WEBVTT

00:00:00.160 --> 00:00:01.920 Funding for Yale Cancer Answers

NOTE Confidence: 0.9433287

00:00:01.920 --> 00:00:03.679 is provided by Smilow Cancer

NOTE Confidence: 0.9433287

00:00:03.679 --> 00:00:04.180 Hospital.

NOTE Confidence: 0.9315109

00:00:05.759 --> 00:00:07.680 Welcome to Yale Cancer Answers

NOTE Confidence: 0.9315109

00:00:07.680 --> 00:00:08.720 with the director of

NOTE Confidence: 0.9315109

00:00:08.720 --> 00:00:10.480 Yale Cancer Center, doctor Eric

NOTE Confidence: 0.9315109

00:00:10.480 --> 00:00:10.980 Winer.

NOTE Confidence: 0.88477707

00:00:11.519 --> 00:00:13.700 Yale Cancer Answers features conversations

NOTE Confidence: 0.88477707

00:00:13.920 --> 00:00:15.795 with oncologists and specialists

NOTE Confidence: 0.88477707

00:00:15.795 --> 00:00:17.623 who are on the forefront

NOTE Confidence: 0.88477707

00:00:17.623 --> 00:00:18.729 of the battle to fight

NOTE Confidence: 0.88477707

00:00:18.729 --> 00:00:19.395 cancer. This week, it's a

NOTE Confidence: 0.88477707

00:00:19.395 --> 00:00:20.915 conversation about lung cancer with

NOTE Confidence: 0.88477707

00:00:20.915 --> 00:00:23.315 doctor Roy Herbst. Doctor Herbst

NOTE Confidence: 0.88477707

00:00:23.315 --> 00:00:24.675 is the Ensign Professor of

NOTE Confidence: 0.88477707

00:00:24.675 --> 00:00:26.755 Medicine and Medical Oncology and

NOTE Confidence: 0.88477707

00:00:26.755 --> 00:00:27.814 Professor of Pharmacology

NOTE Confidence: 0.99005324

00:00:28.115 --> 00:00:29.154 at the Yale School of

NOTE Confidence: 0.99005324

00:00:29.154 --> 00:00:29.654 Medicine.

NOTE Confidence: 0.9193046

00:00:30.030 --> 00:00:31.250 Here's doctor Winer.

NOTE Confidence: 0.9823735

00:00:33.070 --> 00:00:34.670 I like to just start

NOTE Confidence: 0.9823735

00:00:34.670 --> 00:00:36.030 off hearing a little bit

NOTE Confidence: 0.9823735

00:00:36.030 --> 00:00:38.030 about what brought somebody to

NOTE Confidence: 0.9823735

00:00:38.030 --> 00:00:39.170 a career in

NOTE Confidence: 0.93633723

00:00:39.630 --> 00:00:41.550 cancer medicine and cancer research.

NOTE Confidence: 0.93633723

00:00:41.550 --> 00:00:42.510 And maybe you could spend

NOTE Confidence: 0.93633723

00:00:42.510 --> 00:00:43.010 just

NOTE Confidence: 0.99705064

00:00:43.895 --> 00:00:45.254 a minute or so telling

NOTE Confidence: 0.99705064

00:00:45.254 --> 00:00:47.114 us about what motivated you

00:00:48.375 --> 00:00:49.495 when you were in medical

NOTE Confidence: 0.9865383

00:00:49.495 --> 00:00:51.094 school or even before medical

NOTE Confidence: 0.9865383

00:00:51.094 --> 00:00:52.695 school to go into

NOTE Confidence: 0.9865383

00:00:52.695 --> 00:00:53.434 this area.

NOTE Confidence: 0.9794272

00:00:54.454 --> 00:00:56.135 Well, my mother always wanted

NOTE Confidence: 0.9794272

00:00:56.135 --> 00:00:57.015 me to be a doctor

NOTE Confidence: 0.9794272

00:00:57.015 --> 00:00:58.295 and she brought me up

NOTE Confidence: 0.9794272

00:00:58.295 --> 00:00:59.114 here to Yale

NOTE Confidence: 0.98904777

00:00:59.790 --> 00:01:00.750 quite a few years

NOTE Confidence: 0.98904777

00:01:00.750 --> 00:01:02.430 ago. And I was very

NOTE Confidence: 0.98904777

00:01:02.430 --> 00:01:04.190 interested in science, and I

NOTE Confidence: 0.98904777

00:01:04.190 --> 00:01:04.590 liked working with people.

00:01:07.950 --> 00:01:08.910 So when I got to Yale

NOTE Confidence: 0.96325123

00:01:08.910 --> 00:01:09.730 as an undergraduate,

00:01:11.550 --> 00:01:13.010 I studied molecular

NOTE Confidence: 0.97987795

00:01:13.550 --> 00:01:14.770 biophysics and biochemistry

NOTE Confidence: 0.956183

00:01:15.475 --> 00:01:16.194 in the lab and I knew that I

00:01:18.115 --> 00:01:18.914 wanted to go for a

NOTE Confidence: 0.956183

00:01:18.914 --> 00:01:19.895 career in medicine.

00:01:21.475 --> 00:01:23.155 But my career in oncology really

NOTE Confidence: 0.9706369

00:01:23.155 --> 00:01:24.674 began when I was an

NOTE Confidence: 0.9706369

00:01:24.674 --> 00:01:26.435 MD PhD student in New

NOTE Confidence: 0.9706369

00:01:26.435 --> 00:01:27.475 York City at

NOTE Confidence: 0.91915643

00:01:27.795 --> 00:01:29.494 Cornell and Rockefeller universities.

NOTE Confidence: 0.9671596

00:01:30.130 --> 00:01:31.650 And I was

NOTE Confidence: 0.9671596

00:01:31.650 --> 00:01:32.950 working in a lab studying

NOTE Confidence: 0.76591945

00:01:33.569 --> 00:01:34.390 gene expression,

NOTE Confidence: 0.99689347

00:01:34.850 --> 00:01:36.050 and my mother developed breast

NOTE Confidence: 0.99689347

00:01:36.050 --> 00:01:37.010 cancer at that time. I

NOTE Confidence: 0.99689347

00:01:37.010 --> 00:01:37.890 don't think I've ever told

NOTE Confidence: 0.99689347

00:01:37.890 --> 00:01:38.709 you this. And in the

00:01:41.810 --> 00:01:43.170 late eighties, and

NOTE Confidence: 0.9523732

00:01:44.345 --> 00:01:45.325 I sought opinions

NOTE Confidence: 0.9383228

00:01:46.345 --> 00:01:47.465 at my hospital and elsewhere.

NOTE Confidence: 0.9383228

00:01:47.465 --> 00:01:48.425 I went and reviewed her

NOTE Confidence: 0.9383228

00:01:48.425 --> 00:01:48.925 pathology,

NOTE Confidence: 0.99210984

00:01:49.305 --> 00:01:50.745 and I just became fascinated

NOTE Confidence: 0.99210984

00:01:50.745 --> 00:01:52.425 in oncology and

NOTE Confidence: 0.99210984

00:01:52.425 --> 00:01:53.405 some of the

NOTE Confidence: 0.9870423

00:01:53.785 --> 00:01:54.985 new therapies that were available

NOTE Confidence: 0.9870423

00:01:54.985 --> 00:01:55.625 at that time and the

NOTE Confidence: 0.9870423

00:01:55.625 --> 00:01:56.745 research that was going on.

NOTE Confidence: 0.9870423

00:01:56.745 --> 00:01:57.520 So I knew I wanted

NOTE Confidence: 0.9870423

00:01:57.520 --> 00:01:58.560 to work in cancer, not

NOTE Confidence: 0.9870423

00:01:58.560 --> 00:01:59.680 lung cancer. I can tell

NOTE Confidence: 0.9870423

00:01:59.680 --> 00:02:00.880 you how that happened. But

NOTE Confidence: 0.9870423

00:02:00.880 --> 00:02:01.600 but I knew I wanted

NOTE Confidence: 0.9870423

00:02:01.600 --> 00:02:02.799 to be an oncologist, and

NOTE Confidence: 0.9870423

00:02:02.799 --> 00:02:04.240 from then on my

NOTE Confidence: 0.9870423

00:02:04.240 --> 00:02:05.280 training was focused in that

NOTE Confidence: 0.9870423

00:02:05.280 --> 00:02:05.780 way.

NOTE Confidence: 0.99859214

00:02:06.720 --> 00:02:07.220 Well,

NOTE Confidence: 0.997271

00:02:07.680 --> 00:02:08.180 perhaps

NOTE Confidence: 0.98167634

00:02:09.055 --> 00:02:10.175 not so good for women

NOTE Confidence: 0.98167634

00:02:10.175 --> 00:02:11.535 with breast cancer, but very

NOTE Confidence: 0.98167634

00:02:11.535 --> 00:02:12.815 good for people with lung

NOTE Confidence: 0.98167634

00:02:12.815 --> 00:02:13.315 cancer.

NOTE Confidence: 0.98294896

00:02:13.615 --> 00:02:15.294 You became a lung cancer

NOTE Confidence: 0.98294896

00:02:15.294 --> 00:02:15.794 specialist.

NOTE Confidence: 0.99884075

00:02:16.735 --> 00:02:18.175 And maybe you can just

NOTE Confidence: 0.99884075

00:02:18.175 --> 00:02:19.375 tell us a little bit

NOTE Confidence: 0.99884075

00:02:19.375 --> 00:02:19.875 about

NOTE Confidence: 0.99956506

00:02:20.255 --> 00:02:20.755 what

NOTE Confidence: 0.9994012

00:02:21.150 --> 00:02:22.990 lung cancer was like back

NOTE Confidence: 0.9994012

00:02:22.990 --> 00:02:23.889 when you

NOTE Confidence: 0.9973571

00:02:24.190 --> 00:02:25.169 first were

NOTE Confidence: 0.97054255

00:02:25.710 --> 00:02:27.490 a young lung cancer doctor.

NOTE Confidence: 0.97054255

00:02:27.710 --> 00:02:28.830 I always wanted to

NOTE Confidence: 0.97054255

00:02:28.830 --> 00:02:29.950 train in Boston, so I

NOTE Confidence: 0.97054255

00:02:29.950 --> 00:02:30.690 did my

NOTE Confidence: 0.9191103

00:02:31.389 --> 00:02:33.070 residency and fellowship in Boston,

NOTE Confidence: 0.9191103

00:02:33.070 --> 00:02:34.030 and I was at Dana

NOTE Confidence: 0.9191103

00:02:34.030 --> 00:02:35.730 Farber, Cancer Institute.

00:02:37.114 --> 00:02:38.155 And in those days

NOTE Confidence: 0.9457348

00:02:38.155 --> 00:02:39.275 actually everyone wanted to

NOTE Confidence: 0.9457348

00:02:39.275 --> 00:02:40.155 work in the area of

NOTE Confidence: 0.9457348

00:02:40.155 --> 00:02:42.075 breast cancer or leukemia and

NOTE Confidence: 0.9457348

00:02:42.075 --> 00:02:43.435 lymphoma. You know, HER2 had

NOTE Confidence: 0.9457348

00:02:43.435 --> 00:02:45.294 just been described

NOTE Confidence: 0.9457348

00:02:45.514 --> 00:02:46.955 and all the different drugs

NOTE Confidence: 0.9457348

00:02:46.955 --> 00:02:48.155 and markers in leukemia and

NOTE Confidence: 0.9457348

00:02:48.155 --> 00:02:48.655 lymphoma.

NOTE Confidence: 0.9842989

00:02:49.620 --> 00:02:50.660 But there was a job

NOTE Confidence: 0.9842989

00:02:50.660 --> 00:02:52.200 available in lung cancer.

NOTE Confidence: 0.98425674

00:02:52.580 --> 00:02:53.720 And I actually

NOTE Confidence: 0.98591214

00:02:54.260 --> 00:02:55.620 had two wonderful mentors,

NOTE Confidence: 0.94374466

00:02:56.180 --> 00:02:57.620 Tom Frye, actually a

NOTE Confidence: 0.94374466

00:02:57.620 --> 00:02:58.660 Yale graduate, one

NOTE Confidence: 0.94374466

00:02:58.660 --> 00:02:59.880 of the founders of oncology.

NOTE Confidence: 0.94374466

00:03:00.180 --> 00:03:01.060 He was in his later

NOTE Confidence: 0.94374466

00:03:01.060 --> 00:03:02.995 years and Arthur Skarin, and

NOTE Confidence: 0.94374466

00:03:02.995 --> 00:03:03.955 they encouraged me to work

NOTE Confidence: 0.94374466

00:03:03.955 --> 00:03:05.175 in a lung cancer clinic.

NOTE Confidence: 0.94374466

00:03:05.315 --> 00:03:06.355 And back then, I must

NOTE Confidence: 0.94374466

00:03:06.355 --> 00:03:07.014 tell you,

NOTE Confidence: 0.9926655

00:03:07.635 --> 00:03:08.755 the reason that job was

NOTE Confidence: 0.9926655

00:03:08.755 --> 00:03:10.195 available is because there really

NOTE Confidence: 0.9926655

00:03:10.195 --> 00:03:11.155 wasn't much we could offer

NOTE Confidence: 0.9926655

00:03:11.155 --> 00:03:12.055 in lung cancer.

NOTE Confidence: 0.9809549

00:03:12.595 --> 00:03:13.955 If someone came

NOTE Confidence: 0.9809549

00:03:13.955 --> 00:03:14.835 in and the lung cancer

NOTE Confidence: 0.9809549

00:03:14.835 --> 00:03:16.590 had already spread, we had

NOTE Confidence: 0.9809549

00:03:16.590 --> 00:03:17.250 some chemotherapies

NOTE Confidence: 0.9928894

00:03:17.550 --> 00:03:18.290 that were

NOTE Confidence: 0.89870393

00:03:19.630 --> 00:03:20.990 moderately effective and

NOTE Confidence: 0.89870393

00:03:20.990 --> 00:03:22.050 that's being generous.

NOTE Confidence: 0.9971194

00:03:22.510 --> 00:03:23.889 There was no gene therapy,

NOTE Confidence: 0.9761118

00:03:24.190 --> 00:03:26.190 targeted therapy, immune therapy, and

NOTE Confidence: 0.9761118

00:03:26.190 --> 00:03:26.990 it really was a tough

NOTE Confidence: 0.9761118

00:03:26.990 --> 00:03:28.190 time. But I was struck

NOTE Confidence: 0.9761118

00:03:28.190 --> 00:03:29.230 by the science and the

NOTE Confidence: 0.9761118

00:03:29.230 --> 00:03:30.315 fact that there was a

NOTE Confidence: 0.9761118

00:03:30.315 --> 00:03:31.514 good deal of research going

NOTE Confidence: 0.9761118

00:03:31.514 --> 00:03:33.455 on in growth factor receptors.

NOTE Confidence: 0.9866578

00:03:34.075 --> 00:03:35.355 So I specialized in lung

NOTE Confidence: 0.9866578

00:03:35.355 --> 00:03:36.575 cancer for a year.

NOTE Confidence: 0.96699154

00:03:37.115 --> 00:03:37.835 And I did

NOTE Confidence: 0.96699154

00:03:37.835 --> 00:03:38.795 an extra year as an

NOTE Confidence: 0.96699154

00:03:38.795 --> 00:03:40.395 instructor up at Harvard. And,

NOTE Confidence: 0.96699154

00:03:40.715 --> 00:03:42.155 I also took a course

NOTE Confidence: 0.96699154

00:03:42.155 --> 00:03:43.755 in a program in clinical

NOTE Confidence: 0.96699154

00:03:43.755 --> 00:03:45.775 investigation, a master's program there.

NOTE Confidence: 0.96699154

00:03:46.020 --> 00:03:46.980 Ironically, I now lead a

NOTE Confidence: 0.96699154

00:03:46.980 --> 00:03:48.100 master's program here at Yale

NOTE Confidence: 0.96699154

00:03:48.100 --> 00:03:49.240 in a very similar way.

NOTE Confidence: 0.96699154

00:03:49.380 --> 00:03:50.260 And during that time, I

NOTE Confidence: 0.96699154

00:03:50.260 --> 00:03:51.780 really became fascinated by lung

NOTE Confidence: 0.96699154

00:03:51.780 --> 00:03:53.140 cancer. I learned all I

NOTE Confidence: 0.96699154

00:03:53.140 --> 00:03:54.420 could about that so that

NOTE Confidence: 0.96699154

00:03:54.420 --> 00:03:55.700 when I got my first

NOTE Confidence: 0.96699154

00:03:55.940 --> 00:03:57.459 job at MD Anderson Cancer

NOTE Confidence: 0.96699154

00:03:57.459 --> 00:03:58.305 Center in Texas,

NOTE Confidence: 0.92175114

00:03:58.864 --> 00:04:00.965 I was ready to roll

NOTE Confidence: 0.92175114

00:04:01.025 --> 00:04:02.805 with an amazing dynamic group,

NOTE Confidence: 0.9675845

00:04:03.105 --> 00:04:04.064 that was just beginning to

NOTE Confidence: 0.9675845

00:04:04.064 --> 00:04:05.825 study epidermal growth factor and

NOTE Confidence: 0.9675845

00:04:05.825 --> 00:04:07.025 some of the new targeted

NOTE Confidence: 0.9675845

00:04:07.025 --> 00:04:08.545 therapies in the disease. So

NOTE Confidence: 0.9675845

00:04:08.545 --> 00:04:09.745 it was a tough time,

NOTE Confidence: 0.9675845

00:04:09.745 --> 00:04:10.944 but as we'll talk about,

NOTE Confidence: 0.9675845

00:04:10.944 --> 00:04:12.305 there's been amazing progress now

NOTE Confidence: 0.9675845

00:04:12.305 --> 00:04:13.344 in the last twenty, thirty

NOTE Confidence: 0.9675845

00:04:13.344 --> 00:04:14.210 years.

NOTE Confidence: 0.9975648

00:04:14.750 --> 00:04:16.830 Before we get to lung

NOTE Confidence: 0.9975648

00:04:16.830 --> 00:04:18.050 cancer treatment,

NOTE Confidence: 0.99071217

00:04:18.589 --> 00:04:19.470 maybe you could say a

NOTE Confidence: 0.99071217

00:04:19.470 --> 00:04:20.770 few words about

NOTE Confidence: 0.99021643

00:04:21.230 --> 00:04:22.990 what causes lung cancer. I

NOTE Confidence: 0.99021643

00:04:22.990 --> 00:04:24.589 think many people know that

NOTE Confidence: 0.99021643

00:04:24.589 --> 00:04:26.545 tobacco is a huge

NOTE Confidence: 0.8578245

00:04:27.165 --> 00:04:27.665 carcinogen,

NOTE Confidence: 0.98498905

00:04:28.285 --> 00:04:30.125 but maybe you could quantify

NOTE Confidence: 0.98498905

00:04:30.125 --> 00:04:31.425 that and tell us just

NOTE Confidence: 0.98498905

00:04:31.645 --> 00:04:33.404 how many people develop lung

NOTE Confidence: 0.98498905

00:04:33.404 --> 00:04:35.005 cancer each year and

NOTE Confidence: 0.98498905

00:04:35.005 --> 00:04:35.885 how much of that is

NOTE Confidence: 0.98498905

00:04:35.885 --> 00:04:37.745 related to tobacco use?

NOTE Confidence: 0.9856862

00:04:38.045 --> 00:04:39.245 Well, that's changed during the

NOTE Confidence: 0.9856862

00:04:39.245 --> 00:04:40.285 course of my thirty year

NOTE Confidence: 0.9856862

00:04:40.285 --> 00:04:42.070 career. So when I started

NOTE Confidence: 0.9856862

00:04:42.070 --> 00:04:43.510 seeing patients with lung cancer,

NOTE Confidence: 0.9856862

00:04:43.510 --> 00:04:44.470 and this was an era

NOTE Confidence: 0.9856862

00:04:44.470 --> 00:04:46.070 before we had electronic films,

NOTE Confidence: 0.9856862

00:04:46.070 --> 00:04:47.430 people would come

NOTE Confidence: 0.9856862

00:04:47.430 --> 00:04:48.890 from Maine or from

NOTE Confidence: 0.96952593

00:04:49.750 --> 00:04:51.029 Connecticut or from wherever they

NOTE Confidence: 0.96952593

00:04:51.029 --> 00:04:52.390 came to Boston and they'd

NOTE Confidence: 0.96952593

00:04:52.390 --> 00:04:53.750 bring a packet of x-ray

NOTE Confidence: 0.96952593

00:04:53.750 --> 00:04:54.895 films and you'd often be

NOTE Confidence: 0.96952593

00:04:54.895 --> 00:04:55.935 able to smell the smoke

NOTE Confidence: 0.96952593

00:04:55.935 --> 00:04:57.555 on those those films because

NOTE Confidence: 0.96952593

00:04:57.615 --> 00:04:58.515 it was a disease

NOTE Confidence: 0.98924893

00:04:59.055 --> 00:05:00.195 where most people

NOTE Confidence: 0.97844064

00:05:00.575 --> 00:05:02.175 were smokers. About eighty percent

NOTE Confidence: 0.97844064

00:05:02.415 --> 00:05:04.015 of people smoked, and smoking

NOTE Confidence: 0.97844064

00:05:04.015 --> 00:05:05.214 still is the number one

NOTE Confidence: 0.97844064

00:05:05.214 --> 00:05:06.275 cause of lung cancer.

NOTE Confidence: 0.9881546

00:05:06.654 --> 00:05:07.935 But, since the

NOTE Confidence: 0.9881546

00:05:07.935 --> 00:05:09.135 last twenty five years, we

NOTE Confidence: 0.9881546

00:05:09.135 --> 00:05:10.390 now know that there are

NOTE Confidence: 0.9881546

00:05:10.390 --> 00:05:11.510 people who have not smoked

NOTE Confidence: 0.9881546

00:05:11.510 --> 00:05:12.870 or have smoked very little,

NOTE Confidence: 0.9881546

00:05:12.870 --> 00:05:14.410 they get lung cancer too.

NOTE Confidence: 0.9881546

00:05:14.470 --> 00:05:15.750 And interestingly, it's a very

NOTE Confidence: 0.9881546

00:05:15.750 --> 00:05:17.029 different type of lung cancer

NOTE Confidence: 0.9881546

00:05:17.029 --> 00:05:18.070 that we treat in very

NOTE Confidence: 0.9881546

00:05:18.070 --> 00:05:19.910 specific ways. Other causes of

NOTE Confidence: 0.9881546

00:05:19.910 --> 00:05:21.270 lung cancer would be radon

NOTE Confidence: 0.9881546

00:05:21.270 --> 00:05:22.950 gas, something many of us

NOTE Confidence: 0.9881546

00:05:22.950 --> 00:05:23.990 have to think about, especially

NOTE Confidence: 0.9881546

00:05:23.990 --> 00:05:24.790 if you have a basement

NOTE Confidence: 0.9881546

00:05:24.790 --> 00:05:26.085 here in Connecticut. I

NOTE Confidence: 0.9881546

00:05:26.085 --> 00:05:26.724 know I have a little

NOTE Confidence: 0.9881546

00:05:26.724 --> 00:05:27.685 detector down there. I'm not

NOTE Confidence: 0.9881546

00:05:27.685 --> 00:05:28.485 sure it works, but I

NOTE Confidence: 0.9881546

00:05:28.485 --> 00:05:29.845 got one. And then, of

NOTE Confidence: 0.9881546

00:05:29.845 --> 00:05:30.904 course, asbestos,

NOTE Confidence: 0.9868736

00:05:31.285 --> 00:05:32.005 another thing we have to

NOTE Confidence: 0.9868736

00:05:32.005 --> 00:05:32.724 worry about in some of

NOTE Confidence: 0.9868736

00:05:32.724 --> 00:05:34.005 the old homes here.

NOTE Confidence: 0.9868736

00:05:34.164 --> 00:05:35.384 And then, of course, pollution

NOTE Confidence: 0.9868736

00:05:35.444 --> 00:05:36.404 and where you

NOTE Confidence: 0.9868736

00:05:36.404 --> 00:05:38.210 live. But, really what we

NOTE Confidence: 0.9868736

00:05:38.210 --> 00:05:39.330 now do is whether you're

NOTE Confidence: 0.9868736

00:05:39.330 --> 00:05:40.450 a smoker or nonsmoker, we

NOTE Confidence: 0.9868736

00:05:40.450 --> 00:05:41.250 have treatments for lung

NOTE Confidence: 0.9868736

00:05:41.250 --> 00:05:42.470 cancer, but they are different.

00:05:44.130 --> 00:05:45.810 And if somebody smoked in the

NOTE Confidence: 0.99327624

00:05:45.810 --> 00:05:47.750 past and they've stopped smoking,

NOTE Confidence: 0.95464236

00:05:48.450 --> 00:05:49.570 does the risk for lung

NOTE Confidence: 0.95464236

00:05:49.570 --> 00:05:51.250 cancer go down? Does it

NOTE Confidence: 0.95464236

00:05:51.250 --> 00:05:51.750 persist?

NOTE Confidence: 0.9237387

00:05:52.575 --> 00:05:53.615 Oh, it goes

NOTE Confidence: 0.9237387

00:05:53.615 --> 00:05:54.115 down.

NOTE Confidence: 0.99331594

00:05:54.575 --> 00:05:54.975 And,

NOTE Confidence: 0.95807266

00:05:55.455 --> 00:05:56.654 that's why, you know, I

NOTE Confidence: 0.95807266

00:05:56.654 --> 00:05:58.175 was very fortunate. So I

NOTE Confidence: 0.95807266

00:05:58.175 --> 00:05:59.214 I went to work

NOTE Confidence: 0.95807266

00:05:59.214 --> 00:06:00.335 in Houston with a fellow

NOTE Confidence: 0.95807266

00:06:00.335 --> 00:06:01.635 named Juan Quihan,

NOTE Confidence: 0.9585344

00:06:02.175 --> 00:06:03.695 who was very focused on

NOTE Confidence: 0.9585344

00:06:03.695 --> 00:06:05.714 chemo prevention and smoking cessation.

NOTE Confidence: 0.97594833

00:06:06.270 --> 00:06:07.389 And he used to talk

NOTE Confidence: 0.97594833

00:06:07.389 --> 00:06:08.910 about those good citizens, the

NOTE Confidence: 0.97594833

00:06:08.910 --> 00:06:10.589 people that would stop smoking

NOTE Confidence: 0.97594833

00:06:10.589 --> 00:06:11.630 and how we could get them to

00:06:12.430 --> 00:06:13.950 stop smoking. And yes, if

NOTE Confidence: 0.97594833

00:06:13.950 --> 00:06:15.710 you stop smoking after twenty,

NOTE Confidence: 0.97594833

00:06:15.710 --> 00:06:17.710 thirty years, your risk does

NOTE Confidence: 0.97594833

00:06:17.710 --> 00:06:18.830 come back down, but it

NOTE Confidence: 0.97594833

00:06:18.830 --> 00:06:19.970 takes a long time.

NOTE Confidence: 0.97645646

00:06:20.315 --> 00:06:21.595 And it's never quite back

NOTE Confidence: 0.97645646

00:06:21.595 --> 00:06:23.435 to the baseline. But, certainly,

NOTE Confidence: 0.97645646

00:06:23.435 --> 00:06:25.275 the most important thing is

NOTE Confidence: 0.97645646

00:06:25.275 --> 00:06:26.955 smoking cessation, and we've

NOTE Confidence: 0.97645646

00:06:26.955 --> 00:06:27.595 done a lot of work

NOTE Confidence: 0.97645646

00:06:27.595 --> 00:06:28.635 with that, with

NOTE Confidence: 0.97645646

00:06:28.635 --> 00:06:30.235 AACR, with ASCO, the other

NOTE Confidence: 0.97645646

00:06:30.235 --> 00:06:31.535 organizations, the societies.

NOTE Confidence: 0.97358793

00:06:31.915 --> 00:06:32.794 Here at Yale, we have

NOTE Confidence: 0.97358793

00:06:32.794 --> 00:06:34.895 a major smoking cessation program.

NOTE Confidence: 0.97358793

00:06:34.950 --> 00:06:36.310 So that's the best way

NOTE Confidence: 0.97358793

00:06:36.550 --> 00:06:37.670 to deal with lung cancer,

NOTE Confidence: 0.97358793

00:06:37.670 --> 00:06:38.870 to never get it and

NOTE Confidence: 0.97358793

00:06:38.870 --> 00:06:40.150 to not smoke.

NOTE Confidence: 0.97358793

00:06:40.470 --> 00:06:41.670 That's something that we've

NOTE Confidence: 0.97358793

00:06:41.670 --> 00:06:42.950 really focused on and it

NOTE Confidence: 0.97358793

00:06:42.950 --> 00:06:44.170 does reduce the risk.

NOTE Confidence: 0.9435247

00:06:45.190 --> 00:06:46.870 And if lung cancer is

NOTE Confidence: 0.9435247

00:06:46.870 --> 00:06:48.010 caught really early,

00:06:50.495 --> 00:06:52.335 that's a time when surgeons

NOTE Confidence: 0.9978161

00:06:52.335 --> 00:06:53.714 get involved as well?

00:06:55.694 --> 00:06:56.335 Yeah, and that's one of the

NOTE Confidence: 0.9849262

00:06:56.335 --> 00:06:57.534 things that always attracted me

NOTE Confidence: 0.9849262

00:06:57.534 --> 00:06:58.595 to working in this field.

NOTE Confidence: 0.9849262

00:06:58.654 --> 00:07:00.194 It's a true multimodality

NOTE Confidence: 0.97546285

00:07:01.214 --> 00:07:02.670 field where the medical

NOTE Confidence: 0.97546285

00:07:02.670 --> 00:07:04.110 oncologists like myself,

NOTE Confidence: 0.97546285

00:07:04.110 --> 00:07:05.890 we give chemotherapy, immunotherapy,

NOTE Confidence: 0.97546285

00:07:06.029 --> 00:07:07.790 targeted therapy, work with the

NOTE Confidence: 0.97546285

00:07:07.790 --> 00:07:09.390 surgeons and even radiation

NOTE Confidence: 0.97546285

00:07:09.390 --> 00:07:10.750 oncologists. And then of course,

NOTE Confidence: 0.97546285

00:07:10.750 --> 00:07:12.110 all the science that's involved

NOTE Confidence: 0.97546285

00:07:12.110 --> 00:07:13.310 in identifying what type of

NOTE Confidence: 0.97546285

00:07:13.310 --> 00:07:14.350 lung cancer there is, but

NOTE Confidence: 0.97546285

00:07:14.350 --> 00:07:16.270 yes, early lung cancer can

NOTE Confidence: 0.97546285

00:07:16.270 --> 00:07:17.410 be treated with surgery.

NOTE Confidence: 0.9985707

00:07:17.715 --> 00:07:18.435 That means you have to

NOTE Confidence: 0.9985707

00:07:18.435 --> 00:07:19.255 find it early.

NOTE Confidence: 0.9896427

00:07:19.635 --> 00:07:20.675 The problem with lung cancer

NOTE Confidence: 0.9896427

00:07:20.675 --> 00:07:21.715 is more than fifty percent

NOTE Confidence: 0.9896427

00:07:21.715 --> 00:07:23.335 of the time at diagnosis,

NOTE Confidence: 0.9896427

00:07:23.395 --> 00:07:24.455 it's already spread

NOTE Confidence: 0.9903178

00:07:24.915 --> 00:07:26.675 to the liver, the bone,

NOTE Confidence: 0.9903178

00:07:26.675 --> 00:07:27.495 the other lung,

NOTE Confidence: 0.97750217

00:07:27.795 --> 00:07:28.755 dare I say the brain.

NOTE Confidence: 0.97750217

00:07:28.755 --> 00:07:29.635 So there are a

NOTE Confidence: 0.97750217

00:07:29.635 --> 00:07:30.755 lot of concerns there, so

NOTE Confidence: 0.97750217

00:07:30.755 --> 00:07:31.555 we have to find it

NOTE Confidence: 0.97750217

00:07:31.555 --> 00:07:33.690 early.

NOTE Confidence: 0.97750217

00:07:33.690 --> 00:07:34.650 know, the thing that, you

NOTE Confidence: 0.97750217

00:07:34.650 --> 00:07:35.770 The thing we're doing now is

NOTE Confidence: 0.97750217

00:07:35.770 --> 00:07:36.270 screening.

NOTE Confidence: 0.86477154

00:07:36.730 --> 00:07:37.850 The screening has become a

NOTE Confidence: 0.86477154

00:07:37.850 --> 00:07:38.350 major

NOTE Confidence: 0.9828364

00:07:38.970 --> 00:07:40.330 force in this field

NOTE Confidence: 0.9828364

00:07:40.330 --> 00:07:41.370 and, of course, you know,

NOTE Confidence: 0.9828364

00:07:41.370 --> 00:07:42.410 many of the hospitals do

NOTE Confidence: 0.9828364

00:07:42.410 --> 00:07:43.530 it. We do it here

NOTE Confidence: 0.9828364

00:07:43.530 --> 00:07:44.890 at Yale. And it's very

NOTE Confidence: 0.9828364

00:07:44.890 --> 00:07:45.850 important to find it early

NOTE Confidence: 0.9828364

00:07:45.850 --> 00:07:46.730 because if you find it

NOTE Confidence: 0.9828364

00:07:46.730 --> 00:07:48.185 early, not only can you

NOTE Confidence: 0.9828364

00:07:48.185 --> 00:07:50.025 cut it out, and hopefully

NOTE Confidence: 0.9828364

00:07:50.025 --> 00:07:51.465 get it all out, there's

NOTE Confidence: 0.9828364

00:07:51.465 --> 00:07:52.505 still a risk of recurrence,

NOTE Confidence: 0.9828364

00:07:52.505 --> 00:07:53.625 but we have other therapies

NOTE Confidence: 0.9828364

00:07:53.625 --> 00:07:54.345 that we can now do

NOTE Confidence: 0.9828364

00:07:54.345 --> 00:07:55.865 in a personalized way to

NOTE Confidence: 0.9828364

00:07:55.865 --> 00:07:57.405 reduce that as well. So

NOTE Confidence: 0.9828364

00:07:57.465 --> 00:07:58.905 early detection is clearly the

NOTE Confidence: 0.9828364

00:07:58.905 --> 00:07:59.385 key

NOTE Confidence: 0.9942125

00:07:59.705 --> 00:08:00.825 to treating lung cancer as

NOTE Confidence: 0.9942125

00:08:00.825 --> 00:08:01.705 it is, of course, with

NOTE Confidence: 0.9942125

00:08:01.705 --> 00:08:02.845 almost every cancer.

NOTE Confidence: 0.99115473

00:08:03.340 --> 00:08:04.460 We'll get back to

NOTE Confidence: 0.99115473

00:08:04.460 --> 00:08:05.900 screening a little bit later

NOTE Confidence: 0.99115473

00:08:05.900 --> 00:08:07.020 because I think one of

NOTE Confidence: 0.99115473

00:08:07.020 --> 00:08:08.699 the unfortunate things is that

NOTE Confidence: 0.99115473

00:08:08.699 --> 00:08:09.360 not everyone

NOTE Confidence: 0.9765208

00:08:09.740 --> 00:08:11.259 gets screening who should get

NOTE Confidence: 0.9765208

00:08:11.259 --> 00:08:11.759 screening.

NOTE Confidence: 0.99858606

00:08:12.300 --> 00:08:12.800 But

NOTE Confidence: 0.97779316

00:08:13.100 --> 00:08:14.880 are there patients now who

NOTE Confidence: 0.97779316

00:08:15.020 --> 00:08:16.620 have early enough lung cancer

NOTE Confidence: 0.97779316

00:08:16.620 --> 00:08:18.080 that they just get surgery?

NOTE Confidence: 0.9988315

00:08:18.965 --> 00:08:19.465 Yeah.

NOTE Confidence: 0.97852224

00:08:20.004 --> 00:08:21.365 You know, lung cancer is in

NOTE Confidence: 0.97852224

00:08:21.365 --> 00:08:23.125 stages one, two, three,

NOTE Confidence: 0.97852224

00:08:23.125 --> 00:08:24.164 and four. I don't need

NOTE Confidence: 0.97852224

00:08:24.164 --> 00:08:24.724 to go through all the

NOTE Confidence: 0.97852224

00:08:24.724 --> 00:08:25.525 details. But let's say you

NOTE Confidence: 0.97852224

00:08:25.525 --> 00:08:26.485 have a stage one lung

NOTE Confidence: 0.97852224

00:08:26.485 --> 00:08:28.884 cancer. That's commonly found you're

NOTE Confidence: 0.97852224

00:08:28.884 --> 00:08:29.925 going in for a hernia

NOTE Confidence: 0.97852224

00:08:29.925 --> 00:08:31.205 repair or some other procedure.

NOTE Confidence: 0.97852224

00:08:31.205 --> 00:08:32.425 You get a chest X-ray.

NOTE Confidence: 0.97037625

00:08:32.964 --> 00:08:33.845 You're found that you have

NOTE Confidence: 0.97037625

00:08:33.845 --> 00:08:35.550 a small nodule

NOTE Confidence: 0.97037625

00:08:35.550 --> 00:08:37.330 in the lung, maybe it's

NOTE Confidence: 0.9459152

00:08:38.030 --> 00:08:39.570 a centimeter or two,

NOTE Confidence: 0.95118654

00:08:40.190 --> 00:08:41.390 those would be stage one

NOTE Confidence: 0.95118654

00:08:41.390 --> 00:08:43.390 disease assuming there's no spread

NOTE Confidence: 0.95118654

00:08:43.390 --> 00:08:45.090 locally to lymph nodes.

NOTE Confidence: 0.98954916

00:08:45.790 --> 00:08:47.230 That has about an eighty,

NOTE Confidence: 0.98954916

00:08:47.230 --> 00:08:49.305 ninety percent chance of cure.

NOTE Confidence: 0.9926102

00:08:49.765 --> 00:08:50.245 So,

NOTE Confidence: 0.96183145

00:08:51.205 --> 00:08:52.325 those patients might just have

NOTE Confidence: 0.96183145

00:08:52.325 --> 00:08:53.765 surgery alone, and then we'll

NOTE Confidence: 0.96183145

00:08:53.765 --> 00:08:55.045 follow them on a every

NOTE Confidence: 0.96183145

00:08:55.045 --> 00:08:56.505 six month or yearly basis.

NOTE Confidence: 0.9367125

00:08:56.805 --> 00:08:58.325 The problem is oftentimes we'll

NOTE Confidence: 0.9367125

00:08:58.325 --> 00:09:00.085 find some evidence of spread,

NOTE Confidence: 0.9367125

00:09:00.085 --> 00:09:01.759 maybe a local lymph

NOTE Confidence: 0.9367125

00:09:01.759 --> 00:09:02.559 node, one of the way

NOTE Confidence: 0.9367125

00:09:02.559 --> 00:09:03.920 stations where the cancer cells

NOTE Confidence: 0.9367125

00:09:03.920 --> 00:09:04.420 might

NOTE Confidence: 0.859578

00:09:04.959 --> 00:09:05.699 deposit,

NOTE Confidence: 0.9722163

00:09:06.079 --> 00:09:07.040 or we might find that

NOTE Confidence: 0.9722163

00:09:07.040 --> 00:09:07.920 the cancer has gone to

NOTE Confidence: 0.9722163

00:09:07.920 --> 00:09:09.120 a lymph node on the

NOTE Confidence: 0.9722163

00:09:09.120 --> 00:09:10.079 other side of the lung.

NOTE Confidence: 0.9722163

00:09:10.079 --> 00:09:10.879 And then we have to

NOTE Confidence: 0.9722163

00:09:10.879 --> 00:09:12.319 sort of evoke, you know,

NOTE Confidence: 0.9722163

00:09:12.319 --> 00:09:13.300 the full multimodality

NOTE Confidence: 0.93123233

00:09:13.679 --> 00:09:15.360 approach, bring in

NOTE Confidence: 0.93123233

00:09:15.360 --> 00:09:16.579 chemotherapy and

NOTE Confidence: 0.8163115

00:09:17.464 --> 00:09:18.925 radiation

NOTE Confidence: 0.9780135

00:09:19.545 --> 00:09:21.144 therapy. But now, of course,

NOTE Confidence: 0.9780135

00:09:21.144 --> 00:09:22.425 we would profile

NOTE Confidence: 0.9780135

00:09:22.425 --> 00:09:23.144 the tumor and we would

NOTE Confidence: 0.9780135

00:09:23.144 --> 00:09:24.264 try to understand, can we

NOTE Confidence: 0.9780135

00:09:24.264 --> 00:09:24.985 treat it with one of

NOTE Confidence: 0.9780135

00:09:24.985 --> 00:09:26.684 these new targeted agents,

NOTE Confidence: 0.99039495

00:09:27.384 --> 00:09:28.584 which are more commonly used

NOTE Confidence: 0.99039495

00:09:28.584 --> 00:09:29.464 in people who have smoked

NOTE Confidence: 0.99039495

00:09:29.464 --> 00:09:31.230 very little?

NOTE Confidence: 0.99039495

00:09:31.230 --> 00:09:33.390 And when you say profiling the tumor, what

NOTE Confidence: 0.99039495

00:09:33.390 --> 00:09:34.510 exactly do you mean by

NOTE Confidence: 0.99039495

00:09:34.510 --> 00:09:35.010 that?

NOTE Confidence: 0.99048716

00:09:35.870 --> 00:09:37.470 Well, you know, it's really

NOTE Confidence: 0.99048716

00:09:37.470 --> 00:09:38.830 not lung cancer. It's lung

NOTE Confidence: 0.99048716

00:09:38.830 --> 00:09:39.330 cancers.

NOTE Confidence: 0.9591536

00:09:39.710 --> 00:09:41.230 Everyone's cancer is a little

NOTE Confidence: 0.9591536

00:09:41.230 --> 00:09:42.350 different, and,

NOTE Confidence: 0.99190533

00:09:42.830 --> 00:09:44.270 you know, the engine that's

NOTE Confidence: 0.99190533

00:09:44.270 --> 00:09:45.705 causing that tumor to grow

NOTE Confidence: 0.99190533

00:09:45.865 --> 00:09:46.985 is different.

NOTE Confidence: 0.99190533

00:09:46.985 --> 00:09:48.205 There might be an abnormality

NOTE Confidence: 0.99190533

00:09:48.505 --> 00:09:49.785 in one piece

NOTE Confidence: 0.99190533

00:09:49.785 --> 00:09:51.325 of DNA versus another.

NOTE Confidence: 0.9711225

00:09:51.945 --> 00:09:54.425 So nowadays, in twenty twenty

NOTE Confidence: 0.9711225

00:09:54.425 --> 00:09:55.785 five, we didn't

NOTE Confidence: 0.9711225

00:09:55.785 --> 00:09:57.225 know this in nineteen ninety

NOTE Confidence: 0.9711225

00:09:57.225 --> 00:09:58.585 seven when I started this.

NOTE Confidence: 0.9711225

00:09:58.585 --> 00:09:59.625 But in twenty twenty five,

NOTE Confidence: 0.9711225

00:09:59.625 --> 00:10:00.585 we can actually take the

NOTE Confidence: 0.9711225

00:10:00.585 --> 00:10:02.490 tumor. We get a biopsy.

NOTE Confidence: 0.9822977

00:10:03.029 --> 00:10:03.750 We send it off to

NOTE Confidence: 0.9822977

00:10:03.750 --> 00:10:04.790 the lab. It takes about

NOTE Confidence: 0.9822977

00:10:04.790 --> 00:10:05.910 a week, maybe a

NOTE Confidence: 0.9822977

00:10:05.910 --> 00:10:06.470 week and a half or

NOTE Confidence: 0.9822977

00:10:06.470 --> 00:10:07.929 two. And we actually

NOTE Confidence: 0.99930924

00:10:08.309 --> 00:10:09.350 can look at a whole

NOTE Confidence: 0.99930924

00:10:09.350 --> 00:10:11.050 series of genetic alterations

NOTE Confidence: 0.9921291

00:10:11.589 --> 00:10:12.950 that we know can cause

NOTE Confidence: 0.9921291

00:10:12.950 --> 00:10:13.929 this lung cancer.

NOTE Confidence: 0.99145925

00:10:14.334 --> 00:10:15.535 And then it really is

NOTE Confidence: 0.99145925

00:10:15.535 --> 00:10:16.815 a personalized treatment we can

NOTE Confidence: 0.99145925

00:10:16.815 --> 00:10:18.334 give the patient because it's

NOTE Confidence: 0.99145925

00:10:18.334 --> 00:10:19.455 the right treatment for the

NOTE Confidence: 0.99145925

00:10:19.455 --> 00:10:21.054 right abnormality at the right

NOTE Confidence: 0.99145925

00:10:21.054 --> 00:10:22.415 time. And that

NOTE Confidence: 0.99145925

00:10:22.415 --> 00:10:24.334 includes mutations in

NOTE Confidence: 0.99145925

00:10:24.334 --> 00:10:25.455 a gene, for example, that's

NOTE Confidence: 0.99145925

00:10:25.455 --> 00:10:27.235 called epidermal growth factor receptor.

NOTE Confidence: 0.99145925

00:10:27.410 --> 00:10:29.170 We actually just celebrated twenty

NOTE Confidence: 0.99145925

00:10:29.170 --> 00:10:30.230 years last year,

NOTE Confidence: 0.9961346

00:10:30.610 --> 00:10:31.650 of the discovery of the

NOTE Confidence: 0.9961346

00:10:31.650 --> 00:10:32.150 mutation,

NOTE Confidence: 0.9723576

00:10:32.850 --> 00:10:33.970 which has truly changed the

NOTE Confidence: 0.9723576

00:10:33.970 --> 00:10:35.170 way we treat this disease.

NOTE Confidence: 0.9723576

00:10:35.170 --> 00:10:36.290 Because if someone has that

NOTE Confidence: 0.9723576

00:10:36.290 --> 00:10:36.790 abnormality

NOTE Confidence: 0.9689807

00:10:37.250 --> 00:10:38.610 and we find it in

NOTE Confidence: 0.9689807

00:10:38.610 --> 00:10:40.130 the advanced state, we can

NOTE Confidence: 0.9689807

00:10:40.130 --> 00:10:41.905 use an oral drug

NOTE Confidence: 0.9689807

00:10:41.905 --> 00:10:43.365 and prolong their life

NOTE Confidence: 0.9689807

00:10:43.425 --> 00:10:44.465 or in the early stage,

NOTE Confidence: 0.9689807

00:10:44.465 --> 00:10:45.345 you can even use that

NOTE Confidence: 0.9689807

00:10:45.345 --> 00:10:46.625 drug to potentially even cure

NOTE Confidence: 0.9689807

00:10:46.625 --> 00:10:48.865 their cancer. So, it's really

NOTE Confidence: 0.9689807

00:10:48.865 --> 00:10:50.304 important that we know exactly

NOTE Confidence: 0.9689807

00:10:50.304 --> 00:10:51.345 what type of lung cancer

NOTE Confidence: 0.9689807

00:10:51.345 --> 00:10:53.265 someone has. Now, someone who

NOTE Confidence: 0.9689807

00:10:53.265 --> 00:10:54.625 might've smoked a lot or,

NOTE Confidence: 0.9689807

00:10:54.865 --> 00:10:56.065 had smoked in the past

NOTE Confidence: 0.9689807

00:10:56.065 --> 00:10:56.725 and stopped

NOTE Confidence: 0.9621956

00:10:57.309 --> 00:10:58.350 and doesn't have any of

NOTE Confidence: 0.9621956

00:10:58.350 --> 00:10:59.870 these actionable, what we call

NOTE Confidence: 0.9621956

00:10:59.870 --> 00:11:00.370 mutations,

NOTE Confidence: 0.9369926

00:11:00.910 --> 00:11:02.110 still has a great

NOTE Confidence: 0.9369926

00:11:02.110 --> 00:11:03.230 chance at good therapy now

NOTE Confidence: 0.9369926

00:11:03.230 --> 00:11:04.829 because they're someone we might

NOTE Confidence: 0.9369926

00:11:04.829 --> 00:11:06.750 use immunotherapy for.

NOTE Confidence: 0.9369926

00:11:06.750 --> 00:11:07.889 And we'll get to immunotherapy

NOTE Confidence: 0.98081684

00:11:08.269 --> 00:11:09.149 because you've done a lot

NOTE Confidence: 0.98081684

00:11:09.149 --> 00:11:10.370 of work in that area,

NOTE Confidence: 0.9829171

00:11:11.285 --> 00:11:12.725 in just a few

NOTE Confidence: 0.9829171

00:11:12.725 --> 00:11:13.765 minutes or maybe in the

NOTE Confidence: 0.9829171

00:11:13.765 --> 00:11:15.464 second half of this show.

NOTE Confidence: 0.9829171

00:11:15.605 --> 00:11:16.105 But

00:11:17.365 --> 00:11:19.365 eGFR, which was the

NOTE Confidence: 0.9872008

00:11:19.365 --> 00:11:21.524 first of these genetic changes

NOTE Confidence: 0.9872008

00:11:21.524 --> 00:11:22.425 that was identified

NOTE Confidence: 0.87358373

00:11:23.365 --> 00:11:24.584 is present in

NOTE Confidence: 0.9905551

00:11:25.410 --> 00:11:26.690 what percentage of patients with

NOTE Confidence: 0.9905551

00:11:26.690 --> 00:11:28.130 lung cancer in the United

NOTE Confidence: 0.9905551

00:11:28.130 --> 00:11:29.970 States? Because it's different in

NOTE Confidence: 0.9905551

00:11:29.970 --> 00:11:31.570 different countries around the world.

NOTE Confidence: 0.9905551

00:11:31.570 --> 00:11:32.850 Oh, absolutely. In the United

NOTE Confidence: 0.9905551

00:11:32.850 --> 00:11:33.830 States, it's about

NOTE Confidence: 0.97256005

00:11:34.290 --> 00:11:36.070 ten to fifteen percent

NOTE Confidence: 0.9791124

00:11:36.690 --> 00:11:38.149 of lung cancers, which

NOTE Confidence: 0.9791124

00:11:38.285 --> 00:11:39.085 if you think of lung

NOTE Confidence: 0.9791124

00:11:39.085 --> 00:11:40.445 cancer, you know, which is

NOTE Confidence: 0.9791124

00:11:40.445 --> 00:11:41.885 still the number one cause

NOTE Confidence: 0.9791124

00:11:41.885 --> 00:11:43.565 of cancer death being two

NOTE Confidence: 0.9791124

00:11:43.565 --> 00:11:44.785 hundred and fifty thousand,

NOTE Confidence: 0.9781465

00:11:45.325 --> 00:11:46.205 patients a year in the

NOTE Confidence: 0.9781465

00:11:46.205 --> 00:11:47.085 United States. That's a lot

NOTE Confidence: 0.9781465

00:11:47.085 --> 00:11:47.745 of patients.

NOTE Confidence: 0.9821194

00:11:48.365 --> 00:11:48.765 So we look for it

NOTE Confidence: 0.9782602

00:11:50.765 --> 00:11:51.885 and there are

NOTE Confidence: 0.9782602

00:11:51.885 --> 00:11:53.425 about nine other similar

NOTE Confidence: 0.97279954

00:11:53.790 --> 00:11:54.290 alterations.

NOTE Confidence: 0.97565734

00:11:54.990 --> 00:11:55.790 I won't go through every

NOTE Confidence: 0.97565734

00:11:55.790 --> 00:11:57.309 one in detail today, but

NOTE Confidence: 0.97565734

00:11:57.309 --> 00:11:58.110 that if we know about

NOTE Confidence: 0.97565734

00:11:58.110 --> 00:11:58.910 it, we can try to

NOTE Confidence: 0.97565734

00:11:58.910 --> 00:11:59.870 pair a patient with a

NOTE Confidence: 0.97565734

00:11:59.870 --> 00:12:01.790 specific drug. But, by the

NOTE Confidence: 0.97565734

00:12:01.790 --> 00:12:02.589 way, if you go to

NOTE Confidence: 0.97565734

00:12:02.589 --> 00:12:04.130 China or Japan,

NOTE Confidence: 0.9635133

00:12:04.510 --> 00:12:06.110 Vietnam, the rates can

NOTE Confidence: 0.9635133

00:12:06.110 --> 00:12:07.070 be as high as thirty

NOTE Confidence: 0.9635133

00:12:07.070 --> 00:12:08.510 percent or more. So there's

NOTE Confidence: 0.9635133

00:12:08.510 --> 00:12:10.735 something about, East Asia. We're

NOTE Confidence: 0.9635133

00:12:10.735 --> 00:12:11.775 still trying to figure that

NOTE Confidence: 0.9635133

00:12:11.775 --> 00:12:12.975 out where it's much more

NOTE Confidence: 0.9635133

00:12:12.975 --> 00:12:13.475 common.

NOTE Confidence: 0.9984595

00:12:14.495 --> 00:12:15.795 And those other

NOTE Confidence: 0.99424475

00:12:16.335 --> 00:12:17.955 nine or the other eight,

NOTE Confidence: 0.9797707

00:12:20.015 --> 00:12:21.855 in total, are they similar

NOTE Confidence: 0.9797707

00:12:21.855 --> 00:12:22.675 to eGFR?

NOTE Confidence: 0.97037107

00:12:23.375 --> 00:12:24.815 No. Well, they're similar in

NOTE Confidence: 0.97037107

00:12:24.815 --> 00:12:26.550 that the majority of them,

NOTE Confidence: 0.97037107

00:12:26.550 --> 00:12:27.829 we see the same response,

NOTE Confidence: 0.97037107

00:12:27.829 --> 00:12:28.870 meaning we can give the

NOTE Confidence: 0.97037107

00:12:28.870 --> 00:12:30.649 pill and the patient benefits.

NOTE Confidence: 0.99338794

00:12:31.110 --> 00:12:31.429 But,

NOTE Confidence: 0.99371433

00:12:31.990 --> 00:12:33.290 they're much less frequent.

NOTE Confidence: 0.97472465

00:12:33.829 --> 00:12:35.029 The next one down

NOTE Confidence: 0.97472465

00:12:35.029 --> 00:12:36.470 from eGFR is something called

NOTE Confidence: 0.97472465

00:12:36.470 --> 00:12:38.355 ALK, and

NOTE Confidence: 0.97472465

00:12:38.355 --> 00:12:39.154 then a little bit less

NOTE Confidence: 0.97472465

00:12:39.154 --> 00:12:40.355 than that RAS one. But

NOTE Confidence: 0.97472465

00:12:40.355 --> 00:12:41.315 then we're getting into one

NOTE Confidence: 0.97472465

00:12:41.315 --> 00:12:42.214 to two percent.

NOTE Confidence: 0.88904166

00:12:42.755 --> 00:12:43.875 Now ALK is like

NOTE Confidence: 0.88904166

00:12:43.875 --> 00:12:45.475 four percent? Three or four

NOTE Confidence: 0.88904166

00:12:45.475 --> 00:12:45.975 percent.

00:12:47.554 --> 00:12:48.915 And aggregate, they all get

NOTE Confidence: 0.9931793

00:12:48.915 --> 00:12:50.490 to about twenty percent. Now

NOTE Confidence: 0.9931793

00:12:50.490 --> 00:12:51.230 this is important.

NOTE Confidence: 0.97929454

00:12:51.530 --> 00:12:52.650 Even if it's

NOTE Confidence: 0.97929454

00:12:52.650 --> 00:12:53.929 only one percent, one percent

NOTE Confidence: 0.97929454

00:12:53.929 --> 00:12:54.890 of two hundred and fifty

NOTE Confidence: 0.97929454

00:12:54.890 --> 00:12:56.410 thousand patients a year, and

NOTE Confidence: 0.97929454

00:12:56.410 --> 00:12:57.929 worldwide, two million patients a

NOTE Confidence: 0.97929454

00:12:57.929 --> 00:12:58.970 year, is still a lot,

NOTE Confidence: 0.97929454

00:12:58.970 --> 00:12:59.850 but we have to find

NOTE Confidence: 0.97929454

00:12:59.850 --> 00:13:00.809 it. And I'll leave you

NOTE Confidence: 0.97929454

00:13:00.809 --> 00:13:01.530 this. We have to find

NOTE Confidence: 0.97929454

00:13:01.530 --> 00:13:02.845 it in all patients. No

NOTE Confidence: 0.97929454

00:13:02.845 --> 00:13:03.965 matter where you live, who

NOTE Confidence: 0.97929454

00:13:03.965 --> 00:13:05.245 you are, if we don't

NOTE Confidence: 0.97929454

00:13:05.245 --> 00:13:07.165 get the cancer biopsy and

NOTE Confidence: 0.97929454

00:13:07.165 --> 00:13:08.045 send it to the lab,

NOTE Confidence: 0.97929454

00:13:08.045 --> 00:13:09.325 we'll never have these options.

NOTE Confidence: 0.97929454

00:13:09.325 --> 00:13:10.684 So the most important thing

NOTE Confidence: 0.97929454

00:13:10.684 --> 00:13:11.485 I can leave you with

NOTE Confidence: 0.97929454

00:13:11.485 --> 00:13:12.925 tonight is we really need

NOTE Confidence: 0.97929454

00:13:12.925 --> 00:13:13.965 to find a way to

NOTE Confidence: 0.97929454

00:13:13.965 --> 00:13:15.085 screen all patients so that

NOTE Confidence: 0.97929454

00:13:15.085 --> 00:13:16.300 we know who has these

NOTE Confidence: 0.97929454

00:13:16.300 --> 00:13:17.420 abnormalities so we can treat

NOTE Confidence: 0.97929454

00:13:17.420 --> 00:13:18.699 them in more specific ways.

NOTE Confidence: 0.97929454

00:13:18.699 --> 00:13:19.660 And that's a big part

NOTE Confidence: 0.97929454

00:13:19.660 --> 00:13:20.620 of our research here at Yale.

00:13:21.660 --> 00:13:23.500 There's still plenty of patients

NOTE Confidence: 0.97929454

00:13:23.500 --> 00:13:25.040 in the United States alone

NOTE Confidence: 0.97929454

00:13:25.339 --> 00:13:26.699 who don't get this kind

NOTE Confidence: 0.97929454

00:13:26.699 --> 00:13:28.620 of detailed evaluation of their

NOTE Confidence: 0.97929454

00:13:28.620 --> 00:13:30.425 lung cancers.

NOTE Confidence: 0.97929454

00:13:30.425 --> 00:13:31.225 Better than it used to be because

NOTE Confidence: 0.97929454

00:13:31.225 --> 00:13:32.585 people know to refer patients

NOTE Confidence: 0.97929454

00:13:32.585 --> 00:13:33.785 with lung cancer. But there

NOTE Confidence: 0.97929454

00:13:33.785 --> 00:13:34.745 are many patients who might

NOTE Confidence: 0.97929454

00:13:34.745 --> 00:13:35.865 never get a biopsy, never

NOTE Confidence: 0.97929454

00:13:35.945 --> 00:13:37.085 may never get a profile.

NOTE Confidence: 0.97929454

00:13:37.225 --> 00:13:38.105 I'd say there are fifteen,

NOTE Confidence: 0.97929454

00:13:38.105 --> 00:13:39.865 twenty percent still that

NOTE Confidence: 0.97929454

00:13:39.865 --> 00:13:41.065 don't have that. And it's

NOTE Confidence: 0.97929454

00:13:41.065 --> 00:13:42.265 really important to know that

NOTE Confidence: 0.97929454

00:13:42.265 --> 00:13:43.910 because this is how we

NOTE Confidence: 0.97929454

00:13:43.910 --> 00:13:44.950 treat in the most aggressive

NOTE Confidence: 0.97929454

00:13:44.950 --> 00:13:46.150 way. Now it might be

NOTE Confidence: 0.97929454

00:13:46.150 --> 00:13:47.429 that someone's so sick they

NOTE Confidence: 0.97929454

00:13:47.429 --> 00:13:48.790 never get the biopsy, but

NOTE Confidence: 0.97929454

00:13:48.790 --> 00:13:49.910 this is why finding it

NOTE Confidence: 0.97929454

00:13:49.910 --> 00:13:51.670 early, getting the biopsy and

NOTE Confidence: 0.97929454

00:13:51.670 --> 00:13:53.429 then using that information to

NOTE Confidence: 0.97929454

00:13:53.429 --> 00:13:55.350 treat, that's what really raises

NOTE Confidence: 0.97929454

00:13:55.350 --> 00:13:56.870 the bar and improves care

NOTE Confidence: 0.97929454

00:13:56.870 --> 00:13:57.690 for all patients.

NOTE Confidence: 0.9953186

00:13:58.345 --> 00:13:59.865 Well, we're gonna

NOTE Confidence: 0.9953186

00:13:59.865 --> 00:14:01.945 take just a very brief

NOTE Confidence: 0.9953186

00:14:01.945 --> 00:14:03.065 break, and we will be

NOTE Confidence: 0.9953186

00:14:03.065 --> 00:14:04.045 back in a minute

NOTE Confidence: 0.9318775

00:14:04.345 --> 00:14:05.245 and spend

NOTE Confidence: 0.9798886

00:14:06.505 --> 00:14:08.505 some additional time with doctor

NOTE Confidence: 0.9798886

00:14:08.505 --> 00:14:09.325 Roy Herbst

NOTE Confidence: 0.98121834

00:14:10.025 --> 00:14:10.765 who is

00:14:12.340 --> 00:14:13.960 the Ensign professor of medicine

NOTE Confidence: 0.92777187

00:14:14.100 --> 00:14:15.640 at Yale School of Medicine.

NOTE Confidence: 0.95459795

00:14:16.420 --> 00:14:18.100 Funding for Yale Cancer Answers

NOTE Confidence: 0.95459795

00:14:18.100 --> 00:14:20.040 comes from Smilow Cancer Hospital,

NOTE Confidence: 0.996419

00:14:20.420 --> 00:14:21.400 where their hematology

NOTE Confidence: 0.9697256

00:14:21.780 --> 00:14:24.340 program offers comprehensive diagnosis and

NOTE Confidence: 0.9697256

00:14:24.340 --> 00:14:26.280 treatment of blood cancers, including

NOTE Confidence: 0.9697256

00:14:26.340 --> 00:14:28.345 lymphoma, leukemia, and myeloma.

NOTE Confidence: 0.84372365

00:14:28.964 --> 00:14:29.464 Smilowcancerhospital

NOTE Confidence: 0.9775182

00:14:30.565 --> 00:14:31.305 dot org.

NOTE Confidence: 0.9614837

00:14:33.125 --> 00:14:34.805 There are over sixteen point

NOTE Confidence: 0.9614837

00:14:34.805 --> 00:14:36.964 nine million cancer survivors in

NOTE Confidence: 0.9614837

00:14:36.964 --> 00:14:38.404 the US and over two

NOTE Confidence: 0.9614837

00:14:38.404 --> 00:14:39.605 hundred and forty thousand here

NOTE Confidence: 0.9614837

00:14:39.605 --> 00:14:40.345 in Connecticut.

NOTE Confidence: 0.99055606

00:14:41.079 --> 00:14:42.760 Completing treatment for cancer is

NOTE Confidence: 0.99055606

00:14:42.760 --> 00:14:44.600 a very exciting milestone, but

NOTE Confidence: 0.99055606

00:14:44.600 --> 00:14:46.200 cancer and its treatment can

NOTE Confidence: 0.99055606

00:14:46.200 --> 00:14:47.660 be a life changing experience.

NOTE Confidence: 0.9754801

00:14:48.440 --> 00:14:50.120 The return to normal activities

NOTE Confidence: 0.9754801

00:14:50.120 --> 00:14:51.980 and relationships may be difficult

NOTE Confidence: 0.9754801

00:14:52.040 --> 00:14:53.880 and cancer survivors may face

NOTE Confidence: 0.9754801

00:14:53.880 --> 00:14:55.560 other long term side effects

NOTE Confidence: 0.9754801

00:14:55.560 --> 00:14:56.300 of cancer,

NOTE Confidence: 0.99594545

00:14:56.805 --> 00:14:58.105 including heart problems,

NOTE Confidence: 0.9965917

00:14:58.485 --> 00:14:58.985 osteoporosis,

NOTE Confidence: 0.98650765

00:14:59.765 --> 00:15:01.925 fertility issues, and an increased

NOTE Confidence: 0.98650765

00:15:01.925 --> 00:15:03.305 risk of second cancers.

NOTE Confidence: 0.97448206

00:15:04.005 --> 00:15:05.925 Resources for cancer survivors are

NOTE Confidence: 0.97448206

00:15:05.925 --> 00:15:08.345 available at federally designated comprehensive

NOTE Confidence: 0.97448206

00:15:08.645 --> 00:15:09.545 cancer centers,

NOTE Confidence: 0.97011447

00:15:09.910 --> 00:15:11.270 such as the Yale Cancer

NOTE Confidence: 0.97011447

00:15:11.270 --> 00:15:13.110 Center and Smilow Cancer

NOTE Confidence: 0.97011447

00:15:13.110 --> 00:15:13.610 Hospital

NOTE Confidence: 0.9518105

00:15:13.990 --> 00:15:15.830 to keep cancer survivors well

NOTE Confidence: 0.9518105

00:15:15.830 --> 00:15:17.610 and focused on healthy living.

NOTE Confidence: 0.9518105

00:15:17.910 --> 00:15:20.010 The Smilow Cancer Hospital survivorship

NOTE Confidence: 0.9518105

00:15:20.230 --> 00:15:22.390 clinic focuses on providing guidance

NOTE Confidence: 0.9518105

00:15:22.390 --> 00:15:23.130 and direction

NOTE Confidence: 0.9911059

00:15:23.545 --> 00:15:25.225 to empower survivors to take

NOTE Confidence: 0.9911059

00:15:25.225 --> 00:15:27.085 steps to maximize their health,

NOTE Confidence: 0.9911059

00:15:27.145 --> 00:15:28.685 quality of life, and longevity.

NOTE Confidence: 0.95786023

00:15:29.545 --> 00:15:31.145 More information is available at

NOTE Confidence: 0.95786023

00:15:31.145 --> 00:15:32.925 yale cancer center dot org.

NOTE Confidence: 0.95786023

00:15:33.065 --> 00:15:34.825 You're listening to Connecticut Public

NOTE Confidence: 0.95786023

00:15:34.825 --> 00:15:35.325 Radio.

NOTE Confidence: 0.9097486

00:15:36.350 --> 00:15:36.850 Hello again.

NOTE Confidence: 0.9479831

00:15:37.230 --> 00:15:39.090 This is Eric Winer

NOTE Confidence: 0.9479831

00:15:39.150 --> 00:15:41.010 here with Yale Cancer Answers,

NOTE Confidence: 0.9976444

00:15:41.310 --> 00:15:43.090 and we're gonna be speaking

NOTE Confidence: 0.99367595

00:15:43.870 --> 00:15:44.370 with

NOTE Confidence: 0.88595676

00:15:44.750 --> 00:15:46.590 Roy Herbst, who is the

NOTE Confidence: 0.88595676

00:15:46.590 --> 00:15:47.970 Ensign professor of medicine,

NOTE Confidence: 0.97693473

00:15:48.430 --> 00:15:50.050 deputy dean of Yale

NOTE Confidence: 0.8078389

00:15:50.670 --> 00:15:51.650 Cancer Center.

NOTE Confidence: 0.99135196

00:15:51.975 --> 00:15:53.514 We're talking about lung cancer,

NOTE Confidence: 0.9984666

00:15:53.975 --> 00:15:55.495 and we're talking about lung

NOTE Confidence: 0.9984666

00:15:55.495 --> 00:15:56.394 cancer treatment.

NOTE Confidence: 0.9982853

00:15:56.855 --> 00:15:58.154 So we were just

NOTE Confidence: 0.9862331

00:15:58.774 --> 00:16:00.214 talking about some of the

NOTE Confidence: 0.9862331

00:16:00.214 --> 00:16:02.235 genetic changes that lead to

NOTE Confidence: 0.9862331

00:16:02.535 --> 00:16:04.555 targeted therapies for lung cancer,

NOTE Confidence: 0.999419

00:16:05.350 --> 00:16:06.470 talking about the fact that

NOTE Confidence: 0.999419

00:16:06.470 --> 00:16:08.330 it's really important to

NOTE Confidence: 0.99082774

00:16:08.870 --> 00:16:11.110 sort out which genetic changes

NOTE Confidence: 0.99082774

00:16:11.110 --> 00:16:13.130 are present in which patients.

NOTE Confidence: 0.97550327

00:16:13.510 --> 00:16:15.510 And Roy, without this, you're

NOTE Confidence: 0.97550327

00:16:15.510 --> 00:16:16.950 really functioning in the dark

NOTE Confidence: 0.97550327

00:16:16.950 --> 00:16:18.070 if you don't have that

NOTE Confidence: 0.97550327

00:16:18.070 --> 00:16:18.890 kind of profiling.

NOTE Confidence: 0.97076946

00:16:20.235 --> 00:16:21.915 Oh, absolutely. You know, we

NOTE Confidence: 0.97076946

00:16:21.915 --> 00:16:23.355 like to say science drives

NOTE Confidence: 0.97076946

00:16:23.355 --> 00:16:24.875 the best care.

NOTE Confidence: 0.97076946

00:16:24.875 --> 00:16:26.575 It's like

NOTE Confidence: 0.97076946

00:16:26.635 --> 00:16:27.515 if you brought your car

NOTE Confidence: 0.97076946

00:16:27.515 --> 00:16:28.555 in, you'd wanna know what

NOTE Confidence: 0.97076946

00:16:28.555 --> 00:16:29.595 was wrong with the engine

NOTE Confidence: 0.97076946

00:16:29.595 --> 00:16:30.475 and fix it in

NOTE Confidence: 0.97076946

00:16:30.475 --> 00:16:32.075 the right way. So that's

NOTE Confidence: 0.97076946

00:16:32.075 --> 00:16:33.435 what we're doing here. But

NOTE Confidence: 0.97076946

00:16:33.435 --> 00:16:34.555 I just wanna say one

NOTE Confidence: 0.97076946

00:16:34.555 --> 00:16:36.089 thing, Eric. As good as

NOTE Confidence: 0.97076946

00:16:36.089 --> 00:16:37.529 these targeted therapies are, and

NOTE Confidence: 0.97076946

00:16:37.529 --> 00:16:38.890 I was very

NOTE Confidence: 0.97076946

00:16:38.890 --> 00:16:40.330 fortunate to be one of

NOTE Confidence: 0.97076946

00:16:40.330 --> 00:16:41.290 the first to use these

NOTE Confidence: 0.97076946

00:16:41.290 --> 00:16:42.250 when I was in Houston,

NOTE Confidence: 0.97076946

00:16:42.250 --> 00:16:43.930 twenty five plus

NOTE Confidence: 0.97076946

00:16:43.930 --> 00:16:44.670 years ago,

NOTE Confidence: 0.99636924

00:16:45.450 --> 00:16:47.450 very rarely does someone go

NOTE Confidence: 0.99636924

00:16:47.450 --> 00:16:48.910 forever on these drugs.

NOTE Confidence: 0.9069928

00:16:49.325 --> 00:16:51.585 Tumors, unfortunately, are evil.

NOTE Confidence: 0.97637254

00:16:51.964 --> 00:16:52.925 They learn how to

NOTE Confidence: 0.97637254

00:16:52.925 --> 00:16:54.925 become resistant. So we're constantly

NOTE Confidence: 0.97637254

00:16:54.925 --> 00:16:56.125 looking for ways to overcome

NOTE Confidence: 0.97637254

00:16:56.125 --> 00:16:57.725 that resistance. And I'll just

NOTE Confidence: 0.97637254

00:16:57.725 --> 00:16:58.525 say that's a big part

NOTE Confidence: 0.97637254

00:16:58.525 --> 00:16:59.645 of our research, and that's

NOTE Confidence: 0.97637254

00:16:59.645 --> 00:17:00.845 why clinical trials are so

NOTE Confidence: 0.97637254

00:17:00.845 --> 00:17:02.845 important because we're always trying

NOTE Confidence: 0.97637254

00:17:02.845 --> 00:17:03.645 to do a little bit

NOTE Confidence: 0.97637254

00:17:03.645 --> 00:17:06.050 better. So, nowadays, you know,

NOTE Confidence: 0.97637254

00:17:06.050 --> 00:17:07.490 we have clinical trials and

NOTE Confidence: 0.97637254

00:17:07.490 --> 00:17:08.690 they're available throughout the country

NOTE Confidence: 0.97637254

00:17:08.690 --> 00:17:09.490 around the world, but we

NOTE Confidence: 0.97637254

00:17:09.490 --> 00:17:10.610 need clinical trials to try

NOTE Confidence: 0.97637254

00:17:10.610 --> 00:17:12.210 to understand how to even

NOTE Confidence: 0.97637254

00:17:12.210 --> 00:17:13.730 do better. So that's

NOTE Confidence: 0.97637254

00:17:13.730 --> 00:17:14.530 part of the goal

NOTE Confidence: 0.97637254

00:17:14.530 --> 00:17:15.730 of research in lung cancer

NOTE Confidence: 0.97637254

00:17:15.730 --> 00:17:16.335 these days.

00:17:19.534 --> 00:17:20.034 Even

NOTE Confidence: 0.909533

00:17:21.534 --> 00:17:23.955 sometimes the dumbest tumors

NOTE Confidence: 0.98106116

00:17:24.335 --> 00:17:26.034 are smarter than the smartest

NOTE Confidence: 0.98106116

00:17:26.095 --> 00:17:26.595 oncologists.

NOTE Confidence: 0.97580636

00:17:28.255 --> 00:17:29.294 And that means that they

NOTE Confidence: 0.97580636

00:17:29.294 --> 00:17:30.575 figure out ways to get

NOTE Confidence: 0.97580636

00:17:30.575 --> 00:17:32.160 around the treatments that we

NOTE Confidence: 0.97580636

00:17:32.160 --> 00:17:34.340 put in their way. Although

NOTE Confidence: 0.97580636

00:17:34.400 --> 00:17:34.900 increasingly,

NOTE Confidence: 0.9822412

00:17:35.359 --> 00:17:37.220 we're more and more successful

NOTE Confidence: 0.9822412

00:17:37.520 --> 00:17:38.960 than we were at one

NOTE Confidence: 0.9822412

00:17:38.960 --> 00:17:40.180 time.

NOTE Confidence: 0.90148544

00:17:40.800 --> 00:17:42.100 So chemotherapy

NOTE Confidence: 0.93070745

00:17:42.400 --> 00:17:43.300 used to be

NOTE Confidence: 0.8773614

00:17:43.680 --> 00:17:44.975 the back bone of the

NOTE Confidence: 0.8773614

00:17:44.975 --> 00:17:45.875 treatment or

NOTE Confidence: 0.97660786

00:17:46.255 --> 00:17:47.855 the main treatment. Now it's

NOTE Confidence: 0.97660786

00:17:47.855 --> 00:17:48.755 sort of playing

NOTE Confidence: 0.9879374

00:17:49.295 --> 00:17:50.815 a secondary role. We still

NOTE Confidence: 0.9879374

00:17:50.815 --> 00:17:51.875 use it, but

NOTE Confidence: 0.99827266

00:17:52.335 --> 00:17:53.695 we think about these other

NOTE Confidence: 0.99827266

00:17:53.695 --> 00:17:54.195 treatments.

NOTE Confidence: 0.99685943

00:17:54.575 --> 00:17:55.855 Maybe we can turn now

NOTE Confidence: 0.99685943

00:17:55.855 --> 00:17:57.315 and talk about immunotherapy.

NOTE Confidence: 0.99920213

00:17:57.695 --> 00:17:59.395 You've been very involved in

NOTE Confidence: 0.9334574

00:17:59.700 --> 00:18:01.779 immunotherapy clinical trials over the

NOTE Confidence: 0.9334574

00:18:01.779 --> 00:18:02.279 years.

NOTE Confidence: 0.99905705

00:18:02.820 --> 00:18:04.740 And lung cancer is one

NOTE Confidence: 0.99905705

00:18:04.740 --> 00:18:05.640 of those diseases

NOTE Confidence: 0.94665754

00:18:06.020 --> 00:18:07.380 or at least some lung

NOTE Confidence: 0.94665754

00:18:07.380 --> 00:18:08.919 cancers where immunotherapy

NOTE Confidence: 0.9979178

00:18:09.299 --> 00:18:11.240 has had a huge benefit.

NOTE Confidence: 0.9741491

00:18:12.184 --> 00:18:13.465 Oh, it's incredible.

NOTE Confidence: 0.9741491

00:18:13.465 --> 00:18:14.345 Well, you know, it's

NOTE Confidence: 0.9741491

00:18:14.345 --> 00:18:15.865 actually funny. You talk about

NOTE Confidence: 0.9741491

00:18:15.865 --> 00:18:17.244 the evolution of a career.

NOTE Confidence: 0.9741491

00:18:17.465 --> 00:18:18.345 So I was

NOTE Confidence: 0.9741491

00:18:18.345 --> 00:18:19.304 leading the lung cancer group

NOTE Confidence: 0.9741491

00:18:19.304 --> 00:18:20.424 at MD Anderson for many

NOTE Confidence: 0.9741491

00:18:20.424 --> 00:18:21.865 years and did a lot

NOTE Confidence: 0.9741491

00:18:21.865 --> 00:18:22.665 of the early work with

NOTE Confidence: 0.9741491

00:18:22.665 --> 00:18:24.345 targeted therapy, but I really

NOTE Confidence: 0.9741491

00:18:24.345 --> 00:18:25.945 first learned about immunotherapy here

NOTE Confidence: 0.9741491

00:18:25.945 --> 00:18:26.605 at Yale.

NOTE Confidence: 0.9797048

00:18:27.550 --> 00:18:29.330 I'm here fourteen years now.

NOTE Confidence: 0.9797048

00:18:29.630 --> 00:18:30.750 And when I came here,

NOTE Confidence: 0.9797048

00:18:30.750 --> 00:18:32.510 Yale, maybe Johns Hopkins, those

NOTE Confidence: 0.9797048

00:18:32.510 --> 00:18:33.550 were the places people were

NOTE Confidence: 0.9797048

00:18:33.550 --> 00:18:35.070 coming back in two thousand

NOTE Confidence: 0.9797048

00:18:35.070 --> 00:18:36.670 ten, two thousand eleven for

NOTE Confidence: 0.9797048

00:18:36.670 --> 00:18:37.970 a drug known as nivolumab,

NOTE Confidence: 0.9797048

00:18:38.190 --> 00:18:39.490 the first

NOTE Confidence: 0.9797048

00:18:39.630 --> 00:18:40.665 inhibitor of

NOTE Confidence: 0.96560836

00:18:41.505 --> 00:18:43.705 a checkpoint called PD1

NOTE Confidence: 0.96560836

00:18:43.705 --> 00:18:45.385 And, basically, the idea

NOTE Confidence: 0.96560836

00:18:45.385 --> 00:18:46.665 is that you have a

NOTE Confidence: 0.96560836

00:18:46.665 --> 00:18:48.025 tumor, and you would think

NOTE Confidence: 0.96560836

00:18:48.025 --> 00:18:49.484 that the immune system would

NOTE Confidence: 0.97372866

00:18:50.105 --> 00:18:51.465 eliminate that tumor, and it

NOTE Confidence: 0.97372866

00:18:51.465 --> 00:18:52.825 should because the tumor is

NOTE Confidence: 0.97372866

00:18:52.825 --> 00:18:54.025 a foreign body in

NOTE Confidence: 0.97372866

00:18:54.025 --> 00:18:55.470 the blood. But the tumor

NOTE Confidence: 0.97372866

00:18:55.470 --> 00:18:56.590 has a force field

NOTE Confidence: 0.97372866

00:18:56.590 --> 00:18:57.950 that keeps that immune cell

NOTE Confidence: 0.97372866

00:18:57.950 --> 00:18:58.450 away.

NOTE Confidence: 0.99472547

00:18:58.830 --> 00:19:00.130 And these drugs actually,

NOTE Confidence: 0.9932527

00:19:00.510 --> 00:19:02.190 you know, attack and

NOTE Confidence: 0.9932527

00:19:02.190 --> 00:19:03.950 overcome that

NOTE Confidence: 0.9932527

00:19:03.950 --> 00:19:04.450 resistance.

NOTE Confidence: 0.9496632

00:19:04.910 --> 00:19:06.190 And the first early trials

NOTE Confidence: 0.9496632

00:19:06.190 --> 00:19:07.150 were done here, and

NOTE Confidence: 0.9496632

00:19:07.150 --> 00:19:08.190 I remember when I first

NOTE Confidence: 0.9496632

00:19:08.190 --> 00:19:09.475 arrived, I was

NOTE Confidence: 0.9496632

00:19:09.475 --> 00:19:11.174 very fortunate with Mario Sznol,

NOTE Confidence: 0.9025192

00:19:11.715 --> 00:19:13.414 Scott Gettinger, Harriet Kluger,

NOTE Confidence: 0.94072413

00:19:14.115 --> 00:19:15.154 Lieping Chen, you know,

NOTE Confidence: 0.94072413

00:19:15.154 --> 00:19:16.195 one of the discoverers of

NOTE Confidence: 0.94072413

00:19:16.195 --> 00:19:17.575 PDL one had just arrived.

NOTE Confidence: 0.94072413

00:19:17.635 --> 00:19:18.595 We had a nucleus of

NOTE Confidence: 0.94072413

00:19:18.595 --> 00:19:19.875 people, and it's just been

NOTE Confidence: 0.94072413

00:19:19.875 --> 00:19:21.554 wonderful running trials

NOTE Confidence: 0.94072413

00:19:21.554 --> 00:19:23.475 and doing laboratory research to

NOTE Confidence: 0.94072413

00:19:23.475 --> 00:19:24.115 really try to

NOTE Confidence: 0.97306967

00:19:25.200 --> 00:19:26.640 help patients with lung cancer,

NOTE Confidence: 0.97306967

00:19:26.640 --> 00:19:28.500 melanoma, renal cancer, many cancers.

NOTE Confidence: 0.97306967

00:19:28.720 --> 00:19:29.679 But lung cancer is one

NOTE Confidence: 0.97306967

00:19:29.679 --> 00:19:30.799 of the cancers

NOTE Confidence: 0.97306967

00:19:30.799 --> 00:19:32.080 where immune therapy really does

NOTE Confidence: 0.97306967

00:19:32.080 --> 00:19:32.899 have an impact.

00:19:34.480 --> 00:19:35.279 I would say that we

NOTE Confidence: 0.9789137

00:19:35.279 --> 00:19:36.480 can cure people with lung

NOTE Confidence: 0.9789137

00:19:36.480 --> 00:19:38.559 cancer, with immunotherapy. The problem

NOTE Confidence: 0.9789137

00:19:38.559 --> 00:19:39.679 is it's only about ten

NOTE Confidence: 0.9789137

00:19:39.679 --> 00:19:41.195 percent.

NOTE Confidence: 0.9789137

00:19:41.195 --> 00:19:42.555 We're constantly trying

NOTE Confidence: 0.9789137

00:19:42.555 --> 00:19:43.755 to do better, but many

NOTE Confidence: 0.9789137

00:19:43.755 --> 00:19:45.595 more patients do benefit.

NOTE Confidence: 0.9789137

00:19:45.994 --> 00:19:46.955 And if we could figure

NOTE Confidence: 0.9789137

00:19:46.955 --> 00:19:47.915 out how to even do

NOTE Confidence: 0.9789137

00:19:47.915 --> 00:19:49.275 better, I think it'll be

NOTE Confidence: 0.9998658

00:19:49.835 --> 00:19:50.335 tremendous.

NOTE Confidence: 0.9962192

00:19:51.355 --> 00:19:52.795 You know, I often say

NOTE Confidence: 0.9962192

00:19:52.795 --> 00:19:54.715 that what makes cancer so

NOTE Confidence: 0.9962192

00:19:54.715 --> 00:19:55.215 challenging

NOTE Confidence: 0.9897841

00:19:56.020 --> 00:19:57.380 is that it is both

NOTE Confidence: 0.9897841

00:19:57.380 --> 00:19:58.580 a foreign body, but it's

NOTE Confidence: 0.9897841

00:19:58.580 --> 00:20:00.420 also a foreign body that

NOTE Confidence: 0.9897841

00:20:00.420 --> 00:20:01.480 came from us.

NOTE Confidence: 0.9820337

00:20:01.859 --> 00:20:03.320 We gave birth to it.

NOTE Confidence: 0.97939646

00:20:03.780 --> 00:20:05.799 It arose in us. And

NOTE Confidence: 0.957351

00:20:06.260 --> 00:20:07.299 maybe that's part of the

NOTE Confidence: 0.957351

00:20:07.299 --> 00:20:09.164 reason why cancer has figured

NOTE Confidence: 0.957351

00:20:09.164 --> 00:20:10.544 out how to

NOTE Confidence: 0.9750225

00:20:10.924 --> 00:20:12.385 make these substances

NOTE Confidence: 0.9750225

00:20:12.445 --> 00:20:13.904 that tell the immune system

NOTE Confidence: 0.9750225

00:20:14.125 --> 00:20:15.345 to just stay away.

NOTE Confidence: 0.9881005

00:20:16.365 --> 00:20:17.164 Right. If we

NOTE Confidence: 0.9881005

00:20:17.164 --> 00:20:17.904 don't regulate

NOTE Confidence: 0.9765741

00:20:18.445 --> 00:20:20.225 the immune system,

NOTE Confidence: 0.9565011

00:20:20.845 --> 00:20:22.205 think about getting poison ivy.

NOTE Confidence: 0.9565011

00:20:22.205 --> 00:20:23.725 That's an immune reaction. Imagine

NOTE Confidence: 0.9565011

00:20:23.725 --> 00:20:25.040 if the immune system

NOTE Confidence: 0.9565011

00:20:25.040 --> 00:20:26.480 went wild against normal

NOTE Confidence: 0.9565011

00:20:26.480 --> 00:20:27.600 organs, it does. Those are

NOTE Confidence: 0.9565011

00:20:27.600 --> 00:20:28.720 what we call autoimmune diseases,

NOTE Confidence: 0.980412

00:20:30.480 --> 00:20:30.980 thyroiditis

NOTE Confidence: 0.97979623

00:20:31.280 --> 00:20:32.800 and lupus and other things.

NOTE Confidence: 0.97979623

00:20:32.800 --> 00:20:33.760 So, yeah,

NOTE Confidence: 0.990542

00:20:34.160 --> 00:20:35.200 the body is just

NOTE Confidence: 0.990542

00:20:35.200 --> 00:20:37.040 fantastic how things present to

NOTE Confidence: 0.990542

00:20:37.040 --> 00:20:38.320 the immune system in the

NOTE Confidence: 0.990542

00:20:38.320 --> 00:20:40.035 context of self, but

NOTE Confidence: 0.990542

00:20:40.035 --> 00:20:40.994 there has to be

NOTE Confidence: 0.990542

00:20:40.994 --> 00:20:41.875 a way to regulate it.

NOTE Confidence: 0.95861566

00:20:43.715 --> 00:20:44.675 It is amazing to think about the

NOTE Confidence: 0.95861566

00:20:44.675 --> 00:20:45.735 evolution of this.

NOTE Confidence: 0.9866178

00:20:46.195 --> 00:20:47.955 Yeah. And, of course, we

NOTE Confidence: 0.9866178

00:20:47.955 --> 00:20:49.335 want the immune system

NOTE Confidence: 0.9997959

00:20:49.715 --> 00:20:51.015 to attack the cancer

NOTE Confidence: 0.98848027

00:20:51.475 --> 00:20:52.215 like crazy,

NOTE Confidence: 0.9991031

00:20:52.519 --> 00:20:53.639 but we don't want the

NOTE Confidence: 0.9991031

00:20:53.639 --> 00:20:55.159 immune system to start attacking

NOTE Confidence: 0.9991031

00:20:55.159 --> 00:20:55.659 us.

NOTE Confidence: 0.9624338

00:20:56.279 --> 00:20:57.480 Right. And you think

NOTE Confidence: 0.9624338

00:20:57.480 --> 00:20:58.519 about it, the immune system,

NOTE Confidence: 0.9624338

00:20:58.519 --> 00:20:59.820 what could be more specific,

NOTE Confidence: 0.9616723

00:21:00.600 --> 00:21:01.980 what could be more adaptive?

00:21:03.480 --> 00:21:04.440 And the key thing about the immune

NOTE Confidence: 0.9789075

00:21:04.440 --> 00:21:06.055 system is memory. So it's

NOTE Confidence: 0.9789075

00:21:06.055 --> 00:21:06.855 just like we give a

NOTE Confidence: 0.9789075

00:21:06.855 --> 00:21:08.795 vaccine. We want a specific

NOTE Confidence: 0.9789075

00:21:08.855 --> 00:21:10.135 and an adaptive

NOTE Confidence: 0.9789075

00:21:10.135 --> 00:21:11.275 and a memory response.

NOTE Confidence: 0.9932478

00:21:11.734 --> 00:21:12.535 We can get that in

NOTE Confidence: 0.9932478

00:21:12.535 --> 00:21:13.035 cancer.

NOTE Confidence: 0.9958234

00:21:13.335 --> 00:21:14.635 And and I'll tell you,

NOTE Confidence: 0.9693511

00:21:15.095 --> 00:21:16.234 some of the early experiences

NOTE Confidence: 0.9693511

00:21:16.295 --> 00:21:17.975 I had with immunotherapy here,

NOTE Confidence: 0.9693511

00:21:17.975 --> 00:21:19.115 working with our team,

NOTE Confidence: 0.89835703

00:21:19.630 --> 00:21:21.090 we were very fortunate because

NOTE Confidence: 0.96316767

00:21:21.710 --> 00:21:22.270 one of the things we

NOTE Confidence: 0.96316767

00:21:22.270 --> 00:21:22.910 were able to do is

NOTE Confidence: 0.96316767

00:21:22.910 --> 00:21:23.630 we were able to get

NOTE Confidence: 0.96316767

00:21:23.630 --> 00:21:24.910 biopsies on patients who are

NOTE Confidence: 0.96316767

00:21:24.910 --> 00:21:26.750 getting these drugs because, you

NOTE Confidence: 0.96316767

00:21:26.750 --> 00:21:27.950 know, we wanna see these

NOTE Confidence: 0.96316767

00:21:27.950 --> 00:21:29.230 drugs work. But to understand

NOTE Confidence: 0.96316767

00:21:29.230 --> 00:21:29.950 how they'll work for more

NOTE Confidence: 0.96316767

00:21:29.950 --> 00:21:31.150 patients, we wanna understand why

NOTE Confidence: 0.96316767

00:21:31.150 --> 00:21:32.030 they work in some and

NOTE Confidence: 0.96316767

00:21:32.030 --> 00:21:33.465 not others. And by doing

NOTE Confidence: 0.96316767

00:21:33.465 --> 00:21:34.345 some of this work

NOTE Confidence: 0.9776067

00:21:34.744 --> 00:21:36.184 as part of our

NOTE Confidence: 0.9776067

00:21:36.184 --> 00:21:37.785 SPORE, our specialized program of

NOTE Confidence: 0.9776067

00:21:37.785 --> 00:21:39.145 research excellence in lung cancer

NOTE Confidence: 0.9776067

00:21:39.145 --> 00:21:40.665 here, we actually have learned

NOTE Confidence: 0.9776067

00:21:40.665 --> 00:21:41.305 what are some

NOTE Confidence: 0.9776067

00:21:41.305 --> 00:21:42.825 of the markers that tell

NOTE Confidence: 0.9776067

00:21:42.825 --> 00:21:43.945 you who might benefit more

NOTE Confidence: 0.9776067

00:21:43.945 --> 00:21:45.145 or less. And over the

NOTE Confidence: 0.9776067

00:21:45.145 --> 00:21:46.345 years, immune therapy

NOTE Confidence: 0.9776067

00:21:46.345 --> 00:21:47.760 is really a staple

NOTE Confidence: 0.9776067

00:21:47.760 --> 00:21:48.960 for most patients with lung

NOTE Confidence: 0.9776067

00:21:48.960 --> 00:21:50.420 cancer. But interestingly,

NOTE Confidence: 0.97738886

00:21:51.200 --> 00:21:52.560 in the smokers, not the

NOTE Confidence: 0.97738886

00:21:52.560 --> 00:21:53.760 never smokers. So the people

NOTE Confidence: 0.97738886

00:21:53.760 --> 00:21:55.520 that have never smoked tend

NOTE Confidence: 0.97738886

00:21:55.520 --> 00:21:56.660 to have these other

NOTE Confidence: 0.9712617

00:21:57.200 --> 00:21:58.880 mutations. They actually don't do

NOTE Confidence: 0.9712617

00:21:58.880 --> 00:22:00.240 as well with immunotherapy.

00:22:01.680 --> 00:22:03.534 It's because

NOTE Confidence: 0.9712617

00:22:03.595 --> 00:22:05.434 their tumor is being run

NOTE Confidence: 0.9712617

00:22:05.434 --> 00:22:06.475 by these one or two

NOTE Confidence: 0.9712617

00:22:06.475 --> 00:22:08.494 mutations that they got genetically,

NOTE Confidence: 0.981645

00:22:08.875 --> 00:22:10.414 but there aren't enough abnormalities

NOTE Confidence: 0.981645

00:22:10.475 --> 00:22:12.015 to stimulate the immune system

NOTE Confidence: 0.981645

00:22:12.075 --> 00:22:12.955 as in someone who might

NOTE Confidence: 0.981645

00:22:12.955 --> 00:22:14.015 have smoked a lot.

NOTE Confidence: 0.9673201

00:22:14.715 --> 00:22:15.755 Don't anyone go out

NOTE Confidence: 0.9673201

00:22:15.755 --> 00:22:16.890 and start smoking. It's not

NOTE Confidence: 0.9673201

00:22:16.890 --> 00:22:17.610 gonna help you with your

NOTE Confidence: 0.9673201

00:22:17.610 --> 00:22:19.130 lung cancer treatment. But it

00:22:20.170 --> 00:22:21.550 is really dichotomized

NOTE Confidence: 0.9693146

00:22:21.850 --> 00:22:23.530 lung cancer treatment in into

NOTE Confidence: 0.9693146

00:22:23.530 --> 00:22:25.450 different ways. And, we're actually

NOTE Confidence: 0.9693146

00:22:25.450 --> 00:22:26.410 working out to figure out

NOTE Confidence: 0.9693146

00:22:26.410 --> 00:22:27.630 how to use immune approaches

NOTE Confidence: 0.957191

00:22:27.930 --> 00:22:28.970 for people who have never

NOTE Confidence: 0.957191

00:22:28.970 --> 00:22:30.330 smoked as well. But I'll

NOTE Confidence: 0.957191

00:22:30.330 --> 00:22:32.024 tell you, I've seen people,

NOTE Confidence: 0.957191

00:22:32.024 --> 00:22:33.225 you know, thinking back to

NOTE Confidence: 0.957191

00:22:33.225 --> 00:22:34.264 my days in the Dana

NOTE Confidence: 0.957191

00:22:34.264 --> 00:22:35.544 Farber, who back then would

NOTE Confidence: 0.957191

00:22:35.544 --> 00:22:36.524 have gotten chemotherapy

NOTE Confidence: 0.9730232

00:22:36.904 --> 00:22:38.744 with many side effects and

NOTE Confidence: 0.9730232

00:22:38.744 --> 00:22:39.705 would have lived just a

NOTE Confidence: 0.9730232

00:22:39.705 --> 00:22:41.004 very short period of time,

NOTE Confidence: 0.9730232

00:22:41.065 --> 00:22:42.365 people that are coming back

NOTE Confidence: 0.9730232

00:22:42.585 --> 00:22:44.365 three, four, five years later.

NOTE Confidence: 0.9730232

00:22:44.504 --> 00:22:45.784 It really has made lung

NOTE Confidence: 0.9730232

00:22:45.784 --> 00:22:46.284 cancer,

NOTE Confidence: 0.9538554

00:22:46.930 --> 00:22:48.290 as for me as a

NOTE Confidence: 0.9538554

00:22:48.369 --> 00:22:49.730 someone who comes in every

NOTE Confidence: 0.9538554

00:22:49.730 --> 00:22:51.570 day excited to see patients

NOTE Confidence: 0.9538554

00:22:51.570 --> 00:22:53.330 and do research, something where

NOTE Confidence: 0.9538554

00:22:53.330 --> 00:22:54.450 we really can I

NOTE Confidence: 0.9538554

00:22:54.450 --> 00:22:56.130 feel that progress myself during

NOTE Confidence: 0.9538554

00:22:56.130 --> 00:22:56.950 my own career.

NOTE Confidence: 0.9843491

00:22:57.490 --> 00:22:59.250 And to what extent have

NOTE Confidence: 0.9843491

00:22:59.250 --> 00:23:01.090 lung cancer deaths gone down?

NOTE Confidence: 0.9843491

00:23:01.090 --> 00:23:02.674 And some of it is

NOTE Confidence: 0.9843491

00:23:02.695 --> 00:23:04.674 about the decline in smoking,

NOTE Confidence: 0.97698116

00:23:05.054 --> 00:23:05.774 and some of it is

NOTE Confidence: 0.97698116

00:23:05.774 --> 00:23:07.875 about more effective therapy,

NOTE Confidence: 0.97698116

00:23:08.014 --> 00:23:09.455 but it has really had

NOTE Confidence: 0.97698116

00:23:09.455 --> 00:23:11.154 a tangible effect.

NOTE Confidence: 0.9878179

00:23:11.534 --> 00:23:13.054 Yeah. You know, these

NOTE Confidence: 0.9878179

00:23:13.054 --> 00:23:14.414 data that come from

NOTE Confidence: 0.9878179

00:23:14.414 --> 00:23:15.955 the American Cancer Society

NOTE Confidence: 0.9992411

00:23:16.410 --> 00:23:17.690 tend to lag by about

NOTE Confidence: 0.9992411

00:23:17.690 --> 00:23:18.750 four or five years.

NOTE Confidence: 0.965397

00:23:19.050 --> 00:23:20.090 The last big cut of

NOTE Confidence: 0.965397

00:23:20.090 --> 00:23:21.550 data we had showed incidence

NOTE Confidence: 0.9738384

00:23:22.010 --> 00:23:24.010 decreasing by two, three percent

NOTE Confidence: 0.9738384

00:23:24.010 --> 00:23:25.609 a year and mortality going

NOTE Confidence: 0.9738384

00:23:25.609 --> 00:23:26.570 down by about three to

NOTE Confidence: 0.9738384

00:23:26.570 --> 00:23:27.930 five percent a year. So

NOTE Confidence: 0.9738384

00:23:27.930 --> 00:23:29.550 it's not just not smoking

00:23:30.865 --> 00:23:32.465 and better public health,

NOTE Confidence: 0.9738384

00:23:32.465 --> 00:23:33.265 but it's also the

00:23:34.385 --> 00:23:35.505 drugs. And what we've seen

NOTE Confidence: 0.9217002

00:23:35.505 --> 00:23:36.304 in the past is probably

NOTE Confidence: 0.9217002

00:23:36.304 --> 00:23:38.005 just the targeted therapy approach.

NOTE Confidence: 0.9256353

00:23:38.385 --> 00:23:39.744 I think the immunotherapy numbers

NOTE Confidence: 0.9256353

00:23:39.744 --> 00:23:40.625 we'll probably see in the

NOTE Confidence: 0.9256353

00:23:40.625 --> 00:23:41.665 next year or two because

NOTE Confidence: 0.9256353

00:23:41.665 --> 00:23:43.445 really immunotherapy only became

NOTE Confidence: 0.99300784

00:23:43.780 --> 00:23:45.300 standard of care in this

NOTE Confidence: 0.99300784

00:23:45.300 --> 00:23:45.800 country.

NOTE Confidence: 0.9875466

00:23:46.180 --> 00:23:47.720 It's barely ten years, but it

NOTE Confidence: 0.972104

00:23:50.900 --> 00:23:52.100 really has changed the

NOTE Confidence: 0.972104

00:23:52.100 --> 00:23:52.980 way we think of this

NOTE Confidence: 0.972104

00:23:52.980 --> 00:23:53.480 disease.

NOTE Confidence: 0.9705923

00:23:53.940 --> 00:23:55.940 And it's important, therefore, that

NOTE Confidence: 0.9705923

00:23:55.940 --> 00:23:57.000 one really understand

NOTE Confidence: 0.99887913

00:23:57.744 --> 00:23:58.865 what type of cancer they

NOTE Confidence: 0.99887913

00:23:58.865 --> 00:23:59.365 have,

NOTE Confidence: 0.99551624

00:23:59.984 --> 00:24:01.044 and what multimodality

NOTE Confidence: 0.9810192

00:24:01.345 --> 00:24:02.945 therapies they need.

NOTE Confidence: 0.9810192

00:24:02.945 --> 00:24:03.905 One thing I wanna

NOTE Confidence: 0.9810192

00:24:03.905 --> 00:24:05.505 bring up is we now

NOTE Confidence: 0.9810192

00:24:05.505 --> 00:24:06.145 know that if we use

NOTE Confidence: 0.9810192

00:24:06.145 --> 00:24:07.664 the immunotherapy in the earliest

NOTE Confidence: 0.9810192

00:24:07.664 --> 00:24:08.725 stages of disease,

NOTE Confidence: 0.9738511

00:24:09.025 --> 00:24:10.225 not when someone comes in

NOTE Confidence: 0.9738511

00:24:10.225 --> 00:24:11.345 with a lung cancer already

NOTE Confidence: 0.9738511

00:24:11.345 --> 00:24:12.720 having spread, and if that

NOTE Confidence: 0.9738511

00:24:12.720 --> 00:24:13.760 happens, we can deal with

NOTE Confidence: 0.9738511

00:24:13.760 --> 00:24:14.800 it. But if we find

NOTE Confidence: 0.9738511

00:24:14.800 --> 00:24:15.840 the lung cancer, when it's

NOTE Confidence: 0.9738511

00:24:15.840 --> 00:24:17.359 still localized in the lung

NOTE Confidence: 0.9738511

00:24:17.359 --> 00:24:18.400 or perhaps to some lymph

NOTE Confidence: 0.9738511

00:24:18.400 --> 00:24:19.520 nodes in the lung, we

NOTE Confidence: 0.9738511

00:24:19.520 --> 00:24:20.820 can actually give the immunotherapy,

NOTE Confidence: 0.93561035

00:24:21.440 --> 00:24:22.580 sometimes with chemotherapy,

NOTE Confidence: 0.9961908

00:24:22.880 --> 00:24:23.859 before surgery.

00:24:25.325 --> 00:24:26.205 We have a tumor board

NOTE Confidence: 0.93549174

00:24:26.205 --> 00:24:27.165 here once a week, and

NOTE Confidence: 0.93549174

00:24:27.165 --> 00:24:28.165 it amazes me when the

NOTE Confidence: 0.93549174

00:24:28.165 --> 00:24:28.865 surgeons

NOTE Confidence: 0.9752836

00:24:29.405 --> 00:24:30.685 tell us what they've seen.

NOTE Confidence: 0.9752836

00:24:30.685 --> 00:24:31.645 They go into one of

NOTE Confidence: 0.9752836

00:24:31.645 --> 00:24:32.845 these patients after they've had

NOTE Confidence: 0.9752836

00:24:32.845 --> 00:24:34.145 this chemotherapy, immunotherapy,

NOTE Confidence: 0.98881656

00:24:34.605 --> 00:24:35.885 and the tumor's gone. Or if there's

00:24:36.845 --> 00:24:37.965 something there, when you look

NOTE Confidence: 0.98881656

00:24:37.965 --> 00:24:39.005 at it in the pathology

NOTE Confidence: 0.98881656

00:24:39.005 --> 00:24:40.350 lab, all the cancer cells

NOTE Confidence: 0.98881656

00:24:40.350 --> 00:24:41.010 are dead.

NOTE Confidence: 0.99904406

00:24:41.390 --> 00:24:42.590 So it really is a

NOTE Confidence: 0.99904406

00:24:42.590 --> 00:24:43.950 very powerful treatment that you

NOTE Confidence: 0.99904406

00:24:43.950 --> 00:24:45.630 can use before surgery to

NOTE Confidence: 0.99904406

00:24:45.630 --> 00:24:47.390 really kill that tumor and

NOTE Confidence: 0.99904406

00:24:47.390 --> 00:24:48.350 make for a much better

NOTE Confidence: 0.99904406

00:24:48.350 --> 00:24:50.130 result. So this is why

NOTE Confidence: 0.9874685

00:24:50.510 --> 00:24:51.010 multimodality

NOTE Confidence: 0.99565536

00:24:51.390 --> 00:24:53.070 therapy, knowing what you're dealing

NOTE Confidence: 0.99565536

00:24:53.070 --> 00:24:54.375 with, the right treatment at

NOTE Confidence: 0.99565536

00:24:54.375 --> 00:24:55.115 the right time,

NOTE Confidence: 0.8668909

00:24:55.494 --> 00:24:56.855 you know, it makes

NOTE Confidence: 0.8668909

00:24:56.855 --> 00:24:57.515 a difference.

NOTE Confidence: 0.9955028

00:24:57.975 --> 00:24:58.935 I think that

NOTE Confidence: 0.9955028

00:24:58.935 --> 00:25:00.535 lung cancer is just, you

NOTE Confidence: 0.9955028

00:25:00.535 --> 00:25:01.655 know, one of the most

NOTE Confidence: 0.9955028

00:25:01.655 --> 00:25:04.135 prominent examples of how cancer

NOTE Confidence: 0.9955028

00:25:04.135 --> 00:25:05.430 therapeutics have just

NOTE Confidence: 0.9993339

00:25:05.750 --> 00:25:07.750 changed and been revolutionized over

NOTE Confidence: 0.9993339

00:25:07.750 --> 00:25:08.330 the past

NOTE Confidence: 0.97552043

00:25:09.190 --> 00:25:11.110 ten, fifteen, twenty years. But

NOTE Confidence: 0.97552043

00:25:11.110 --> 00:25:12.470 we're not done. And

NOTE Confidence: 0.97552043

00:25:12.470 --> 00:25:13.350 that's the thing.

00:25:14.950 --> 00:25:16.230 It's not always apparent to people,

NOTE Confidence: 0.97552043

00:25:16.230 --> 00:25:17.270 you know, because

NOTE Confidence: 0.97552043

00:25:17.270 --> 00:25:18.285 you come in with that

NOTE Confidence: 0.97552043

00:25:18.525 --> 00:25:19.645 cancer. You wanna find the

NOTE Confidence: 0.97552043

00:25:19.645 --> 00:25:21.085 best therapy. So, again, I'm

NOTE Confidence: 0.97552043

00:25:21.085 --> 00:25:22.225 gonna say it.

NOTE Confidence: 0.9773076

00:25:22.525 --> 00:25:23.725 This is why the clinical

NOTE Confidence: 0.9773076

00:25:23.725 --> 00:25:25.005 trials that we were running

NOTE Confidence: 0.9773076

00:25:25.005 --> 00:25:26.285 here at Yale in two

NOTE Confidence: 0.9773076

00:25:26.285 --> 00:25:27.725 thousand eleven are now the

NOTE Confidence: 0.9773076

00:25:27.725 --> 00:25:28.945 standard of care immunotherapy.

NOTE Confidence: 0.9696014

00:25:29.325 --> 00:25:30.205 And you can only get

NOTE Confidence: 0.9696014

00:25:30.205 --> 00:25:31.965 immunotherapy from two thousand eleven

NOTE Confidence: 0.9696014

00:25:31.965 --> 00:25:32.785 to two thousand,

NOTE Confidence: 0.99964833

00:25:33.405 --> 00:25:33.905 fifteen

NOTE Confidence: 0.9941571

00:25:34.260 --> 00:25:35.700 on a clinical trial. So

NOTE Confidence: 0.9941571

00:25:35.700 --> 00:25:36.740 that's why you

NOTE Confidence: 0.9941571

00:25:36.740 --> 00:25:37.940 and I both know it's

NOTE Confidence: 0.9941571

00:25:37.940 --> 00:25:39.859 important to ask good questions

NOTE Confidence: 0.9941571

00:25:39.859 --> 00:25:41.220 and continue to add new

NOTE Confidence: 0.9941571

00:25:41.220 --> 00:25:43.140 drugs or understand mechanisms of

NOTE Confidence: 0.9941571

00:25:43.140 --> 00:25:44.580 cancer growth better so that

NOTE Confidence: 0.9941571

00:25:44.580 --> 00:25:45.460 we can be even more

NOTE Confidence: 0.9941571

00:25:45.460 --> 00:25:45.960 effective.

NOTE Confidence: 0.98924893

00:25:46.465 --> 00:25:47.345 And I think

NOTE Confidence: 0.98924893

00:25:47.345 --> 00:25:48.705 people need to understand that

NOTE Confidence: 0.98924893

00:25:48.705 --> 00:25:50.485 although progress has been made,

NOTE Confidence: 0.9803951

00:25:51.185 --> 00:25:52.545 we still have a lot

NOTE Confidence: 0.9803951

00:25:52.545 --> 00:25:53.505 of work to do, and

NOTE Confidence: 0.9803951

00:25:53.505 --> 00:25:54.865 this is the time not

NOTE Confidence: 0.9803951

00:25:54.865 --> 00:25:55.985 to put on the brakes,

NOTE Confidence: 0.9803951

00:25:55.985 --> 00:25:57.505 but to step hard on

NOTE Confidence: 0.9803951

00:25:57.505 --> 00:25:59.265 the accelerator of cancer research

NOTE Confidence: 0.9803951

00:25:59.265 --> 00:26:00.865 because that's how we're gonna

NOTE Confidence: 0.9803951

00:26:00.865 --> 00:26:02.549 really change the field even

NOTE Confidence: 0.9803951

00:26:02.549 --> 00:26:04.070 further in the next two

NOTE Confidence: 0.9803951

00:26:04.070 --> 00:26:05.190 decades.

NOTE Confidence: 0.9803951

00:26:05.190 --> 00:26:06.710 I've been telling our students and

NOTE Confidence: 0.9803951

00:26:06.710 --> 00:26:08.390 fellows, you know, cancer is

NOTE Confidence: 0.9803951

00:26:08.789 --> 00:26:09.609 not a political

NOTE Confidence: 0.9627633

00:26:10.549 --> 00:26:12.150 disease. It's not Republican or

NOTE Confidence: 0.9627633

00:26:12.150 --> 00:26:14.470 Democrat. It's personal. Everyone

NOTE Confidence: 0.9627633

00:26:14.470 --> 00:26:15.690 can be touched by cancer,

NOTE Confidence: 0.9627633

00:26:15.795 --> 00:26:16.515 so we have to put

NOTE Confidence: 0.9627633

00:26:16.515 --> 00:26:17.475 all of our efforts to

NOTE Confidence: 0.9627633

00:26:17.475 --> 00:26:18.435 fight this disease in

NOTE Confidence: 0.9627633

00:26:18.435 --> 00:26:18.915 the most

NOTE Confidence: 0.99967265

00:26:19.315 --> 00:26:20.215 aggressive way.

NOTE Confidence: 0.9994106

00:26:20.675 --> 00:26:22.135 So let's circle back

NOTE Confidence: 0.99966115

00:26:22.435 --> 00:26:23.895 to lung cancer screening.

NOTE Confidence: 0.9881433

00:26:24.275 --> 00:26:25.555 We've known for a number

NOTE Confidence: 0.9881433

00:26:25.555 --> 00:26:27.635 of years that for people

NOTE Confidence: 0.9881433

00:26:27.635 --> 00:26:29.075 who have smoked and are

NOTE Confidence: 0.9881433

00:26:29.075 --> 00:26:31.494 at higher than usual risk,

NOTE Confidence: 0.9881433

00:26:31.669 --> 00:26:33.029 that screening really makes a

NOTE Confidence: 0.9881433

00:26:33.029 --> 00:26:33.529 difference.

NOTE Confidence: 0.99099153

00:26:34.630 --> 00:26:36.150 But pretty few people get

NOTE Confidence: 0.99099153

00:26:36.150 --> 00:26:37.850 screening. It's not like mammography.

NOTE Confidence: 0.99099153

00:26:37.990 --> 00:26:40.010 It's not even like colonoscopy

NOTE Confidence: 0.9962288

00:26:40.390 --> 00:26:41.990 or other techniques that we

NOTE Confidence: 0.9962288

00:26:41.990 --> 00:26:43.109 use to screen for colon

NOTE Confidence: 0.9962288

00:26:43.109 --> 00:26:43.609 cancer.

NOTE Confidence: 0.99917984

00:26:43.990 --> 00:26:44.809 Only the

NOTE Confidence: 0.99973947

00:26:45.244 --> 00:26:46.845 smallest minority of people get

NOTE Confidence: 0.99973947

00:26:46.845 --> 00:26:47.905 lung cancer screening.

NOTE Confidence: 0.99474794

00:26:48.605 --> 00:26:49.805 Tell us about that and

NOTE Confidence: 0.99474794

00:26:49.805 --> 00:26:51.405 and why you think that

NOTE Confidence: 0.98865527

00:26:52.205 --> 00:26:53.665 more people don't get screening.

NOTE Confidence: 0.97183657

00:26:54.285 --> 00:26:55.565 Right. Well, first of all,

NOTE Confidence: 0.97183657

00:26:55.565 --> 00:26:57.085 the data are quite

NOTE Confidence: 0.97183657

00:26:57.085 --> 00:26:58.225 clear, both

NOTE Confidence: 0.9424054

00:26:58.685 --> 00:27:00.545 from the US as well as

NOTE Confidence: 0.99965173

00:27:01.030 --> 00:27:02.170 international databases

NOTE Confidence: 0.94005996

00:27:02.550 --> 00:27:03.750 that if you find cancer

NOTE Confidence: 0.94005996

00:27:03.750 --> 00:27:04.230 early,

NOTE Confidence: 0.99200034

00:27:04.710 --> 00:27:05.590 especially now with all the

NOTE Confidence: 0.99200034

00:27:05.590 --> 00:27:06.869 new treatments we're talking about,

NOTE Confidence: 0.99200034

00:27:06.869 --> 00:27:08.010 we can make a difference.

NOTE Confidence: 0.99200034

00:27:08.150 --> 00:27:09.109 And right now in the

NOTE Confidence: 0.99200034

00:27:09.109 --> 00:27:11.030 US, most recommendations would say

NOTE Confidence: 0.99200034

00:27:11.030 --> 00:27:12.550 people ages fifty to eighty

NOTE Confidence: 0.99200034

00:27:12.550 --> 00:27:13.210 years old

NOTE Confidence: 0.9800066

00:27:13.575 --> 00:27:14.855 who have smoked at least

NOTE Confidence: 0.9800066

00:27:14.855 --> 00:27:16.294 twenty pack years, meaning one

NOTE Confidence: 0.9800066

00:27:16.294 --> 00:27:17.174 pack a day for twenty

NOTE Confidence: 0.9800066

00:27:17.174 --> 00:27:18.375 years or two packs a

NOTE Confidence: 0.9800066

00:27:18.375 --> 00:27:19.975 day for ten years, and

NOTE Confidence: 0.9800066

00:27:19.975 --> 00:27:21.014 they're either a current or

NOTE Confidence: 0.9800066

00:27:21.014 --> 00:27:22.695 a former smoker within fifteen

NOTE Confidence: 0.9800066

00:27:22.695 --> 00:27:24.455 years, should get screened. You

NOTE Confidence: 0.9800066

00:27:24.455 --> 00:27:25.255 can make a case that

NOTE Confidence: 0.9800066

00:27:25.255 --> 00:27:26.375 you should expand that, but

NOTE Confidence: 0.9800066

00:27:26.375 --> 00:27:27.494 let's just focus on this

NOTE Confidence: 0.9800066

00:27:27.494 --> 00:27:29.050 group. And why are only

NOTE Confidence: 0.9800066

00:27:29.050 --> 00:27:30.330 five to seven percent or

NOTE Confidence: 0.9800066

00:27:30.330 --> 00:27:31.770 so of eligible patients getting

NOTE Confidence: 0.9800066

00:27:31.770 --> 00:27:32.270 screened?

NOTE Confidence: 0.9877982

00:27:32.970 --> 00:27:33.790 A lot of reasons.

NOTE Confidence: 0.98458195

00:27:34.170 --> 00:27:35.070 You know, as opposed

NOTE Confidence: 0.99756294

00:27:35.530 --> 00:27:37.710 to colon cancer screening, which

NOTE Confidence: 0.99756294

00:27:37.930 --> 00:27:39.070 everyone should have,

NOTE Confidence: 0.9870343

00:27:39.450 --> 00:27:41.310 or breast cancer screening, which

NOTE Confidence: 0.9870343

00:27:41.494 --> 00:27:42.315 we would recommend.

NOTE Confidence: 0.9217854

00:27:42.775 --> 00:27:44.795 Lung cancer screening, when you

NOTE Confidence: 0.9217854

00:27:44.855 --> 00:27:46.615 find something, it's

NOTE Confidence: 0.9217854

00:27:46.615 --> 00:27:47.655 not as easy to go

NOTE Confidence: 0.9217854

00:27:47.655 --> 00:27:48.935 in and do a

NOTE Confidence: 0.9217854

00:27:48.935 --> 00:27:50.295 sampling. NOTE Confidence: 0.9217854

00:27:50.295 --> 00:27:51.515 In colonoscopy,

NOTE Confidence: 0.94606507

00:27:51.815 --> 00:27:52.935 usually, you wake up and

NOTE Confidence: 0.94606507

00:27:52.935 --> 00:27:54.070 they tell you, well, we

NOTE Confidence: 0.94606507

00:27:54.070 --> 00:27:55.270 found something. We've taken it

NOTE Confidence: 0.94606507

00:27:55.270 --> 00:27:56.490 out. We've made the determination.

NOTE Confidence: 0.980335

00:27:57.350 --> 00:27:59.109 With breast cancer biopsies, I

NOTE Confidence: 0.980335

00:27:59.270 --> 00:28:00.230 I'm talking to you. You

NOTE Confidence: 0.980335

00:28:00.230 --> 00:28:01.190 know better than me. But,

NOTE Confidence: 0.980335

00:28:01.190 --> 00:28:02.230 in my experience,

NOTE Confidence: 0.980335

00:28:02.230 --> 00:28:03.270 you can do a biopsy

NOTE Confidence: 0.980335

00:28:03.270 --> 00:28:04.310 sometimes right in the clinic

NOTE Confidence: 0.980335

00:28:04.310 --> 00:28:05.190 that day, even do an

NOTE Confidence: 0.980335

00:28:05.190 --> 00:28:06.630 ultrasound and do

NOTE Confidence: 0.980335

00:28:06.630 --> 00:28:07.670 the biopsy. But with lung

NOTE Confidence: 0.980335

00:28:07.670 --> 00:28:08.550 cancer, it's a little bit

NOTE Confidence: 0.980335

00:28:08.550 --> 00:28:09.290 more complicated.

NOTE Confidence: 0.97676593

00:28:09.634 --> 00:28:10.754 I also think that we

NOTE Confidence: 0.97676593

00:28:10.754 --> 00:28:11.734 we need

NOTE Confidence: 0.97676593

00:28:11.794 --> 00:28:13.174 to spread the word more,

NOTE Confidence: 0.93726265

00:28:13.554 --> 00:28:15.475 and that's important. Until recently,

NOTE Confidence: 0.93726265

00:28:15.475 --> 00:28:17.315 it wasn't fully reimbursed, but

NOTE Confidence: 0.93726265

00:28:17.315 --> 00:28:19.575 many insurers now and,

NOTE Confidence: 0.98581225

00:28:19.875 --> 00:28:22.115 Medicare does reimburse it. We

NOTE Confidence: 0.98581225

00:28:22.115 --> 00:28:22.994 we need to do more

NOTE Confidence: 0.98581225

00:28:22.994 --> 00:28:23.850 screening because

NOTE Confidence: 0.954641

00:28:24.330 --> 00:28:25.770 it was if we screen

NOTE Confidence: 0.954641

00:28:25.770 --> 00:28:27.210 patients and found the lung

NOTE Confidence: 0.954641

00:28:27.210 --> 00:28:28.650 cancer early, we'd have more

NOTE Confidence: 0.954641

00:28:28.650 --> 00:28:29.770 impact on this disease than

NOTE Confidence: 0.954641

00:28:29.770 --> 00:28:30.890 all the therapies we've talked

NOTE Confidence: 0.954641

00:28:30.890 --> 00:28:32.169 about during the last twenty,

NOTE Confidence: 0.954641

00:28:32.169 --> 00:28:34.169 thirty minutes.

NOTE Confidence: 0.954641

00:28:34.169 --> 00:28:35.450 Doctor Roy Herbst is the Ensign Professor of

NOTE Confidence: 0.954641

00:28:35.450 --> 00:28:37.435 Medicine and Medical Oncology and

NOTE Confidence: 0.954641

00:28:37.435 --> 00:28:39.115 Professor of Pharmacology at the

NOTE Confidence: 0.954641

00:28:39.115 --> 00:28:40.255 Yale School of Medicine.

NOTE Confidence: 0.99155974

00:28:40.955 --> 00:28:42.235 If you have questions, the

NOTE Confidence: 0.99155974

00:28:42.235 --> 00:28:43.295 address is canceranswers

NOTE Confidence: 0.8064505

00:28:43.755 --> 00:28:44.895 at yale dot edu,

NOTE Confidence: 0.960656

00:28:45.195 --> 00:28:46.475 and past editions of the

NOTE Confidence: 0.960656

00:28:46.475 --> 00:28:48.235 program are available in audio

NOTE Confidence: 0.960656

00:28:48.235 --> 00:28:49.515 and written form at yale

NOTE Confidence: 0.960656

00:28:49.515 --> 00:28:50.975 cancer center dot org.

NOTE Confidence: 0.9955229

00:28:51.305 --> 00:28:52.265 We hope you'll join us

NOTE Confidence: 0.9955229

00:28:52.265 --> 00:28:53.305 next time to learn more

NOTE Confidence: 0.9955229

00:28:53.305 --> 00:28:54.845 about the fight against cancer.

NOTE Confidence: 0.9655579

00:28:55.225 --> 00:28:56.905 Funding for Yale Cancer Answers

NOTE Confidence: 0.9655579

00:28:56.905 --> 00:28:58.585 is provided by Smilow Cancer

NOTE Confidence: 0.9655579

00:28:58.585 --> 00:28:59.085 Hospital.