WEBVTT

00:00:00.000 --> 00:00:02.154 Funding for Yale Cancer Answers is

NOTE Confidence: 0.89563149

00:00:02.154 --> 00:00:04.190 provided by Smilow Cancer Hospital.

NOTE Confidence: 0.819910195384615

00:00:06.510 --> 00:00:08.718 Welcome to Yale Cancer Answers with

NOTE Confidence: 0.819910195384615

00:00:08.718 --> 00:00:11.069 your host doctor Anees Chagpar.

NOTE Confidence: 0.819910195384615

00:00:11.070 --> 00:00:12.940 Yale Cancer Answers features the

NOTE Confidence: 0.819910195384615

00:00:12.940 --> 00:00:15.235 latest information on cancer care by

NOTE Confidence: 0.819910195384615

00:00:15.235 --> 00:00:16.707 welcoming oncologists and specialists

NOTE Confidence: 0.819910195384615

00:00:16.707 --> 00:00:19.153 who are on the forefront of the

NOTE Confidence: 0.819910195384615

00:00:19.153 --> 00:00:20.988 battle to fight cancer. This week,

NOTE Confidence: 0.819910195384615

00:00:20.988 --> 00:00:23.202 it's a conversation about lung cancer

NOTE Confidence: 0.819910195384615

00:00:23.202 --> 00:00:25.169 pathology with Doctor Robert Homer.

NOTE Confidence: 0.819910195384615

00:00:25.170 --> 00:00:27.424 Doctor Homer is a professor of pathology

NOTE Confidence: 0.819910195384615

00:00:27.424 --> 00:00:29.169 and director of thoracic pathology

NOTE Confidence: 0.819910195384615

00:00:29.169 --> 00:00:31.323 at the Yale School of Medicine,

NOTE Confidence: 0.819910195384615

00:00:31.330 --> 00:00:33.352 where Doctor Chagpar is a

NOTE Confidence: 0.819910195384615

00:00:33.352 --> 00:00:34.700 professor of surgical oncology.

NOTE Confidence: 0.908110573181818

00:00:35.930 --> 00:00:37.400 Doctor Homer, maybe we can start

NOTE Confidence: 0.908110573181818

00:00:37.400 --> 00:00:39.309 off by you telling us a little bit

NOTE Confidence: 0.908110573181818

00:00:39.309 --> 00:00:40.899 about yourself and what exactly you do.

NOTE Confidence: 0.885498112857143

00:00:41.170 --> 00:00:44.626 So I've come to New Haven in 1979 to

NOTE Confidence: 0.885498112857143

00:00:44.626 --> 00:00:47.250 be part of the Yale MD PhD program.

NOTE Confidence: 0.885498112857143

00:00:47.250 --> 00:00:49.710 I did a PhD in Immunology,

NOTE Confidence: 0.885498112857143

00:00:49.710 --> 00:00:52.410 did a residency in anatomic pathology,

NOTE Confidence: 0.885498112857143

00:00:52.410 --> 00:00:54.258 and then subsequently I sort of

NOTE Confidence: 0.885498112857143

00:00:54.258 --> 00:00:55.852 risen to the ranks eventually

NOTE Confidence: 0.885498112857143

00:00:55.852 --> 00:00:57.658 become a professor in 2009,

NOTE Confidence: 0.885498112857143

00:00:57.658 --> 00:00:59.806 so anatomic pathology is an area

NOTE Confidence: 0.885498112857143

00:00:59.806 --> 00:01:03.146 that I not sure a lot of people in

NOTE Confidence: 0.885498112857143

00:01:03.146 --> 00:01:05.050 the community are familiar with.

NOTE Confidence: 0.885498112857143

00:01:05.050 --> 00:01:06.640 It is a branch of medicine.

NOTE Confidence: 0.885498112857143

00:01:06.640 --> 00:01:08.640 So pathologists are those people

NOTE Confidence: 0.885498112857143

00:01:08.640 --> 00:01:10.640 who've gone to medical school.

NOTE Confidence: 0.885498112857143

00:01:10.640 --> 00:01:12.612 We have medical training,

NOTE Confidence: 0.885498112857143

00:01:12.612 --> 00:01:15.077 but we've then specialized really

NOTE Confidence: 0.885498112857143

00:01:15.077 --> 00:01:17.868 in looking more on the diagnostic

NOTE Confidence: 0.885498112857143

00:01:17.868 --> 00:01:20.412 end rather than on, you know,

NOTE Confidence: 0.885498112857143

00:01:20.412 --> 00:01:23.114 the the immediate clinical care of patients.

NOTE Confidence: 0.885498112857143

00:01:23.120 --> 00:01:24.440 11 way to say it is that we

NOTE Confidence: 0.885498112857143

00:01:24.440 --> 00:01:25.960 care so much about our patients.

NOTE Confidence: 0.885498112857143

00:01:25.960 --> 00:01:28.390 We want to make sure everybody

NOTE Confidence: 0.885498112857143

00:01:28.390 --> 00:01:30.010 has the right diagnosis.

NOTE Confidence: 0.885498112857143

00:01:30.010 --> 00:01:31.274 In my particular case,

NOTE Confidence: 0.885498112857143

00:01:31.274 --> 00:01:33.410 the area of pathology that I'm in,

NOTE Confidence: 0.885498112857143

00:01:33.410 --> 00:01:34.750 which is which is pathology,

NOTE Confidence: 0.885498112857143

00:01:34.750 --> 00:01:36.110 is a very broad field,

NOTE Confidence: 0.885498112857143

00:01:36.110 --> 00:01:39.407 but the area which I specialize in

NOTE Confidence: 0.885498112857143

00:01:39.407 --> 00:01:41.040 predominantly involves looking at

NOTE Confidence: 0.885498112857143

00:01:41.040 --> 00:01:44.490 histologic sections of lung tissue.

NOTE Confidence: 0.885498112857143

00:01:44.490 --> 00:01:46.240 In order to understand what's

NOTE Confidence: 0.885498112857143

00:01:46.240 --> 00:01:47.990 going on with the patient.

NOTE Confidence: 0.885498112857143

00:01:47.990 --> 00:01:49.982 We do review radiographs.

NOTE Confidence: 0.885498112857143

00:01:49.982 --> 00:01:52.472 I look at X rays,

NOTE Confidence: 0.885498112857143

00:01:52.480 --> 00:01:55.840 CT scans and PET scans and other

NOTE Confidence: 0.885498112857143

00:01:55.840 --> 00:01:57.280 radiologic imaging routinely.

NOTE Confidence: 0.885498112857143

00:01:57.280 --> 00:01:59.602 I look at other clinical information

NOTE Confidence: 0.885498112857143

00:01:59.602 --> 00:02:01.150 that's available in patients,

NOTE Confidence: 0.885498112857143

00:02:01.150 --> 00:02:02.718 but at the end of the day,

NOTE Confidence: 0.885498112857143

00:02:02.720 --> 00:02:07.095 the particular skills that I bring is

NOTE Confidence: 0.885498112857143

00:02:07.095 --> 00:02:09.240 understanding the histopathology of

NOTE Confidence: 0.885498112857143

00:02:09.240 --> 00:02:11.118 variety of diseases involving the lung,

NOTE Confidence: 0.885498112857143

00:02:11.120 --> 00:02:12.180 in particular lung cancer,

NOTE Confidence: 0.885498112857143

00:02:12.180 --> 00:02:13.505 but not only lung cancer.

NOTE Confidence: 0.812638492

00:02:14.600 --> 00:02:17.402 So you know, we've talked on

NOTE Confidence: 0.812638492

00:02:17.402 --> 00:02:19.270 this show previously about.

NOTE Confidence: 0.812638492

00:02:19.270 --> 00:02:20.955 About lung cancer and the

NOTE Confidence: 0.812638492

00:02:20.955 --> 00:02:23.182 fact that almost universally,

NOTE Confidence: 0.812638492

00:02:23.182 --> 00:02:25.510 for most cancers.

NOTE Confidence: 0.812638492

00:02:25.510 --> 00:02:27.600 Nearly everything starts with the

NOTE Confidence: 0.812638492

00:02:27.600 --> 00:02:29.272 pathologist everything starts with

NOTE Confidence: 0.812638492

00:02:29.272 --> 00:02:32.110 the biopsy so can you tell us a

NOTE Confidence: 0.812638492

00:02:32.110 --> 00:02:33.940 little bit about the different

NOTE Confidence: 0.812638492

00:02:34.021 --> 00:02:36.684 kinds of biopsy there are the The

NOTE Confidence: 0.812638492

00:02:36.684 --> 00:02:38.569 Advantages and disadvantages and how

NOTE Confidence: 0.812638492

00:02:38.569 --> 00:02:40.818 that impacts you as a pathologist.

NOTE Confidence: 0.871935533333333

00:02:42.110 --> 00:02:43.748 I think that's a great question,

NOTE Confidence: 0.871935533333333

00:02:43.750 --> 00:02:46.186 so it is certainly true that for

NOTE Confidence: 0.871935533333333

00:02:46.186 --> 00:02:48.059 some tumors there are variety

NOTE Confidence: 0.871935533333333

00:02:48.059 --> 00:02:50.309 of ways of getting a diagnosis,

NOTE Confidence: 0.871935533333333

00:02:50.310 --> 00:02:51.838 but for lung cancer,

NOTE Confidence: 0.871935533333333

00:02:51.838 --> 00:02:53.408 particular, as you say,

NOTE Confidence: 0.871935533333333

00:02:53.408 --> 00:02:54.596 histopathology really is.

NOTE Confidence: 0.871935533333333

00:02:54.600 --> 00:02:58.038 Still is a central element of

NOTE Confidence: 0.871935533333333

00:02:58.038 --> 00:02:59.757 the diagnostic process.

NOTE Confidence: 0.871935533333333

00:02:59.760 --> 00:03:02.088 The kinds of biopsies when could

NOTE Confidence: 0.871935533333333

00:03:02.088 --> 00:03:04.775 obtain range from getting a what's

NOTE Confidence: 0.871935533333333

00:03:04.775 --> 00:03:08.540 called a cytology or a smear of cells,

NOTE Confidence: 0.871935533333333

00:03:08.540 --> 00:03:10.064 and those cells can be obtained

NOTE Confidence: 0.871935533333333

00:03:10.064 --> 00:03:11.970 in a number of different ways.

NOTE Confidence: 0.871935533333333

00:03:11.970 --> 00:03:15.472 If a patient happens to have a what's thought

NOTE Confidence: 0.871935533333333

00:03:15.472 --> 00:03:18.320 to be a possible metastasis in another site,

NOTE Confidence: 0.871935533333333

00:03:18.320 --> 00:03:20.516 you could put a needle in,

NOTE Confidence: 0.871935533333333

00:03:20.520 --> 00:03:22.220 maybe even through the skin,

NOTE Confidence: 0.871935533333333

00:03:22.220 --> 00:03:24.376 like into a lymph node around the

NOTE Confidence: 0.871935533333333

00:03:24.376 --> 00:03:26.831 neck or or under the arms and

NOTE Confidence: 0.871935533333333

00:03:26.831 --> 00:03:29.015 just obtain a smear and aspirate.

NOTE Confidence: 0.871935533333333

00:03:29.020 --> 00:03:30.560 Just put a needle in.

NOTE Confidence: 0.871935533333333

00:03:30.560 --> 00:03:32.160 With a syringe on it,

NOTE Confidence: 0.871935533333333

00:03:32.160 --> 00:03:34.247 put a little suction on it at

NOTE Confidence: 0.871935533333333

00:03:34.247 --> 00:03:36.840 get a few cells into the Chamber

NOTE Confidence: 0.871935533333333

00:03:36.840 --> 00:03:39.150 and then smooth them onto a slide

NOTE Confidence: 0.871935533333333

00:03:39.150 --> 00:03:40.939 and stained and looked at it.

NOTE Confidence: 0.871935533333333

00:03:40.940 --> 00:03:41.248 Historically,

NOTE Confidence: 0.871935533333333

00:03:41.248 --> 00:03:43.404 that was really the major way in

NOTE Confidence: 0.871935533333333

00:03:43.404 --> 00:03:45.568 which a lot of lung cancer diagnosis

NOTE Confidence: 0.871935533333333

00:03:45.568 --> 00:03:47.795 were made and there was a very

NOTE Confidence: 0.871935533333333

00:03:47.795 --> 00:03:49.505 simple classification that that we

NOTE Confidence: 0.871935533333333

00:03:49.505 --> 00:03:51.914 used what's called non small cell

NOTE Confidence: 0.871935533333333

00:03:51.914 --> 00:03:55.120 and small cell carcinoma and by and

NOTE Confidence: 0.871935533333333

00:03:55.212 --> 00:03:57.050 large that very simple technique

NOTE Confidence: 0.871935533333333

00:03:57.050 --> 00:03:59.120 of just putting smear cells on

NOTE Confidence: 0.871935533333333

00:03:59.182 --> 00:04:01.120 the slide was adequate for that.

NOTE Confidence: 0.871935533333333

00:04:01.120 --> 00:04:04.320 And we still use things along those lines.

NOTE Confidence: 0.871935533333333

00:04:04.320 --> 00:04:06.600 It might involve, as I said,

NOTE Confidence: 0.871935533333333

00:04:06.600 --> 00:04:09.015 putting a needle into the skin into

NOTE Confidence: 0.871935533333333

00:04:09.015 --> 00:04:11.139 some very superficial part of the body.

NOTE Confidence: 0.871935533333333

00:04:11.140 --> 00:04:11.941 Like I said,

NOTE Confidence: 0.871935533333333

00:04:11.941 --> 00:04:13.810 a lymph node or a lymph node

NOTE Confidence: 0.871935533333333

00:04:13.876 --> 00:04:15.958 under the armor around the neck.

NOTE Confidence: 0.871935533333333

00:04:15.960 --> 00:04:19.033 But it might also involve a medical

NOTE Confidence: 0.871935533333333

00:04:19.033 --> 00:04:21.839 procedure where they put a bronchoscope

NOTE Confidence: 0.871935533333333

00:04:21.840 --> 00:04:23.737 down the patient into the lungs and

NOTE Confidence: 0.871935533333333

00:04:23.737 --> 00:04:26.478 just do a washing where you put in fluid,

NOTE Confidence: 0.871935533333333

00:04:26.480 --> 00:04:28.064 and then you aspirate the fluid

NOTE Confidence: 0.871935533333333

00:04:28.064 --> 00:04:30.038 out and then again he is take that

NOTE Confidence: 0.871935533333333

00:04:30.038 --> 00:04:31.920 fluid and you smear it on his slide.

NOTE Confidence: 0.871935533333333

00:04:31.920 --> 00:04:33.456 Or if you have fluid around the lungs

NOTE Confidence: 0.871935533333333

00:04:33.456 --> 00:04:34.840 that might take some of that fluid,

NOTE Confidence: 0.871935533333333

00:04:34.840 --> 00:04:36.976 and again smeared on a slide,

NOTE Confidence: 0.871935533333333

00:04:36.980 --> 00:04:38.598 those are all ways in which, again,

NOTE Confidence: 0.871935533333333

00:04:38.598 --> 00:04:40.506 you can use the vast majority

NOTE Confidence: 0.871935533333333

00:04:40.506 --> 00:04:42.638 of cases can make a diagnosis,

NOTE Confidence: 0.871935533333333

00:04:42.640 --> 00:04:44.352 as one might imagine,

NOTE Confidence: 0.871935533333333

00:04:44.352 --> 00:04:46.920 the sensitivity of that is going

NOTE Confidence: 0.871935533333333

00:04:47.001 --> 00:04:49.374 to depend on a lot of factors,

NOTE Confidence: 0.871935533333333

00:04:49.380 --> 00:04:51.060 the amount of tissue obtained,

NOTE Confidence: 0.871935533333333

00:04:51.060 --> 00:04:52.116 the kind of tumor it is,

NOTE Confidence: 0.871935533333333

00:04:52.120 --> 00:04:53.814 if it is in fact the tumor,

NOTE Confidence: 0.871935533333333

00:04:53.820 --> 00:04:56.740 what else is going on with the patient,

NOTE Confidence: 0.871935533333333

00:04:56.740 --> 00:04:59.340 and so those are all you know historically,

NOTE Confidence: 0.871935533333333

00:04:59.340 --> 00:05:01.176 that sort of the classic ways

NOTE Confidence: 0.871935533333333

00:05:01.176 --> 00:05:02.400 which we did it.

NOTE Confidence: 0.871935533333333

00:05:02.400 --> 00:05:03.080 More recently,

NOTE Confidence: 0.871935533333333

00:05:03.080 --> 00:05:06.680 I have to say that the we're much more.

NOTE Confidence: 0.871935533333333

00:05:06.680 --> 00:05:09.870 We get more information out of what's

NOTE Confidence: 0.871935533333333

00:05:09.870 --> 00:05:11.720 called the histopathology of tumors,

NOTE Confidence: 0.871935533333333

00:05:11.720 --> 00:05:14.359 whereas if you take that same smell,

NOTE Confidence: 0.871935533333333

00:05:14.360 --> 00:05:17.216 cell smear and then you can

NOTE Confidence: 0.871935533333333

00:05:17.220 --> 00:05:18.660 prepare it such that you could

NOTE Confidence: 0.871935533333333

00:05:18.660 --> 00:05:20.438 make a pallet of cells you make,

NOTE Confidence: 0.871935533333333

00:05:20.440 --> 00:05:22.715 take those cells, use pin them down,

NOTE Confidence: 0.871935533333333

00:05:22.720 --> 00:05:24.880 you make a collection of cells.

NOTE Confidence: 0.871935533333333

00:05:24.880 --> 00:05:27.659 You then actually can take a fix.

NOTE Confidence: 0.871935533333333

00:05:27.660 --> 00:05:30.214 Those cells in a fixative in process

NOTE Confidence: 0.871935533333333

00:05:30.214 --> 00:05:32.416 them as if they were regular.

NOTE Confidence: 0.871935533333333

00:05:32.420 --> 00:05:35.236 Tissue biopsy and then two sections of it.

NOTE Confidence: 0.938654519090909

00:05:35.240 --> 00:05:36.746 And then you'll have cells that

NOTE Confidence: 0.938654519090909

00:05:36.746 --> 00:05:38.572 you can actually look at in a

NOTE Confidence: 0.938654519090909

00:05:38.572 --> 00:05:39.916 diff slightly different way.

NOTE Confidence: 0.938654519090909

00:05:39.920 --> 00:05:41.280 The advantage of that method

NOTE Confidence: 0.938654519090909

00:05:41.280 --> 00:05:42.640 is a couple of things.

NOTE Confidence: 0.938654519090909

00:05:42.640 --> 00:05:45.208 One is you can start looking

NOTE Confidence: 0.938654519090909

00:05:45.208 --> 00:05:46.828 at so-called immunostains.

NOTE Confidence: 0.938654519090909

00:05:46.828 --> 00:05:49.798 That is, we take antibodies

NOTE Confidence: 0.938654519090909

00:05:49.798 --> 00:05:51.580 against cellular components.

NOTE Confidence: 0.938654519090909

00:05:51.580 --> 00:05:52.900 We apply them to the tissue,

NOTE Confidence: 0.938654519090909

00:05:52.900 --> 00:05:55.200 stain to the tissue section,

NOTE Confidence: 0.938654519090909

00:05:55.200 --> 00:05:57.419 and then we sort of see which

NOTE Confidence: 0.938654519090909

00:05:57.419 --> 00:05:59.649 elements of the cells are present

NOTE Confidence: 0.938654519090909

00:05:59.650 --> 00:06:00.755 and different cells will be

NOTE Confidence: 0.938654519090909

00:06:00.755 --> 00:06:02.410 able to stay in a different.

NOTE Confidence: 0.938654519090909

00:06:02.410 --> 00:06:03.976 The different patterns in a large

NOTE Confidence: 0.938654519090909

00:06:03.976 --> 00:06:06.426 part of my job has to do with

NOTE Confidence: 0.938654519090909

00:06:06.426 --> 00:06:07.774 understanding the exact patterns

NOTE Confidence: 0.938654519090909

00:06:07.774 --> 00:06:09.379 from different kinds of stains.

NOTE Confidence: 0.938654519090909

00:06:09.380 --> 00:06:10.436 They're used again,

NOTE Confidence: 0.938654519090909

00:06:10.436 --> 00:06:12.548 they have different degrees of sensitivity.

NOTE Confidence: 0.938654519090909

00:06:12.550 --> 00:06:13.830 That is, you know,

NOTE Confidence: 0.938654519090909

00:06:13.830 --> 00:06:16.300 are they true positive if it stains,

NOTE Confidence: 0.938654519090909

00:06:16.300 --> 00:06:17.172 or if it's negative,

NOTE Confidence: 0.938654519090909

00:06:17.172 --> 00:06:18.262 is that really a negative?

NOTE Confidence: 0.938654519090909

00:06:18.270 --> 00:06:19.242 And how you know?

NOTE Confidence: 0.938654519090909

00:06:19.242 --> 00:06:21.150 And that's a large part of my job,

NOTE Confidence: 0.938654519090909

00:06:21.150 --> 00:06:24.060 has to understanding just how good

NOTE Confidence: 0.938654519090909

00:06:24.060 --> 00:06:26.290 that processes and understanding it.

NOTE Confidence: 0.938654519090909

00:06:26.290 --> 00:06:28.590 In addition to staining again,

NOTE Confidence: 0.938654519090909

00:06:28.590 --> 00:06:30.718 these kind of small samples where you

NOTE Confidence: 0.938654519090909

00:06:30.718 --> 00:06:33.295 take a smear and you can make a cell

NOTE Confidence: 0.938654519090909

00:06:33.295 --> 00:06:35.159 so called cell block out of them.

NOTE Confidence: 0.938654519090909

00:06:35.160 --> 00:06:38.216 You can also do biopsies of various types.

NOTE Confidence: 0.938654519090909

00:06:38.220 --> 00:06:43.062 One biopsy technique is to again to take a.

NOTE Confidence: 0.938654519090909

00:06:43.070 --> 00:06:43.474 Bronchoscope,

NOTE Confidence: 0.938654519090909

00:06:43.474 --> 00:06:45.898 which goes into the patient's lungs,

NOTE Confidence: 0.938654519090909

00:06:45.900 --> 00:06:47.485 and the bronchoscopies would then

NOTE Confidence: 0.938654519090909

00:06:47.485 --> 00:06:49.450 maneuver it down into the lungs,

NOTE Confidence: 0.938654519090909

00:06:49.450 --> 00:06:52.105 where he then takes a small piece of tissue.

NOTE Confidence: 0.938654519090909

00:06:52.110 --> 00:06:54.048 Using a biopsy forceps and there's

NOTE Confidence: 0.938654519090909

00:06:54.048 --> 00:06:56.170 a variety of tissues they can get.

NOTE Confidence: 0.938654519090909

00:06:56.170 --> 00:06:58.312 This way they can get some

NOTE Confidence: 0.938654519090909

00:06:58.312 --> 00:06:59.383 lung tissue itself,

NOTE Confidence: 0.938654519090909

00:06:59.390 --> 00:07:01.550 but they also they're extremely good

NOTE Confidence: 0.938654519090909

00:07:01.550 --> 00:07:03.768 at getting using that technique to

NOTE Confidence: 0.938654519090909

00:07:03.768 --> 00:07:05.910 get lymph nodes within the chest,

NOTE Confidence: 0.938654519090909

00:07:05.910 --> 00:07:07.709 which gives you a sense of whether

NOTE Confidence: 0.938654519090909

00:07:07.709 --> 00:07:09.440 the tumor has spread or not

NOTE Confidence: 0.938654519090909

00:07:09.440 --> 00:07:10.945 spread to adjacent lymph nodes.

NOTE Confidence: 0.938654519090909

00:07:10.950 --> 00:07:13.968 And this is critical for understanding

NOTE Confidence: 0.938654519090909

00:07:13.968 --> 00:07:15.477 a therapeutic approaches.

NOTE Confidence: 0.938654519090909

00:07:15.480 --> 00:07:15.977 Alternatively,

NOTE Confidence: 0.938654519090909

00:07:15.977 --> 00:07:18.959 sometimes the tumor or this deletion

NOTE Confidence: 0.938654519090909

00:07:18.959 --> 00:07:22.136 of the suspicious lesion is in the very

NOTE Confidence: 0.938654519090909

00:07:22.136 --> 00:07:24.690 periphery of the lung near the chest wall,

NOTE Confidence: 0.938654519090909

00:07:24.690 --> 00:07:26.760 and sometimes you'll then have a

NOTE Confidence: 0.938654519090909

00:07:26.760 --> 00:07:29.500 go to CT scan and then you can have

NOTE Confidence: 0.938654519090909

00:07:29.500 --> 00:07:31.585 someone who can put a needle through

NOTE Confidence: 0.938654519090909

00:07:31.585 --> 00:07:33.895 the skin into the lung that way,

NOTE Confidence: 0.938654519090909

00:07:33.900 --> 00:07:35.060 so and then of course,

NOTE Confidence: 0.938654519090909

00:07:35.060 --> 00:07:37.200 people who have unfortunately more

NOTE Confidence: 0.938654519090909

00:07:37.200 --> 00:07:39.719 advanced disease where they might have

NOTE Confidence: 0.938654519090909

00:07:39.719 --> 00:07:42.491 a lesion somewhere in the liver or in bones,

NOTE Confidence: 0.938654519090909

00:07:42.500 --> 00:07:45.068 those can be biopsied again by.

NOTE Confidence: 0.938654519090909

00:07:45.070 --> 00:07:47.782 Usually by CT scan or by under ultrasound

NOTE Confidence: 0.938654519090909

00:07:47.782 --> 00:07:49.969 guidance and obtain piece of tissue,

NOTE Confidence: 0.938654519090909

00:07:49.970 --> 00:07:51.945 which then again is submitted

NOTE Confidence: 0.938654519090909

00:07:51.945 --> 00:07:53.130 for routine Histology.

NOTE Confidence: 0.938654519090909

00:07:53.130 --> 00:07:53.621 Finally,

NOTE Confidence: 0.938654519090909

00:07:53.621 --> 00:07:55.094 not very commonly,

NOTE Confidence: 0.938654519090909

00:07:55.094 --> 00:07:57.549 but occasionally we'll have cases

NOTE Confidence: 0.938654519090909

00:07:57.549 --> 00:08:00.388 where there might be a surgical

NOTE Confidence: 0.938654519090909

00:08:00.388 --> 00:08:02.204 intervention where you're really

NOTE Confidence: 0.938654519090909

00:08:02.204 --> 00:08:04.499 not sure what the lesion is.

NOTE Confidence: 0.938654519090909

00:08:04.500 --> 00:08:06.100 And it might be small.

NOTE Confidence: 0.938654519090909

00:08:06.100 --> 00:08:08.296 It might be difficult to obtain

NOTE Confidence: 0.938654519090909

00:08:08.300 --> 00:08:10.232 and the one way you're absolutely

NOTE Confidence: 0.938654519090909

00:08:10.232 --> 00:08:12.335 certain to obtain the tissue that's

NOTE Confidence: 0.938654519090909

00:08:12.335 --> 00:08:14.585 diagnostic is to surgically resect it

NOTE Confidence: 0.938654519090909

00:08:14.585 --> 00:08:16.628 even without a specific diagnosis,

NOTE Confidence: 0.938654519090909

00:08:16.630 --> 00:08:18.004 because if you go through the

NOTE Confidence: 0.938654519090909

00:08:18.004 --> 00:08:19.220 appropriate work up from there,

NOTE Confidence: 0.938654519090909

00:08:19.220 --> 00:08:20.836 clinicians who really think,

NOTE Confidence: 0.938654519090909

00:08:20.836 --> 00:08:21.240 look,

NOTE Confidence: 0.938654519090909

00:08:21.240 --> 00:08:23.296 we really think this is probably a cancer,

NOTE Confidence: 0.938654519090909

00:08:23.300 --> 00:08:25.352 and the only way we can know for sure,

NOTE Confidence: 0.938654519090909

00:08:25.360 --> 00:08:27.050 it's really take it out

NOTE Confidence: 0.938654519090909

00:08:27.050 --> 00:08:28.740 and really show the entire

NOTE Confidence: 0.884708590714286

00:08:28.813 --> 00:08:30.369 thing to a pathologist.

NOTE Confidence: 0.884708590714286

00:08:30.370 --> 00:08:32.515 Problem one of the problems

NOTE Confidence: 0.884708590714286

00:08:32.515 --> 00:08:34.660 in lung pathology is that.

NOTE Confidence: 0.884708590714286

00:08:34.660 --> 00:08:36.682 Lung cancers or lung tumors commonly

NOTE Confidence: 0.884708590714286

00:08:36.682 --> 00:08:38.674 have areas where there's lot of

NOTE Confidence: 0.884708590714286

00:08:38.674 --> 00:08:40.414 scarring and a lot of inflammation,

NOTE Confidence: 0.884708590714286

00:08:40.420 --> 00:08:41.356 and if you get a biopsy,

NOTE Confidence: 0.884708590714286

00:08:41.360 --> 00:08:43.345 which only shows that you're

NOTE Confidence: 0.884708590714286

00:08:43.345 --> 00:08:45.330 never completely sure that you

NOTE Confidence: 0.884708590714286

00:08:45.397 --> 00:08:47.547 haven't missed an actual cancer.

NOTE Confidence: 0.884708590714286

00:08:47.550 --> 00:08:49.601 And so again, with the appropriate work

NOTE Confidence: 0.884708590714286

00:08:49.601 --> 00:08:51.708 up and with really careful thinking

NOTE Confidence: 0.884708590714286

00:08:51.708 --> 00:08:54.042 and with discussion with the patient,

NOTE Confidence: 0.884708590714286

00:08:54.050 --> 00:08:56.198 you might go ahead and actually

NOTE Confidence: 0.884708590714286

00:08:56.200 --> 00:08:59.090 surgically remove a nodule entirely

NOTE Confidence: 0.884708590714286

00:08:59.090 --> 00:09:01.827 and then send it to a pathology.

NOTE Confidence: 0.884708590714286

00:09:01.830 --> 00:09:02.934 At that point,

NOTE Confidence: 0.884708590714286

00:09:02.934 --> 00:09:04.406 there's really two choices.

NOTE Confidence: 0.884708590714286

00:09:04.410 --> 00:09:06.531 You can either send it to what's

NOTE Confidence: 0.884708590714286

00:09:06.531 --> 00:09:08.290 called the frozen section area,

NOTE Confidence: 0.884708590714286

00:09:08.290 --> 00:09:10.586 where we have people who are stand by,

NOTE Confidence: 0.884708590714286

00:09:10.590 --> 00:09:12.674 you know all the time and we'll

NOTE Confidence: 0.884708590714286

00:09:12.674 --> 00:09:14.928 take those and get make a rapid

NOTE Confidence: 0.884708590714286

00:09:14.928 --> 00:09:17.053 section out of that and you can

NOTE Confidence: 0.884708590714286

00:09:17.053 --> 00:09:19.112 do that by literally freezing the

NOTE Confidence: 0.884708590714286

00:09:19.112 --> 00:09:21.494 tissue and then cutting sections

NOTE Confidence: 0.884708590714286

00:09:21.494 --> 00:09:23.317 on specially equipped machines

NOTE Confidence: 0.884708590714286

00:09:23.317 --> 00:09:25.399 called cry items which can make

NOTE Confidence: 0.884708590714286

00:09:25.399 --> 00:09:27.097 sections which the pathologist can

NOTE Confidence: 0.884708590714286

00:09:27.097 --> 00:09:29.489 look at within a few minutes of the

NOTE Confidence: 0.884708590714286

00:09:29.557 --> 00:09:31.377 specimen arriving in pathology.

NOTE Confidence: 0.884708590714286

00:09:31.380 --> 00:09:33.430 Pathologist looks at that and

NOTE Confidence: 0.884708590714286

00:09:33.430 --> 00:09:35.480 very quickly makes a decision.

NOTE Confidence: 0.884708590714286

00:09:35.480 --> 00:09:38.152 Is this look like a cancer or does

NOTE Confidence: 0.884708590714286

00:09:38.152 --> 00:09:40.418 this look like something else?

NOTE Confidence: 0.884708590714286

00:09:40.420 --> 00:09:42.275 And those are you know those though.

NOTE Confidence: 0.884708590714286

00:09:42.280 --> 00:09:44.716 That kind of analysis is extremely accurate.

NOTE Confidence: 0.884708590714286

00:09:44.720 --> 00:09:47.956 I just recently looked at our jails,

NOTE Confidence: 0.884708590714286

00:09:47.956 --> 00:09:50.140 institutions experience and,

NOTE Confidence: 0.884708590714286

00:09:50.140 --> 00:09:50.642 you know,

NOTE Confidence: 0.884708590714286

00:09:50.642 --> 00:09:52.399 in almost all cases it's not perfect.

NOTE Confidence: 0.884708590714286

00:09:52.400 --> 00:09:54.320 There are certainly examples where

NOTE Confidence: 0.884708590714286

00:09:54.320 --> 00:09:55.856 it's not completely accurate,

NOTE Confidence: 0.884708590714286

00:09:55.860 --> 00:09:57.498 but by and large it's a very,

NOTE Confidence: 0.884708590714286

00:09:57.500 --> 00:10:00.524 very accurate technique and you can tell

NOTE Confidence: 0.884708590714286

00:10:00.524 --> 00:10:03.259 immediately whether it is in fact a cancer.

NOTE Confidence: 0.884708590714286

00:10:03.260 --> 00:10:03.635 Alternatively,

NOTE Confidence: 0.884708590714286

00:10:03.635 --> 00:10:05.135 sometimes people will simply

NOTE Confidence: 0.884708590714286

00:10:05.135 --> 00:10:07.439 take that tissue and submit it

NOTE Confidence: 0.884708590714286

00:10:07.439 --> 00:10:08.919 for so-called permanent section,

NOTE Confidence: 0.884708590714286

00:10:08.920 --> 00:10:09.434 whereas.

NOTE Confidence: 0.884708590714286

00:10:09.434 --> 00:10:13.065 Where we process it as we would any other

NOTE Confidence: 0.884708590714286

00:10:13.065 --> 00:10:15.530 specimen where we fix it in fixative,

NOTE Confidence: 0.884708590714286

00:10:15.530 --> 00:10:16.734 we then section it.

NOTE Confidence: 0.884708590714286

00:10:16.734 --> 00:10:19.036 We then submit it for routine astrology

NOTE Confidence: 0.884708590714286

00:10:19.036 --> 00:10:21.186 and that usually takes overnight

NOTE Confidence: 0.884708590714286

00:10:21.190 --> 00:10:22.486 if the tissue is small enough,

NOTE Confidence: 0.884708590714286

00:10:22.490 --> 00:10:24.070 we might be able to do it the same day,

NOTE Confidence: 0.884708590714286

00:10:24.070 --> 00:10:25.750 but usually we do it overnight.

NOTE Confidence: 0.884708590714286

00:10:25.750 --> 00:10:28.243 And again we look at it the next day.

NOTE Confidence: 0.884708590714286

00:10:28.250 --> 00:10:29.708 And in all these cases again,

NOTE Confidence: 0.884708590714286

00:10:29.710 --> 00:10:32.170 we're very commonly would be using.

NOTE Confidence: 0.884708590714286

00:10:32.170 --> 00:10:32.791 As I said,

NOTE Confidence: 0.884708590714286

00:10:32.791 --> 00:10:34.240 these stains that we can use to

NOTE Confidence: 0.884708590714286

00:10:34.296 --> 00:10:35.289 highlight specific molecular

NOTE Confidence: 0.884708590714286

00:10:35.289 --> 00:10:37.275 features of the tumor or to

NOTE Confidence: 0.884708590714286

00:10:37.275 --> 00:10:38.944 understand exactly what it is and

NOTE Confidence: 0.884708590714286

00:10:38.944 --> 00:10:40.229 characterize it a little bit.

NOTE Confidence: 0.884708590714286

00:10:40.230 --> 00:10:40.540 Better.

NOTE Confidence: 0.745924221666667

00:10:41.990 --> 00:10:44.210 So there are a whole variety,

NOTE Confidence: 0.745924221666667

00:10:44.210 --> 00:10:45.674 as you alluded to,

NOTE Confidence: 0.745924221666667

00:10:45.674 --> 00:10:48.341 of types of biopsies and types of

NOTE Confidence: 0.745924221666667

00:10:48.341 --> 00:10:50.717 techniques of looking at the these

NOTE Confidence: 0.745924221666667

00:10:50.717 --> 00:10:53.098 tissues to come to a diagnosis.

NOTE Confidence: 0.745924221666667

00:10:53.100 --> 00:10:55.508 I think a few questions come to mind.

NOTE Confidence: 0.745924221666667

00:10:55.510 --> 00:10:58.110 The first is when you're

NOTE Confidence: 0.745924221666667

00:10:58.110 --> 00:11:00.710 looking at these tiny cells.

NOTE Confidence: 0.745924221666667

00:11:00.710 --> 00:11:02.642 You know when you talked about

NOTE Confidence: 0.745924221666667

00:11:02.642 --> 00:11:04.378 putting a needle into something

NOTE Confidence: 0.745924221666667

00:11:04.378 --> 00:11:06.288 and aspirating a few cells.

NOTE Confidence: 0.745924221666667

00:11:06.290 --> 00:11:08.450 I'm sure that people wonder how

NOTE Confidence: 0.745924221666667

00:11:08.450 --> 00:11:11.297 easy is it for you to tell that.

NOTE Confidence: 0.745924221666667

00:11:11.300 --> 00:11:14.196 Is a cancer cell versus not a cancer

NOTE Confidence: 0.745924221666667

00:11:14.196 --> 00:11:17.380 cell or a non small cell cancer cell

NOTE Confidence: 0.745924221666667

00:11:17.380 --> 00:11:20.039 versus a small cell cancer cell?

NOTE Confidence: 0.745924221666667

00:11:20.040 --> 00:11:20.415 How?

NOTE Confidence: 0.745924221666667

00:11:20.415 --> 00:11:23.415 How sure are you when you make that

NOTE Confidence: 0.745924221666667

00:11:23.415 --> 00:11:26.199 diagnosis of the diagnosis that you make,

NOTE Confidence: 0.745924221666667

00:11:26.200 --> 00:11:29.035 especially when it's just a few cells.

NOTE Confidence: 0.944573384166667

00:11:30.870 --> 00:11:32.284 I think I agree that this is

NOTE Confidence: 0.944573384166667

00:11:32.284 --> 00:11:33.549 really part of the training.

NOTE Confidence: 0.944573384166667

00:11:33.550 --> 00:11:35.230 I think we've all you know,

NOTE Confidence: 0.944573384166667

00:11:35.230 --> 00:11:37.342 one of the things that pathology

NOTE Confidence: 0.944573384166667

00:11:37.342 --> 00:11:39.500 involves is really a lot of

NOTE Confidence: 0.944573384166667

00:11:39.500 --> 00:11:41.205 a lot of hands-on experience.

NOTE Confidence: 0.944573384166667

00:11:41.210 --> 00:11:43.150 That's number one number two.

NOTE Confidence: 0.944573384166667

00:11:43.150 --> 00:11:44.886 We are very sensitive to the notion

NOTE Confidence: 0.944573384166667

00:11:44.886 --> 00:11:46.666 that we don't want to, you know,

NOTE Confidence: 0.944573384166667

00:11:46.666 --> 00:11:48.682 call something a cancer that's not cancer,

NOTE Confidence: 0.944573384166667

00:11:48.690 --> 00:11:50.810 and so again, as part of the training,

NOTE Confidence: 0.944573384166667

00:11:50.810 --> 00:11:53.015 we learn very carefully that there's a

NOTE Confidence: 0.944573384166667

00:11:53.015 --> 00:11:55.121 minimum number of cells you really need

NOTE Confidence: 0.944573384166667

00:11:55.121 --> 00:11:57.400 in order to make a specific diagnosis.

NOTE Confidence: 0.944573384166667

00:11:57.400 --> 00:11:58.570 And there's no, you know,

NOTE Confidence: 0.944573384166667

00:11:58.570 --> 00:12:00.055 magic number in terms of

NOTE Confidence: 0.944573384166667

00:12:00.055 --> 00:12:01.770 exactly how many cells that is.

NOTE Confidence: 0.944573384166667

00:12:01.770 --> 00:12:03.940 But I you know one cell is

NOTE Confidence: 0.944573384166667

00:12:03.940 --> 00:12:05.818 certainly not going to be enough.

NOTE Confidence: 0.944573384166667

00:12:05.820 --> 00:12:08.396 And you know, is 100 cells necessary?

NOTE Confidence: 0.944573384166667

00:12:08.400 --> 00:12:10.260 We certainly get down into,

NOTE Confidence: 0.944573384166667

00:12:10.260 --> 00:12:11.950 maybe, you know, 100 cells,

NOTE Confidence: 0.944573384166667

00:12:11.950 --> 00:12:13.738 or maybe in some cases fewer.

NOTE Confidence: 0.944573384166667

00:12:13.740 --> 00:12:15.798 But largely we're very sensitive for

NOTE Confidence: 0.944573384166667

00:12:15.798 --> 00:12:18.417 the notion we really want to see a

NOTE Confidence: 0.944573384166667

00:12:18.417 --> 00:12:20.187 population of cells that are really

NOTE Confidence: 0.944573384166667

00:12:20.251 --> 00:12:22.119 clearly represent a malignancy.

NOTE Confidence: 0.944573384166667

00:12:22.120 --> 00:12:24.672 And the other thing we do is particularly

NOTE Confidence: 0.944573384166667

00:12:24.672 --> 00:12:27.754 on the smaller samples we commonly, you know,

NOTE Confidence: 0.944573384166667

00:12:27.754 --> 00:12:29.296 pathologists will commonly show things we,

NOTE Confidence: 0.944573384166667

00:12:29.300 --> 00:12:30.116 each other.

NOTE Confidence: 0.944573384166667

00:12:30.116 --> 00:12:31.748 We're totally, you know,

NOTE Confidence: 0.944573384166667

00:12:31.750 --> 00:12:34.176 there's no sense of you know, ego involved.

NOTE Confidence: 0.944573384166667

00:12:34.176 --> 00:12:35.716 We show each other things.

NOTE Confidence: 0.944573384166667

00:12:35.720 --> 00:12:36.228 What do you think?

NOTE Confidence: 0.944573384166667

00:12:36.228 --> 00:12:36.736 What do you think?

NOTE Confidence: 0.944573384166667

00:12:36.740 --> 00:12:39.456 Is this enough and we generally anything

NOTE Confidence: 0.944573384166667

00:12:39.456 --> 00:12:41.740 where there's even a marginal call.

NOTE Confidence: 0.944573384166667

00:12:41.740 --> 00:12:43.735 We show things to each other and

NOTE Confidence: 0.944573384166667

00:12:43.735 --> 00:12:45.835 we document that we've shown it to

NOTE Confidence: 0.944573384166667

00:12:45.835 --> 00:12:47.611 somebody else who agrees with us.

NOTE Confidence: 0.944573384166667

00:12:47.620 --> 00:12:49.380 So that's really sort of

NOTE Confidence: 0.944573384166667

00:12:49.380 --> 00:12:51.140 intrinsically baked into our process,

NOTE Confidence: 0.944573384166667

00:12:51.140 --> 00:12:52.435 and I think that the you know,

NOTE Confidence: 0.944573384166667

00:12:52.440 --> 00:12:53.700 if you actually were to go

NOTE Confidence: 0.944573384166667

00:12:53.700 --> 00:12:55.150 and look at the literature.

NOTE Confidence: 0.944573384166667

00:12:55.150 --> 00:12:58.540 You'd say that the based on you

NOTE Confidence: 0.944573384166667

00:12:58.540 --> 00:13:00.160 know if summaries people have done

NOTE Confidence: 0.944573384166667

00:13:00.160 --> 00:13:01.600 this in pathology extensively,

NOTE Confidence: 0.944573384166667

00:13:01.600 --> 00:13:03.352 whereas you ask and you go back and

NOTE Confidence: 0.944573384166667

00:13:03.352 --> 00:13:05.188 you look at other peoples diagnosis.

NOTE Confidence: 0.944573384166667

00:13:05.190 --> 00:13:07.643 How often are you correct and you know,

NOTE Confidence: 0.944573384166667

00:13:07.643 --> 00:13:09.509 I can't say everything is perfect.

NOTE Confidence: 0.944573384166667

00:13:09.510 --> 00:13:10.975 There's nothing in life which

NOTE Confidence: 0.944573384166667

00:13:10.975 --> 00:13:11.854 is completely perfect.

NOTE Confidence: 0.944573384166667

00:13:11.860 --> 00:13:15.115 But by and large it's extremely good.

NOTE Confidence: 0.944573384166667

00:13:15.120 --> 00:13:16.624 And so I think that you know if

NOTE Confidence: 0.944573384166667

00:13:16.624 --> 00:13:18.294 there is really any doubt you know

NOTE Confidence: 0.944573384166667

00:13:18.294 --> 00:13:19.856 patients can always ask for to

NOTE Confidence: 0.944573384166667

00:13:19.856 --> 00:13:21.186 send it to another institution.

NOTE Confidence: 0.944573384166667

00:13:21.190 --> 00:13:22.905 I don't recall a case at Yale

NOTE Confidence: 0.944573384166667

00:13:22.905 --> 00:13:24.952 where you know we've had a change

NOTE Confidence: 0.944573384166667

00:13:24.952 --> 00:13:26.808 diagnosis along this line, certainly.

NOTE Confidence: 0.944573384166667

00:13:26.808 --> 00:13:29.798 People can have other opinions

NOTE Confidence: 0.944573384166667

00:13:29.800 --> 00:13:31.780 exactly how to classify a tumor,

NOTE Confidence: 0.944573384166667

00:13:31.780 --> 00:13:33.978 but by and large we are very

NOTE Confidence: 0.944573384166667

00:13:33.978 --> 00:13:36.338 careful to try to prevent anything

NOTE Confidence: 0.944573384166667

00:13:36.338 --> 00:13:38.573 where that's really an issue.

NOTE Confidence: 0.944573384166667

00:13:38.580 --> 00:13:39.330 Terrific,

NOTE Confidence: 0.88041716173913

00:13:39.510 --> 00:13:41.463 well we're going to learn a lot

NOTE Confidence: 0.88041716173913

00:13:41.463 --> 00:13:43.002 more about lung cancer pathology

NOTE Confidence: 0.88041716173913

00:13:43.002 --> 00:13:44.922 right after we take a short

NOTE Confidence: 0.88041716173913

00:13:44.922 --> 00:13:46.638 break for a medical minute.

NOTE Confidence: 0.88041716173913

00:13:46.640 --> 00:13:48.922 Please stay tuned to learn more about

NOTE Confidence: 0.88041716173913

00:13:48.922 --> 00:13:50.730 lung cancer pathology with my guest

NOTE Confidence: 0.88041716173913

00:13:50.730 --> 00:13:51.990 Doctor Robert Homer.

NOTE Confidence: 0.855314181

00:13:52.520 --> 00:13:54.450 Funding for Yale Cancer Answers

NOTE Confidence: 0.855314181

00:13:54.450 --> 00:13:56.380 comes from Smilow Cancer Hospital,

NOTE Confidence: 0.855314181

00:13:56.380 --> 00:13:58.936 where the breast Cancer Prevention Clinic

NOTE Confidence: 0.855314181

00:13:58.936 --> 00:14:00.640 provides comprehensive risk assessment,

NOTE Confidence: 0.855314181

00:14:00.640 --> 00:14:02.535 education and screening for women

NOTE Confidence: 0.855314181

00:14:02.535 --> 00:14:04.930 at increased risk of breast cancer.

NOTE Confidence: 0.855314181

00:14:04.930 --> 00:14:06.170 To learn more, visit

NOTE Confidence: 0.8507937

00:14:08.180 --> 00:14:10.580 yalecancercenter.org/genetics.

NOTE Confidence: 0.8507937

00:14:10.580 --> 00:14:13.460 The American Cancer Society estimates that

NOTE Confidence: 0.8507937

00:14:13.460 --> 00:14:15.932 over 200,000 cases of Melanoma will be

NOTE Confidence: 0.8507937

00:14:15.932 --> 00:14:18.320 diagnosed in the United States this year,

NOTE Confidence: 0.8507937

00:14:18.320 --> 00:14:21.435 with over 1000 patients in Connecticut alone.

NOTE Confidence: 0.8507937

00:14:21.440 --> 00:14:23.765 While Melanoma accounts for only

NOTE Confidence: 0.8507937

00:14:23.765 --> 00:14:26.308 about 1% of skin cancer cases,

NOTE Confidence: 0.8507937

00:14:26.308 --> 00:14:29.340 it causes the most skin cancer deaths,

NOTE Confidence: 0.8507937

00:14:29.340 --> 00:14:30.752 but when detected early,

NOTE Confidence: 0.8507937

00:14:30.752 --> 00:14:33.440 it is easily treated and highly curable.

NOTE Confidence: 0.8507937

00:14:33.440 --> 00:14:35.880 Clinical trials are currently underway

NOTE Confidence: 0.8507937

00:14:35.880 --> 00:14:37.832 at federally designated Comprehensive

NOTE Confidence: 0.8507937

00:14:37.832 --> 00:14:39.999 cancer centers such as Yale Cancer

NOTE Confidence: 0.8507937

00:14:39.999 --> 00:14:42.210 Center and at Smilow Cancer Hospital.

NOTE Confidence: 0.8507937

00:14:42.210 --> 00:14:44.410 To test innovative new treatments

NOTE Confidence: 0.8507937

00:14:44.410 --> 00:14:45.290 for Melanoma,

NOTE Confidence: 0.8507937

00:14:45.290 --> 00:14:47.522 the goal of the specialized programs

NOTE Confidence: 0.8507937

00:14:47.522 --> 00:14:49.403 of research excellence and Skin

NOTE Confidence: 0.8507937

00:14:49.403 --> 00:14:51.389 Cancer Grant is to better understand

NOTE Confidence: 0.8507937

00:14:51.389 --> 00:14:53.149 the biology of skin cancer.

NOTE Confidence: 0.8507937

00:14:53.150 --> 00:14:54.805 With a focus on discovering

NOTE Confidence: 0.8507937

00:14:54.805 --> 00:14:57.042 targets that will lead to improved

NOTE Confidence: 0.8507937

00:14:57.042 --> 00:14:58.587 diagnosis and treatment.

NOTE Confidence: 0.8507937

00:14:58.590 --> 00:15:01.650 More information is available at

NOTE Confidence: 0.8507937

00:15:01.650 --> 00:15:02.940 yalecancercenter.org you're listening

NOTE Confidence: 0.8507937

00:15:02.940 --> 00:15:04.660 to Connecticut Public Radio.

NOTE Confidence: 0.87311971

00:15:06.970 --> 00:15:09.046 Welcome back to Yale Cancer Answers.

NOTE Confidence: 0.87311971

00:15:09.050 --> 00:15:10.254 This is doctor Anees Chagpar

NOTE Confidence: 0.87311971

00:15:10.254 --> 00:15:12.060 and I'm joined tonight

NOTE Confidence: 0.87311971

00:15:12.119 --> 00:15:14.027 by my guest doctor Robert Homer.

NOTE Confidence: 0.87311971

00:15:14.030 --> 00:15:15.920 We're learning more about lung

NOTE Confidence: 0.87311971

00:15:15.920 --> 00:15:17.810 cancer pathology and Doctor Homer,

NOTE Confidence: 0.87311971

00:15:17.810 --> 00:15:19.556 right before the break you were

NOTE Confidence: 0.87311971

00:15:19.556 --> 00:15:21.048 talking about the fact that

NOTE Confidence: 0.87311971

00:15:21.048 --> 00:15:22.692 there's a lot of training that

NOTE Confidence: 0.87311971

00:15:22.692 --> 00:15:24.330 goes into being a pathologist,

NOTE Confidence: 0.87311971

00:15:24.330 --> 00:15:26.930 and that's really important because.

NOTE Confidence: 0.87311971

00:15:26.930 --> 00:15:29.218 You know you really need to be able

NOTE Confidence: 0.87311971

00:15:29.218 --> 00:15:30.804 to recognize the difference between

NOTE Confidence: 0.87311971

00:15:30.804 --> 00:15:33.320 a cancer cell and a non cancer cell

NOTE Confidence: 0.87311971

00:15:33.320 --> 00:15:36.668 when making that diagnosis and when

NOTE Confidence: 0.87311971

00:15:36.668 --> 00:15:39.890 you have questions or concerns,

NOTE Confidence: 0.87311971

00:15:39.890 --> 00:15:42.346 do you have enough of a sample or

NOTE Confidence: 0.87311971

00:15:42.346 --> 00:15:44.527 it's kind of a borderline call?

NOTE Confidence: 0.87311971

00:15:44.530 --> 00:15:47.416 There's really no issue in terms

NOTE Confidence: 0.87311971

00:15:47.416 --> 00:15:49.815 of seeking another opinion and

NOTE Confidence: 0.87311971

00:15:49.815 --> 00:15:52.524 you as pathologists do that a lot.

NOTE Confidence: 0.87311971

00:15:52.530 --> 00:15:55.038 You'll show that to other pathologists.

NOTE Confidence: 0.87311971

00:15:55.040 --> 00:15:57.290 So one question that people who

NOTE Confidence: 0.87311971

00:15:57.290 --> 00:15:58.415 are listening might.

NOTE Confidence: 0.87311971

00:15:58.420 --> 00:16:03.016 Ask is you know, should patients,

NOTE Confidence: 0.87311971

00:16:03.020 --> 00:16:06.056 when given a lung cancer diagnosis,

NOTE Confidence: 0.87311971

00:16:06.060 --> 00:16:07.965 seek a second opinion with

NOTE Confidence: 0.87311971

00:16:07.965 --> 00:16:09.489 regards to their pathology?

NOTE Confidence: 0.940433091428571

00:16:11.570 --> 00:16:13.391 At another institution,

NOTE Confidence: 0.940433091428571

00:16:13.391 --> 00:16:16.430 if they're not sure, and because,

NOTE Confidence: 0.940433091428571

00:16:16.430 --> 00:16:18.565 how can a patient really be sure,

NOTE Confidence: 0.940433091428571

00:16:18.570 --> 00:16:20.061 aside from the fact that most of

NOTE Confidence: 0.940433091428571

00:16:20.061 --> 00:16:22.296 us have a lot of confidence in the

NOTE Confidence: 0.940433091428571

00:16:22.296 --> 00:16:23.532 institutions that we frequent?

NOTE Confidence: 0.771299579166667

00:16:25.120 --> 00:16:27.535 I, I think that anytime if there

NOTE Confidence: 0.771299579166667

00:16:27.535 --> 00:16:29.719 is a patient really unsure,

NOTE Confidence: 0.771299579166667

00:16:29.720 --> 00:16:31.390 you know I'm you know.

NOTE Confidence: 0.771299579166667

00:16:31.390 --> 00:16:33.110 I sort of think about this in medicine.

NOTE Confidence: 0.771299579166667

00:16:33.110 --> 00:16:34.886 I think this is sort of a general

NOTE Confidence: 0.771299579166667

00:16:34.886 --> 00:16:36.668 question about any medical advice.

NOTE Confidence: 0.771299579166667

00:16:36.668 --> 00:16:39.790 So pathology report is is medical advice.

NOTE Confidence: 0.771299579166667

00:16:39.790 --> 00:16:41.869 I think that if you see an oncologist and

NOTE Confidence: 0.771299579166667

00:16:41.869 --> 00:16:43.746 aren't sure about their advice you give,

NOTE Confidence: 0.771299579166667

00:16:43.750 --> 00:16:45.950 you should be free to seek another opinion.

NOTE Confidence: 0.771299579166667

00:16:45.950 --> 00:16:47.686 If you seek a surgeon and get different

NOTE Confidence: 0.771299579166667

00:16:47.686 --> 00:16:49.327 advice you want and you're not happy

NOTE Confidence: 0.771299579166667

00:16:49.327 --> 00:16:50.925 with it or you're concerned and you

NOTE Confidence: 0.771299579166667

00:16:50.925 --> 00:16:52.525 want to make sure that you've seen it,

NOTE Confidence: 0.771299579166667

00:16:52.530 --> 00:16:53.766 you can get a second opinion.

NOTE Confidence: 0.771299579166667

00:16:53.770 --> 00:16:54.770 I don't think that.

NOTE Confidence: 0.771299579166667

00:16:54.770 --> 00:16:56.020 Salty diagnosis or any different?

NOTE Confidence: 0.771299579166667

00:16:56.020 --> 00:16:58.378 I think you would put it in the same

NOTE Confidence: 0.771299579166667

00:16:58.378 --> 00:17:00.390 category as any other medical opinion,

NOTE Confidence: 0.771299579166667

00:17:00.390 --> 00:17:02.472 and you know if there's really

NOTE Confidence: 0.771299579166667

00:17:02.472 --> 00:17:03.513 any any concern.

NOTE Confidence: 0.771299579166667

00:17:03.520 --> 00:17:05.482 I think that that's a fine thing to do.

NOTE Confidence: 0.928615863125

00:17:06.510 --> 00:17:09.520 And so you know, I think one of the big

NOTE Confidence: 0.928615863125

00:17:09.600 --> 00:17:12.690 distinctions is cancer versus no cancer,

NOTE Confidence: 0.928615863125

00:17:12.690 --> 00:17:15.357 and one of the things that you

NOTE Confidence: 0.928615863125

00:17:15.357 --> 00:17:17.976 mentioned before the break was that

NOTE Confidence: 0.928615863125

00:17:17.976 --> 00:17:20.296 you're really very careful about

NOTE Confidence: 0.928615863125

00:17:20.296 --> 00:17:22.649 calling cancer versus not cancer.

NOTE Confidence: 0.928615863125

00:17:22.650 --> 00:17:25.359 And so tell us a little bit more about

NOTE Confidence: 0.928615863125

00:17:25.359 --> 00:17:28.005 the nuances you mentioned that you

NOTE Confidence: 0.928615863125

00:17:28.005 --> 00:17:30.030 know there's classifications in terms

NOTE Confidence: 0.928615863125

00:17:30.030 --> 00:17:32.749 of small cell and non small cell.

NOTE Confidence: 0.928615863125

00:17:32.750 --> 00:17:35.630 How do you make that distinction

NOTE Confidence: 0.928615863125

00:17:35.630 --> 00:17:37.378 and why is it important?

NOTE Confidence: 0.928615863125

00:17:37.378 --> 00:17:39.970 Or is it important to patients treatment?

NOTE Confidence: 0.885045428461538

00:17:40.790 --> 00:17:43.445 So the historical distinction between

NOTE Confidence: 0.885045428461538

00:17:43.445 --> 00:17:46.717 so-called small cell and non small

NOTE Confidence: 0.885045428461538

00:17:46.717 --> 00:17:48.804 cell carcinoma really goes back

NOTE Confidence: 0.885045428461538

00:17:48.804 --> 00:17:51.678 to the 1960s and 70s where it was

NOTE Confidence: 0.885045428461538

00:17:51.678 --> 00:17:54.276 understood that the vast majority of

NOTE Confidence: 0.885045428461538

00:17:54.276 --> 00:17:56.978 people with what's so called small

NOTE Confidence: 0.885045428461538

00:17:56.978 --> 00:17:59.800 cell carcinoma were most likely had

NOTE Confidence: 0.885045428461538

00:17:59.800 --> 00:18:02.225 a systemic disease on presentation,

NOTE Confidence: 0.885045428461538

00:18:02.230 --> 00:18:05.016 and they responded to certain types of

NOTE Confidence: 0.885045428461538

00:18:05.016 --> 00:18:07.011 chemotherapy that patients with so-called

NOTE Confidence: 0.885045428461538

00:18:07.011 --> 00:18:09.213 non small cell carcinoma did not.

NOTE Confidence: 0.885045428461538

00:18:09.220 --> 00:18:11.176 And that's really sort of become.

NOTE Confidence: 0.885045428461538

00:18:11.180 --> 00:18:13.748 Sort of a founding principle of the field

NOTE Confidence: 0.885045428461538

00:18:13.748 --> 00:18:15.968 of thoracic oncology for a long time.

NOTE Confidence: 0.837853475

00:18:18.220 --> 00:18:20.308 We certainly at the you know,

NOTE Confidence: 0.837853475

00:18:20.310 --> 00:18:22.630 back in the 60s to 70s we didn't

NOTE Confidence: 0.837853475

00:18:22.630 --> 00:18:24.782 have really any ancillary so called

NOTE Confidence: 0.837853475

00:18:24.782 --> 00:18:26.518 ancillary techniques like immunostains

NOTE Confidence: 0.837853475

00:18:26.518 --> 00:18:28.364 for molecular diagnostics and so

NOTE Confidence: 0.837853475

00:18:28.364 --> 00:18:30.268 that was really just based on the

NOTE Confidence: 0.837853475

00:18:30.268 --> 00:18:31.800 morphologic appearance of the cell.

NOTE Confidence: 0.837853475

00:18:31.800 --> 00:18:33.435 With a few relatively by

NOTE Confidence: 0.837853475

00:18:33.435 --> 00:18:34.416 our current standards,

NOTE Confidence: 0.837853475

00:18:34.420 --> 00:18:36.232 crude stains these days,

NOTE Confidence: 0.837853475

00:18:36.232 --> 00:18:38.950 it's really pretty clear that you

NOTE Confidence: 0.837853475

00:18:39.032 --> 00:18:41.532 can improve the reproducibility of

NOTE Confidence: 0.837853475

00:18:41.532 --> 00:18:44.660 the diagnosis by getting some stains.

NOTE Confidence: 0.837853475

00:18:44.660 --> 00:18:47.054 There is a one particular paper

NOTE Confidence: 0.837853475

00:18:47.054 --> 00:18:48.650 that I use routinely.

NOTE Confidence: 0.837853475

00:18:48.650 --> 00:18:50.500 But that's an international that

NOTE Confidence: 0.837853475

00:18:50.500 --> 00:18:52.350 show that international consensus of

NOTE Confidence: 0.837853475

00:18:52.350 --> 00:18:54.450 difficult cases cases that people

NOTE Confidence: 0.837853475

00:18:54.450 --> 00:18:56.550 agreed were not straightforward could

NOTE Confidence: 0.837853475

00:18:56.616 --> 00:18:58.626 be improved by using immunostains.

NOTE Confidence: 0.837853475

00:18:58.630 --> 00:19:00.947 And I also think that these days,

NOTE Confidence: 0.837853475

00:19:00.950 --> 00:19:02.342 with molecular diagnostics being

NOTE Confidence: 0.837853475

00:19:02.342 --> 00:19:04.082 as advanced as it is,

NOTE Confidence: 0.837853475

00:19:04.090 --> 00:19:06.070 there are very rare cases where

NOTE Confidence: 0.837853475

00:19:06.070 --> 00:19:07.390 that can be helped.

NOTE Confidence: 0.837853475

00:19:07.390 --> 00:19:08.694 It's clear that, again,

NOTE Confidence: 0.837853475

00:19:08.694 --> 00:19:10.650 so called small cell carcinoma has

NOTE Confidence: 0.837853475

00:19:10.713 --> 00:19:12.738 a very distinct molecular signature,

NOTE Confidence: 0.837853475

00:19:12.740 --> 00:19:15.278 whereas tumors of so called non

NOTE Confidence: 0.837853475

00:19:15.278 --> 00:19:17.682 small cell have a range of other

NOTE Confidence: 0.837853475

00:19:17.682 --> 00:19:19.097 signatures which really would not

NOTE Confidence: 0.837853475

00:19:19.097 --> 00:19:20.935 be expected to be seen in that.

NOTE Confidence: 0.837853475

00:19:20.940 --> 00:19:23.400 So I think that there is,

NOTE Confidence: 0.837853475

00:19:23.400 --> 00:19:24.152 you know,

NOTE Confidence: 0.837853475

00:19:24.152 --> 00:19:26.032 the basic diagnosis is certainly

NOTE Confidence: 0.837853475

00:19:26.032 --> 00:19:28.360 suggested by just routine Histology,

NOTE Confidence: 0.837853475

00:19:28.360 --> 00:19:29.636 and there's clearly cell,

NOTE Confidence: 0.837853475

00:19:29.636 --> 00:19:32.199 clearly tumors which are just not small cell.

NOTE Confidence: 0.837853475

00:19:32.200 --> 00:19:33.580 If you just look at it and say there's yeah,

NOTE Confidence: 0.837853475

00:19:33.580 --> 00:19:35.656 that's just not what it is,

NOTE Confidence: 0.837853475

00:19:35.660 --> 00:19:36.983 you know I don't really care about

NOTE Confidence: 0.837853475

00:19:36.983 --> 00:19:38.605 any of the other markers that are

NOTE Confidence: 0.837853475

00:19:38.605 --> 00:19:40.104 present and there's other tumors

NOTE Confidence: 0.837853475

00:19:40.104 --> 00:19:42.460 where you say you know I'm just

NOTE Confidence: 0.837853475

00:19:42.460 --> 00:19:44.460 not sure those are relatively.

NOTE Confidence: 0.837853475

00:19:44.460 --> 00:19:45.012 You know,

NOTE Confidence: 0.837853475

00:19:45.012 --> 00:19:46.668 maybe 5% of cases where people

NOTE Confidence: 0.837853475

00:19:46.668 --> 00:19:48.200 sort of have that thing.

NOTE Confidence: 0.837853475

00:19:48.200 --> 00:19:49.814 But of course you know at

NOTE Confidence: 0.837853475

00:19:49.814 --> 00:19:50.890 any larger Cancer Center.

NOTE Confidence: 0.837853475

00:19:50.890 --> 00:19:51.392 You know,

NOTE Confidence: 0.837853475

00:19:51.392 --> 00:19:53.149 like Yale or other large cancer centers,

NOTE Confidence: 0.837853475

00:19:53.150 --> 00:19:55.382 we see enough cancers that they they show up.

NOTE Confidence: 0.837853475

00:19:55.390 --> 00:19:57.540 You know, all the time.

NOTE Confidence: 0.837853475

00:19:57.540 --> 00:20:00.388 So we do have a sort of a,

NOTE Confidence: 0.837853475

00:20:00.390 --> 00:20:01.378 you know,

NOTE Confidence: 0.837853475

00:20:01.378 --> 00:20:05.330 a standard protocol for a for resolving that.

NOTE Confidence: 0.837853475

00:20:05.330 --> 00:20:07.990 In terms of non small cell carcinomas,

NOTE Confidence: 0.837853475

00:20:07.990 --> 00:20:10.623 we know that there is really two

NOTE Confidence: 0.837853475

00:20:10.623 --> 00:20:12.788 major subtypes within that admin,

NOTE Confidence: 0.837853475

00:20:12.790 --> 00:20:15.594 so called adenocarcinoma and

NOTE Confidence: 0.837853475

00:20:15.594 --> 00:20:17.697 squamous cell carcinoma.

NOTE Confidence: 0.837853475

00:20:17.700 --> 00:20:19.725 And there's excellent markers that

NOTE Confidence: 0.837853475

00:20:19.725 --> 00:20:22.470 distinguish those two things from each other.

NOTE Confidence: 0.837853475

00:20:22.470 --> 00:20:24.120 We know that there's a large

NOTE Confidence: 0.837853475

00:20:24.120 --> 00:20:25.651 percentage of those cases which

NOTE Confidence: 0.837853475

00:20:25.651 --> 00:20:27.159 might be surgically resectable.

NOTE Confidence: 0.837853475

00:20:27.160 --> 00:20:29.464 We also know that all of the you know,

NOTE Confidence: 0.837853475

00:20:29.470 --> 00:20:30.882 oncology protocols for patients

NOTE Confidence: 0.837853475

00:20:30.882 --> 00:20:34.580 who do not have resectable tumors.

NOTE Confidence: 0.837853475

00:20:34.580 --> 00:20:36.180 That's like the first thing,

NOTE Confidence: 0.837853475

00:20:36.180 --> 00:20:38.548 pretty much in all the protocols is to

NOTE Confidence: 0.837853475

00:20:38.548 --> 00:20:40.699 understand which of those two pathways it is.

NOTE Confidence: 0.837853475

00:20:40.700 --> 00:20:42.500 It's in pretty much all the

NOTE Confidence: 0.837853475

00:20:42.500 --> 00:20:44.643 molecular work up after that depends

NOTE Confidence: 0.837853475

00:20:44.643 --> 00:20:46.407 on that fundamental distinction,

NOTE Confidence: 0.837853475

00:20:46.410 --> 00:20:47.886 and a lot of the therapeutic.

NOTE Confidence: 0.837853475

00:20:47.890 --> 00:20:49.248 Decisions are based on that as well.

NOTE Confidence: 0.837853475

00:20:49.250 --> 00:20:49.990 Not entirely,

NOTE Confidence: 0.837853475

00:20:49.990 --> 00:20:50.730 but largely.

NOTE Confidence: 0.837853475

00:20:50.730 --> 00:20:52.580 We have excellent markers that

NOTE Confidence: 0.837853475

00:20:52.580 --> 00:20:54.507 distinguish those two things these days,

NOTE Confidence: 0.837853475

00:20:54.510 --> 00:20:58.158 and all lung tumors that have

NOTE Confidence: 0.837853475

00:20:58.158 --> 00:21:00.850 enough tissue to evaluate would

NOTE Confidence: 0.837853475

00:21:00.850 --> 00:21:02.410 most likely get one of those,

NOTE Confidence: 0.837853475

00:21:02.410 --> 00:21:03.954 unless it's, again, histologically.

NOTE Confidence: 0.837853475

00:21:03.954 --> 00:21:05.690 You know, quite straightforward.

NOTE Confidence: 0.950468392352941

00:21:06.940 --> 00:21:09.220 And so that's really important because

NOTE Confidence: 0.950468392352941

00:21:09.220 --> 00:21:11.947 it it influences the type of treatment

NOTE Confidence: 0.950468392352941

00:21:11.947 --> 00:21:14.009 that that patients get. Is that right?

NOTE Confidence: 0.683943352222222

00:21:14.420 --> 00:21:16.120 It is it distinguished influences

NOTE Confidence: 0.683943352222222

00:21:16.120 --> 00:21:17.480 the treatment they get,

NOTE Confidence: 0.683943352222222

00:21:17.480 --> 00:21:20.306 but also to a certain extent the work up.

NOTE Confidence: 0.683943352222222

00:21:20.310 --> 00:21:23.010 If you have somebody with which seems

NOTE Confidence: 0.683943352222222

00:21:23.010 --> 00:21:25.360 to be a like a localized, there rarely.

NOTE Confidence: 0.683943352222222

00:21:25.360 --> 00:21:27.280 Again you have cases which are

NOTE Confidence: 0.683943352222222

00:21:27.280 --> 00:21:29.378 look like a localized small cell.

NOTE Confidence: 0.683943352222222

00:21:29.378 --> 00:21:31.961 The oncologist might try much harder to

NOTE Confidence: 0.683943352222222

00:21:31.961 --> 00:21:34.433 really convince himself or herself that

NOTE Confidence: 0.683943352222222

00:21:34.433 --> 00:21:36.920 that's really a truly localized tumor.

NOTE Confidence: 0.683943352222222

00:21:36.920 --> 00:21:38.368 Because the likelihood that

NOTE Confidence: 0.683943352222222

00:21:38.368 --> 00:21:39.816 they're probably missing something,

NOTE Confidence: 0.683943352222222

00:21:39.820 --> 00:21:41.059 so they might do a more extensive

NOTE Confidence: 0.683943352222222

00:21:41.059 --> 00:21:42.448 work up than they might otherwise.

NOTE Confidence: 0.868258494

00:21:44.480 --> 00:21:46.739 And it's also true that a lot of our

NOTE Confidence: 0.868258494

00:21:46.739 --> 00:21:48.436 patients have more than one tumor,

NOTE Confidence: 0.868258494

00:21:48.440 --> 00:21:51.351 unfortunately, and so a lot of lot

NOTE Confidence: 0.868258494

00:21:51.351 --> 00:21:53.306 of much of what I do, you know,

NOTE Confidence: 0.868258494

00:21:53.306 --> 00:21:55.239 is direct with fast conchology is a

NOTE Confidence: 0.868258494

00:21:55.239 --> 00:21:57.071 pathology or other is to really look at

NOTE Confidence: 0.868258494

00:21:57.071 --> 00:21:58.897 patients who have more than one tumor

NOTE Confidence: 0.868258494

00:21:58.897 --> 00:22:00.443 and really connect yourself that what

NOTE Confidence: 0.868258494

00:22:00.443 --> 00:22:02.315 you're seeing is which of those you know.

NOTE Confidence: 0.868258494

00:22:02.320 --> 00:22:04.217 Is this really a primary lung tumor,

NOTE Confidence: 0.868258494

00:22:04.220 --> 00:22:07.420 or is this really coming from somewhere else?

NOTE Confidence: 0.868258494

00:22:07.420 --> 00:22:08.850 And so understanding that distinction

NOTE Confidence: 0.868258494

00:22:08.850 --> 00:22:10.877 is important in order to help with

NOTE Confidence: 0.868258494

00:22:10.877 --> 00:22:12.503 that decision making process as well.

NOTE Confidence: 0.877409946666667

00:22:13.990 --> 00:22:16.010 You know you mentioned molecular

NOTE Confidence: 0.877409946666667

00:22:16.010 --> 00:22:18.362 diagnostics a few times and I want

NOTE Confidence: 0.877409946666667

00:22:18.362 --> 00:22:20.430 to dive a little bit more into that.

NOTE Confidence: 0.877409946666667

00:22:20.430 --> 00:22:22.170 It on this show.

NOTE Confidence: 0.877409946666667

00:22:22.170 --> 00:22:23.910 We've talked about personalized

NOTE Confidence: 0.877409946666667

00:22:23.910 --> 00:22:26.210 medicine and targeted therapies.

NOTE Confidence: 0.877409946666667

00:22:26.210 --> 00:22:30.248 The idea that these days pathologists,

NOTE Confidence: 0.877409946666667

00:22:30.250 --> 00:22:33.026 can you know, look at these tumors in

NOTE Confidence: 0.877409946666667

00:22:33.026 --> 00:22:36.064 a variety of ways to kind of unlock

NOTE Confidence: 0.877409946666667

00:22:36.064 --> 00:22:38.020 the genomic signatures of them,

NOTE Confidence: 0.877409946666667

00:22:38.020 --> 00:22:40.180 identify whether they express

NOTE Confidence: 0.877409946666667

00:22:40.180 --> 00:22:42.340 certain receptors or certain

NOTE Confidence: 0.877409946666667

00:22:42.340 --> 00:22:44.999 proteins that then are targetable.

NOTE Confidence: 0.877409946666667

00:22:45.000 --> 00:22:49.040 With certain drugs, how common is that done?

NOTE Confidence: 0.877409946666667

00:22:49.040 --> 00:22:51.130 It should, should patients be

NOTE Confidence: 0.877409946666667

00:22:51.130 --> 00:22:53.220 going to their medical oncologists,

NOTE Confidence: 0.877409946666667

00:22:53.220 --> 00:22:55.957 asking about you know whether they have

NOTE Confidence: 0.877409946666667

00:22:55.957 --> 00:22:59.579 a a BRAF mutation or a veg F mutation,

NOTE Confidence: 0.877409946666667

00:22:59.580 --> 00:23:00.790 or that kind of thing?

NOTE Confidence: 0.911416935

00:23:01.700 --> 00:23:03.681 Well, the good news is that there

NOTE Confidence: 0.911416935

00:23:03.681 --> 00:23:05.742 are quite a number of consensus

NOTE Confidence: 0.911416935

00:23:05.742 --> 00:23:07.657 statements on which tumors are

NOTE Confidence: 0.911416935

00:23:07.657 --> 00:23:09.937 really the appropriate ones to do.

NOTE Confidence: 0.911416935

00:23:09.940 --> 00:23:11.892 The mock their testing on their

NOTE Confidence: 0.911416935

00:23:11.892 --> 00:23:13.460 variety of professional societies,

NOTE Confidence: 0.911416935

00:23:13.460 --> 00:23:15.848 which include both pathology and oncology,

NOTE Confidence: 0.911416935

00:23:15.850 --> 00:23:17.260 which is really very, you know,

NOTE Confidence: 0.911416935

00:23:17.260 --> 00:23:20.210 very explicitly stated who should

NOTE Confidence: 0.911416935

00:23:20.210 --> 00:23:23.160 get this kind of profiling.

NOTE Confidence: 0.911416935

00:23:23.160 --> 00:23:25.158 So for example, as I mentioned,

NOTE Confidence: 0.911416935

00:23:25.160 --> 00:23:26.462 the distinction adenocarcinoma

NOTE Confidence: 0.911416935

00:23:26.462 --> 00:23:28.632 and squamous cell carcinoma is

NOTE Confidence: 0.911416935

00:23:28.632 --> 00:23:30.575 really critical and it's really

NOTE Confidence: 0.911416935

00:23:30.575 --> 00:23:32.265 quite clear that the guidelines.

NOTE Confidence: 0.911416935

00:23:32.270 --> 00:23:34.874 Or recommend that anyone with a

NOTE Confidence: 0.911416935

00:23:34.874 --> 00:23:36.610 nano carcinoma should absolutely

NOTE Confidence: 0.911416935

00:23:36.687 --> 00:23:38.587 have unlocked the profiling.

NOTE Confidence: 0.911416935

00:23:38.590 --> 00:23:40.370 That's really and at Yale.

NOTE Confidence: 0.911416935

00:23:40.370 --> 00:23:43.040 Let's say that 100% anyone with

NOTE Confidence: 0.911416935

00:23:43.040 --> 00:23:45.690 adequate tissue will have that done.

NOTE Confidence: 0.911416935

00:23:45.690 --> 00:23:47.265 I should also point out the fact

NOTE Confidence: 0.911416935

00:23:47.265 --> 00:23:48.766 that even though we like to think

NOTE Confidence: 0.911416935

00:23:48.766 --> 00:23:50.590 of this as a tissue based process,

NOTE Confidence: 0.911416935

00:23:50.590 --> 00:23:53.890 there's now also the options

NOTE Confidence: 0.911416935

00:23:53.890 --> 00:23:55.816 to get some of that molecular

NOTE Confidence: 0.911416935

00:23:55.816 --> 00:23:57.970 profiling done just by a blood test.

NOTE Confidence: 0.911416935

00:23:57.970 --> 00:24:00.301 It is not as sensitive as getting

NOTE Confidence: 0.911416935

00:24:00.301 --> 00:24:02.436 adequate piece of tissue, but if it's,

NOTE Confidence: 0.911416935

00:24:02.436 --> 00:24:03.648 you know if it detects it,

NOTE Confidence: 0.911416935

00:24:03.650 --> 00:24:05.414 appropriate genetic abnormality,

NOTE Confidence: 0.911416935

00:24:05.414 --> 00:24:07.766 then it can be.

NOTE Confidence: 0.911416935

00:24:07.770 --> 00:24:09.588 I think we're all pretty comfortable

NOTE Confidence: 0.911416935

00:24:09.588 --> 00:24:11.210 that we can rely on it.

NOTE Confidence: 0.911416935

00:24:11.210 --> 00:24:13.485 On the other hand, as I said,

NOTE Confidence: 0.911416935

00:24:13.490 --> 00:24:15.498 having an adequate piece of tissue to do

NOTE Confidence: 0.911416935

00:24:15.498 --> 00:24:17.887 that is still considered the gold standard.

NOTE Confidence: 0.911416935

00:24:17.890 --> 00:24:20.230 Patients with squamous cell carcinoma,

NOTE Confidence: 0.911416935

00:24:20.230 --> 00:24:23.836 unless with with relatively few exceptions,

NOTE Confidence: 0.911416935

00:24:23.840 --> 00:24:26.948 are not thought to benefit from sequencing.

NOTE Confidence: 0.911416935

00:24:26.950 --> 00:24:27.202 Again,

NOTE Confidence: 0.911416935

00:24:27.202 --> 00:24:27.958 there are few.

NOTE Confidence: 0.911416935

00:24:27.958 --> 00:24:29.470 There are a few exceptions and

NOTE Confidence: 0.911416935

00:24:29.522 --> 00:24:31.220 because there are a few exceptions,

NOTE Confidence: 0.911416935

00:24:31.220 --> 00:24:33.065 some oncologists do would like

NOTE Confidence: 0.911416935

00:24:33.065 --> 00:24:35.386 to see their lung cancers from

NOTE Confidence: 0.911416935

00:24:35.386 --> 00:24:37.416 these patients sequence as well.

NOTE Confidence: 0.911416935

00:24:37.420 --> 00:24:38.892 But that's a much,

NOTE Confidence: 0.911416935

00:24:38.892 --> 00:24:41.890 it's more of a very specific decision.

NOTE Confidence: 0.911416935

00:24:41.890 --> 00:24:43.719 That needs to be done individually,

NOTE Confidence: 0.911416935

00:24:43.719 --> 00:24:46.191 I think now and I should also point

NOTE Confidence: 0.911416935

00:24:46.191 --> 00:24:48.550 out the fact that from my perspective,

NOTE Confidence: 0.911416935

00:24:48.550 --> 00:24:50.874 even though we like to talk about

NOTE Confidence: 0.911416935

00:24:50.874 --> 00:24:53.065 Gnostics as being particularly important

NOTE Confidence: 0.911416935

00:24:53.065 --> 00:24:54.656 for specific therapeutic decisions,

NOTE Confidence: 0.911416935

00:24:54.656 --> 00:24:57.754 so do I have a mutation in a gene

NOTE Confidence: 0.911416935

00:24:57.754 --> 00:24:59.668 where there's a specific drug that

NOTE Confidence: 0.911416935

00:24:59.668 --> 00:25:01.430 targets that specific mutation,

NOTE Confidence: 0.911416935

00:25:01.430 --> 00:25:04.535 which is great when when we have have it.

NOTE Confidence: 0.911416935

00:25:04.540 --> 00:25:06.374 It's also true that from my perspective,

NOTE Confidence: 0.911416935

00:25:06.380 --> 00:25:07.760 sometimes that but profiling

NOTE Confidence: 0.911416935

00:25:07.760 --> 00:25:09.830 could be very useful to decide

NOTE Confidence: 0.911416935

00:25:09.894 --> 00:25:11.938 whether something is in fact a lung

NOTE Confidence: 0.911416935

00:25:11.938 --> 00:25:13.759 cancer or from somewhere else,

NOTE Confidence: 0.911416935

00:25:13.760 --> 00:25:16.105 or it's actually fairly common to have

NOTE Confidence: 0.911416935

00:25:16.105 --> 00:25:18.222 patients who have had a lung cancer

NOTE Confidence: 0.911416935

00:25:18.222 --> 00:25:20.280 to then have a second lung cancer.

NOTE Confidence: 0.911416935

00:25:20.280 --> 00:25:21.840 And sometimes we use it to

NOTE Confidence: 0.911416935

00:25:21.840 --> 00:25:23.190 distinguish whether is this really

NOTE Confidence: 0.911416935

00:25:23.190 --> 00:25:24.756 the same tumor which is record?

NOTE Confidence: 0.911416935

00:25:24.760 --> 00:25:26.734 Or is this really a new tumor?

NOTE Confidence: 0.911416935

00:25:26.740 --> 00:25:28.322 And at the again there may be

NOTE Confidence: 0.911416935

00:25:28.322 --> 00:25:29.230 therapeutic implications from that,

NOTE Confidence: 0.911416935

00:25:29.230 --> 00:25:31.322 depending on the specific

NOTE Confidence: 0.911416935

00:25:31.322 --> 00:25:32.368 patient circumstance.

NOTE Confidence: 0.905616898461538

00:25:33.590 --> 00:25:36.470 So it sounds like you know these decisions

NOTE Confidence: 0.905616898461538

00:25:36.470 --> 00:25:41.210 are are really critical and or can be.

NOTE Confidence: 0.905616898461538

00:25:41.210 --> 00:25:44.416 Now you mentioned that with Frozen section

NOTE Confidence: 0.905616898461538

00:25:44.416 --> 00:25:47.797 you can make a diagnosis in minutes,

NOTE Confidence: 0.905616898461538

00:25:47.800 --> 00:25:50.848 but in terms of getting all of the

NOTE Confidence: 0.905616898461538

00:25:50.848 --> 00:25:53.520 information you know small cell versus

NOTE Confidence: 0.905616898461538

00:25:53.520 --> 00:25:56.262 non small cell adeno versus squamous,

NOTE Confidence: 0.905616898461538

00:25:56.270 --> 00:25:57.713 the molecular profiling.

NOTE Confidence: 0.905616898461538

00:25:57.713 --> 00:26:00.118 How long does that take?

NOTE Confidence: 0.642027447142857

00:26:01.710 --> 00:26:06.330 So the add new versus squamous distinction

NOTE Confidence: 0.642027447142857

00:26:06.330 --> 00:26:08.718 so frequently that you know that

NOTE Confidence: 0.642027447142857

00:26:08.718 --> 00:26:11.288 depends on the specifics of the tumor.

NOTE Confidence: 0.642027447142857

00:26:11.290 --> 00:26:14.044 It's pretty common in a tumor which is so

NOTE Confidence: 0.642027447142857

00:26:14.044 --> 00:26:16.587 called well or moderately differentiated.

NOTE Confidence: 0.642027447142857

00:26:16.590 --> 00:26:18.600 That is still has histologic

NOTE Confidence: 0.642027447142857

00:26:18.600 --> 00:26:20.610 evidence that is producing these

NOTE Confidence: 0.642027447142857

00:26:20.683 --> 00:26:22.729 particular histologic features.

NOTE Confidence: 0.642027447142857

00:26:22.730 --> 00:26:23.941 You can tell it just at the

NOTE Confidence: 0.642027447142857

00:26:23.941 --> 00:26:25.321 time of frozen section would be

NOTE Confidence: 0.642027447142857

00:26:25.321 --> 00:26:26.405 pretty comfortable with that.

NOTE Confidence: 0.642027447142857

00:26:26.410 --> 00:26:28.522 There are other tumors where it's

NOTE Confidence: 0.642027447142857

00:26:28.522 --> 00:26:29.930 a very undifferentiated tumor.

NOTE Confidence: 0.642027447142857

00:26:29.930 --> 00:26:31.454 It really does not the Histology

NOTE Confidence: 0.642027447142857

00:26:31.454 --> 00:26:33.255 of the just looking at it doesn't

NOTE Confidence: 0.642027447142857

00:26:33.255 --> 00:26:34.475 really tell you very much.

NOTE Confidence: 0.642027447142857

00:26:34.480 --> 00:26:36.544 They needed a stains.

NOTE Confidence: 0.642027447142857

00:26:36.544 --> 00:26:38.680 No, it depends on you know

NOTE Confidence: 0.642027447142857

00:26:38.680 --> 00:26:40.920 that could be a day or two.

NOTE Confidence: 0.642027447142857

00:26:40.920 --> 00:26:41.924 Might be your students

NOTE Confidence: 0.642027447142857

00:26:41.924 --> 00:26:42.677 aren't terribly helpful.

NOTE Confidence: 0.642027447142857

00:26:42.680 --> 00:26:44.798 You might do a second round,

NOTE Confidence: 0.642027447142857

00:26:44.800 --> 00:26:47.614 so that might be a few days

NOTE Confidence: 0.642027447142857

00:26:47.620 --> 00:26:50.360 and then the molecular work,

NOTE Confidence: 0.642027447142857

00:26:50.360 --> 00:26:53.288 which includes one marker which helps

NOTE Confidence: 0.642027447142857

00:26:53.288 --> 00:26:56.602 determine how available you are or how

NOTE Confidence: 0.642027447142857

00:26:56.602 --> 00:26:59.158 effective immunotherapy is likely to be.

NOTE Confidence: 0.642027447142857

00:26:59.160 --> 00:27:00.276 With civil PDL.

NOTE Confidence: 0.642027447142857

00:27:00.276 --> 00:27:02.084 One stain that should be done

NOTE Confidence: 0.642027447142857

00:27:02.084 --> 00:27:04.020 within another few days or a week,

NOTE Confidence: 0.642027447142857

00:27:04.020 --> 00:27:05.370 and then they'll look up profiling.

NOTE Confidence: 0.642027447142857

00:27:05.370 --> 00:27:06.726 Again, should be done.

NOTE Confidence: 0.642027447142857

00:27:06.726 --> 00:27:08.082 There's again national standards

NOTE Confidence: 0.642027447142857

00:27:08.082 --> 00:27:10.079 that should be done within two weeks.

NOTE Confidence: 0.948337752

00:27:11.330 --> 00:27:14.470 So it can take up to two weeks to get,

NOTE Confidence: 0.948337752

00:27:14.470 --> 00:27:16.102 you know, kind of a thorough

NOTE Confidence: 0.948337752

00:27:16.102 --> 00:27:17.839 pathologic work up of your cancer

NOTE Confidence: 0.948337752

00:27:17.839 --> 00:27:19.597 is that is that about accurate?

NOTE Confidence: 0.68068933

00:27:20.230 --> 00:27:21.460 I think that for lung cancer,

NOTE Confidence: 0.68068933

00:27:21.460 --> 00:27:23.386 I think that's where we are the

NOTE Confidence: 0.68068933

00:27:23.386 --> 00:27:24.970 the peripheral blood testing.

NOTE Confidence: 0.68068933

00:27:24.970 --> 00:27:26.022 If it shows something,

NOTE Confidence: 0.68068933

00:27:26.022 --> 00:27:27.930 might be a few days before that,

NOTE Confidence: 0.68068933

00:27:27.930 --> 00:27:29.346 but it's not going to be.

NOTE Confidence: 0.68068933

00:27:29.350 --> 00:27:30.125 You know, it's not going

NOTE Confidence: 0.68068933

00:27:30.125 --> 00:27:31.130 to be just a few days,

NOTE Confidence: 0.68068933

00:27:31.130 --> 00:27:33.524 it might be 10 days instead of two weeks,

NOTE Confidence: 0.68068933

00:27:33.530 --> 00:27:34.760 but that seems to be where

NOTE Confidence: 0.68068933

00:27:34.760 --> 00:27:36.000 we are at the moment.

NOTE Confidence: 0.878763908125

00:27:37.050 --> 00:27:39.246 The reason I bring it up is because you

NOTE Confidence: 0.878763908125

00:27:39.246 --> 00:27:41.497 know when patients and people hear that.

NOTE Confidence: 0.878763908125

00:27:41.500 --> 00:27:43.552 You can make a diagnosis in

NOTE Confidence: 0.878763908125

00:27:43.552 --> 00:27:44.920 minutes with frozen section.

NOTE Confidence: 0.878763908125

00:27:44.920 --> 00:27:47.482 They often will then go to their

NOTE Confidence: 0.878763908125

00:27:47.482 --> 00:27:49.624 clinician saying why is it taking

NOTE Confidence: 0.878763908125

00:27:49.624 --> 00:27:51.892 so long to get the pathology back.

NOTE Confidence: 0.878763908125

00:27:51.900 --> 00:27:54.690 On my lung cancer can we

NOTE Confidence: 0.878763908125

00:27:54.690 --> 00:27:56.550 get started with treatment?

NOTE Confidence: 0.878763908125

00:27:56.550 --> 00:27:58.678 So I think that you've kind of

NOTE Confidence: 0.878763908125

00:27:58.678 --> 00:28:00.572 elucidated why it takes so long

NOTE Confidence: 0.878763908125

00:28:00.572 --> 00:28:02.700 and I personally have a maxim that

NOTE Confidence: 0.878763908125

00:28:02.769 --> 00:28:04.799 says never rush the pathologist.

NOTE Confidence: 0.878763908125

00:28:04.800 --> 00:28:06.340 Their opinion is too important.

NOTE Confidence: 0.901859358

00:28:07.950 --> 00:28:10.720 I appreciate that we all you know

NOTE Confidence: 0.901859358

00:28:10.720 --> 00:28:12.448 we want to get it right. We all.

NOTE Confidence: 0.901859358

00:28:12.448 --> 00:28:13.942 I think in pathology we're all

NOTE Confidence: 0.901859358

00:28:13.942 --> 00:28:15.441 really very aware that somebody

NOTE Confidence: 0.901859358

00:28:15.441 --> 00:28:17.026 is waiting for these diagnosis.

NOTE Confidence: 0.901859358

00:28:17.030 --> 00:28:19.852 You know we're not, you know, I,

NOTE Confidence: 0.901859358

00:28:19.852 --> 00:28:21.770 I always personally have a feeling that

NOTE Confidence: 0.901859358

00:28:21.826 --> 00:28:23.826 you know should you know should do it.

NOTE Confidence: 0.901859358

00:28:23.830 --> 00:28:24.690 You should be accurate,

NOTE Confidence: 0.901859358

00:28:24.690 --> 00:28:26.776 but you should also be fast and I think

NOTE Confidence: 0.901859358

00:28:26.776 --> 00:28:28.270 that that they're they're both important.

NOTE Confidence: 0.901859358

00:28:28.270 --> 00:28:30.030 You know nobody is going to cut corners.

NOTE Confidence: 0.901859358

00:28:30.030 --> 00:28:30.818 On the other hand,

NOTE Confidence: 0.901859358

00:28:30.818 --> 00:28:34.290 nobody wants to, just, you know.

NOTE Confidence: 0.901859358

00:28:34.290 --> 00:28:36.618 Slow walk this the diagnosis out the door

NOTE Confidence: 0.865422551111111

00:28:36.950 --> 00:28:40.414 yeah so in in our last minute or

NOTE Confidence: 0.865422551111111

00:28:40.414 --> 00:28:42.649 two maybe you can tell us what's on

NOTE Confidence: 0.865422551111111

00:28:42.649 --> 00:28:44.549 the horizon in thoracic pathology?

NOTE Confidence: 0.865422551111111

00:28:44.550 --> 00:28:46.094 What do we have to look forward to?

NOTE Confidence: 0.919789217

00:28:47.150 --> 00:28:48.614 That's a great question.

NOTE Confidence: 0.919789217

00:28:48.614 --> 00:28:51.628 I think one of the things going forward

NOTE Confidence: 0.919789217

00:28:51.628 --> 00:28:54.082 is really a better understanding of

NOTE Confidence: 0.919789217

00:28:54.082 --> 00:28:55.965 exactly how the immune system works.