39:02.385 it cost. And they actually
NOTE Confidence: 0.9446877
00:39:02.385 --> 00:39:03.265 went, and they looked at
NOTE Confidence: 0.9446877
00:39:03.265 --> 00:39:05.285 all the lawsuits UPMC had.
NOTE Confidence: 0.96670026
00:39:05.585 --> 00:39:06.545 They looked at one or
NOTE Confidence: 0.96670026
00:39:06.545 --> 00:39:07.285 two lawsuits.
NOTE Confidence: 0.94591737
00:39:07.905 --> 00:39:09.025 And who signed it out?
NOTE Confidence: 0.94591737
00:39:09.025 --> 00:39:10.305 Was it a generalist, or
NOTE Confidence: 0.94591737
00:39:10.305 --> 00:39:11.525 was was it a specialist?
NOTE Confidence: 0.94591737
00:39:11.760 --> 00:39:13.520 Like, did a dermatopathologist sign
NOTE Confidence: 0.94591737
00:39:13.520 --> 00:39:14.560 out the melanoma, or was
NOTE Confidence: 0.94591737
00:39:14.560 --> 00:39:15.680 it a general pathologist in
NOTE Confidence: 0.94591737
00:39:15.680 --> 00:39:16.739 a community hospital?
NOTE Confidence: 0.9668481
00:39:17.040 --> 00:39:18.480 They extrapolated that to the
NOTE Confidence: 0.9668481
00:39:18.480 --> 00:39:19.600 top ten cancers, and how
NOTE Confidence: 0.9668481

00:39:19.600 --> 00:39:20.560 much would that cost the
NOTE Confidence: 0.9668481

00:39:20.560 --> 00:39:22.560 system? And so they they
NOTE Confidence: 0.9668481

00:39:22.800 --> 00:39:24.960 that seventeen point that seventeen
NOTE Confidence: 0.9668481

00:39:24.960 --> 00:39:26.000 point seven million dollars is
NOTE Confidence: 0.9668481

00:39:26.000 --> 00:39:27.620 how much UPMC would save.
NOTE Confidence: 0.9668481

00:39:27.915 --> 00:39:29.275 That was their calculation. And
NOTE Confidence: 0.9668481

00:39:29.275 --> 00:39:30.495 based on that, they said,
NOTE Confidence: 0.9668481

00:39:30.555 --> 00:39:31.355 and I was there at
NOTE Confidence: 0.9668481

00:39:31.355 --> 00:39:32.495 the time doing informatics,
NOTE Confidence: 0.9068722

00:39:32.875 --> 00:39:34.155 Leron, your job is to
NOTE Confidence: 0.9068722

00:39:34.155 --> 00:39:35.995 implement this Omnic system and
NOTE Confidence: 0.9068722

00:39:35.995 --> 00:39:37.355 everyone has to do primary
NOTE Confidence: 0.9068722

00:39:37.355 --> 00:39:37.855 diagnosis.
NOTE Confidence: 0.92440754

00:39:39.435 --> 00:39:40.680 They didn't tell me that
NOTE Confidence: 0.92440754

00:39:40.839 --> 00:39:41.900 everyone who works at GPMC
NOTE Confidence: 0.92440754

00:39:41.960 --> 00:39:43.079 is gonna hate me and

NOTE Confidence: 0.92440754
00:39:43.079 --> 00:39:44.380 not wanna do it.
NOTE Confidence: 0.95712024
00:39:44.680 --> 00:39:46.200 Right? But that was what
NOTE Confidence: 0.95712024
00:39:46.200 --> 00:39:47.319 happened back in the day.
NOTE Confidence: 0.95712024
00:39:47.319 --> 00:39:48.599 The histology lab didn't want
NOTE Confidence: 0.95712024
00:39:48.599 --> 00:39:49.880 me bringing in these scanners,
NOTE Confidence: 0.95712024
00:39:49.880 --> 00:39:50.859 taking up space.
NOTE Confidence: 0.9656617
00:39:51.319 --> 00:39:52.520 The IT people were like,
NOTE Confidence: 0.9656617
00:39:52.520 --> 00:39:53.800 we know nothing about digital
NOTE Confidence: 0.9656617
00:39:53.800 --> 00:39:54.859 pathology. Like,
NOTE Confidence: 0.99062765
00:39:55.295 --> 00:39:56.675 why are we doing this?
NOTE Confidence: 0.9478809
00:39:56.975 --> 00:39:57.635 The pathologists
NOTE Confidence: 0.95911336
00:39:57.935 --> 00:39:59.475 did not like it either.
NOTE Confidence: 0.95911336
00:39:59.535 --> 00:40:00.735 Right? So that was it.
NOTE Confidence: 0.95911336
00:40:00.735 --> 00:40:02.195 I even had one pathologist
NOTE Confidence: 0.90872955
00:40:02.895 --> 00:40:04.175 who did his own time
NOTE Confidence: 0.90872955

00:40:04.175 --> 00:40:05.155 and motion study.
NOTE Confidence: 0.9960497

00:40:07.055 --> 00:40:08.275 He was a breast pathologist.
NOTE Confidence: 0.9661356

00:40:09.069 --> 00:40:10.109 He's a very famous breast
NOTE Confidence: 0.9661356

00:40:10.109 --> 00:40:11.230 pathologist today. But the breast
NOTE Confidence: 0.9661356

00:40:11.230 --> 00:40:12.430 pathologists, as you know, always
NOTE Confidence: 0.9661356

00:40:12.430 --> 00:40:13.230 say that they have the
NOTE Confidence: 0.9661356

00:40:13.230 --> 00:40:14.430 most slides per case. But
NOTE Confidence: 0.9661356

00:40:14.430 --> 00:40:15.469 that's because it's their own
NOTE Confidence: 0.9661356

00:40:15.469 --> 00:40:16.589 fault. They take so many
NOTE Confidence: 0.9661356

00:40:16.589 --> 00:40:17.730 sections per case.
NOTE Confidence: 0.9517724

00:40:20.670 --> 00:40:22.530 But he he proved that
NOTE Confidence: 0.9880767

00:40:23.225 --> 00:40:24.665 if he did his daily
NOTE Confidence: 0.9880767

00:40:24.665 --> 00:40:26.344 work with a microscope and
NOTE Confidence: 0.9880767

00:40:26.344 --> 00:40:28.025 glass slides, he was way
NOTE Confidence: 0.9880767

00:40:28.025 --> 00:40:28.844 more efficient
NOTE Confidence: 0.9881635

00:40:29.705 --> 00:40:30.825 than if he did it

NOTE Confidence: 0.9881635

00:40:30.825 --> 00:40:31.325 digitally.

NOTE Confidence: 0.9802635

00:40:31.864 --> 00:40:33.065 In fact, he was twenty

NOTE Confidence: 0.9802635

00:40:33.065 --> 00:40:34.125 five percent quicker.

NOTE Confidence: 0.9466266

00:40:34.505 --> 00:40:35.385 And he asked to have

NOTE Confidence: 0.9466266

00:40:35.385 --> 00:40:36.585 an appointment with me, him,

NOTE Confidence: 0.9466266

00:40:36.585 --> 00:40:37.650 and the chair of about

NOTE Confidence: 0.9466266

00:40:37.650 --> 00:40:38.609 Apartment at the time, and

NOTE Confidence: 0.9466266

00:40:38.609 --> 00:40:39.190 we met.

NOTE Confidence: 0.96087825

00:40:40.130 --> 00:40:41.650 And, I said, that's true,

NOTE Confidence: 0.96087825

00:40:41.650 --> 00:40:43.410 actually. Pathologists are very quick,

NOTE Confidence: 0.96087825

00:40:43.410 --> 00:40:44.849 especially very experienced, you know,

NOTE Confidence: 0.96087825

00:40:44.849 --> 00:40:45.890 getting that slide to move

NOTE Confidence: 0.96087825

00:40:45.890 --> 00:40:46.609 over the stage with a

NOTE Confidence: 0.96087825

00:40:46.609 --> 00:40:47.109 microscope.

NOTE Confidence: 0.9964889

00:40:47.410 --> 00:40:48.869 But then I asked him,

NOTE Confidence: 0.9783664

00:40:49.329 --> 00:40:50.609 did you take into account
NOTE Confidence: 0.9783664

00:40:50.609 --> 00:40:51.650 how long it takes the
NOTE Confidence: 0.97915787

00:40:52.655 --> 00:40:54.094 if we're counting turnaround time
NOTE Confidence: 0.97915787

00:40:54.094 --> 00:40:55.295 to get the case out,
NOTE Confidence: 0.97915787

00:40:55.295 --> 00:40:56.175 how long it takes from
NOTE Confidence: 0.97915787

00:40:56.175 --> 00:40:57.474 the histology lab
NOTE Confidence: 0.93211603

00:40:57.935 --> 00:40:59.315 to get you that slot
NOTE Confidence: 0.8939573

00:41:00.015 --> 00:41:01.295 if you add that in
NOTE Confidence: 0.8939573

00:41:01.295 --> 00:41:02.994 versus it was available immediately
NOTE Confidence: 0.45282385

00:41:03.454 --> 00:41:03.954 digits?
NOTE Confidence: 0.99359983

00:41:04.494 --> 00:41:05.535 And, of course, the minute
NOTE Confidence: 0.99359983

00:41:05.535 --> 00:41:06.195 he saw
NOTE Confidence: 0.97989005

00:41:06.590 --> 00:41:08.510 the turnaround time, not from
NOTE Confidence: 0.97989005

00:41:08.510 --> 00:41:09.250 his perspective,
NOTE Confidence: 0.9546787

00:41:09.550 --> 00:41:11.010 but from the lab's perspective,
NOTE Confidence: 0.9546787

00:41:11.070 --> 00:41:11.890 that the throughput,

NOTE Confidence: 0.9912102
00:41:12.750 --> 00:41:14.510 okay, that was obviously a
NOTE Confidence: 0.9912102
00:41:14.510 --> 00:41:15.870 deal breaker. So he realized
NOTE Confidence: 0.9912102
00:41:15.870 --> 00:41:16.370 that
NOTE Confidence: 0.9546031
00:41:17.310 --> 00:41:18.350 that doesn't make a lot
NOTE Confidence: 0.9546031
00:41:18.350 --> 00:41:19.805 of sense. And today, he
NOTE Confidence: 0.9546031
00:41:19.805 --> 00:41:20.844 keeps asking me, when are
NOTE Confidence: 0.9546031
00:41:20.844 --> 00:41:21.885 we getting more scanners? When
NOTE Confidence: 0.9546031
00:41:21.885 --> 00:41:22.844 are we getting more scans?
NOTE Confidence: 0.9546031
00:41:22.844 --> 00:41:24.145 Okay. That same pathologist.
NOTE Confidence: 0.9490307
00:41:26.364 --> 00:41:27.645 Okay. Lab also figured out
NOTE Confidence: 0.9490307
00:41:27.645 --> 00:41:28.765 that if we go slide
NOTE Confidence: 0.9490307
00:41:28.765 --> 00:41:29.585 less, basically,
NOTE Confidence: 0.95777756
00:41:29.885 --> 00:41:30.765 it would be way more
NOTE Confidence: 0.95777756
00:41:30.765 --> 00:41:32.070 lean and efficient because the
NOTE Confidence: 0.95777756
00:41:32.070 --> 00:41:33.270 spaghetti maps of, you know,
NOTE Confidence: 0.95777756

00:41:33.270 --> 00:41:34.630 making slides, taking them off

NOTE Confidence: 0.95777756

00:41:34.630 --> 00:41:35.750 to the immuno, bringing them

NOTE Confidence: 0.95777756

00:41:35.750 --> 00:41:36.250 back,

NOTE Confidence: 0.9713832

00:41:36.630 --> 00:41:37.130 etcetera,

NOTE Confidence: 0.9982784

00:41:37.750 --> 00:41:38.570 takes forever.

NOTE Confidence: 0.97171146

00:41:39.510 --> 00:41:40.550 You can imagine now it's

NOTE Confidence: 0.97171146

00:41:40.550 --> 00:41:41.670 even worse because we have

NOTE Confidence: 0.97171146

00:41:41.670 --> 00:41:43.190 less histotech. It's very hard

NOTE Confidence: 0.97171146

00:41:43.190 --> 00:41:43.930 to find histotechs,

NOTE Confidence: 0.9882569

00:41:44.790 --> 00:41:46.250 to staff all the labs,

NOTE Confidence: 0.9882569

00:41:46.310 --> 00:41:48.085 but we would be more

NOTE Confidence: 0.9882569

00:41:48.085 --> 00:41:48.585 efficient.

NOTE Confidence: 0.97306097

00:41:49.685 --> 00:41:51.125 And we did learn a

NOTE Confidence: 0.97306097

00:41:51.125 --> 00:41:52.405 bunch of things, and Doug

NOTE Confidence: 0.97306097

00:41:52.405 --> 00:41:53.525 Hartman, who worked with me

NOTE Confidence: 0.97306097

00:41:53.525 --> 00:41:54.405 at the time, published this.

NOTE Confidence: 0.97306097
00:41:54.405 --> 00:41:55.445 What we learned is, number
NOTE Confidence: 0.97306097
00:41:55.445 --> 00:41:56.805 one, all the pre imaging
NOTE Confidence: 0.97306097
00:41:56.805 --> 00:41:58.265 stuff is way more important.
NOTE Confidence: 0.97306097
00:41:58.325 --> 00:41:59.465 How you make the slide,
NOTE Confidence: 0.9610774
00:42:00.119 --> 00:42:01.400 how is it how quickly
NOTE Confidence: 0.9610774
00:42:01.400 --> 00:42:02.200 you can dry it before
NOTE Confidence: 0.9610774
00:42:02.200 --> 00:42:03.079 you can scan it, and
NOTE Confidence: 0.9610774
00:42:03.079 --> 00:42:03.739 so forth.
NOTE Confidence: 0.9469187
00:42:04.119 --> 00:42:05.480 That if you if you're
NOTE Confidence: 0.9469187
00:42:05.480 --> 00:42:06.839 asking pathologists to log into
NOTE Confidence: 0.9469187
00:42:06.839 --> 00:42:08.200 a digital pathology system, then
NOTE Confidence: 0.9469187
00:42:08.200 --> 00:42:09.799 a lab information system, then
NOTE Confidence: 0.9469187
00:42:09.799 --> 00:42:11.239 an AI system, they're gonna
NOTE Confidence: 0.9469187
00:42:11.239 --> 00:42:12.359 hate you. They just want
NOTE Confidence: 0.9469187
00:42:12.359 --> 00:42:13.825 one system. So we decided
NOTE Confidence: 0.9469187

00:42:13.825 --> 00:42:14.864 back into everything needs to
NOTE Confidence: 0.9469187

00:42:14.864 --> 00:42:15.844 go through the LIS.
NOTE Confidence: 0.9430937

00:42:16.225 --> 00:42:17.105 We figured out how to
NOTE Confidence: 0.9430937

00:42:17.105 --> 00:42:19.505 validate people, train people, and
NOTE Confidence: 0.9430937

00:42:19.505 --> 00:42:20.465 everyone asks us, are you
NOTE Confidence: 0.9430937

00:42:20.465 --> 00:42:21.905 going FDA? Are you using
NOTE Confidence: 0.9430937

00:42:21.905 --> 00:42:23.125 FDA? No.
NOTE Confidence: 0.9702939

00:42:23.585 --> 00:42:25.605 FDA does not regulate us.
NOTE Confidence: 0.8929719

00:42:25.969 --> 00:42:27.589 The FDA regulates the manufacturer.
NOTE Confidence: 0.93678266

00:42:27.890 --> 00:42:28.690 And we can choose to
NOTE Confidence: 0.93678266

00:42:28.690 --> 00:42:29.589 use an FDA
NOTE Confidence: 0.9666878

00:42:30.289 --> 00:42:31.809 approved or cleared system or
NOTE Confidence: 0.9666878

00:42:31.809 --> 00:42:33.809 not. In fact, of the
NOTE Confidence: 0.9666878

00:42:33.809 --> 00:42:35.569 one thousand I or one
NOTE Confidence: 0.9666878

00:42:35.569 --> 00:42:37.329 thousand plus antibodies we have
NOTE Confidence: 0.9666878

00:42:37.329 --> 00:42:38.150 in our immunohistochemistry

NOTE Confidence: 0.9805395
00:42:38.930 --> 00:42:40.005 lab, I I don't think
NOTE Confidence: 0.9805395
00:42:40.005 --> 00:42:41.285 any of them are FDA
NOTE Confidence: 0.9805395
00:42:41.285 --> 00:42:42.645 approved for everything we use
NOTE Confidence: 0.9805395
00:42:42.645 --> 00:42:43.605 them for. They're all off
NOTE Confidence: 0.9805395
00:42:43.605 --> 00:42:44.105 label.
NOTE Confidence: 0.8947161
00:42:46.005 --> 00:42:46.505 Plus,
NOTE Confidence: 0.9884598
00:42:46.805 --> 00:42:48.404 FDA system locks you down.
NOTE Confidence: 0.9884598
00:42:48.404 --> 00:42:50.005 You cannot change anything. And
NOTE Confidence: 0.9884598
00:42:50.005 --> 00:42:50.964 even if today I picked
NOTE Confidence: 0.9884598
00:42:50.964 --> 00:42:52.565 an FDA approved system, I
NOTE Confidence: 0.9884598
00:42:52.565 --> 00:42:53.364 would not be allowed to
NOTE Confidence: 0.9884598
00:42:53.364 --> 00:42:54.244 look at any of our
NOTE Confidence: 0.9884598
00:42:54.244 --> 00:42:55.719 archived images. If I wanna
NOTE Confidence: 0.9884598
00:42:55.719 --> 00:42:57.000 go look at someone's biopsy
NOTE Confidence: 0.9884598
00:42:57.000 --> 00:42:57.960 from a year ago, I
NOTE Confidence: 0.9884598

00:42:57.960 --> 00:42:58.920 would not be allowed to
NOTE Confidence: 0.9884598

00:42:58.920 --> 00:43:00.120 pull it into the current
NOTE Confidence: 0.9884598

00:43:00.120 --> 00:43:01.719 FDA system. So it doesn't
NOTE Confidence: 0.9884598

00:43:01.719 --> 00:43:02.700 really make sense
NOTE Confidence: 0.998779

00:43:03.000 --> 00:43:03.900 for our use.
NOTE Confidence: 0.8830654

00:43:05.239 --> 00:43:06.780 Anyway, we installed these
NOTE Confidence: 0.9880468

00:43:07.575 --> 00:43:08.935 scanners throughout the lab, and
NOTE Confidence: 0.9880468

00:43:08.935 --> 00:43:10.375 we learned a lot about
NOTE Confidence: 0.9880468

00:43:10.375 --> 00:43:10.875 space,
NOTE Confidence: 0.97920275

00:43:11.494 --> 00:43:13.255 lean flow. The closer your
NOTE Confidence: 0.97920275

00:43:13.255 --> 00:43:14.555 scanner is to the slide,
NOTE Confidence: 0.97920275

00:43:14.614 --> 00:43:15.755 the better it is.
NOTE Confidence: 0.9927448

00:43:17.015 --> 00:43:18.614 We also figured about figured
NOTE Confidence: 0.9927448

00:43:18.614 --> 00:43:20.214 out about the workflow. Now
NOTE Confidence: 0.9927448

00:43:20.214 --> 00:43:21.734 many people think that these
NOTE Confidence: 0.9927448

00:43:21.734 --> 00:43:22.555 image management

NOTE Confidence: 0.99116915
00:43:23.719 --> 00:43:24.219 systems,
NOTE Confidence: 0.96673805
00:43:24.760 --> 00:43:26.380 drive the workflow. They're wrong.
NOTE Confidence: 0.96673805
00:43:26.599 --> 00:43:28.200 An image management system to
NOTE Confidence: 0.96673805
00:43:28.200 --> 00:43:29.559 me is like an access
NOTE Confidence: 0.96673805
00:43:29.559 --> 00:43:31.160 database or an Excel spreadsheet.
NOTE Confidence: 0.96673805
00:43:31.160 --> 00:43:32.440 It manages the images very
NOTE Confidence: 0.96673805
00:43:32.440 --> 00:43:33.559 well if you're an administrator.
NOTE Confidence: 0.96673805
00:43:33.559 --> 00:43:34.700 But if you're a pathologist,
NOTE Confidence: 0.9915247
00:43:35.000 --> 00:43:35.500 no.
NOTE Confidence: 0.9918431
00:43:35.880 --> 00:43:37.099 You we do not
NOTE Confidence: 0.99719846
00:43:37.635 --> 00:43:38.614 manage our
NOTE Confidence: 0.9889483
00:43:39.155 --> 00:43:41.235 cases by slides and blocks.
NOTE Confidence: 0.9889483
00:43:41.235 --> 00:43:42.515 We manage them by case.
NOTE Confidence: 0.9889483
00:43:42.515 --> 00:43:43.555 So you really need a
NOTE Confidence: 0.9889483
00:43:43.555 --> 00:43:44.855 case management system.
NOTE Confidence: 0.94971013

00:43:45.315 --> 00:43:46.515 Parts, how many, you know,
NOTE Confidence: 0.94971013

00:43:46.515 --> 00:43:47.395 how many parts are there?
NOTE Confidence: 0.94971013

00:43:47.395 --> 00:43:48.594 How many slides per part?
NOTE Confidence: 0.94971013

00:43:48.594 --> 00:43:49.795 How many do need immunos?
NOTE Confidence: 0.94971013

00:43:49.795 --> 00:43:50.755 How many of those need
NOTE Confidence: 0.94971013

00:43:50.755 --> 00:43:51.690 an immunosistochemistry
NOTE Confidence: 0.97231513

00:43:52.150 --> 00:43:53.590 stain. When the stain comes
NOTE Confidence: 0.97231513

00:43:53.590 --> 00:43:54.870 back, you don't want it
NOTE Confidence: 0.97231513

00:43:54.870 --> 00:43:55.989 right at the bottom. You
NOTE Confidence: 0.97231513

00:43:55.989 --> 00:43:57.430 want it back in that
NOTE Confidence: 0.97231513

00:43:57.430 --> 00:43:58.630 part where it belongs. And
NOTE Confidence: 0.97231513

00:43:58.630 --> 00:44:00.469 so we worked very hard
NOTE Confidence: 0.97231513

00:44:00.469 --> 00:44:01.510 with our IT people to
NOTE Confidence: 0.97231513

00:44:01.510 --> 00:44:02.550 get the workflow to work
NOTE Confidence: 0.97231513

00:44:02.550 --> 00:44:03.290 out well.
NOTE Confidence: 0.93997115

00:44:04.844 --> 00:44:06.205 We were also a Copath

NOTE Confidence: 0.93997115
00:44:06.205 --> 00:44:08.285 user. We're now half an
NOTE Confidence: 0.93997115
00:44:08.285 --> 00:44:09.645 Epic user. By May ninth,
NOTE Confidence: 0.93997115
00:44:09.645 --> 00:44:11.105 we'll all be Epic users.
NOTE Confidence: 0.93997115
00:44:11.244 --> 00:44:12.545 But you can see that
NOTE Confidence: 0.97258925
00:44:13.325 --> 00:44:14.525 running it through the LIS
NOTE Confidence: 0.97258925
00:44:14.525 --> 00:44:15.244 makes a whole lot of
NOTE Confidence: 0.97258925
00:44:15.244 --> 00:44:16.125 sense. And the more we
NOTE Confidence: 0.97258925
00:44:16.125 --> 00:44:17.265 did this, the more pathologists
NOTE Confidence: 0.97258925
00:44:17.484 --> 00:44:18.549 accepted it because this was
NOTE Confidence: 0.97258925
00:44:18.549 --> 00:44:19.910 their workflow. You could look
NOTE Confidence: 0.97258925
00:44:19.910 --> 00:44:21.109 at this particular case as
NOTE Confidence: 0.97258925
00:44:21.109 --> 00:44:22.789 part one, part two. I
NOTE Confidence: 0.97258925
00:44:22.789 --> 00:44:24.170 can see of that part,
NOTE Confidence: 0.95616496
00:44:24.549 --> 00:44:25.829 three other slides were scanned,
NOTE Confidence: 0.95616496
00:44:25.829 --> 00:44:27.029 three were not. You can
NOTE Confidence: 0.95616496

00:44:27.029 --> 00:44:27.989 view one side. You can
NOTE Confidence: 0.95616496

00:44:27.989 --> 00:44:29.190 view them all. But it's
NOTE Confidence: 0.95616496

00:44:29.190 --> 00:44:30.435 all through the LIS. You
NOTE Confidence: 0.95616496

00:44:30.435 --> 00:44:31.635 order a recut. The recut
NOTE Confidence: 0.95616496

00:44:31.635 --> 00:44:32.594 will get scanned. Come back.
NOTE Confidence: 0.95616496

00:44:32.594 --> 00:44:33.715 You'll see, oh, it's exactly
NOTE Confidence: 0.95616496

00:44:33.715 --> 00:44:34.675 in that part. You're in
NOTE Confidence: 0.95616496

00:44:34.675 --> 00:44:35.875 immuno. You don't have to
NOTE Confidence: 0.95616496

00:44:35.875 --> 00:44:36.835 go anywhere. You can get
NOTE Confidence: 0.95616496

00:44:36.835 --> 00:44:37.715 it right done. You need
NOTE Confidence: 0.95616496

00:44:37.715 --> 00:44:38.855 to now do the report.
NOTE Confidence: 0.95616496

00:44:38.995 --> 00:44:40.035 You're all in the same
NOTE Confidence: 0.95616496

00:44:40.035 --> 00:44:41.475 system. So we preferred that
NOTE Confidence: 0.95616496

00:44:41.475 --> 00:44:42.135 at UPMC.
NOTE Confidence: 0.94101375

00:44:43.400 --> 00:44:44.680 What we also learned there
NOTE Confidence: 0.94101375

00:44:44.680 --> 00:44:45.420 is that

NOTE Confidence: 0.83656216
00:44:46.680 --> 00:44:48.680 currently the way Histo Labs
NOTE Confidence: 0.83656216
00:44:48.680 --> 00:44:50.219 work is stuff gets assembled,
NOTE Confidence: 0.9390419
00:44:50.760 --> 00:44:52.520 slides are made, paperworks match,
NOTE Confidence: 0.9390419
00:44:52.520 --> 00:44:53.640 they get onto flats or
NOTE Confidence: 0.9390419
00:44:53.640 --> 00:44:54.840 trays, they get delivered to
NOTE Confidence: 0.9390419
00:44:54.840 --> 00:44:55.340 mailboxes.
NOTE Confidence: 0.91410464
00:44:56.635 --> 00:44:57.595 And, you know, walk by
NOTE Confidence: 0.91410464
00:44:57.595 --> 00:44:58.815 and you still have mailboxes
NOTE Confidence: 0.91410464
00:44:58.875 --> 00:45:00.095 with slides in them. Right?
NOTE Confidence: 0.9614649
00:45:02.155 --> 00:45:04.315 People felt that going digital,
NOTE Confidence: 0.9614649
00:45:04.315 --> 00:45:05.195 that all goes away. It's
NOTE Confidence: 0.9614649
00:45:05.195 --> 00:45:06.635 not true. And we learned
NOTE Confidence: 0.9614649
00:45:06.635 --> 00:45:07.135 that.
NOTE Confidence: 0.9956903
00:45:07.515 --> 00:45:08.255 There's still
NOTE Confidence: 0.97425646
00:45:08.780 --> 00:45:09.739 this kind of work that
NOTE Confidence: 0.97425646

00:45:09.739 --> 00:45:10.859 needs to be done, administrative

NOTE Confidence: 0.97425646

00:45:10.859 --> 00:45:11.660 work, but it's in the

NOTE Confidence: 0.97425646

00:45:11.660 --> 00:45:13.500 digital system. Someone still has

NOTE Confidence: 0.97425646

00:45:13.500 --> 00:45:14.300 to go in and say,

NOTE Confidence: 0.97425646

00:45:14.300 --> 00:45:16.000 doctor Desik's on service today.

NOTE Confidence: 0.97425646

00:45:16.140 --> 00:45:17.099 Next week, she'll be out.

NOTE Confidence: 0.97425646

00:45:17.099 --> 00:45:17.900 This has to go to

NOTE Confidence: 0.97425646

00:45:17.900 --> 00:45:19.099 someone else. Someone's gotta go

NOTE Confidence: 0.97425646

00:45:19.099 --> 00:45:19.900 in and do all that

NOTE Confidence: 0.97425646

00:45:19.900 --> 00:45:21.280 work and make sure that

NOTE Confidence: 0.9968889

00:45:21.635 --> 00:45:23.015 the QC gets done.

NOTE Confidence: 0.97570217

00:45:23.474 --> 00:45:24.915 Now the one thing I

NOTE Confidence: 0.97570217

00:45:24.915 --> 00:45:26.114 don't agree with the way

NOTE Confidence: 0.97570217

00:45:26.114 --> 00:45:27.075 some labs that have gone

NOTE Confidence: 0.97570217

00:45:27.075 --> 00:45:28.434 fully digital are doing their

NOTE Confidence: 0.97570217

00:45:28.434 --> 00:45:29.954 QC is, how do we

NOTE Confidence: 0.97570217
00:45:29.954 --> 00:45:31.155 know every image is okay
NOTE Confidence: 0.97570217
00:45:31.155 --> 00:45:32.194 and every image is in
NOTE Confidence: 0.97570217
00:45:32.194 --> 00:45:33.474 focus? They're saying, oh, we'll
NOTE Confidence: 0.97570217
00:45:33.474 --> 00:45:34.835 look at ten images for
NOTE Confidence: 0.97570217
00:45:34.835 --> 00:45:36.194 each batch. But that sort
NOTE Confidence: 0.97570217
00:45:36.194 --> 00:45:37.559 of is counter
NOTE Confidence: 0.999555
00:45:37.859 --> 00:45:39.400 to automating the whole system.
NOTE Confidence: 0.99731255
00:45:39.700 --> 00:45:40.680 Now there's AI
NOTE Confidence: 0.9897434
00:45:40.980 --> 00:45:42.260 that does your QC checks,
NOTE Confidence: 0.9897434
00:45:42.260 --> 00:45:43.460 and we're testing a few
NOTE Confidence: 0.9897434
00:45:43.460 --> 00:45:44.579 of those different systems. I
NOTE Confidence: 0.9897434
00:45:44.579 --> 00:45:45.779 don't really want people to
NOTE Confidence: 0.9897434
00:45:45.779 --> 00:45:47.539 check that. But what did
NOTE Confidence: 0.9897434
00:45:47.539 --> 00:45:48.279 change is
NOTE Confidence: 0.8610291
00:45:48.660 --> 00:45:49.700 the follow just got very
NOTE Confidence: 0.8610291

00:45:49.700 --> 00:45:50.440 used to
NOTE Confidence: 0.96622765

00:45:50.875 --> 00:45:52.075 knowing when they had work,
NOTE Confidence: 0.96622765

00:45:52.075 --> 00:45:53.275 when their mailbox got full,
NOTE Confidence: 0.96622765

00:45:53.275 --> 00:45:54.895 or someone delivered them stuff,
NOTE Confidence: 0.96622765

00:45:54.955 --> 00:45:56.335 which is a push system.
NOTE Confidence: 0.9409434

00:45:57.275 --> 00:45:58.395 What happened when we were
NOTE Confidence: 0.9409434

00:45:58.395 --> 00:45:59.835 using the omnich system, they
NOTE Confidence: 0.9409434

00:45:59.835 --> 00:46:01.035 didn't know that their cases
NOTE Confidence: 0.9409434

00:46:01.035 --> 00:46:02.395 were building up, which is
NOTE Confidence: 0.9409434

00:46:02.395 --> 00:46:03.515 a pull system. You gotta
NOTE Confidence: 0.9409434

00:46:03.515 --> 00:46:04.475 go in and you gotta
NOTE Confidence: 0.9409434

00:46:04.475 --> 00:46:05.310 go log in and see,
NOTE Confidence: 0.9409434

00:46:05.310 --> 00:46:06.030 see, oh my goodness. I
NOTE Confidence: 0.9409434

00:46:06.030 --> 00:46:07.150 got thirty five cases, and
NOTE Confidence: 0.9409434

00:46:07.150 --> 00:46:08.350 it's already eleven o'clock. I
NOTE Confidence: 0.9409434

00:46:08.350 --> 00:46:09.630 better get started. So that

NOTE Confidence: 0.9409434
00:46:09.630 --> 00:46:10.370 didn't happen.
NOTE Confidence: 0.99147975
00:46:11.469 --> 00:46:12.930 And I did learn this.
NOTE Confidence: 0.97652483
00:46:13.469 --> 00:46:14.910 So I'd asked money for
NOTE Confidence: 0.97652483
00:46:14.910 --> 00:46:16.110 money to buy the IT
NOTE Confidence: 0.97652483
00:46:16.110 --> 00:46:17.390 system, buy the hardware, buy
NOTE Confidence: 0.97652483
00:46:17.390 --> 00:46:18.130 the software.
NOTE Confidence: 0.98540485
00:46:18.989 --> 00:46:19.870 And they gave me all
NOTE Confidence: 0.98540485
00:46:19.870 --> 00:46:20.530 these buses.
NOTE Confidence: 0.98448944
00:46:20.985 --> 00:46:22.185 All these buses arrived and
NOTE Confidence: 0.98448944
00:46:22.185 --> 00:46:23.705 got lined up, and then
NOTE Confidence: 0.98448944
00:46:23.705 --> 00:46:24.925 I had no bus drivers.
NOTE Confidence: 0.94779104
00:46:25.705 --> 00:46:27.225 Okay. Who's gonna scan the
NOTE Confidence: 0.94779104
00:46:27.225 --> 00:46:27.725 slots?
NOTE Confidence: 0.9329335
00:46:28.265 --> 00:46:29.465 I'd assume that the hospital
NOTE Confidence: 0.9329335
00:46:29.465 --> 00:46:30.265 would say, okay. You can
NOTE Confidence: 0.9329335

00:46:30.265 --> 00:46:31.864 use the histotech time and
NOTE Confidence: 0.9329335

00:46:31.945 --> 00:46:33.625 or, an admin assistant that
NOTE Confidence: 0.9329335

00:46:33.625 --> 00:46:35.065 time will train them. We'll
NOTE Confidence: 0.9329335

00:46:35.065 --> 00:46:35.945 hire you a bunch of
NOTE Confidence: 0.9329335

00:46:35.945 --> 00:46:37.250 scan tags. No.
NOTE Confidence: 0.9552225

00:46:38.350 --> 00:46:40.130 If it wasn't budgeted for,
NOTE Confidence: 0.8908065

00:46:40.910 --> 00:46:42.030 the those were just gonna
NOTE Confidence: 0.8908065

00:46:42.030 --> 00:46:43.489 sit there and, you know,
NOTE Confidence: 0.9369938

00:46:43.870 --> 00:46:45.630 and collect dust, which happened
NOTE Confidence: 0.9369938

00:46:45.630 --> 00:46:46.830 for a while. So I
NOTE Confidence: 0.9369938

00:46:46.830 --> 00:46:47.790 told them, look. We spent,
NOTE Confidence: 0.9369938

00:46:47.790 --> 00:46:49.330 you know, seven million dollars.
NOTE Confidence: 0.9369938

00:46:49.550 --> 00:46:51.230 We do need to, use
NOTE Confidence: 0.9369938

00:46:51.230 --> 00:46:51.890 the technology.
NOTE Confidence: 0.7567518

00:46:52.244 --> 00:46:52.744 Okay?
NOTE Confidence: 0.9707844

00:46:53.045 --> 00:46:54.724 Now I know, having done

NOTE Confidence: 0.9707844
00:46:54.724 --> 00:46:56.244 that, is you need people.
NOTE Confidence: 0.9707844
00:46:56.244 --> 00:46:57.444 You need IT analysts. You
NOTE Confidence: 0.9707844
00:46:57.444 --> 00:46:58.724 need a business analyst. You
NOTE Confidence: 0.9707844
00:46:58.724 --> 00:46:59.844 need a director of digital
NOTE Confidence: 0.9707844
00:46:59.844 --> 00:47:01.305 pathology. You need Scantecs.
NOTE Confidence: 0.9818251
00:47:01.844 --> 00:47:02.964 Otherwise, you're just gonna have
NOTE Confidence: 0.9818251
00:47:02.964 --> 00:47:03.924 a fleet of buses that
NOTE Confidence: 0.9818251
00:47:03.924 --> 00:47:05.704 are gonna go nowhere. Okay?
NOTE Confidence: 0.96579254
00:47:07.640 --> 00:47:08.680 And how do you sign
NOTE Confidence: 0.96579254
00:47:08.680 --> 00:47:10.200 out? So when you speak
NOTE Confidence: 0.96579254
00:47:10.200 --> 00:47:11.340 to all the digital pathology
NOTE Confidence: 0.96579254
00:47:11.400 --> 00:47:12.680 companies, they'll tell you, yeah.
NOTE Confidence: 0.96579254
00:47:12.680 --> 00:47:13.640 Sign out. It's easy. Look
NOTE Confidence: 0.96579254
00:47:13.640 --> 00:47:14.360 how we do it in
NOTE Confidence: 0.96579254
00:47:14.360 --> 00:47:15.480 the electronic system. But that
NOTE Confidence: 0.96579254

00:47:15.480 --> 00:47:16.360 is not how we sign
NOTE Confidence: 0.96579254

00:47:16.360 --> 00:47:17.640 out for real. You know
NOTE Confidence: 0.96579254

00:47:17.640 --> 00:47:18.380 as pathologists.
NOTE Confidence: 0.9353179

00:47:20.225 --> 00:47:20.965 Sign out,
NOTE Confidence: 0.9497888

00:47:21.425 --> 00:47:23.185 many times this means we're
NOTE Confidence: 0.9497888

00:47:23.185 --> 00:47:24.065 looking at the case at
NOTE Confidence: 0.9497888

00:47:24.065 --> 00:47:25.745 a microscope, either on my
NOTE Confidence: 0.9497888

00:47:25.745 --> 00:47:26.485 own microscope
NOTE Confidence: 0.9759105

00:47:26.785 --> 00:47:28.145 or a multi headed microscope
NOTE Confidence: 0.9759105

00:47:28.145 --> 00:47:29.105 in a conference room, and
NOTE Confidence: 0.9759105

00:47:29.105 --> 00:47:30.305 then I'm gonna go back
NOTE Confidence: 0.9759105

00:47:30.305 --> 00:47:31.585 to my office and then
NOTE Confidence: 0.9759105

00:47:31.585 --> 00:47:33.025 sign out. And, like, digital
NOTE Confidence: 0.9759105

00:47:33.025 --> 00:47:34.145 pathology vendors are confused. Like,
NOTE Confidence: 0.9759105

00:47:34.145 --> 00:47:35.285 what are you talking about?
NOTE Confidence: 0.9759105

00:47:35.540 --> 00:47:36.500 Sign out is when you

NOTE Confidence: 0.9759105

00:47:36.500 --> 00:47:37.619 sign out the case. No.

NOTE Confidence: 0.9759105

00:47:37.619 --> 00:47:38.420 Sign out is when you

NOTE Confidence: 0.9759105

00:47:38.420 --> 00:47:39.540 look at the case, you

NOTE Confidence: 0.9759105

00:47:39.540 --> 00:47:40.420 figure out how you're gonna

NOTE Confidence: 0.9759105

00:47:40.420 --> 00:47:41.540 report it, and then you

NOTE Confidence: 0.9759105

00:47:41.540 --> 00:47:43.160 may electronically sign it out.

NOTE Confidence: 0.9425895

00:47:43.460 --> 00:47:44.680 So you have to ergonomically

NOTE Confidence: 0.9425895

00:47:44.900 --> 00:47:46.660 figure out how pathologist offices

NOTE Confidence: 0.9425895

00:47:46.660 --> 00:47:48.020 are gonna look, where are

NOTE Confidence: 0.9425895

00:47:48.020 --> 00:47:49.700 these digital pathology monitors gonna

NOTE Confidence: 0.9425895

00:47:49.700 --> 00:47:50.200 go.

NOTE Confidence: 0.9542617

00:47:50.614 --> 00:47:51.815 When you're signing out in

NOTE Confidence: 0.9542617

00:47:51.815 --> 00:47:53.494 a conference room, where's everyone

NOTE Confidence: 0.9542617

00:47:53.494 --> 00:47:54.694 gonna be, if you wanna

NOTE Confidence: 0.9542617

00:47:54.694 --> 00:47:55.994 put TVs on the wall.

NOTE Confidence: 0.9542617

00:47:56.055 --> 00:47:57.015 Well, the aspect, the way

NOTE Confidence: 0.9542617

00:47:57.015 --> 00:47:58.055 that the image appears is

NOTE Confidence: 0.9542617

00:47:58.055 --> 00:47:58.934 very different to what it

NOTE Confidence: 0.9542617

00:47:58.934 --> 00:48:00.075 looks like on the monitor.

NOTE Confidence: 0.9542617

00:48:00.135 --> 00:48:01.255 And if you you chose

NOTE Confidence: 0.9542617

00:48:01.255 --> 00:48:03.275 an FDA sys approved system,

NOTE Confidence: 0.9941535

00:48:04.040 --> 00:48:04.680 putting it up on the

NOTE Confidence: 0.9941535

00:48:04.680 --> 00:48:06.119 monitor is certainly not part

NOTE Confidence: 0.9941535

00:48:06.119 --> 00:48:07.320 of the pixel pathway that

NOTE Confidence: 0.9941535

00:48:07.320 --> 00:48:08.440 the FDA approved, and it

NOTE Confidence: 0.9941535

00:48:08.440 --> 00:48:09.960 becomes quite complicated. So that's

NOTE Confidence: 0.9941535

00:48:09.960 --> 00:48:11.000 something you really have to

NOTE Confidence: 0.9941535

00:48:11.000 --> 00:48:11.820 figure out.

NOTE Confidence: 0.90898097

00:48:12.280 --> 00:48:13.000 And you've got a lot

NOTE Confidence: 0.90898097

00:48:13.000 --> 00:48:14.119 of conference rooms around you

NOTE Confidence: 0.90898097

00:48:14.119 --> 00:48:15.420 and and, you know, ergonomically,

NOTE Confidence: 0.99627626
00:48:15.719 --> 00:48:16.520 you have to figure that
NOTE Confidence: 0.99627626
00:48:16.520 --> 00:48:17.180 part out.
NOTE Confidence: 0.9270022
00:48:17.585 --> 00:48:19.265 But, anyway, we went. We
NOTE Confidence: 0.9270022
00:48:19.265 --> 00:48:20.704 were scanning away, doing primary
NOTE Confidence: 0.9270022
00:48:20.704 --> 00:48:22.305 diagnosis with the OmniC system.
NOTE Confidence: 0.9270022
00:48:22.305 --> 00:48:22.884 And then
NOTE Confidence: 0.9373383
00:48:23.664 --> 00:48:25.424 the CIO called me and
NOTE Confidence: 0.9373383
00:48:25.424 --> 00:48:27.105 said, Leron, you're filling up
NOTE Confidence: 0.9373383
00:48:27.105 --> 00:48:27.765 our servers.
NOTE Confidence: 0.9371637
00:48:28.545 --> 00:48:30.704 Like, they hadn't planned for
NOTE Confidence: 0.9371637
00:48:30.704 --> 00:48:32.144 us. He said, I just
NOTE Confidence: 0.9371637
00:48:32.305 --> 00:48:33.125 look at this.
NOTE Confidence: 0.9562247
00:48:33.719 --> 00:48:35.719 MRIs, CT scans, PET scans,
NOTE Confidence: 0.9562247
00:48:35.719 --> 00:48:37.080 they take up hardly any
NOTE Confidence: 0.9562247
00:48:37.080 --> 00:48:38.840 space, but you guys are
NOTE Confidence: 0.9562247

00:48:38.840 --> 00:48:40.040 filling up the server at
NOTE Confidence: 0.9562247

00:48:40.040 --> 00:48:41.560 this enormous rate. Okay? And,
NOTE Confidence: 0.9562247

00:48:41.560 --> 00:48:42.280 you know, back in the
NOTE Confidence: 0.9562247

00:48:42.280 --> 00:48:43.320 day, we didn't really think
NOTE Confidence: 0.9562247

00:48:43.320 --> 00:48:44.600 much about data storage and
NOTE Confidence: 0.9562247

00:48:44.600 --> 00:48:45.400 how big a whole site
NOTE Confidence: 0.9562247

00:48:45.400 --> 00:48:46.840 image is, but that's a
NOTE Confidence: 0.9562247

00:48:46.840 --> 00:48:48.094 big deal. And for most
NOTE Confidence: 0.9562247

00:48:48.094 --> 00:48:49.375 labs, actually now when they
NOTE Confidence: 0.9562247

00:48:49.375 --> 00:48:51.135 are budgeting and IT get
NOTE Confidence: 0.9562247

00:48:51.135 --> 00:48:52.094 wind of how much you
NOTE Confidence: 0.9562247

00:48:52.094 --> 00:48:52.895 have to pay for data
NOTE Confidence: 0.9562247

00:48:52.895 --> 00:48:54.174 storage and you want to
NOTE Confidence: 0.9562247

00:48:54.174 --> 00:48:55.555 back it up as data
NOTE Confidence: 0.9562247

00:48:55.775 --> 00:48:56.275 recovery,
NOTE Confidence: 0.98764867

00:48:56.734 --> 00:48:57.954 for disaster recovery,

NOTE Confidence: 0.98635507
00:48:58.734 --> 00:48:59.775 you have to factor in
NOTE Confidence: 0.98635507
00:48:59.775 --> 00:49:01.155 that storage is very expensive,
NOTE Confidence: 0.98635507
00:49:01.375 --> 00:49:02.335 especially if you want to
NOTE Confidence: 0.98635507
00:49:02.335 --> 00:49:03.155 keep the images.
NOTE Confidence: 0.9864337
00:49:03.680 --> 00:49:04.720 If you wanna just put
NOTE Confidence: 0.9864337
00:49:04.800 --> 00:49:05.760 move them to cold storage
NOTE Confidence: 0.9864337
00:49:05.760 --> 00:49:07.040 on a disk, well, then
NOTE Confidence: 0.9864337
00:49:07.040 --> 00:49:08.080 it's like a glass slide.
NOTE Confidence: 0.9864337
00:49:08.080 --> 00:49:09.040 When you request an image,
NOTE Confidence: 0.9864337
00:49:09.040 --> 00:49:10.320 it'll take days, which makes
NOTE Confidence: 0.9864337
00:49:10.320 --> 00:49:11.060 no sense.
NOTE Confidence: 0.9831953
00:49:11.920 --> 00:49:12.960 Now I wish someone had
NOTE Confidence: 0.9831953
00:49:12.960 --> 00:49:13.940 told me this.
NOTE Confidence: 0.9246756
00:49:14.640 --> 00:49:16.160 After all the years we
NOTE Confidence: 0.9246756
00:49:16.160 --> 00:49:17.815 were scanning images, we got
NOTE Confidence: 0.9246756

00:49:17.815 --> 00:49:18.775 the Omnic system, we got
NOTE Confidence: 0.9246756

00:49:18.775 --> 00:49:19.895 the Aperio system, we had
NOTE Confidence: 0.9246756

00:49:19.895 --> 00:49:20.855 a Zeiss system, we had
NOTE Confidence: 0.9246756

00:49:20.855 --> 00:49:22.235 an Olympus system, a Hamamatsu
NOTE Confidence: 0.9246756

00:49:22.375 --> 00:49:22.875 system,
NOTE Confidence: 0.9969938

00:49:23.255 --> 00:49:23.995 and each
NOTE Confidence: 0.9831888

00:49:24.455 --> 00:49:25.835 vendor had their own proprietary
NOTE Confidence: 0.9831888

00:49:25.975 --> 00:49:26.795 file format.
NOTE Confidence: 0.9799766

00:49:27.175 --> 00:49:28.135 And we still had them
NOTE Confidence: 0.9799766

00:49:28.135 --> 00:49:29.735 all saved. Just the other
NOTE Confidence: 0.9799766

00:49:29.735 --> 00:49:31.270 day, someone had asked me
NOTE Confidence: 0.9799766

00:49:31.270 --> 00:49:33.270 for seventy thousand GI polyps
NOTE Confidence: 0.9799766

00:49:33.270 --> 00:49:34.650 from the Omnic system.
NOTE Confidence: 0.9787924

00:49:35.029 --> 00:49:35.750 And I said, you can
NOTE Confidence: 0.9787924

00:49:35.750 --> 00:49:36.630 have them, but they said,
NOTE Confidence: 0.9787924

00:49:36.630 --> 00:49:37.349 how am I supposed to

NOTE Confidence: 0.9787924
00:49:37.349 --> 00:49:38.150 view them? I don't have
NOTE Confidence: 0.9787924
00:49:38.150 --> 00:49:39.510 the viewing software or you
NOTE Confidence: 0.9787924
00:49:39.510 --> 00:49:40.710 know? So they're not saved
NOTE Confidence: 0.9787924
00:49:40.710 --> 00:49:42.230 in any standard way. And
NOTE Confidence: 0.9787924
00:49:42.230 --> 00:49:43.450 so the question is,
NOTE Confidence: 0.9847719
00:49:43.944 --> 00:49:44.744 should we just do them
NOTE Confidence: 0.9847719
00:49:44.744 --> 00:49:46.105 by DICOM now going forward?
NOTE Confidence: 0.9847719
00:49:46.105 --> 00:49:47.484 Because DICOM is a standard.
NOTE Confidence: 0.9847719
00:49:47.545 --> 00:49:49.464 Radiology adopted that. Should we?
NOTE Confidence: 0.9847719
00:49:49.464 --> 00:49:50.505 And, yeah, I would say
NOTE Confidence: 0.9847719
00:49:50.505 --> 00:49:51.484 we could do that.
NOTE Confidence: 0.99893606
00:49:51.785 --> 00:49:52.364 The problem
NOTE Confidence: 0.9389638
00:49:52.825 --> 00:49:54.105 is, will every AI vendor
NOTE Confidence: 0.9389638
00:49:54.105 --> 00:49:54.905 we want be able to
NOTE Confidence: 0.9389638
00:49:54.905 --> 00:49:56.739 use DICOM? Wanna do image
NOTE Confidence: 0.9389638

00:49:56.739 --> 00:49:58.260 analysis for ERP or HER2,
NOTE Confidence: 0.9389638

00:49:58.260 --> 00:49:59.300 they're gonna tell, no. We
NOTE Confidence: 0.9389638

00:49:59.300 --> 00:50:00.260 don't do it on DICOM
NOTE Confidence: 0.9389638

00:50:00.260 --> 00:50:02.180 images, etcetera. So the field
NOTE Confidence: 0.9389638

00:50:02.180 --> 00:50:03.320 has to move forward.
NOTE Confidence: 0.9317621

00:50:04.340 --> 00:50:06.580 Nevertheless, UPMT has advanced. We
NOTE Confidence: 0.9317621

00:50:06.580 --> 00:50:08.180 replaced the Omnic system with
NOTE Confidence: 0.9317621

00:50:08.180 --> 00:50:09.800 the Leica Aperio system.
NOTE Confidence: 0.94968146

00:50:10.614 --> 00:50:12.235 It's validated for primary diagnosis.
NOTE Confidence: 0.95131826

00:50:12.614 --> 00:50:13.655 And now we have people
NOTE Confidence: 0.95131826

00:50:13.655 --> 00:50:15.015 signing up from home. Not
NOTE Confidence: 0.95131826

00:50:15.015 --> 00:50:15.755 too many.
NOTE Confidence: 0.94851184

00:50:16.215 --> 00:50:18.055 Here's a perinatal pathologist, doctor
NOTE Confidence: 0.94851184

00:50:18.055 --> 00:50:19.415 Bob Benden. He lives in
NOTE Confidence: 0.94851184

00:50:19.415 --> 00:50:21.435 Florida. He's just recently retired.
NOTE Confidence: 0.952907

00:50:21.815 --> 00:50:22.535 I brought him out of

NOTE Confidence: 0.952907
00:50:22.535 --> 00:50:23.735 retirement to sign out for
NOTE Confidence: 0.952907
00:50:23.735 --> 00:50:25.440 placenta cases because we have
NOTE Confidence: 0.952907
00:50:25.440 --> 00:50:26.420 so many placentas,
NOTE Confidence: 0.96789616
00:50:27.359 --> 00:50:28.560 in Pittsburgh. And what actually
NOTE Confidence: 0.96789616
00:50:28.560 --> 00:50:29.940 happened was at the time,
NOTE Confidence: 0.96789616
00:50:30.160 --> 00:50:31.119 a lot of politics in
NOTE Confidence: 0.96789616
00:50:31.119 --> 00:50:32.080 the states around us where
NOTE Confidence: 0.96789616
00:50:32.080 --> 00:50:33.440 women could not have abortions,
NOTE Confidence: 0.96789616
00:50:33.440 --> 00:50:34.800 etcetera, they all came to
NOTE Confidence: 0.96789616
00:50:34.800 --> 00:50:35.300 Pennsylvania,
NOTE Confidence: 0.98598033
00:50:35.760 --> 00:50:36.719 and I could not cope
NOTE Confidence: 0.98598033
00:50:36.719 --> 00:50:38.020 with the number of placentas
NOTE Confidence: 0.98598033
00:50:38.080 --> 00:50:39.200 and POCs that had to
NOTE Confidence: 0.98598033
00:50:39.200 --> 00:50:40.455 be signed out. And so
NOTE Confidence: 0.98598033
00:50:40.455 --> 00:50:41.415 Bob said he would. He
NOTE Confidence: 0.98598033

00:50:41.415 --> 00:50:42.215 wouldn't come back and live

NOTE Confidence: 0.98598033

00:50:42.215 --> 00:50:43.415 in Pittsburgh. It's too cold.

NOTE Confidence: 0.98598033

00:50:43.415 --> 00:50:44.715 His wife hated the cold.

NOTE Confidence: 0.94008803

00:50:45.175 --> 00:50:46.055 So he said he will

NOTE Confidence: 0.94008803

00:50:46.055 --> 00:50:47.255 sign out. Plus, you can

NOTE Confidence: 0.94008803

00:50:47.255 --> 00:50:48.715 see there's the the sea

NOTE Confidence: 0.94008803

00:50:48.855 --> 00:50:50.215 behind him. So in the

NOTE Confidence: 0.94008803

00:50:50.215 --> 00:50:51.015 morning, he'd wake up, have

NOTE Confidence: 0.94008803

00:50:51.015 --> 00:50:51.975 breakfast, go for a walk

NOTE Confidence: 0.94008803

00:50:51.975 --> 00:50:53.150 on the beach, then he'd

NOTE Confidence: 0.94008803

00:50:53.150 --> 00:50:54.350 come sign out the centers

NOTE Confidence: 0.94008803

00:50:54.350 --> 00:50:55.790 all day. And our residents

NOTE Confidence: 0.94008803

00:50:55.790 --> 00:50:56.989 loved him because he took

NOTE Confidence: 0.94008803

00:50:56.989 --> 00:50:58.030 time and explained it to

NOTE Confidence: 0.94008803

00:50:58.030 --> 00:50:58.910 them, and they would join

NOTE Confidence: 0.94008803

00:50:58.910 --> 00:50:59.950 him virtually and they could

NOTE Confidence: 0.94008803
00:50:59.950 --> 00:51:01.250 send it. So
NOTE Confidence: 0.9959641
00:51:01.790 --> 00:51:02.510 he told me I have
NOTE Confidence: 0.9959641
00:51:02.510 --> 00:51:03.469 to pay for his license
NOTE Confidence: 0.9959641
00:51:03.469 --> 00:51:04.130 in Florida
NOTE Confidence: 0.97913647
00:51:04.670 --> 00:51:06.030 and Internet access and all
NOTE Confidence: 0.97913647
00:51:06.030 --> 00:51:06.825 of that. But what we
NOTE Confidence: 0.97913647
00:51:06.825 --> 00:51:07.785 do have is we have
NOTE Confidence: 0.97913647
00:51:07.785 --> 00:51:08.905 a team now who can
NOTE Confidence: 0.97913647
00:51:08.905 --> 00:51:10.344 deploy a workstation. So if
NOTE Confidence: 0.97913647
00:51:10.344 --> 00:51:11.145 someone wants to work from
NOTE Confidence: 0.97913647
00:51:11.145 --> 00:51:12.265 home, we take care of
NOTE Confidence: 0.97913647
00:51:12.265 --> 00:51:12.984 it. We send them a
NOTE Confidence: 0.97913647
00:51:12.984 --> 00:51:14.185 workstation, get it set up,
NOTE Confidence: 0.97913647
00:51:14.185 --> 00:51:15.385 barcode monitor. You have to
NOTE Confidence: 0.97913647
00:51:15.385 --> 00:51:16.205 use our computer.
NOTE Confidence: 0.9455738

00:51:16.665 --> 00:51:17.785 You have to VPN in
NOTE Confidence: 0.9455738

00:51:17.785 --> 00:51:18.585 and and you have to
NOTE Confidence: 0.9455738

00:51:18.585 --> 00:51:19.645 follow all our rules.
NOTE Confidence: 0.98626

00:51:20.239 --> 00:51:21.119 And so we have some
NOTE Confidence: 0.98626

00:51:21.119 --> 00:51:22.480 pathologists signing out. I even
NOTE Confidence: 0.98626

00:51:22.480 --> 00:51:23.299 have a pathologist,
NOTE Confidence: 0.91871715

00:51:23.680 --> 00:51:25.359 Marta Miniverni, in Italy. She
NOTE Confidence: 0.91871715

00:51:25.359 --> 00:51:26.640 signed up from home in
NOTE Confidence: 0.91871715

00:51:26.640 --> 00:51:27.140 Italy,
NOTE Confidence: 0.9992064

00:51:27.520 --> 00:51:29.219 for extended periods of time.
NOTE Confidence: 0.99673104

00:51:30.960 --> 00:51:31.460 But
NOTE Confidence: 0.99869543

00:51:32.319 --> 00:51:33.619 what we did learn
NOTE Confidence: 0.9973092

00:51:33.920 --> 00:51:34.420 is
NOTE Confidence: 0.9374608

00:51:35.155 --> 00:51:36.775 I again opened another Pandora's
NOTE Confidence: 0.9374608

00:51:36.835 --> 00:51:37.795 box because a lot of
NOTE Confidence: 0.9374608

00:51:37.795 --> 00:51:39.315 senior pathologists asked me, hey,

NOTE Confidence: 0.9374608

00:51:39.315 --> 00:51:40.615 Lauren. I was gonna retire.

NOTE Confidence: 0.99813163

00:51:41.075 --> 00:51:42.115 Can I go part time

NOTE Confidence: 0.99813163

00:51:42.115 --> 00:51:43.815 and work from home? And

NOTE Confidence: 0.9261763

00:51:44.115 --> 00:51:45.495 I didn't want a whole

NOTE Confidence: 0.9261763

00:51:45.555 --> 00:51:47.395 department working from home because

NOTE Confidence: 0.9261763

00:51:47.395 --> 00:51:48.660 there are downsides to that.

NOTE Confidence: 0.9261763

00:51:49.219 --> 00:51:50.660 But also, if people do

NOTE Confidence: 0.9261763

00:51:50.660 --> 00:51:51.559 work from home,

NOTE Confidence: 0.9699817

00:51:51.940 --> 00:51:52.900 they do help us cover

NOTE Confidence: 0.9699817

00:51:52.900 --> 00:51:54.839 the service, cost coverage, etcetera.

NOTE Confidence: 0.9699817

00:51:55.059 --> 00:51:56.020 And so I found that

NOTE Confidence: 0.9699817

00:51:56.020 --> 00:51:56.680 the most

NOTE Confidence: 0.95952314

00:51:57.940 --> 00:52:00.020 popular phenotype of pathologists who

NOTE Confidence: 0.95952314

00:52:00.020 --> 00:52:01.059 asked me to sign up

NOTE Confidence: 0.95952314

00:52:01.059 --> 00:52:02.405 from home are

NOTE Confidence: 0.99110967

00:52:02.785 --> 00:52:03.925 either those who are
NOTE Confidence: 0.9983985

00:52:04.465 --> 00:52:05.344 one to five years in
NOTE Confidence: 0.9983985

00:52:05.344 --> 00:52:05.844 practice
NOTE Confidence: 0.7362553

00:52:06.385 --> 00:52:06.885 because
NOTE Confidence: 0.94460857

00:52:07.344 --> 00:52:09.205 hard to find care, especially
NOTE Confidence: 0.94460857

00:52:09.265 --> 00:52:10.145 if two people are working
NOTE Confidence: 0.94460857

00:52:10.145 --> 00:52:10.945 and then there's no one
NOTE Confidence: 0.94460857

00:52:10.945 --> 00:52:12.085 taking care of the kids.
NOTE Confidence: 0.7554447

00:52:12.705 --> 00:52:13.905 I was joking with doctor.
NOTE Confidence: 0.7554447

00:52:13.905 --> 00:52:14.885 So, Nad, if
NOTE Confidence: 0.94400495

00:52:15.500 --> 00:52:16.380 If you're signing out from
NOTE Confidence: 0.94400495

00:52:16.380 --> 00:52:17.099 home and taking care of
NOTE Confidence: 0.94400495

00:52:17.099 --> 00:52:18.219 the kids, like, are you
NOTE Confidence: 0.94400495

00:52:18.219 --> 00:52:19.420 sure the kids aren't all
NOTE Confidence: 0.94400495

00:52:19.420 --> 00:52:21.119 over your computer workstation?
NOTE Confidence: 0.99809057

00:52:22.700 --> 00:52:24.160 I've never asked that question.

NOTE Confidence: 0.92324704

00:52:25.819 --> 00:52:26.940 So people who want to

NOTE Confidence: 0.92324704

00:52:26.940 --> 00:52:28.844 retire and people who have

NOTE Confidence: 0.92324704

00:52:28.844 --> 00:52:29.905 childcare needs

NOTE Confidence: 0.9798103

00:52:30.205 --> 00:52:31.165 or other needs work from

NOTE Confidence: 0.9798103

00:52:31.165 --> 00:52:32.445 home. And I have so

NOTE Confidence: 0.9798103

00:52:32.445 --> 00:52:33.725 far, I have about six

NOTE Confidence: 0.9798103

00:52:34.045 --> 00:52:35.265 five or six people.

NOTE Confidence: 0.9678518

00:52:36.205 --> 00:52:37.085 The the sixth one is

NOTE Confidence: 0.9678518

00:52:37.085 --> 00:52:38.125 because when she's in Italy,

NOTE Confidence: 0.9678518

00:52:38.125 --> 00:52:39.005 she signed up, but when

NOTE Confidence: 0.9678518

00:52:39.005 --> 00:52:40.320 she's back, she comes into

NOTE Confidence: 0.9678518

00:52:40.320 --> 00:52:40.820 work.

NOTE Confidence: 0.9971026

00:52:41.840 --> 00:52:42.560 But I don't want the

NOTE Confidence: 0.9971026

00:52:42.560 --> 00:52:43.600 whole department to work from

NOTE Confidence: 0.9971026

00:52:43.600 --> 00:52:45.360 home. As you know, that's

NOTE Confidence: 0.9971026

00:52:45.360 --> 00:52:46.420 not the best thing.
NOTE Confidence: 0.97411126

00:52:46.960 --> 00:52:47.920 So we learned a whole
NOTE Confidence: 0.97411126

00:52:47.920 --> 00:52:48.580 lot of,
NOTE Confidence: 0.99974966

00:52:49.920 --> 00:52:50.820 stuff about
NOTE Confidence: 0.99689317

00:52:51.200 --> 00:52:53.075 going to primary diagnosis.
NOTE Confidence: 0.9813592

00:52:53.455 --> 00:52:54.415 If you are not married
NOTE Confidence: 0.9813592

00:52:54.415 --> 00:52:55.215 to your vendor and you
NOTE Confidence: 0.9813592

00:52:55.215 --> 00:52:56.255 don't like your vendor, you're
NOTE Confidence: 0.9813592

00:52:56.255 --> 00:52:57.295 in big trouble. This is
NOTE Confidence: 0.9813592

00:52:57.295 --> 00:52:59.055 a bad marriage because there's
NOTE Confidence: 0.9813592

00:52:59.055 --> 00:52:59.935 a lot of things that
NOTE Confidence: 0.9813592

00:52:59.935 --> 00:53:01.295 have to happen. If your
NOTE Confidence: 0.9813592

00:53:01.295 --> 00:53:02.815 pathologists are not willing to
NOTE Confidence: 0.9813592

00:53:02.815 --> 00:53:04.015 do this, it's gonna be
NOTE Confidence: 0.9813592

00:53:04.015 --> 00:53:05.075 an uphill battle.
NOTE Confidence: 0.9942312

00:53:05.670 --> 00:53:06.710 I would suggest you don't

NOTE Confidence: 0.9942312
00:53:06.710 --> 00:53:07.430 do it as a big
NOTE Confidence: 0.9942312
00:53:07.430 --> 00:53:08.310 bang and do it right
NOTE Confidence: 0.9942312
00:53:08.310 --> 00:53:09.829 away. What we have found
NOTE Confidence: 0.9942312
00:53:09.829 --> 00:53:10.890 is if you pick
NOTE Confidence: 0.954057
00:53:12.069 --> 00:53:13.910 areas where small pieces of
NOTE Confidence: 0.954057
00:53:13.910 --> 00:53:15.609 tissue like pediatric pathology,
NOTE Confidence: 0.98016715
00:53:16.550 --> 00:53:17.910 autopsy service, and then work
NOTE Confidence: 0.98016715
00:53:17.910 --> 00:53:18.555 your way up.
NOTE Confidence: 0.961666
00:53:19.035 --> 00:53:19.835 I'll tell you a funny
NOTE Confidence: 0.961666
00:53:19.835 --> 00:53:20.714 story that a colleague of
NOTE Confidence: 0.961666
00:53:20.714 --> 00:53:21.755 mine decided, Dara, I'm not
NOTE Confidence: 0.961666
00:53:21.755 --> 00:53:22.474 doing it your way. I'm
NOTE Confidence: 0.961666
00:53:22.474 --> 00:53:23.755 not doing it incrementally. It's
NOTE Confidence: 0.961666
00:53:23.755 --> 00:53:25.114 just too painful, especially if
NOTE Confidence: 0.961666
00:53:25.114 --> 00:53:26.155 you have a hybrid system,
NOTE Confidence: 0.961666

00:53:26.155 --> 00:53:26.974 half glass,
NOTE Confidence: 0.9749723
00:53:27.355 --> 00:53:28.954 half digital, just so difficult
NOTE Confidence: 0.9749723
00:53:28.954 --> 00:53:30.234 for the lab. We're going
NOTE Confidence: 0.9749723
00:53:30.234 --> 00:53:31.355 fully digital. And then one
NOTE Confidence: 0.9749723
00:53:31.355 --> 00:53:32.555 of his pathologists said, I'm
NOTE Confidence: 0.9749723
00:53:32.555 --> 00:53:33.675 quitting because I'm not doing
NOTE Confidence: 0.9749723
00:53:33.675 --> 00:53:35.050 it. And the reason was
NOTE Confidence: 0.9749723
00:53:35.050 --> 00:53:35.550 because
NOTE Confidence: 0.9947906
00:53:37.050 --> 00:53:38.410 he couldn't see the images.
NOTE Confidence: 0.9947906
00:53:38.410 --> 00:53:39.530 He didn't know he needed
NOTE Confidence: 0.9947906
00:53:39.530 --> 00:53:40.910 glasses because he could
NOTE Confidence: 0.9726423
00:53:41.369 --> 00:53:42.650 he could focus with his
NOTE Confidence: 0.9726423
00:53:42.650 --> 00:53:44.250 microscope, sadly, but not on
NOTE Confidence: 0.9726423
00:53:44.250 --> 00:53:45.309 a computer monitor.
NOTE Confidence: 0.973231
00:53:45.930 --> 00:53:46.969 And so once they figured
NOTE Confidence: 0.973231
00:53:46.969 --> 00:53:47.930 that out, he didn't quit

NOTE Confidence: 0.973231
00:53:47.930 --> 00:53:48.809 and, you know, it was
NOTE Confidence: 0.973231
00:53:48.809 --> 00:53:49.309 okay.
NOTE Confidence: 0.7956648
00:53:50.765 --> 00:53:51.265 Alright.
NOTE Confidence: 0.9509988
00:53:51.805 --> 00:53:53.405 Now not every slide in
NOTE Confidence: 0.9509988
00:53:53.405 --> 00:53:54.945 the world can be scanned.
NOTE Confidence: 0.8736306
00:53:56.205 --> 00:53:57.325 These are slides people asked
NOTE Confidence: 0.8736306
00:53:57.325 --> 00:53:58.785 me to scan, old AFIP
NOTE Confidence: 0.8736306
00:53:58.925 --> 00:54:00.525 slide, broken slide, double cover
NOTE Confidence: 0.8736306
00:54:00.525 --> 00:54:01.805 slip, etcetera. You know, the
NOTE Confidence: 0.8736306
00:54:01.805 --> 00:54:02.788 scanner will not scan everything
NOTE Confidence: 0.8736306
00:54:02.788 --> 00:54:02.906 around, so you will still
NOTE Confidence: 0.8736306
00:54:02.906 --> 00:54:03.024 need a microscope around somewhere.
NOTE Confidence: 0.8736306
00:54:03.024 --> 00:54:03.141 And this garbage in, garbage
NOTE Confidence: 0.8736306
00:54:03.141 --> 00:54:03.905 out principle is
NOTE Confidence: 0.8545471
00:54:08.739 --> 00:54:08.900 important, as I told you.
NOTE Confidence: 0.8545471

00:54:08.900 --> 00:54:09.400 Everyone
NOTE Confidence: 0.91727597

00:54:10.739 --> 00:54:11.719 needs to know. Your resident
NOTE Confidence: 0.91727597

00:54:11.780 --> 00:54:13.060 set of grossing, your surge
NOTE Confidence: 0.91727597

00:54:13.060 --> 00:54:14.180 techs, peers need to know
NOTE Confidence: 0.91727597

00:54:14.180 --> 00:54:15.780 that whatever I'm cutting this
NOTE Confidence: 0.91727597

00:54:15.780 --> 00:54:17.060 piece of tissue, putting in
NOTE Confidence: 0.91727597

00:54:17.060 --> 00:54:18.594 a in a cassette is
NOTE Confidence: 0.91727597

00:54:18.594 --> 00:54:19.955 ultimately gonna be scanned and
NOTE Confidence: 0.91727597

00:54:19.955 --> 00:54:21.735 be on someone's computer monitor.
NOTE Confidence: 0.91727597

00:54:21.795 --> 00:54:22.915 So everyone needs to be
NOTE Confidence: 0.91727597

00:54:22.915 --> 00:54:24.375 mindful. So, for example,
NOTE Confidence: 0.9743907

00:54:24.835 --> 00:54:26.035 if you have all of
NOTE Confidence: 0.9743907

00:54:26.035 --> 00:54:27.175 these pieces of tissue,
NOTE Confidence: 0.9192627

00:54:28.435 --> 00:54:29.795 completely fills the block, when
NOTE Confidence: 0.9192627

00:54:29.795 --> 00:54:30.675 they open the cassette and
NOTE Confidence: 0.9192627

00:54:30.675 --> 00:54:32.275 it's about to explode, that's

NOTE Confidence: 0.9192627

00:54:32.275 --> 00:54:33.395 gonna go all over the

NOTE Confidence: 0.9192627

00:54:33.395 --> 00:54:34.589 slide. You don't want

NOTE Confidence: 0.9642982

00:54:34.890 --> 00:54:36.329 that. When your histo technologists

NOTE Confidence: 0.9642982

00:54:36.329 --> 00:54:37.530 are arranging stuff, for example,

NOTE Confidence: 0.9642982

00:54:37.530 --> 00:54:38.250 you don't want them to

NOTE Confidence: 0.9642982

00:54:38.250 --> 00:54:39.369 put tissue all over the

NOTE Confidence: 0.9642982

00:54:39.369 --> 00:54:40.569 place. You want it really

NOTE Confidence: 0.9642982

00:54:40.569 --> 00:54:42.430 well arranged, close together because

NOTE Confidence: 0.9865771

00:54:42.730 --> 00:54:44.089 if it's close together, it's

NOTE Confidence: 0.9865771

00:54:44.089 --> 00:54:45.369 easy to scan. You're not

NOTE Confidence: 0.9865771

00:54:45.369 --> 00:54:46.725 scanning all this white space,

NOTE Confidence: 0.9865771

00:54:46.965 --> 00:54:48.645 storing it. When someone's looking

NOTE Confidence: 0.9865771

00:54:48.645 --> 00:54:49.785 at it on a monitor,

NOTE Confidence: 0.9865771

00:54:49.845 --> 00:54:50.565 you don't want, you know,

NOTE Confidence: 0.9865771

00:54:50.565 --> 00:54:51.845 them to get carpal tunnel

NOTE Confidence: 0.9865771

00:54:51.845 --> 00:54:52.485 at the end of the
NOTE Confidence: 0.9865771

00:54:52.485 --> 00:54:53.765 month. You know, you want
NOTE Confidence: 0.9865771

00:54:53.765 --> 00:54:54.745 it to be easy.
NOTE Confidence: 0.9276599

00:54:55.525 --> 00:54:57.065 I finally convinced our geopathologists
NOTE Confidence: 0.9276599

00:54:57.364 --> 00:54:58.725 that they need ribbons and
NOTE Confidence: 0.9276599

00:54:58.725 --> 00:55:00.325 ribbons and ribbons of everything
NOTE Confidence: 0.9276599

00:55:00.325 --> 00:55:01.410 on, you know, slide after
NOTE Confidence: 0.9276599

00:55:01.569 --> 00:55:02.930 slide after slide. Even our
NOTE Confidence: 0.9276599

00:55:02.930 --> 00:55:03.430 geopathologists.
NOTE Confidence: 0.95099163

00:55:04.210 --> 00:55:05.750 Less slides, less ribbons,
NOTE Confidence: 0.929826

00:55:06.289 --> 00:55:07.569 and they agree it actually
NOTE Confidence: 0.929826

00:55:07.569 --> 00:55:08.630 saves a lot of histotech
NOTE Confidence: 0.929826

00:55:08.770 --> 00:55:09.270 time.
NOTE Confidence: 0.9988009

00:55:11.089 --> 00:55:11.589 Even
NOTE Confidence: 0.9023902

00:55:11.890 --> 00:55:13.650 our histo lab now have
NOTE Confidence: 0.9023902

00:55:13.650 --> 00:55:15.430 pristine slides, pristine barcodes,

NOTE Confidence: 0.9990437
00:55:15.905 --> 00:55:16.565 no fingerprints,
NOTE Confidence: 0.9836193
00:55:16.945 --> 00:55:18.705 no mounting media. That all
NOTE Confidence: 0.9836193
00:55:18.705 --> 00:55:19.905 impacts the quality of the
NOTE Confidence: 0.9836193
00:55:19.905 --> 00:55:20.405 image.
NOTE Confidence: 0.9565069
00:55:20.705 --> 00:55:21.665 And I proved that to
NOTE Confidence: 0.9565069
00:55:21.665 --> 00:55:23.265 myself. If if if you
NOTE Confidence: 0.9565069
00:55:23.265 --> 00:55:24.545 cannot focus, can you imagine
NOTE Confidence: 0.9565069
00:55:24.545 --> 00:55:25.665 what an image algorithm is
NOTE Confidence: 0.9565069
00:55:25.665 --> 00:55:26.705 gonna look, try and deal
NOTE Confidence: 0.9565069
00:55:26.705 --> 00:55:28.565 with it? So this was,
NOTE Confidence: 0.96357346
00:55:29.680 --> 00:55:31.600 an image analysis algorithm to,
NOTE Confidence: 0.96357346
00:55:31.600 --> 00:55:33.360 you know, quantify HER2. You
NOTE Confidence: 0.96357346
00:55:33.360 --> 00:55:34.320 could see the green is
NOTE Confidence: 0.96357346
00:55:34.320 --> 00:55:36.100 HER2 one, then there's HER2,
NOTE Confidence: 0.96357346
00:55:36.160 --> 00:55:37.700 and HER3 is the red.
NOTE Confidence: 0.96357346

00:55:37.840 --> 00:55:39.360 And the more multimedia and
NOTE Confidence: 0.96357346

00:55:39.360 --> 00:55:40.640 blurry it is, I can
NOTE Confidence: 0.96357346

00:55:40.640 --> 00:55:41.620 make any HER2
NOTE Confidence: 0.9477273

00:55:42.000 --> 00:55:42.500 zero.
NOTE Confidence: 0.98338413

00:55:42.995 --> 00:55:44.435 If it's blurry, the algorithm
NOTE Confidence: 0.98338413

00:55:44.435 --> 00:55:45.235 will make it zero for
NOTE Confidence: 0.98338413

00:55:45.235 --> 00:55:46.114 you. And how would you
NOTE Confidence: 0.98338413

00:55:46.114 --> 00:55:46.614 know?
NOTE Confidence: 0.94764036

00:55:47.875 --> 00:55:49.335 But do not be OCD
NOTE Confidence: 0.94764036

00:55:49.395 --> 00:55:51.075 about it. Right? That's it.
NOTE Confidence: 0.94764036

00:55:51.075 --> 00:55:52.675 Minor artifacts don't matter, which
NOTE Confidence: 0.94764036

00:55:52.675 --> 00:55:53.735 I've told our pathologists.
NOTE Confidence: 0.8631222

00:55:54.675 --> 00:55:55.495 Hey. Yeah.
NOTE Confidence: 0.95812464

00:55:55.930 --> 00:55:57.130 A fingerprint there, it's not
NOTE Confidence: 0.95812464

00:55:57.130 --> 00:55:58.010 the end of the world.
NOTE Confidence: 0.95812464

00:55:58.010 --> 00:55:58.890 You can see that you're

NOTE Confidence: 0.95812464
00:55:58.890 --> 00:55:59.950 dealing with a leiomyosarcoma
NOTE Confidence: 0.9507565
00:56:01.050 --> 00:56:02.250 because there's a hair under
NOTE Confidence: 0.9507565
00:56:02.250 --> 00:56:03.290 the coverslip. You know, you
NOTE Confidence: 0.9507565
00:56:03.290 --> 00:56:04.489 cannot refuse to sign out
NOTE Confidence: 0.9507565
00:56:04.489 --> 00:56:05.630 the case. Right?
NOTE Confidence: 0.98989844
00:56:06.570 --> 00:56:07.530 But there are some things
NOTE Confidence: 0.98989844
00:56:07.530 --> 00:56:08.489 that are a big deal.
NOTE Confidence: 0.98989844
00:56:08.489 --> 00:56:09.450 This is a core needle
NOTE Confidence: 0.98989844
00:56:09.450 --> 00:56:10.635 biopsy of a of a
NOTE Confidence: 0.98989844
00:56:10.635 --> 00:56:11.855 breast biopsy.
NOTE Confidence: 0.9562929
00:56:12.235 --> 00:56:13.594 This has got invasive dachal
NOTE Confidence: 0.9562929
00:56:13.594 --> 00:56:15.355 carcinoma. It went for HER2
NOTE Confidence: 0.9562929
00:56:15.355 --> 00:56:16.635 staining. And you don't see
NOTE Confidence: 0.9562929
00:56:16.635 --> 00:56:18.075 the HER2. It's a HER2
NOTE Confidence: 0.9562929
00:56:18.075 --> 00:56:19.295 zero case, basically.
NOTE Confidence: 0.86406535

00:56:19.915 --> 00:56:20.655 But the
NOTE Confidence: 0.97696215
00:56:21.114 --> 00:56:22.635 the image algorithm came back
NOTE Confidence: 0.97696215
00:56:22.635 --> 00:56:24.155 as three plus because it
NOTE Confidence: 0.97696215
00:56:24.155 --> 00:56:25.515 counted those bubbles under the
NOTE Confidence: 0.97696215
00:56:25.515 --> 00:56:25.980 coverslip
NOTE Confidence: 0.9749797
00:56:26.700 --> 00:56:27.420 slip as membranous staining. And
NOTE Confidence: 0.9749797
00:56:27.420 --> 00:56:28.800 if a human never checked,
NOTE Confidence: 0.9861478
00:56:29.260 --> 00:56:30.300 well, then it would be
NOTE Confidence: 0.9861478
00:56:30.300 --> 00:56:30.960 a mistake.
NOTE Confidence: 0.96165526
00:56:31.820 --> 00:56:32.700 So the next thing we
NOTE Confidence: 0.96165526
00:56:32.700 --> 00:56:33.660 did is open up an
NOTE Confidence: 0.96165526
00:56:33.660 --> 00:56:35.340 image analysis lab where we
NOTE Confidence: 0.96165526
00:56:35.340 --> 00:56:37.340 do quantitative image analysis. It's
NOTE Confidence: 0.96165526
00:56:37.340 --> 00:56:38.715 as simple as as Facebook
NOTE Confidence: 0.96165526
00:56:38.715 --> 00:56:39.215 does,
NOTE Confidence: 0.95108926
00:56:39.515 --> 00:56:40.715 classify the things in the

NOTE Confidence: 0.95108926
00:56:40.715 --> 00:56:42.475 image, detect them, segment them
NOTE Confidence: 0.95108926
00:56:42.475 --> 00:56:43.695 out, count the features.
NOTE Confidence: 0.9474011
00:56:44.235 --> 00:56:46.095 How much staining, what's intensity,
NOTE Confidence: 0.9474011
00:56:46.155 --> 00:56:47.675 etcetera. And so we do
NOTE Confidence: 0.9474011
00:56:47.675 --> 00:56:49.595 that now. But we have
NOTE Confidence: 0.9474011
00:56:49.595 --> 00:56:50.975 changed, and our image analysis
NOTE Confidence: 0.9474011
00:56:51.195 --> 00:56:53.135 lab runs like a CP
NOTE Confidence: 0.9474011
00:56:53.195 --> 00:56:55.170 medicine lab. We do Levy
NOTE Confidence: 0.9474011
00:56:55.170 --> 00:56:56.369 Jennings parts. We check for
NOTE Confidence: 0.9474011
00:56:56.369 --> 00:56:57.969 the CV. Is there drift
NOTE Confidence: 0.9474011
00:56:57.969 --> 00:56:58.849 in the algorithm? Is there
NOTE Confidence: 0.9474011
00:56:58.849 --> 00:56:59.910 drift in the immunostain?
NOTE Confidence: 0.9747462
00:57:00.530 --> 00:57:02.150 Yeah. I took two algorithms
NOTE Confidence: 0.9747462
00:57:02.290 --> 00:57:03.570 that were running and just
NOTE Confidence: 0.9747462
00:57:03.570 --> 00:57:04.369 ran them on the same
NOTE Confidence: 0.9747462

00:57:04.369 --> 00:57:05.969 twenty cases, and they were
NOTE Confidence: 0.9747462

00:57:05.969 --> 00:57:07.250 completely different for the ER
NOTE Confidence: 0.9747462

00:57:07.250 --> 00:57:08.825 and KR sixty seven. People
NOTE Confidence: 0.9747462

00:57:08.825 --> 00:57:10.265 would assume that, oh, the
NOTE Confidence: 0.9747462

00:57:10.265 --> 00:57:11.464 computer is always right. Well,
NOTE Confidence: 0.9747462

00:57:11.464 --> 00:57:12.664 it's not always right unless
NOTE Confidence: 0.9747462

00:57:12.664 --> 00:57:13.724 you monitor it.
NOTE Confidence: 0.9843984

00:57:15.065 --> 00:57:16.525 We've now moved into computational
NOTE Confidence: 0.9843984

00:57:16.585 --> 00:57:18.585 pathology. There's a fancy definition
NOTE Confidence: 0.9843984

00:57:18.585 --> 00:57:20.505 for computational pathology, but it's
NOTE Confidence: 0.9843984

00:57:20.505 --> 00:57:22.345 really AI mostly applied to
NOTE Confidence: 0.9843984

00:57:22.345 --> 00:57:22.845 pathology.
NOTE Confidence: 0.9729772

00:57:23.210 --> 00:57:24.009 And you can see in
NOTE Confidence: 0.9729772

00:57:24.009 --> 00:57:24.509 PubMed,
NOTE Confidence: 0.9990463

00:57:25.369 --> 00:57:26.970 there are thousands and thousands
NOTE Confidence: 0.9990463

00:57:26.970 --> 00:57:27.710 of articles

NOTE Confidence: 0.96976787

00:57:28.250 --> 00:57:30.089 about computational pathology. So if

NOTE Confidence: 0.96976787

00:57:30.089 --> 00:57:31.289 you're asking when should we

NOTE Confidence: 0.96976787

00:57:31.289 --> 00:57:32.029 do AI,

NOTE Confidence: 0.980261

00:57:32.410 --> 00:57:33.609 that train has left that

NOTE Confidence: 0.980261

00:57:33.609 --> 00:57:35.049 station long ago. You should

NOTE Confidence: 0.980261

00:57:35.049 --> 00:57:36.589 have already been doing AI.

NOTE Confidence: 0.980261

00:57:36.785 --> 00:57:37.285 Okay.

NOTE Confidence: 0.99579006

00:57:37.905 --> 00:57:39.205 So we asked

NOTE Confidence: 0.9701384

00:57:39.745 --> 00:57:40.885 AI, what would a pathologist's

NOTE Confidence: 0.9701384

00:57:41.025 --> 00:57:42.485 life be like using AI?

NOTE Confidence: 0.9701384

00:57:42.545 --> 00:57:43.345 And this is what it

NOTE Confidence: 0.9701384

00:57:43.345 --> 00:57:44.785 said. That was the only

NOTE Confidence: 0.9701384

00:57:44.785 --> 00:57:45.285 prompt.

NOTE Confidence: 0.9397473

00:57:47.585 --> 00:57:48.465 Looks like some of the

NOTE Confidence: 0.9397473

00:57:48.465 --> 00:57:50.305 offices in our hospital still

NOTE Confidence: 0.9397473

00:57:50.305 --> 00:57:51.105 are like that. I'm not
NOTE Confidence: 0.9397473

00:57:51.105 --> 00:57:52.245 gonna blame you.
NOTE Confidence: 0.9877804

00:57:53.330 --> 00:57:54.610 But in a digitally well
NOTE Confidence: 0.9877804

00:57:54.610 --> 00:57:56.450 organized world, you know, obviously,
NOTE Confidence: 0.9877804

00:57:56.450 --> 00:57:57.570 we could be much better.
NOTE Confidence: 0.9877804

00:57:57.570 --> 00:57:58.450 And you can use AI
NOTE Confidence: 0.9877804

00:57:58.450 --> 00:57:59.670 for anything you want.
NOTE Confidence: 0.9225955

00:58:00.050 --> 00:58:01.490 Go detect rare things like
NOTE Confidence: 0.9225955

00:58:01.490 --> 00:58:01.990 bugs,
NOTE Confidence: 0.92696023

00:58:02.530 --> 00:58:03.350 count mitoses,
NOTE Confidence: 0.9200496

00:58:03.730 --> 00:58:05.250 make diagnosis of cancer, make
NOTE Confidence: 0.9200496

00:58:05.250 --> 00:58:06.530 predictions, or use it for
NOTE Confidence: 0.9200496

00:58:06.530 --> 00:58:07.030 research.
NOTE Confidence: 0.9056993

00:58:07.825 --> 00:58:08.945 I got tired of screening
NOTE Confidence: 0.9056993

00:58:08.945 --> 00:58:10.245 AFB stains myself,
NOTE Confidence: 0.8938853

00:58:10.705 --> 00:58:11.665 and I never trusted the

NOTE Confidence: 0.8938853
00:58:11.665 --> 00:58:12.705 residents. The fellow said, Yeah,
NOTE Confidence: 0.8938853
00:58:12.705 --> 00:58:13.665 there's nothing there. Then I
NOTE Confidence: 0.8938853
00:58:13.665 --> 00:58:14.305 would look with them, and
NOTE Confidence: 0.8938853
00:58:14.305 --> 00:58:15.185 in one minute I'll find
NOTE Confidence: 0.8938853
00:58:15.185 --> 00:58:15.845 a mycobacterium.
NOTE Confidence: 0.92382765
00:58:17.025 --> 00:58:17.905 So we built our own
NOTE Confidence: 0.92382765
00:58:17.905 --> 00:58:19.125 AFIB screening
NOTE Confidence: 0.9791533
00:58:19.585 --> 00:58:21.025 algorithm. It's been running now
NOTE Confidence: 0.9791533
00:58:21.025 --> 00:58:22.005 for many years,
NOTE Confidence: 0.9789043
00:58:22.350 --> 00:58:23.810 and it detects the AFB.
NOTE Confidence: 0.9789043
00:58:23.950 --> 00:58:25.230 It's much more accurate and
NOTE Confidence: 0.9789043
00:58:25.230 --> 00:58:25.730 quicker.
NOTE Confidence: 0.9506358
00:58:27.470 --> 00:58:28.830 Now there are three types
NOTE Confidence: 0.9506358
00:58:28.830 --> 00:58:29.490 of pathologists.
NOTE Confidence: 0.95884717
00:58:30.270 --> 00:58:31.790 There are those who use
NOTE Confidence: 0.95884717

00:58:31.790 --> 00:58:33.070 this only. They don't want
NOTE Confidence: 0.95884717

00:58:33.070 --> 00:58:33.970 the slide anymore.
NOTE Confidence: 0.9527506

00:58:34.445 --> 00:58:35.325 There are those that wait
NOTE Confidence: 0.9527506

00:58:35.325 --> 00:58:36.685 for the slide. They trust
NOTE Confidence: 0.9527506

00:58:36.685 --> 00:58:37.485 the issue. They want to
NOTE Confidence: 0.9527506

00:58:37.485 --> 00:58:38.765 check themselves. And there are
NOTE Confidence: 0.9527506

00:58:38.765 --> 00:58:39.805 those that do not use
NOTE Confidence: 0.9527506

00:58:39.805 --> 00:58:41.405 this at all. Only wait
NOTE Confidence: 0.9527506

00:58:41.405 --> 00:58:42.925 for the slide. And so
NOTE Confidence: 0.9527506

00:58:42.925 --> 00:58:43.805 when I asked some of
NOTE Confidence: 0.9527506

00:58:43.805 --> 00:58:45.405 those pathologists, why do you
NOTE Confidence: 0.9527506

00:58:45.405 --> 00:58:46.685 not trust and use the
NOTE Confidence: 0.9527506

00:58:46.685 --> 00:58:47.805 AI? And you know what
NOTE Confidence: 0.9527506

00:58:47.805 --> 00:58:49.025 the main reason was?
NOTE Confidence: 0.98650706

00:58:49.440 --> 00:58:49.940 This.
NOTE Confidence: 0.99804085

00:58:52.640 --> 00:58:53.619 It's not integrated.

NOTE Confidence: 0.93189365
00:58:54.720 --> 00:58:56.000 If you're gonna use something,
NOTE Confidence: 0.93189365
00:58:56.000 --> 00:58:56.880 you want it nice and
NOTE Confidence: 0.93189365
00:58:56.880 --> 00:58:58.480 integrated and easy to use.
NOTE Confidence: 0.93189365
00:58:58.480 --> 00:58:59.280 They do not want it.
NOTE Confidence: 0.93189365
00:58:59.280 --> 00:59:00.579 They got an email notification.
NOTE Confidence: 0.93189365
00:59:00.640 --> 00:59:01.520 AFV is ready for your
NOTE Confidence: 0.93189365
00:59:01.520 --> 00:59:02.720 case, this case number. Now
NOTE Confidence: 0.93189365
00:59:02.720 --> 00:59:03.975 they gotta go log in
NOTE Confidence: 0.93189365
00:59:03.975 --> 00:59:04.715 to Copath,
NOTE Confidence: 0.888063
00:59:05.095 --> 00:59:06.135 get into the case. It
NOTE Confidence: 0.888063
00:59:06.135 --> 00:59:07.255 said, if it was all
NOTE Confidence: 0.888063
00:59:07.255 --> 00:59:07.755 integrated,
NOTE Confidence: 0.9996855
00:59:08.295 --> 00:59:09.175 they would use it more
NOTE Confidence: 0.9996855
00:59:09.175 --> 00:59:09.675 often.
NOTE Confidence: 0.9668334
00:59:11.575 --> 00:59:12.855 When we we installed our
NOTE Confidence: 0.9668334

00:59:12.855 --> 00:59:14.295 first AI algorithm about six
NOTE Confidence: 0.9668334

00:59:14.295 --> 00:59:15.815 years ago, it was IBEX
NOTE Confidence: 0.9668334

00:59:15.815 --> 00:59:17.035 for prostate cancer.
NOTE Confidence: 0.9619867

00:59:17.790 --> 00:59:18.990 I asked the CAP, and
NOTE Confidence: 0.9619867

00:59:18.990 --> 00:59:19.790 I was on the CAP
NOTE Confidence: 0.9619867

00:59:19.790 --> 00:59:21.070 committee and many others, how
NOTE Confidence: 0.9619867

00:59:21.070 --> 00:59:22.030 do how do we validate
NOTE Confidence: 0.9619867

00:59:22.030 --> 00:59:22.910 this? We knew about whole
NOTE Confidence: 0.9619867

00:59:22.910 --> 00:59:23.790 site imaging, but how do
NOTE Confidence: 0.9619867

00:59:23.790 --> 00:59:24.450 we validate
NOTE Confidence: 0.9778991

00:59:24.910 --> 00:59:26.510 AI? How many cases? What
NOTE Confidence: 0.9778991

00:59:26.510 --> 00:59:27.390 are we checking for? What
NOTE Confidence: 0.9778991

00:59:27.390 --> 00:59:27.970 are parameters?
NOTE Confidence: 0.9941555

00:59:28.350 --> 00:59:29.870 They did not know. No
NOTE Confidence: 0.9941555

00:59:29.870 --> 00:59:30.850 one actually
NOTE Confidence: 0.9925227

00:59:31.150 --> 00:59:32.290 could give me advice.

NOTE Confidence: 0.9556943
00:59:32.885 --> 00:59:33.765 But what I did know
NOTE Confidence: 0.9556943
00:59:33.765 --> 00:59:34.805 is that I'm not gonna
NOTE Confidence: 0.9556943
00:59:34.805 --> 00:59:36.484 do analytical validation like a
NOTE Confidence: 0.9556943
00:59:36.484 --> 00:59:38.165 vendor does. You know? Build
NOTE Confidence: 0.9556943
00:59:38.165 --> 00:59:39.684 the algorithm, hold out a
NOTE Confidence: 0.9556943
00:59:39.684 --> 00:59:40.964 whole bunch of stuff. That's
NOTE Confidence: 0.9556943
00:59:40.964 --> 00:59:42.005 like building a car. I
NOTE Confidence: 0.9556943
00:59:42.005 --> 00:59:42.825 don't want that.
NOTE Confidence: 0.9886266
00:59:43.285 --> 00:59:44.244 I know that I cannot
NOTE Confidence: 0.9886266
00:59:44.244 --> 00:59:45.545 use technical verification.
NOTE Confidence: 0.950224
00:59:45.990 --> 00:59:47.270 That's like going to a
NOTE Confidence: 0.950224
00:59:47.270 --> 00:59:48.869 car dealership and the the
NOTE Confidence: 0.950224
00:59:48.869 --> 00:59:50.150 car salesman showing you all
NOTE Confidence: 0.950224
00:59:50.150 --> 00:59:51.190 the features and, yeah, we'll
NOTE Confidence: 0.950224
00:59:51.190 --> 00:59:52.630 calibrate it and tweak it.
NOTE Confidence: 0.950224

00:59:52.630 --> 00:59:53.830 No. That's no good. I
NOTE Confidence: 0.950224

00:59:53.830 --> 00:59:55.130 need to test drive it
NOTE Confidence: 0.9709315

00:59:56.230 --> 00:59:56.950 so that I know it
NOTE Confidence: 0.9709315

00:59:56.950 --> 00:59:57.450 works.
NOTE Confidence: 0.9822359

00:59:57.830 --> 00:59:59.270 And how many cases? I
NOTE Confidence: 0.9822359

00:59:59.270 --> 01:00:00.195 don't know. So what we
NOTE Confidence: 0.9822359

01:00:00.195 --> 01:00:01.155 did, just so that you
NOTE Confidence: 0.9822359

01:00:01.155 --> 01:00:02.675 know so for prostate, I
NOTE Confidence: 0.9822359

01:00:02.675 --> 01:00:03.975 took three thousand slides,
NOTE Confidence: 0.8575019

01:00:05.635 --> 01:00:07.335 turned about so hundred cases
NOTE Confidence: 0.8575019

01:00:07.475 --> 01:00:08.775 with three thousand slides,
NOTE Confidence: 0.9319377

01:00:09.715 --> 01:00:10.535 scanned them,
NOTE Confidence: 0.9777228

01:00:11.395 --> 01:00:12.515 had them all analyzed by
NOTE Confidence: 0.9777228

01:00:12.515 --> 01:00:13.015 AI,
NOTE Confidence: 0.98556715

01:00:13.520 --> 01:00:14.400 and then we had,
NOTE Confidence: 0.96831036

01:00:14.720 --> 01:00:15.940 compared it to the pathologist

NOTE Confidence: 0.96831036

01:00:16.000 --> 01:00:17.520 diagnosis. And there were three

NOTE Confidence: 0.96831036

01:00:17.520 --> 01:00:18.339 zero discrepancies.

NOTE Confidence: 0.94250613

01:00:19.359 --> 01:00:21.280 Cancer and no cancer, grading

NOTE Confidence: 0.94250613

01:00:21.280 --> 01:00:23.359 differences, perineural invasion or not.

NOTE Confidence: 0.94250613

01:00:23.359 --> 01:00:24.319 And the pathologist at the

NOTE Confidence: 0.94250613

01:00:24.319 --> 01:00:25.200 time told me that, you

NOTE Confidence: 0.94250613

01:00:25.200 --> 01:00:26.160 see, AI is not right

NOTE Confidence: 0.94250613

01:00:26.160 --> 01:00:27.315 all the time. But the

NOTE Confidence: 0.94250613

01:00:27.315 --> 01:00:28.275 truth is all three of

NOTE Confidence: 0.94250613

01:00:28.275 --> 01:00:29.555 those cases were correct. The

NOTE Confidence: 0.94250613

01:00:29.555 --> 01:00:31.095 AI was correct. We adjudicated

NOTE Confidence: 0.94250613

01:00:31.234 --> 01:00:32.615 that by, you know, consensus,

NOTE Confidence: 0.94250613

01:00:32.755 --> 01:00:34.375 another expert, and immunohistochemistry.

NOTE Confidence: 0.9565112

01:00:35.795 --> 01:00:37.234 And here's an example where

NOTE Confidence: 0.9565112

01:00:37.234 --> 01:00:38.755 the pathologist originally felt this

NOTE Confidence: 0.9565112

01:00:38.755 --> 01:00:40.115 was negative. AI thought it
NOTE Confidence: 0.9565112

01:00:40.115 --> 01:00:41.340 was three plus three, and
NOTE Confidence: 0.9565112

01:00:41.340 --> 01:00:42.540 the AI was correct based
NOTE Confidence: 0.9565112

01:00:42.540 --> 01:00:43.120 on immunohistochemistry
NOTE Confidence: 0.94486713

01:00:43.580 --> 01:00:45.580 staining. And the xAI means
NOTE Confidence: 0.94486713

01:00:45.580 --> 01:00:47.340 explainable AI. Our pathologists really
NOTE Confidence: 0.94486713

01:00:47.340 --> 01:00:48.300 want to see what's going
NOTE Confidence: 0.94486713

01:00:48.300 --> 01:00:49.180 on with the AI. So
NOTE Confidence: 0.94486713

01:00:49.180 --> 01:00:50.960 by overlaying a heat map
NOTE Confidence: 0.94486713

01:00:51.020 --> 01:00:52.700 makes the AI explainable. There's
NOTE Confidence: 0.94486713

01:00:52.700 --> 01:00:53.980 the cancer. The red means
NOTE Confidence: 0.94486713

01:00:53.980 --> 01:00:55.680 it's we think it's malignant,
NOTE Confidence: 0.94486713

01:00:55.740 --> 01:00:56.240 etcetera.
NOTE Confidence: 0.98915595

01:00:57.815 --> 01:00:59.434 How do you install AI?
NOTE Confidence: 0.98915595

01:00:59.494 --> 01:01:00.855 That's a different issue. Do
NOTE Confidence: 0.98915595

01:01:00.855 --> 01:01:02.055 you do it upfront? Do

NOTE Confidence: 0.98915595
01:01:02.055 --> 01:01:03.595 you do it later? Initially,
NOTE Confidence: 0.98915595
01:01:03.654 --> 01:01:04.795 for example, the pathologist
NOTE Confidence: 0.95581
01:01:05.335 --> 01:01:06.375 said, do it once we've
NOTE Confidence: 0.95581
01:01:06.375 --> 01:01:07.575 done the case just as
NOTE Confidence: 0.95581
01:01:07.575 --> 01:01:08.980 a quality check, but but
NOTE Confidence: 0.95581
01:01:08.980 --> 01:01:10.340 they soon realized that that
NOTE Confidence: 0.95581
01:01:10.340 --> 01:01:11.620 makes no sense. So much
NOTE Confidence: 0.95581
01:01:11.620 --> 01:01:12.900 more efficient upfront. So now,
NOTE Confidence: 0.95581
01:01:12.900 --> 01:01:14.360 for example, our GU group,
NOTE Confidence: 0.95581
01:01:14.420 --> 01:01:15.140 by the time they get
NOTE Confidence: 0.95581
01:01:15.140 --> 01:01:16.260 there in the morning, everything
NOTE Confidence: 0.95581
01:01:16.260 --> 01:01:18.440 scanned, run by AI, preliminary
NOTE Confidence: 0.95581
01:01:18.580 --> 01:01:19.480 report generated.
NOTE Confidence: 0.9714984
01:01:20.100 --> 01:01:21.140 Even the fellow is way
NOTE Confidence: 0.9714984
01:01:21.140 --> 01:01:22.420 more efficient, so their service
NOTE Confidence: 0.9714984

01:01:22.420 --> 01:01:23.480 is much more efficient.
NOTE Confidence: 0.98445493

01:01:24.135 --> 01:01:25.335 But how we use AI
NOTE Confidence: 0.98445493

01:01:25.335 --> 01:01:27.175 is different, and so because
NOTE Confidence: 0.98445493

01:01:27.175 --> 01:01:28.535 the hospital did ask me
NOTE Confidence: 0.98445493

01:01:28.535 --> 01:01:30.475 this. At the academic hospitals,
NOTE Confidence: 0.9613297

01:01:31.175 --> 01:01:32.615 my academic pathologists are a
NOTE Confidence: 0.9613297

01:01:32.615 --> 01:01:33.815 little insulted if I tell
NOTE Confidence: 0.9613297

01:01:33.815 --> 01:01:34.775 them that it's to check
NOTE Confidence: 0.9613297

01:01:34.775 --> 01:01:36.295 check accuracy because many of
NOTE Confidence: 0.9613297

01:01:36.295 --> 01:01:37.095 them tell me, Lauren, you
NOTE Confidence: 0.9613297

01:01:37.095 --> 01:01:38.455 know, people send me consults,
NOTE Confidence: 0.9613297

01:01:38.455 --> 01:01:39.720 etcetera. You know, I don't
NOTE Confidence: 0.9613297

01:01:39.720 --> 01:01:41.240 need that checked. What they
NOTE Confidence: 0.9613297

01:01:41.240 --> 01:01:42.540 really want is the efficiency.
NOTE Confidence: 0.9613297

01:01:42.600 --> 01:01:43.720 Save time so they can
NOTE Confidence: 0.9613297

01:01:43.720 --> 01:01:45.100 have time to write papers,

NOTE Confidence: 0.9613297

01:01:45.160 --> 01:01:45.640 do admin

NOTE Confidence: 0.96256614

01:01:46.200 --> 01:01:48.040 academic work. Whereas in the

NOTE Confidence: 0.96256614

01:01:48.040 --> 01:01:49.560 community, and we have many

NOTE Confidence: 0.96256614

01:01:49.560 --> 01:01:51.480 community hospitals, they do wanna

NOTE Confidence: 0.96256614

01:01:51.480 --> 01:01:52.600 know that they didn't over

NOTE Confidence: 0.96256614

01:01:52.600 --> 01:01:53.875 or under call anything. So

NOTE Confidence: 0.96256614

01:01:53.875 --> 01:01:55.255 it's the exact same algorithm.

NOTE Confidence: 0.96256614

01:01:55.315 --> 01:01:56.995 They're much more happier having

NOTE Confidence: 0.96256614

01:01:56.995 --> 01:01:59.155 AI check everything. And, actually,

NOTE Confidence: 0.96256614

01:01:59.155 --> 01:02:00.435 I'm happy that these general

NOTE Confidence: 0.96256614

01:02:00.435 --> 01:02:02.115 pathologists are not overwhelming our

NOTE Confidence: 0.96256614

01:02:02.115 --> 01:02:03.715 academic pathologists with all these

NOTE Confidence: 0.96256614

01:02:03.715 --> 01:02:05.315 cases. You know, prostate with

NOTE Confidence: 0.96256614

01:02:05.315 --> 01:02:05.815 ASAP,

NOTE Confidence: 0.99755925

01:02:06.195 --> 01:02:06.910 you can handle it on

NOTE Confidence: 0.99755925

01:02:06.910 --> 01:02:07.790 your own. You do not
NOTE Confidence: 0.99755925

01:02:07.790 --> 01:02:08.510 have to send it to
NOTE Confidence: 0.99755925

01:02:08.510 --> 01:02:09.090 a subspecialist.
NOTE Confidence: 0.9573467

01:02:10.030 --> 01:02:10.990 But a lot of questions
NOTE Confidence: 0.9573467

01:02:10.990 --> 01:02:12.290 have come up over time.
NOTE Confidence: 0.9573467

01:02:12.430 --> 01:02:13.470 You're on which apps are
NOTE Confidence: 0.9573467

01:02:13.470 --> 01:02:14.670 you using? How are you
NOTE Confidence: 0.9573467

01:02:14.670 --> 01:02:16.030 deciding only if it's FDA
NOTE Confidence: 0.9573467

01:02:16.030 --> 01:02:16.990 or if other people are
NOTE Confidence: 0.9573467

01:02:16.990 --> 01:02:17.790 using it? How are you
NOTE Confidence: 0.9573467

01:02:17.790 --> 01:02:18.830 paying for it? Should the
NOTE Confidence: 0.9573467

01:02:18.830 --> 01:02:20.270 residents and fellows use it
NOTE Confidence: 0.9573467

01:02:20.270 --> 01:02:21.010 or not, etcetera?
NOTE Confidence: 0.95498574

01:02:21.585 --> 01:02:22.625 And you will learn all
NOTE Confidence: 0.95498574

01:02:22.625 --> 01:02:23.845 of those over time.
NOTE Confidence: 0.994225

01:02:25.345 --> 01:02:26.725 But I do feel that

NOTE Confidence: 0.9716176
01:02:27.185 --> 01:02:28.145 we should be doing more
NOTE Confidence: 0.9716176
01:02:28.145 --> 01:02:29.105 with AI. You know, not
NOTE Confidence: 0.9716176
01:02:29.105 --> 01:02:30.305 just having AI do exactly
NOTE Confidence: 0.9716176
01:02:30.305 --> 01:02:32.145 what pathologists do, same grading,
NOTE Confidence: 0.9716176
01:02:32.145 --> 01:02:32.645 WHO,
NOTE Confidence: 0.9757811
01:02:32.945 --> 01:02:34.805 Bethesda. We should really be
NOTE Confidence: 0.97074664
01:02:35.300 --> 01:02:36.500 looking into a crystal ball
NOTE Confidence: 0.97074664
01:02:36.500 --> 01:02:37.560 and making advances.
NOTE Confidence: 0.9891078
01:02:37.940 --> 01:02:38.900 And so that's where we
NOTE Confidence: 0.9891078
01:02:38.900 --> 01:02:39.880 should go. But
NOTE Confidence: 0.93688786
01:02:40.260 --> 01:02:41.540 I decided I cannot do
NOTE Confidence: 0.93688786
01:02:41.540 --> 01:02:42.740 this on my own, so
NOTE Confidence: 0.93688786
01:02:42.740 --> 01:02:44.340 I created a computational pathology
NOTE Confidence: 0.93688786
01:02:44.340 --> 01:02:46.099 and informatics division. Doctor Hooman
NOTE Confidence: 0.93688786
01:02:46.099 --> 01:02:47.380 Rasheedi, who trained here at
NOTE Confidence: 0.93688786

01:02:47.380 --> 01:02:49.400 Yale now, he runs that.
NOTE Confidence: 0.9384147

01:02:49.965 --> 01:02:51.485 Matthew Uhanna is the vice
NOTE Confidence: 0.9384147

01:02:51.485 --> 01:02:52.925 chair of informatics, helps with
NOTE Confidence: 0.9384147

01:02:52.925 --> 01:02:53.905 all of this process.
NOTE Confidence: 0.94340074

01:02:54.525 --> 01:02:55.185 And Ibrahim,
NOTE Confidence: 0.86205155

01:02:55.725 --> 01:02:56.845 a recurant, runs the image
NOTE Confidence: 0.86205155

01:02:56.845 --> 01:02:57.825 analysis lab.
NOTE Confidence: 0.9965621

01:02:58.285 --> 01:02:59.585 And they're all competent.
NOTE Confidence: 0.9393752

01:03:00.685 --> 01:03:01.725 I open up an AI
NOTE Confidence: 0.9393752

01:03:01.725 --> 01:03:03.425 center now called our computational
NOTE Confidence: 0.9393752

01:03:03.485 --> 01:03:04.865 pathology and AI center.
NOTE Confidence: 0.94467705

01:03:05.390 --> 01:03:06.830 They build AI. They validate
NOTE Confidence: 0.94467705

01:03:06.830 --> 01:03:08.430 AI. And I I they
NOTE Confidence: 0.94467705

01:03:08.430 --> 01:03:09.150 don't like it, but I
NOTE Confidence: 0.94467705

01:03:09.150 --> 01:03:10.350 tell them they're my oil
NOTE Confidence: 0.94467705

01:03:10.350 --> 01:03:10.850 refinery.

NOTE Confidence: 0.96836746
01:03:11.150 --> 01:03:12.190 They take all the crew
NOTE Confidence: 0.96836746
01:03:12.190 --> 01:03:13.890 data from lab medicine,
NOTE Confidence: 0.64241344
01:03:14.510 --> 01:03:14.910 seat,
NOTE Confidence: 0.94385004
01:03:15.310 --> 01:03:16.530 and as well as images,
NOTE Confidence: 0.94385004
01:03:16.750 --> 01:03:18.030 and then make whatever jet
NOTE Confidence: 0.94385004
01:03:18.030 --> 01:03:19.015 fuel I need. I need
NOTE Confidence: 0.94385004
01:03:19.015 --> 01:03:19.815 them to do this. I
NOTE Confidence: 0.94385004
01:03:19.815 --> 01:03:20.615 need them to do that,
NOTE Confidence: 0.94385004
01:03:20.615 --> 01:03:21.515 and they do that,
NOTE Confidence: 0.99880457
01:03:21.815 --> 01:03:23.675 along with an academic mission.
NOTE Confidence: 0.968917
01:03:24.695 --> 01:03:25.655 The one thing I found
NOTE Confidence: 0.968917
01:03:25.655 --> 01:03:26.615 over time is it's very
NOTE Confidence: 0.968917
01:03:26.615 --> 01:03:27.735 hard to work with vendors.
NOTE Confidence: 0.968917
01:03:27.735 --> 01:03:28.855 I used to vendors would
NOTE Confidence: 0.968917
01:03:28.855 --> 01:03:29.575 say, no. We have a
NOTE Confidence: 0.968917

01:03:29.575 --> 01:03:30.535 new scanner. We have a
NOTE Confidence: 0.968917

01:03:30.535 --> 01:03:31.815 new system. Can you test
NOTE Confidence: 0.968917

01:03:31.815 --> 01:03:32.780 it for us? But I
NOTE Confidence: 0.968917

01:03:32.780 --> 01:03:34.060 had all these rules in
NOTE Confidence: 0.968917

01:03:34.060 --> 01:03:35.680 our hospital. Ninety days,
NOTE Confidence: 0.9755251

01:03:36.619 --> 01:03:38.140 supply chain management won't allow
NOTE Confidence: 0.9755251

01:03:38.140 --> 01:03:39.359 this, and so I decided
NOTE Confidence: 0.9705138

01:03:39.820 --> 01:03:40.700 I'm not going through that
NOTE Confidence: 0.9705138

01:03:40.700 --> 01:03:41.900 process anymore. So I opened
NOTE Confidence: 0.9705138

01:03:41.900 --> 01:03:43.420 up a digital pathology research
NOTE Confidence: 0.9705138

01:03:43.420 --> 01:03:43.920 center.
NOTE Confidence: 0.87014747

01:03:44.300 --> 01:03:45.339 I called it research. So
NOTE Confidence: 0.87014747

01:03:45.339 --> 01:03:47.020 it's under research. Hospital have
NOTE Confidence: 0.87014747

01:03:47.020 --> 01:03:47.715 no sort of,
NOTE Confidence: 0.99743134

01:03:48.995 --> 01:03:49.495 you
NOTE Confidence: 0.9981756

01:03:49.795 --> 01:03:50.295 know,

NOTE Confidence: 0.9624789
01:03:50.915 --> 01:03:52.115 say in how long anything
NOTE Confidence: 0.9624789
01:03:52.115 --> 01:03:53.575 stays or which vendor comes.
NOTE Confidence: 0.9624789
01:03:53.795 --> 01:03:54.595 You know, we make sure
NOTE Confidence: 0.9624789
01:03:54.595 --> 01:03:55.715 we have ethical clearance. We
NOTE Confidence: 0.9624789
01:03:55.715 --> 01:03:56.855 have compliance, IRBs.
NOTE Confidence: 0.9996203
01:03:57.875 --> 01:03:59.015 I had so many
NOTE Confidence: 0.9870062
01:04:00.090 --> 01:04:01.530 companies come to me, digital
NOTE Confidence: 0.9870062
01:04:01.530 --> 01:04:02.670 pathology, AI,
NOTE Confidence: 0.9475824
01:04:03.050 --> 01:04:04.970 and even novel imaging companies,
NOTE Confidence: 0.9475824
01:04:04.970 --> 01:04:05.950 Muse and others.
NOTE Confidence: 0.9897478
01:04:06.330 --> 01:04:07.050 I had to open up
NOTE Confidence: 0.9897478
01:04:07.050 --> 01:04:08.510 an office of collaborative pathology.
NOTE Confidence: 0.9897478
01:04:08.650 --> 01:04:09.770 I have a medical director
NOTE Confidence: 0.9897478
01:04:09.770 --> 01:04:10.730 who runs that. I have
NOTE Confidence: 0.9897478
01:04:10.730 --> 01:04:12.190 a lawyer now, an administrator.
NOTE Confidence: 0.9897478

01:04:12.410 --> 01:04:14.135 I have a compliance officer.
NOTE Confidence: 0.9897478

01:04:14.355 --> 01:04:15.555 I have a PhD scientist
NOTE Confidence: 0.9897478

01:04:15.555 --> 01:04:16.595 who checks the scope of
NOTE Confidence: 0.9897478

01:04:16.595 --> 01:04:17.955 work. And so we've already
NOTE Confidence: 0.9897478

01:04:17.955 --> 01:04:19.255 done forty projects,
NOTE Confidence: 0.97946644

01:04:20.195 --> 01:04:21.335 multimillion dollar
NOTE Confidence: 0.9916683

01:04:21.955 --> 01:04:23.235 operation, and that money all
NOTE Confidence: 0.9916683

01:04:23.235 --> 01:04:24.455 comes into the department.
NOTE Confidence: 0.97064424

01:04:24.755 --> 01:04:26.319 Okay? And And everyone loves
NOTE Confidence: 0.97064424

01:04:26.319 --> 01:04:27.359 it because they get access
NOTE Confidence: 0.97064424

01:04:27.359 --> 01:04:28.880 to technology. If we like
NOTE Confidence: 0.97064424

01:04:28.880 --> 01:04:30.720 it, we'll translate it and
NOTE Confidence: 0.97064424

01:04:30.720 --> 01:04:31.680 move it over into the
NOTE Confidence: 0.97064424

01:04:31.680 --> 01:04:32.579 clinical operation.
NOTE Confidence: 0.9524253

01:04:33.520 --> 01:04:35.040 And lastly, what we've realized
NOTE Confidence: 0.9524253

01:04:35.040 --> 01:04:36.640 at UPMC is that I've

NOTE Confidence: 0.9524253
01:04:36.640 --> 01:04:38.240 had algorithms that we've built
NOTE Confidence: 0.9524253
01:04:38.240 --> 01:04:39.255 ourselves, but they only work
NOTE Confidence: 0.9524253
01:04:39.255 --> 01:04:40.934 at UPMC. Like that acid
NOTE Confidence: 0.9524253
01:04:40.934 --> 01:04:42.855 fast bacillus algorithm. I've had
NOTE Confidence: 0.9524253
01:04:42.855 --> 01:04:44.135 a pathologist send me and
NOTE Confidence: 0.9524253
01:04:44.135 --> 01:04:44.934 ask me if we would
NOTE Confidence: 0.9524253
01:04:44.934 --> 01:04:46.454 run it, run her images
NOTE Confidence: 0.9524253
01:04:46.454 --> 01:04:47.194 for us.
NOTE Confidence: 0.97877073
01:04:47.654 --> 01:04:49.015 She wanted to quantify them
NOTE Confidence: 0.97877073
01:04:49.015 --> 01:04:50.295 for her research project. And
NOTE Confidence: 0.97877073
01:04:50.295 --> 01:04:51.095 we ran them, and we
NOTE Confidence: 0.97877073
01:04:51.095 --> 01:04:52.315 couldn't find the AFB.
NOTE Confidence: 0.981305
01:04:53.340 --> 01:04:54.580 So just because we build
NOTE Confidence: 0.981305
01:04:54.580 --> 01:04:55.920 it doesn't mean it's generalizable.
NOTE Confidence: 0.99245864
01:04:56.220 --> 01:04:57.840 So we have decided that
NOTE Confidence: 0.93168026

01:04:58.140 --> 01:04:59.520 we are building a consortium
NOTE Confidence: 0.93168026

01:04:59.580 --> 01:05:00.080 which
NOTE Confidence: 0.7771237

01:05:00.700 --> 01:05:01.360 is underway.
NOTE Confidence: 0.9664113

01:05:01.820 --> 01:05:03.120 We are working with partners
NOTE Confidence: 0.9664113

01:05:03.180 --> 01:05:04.720 around the U. S. Globally,
NOTE Confidence: 0.9664113

01:05:05.020 --> 01:05:06.800 people from Chile, Mexico,
NOTE Confidence: 0.9903309

01:05:07.660 --> 01:05:08.160 Japan,
NOTE Confidence: 0.98973596

01:05:09.744 --> 01:05:11.525 Tata Memorial Cancer Center, etcetera,
NOTE Confidence: 0.98973596

01:05:11.585 --> 01:05:12.705 who are all providing us
NOTE Confidence: 0.98973596

01:05:12.705 --> 01:05:13.985 with data so that we
NOTE Confidence: 0.98973596

01:05:13.985 --> 01:05:15.425 can build much better AI
NOTE Confidence: 0.98973596

01:05:15.425 --> 01:05:17.185 algorithms that can generalize for
NOTE Confidence: 0.98973596

01:05:17.185 --> 01:05:18.545 everyone and also meet all
NOTE Confidence: 0.98973596

01:05:18.545 --> 01:05:19.285 their priorities.
NOTE Confidence: 0.9938928

01:05:19.905 --> 01:05:20.465 So at the end of
NOTE Confidence: 0.9938928

01:05:20.465 --> 01:05:21.660 the day, that's the message

NOTE Confidence: 0.9938928
01:05:21.660 --> 01:05:22.140 I tell everyone I work
NOTE Confidence: 0.9938928
01:05:22.140 --> 01:05:22.640 with.
NOTE Confidence: 0.9993155
01:05:23.500 --> 01:05:25.039 I'm not replacing them
NOTE Confidence: 0.8583212
01:05:25.420 --> 01:05:25.920 yet,
NOTE Confidence: 0.9461835
01:05:27.099 --> 01:05:28.220 but I'm just giving them
NOTE Confidence: 0.9461835
01:05:28.220 --> 01:05:29.099 the tools to make their
NOTE Confidence: 0.9461835
01:05:29.099 --> 01:05:30.539 job easier. Right? Whether it's
NOTE Confidence: 0.9461835
01:05:30.539 --> 01:05:32.299 screening Pap tests or whether
NOTE Confidence: 0.9461835
01:05:32.299 --> 01:05:34.059 it's looking at corneal lobsters
NOTE Confidence: 0.9461835
01:05:34.059 --> 01:05:35.755 of breasts, prostate, etcetera. So
NOTE Confidence: 0.9461835
01:05:35.755 --> 01:05:36.474 I'll leave you with this
NOTE Confidence: 0.9461835
01:05:36.474 --> 01:05:37.775 final quote from Darwin.
NOTE Confidence: 0.98506224
01:05:38.315 --> 01:05:39.435 It's not the strongest of
NOTE Confidence: 0.98506224
01:05:39.435 --> 01:05:40.715 the species that survives nor
NOTE Confidence: 0.98506224
01:05:40.715 --> 01:05:41.615 the most intelligent,
NOTE Confidence: 0.9870631

01:05:42.155 --> 01:05:43.035 but it's the one that
NOTE Confidence: 0.9870631

01:05:43.035 --> 01:05:44.734 is most adaptable to change.
NOTE Confidence: 0.9870631

01:05:44.795 --> 01:05:45.675 So you have to be,
NOTE Confidence: 0.9870631

01:05:45.675 --> 01:05:47.115 you know, willing to change.
NOTE Confidence: 0.9870631

01:05:47.115 --> 01:05:48.075 So sorry if I went
NOTE Confidence: 0.9870631

01:05:48.075 --> 01:05:48.875 over for a little bit,
NOTE Confidence: 0.9870631

01:05:48.875 --> 01:05:49.835 but thank you for your
NOTE Confidence: 0.9870631

01:05:49.835 --> 01:05:50.335 attention.
NOTE Confidence: 0.9057717

01:05:55.250 --> 01:05:56.370 Doctor Daisig, is there time
NOTE Confidence: 0.9057717

01:05:56.370 --> 01:05:58.130 for questions or no? No?
NOTE Confidence: 0.9057717

01:05:58.130 --> 01:05:59.430 We have time for questions.
NOTE Confidence: 0.97554445

01:06:00.050 --> 01:06:00.710 Oh, okay.
NOTE Confidence: 0.8640368

01:06:03.490 --> 01:06:04.150 Any questions?
NOTE Confidence: 0.1099381

01:06:04.825 --> 01:06:05.325 First
NOTE Confidence: 0.47995463

01:06:09.465 --> 01:06:09.965 question.
NOTE Confidence: 0.94680274

01:06:21.430 --> 01:06:22.790 So when kids go and

NOTE Confidence: 0.94680274
01:06:22.790 --> 01:06:24.150 get their car license today,
NOTE Confidence: 0.94680274
01:06:24.150 --> 01:06:24.950 do we make them go
NOTE Confidence: 0.94680274
01:06:24.950 --> 01:06:26.330 with shift stick or automatic?
NOTE Confidence: 0.8839755
01:06:27.430 --> 01:06:28.630 When kids get their car
NOTE Confidence: 0.8839755
01:06:28.630 --> 01:06:30.470 licenses today, are we gonna
NOTE Confidence: 0.8839755
01:06:30.470 --> 01:06:31.350 make them all go with
NOTE Confidence: 0.8839755
01:06:31.350 --> 01:06:32.470 a shift stick so that
NOTE Confidence: 0.8839755
01:06:32.470 --> 01:06:33.270 just in case they have
NOTE Confidence: 0.8839755
01:06:33.270 --> 01:06:34.230 today, you're gonna use a
NOTE Confidence: 0.8839755
01:06:34.230 --> 01:06:35.115 shift stick, or is it
NOTE Confidence: 0.8839755
01:06:35.115 --> 01:06:36.155 okay to get your car
NOTE Confidence: 0.8839755
01:06:36.155 --> 01:06:37.714 license with an automatic vehicle?
NOTE Confidence: 0.8839755
01:06:37.915 --> 01:06:39.835 For me. The entire transmission
NOTE Confidence: 0.8839755
01:06:39.835 --> 01:06:40.635 of the solar system is
NOTE Confidence: 0.8839755
01:06:40.635 --> 01:06:42.815 still keeping That's right. So
NOTE Confidence: 0.8839755

01:06:43.035 --> 01:06:44.155 and I did this experiment.
NOTE Confidence: 0.8839755

01:06:44.155 --> 01:06:45.435 So our GU fellow was
NOTE Confidence: 0.8839755

01:06:45.435 --> 01:06:46.715 not allowed to our GU
NOTE Confidence: 0.8839755

01:06:46.715 --> 01:06:47.435 fellow was not allowed to
NOTE Confidence: 0.8839755

01:06:47.435 --> 01:06:48.095 use AI
NOTE Confidence: 0.94601387

01:06:48.760 --> 01:06:50.040 each year. But when I
NOTE Confidence: 0.94601387

01:06:50.040 --> 01:06:51.080 got there as the chair,
NOTE Confidence: 0.94601387

01:06:51.080 --> 01:06:51.880 I told him it makes
NOTE Confidence: 0.94601387

01:06:51.880 --> 01:06:52.620 no sense.
NOTE Confidence: 0.96263206

01:06:53.240 --> 01:06:54.360 Actually, what we're doing is,
NOTE Confidence: 0.96263206

01:06:54.520 --> 01:06:55.320 because they were saying we
NOTE Confidence: 0.96263206

01:06:55.320 --> 01:06:56.840 would deskill the the GEO
NOTE Confidence: 0.96263206

01:06:56.840 --> 01:06:57.800 fellow like you're saying. They
NOTE Confidence: 0.96263206

01:06:57.800 --> 01:06:58.760 would not be able to
NOTE Confidence: 0.96263206

01:06:58.760 --> 01:06:59.800 be as good as previous
NOTE Confidence: 0.96263206

01:06:59.800 --> 01:07:01.000 fellows to find the cancer

NOTE Confidence: 0.96263206
01:07:01.000 --> 01:07:02.300 and actually grade it themselves.
NOTE Confidence: 0.9587269
01:07:03.515 --> 01:07:04.475 And I told them, actually,
NOTE Confidence: 0.9587269
01:07:04.475 --> 01:07:05.995 what we're doing is, we
NOTE Confidence: 0.9587269
01:07:05.995 --> 01:07:07.115 are deskilling them to go
NOTE Confidence: 0.9587269
01:07:07.115 --> 01:07:08.795 practice in the future because,
NOTE Confidence: 0.9587269
01:07:08.955 --> 01:07:10.555 they would who's gonna train
NOTE Confidence: 0.9587269
01:07:10.555 --> 01:07:11.915 them to do AI, especially
NOTE Confidence: 0.9587269
01:07:11.915 --> 01:07:12.875 if we have AI around?
NOTE Confidence: 0.9587269
01:07:12.875 --> 01:07:14.335 We need to upscale them.
NOTE Confidence: 0.96638733
01:07:14.635 --> 01:07:15.515 And so I had a
NOTE Confidence: 0.96638733
01:07:15.515 --> 01:07:16.555 fellow who had done six
NOTE Confidence: 0.96638733
01:07:16.555 --> 01:07:18.130 months of his fellowship, GU
NOTE Confidence: 0.96638733
01:07:18.130 --> 01:07:19.170 fellow. And then I asked
NOTE Confidence: 0.96638733
01:07:19.170 --> 01:07:20.130 him, would he be willing
NOTE Confidence: 0.96638733
01:07:20.130 --> 01:07:22.050 to switch halfway through? And
NOTE Confidence: 0.96638733

01:07:22.050 --> 01:07:23.650 we'd actually document everything he'd

NOTE Confidence: 0.96638733

01:07:23.650 --> 01:07:24.930 done. So we documented everything

NOTE Confidence: 0.96638733

01:07:24.930 --> 01:07:26.150 he'd done for six months,

NOTE Confidence: 0.9458206

01:07:26.530 --> 01:07:28.210 his diagnoses compared to, you

NOTE Confidence: 0.9458206

01:07:28.210 --> 01:07:30.050 know, it's, the ones that

NOTE Confidence: 0.9458206

01:07:30.050 --> 01:07:31.330 sign out, how efficient he

NOTE Confidence: 0.9458206

01:07:31.330 --> 01:07:32.609 was, how efficient the service

NOTE Confidence: 0.9458206

01:07:32.609 --> 01:07:33.815 ran, etcetera. And And then

NOTE Confidence: 0.9458206

01:07:33.815 --> 01:07:35.195 we switched, and we documented

NOTE Confidence: 0.9458206

01:07:35.335 --> 01:07:36.695 everything. And so what had

NOTE Confidence: 0.9458206

01:07:36.695 --> 01:07:38.455 happened was, firstly, the service

NOTE Confidence: 0.9458206

01:07:38.455 --> 01:07:40.155 was way more efficient. Okay?

NOTE Confidence: 0.9625065

01:07:40.455 --> 01:07:41.495 Everyone could sign out by

NOTE Confidence: 0.9625065

01:07:41.495 --> 01:07:42.695 eight eight or nine AM

NOTE Confidence: 0.9625065

01:07:42.695 --> 01:07:43.735 in the morning. Everything was

NOTE Confidence: 0.9625065

01:07:43.735 --> 01:07:45.750 done, screened. All the cases

NOTE Confidence: 0.9625065
01:07:45.750 --> 01:07:47.190 that needed immunos were already
NOTE Confidence: 0.9625065
01:07:47.190 --> 01:07:48.230 sent off. They came back
NOTE Confidence: 0.9625065
01:07:48.230 --> 01:07:49.030 the same day because they
NOTE Confidence: 0.9625065
01:07:49.030 --> 01:07:49.850 met the cutoff.
NOTE Confidence: 0.79428315
01:07:50.390 --> 01:07:50.890 Okay.
NOTE Confidence: 0.98533344
01:07:52.950 --> 01:07:53.610 The fellow
NOTE Confidence: 0.9569097
01:07:54.230 --> 01:07:56.550 got much better. Okay. Because
NOTE Confidence: 0.9569097
01:07:56.550 --> 01:07:57.270 the fellow looked at the
NOTE Confidence: 0.9569097
01:07:57.270 --> 01:07:58.230 case and then turned on,
NOTE Confidence: 0.9569097
01:07:58.230 --> 01:07:58.825 you know, the heat heat
NOTE Confidence: 0.9569097
01:07:58.825 --> 01:08:00.265 maps afterwards. He didn't wanna
NOTE Confidence: 0.9569097
01:08:00.265 --> 01:08:01.545 ruin his ability not to
NOTE Confidence: 0.9569097
01:08:01.545 --> 01:08:02.265 be able to try and
NOTE Confidence: 0.9569097
01:08:02.265 --> 01:08:03.005 make diagnoses.
NOTE Confidence: 0.97751456
01:08:04.825 --> 01:08:06.425 And then guess what happened
NOTE Confidence: 0.97751456

01:08:06.425 --> 01:08:07.465 every time there was an
NOTE Confidence: 0.97751456

01:08:07.465 --> 01:08:08.445 issue, technical
NOTE Confidence: 0.65135527

01:08:08.745 --> 01:08:09.405 AI, whatever?
NOTE Confidence: 0.9864657

01:08:09.785 --> 01:08:10.585 Who do you think the
NOTE Confidence: 0.9864657

01:08:10.585 --> 01:08:11.625 champion was that they went
NOTE Confidence: 0.9864657

01:08:11.625 --> 01:08:12.905 to? All the attendings. The
NOTE Confidence: 0.9864657

01:08:12.905 --> 01:08:13.405 fellow.
NOTE Confidence: 0.9888667

01:08:14.720 --> 01:08:15.839 The fellow was so good
NOTE Confidence: 0.9888667

01:08:15.839 --> 01:08:16.719 that they asked me to
NOTE Confidence: 0.9888667

01:08:16.719 --> 01:08:17.840 hire him. He's now faculty.
NOTE Confidence: 0.9888667

01:08:17.840 --> 01:08:18.880 He's been on faculty for
NOTE Confidence: 0.9888667

01:08:18.880 --> 01:08:19.840 two years. Okay? And he's
NOTE Confidence: 0.9888667

01:08:19.840 --> 01:08:20.979 still the AI champion.
NOTE Confidence: 0.93625665

01:08:21.360 --> 01:08:23.360 And now he does GU
NOTE Confidence: 0.93625665

01:08:23.360 --> 01:08:23.860 research.
NOTE Confidence: 0.97023356

01:08:24.239 --> 01:08:25.280 And guess what he uses

NOTE Confidence: 0.97023356
01:08:25.280 --> 01:08:26.655 to do his GU research?
NOTE Confidence: 0.97023356
01:08:26.655 --> 01:08:27.854 He doesn't lean over a
NOTE Confidence: 0.97023356
01:08:27.854 --> 01:08:29.375 microscope doing it. He uses
NOTE Confidence: 0.97023356
01:08:29.375 --> 01:08:30.735 the AI to do all
NOTE Confidence: 0.97023356
01:08:30.735 --> 01:08:31.875 different things, spatial
NOTE Confidence: 0.94647825
01:08:32.494 --> 01:08:33.875 biology and different things.
NOTE Confidence: 0.9797659
01:08:34.335 --> 01:08:35.875 It's a completely new microscope
NOTE Confidence: 0.9797659
01:08:35.934 --> 01:08:37.554 for him. And so
NOTE Confidence: 0.9777684
01:08:37.854 --> 01:08:39.219 I would say, I think
NOTE Confidence: 0.9777684
01:08:39.219 --> 01:08:40.579 it would be detrimental if
NOTE Confidence: 0.9777684
01:08:40.579 --> 01:08:41.380 you have the tools and
NOTE Confidence: 0.9777684
01:08:41.380 --> 01:08:42.659 technology not to let the
NOTE Confidence: 0.9777684
01:08:42.659 --> 01:08:43.780 people use it. I'm not
NOTE Confidence: 0.9777684
01:08:43.780 --> 01:08:44.900 gonna force people to use
NOTE Confidence: 0.9777684
01:08:44.900 --> 01:08:46.179 a shift stick because that's
NOTE Confidence: 0.9777684

01:08:46.179 --> 01:08:47.380 just how everyone used to
NOTE Confidence: 0.9777684

01:08:47.380 --> 01:08:49.139 do it. So that's my
NOTE Confidence: 0.9777684

01:08:49.139 --> 01:08:49.639 opinion.
NOTE Confidence: 0.9777124

01:08:50.340 --> 01:08:50.840 Okay.
NOTE Confidence: 0.9441884

01:09:30.244 --> 01:09:31.125 So the answer is no
NOTE Confidence: 0.9441884

01:09:31.125 --> 01:09:32.085 to both your questions. I
NOTE Confidence: 0.9441884

01:09:32.085 --> 01:09:33.625 have not tracked people's,
NOTE Confidence: 0.9410423

01:09:34.280 --> 01:09:36.140 RBUs. I tracked them for,
NOTE Confidence: 0.9699103

01:09:37.160 --> 01:09:38.600 quality purposes or when to
NOTE Confidence: 0.9699103

01:09:38.600 --> 01:09:40.120 hire, but not for personal
NOTE Confidence: 0.9699103

01:09:40.120 --> 01:09:41.320 productivity. But now that you've
NOTE Confidence: 0.9699103

01:09:41.320 --> 01:09:42.040 told me, yeah, I think
NOTE Confidence: 0.9699103

01:09:42.040 --> 01:09:43.180 I'm gonna do that.
NOTE Confidence: 0.8730099

01:09:44.280 --> 01:09:45.479 I think it's hard because
NOTE Confidence: 0.8730099

01:09:45.479 --> 01:09:46.860 probably that will be Yeah.
NOTE Confidence: 0.8730099

01:09:47.000 --> 01:09:48.545 At some level. Yeah. So

NOTE Confidence: 0.8730099
01:09:48.545 --> 01:09:49.265 I think I'm gonna do
NOTE Confidence: 0.8730099
01:09:49.265 --> 01:09:50.305 that. The groups that use
NOTE Confidence: 0.8730099
01:09:50.305 --> 01:09:51.665 AI, and a good time
NOTE Confidence: 0.8730099
01:09:51.745 --> 01:09:53.345 so, you know, we're we're
NOTE Confidence: 0.8730099
01:09:53.345 --> 01:09:54.625 now doing all the PAP
NOTE Confidence: 0.8730099
01:09:54.625 --> 01:09:56.145 tests with the Genius AI
NOTE Confidence: 0.8730099
01:09:56.145 --> 01:09:57.905 system. So, it will be
NOTE Confidence: 0.8730099
01:09:57.905 --> 01:09:59.205 a good thing to monitor
NOTE Confidence: 0.8730099
01:09:59.265 --> 01:10:01.045 actually that we have,
NOTE Confidence: 0.91268194
01:10:01.870 --> 01:10:03.390 twelve side of pathologists that
NOTE Confidence: 0.91268194
01:10:03.390 --> 01:10:04.270 do PAPs. That's how I
NOTE Confidence: 0.91268194
01:10:04.270 --> 01:10:05.870 wanna monitor actually the RVUs
NOTE Confidence: 0.91268194
01:10:05.870 --> 01:10:07.310 before, RVUs now, see if
NOTE Confidence: 0.91268194
01:10:07.310 --> 01:10:08.830 they're quicker. The problem is
NOTE Confidence: 0.91268194
01:10:08.830 --> 01:10:10.350 I I'm reluctant to share
NOTE Confidence: 0.91268194

01:10:10.350 --> 01:10:11.390 that data because, you know,
NOTE Confidence: 0.91268194

01:10:11.390 --> 01:10:12.670 the administrators will tell me
NOTE Confidence: 0.91268194

01:10:12.670 --> 01:10:13.170 that,
NOTE Confidence: 0.9773548

01:10:13.745 --> 01:10:14.625 you know, we see that
NOTE Confidence: 0.9773548

01:10:14.625 --> 01:10:15.665 your pataras are going home
NOTE Confidence: 0.9773548

01:10:15.665 --> 01:10:16.785 now at four o'clock as
NOTE Confidence: 0.9773548

01:10:16.785 --> 01:10:18.145 opposed to six or seven
NOTE Confidence: 0.9773548

01:10:18.145 --> 01:10:19.825 o'clock. And so, you know,
NOTE Confidence: 0.96236247

01:10:20.625 --> 01:10:21.665 and so maybe we should
NOTE Confidence: 0.96236247

01:10:21.665 --> 01:10:23.185 hire less, etcetera. So that's
NOTE Confidence: 0.96236247

01:10:23.185 --> 01:10:23.985 the the one thing. And
NOTE Confidence: 0.96236247

01:10:23.985 --> 01:10:24.965 then in terms of
NOTE Confidence: 0.98759764

01:10:25.345 --> 01:10:26.705 people being compensated to work
NOTE Confidence: 0.98759764

01:10:26.705 --> 01:10:27.825 from home, no. It's the
NOTE Confidence: 0.98759764

01:10:27.825 --> 01:10:29.219 same. I mean, people have
NOTE Confidence: 0.98759764

01:10:29.219 --> 01:10:30.179 raised the point that, well,

NOTE Confidence: 0.98759764
01:10:30.179 --> 01:10:31.059 you know, they don't pay
NOTE Confidence: 0.98759764
01:10:31.059 --> 01:10:32.340 for parking and things like
NOTE Confidence: 0.98759764
01:10:32.340 --> 01:10:34.119 that, which is true. But
NOTE Confidence: 0.997749
01:10:34.579 --> 01:10:35.960 we have not changed compensation,
NOTE Confidence: 0.864434
01:10:36.659 --> 01:10:37.780 for people that work from
NOTE Confidence: 0.864434
01:10:37.780 --> 01:10:39.219 home. Oh, you mentioned I
NOTE Confidence: 0.864434
01:10:39.219 --> 01:10:40.340 think I heard it. Just
NOTE Confidence: 0.864434
01:10:40.340 --> 01:10:41.619 double check. So you do
NOTE Confidence: 0.864434
01:10:41.619 --> 01:10:42.119 pay
NOTE Confidence: 0.9559756
01:10:45.025 --> 01:10:46.064 No. I told him not
NOTE Confidence: 0.9559756
01:10:46.064 --> 01:10:47.505 Internet access. So he asked
NOTE Confidence: 0.9559756
01:10:47.505 --> 01:10:49.185 for Internet access. I said
NOTE Confidence: 0.9559756
01:10:49.185 --> 01:10:50.064 I would pay for his
NOTE Confidence: 0.9559756
01:10:50.064 --> 01:10:51.745 license, for him to maintain
NOTE Confidence: 0.9559756
01:10:51.745 --> 01:10:53.185 CME. I'd pay for all
NOTE Confidence: 0.9559756

01:10:53.185 --> 01:10:53.845 the equipment,
NOTE Confidence: 0.9671378
01:10:54.225 --> 01:10:55.104 but I'm not paying for
NOTE Confidence: 0.9671378
01:10:55.104 --> 01:10:57.365 his Netflix Internet access. Yeah.
NOTE Confidence: 0.8656088
01:11:01.719 --> 01:11:03.080 Yeah. Because otherwise, he's gonna
NOTE Confidence: 0.8656088
01:11:03.080 --> 01:11:04.520 want fiber optic and everything.
NOTE Confidence: 0.8656088
01:11:04.520 --> 01:11:05.020 Yeah.
NOTE Confidence: 0.99530715
01:11:05.960 --> 01:11:07.260 Alright. Any other questions?
NOTE Confidence: 0.9650275
01:11:07.640 --> 01:11:09.080 Well, if anyone has you
NOTE Confidence: 0.9650275
01:11:09.080 --> 01:11:10.540 have a question? Uh-huh.
NOTE Confidence: 0.82954705
01:11:10.920 --> 01:11:11.660 Oh, yeah.
NOTE Confidence: 0.7454738
01:11:12.055 --> 01:11:13.335 Without any reimbursement for the
NOTE Confidence: 0.7454738
01:11:13.335 --> 01:11:14.075 new technology,
NOTE Confidence: 0.48021638
01:11:15.735 --> 01:11:16.314 are we
NOTE Confidence: 0.9686038
01:11:17.095 --> 01:11:18.635 foresee maintaining this
NOTE Confidence: 0.6062249
01:11:19.335 --> 01:11:20.475 and figure it financially
NOTE Confidence: 0.71185386
01:11:21.255 --> 01:11:21.755 viable?

NOTE Confidence: 0.97328204
01:11:23.735 --> 01:11:24.775 Yeah. So that's a million
NOTE Confidence: 0.97328204
01:11:24.775 --> 01:11:25.415 dollar question,
NOTE Confidence: 0.9842341
01:11:26.135 --> 01:11:27.495 and I cannot just answer
NOTE Confidence: 0.9842341
01:11:27.495 --> 01:11:28.520 it in a few minutes.
NOTE Confidence: 0.9842341
01:11:28.820 --> 01:11:29.320 But,
NOTE Confidence: 0.9618655
01:11:31.619 --> 01:11:32.739 there there are many ways
NOTE Confidence: 0.9618655
01:11:32.739 --> 01:11:34.739 you can, provide that answer.
NOTE Confidence: 0.9618655
01:11:34.739 --> 01:11:36.020 First, they are digital they
NOTE Confidence: 0.9618655
01:11:36.020 --> 01:11:37.380 are CPT codes for digital
NOTE Confidence: 0.9618655
01:11:37.380 --> 01:11:39.300 pathology. There are thirteen CPT
NOTE Confidence: 0.9618655
01:11:39.300 --> 01:11:40.579 codes. They're tracking codes for
NOTE Confidence: 0.9618655
01:11:40.579 --> 01:11:41.079 now.
NOTE Confidence: 0.98160195
01:11:41.475 --> 01:11:42.435 Trying to get your LIS
NOTE Confidence: 0.98160195
01:11:42.435 --> 01:11:43.475 system to do that is
NOTE Confidence: 0.98160195
01:11:43.475 --> 01:11:44.995 not easy. So if you
NOTE Confidence: 0.98160195

01:11:44.995 --> 01:11:46.515 track those CPT codes, you
NOTE Confidence: 0.98160195

01:11:46.515 --> 01:11:47.335 can show,
NOTE Confidence: 0.9990574

01:11:48.275 --> 01:11:49.095 your administrators
NOTE Confidence: 0.9841032

01:11:49.795 --> 01:11:51.155 how much you digitize and
NOTE Confidence: 0.9841032

01:11:51.155 --> 01:11:52.295 the value it brings.
NOTE Confidence: 0.9944608

01:11:53.235 --> 01:11:54.055 Two is,
NOTE Confidence: 0.98620296

01:11:54.835 --> 01:11:57.380 there's the quality workload factor.
NOTE Confidence: 0.98620296

01:11:57.520 --> 01:11:58.020 So
NOTE Confidence: 0.9859471

01:11:58.800 --> 01:12:00.320 I would, for example, have
NOTE Confidence: 0.9859471

01:12:00.320 --> 01:12:01.760 to send out all those
NOTE Confidence: 0.9859471

01:12:01.760 --> 01:12:03.380 perinatal placenta cases,
NOTE Confidence: 0.989186

01:12:04.240 --> 01:12:05.760 and we've had to, you
NOTE Confidence: 0.989186

01:12:05.760 --> 01:12:07.360 know, use that number, which
NOTE Confidence: 0.989186

01:12:07.360 --> 01:12:09.045 is a huge number, actually,
NOTE Confidence: 0.9804663

01:12:09.765 --> 01:12:11.445 even for perinatal autopsies. For
NOTE Confidence: 0.9804663

01:12:11.445 --> 01:12:12.824 someone to do a phytopsy,

NOTE Confidence: 0.9804663
01:12:12.965 --> 01:12:14.165 that's a four thousand dollar
NOTE Confidence: 0.9804663
01:12:14.165 --> 01:12:15.225 charge for us.
NOTE Confidence: 0.9676787
01:12:16.085 --> 01:12:17.045 So you, you know, you
NOTE Confidence: 0.9676787
01:12:17.045 --> 01:12:18.405 can factor that in. I've
NOTE Confidence: 0.9676787
01:12:18.405 --> 01:12:19.685 also shown them how much
NOTE Confidence: 0.9676787
01:12:19.685 --> 01:12:21.125 it costs to archive. Because
NOTE Confidence: 0.9676787
01:12:21.125 --> 01:12:22.200 when you archive and you
NOTE Confidence: 0.9676787
01:12:22.360 --> 01:12:23.240 request a case from the
NOTE Confidence: 0.9676787
01:12:23.240 --> 01:12:24.120 archive, you have to pay
NOTE Confidence: 0.9676787
01:12:24.120 --> 01:12:25.640 for that. So there are
NOTE Confidence: 0.9676787
01:12:25.640 --> 01:12:26.840 many, many things you can
NOTE Confidence: 0.9676787
01:12:26.840 --> 01:12:27.880 do that builds up. There
NOTE Confidence: 0.9676787
01:12:27.880 --> 01:12:28.700 isn't one
NOTE Confidence: 0.90833485
01:12:29.479 --> 01:12:29.979 ROU
NOTE Confidence: 0.97393805
01:12:30.280 --> 01:12:31.800 ROI. You need many different
NOTE Confidence: 0.97393805

01:12:31.800 --> 01:12:32.680 things to build up an
NOTE Confidence: 0.97393805

01:12:32.680 --> 01:12:34.440 ROI. But the and and
NOTE Confidence: 0.97393805

01:12:34.440 --> 01:12:35.320 I've done all of that
NOTE Confidence: 0.97393805

01:12:35.320 --> 01:12:36.280 and explained it to our
NOTE Confidence: 0.97393805

01:12:36.280 --> 01:12:37.720 institution because I'm asking them
NOTE Confidence: 0.97393805

01:12:37.720 --> 01:12:38.655 to ramp up our digital
NOTE Confidence: 0.97393805

01:12:38.655 --> 01:12:40.335 pathology operation. But at the
NOTE Confidence: 0.97393805

01:12:40.335 --> 01:12:41.054 end of the day, they
NOTE Confidence: 0.97393805

01:12:41.054 --> 01:12:42.094 always ask the same question
NOTE Confidence: 0.97393805

01:12:42.094 --> 01:12:43.314 is, well, how many
NOTE Confidence: 0.98111564

01:12:43.695 --> 01:12:45.474 fewer doctors can you hire
NOTE Confidence: 0.98111564

01:12:45.614 --> 01:12:47.054 through the system? And I've
NOTE Confidence: 0.98111564

01:12:47.054 --> 01:12:48.335 told them the computers are
NOTE Confidence: 0.98111564

01:12:48.335 --> 01:12:49.454 not yet to replace the
NOTE Confidence: 0.98111564

01:12:49.454 --> 01:12:49.954 doctors.
NOTE Confidence: 0.9598076

01:12:50.780 --> 01:12:52.220 And I've told them that

NOTE Confidence: 0.9598076
01:12:52.220 --> 01:12:53.500 it's the same when in
NOTE Confidence: 0.9598076
01:12:53.500 --> 01:12:54.460 two thousand and ten, when
NOTE Confidence: 0.9598076
01:12:54.460 --> 01:12:55.900 we barcoded our lab, they
NOTE Confidence: 0.9598076
01:12:55.900 --> 01:12:57.420 also asked me and Anil
NOTE Confidence: 0.9598076
01:12:57.420 --> 01:12:58.620 Purwani back then, why are
NOTE Confidence: 0.9598076
01:12:58.620 --> 01:12:59.979 we paying for this? Where's
NOTE Confidence: 0.9598076
01:12:59.979 --> 01:13:01.360 the return on investment?
NOTE Confidence: 0.9895263
01:13:02.300 --> 01:13:03.520 Like, where does the barcoding
NOTE Confidence: 0.9895263
01:13:03.580 --> 01:13:04.620 make money? It made no
NOTE Confidence: 0.9895263
01:13:04.620 --> 01:13:05.995 sense to them, to the
NOTE Confidence: 0.9895263
01:13:05.995 --> 01:13:07.455 CFOs and the accountants.
NOTE Confidence: 0.9962098
01:13:09.835 --> 01:13:10.875 And all we could tell
NOTE Confidence: 0.9962098
01:13:10.875 --> 01:13:12.235 them was that, well, this
NOTE Confidence: 0.9962098
01:13:12.235 --> 01:13:12.975 makes us
NOTE Confidence: 0.99912494
01:13:13.275 --> 01:13:13.775 better,
NOTE Confidence: 0.96940196

01:13:14.235 --> 01:13:14.735 safer.
NOTE Confidence: 0.901706
01:13:15.115 --> 01:13:16.655 You know, we're avoiding mistakes.
NOTE Confidence: 0.901706
01:13:16.875 --> 01:13:18.155 We're avoiding, you know, mix
NOTE Confidence: 0.901706
01:13:18.155 --> 01:13:18.795 ups of,
NOTE Confidence: 0.99791336
01:13:19.520 --> 01:13:20.020 cases.
NOTE Confidence: 0.9781839
01:13:20.640 --> 01:13:22.719 We are saving potentially millions
NOTE Confidence: 0.9781839
01:13:22.719 --> 01:13:23.920 in lawsuits, and it was
NOTE Confidence: 0.9781839
01:13:23.920 --> 01:13:25.760 all potential cost savings. But,
NOTE Confidence: 0.9781839
01:13:25.760 --> 01:13:26.960 eventually, they allowed us to
NOTE Confidence: 0.9781839
01:13:26.960 --> 01:13:28.400 do it. And now can
NOTE Confidence: 0.9781839
01:13:28.400 --> 01:13:29.439 you imagine if they did
NOTE Confidence: 0.9781839
01:13:29.439 --> 01:13:30.560 not agree to pay for
NOTE Confidence: 0.9781839
01:13:30.560 --> 01:13:31.300 that infrastructure?
NOTE Confidence: 0.9807565
01:13:32.265 --> 01:13:33.485 But I think they realize
NOTE Confidence: 0.9807565
01:13:33.784 --> 01:13:34.284 that
NOTE Confidence: 0.99028444
01:13:34.665 --> 01:13:35.784 if you don't go digital,

NOTE Confidence: 0.99028444

01:13:35.784 --> 01:13:37.385 you cannot do AI. And

NOTE Confidence: 0.99028444

01:13:37.385 --> 01:13:39.225 everyone's doing AI now, not

NOTE Confidence: 0.99028444

01:13:39.225 --> 01:13:40.985 just pathology. Our cardiologists are

NOTE Confidence: 0.99028444

01:13:40.985 --> 01:13:42.685 using AI. Even our neurosurgeons

NOTE Confidence: 0.99028444

01:13:42.905 --> 01:13:44.104 are using AI to guide

NOTE Confidence: 0.99028444

01:13:44.104 --> 01:13:44.604 them,

NOTE Confidence: 0.9777783

01:13:44.985 --> 01:13:46.425 when they're doing surgery. Our

NOTE Confidence: 0.9777783

01:13:46.425 --> 01:13:48.490 radiologists have, like, seventeen AI

NOTE Confidence: 0.9777783

01:13:48.490 --> 01:13:50.410 algorithms running. So we're actually

NOTE Confidence: 0.9777783

01:13:50.410 --> 01:13:51.770 behind. We have six AI

NOTE Confidence: 0.9777783

01:13:51.770 --> 01:13:53.050 algorithms. We are behind other

NOTE Confidence: 0.9777783

01:13:53.050 --> 01:13:54.750 departments. So they realize that

NOTE Confidence: 0.9777783

01:13:54.970 --> 01:13:56.090 we will not be able

NOTE Confidence: 0.9777783

01:13:56.090 --> 01:13:57.370 to even catch up with

NOTE Confidence: 0.9777783

01:13:57.370 --> 01:13:59.290 radiology, cardiology, some of the

NOTE Confidence: 0.9777783

01:13:59.290 --> 01:13:59.790 surgeries
NOTE Confidence: 0.96190506
01:14:00.490 --> 01:14:01.450 if they don't allow us
NOTE Confidence: 0.96190506
01:14:01.450 --> 01:14:02.270 to go digital.
NOTE Confidence: 0.9779752
01:14:02.625 --> 01:14:03.985 And they know that for
NOTE Confidence: 0.9779752
01:14:03.985 --> 01:14:05.104 a hospital of forty and
NOTE Confidence: 0.9779752
01:14:05.104 --> 01:14:05.985 now we're gonna be forty
NOTE Confidence: 0.9779752
01:14:05.985 --> 01:14:07.925 five hospitals, there's no way
NOTE Confidence: 0.9779752
01:14:07.985 --> 01:14:09.425 I can efficiently run that
NOTE Confidence: 0.9779752
01:14:09.425 --> 01:14:10.705 system. What they really want
NOTE Confidence: 0.9779752
01:14:10.705 --> 01:14:12.005 me to do is consolidate.
NOTE Confidence: 0.9779752
01:14:12.225 --> 01:14:13.265 They do not want forty
NOTE Confidence: 0.9779752
01:14:13.265 --> 01:14:15.265 five histology labs. But if
NOTE Confidence: 0.9779752
01:14:15.265 --> 01:14:16.449 I can have four or
NOTE Confidence: 0.9779752
01:14:16.449 --> 01:14:17.889 five histology labs throughout a
NOTE Confidence: 0.9779752
01:14:17.889 --> 01:14:18.710 whole region,
NOTE Confidence: 0.9842772
01:14:20.290 --> 01:14:21.409 that saves the system a

NOTE Confidence: 0.9842772

01:14:21.409 --> 01:14:23.030 whole lot of money. So

NOTE Confidence: 0.9842772

01:14:23.329 --> 01:14:24.929 they've understood that message. It's

NOTE Confidence: 0.9842772

01:14:24.929 --> 01:14:25.969 hard to tell that story,

NOTE Confidence: 0.9842772

01:14:25.969 --> 01:14:26.770 but you have to tell

NOTE Confidence: 0.9842772

01:14:26.770 --> 01:14:28.630 that story. Hopefully, that answers

NOTE Confidence: 0.99320406

01:14:29.570 --> 01:14:30.449 some of the things we've

NOTE Confidence: 0.99320406

01:14:30.449 --> 01:14:30.949 done.

NOTE Confidence: 0.948247

01:14:31.755 --> 01:14:32.795 So if anyone else has

NOTE Confidence: 0.948247

01:14:32.795 --> 01:14:33.995 questions, you can just ask

NOTE Confidence: 0.948247

01:14:33.995 --> 01:14:35.375 doctor Daisy for my email.

NOTE Confidence: 0.97155035

01:14:36.715 --> 01:14:37.995 She'll screen it first, and

NOTE Confidence: 0.97155035

01:14:37.995 --> 01:14:39.275 then you can, she'll send

NOTE Confidence: 0.97155035

01:14:39.275 --> 01:14:40.175 it on to me.

NOTE Confidence: 0.99631274

01:14:41.835 --> 01:14:43.455 Okay. Thanks for your time.