WEBVTT

NOTE duration:"00:46:27"

NOTE recognizability:0.925

NOTE language:en-us

NOTE Confidence: 0.928752571428571

00:00:00.000 --> 00:00:02.996 It is. My name is Pam Koons.

NOTE Confidence: 0.928752571428571

00:00:03.000 --> 00:00:05.100 I'm a GI medical oncologist and the

NOTE Confidence: 0.928752571428571

00:00:05.100 --> 00:00:07.360 director of the Center for GI Cancers.

NOTE Confidence: 0.928752571428571

00:00:07.360 --> 00:00:10.559 It's my great pleasure to get to

NOTE Confidence: 0.928752571428571

00:00:10.559 --> 00:00:12.908 introduce Doctor Kiran Taraga as

NOTE Confidence: 0.928752571428571

00:00:12.908 --> 00:00:15.236 today's speaker and welcome to those

NOTE Confidence: 0.928752571428571

00:00:15.236 --> 00:00:17.719 in person and everybody online.

NOTE Confidence: 0.928752571428571

00:00:17.720 --> 00:00:19.589 So Doctor Traga is a professor of

NOTE Confidence: 0.928752571428571

00:00:19.589 --> 00:00:21.499 surgery and the division Chief of

NOTE Confidence: 0.928752571428571

00:00:21.499 --> 00:00:23.244 Surgical Oncology in the Department

NOTE Confidence: 0.928752571428571

00:00:23.244 --> 00:00:25.444 of Surgery and the Assistant medical

NOTE Confidence: 0.928752571428571

00:00:25.444 --> 00:00:27.604 director for the Clinical Trials Office.

NOTE Confidence: 0.928752571428571

00:00:27.610 --> 00:00:29.470 At Yale Cancer Center,

NOTE Confidence: 0.928752571428571

00:00:29.470 --> 00:00:32.650 he joined Yale in fall of 22,

NOTE Confidence: 0.928752571428571

00:00:32.650 --> 00:00:35.009 and I'm from the University of Chicago,

NOTE Confidence: 0.928752571428571

00:00:35.010 --> 00:00:37.229 where he was vice chief of the

NOTE Confidence: 0.928752571428571

00:00:37.229 --> 00:00:39.044 section of General Surgery and

NOTE Confidence: 0.928752571428571

00:00:39.044 --> 00:00:41.019 Surgical Oncology and director of

NOTE Confidence: 0.928752571428571

00:00:41.019 --> 00:00:43.249 the surgical GI Cancer program.

NOTE Confidence: 0.928752571428571

00:00:43.250 --> 00:00:46.450 He is considered a national,

NOTE Confidence: 0.928752571428571

00:00:46.450 --> 00:00:48.685 international thought leader in the

NOTE Confidence: 0.928752571428571

00:00:48.685 --> 00:00:50.473 management of Oligometastatic disease

NOTE Confidence: 0.928752571428571

00:00:50.473 --> 00:00:53.006 and is an expert in regional perfusion,

NOTE Confidence: 0.928752571428571

00:00:53.010 --> 00:00:55.359 including hyperthermic intraperitoneal

NOTE Confidence: 0.928752571428571

00:00:55.359 --> 00:00:57.708 chemotherapy or hypec.

NOTE Confidence: 0.928752571428571

00:00:57.710 --> 00:01:01.286 This is a technique that delivers

NOTE Confidence: 0.928752571428571

00:01:01.286 --> 00:01:03.074 chemotherapy intraparate mealy

NOTE Confidence: 0.928752571428571

00:01:03.074 --> 00:01:05.202 following resection of visible

NOTE Confidence: 0.928752571428571

00:01:05.202 --> 00:01:08.100 tumors and his research focuses in

NOTE Confidence: 0.928752571428571

00:01:08.100 --> 00:01:10.525 this space specifically on clinical

NOTE Confidence: 0.928752571428571

00:01:10.525 --> 00:01:12.950 trials exploring the interface of

NOTE Confidence: 0.928752571428571

00:01:12.950 --> 00:01:15.261 immunotherapy and liquid biopsy and

NOTE Confidence: 0.928752571428571

00:01:15.261 --> 00:01:17.376 the surgical management of cancers.

NOTE Confidence: 0.928752571428571

00:01:17.380 --> 00:01:19.424 I can say personally it's been really

NOTE Confidence: 0.928752571428571

00:01:19.424 --> 00:01:21.100 just wonderful to have you here,

NOTE Confidence: 0.928752571428571

00:01:21.100 --> 00:01:23.095 Karen and is he is a fantastic

NOTE Confidence: 0.928752571428571

00:01:23.095 --> 00:01:24.275 collaborator for the scientists

NOTE Confidence: 0.928752571428571

00:01:24.275 --> 00:01:26.379 in the room and in the zoom room

NOTE Confidence: 0.928752571428571

00:01:26.379 --> 00:01:28.660 I'm putting in a plug that he is

NOTE Confidence: 0.928752571428571

00:01:28.660 --> 00:01:29.892 looking for potential partners.

NOTE Confidence: 0.928752571428571

00:01:29.892 --> 00:01:30.676 So I'm.

NOTE Confidence: 0.928752571428571

00:01:30.676 --> 00:01:31.460 So Karen,

NOTE Confidence: 0.928752571428571

00:01:31.460 --> 00:01:32.618 thank you for joining us today,

NOTE Confidence: 0.906442266666667

00:01:38.680 --> 00:01:41.104 but thank you Doctor Koons and

NOTE Confidence: 0.906442266666667

00:01:41.104 --> 00:01:43.789 thank you everyone for coming today.

NOTE Confidence: 0.906442266666667

00:01:43.790 --> 00:01:47.190 I, I, I took the liberty to of sharing some,

NOTE Confidence: 0.906442266666667

00:01:47.190 --> 00:01:49.010 some slides which have some

NOTE Confidence: 0.906442266666667

00:01:49.010 --> 00:01:50.466 of our research interests.

NOTE Confidence: 0.906442266666667

00:01:50.470 --> 00:01:52.734 And so forgive me if it seems like

NOTE Confidence: 0.906442266666667

00:01:52.734 --> 00:01:54.633 there's just so many topics we're

NOTE Confidence: 0.906442266666667

00:01:54.633 --> 00:01:56.277 covering it just we'll hopefully share

NOTE Confidence: 0.906442266666667

00:01:56.277 --> 00:01:58.113 with you how excited I am about this

NOTE Confidence: 0.906442266666667

00:01:58.113 --> 00:01:59.787 field and how much I would love to get

NOTE Confidence: 0.906442266666667

00:01:59.832 --> 00:02:01.384 all of you excited about it as well.

NOTE Confidence: 0.928516919411765

00:02:04.150 --> 00:02:05.480 Renee, do you know if I can

NOTE Confidence: 0.928516919411765

00:02:05.480 --> 00:02:06.625 turn some of the lights

NOTE Confidence: 0.928516919411765

00:02:06.625 --> 00:02:07.945 down around this space here?

NOTE Confidence: 0.928516919411765

00:02:07.950 --> 00:02:08.970 Because I think I have some

NOTE Confidence: 0.928516919411765

00:02:08.970 --> 00:02:09.870 videos I was running here.

NOTE Confidence: 0.919788761538462

00:02:12.670 --> 00:02:14.302 So I am a surgeon and it is

NOTE Confidence: 0.919788761538462

00:02:14.302 --> 00:02:15.510 lunchtime and I do apologize.

NOTE Confidence: 0.919788761538462

00:02:15.510 --> 00:02:17.070 I'm going to show some pictures.

NOTE Confidence: 0.919788761538462

00:02:17.070 --> 00:02:20.017 I tried to kind of reduce the

NOTE Confidence: 0.919788761538462

00:02:20.017 --> 00:02:21.989 number of pictures I have.

NOTE Confidence: 0.919788761538462

00:02:21.990 --> 00:02:24.195 I do consult for I've I've just

NOTE Confidence: 0.919788761538462

00:02:24.195 --> 00:02:25.750 done some consulting for Mark,

NOTE Confidence: 0.919788761538462

00:02:25.750 --> 00:02:27.290 but it's not anything I'm

NOTE Confidence: 0.919788761538462

00:02:27.290 --> 00:02:28.830 going to speak about today.

NOTE Confidence: 0.919788761538462

00:02:28.830 --> 00:02:31.182 So in 2016 there was this this

NOTE Confidence: 0.919788761538462

00:02:31.182 --> 00:02:33.356 news frenzy that I'm sure most

NOTE Confidence: 0.919788761538462

00:02:33.356 --> 00:02:35.546 of you probably didn't even see,

NOTE Confidence: 0.919788761538462

00:02:35.550 --> 00:02:38.466 but it said a new organ has been discovered.

NOTE Confidence: 0.919788761538462

00:02:38.470 --> 00:02:40.670 And this is a based on a paper

NOTE Confidence: 0.919788761538462

00:02:40.670 --> 00:02:42.075 published in Lancet gastroenterology,

NOTE Confidence: 0.919788761538462

00:02:42.075 --> 00:02:44.910 hepatology and the new organ was the

NOTE Confidence: 0.919788761538462

00:02:44.910 --> 00:02:47.510 the peritoneum and the mesentery.

NOTE Confidence: 0.919788761538462

00:02:47.510 --> 00:02:49.102 And so for all of us surgeons in

NOTE Confidence: 0.919788761538462

00:02:49.102 --> 00:02:50.663 the room we laughed because you

NOTE Confidence: 0.919788761538462

00:02:50.663 --> 00:02:52.325 know this is something people have

NOTE Confidence: 0.919788761538462

00:02:52.378 --> 00:02:53.788 known for thousands of years.

NOTE Confidence: 0.919788761538462

00:02:53.790 --> 00:02:55.284 But I think what you're seeing

NOTE Confidence: 0.919788761538462

00:02:55.284 --> 00:02:56.818 in this schematic over here is

NOTE Confidence: 0.919788761538462

00:02:56.818 --> 00:02:58.028 you're seeing the the colon.

NOTE Confidence: 0.919788761538462

00:02:58.030 --> 00:03:02.230 So you can see in in the the panel C here

NOTE Confidence: 0.9301902

00:03:05.750 --> 00:03:09.026 I guess. So in the panel C here,

NOTE Confidence: 0.9301902

00:03:09.030 --> 00:03:09.912 maybe I'll just move my mouth

NOTE Confidence: 0.9301902

00:03:09.912 --> 00:03:10.630 so everyone can see it.

NOTE Confidence: 0.9301902

00:03:10.630 --> 00:03:11.230 So in the panel C,

NOTE Confidence: 0.9301902

00:03:11.230 --> 00:03:13.166 you can sort of see how the mesentery

NOTE Confidence: 0.9301902

00:03:13.166 --> 00:03:14.950 kind of wraps around the colon.

NOTE Confidence: 0.9301902

00:03:14.950 --> 00:03:16.612 And I tell patients the peritoneum

NOTE Confidence: 0.9301902

00:03:16.612 --> 00:03:18.670 is just sort of like a membrane,

NOTE Confidence: 0.9301902

00:03:18.670 --> 00:03:20.866 which is essentially like Saran wrap.

NOTE Confidence: 0.9301902

00:03:20.870 --> 00:03:23.264 It's essentially as thin as Saran wrap,

NOTE Confidence: 0.9301902

00:03:23.270 --> 00:03:24.986 but it has some remarkable functions.

NOTE Confidence: 0.9301902

00:03:24.990 --> 00:03:26.550 It it has, you know,

NOTE Confidence: 0.9301902

00:03:26.550 --> 00:03:29.126 it clears a lot of endotoxins,

NOTE Confidence: 0.9301902

00:03:29.126 --> 00:03:30.494 bacteria, there's macrophages,

NOTE Confidence: 0.9301902

00:03:30.494 --> 00:03:33.230 there's some T cells in that.

NOTE Confidence: 0.9301902

00:03:33.230 --> 00:03:35.370 It has very important roles

NOTE Confidence: 0.9301902

00:03:35.370 --> 00:03:36.654 in cellular adhesions.

NOTE Confidence: 0.9301902

00:03:36.660 --> 00:03:38.256 And so it's a very interesting thing.

NOTE Confidence: 0.9301902

00:03:38.260 --> 00:03:39.755 And as surgeons we notice

NOTE Confidence: 0.9301902

00:03:39.755 --> 00:03:41.250 this because cancers when they

NOTE Confidence: 0.9301902

00:03:41.309 --> 00:03:43.019 spread to the peritoneal lining,

NOTE Confidence: 0.9301902

00:03:43.020 --> 00:03:45.420 they rarely cross the peritoneal barrier.

NOTE Confidence: 0.9301902

00:03:45.420 --> 00:03:47.394 So it's a very interesting phenomenon

NOTE Confidence: 0.9301902

00:03:47.394 --> 00:03:50.128 that such a thin membrane can actually

NOTE Confidence: 0.9301902

00:03:50.128 --> 00:03:52.378 restrict tumors within this membrane.

NOTE Confidence: 0.9301902

00:03:52.380 --> 00:03:54.156 And so it's a very exciting

NOTE Confidence: 0.9301902

00:03:54.156 --> 00:03:56.220 sort of space to think about.

NOTE Confidence: 0.9301902

00:03:56.220 --> 00:03:57.780 And you know the biggest question

NOTE Confidence: 0.9301902

00:03:57.780 --> 00:03:58.820 is always you know,

NOTE Confidence: 0.9301902

00:03:58.820 --> 00:04:00.244 where do peritoneal surface

NOTE Confidence: 0.9301902

00:04:00.244 --> 00:04:02.024 malignancy stand and should we

NOTE Confidence: 0.9301902

00:04:02.024 --> 00:04:03.910 club all of them together like.

NOTE Confidence: 0.9301902

00:04:03.910 --> 00:04:06.130 Is the phenotypic expression of

NOTE Confidence: 0.9301902

00:04:06.130 --> 00:04:08.350 metastasis as the peritoneal metastases,

NOTE Confidence: 0.9301902

00:04:08.350 --> 00:04:10.582 is that more important or do we think

NOTE Confidence: 0.9301902

00:04:10.582 --> 00:04:12.870 of cancer is more like gastric cancer,

NOTE Confidence: 0.9301902

00:04:12.870 --> 00:04:13.592 pancreatic cancer,

NOTE Confidence: 0.9301902

00:04:13.592 --> 00:04:14.314 liver cancer?

NOTE Confidence: 0.9301902

00:04:14.314 --> 00:04:16.480 And so is it more Histology

NOTE Confidence: 0.9301902

00:04:16.549 --> 00:04:18.535 specific in terms of where they

NOTE Confidence: 0.9301902

00:04:18.535 --> 00:04:20.590 start or the phenotypic expression?

NOTE Confidence: 0.9301902

00:04:20.590 --> 00:04:22.144 And I would argue that it is

NOTE Confidence: 0.9301902

00:04:22.144 --> 00:04:23.110 a combination of both.

NOTE Confidence: 0.9301902

00:04:23.110 --> 00:04:25.910 So I think clearly you have to

NOTE Confidence: 0.9301902

00:04:25.910 --> 00:04:27.110 recognize Histology specific,

NOTE Confidence: 0.9301902

00:04:27.110 --> 00:04:28.460 you have to think about the

NOTE Confidence: 0.9301902

00:04:28.460 --> 00:04:28.910 somatic mutations,

NOTE Confidence: 0.9301902

00:04:28.910 --> 00:04:30.235 you have to think about

NOTE Confidence: 0.9301902

00:04:30.235 --> 00:04:31.560 what the primary tumor is.

NOTE Confidence: 0.9301902

00:04:31.560 --> 00:04:33.762 The tumors that spread to the

NOTE Confidence: 0.9301902

00:04:33.762 --> 00:04:35.697 peritoneum are somewhat bound by

NOTE Confidence: 0.9301902

00:04:35.697 --> 00:04:37.717 some some general common principles,

NOTE Confidence: 0.9301902

00:04:37.720 --> 00:04:39.547 which is that they tend to spread

NOTE Confidence: 0.9301902

00:04:39.547 --> 00:04:41.750 in a very different way than

NOTE Confidence: 0.9301902

00:04:41.750 --> 00:04:43.554 hematogenous or lymphatic spread.

NOTE Confidence: 0.9301902

00:04:43.560 --> 00:04:45.400 So they rarely spread,

NOTE Confidence: 0.9301902

00:04:45.400 --> 00:04:46.320 you know,

NOTE Confidence: 0.9301902

00:04:46.320 --> 00:04:47.982 beyond sort of these spaces and

NOTE Confidence: 0.9301902

00:04:47.982 --> 00:04:49.560 they spread by almost contact.

NOTE Confidence: 0.9301902

00:04:49.560 --> 00:04:51.762 It's a very bizarre phenomenon when

NOTE Confidence: 0.9301902

00:04:51.762 --> 00:04:54.100 we open the abdomen and we look.

NOTE Confidence: 0.9301902

00:04:54.100 --> 00:04:55.750 It's always in spaces which are

NOTE Confidence: 0.9301902

00:04:55.750 --> 00:04:57.487 sort of sequestered where the flow

NOTE Confidence: 0.9301902

00:04:57.487 --> 00:04:58.937 of peritoneal fluid gets stopped.

NOTE Confidence: 0.9301902

00:04:58.940 --> 00:05:00.560 So the right diaphragm for instance

NOTE Confidence: 0.9301902

00:05:00.560 --> 00:05:02.140 or by the ligament of trite,

NOTE Confidence: 0.9301902

00:05:02.140 --> 00:05:04.276 so just a very mechanical sort

NOTE Confidence: 0.9301902

00:05:04.276 --> 00:05:06.300 of a problem that we see.

NOTE Confidence: 0.9301902

00:05:06.300 --> 00:05:08.316 And in this talk when we're talking

NOTE Confidence: 0.9301902

00:05:08.316 --> 00:05:09.180 about peritoneal metastasis,

NOTE Confidence: 0.9301902

00:05:09.180 --> 00:05:11.265 you know generally we're thinking

NOTE Confidence: 0.9301902

00:05:11.265 --> 00:05:12.672 of secondary peritoneal tumors,

NOTE Confidence: 0.9301902

00:05:12.672 --> 00:05:14.388 so tumors that have started at

NOTE Confidence: 0.9301902

00:05:14.388 --> 00:05:16.029 another site and then spread to

NOTE Confidence: 0.9301902

00:05:16.029 --> 00:05:17.299 the peritoneum even though there

NOTE Confidence: 0.9301902

00:05:17.299 --> 00:05:18.709 are primary peritoneal malignancies

NOTE Confidence: 0.9301902

00:05:18.709 --> 00:05:20.185 like mesothelioma or decimal

NOTE Confidence: 0.9301902

00:05:20.185 --> 00:05:22.396 plastic small round cell tumors.

NOTE Confidence: 0.9301902

00:05:22.396 --> 00:05:26.232 That occur in in the peritoneum itself.

NOTE Confidence: 0.9301902

00:05:26.240 --> 00:05:28.208 Now the the question is how do we

NOTE Confidence: 0.9301902

00:05:28.208 --> 00:05:29.719 estimate the incidence of this?

NOTE Confidence: 0.9301902

00:05:29.720 --> 00:05:31.428 Is this a big problem or is

NOTE Confidence: 0.9301902

00:05:31.428 --> 00:05:32.817 this a very small problem?

NOTE Confidence: 0.9301902

00:05:32.817 --> 00:05:34.910 And the answer is we don't exactly

NOTE Confidence: 0.9301902

00:05:34.968 --> 00:05:36.516 know how big the problem is.

NOTE Confidence: 0.9301902

00:05:36.520 --> 00:05:38.445 But I would contend and we've done

NOTE Confidence: 0.9301902

00:05:38.445 --> 00:05:40.624 the math on this and we've kind

NOTE Confidence: 0.9301902

00:05:40.624 --> 00:05:42.562 of looked at this annually there's

NOTE Confidence: 0.9301902

00:05:42.623 --> 00:05:44.373 probably about 100 to 150,000

NOTE Confidence: 0.9301902

00:05:44.373 --> 00:05:46.345 patients with peritoneal metastases

NOTE Confidence: 0.9301902

00:05:46.345 --> 00:05:48.810 that are diagnosed every year.

NOTE Confidence: 0.9301902

00:05:48.810 --> 00:05:50.810 If you add up everyone that's a lot,

NOTE Confidence: 0.951865137692308

00:05:50.810 --> 00:05:52.875 that's about three times the number of

NOTE Confidence: 0.951865137692308

00:05:52.875 --> 00:05:54.890 new pancreas cancer diagnosis every year.

NOTE Confidence: 0.951865137692308

00:05:54.890 --> 00:05:58.218 So it it is something phenotypically is a

NOTE Confidence: 0.951865137692308

00:05:58.218 --> 00:06:01.368 very large but heterogeneous population

NOTE Confidence: 0.951865137692308

00:06:01.370 --> 00:06:02.850 and I I've shown this slide many times.

NOTE Confidence: 0.951865137692308

00:06:02.850 --> 00:06:04.443 So those of you that have heard this talk,

NOTE Confidence: 0.951865137692308

00:06:04.450 --> 00:06:06.242 you know or heard some version of my

NOTE Confidence: 0.951865137692308

00:06:06.242 --> 00:06:08.454 talk have seen this slide, but I don't,

NOTE Confidence: 0.951865137692308

00:06:08.454 --> 00:06:10.610 I won't apologize for it because I

NOTE Confidence: 0.951865137692308

00:06:10.679 --> 00:06:12.744 do think this was a very important

NOTE Confidence: 0.951865137692308

00:06:12.744 --> 00:06:15.467 part in my life in deciding how and

NOTE Confidence: 0.951865137692308

00:06:15.467 --> 00:06:17.237 why to do paranew metastasis.

NOTE Confidence: 0.951865137692308

00:06:17.240 --> 00:06:19.624 And this was a young patient who had

NOTE Confidence: 0.951865137692308

00:06:19.624 --> 00:06:22.081 colon cancer and had clean scans and

NOTE Confidence: 0.951865137692308

00:06:22.081 --> 00:06:23.876 presented with a bowel obstruction.

NOTE Confidence: 0.951865137692308

00:06:23.880 --> 00:06:25.290 And I explored his abdomen over

NOTE Confidence: 0.951865137692308

00:06:25.290 --> 00:06:26.719 here and and for you know,

NOTE Confidence: 0.951865137692308

00:06:26.720 --> 00:06:28.958 those of you in the room,

NOTE Confidence: 0.951865137692308

00:06:28.960 --> 00:06:29.972 what we're seeing here,

NOTE Confidence: 0.951865137692308

00:06:29.972 --> 00:06:31.312 you know, this is the liver,

NOTE Confidence: 0.951865137692308

00:06:31.312 --> 00:06:32.772 this is the head of the patient.

NOTE Confidence: 0.951865137692308

00:06:32.772 --> 00:06:34.064 You can see the graphic there,

NOTE Confidence: 0.951865137692308

00:06:34.064 --> 00:06:34.760 the liver right

NOTE Confidence: 0.944027375

00:06:34.760 --> 00:06:36.460 there, the transfer of stolen

NOTE Confidence: 0.944027375

00:06:36.460 --> 00:06:37.720 is right here. And the

NOTE Confidence: 0.893257136

00:06:37.720 --> 00:06:39.752 sheet of Elmer's glue,

NOTE Confidence: 0.893257136

00:06:39.752 --> 00:06:42.800 that was his peripheral metastasis and.

NOTE Confidence: 0.893257136

00:06:42.800 --> 00:06:44.684 And it was very unfortunate that

NOTE Confidence: 0.893257136

00:06:44.684 --> 00:06:46.590 despite our best treatments and the

NOTE Confidence: 0.893257136

00:06:46.590 --> 00:06:48.360 best surveillance and the best scans,

NOTE Confidence: 0.893257136

00:06:48.360 --> 00:06:50.138 we just could not help this young

NOTE Confidence: 0.893257136

00:06:50.138 --> 00:06:51.747 patient who then succumbed to this

NOTE Confidence: 0.893257136

00:06:51.747 --> 00:06:53.595 cancer in a few months after this.

NOTE Confidence: 0.893257136

00:06:53.600 --> 00:06:54.800 So. So it's a,

NOTE Confidence: 0.893257136

00:06:54.800 --> 00:06:57.752 it was a very thought provoking problem

NOTE Confidence: 0.893257136

00:06:57.752 --> 00:07:01.840 that I have dedicated my career to.

NOTE Confidence: 0.893257136

00:07:01.840 --> 00:07:02.880 And so First off,

NOTE Confidence: 0.893257136

00:07:02.880 --> 00:07:04.782 I would just say that peritoneum metastases

NOTE Confidence: 0.893257136

00:07:04.782 --> 00:07:07.356 are much more common than we think they are.

NOTE Confidence: 0.893257136

00:07:07.360 --> 00:07:08.880 And and why is that?

NOTE Confidence: 0.893257136

00:07:08.880 --> 00:07:11.238 Well, think about it this way if you cannot.

NOTE Confidence: 0.893257136

00:07:11.240 --> 00:07:14.435 Detected on CT scans or PET scans or Mri's,

NOTE Confidence: 0.893257136

00:07:14.440 --> 00:07:16.200 you cannot actually measure it.

NOTE Confidence: 0.893257136

00:07:16.200 --> 00:07:18.464 So in this, in this graphic that one

NOTE Confidence: 0.893257136

00:07:18.464 --> 00:07:21.077 of our residents made many years ago,

NOTE Confidence: 0.893257136

00:07:21.080 --> 00:07:22.916 we just looked at all the

NOTE Confidence: 0.893257136

00:07:22.916 --> 00:07:24.656 different sort of sources of

NOTE Confidence: 0.893257136

00:07:24.656 --> 00:07:26.480 incidence of peritoneal metastases.

NOTE Confidence: 0.893257136

00:07:26.480 --> 00:07:27.880 And if you look at the NCCN text,

NOTE Confidence: 0.893257136

00:07:27.880 --> 00:07:30.100 which comes from randomized trials

NOTE Confidence: 0.893257136

00:07:30.100 --> 00:07:32.320 which require resist measurable tumor,

NOTE Confidence: 0.893257136

00:07:32.320 --> 00:07:33.440 which means you should be

NOTE Confidence: 0.893257136

00:07:33.440 --> 00:07:34.560 able to measure the tumor,

NOTE Confidence: 0.893257136

00:07:34.560 --> 00:07:36.812 the incidence only seems 2% or 3%.

NOTE Confidence: 0.893257136

00:07:36.812 --> 00:07:39.420 But if you actually look at autopsy series,

NOTE Confidence: 0.893257136

00:07:39.420 --> 00:07:41.385 which are dominated by patients

NOTE Confidence: 0.893257136

00:07:41.385 --> 00:07:43.940 probably who die of different reasons,

NOTE Confidence: 0.893257136

00:07:43.940 --> 00:07:44.780 but when you look in that,

NOTE Confidence: 0.893257136

00:07:44.780 --> 00:07:45.880 the incidence of metastasis

NOTE Confidence: 0.893257136

00:07:45.880 --> 00:07:47.255 is as much as 20%.

NOTE Confidence: 0.893257136

00:07:47.260 --> 00:07:48.737 And this is only for colon cancer.

NOTE Confidence: 0.893257136

00:07:48.740 --> 00:07:51.006 So I imagine 135,000 new

NOTE Confidence: 0.893257136

00:07:51.006 --> 00:07:52.178 colon cancers a year,

NOTE Confidence: 0.893257136

00:07:52.180 --> 00:07:54.764 140 and you have 20% of them

NOTE Confidence: 0.893257136

00:07:54.764 --> 00:07:55.580 with peritoneal metastasis.

NOTE Confidence: 0.893257136

00:07:55.580 --> 00:07:57.590 And if they're mucinous tumors, it's 40%.

NOTE Confidence: 0.893257136

00:07:57.590 --> 00:07:59.660 So it's a much higher incidence.

NOTE Confidence: 0.893257136

00:07:59.660 --> 00:08:02.096 But the problem is we don't

NOTE Confidence: 0.893257136

00:08:02.096 --> 00:08:04.050 know where the reality is.

NOTE Confidence: 0.893257136

00:08:04.050 --> 00:08:05.436 Because we don't know how to

NOTE Confidence: 0.893257136

00:08:05.436 --> 00:08:06.129 measure pertinal metastasis.

NOTE Confidence: 0.893257136

00:08:06.130 --> 00:08:08.167 So that's one of the big problems

NOTE Confidence: 0.893257136

00:08:08.167 --> 00:08:09.650 and challenges that are there.

NOTE Confidence: 0.893257136

00:08:09.650 --> 00:08:12.242 I think the second is that these patients

NOTE Confidence: 0.893257136

00:08:12.242 --> 00:08:14.886 don't have clinical trials for them often.

NOTE Confidence: 0.893257136

00:08:14.890 --> 00:08:15.136 Why?

NOTE Confidence: 0.893257136

00:08:15.136 --> 00:08:16.366 Because we can't measure it.

NOTE Confidence: 0.893257136

00:08:16.370 --> 00:08:17.090 If you can't measure it,

NOTE Confidence: 0.893257136

00:08:17.090 --> 00:08:18.494 there's no drug company that's willing

NOTE Confidence: 0.893257136

00:08:18.494 --> 00:08:20.509 to give you a drug to put these

NOTE Confidence: 0.893257136

00:08:20.509 --> 00:08:21.794 patients on clinical trials because

NOTE Confidence: 0.893257136

00:08:21.794 --> 00:08:23.449 you don't have measurable disease.

NOTE Confidence: 0.893257136

00:08:23.450 --> 00:08:24.626 So how do you know if your

NOTE Confidence: 0.893257136

00:08:24.626 --> 00:08:25.450 drug is working or not?

NOTE Confidence: 0.893257136

00:08:25.450 --> 00:08:27.850 And that's the biggest challenge we all face.

NOTE Confidence: 0.893257136

00:08:27.850 --> 00:08:28.432 And in fact,

NOTE Confidence: 0.893257136

00:08:28.432 --> 00:08:30.495 this is one of the papers that one of our

NOTE Confidence: 0.893257136

00:08:30.495 --> 00:08:32.014 fellows had looked at many years ago.

NOTE Confidence: 0.893257136

00:08:32.020 --> 00:08:33.780 In which we saw that for colon cancer,

NOTE Confidence: 0.893257136

00:08:33.780 --> 00:08:35.394 there were 46,000 patients at that

NOTE Confidence: 0.893257136

00:08:35.394 --> 00:08:37.076 time point who had been enrolled

NOTE Confidence: 0.893257136

00:08:37.076 --> 00:08:38.720 in clinical trials of which only

NOTE Confidence: 0.893257136

00:08:38.720 --> 00:08:40.547 600 had some version of peritoneal

NOTE Confidence: 0.893257136

00:08:40.547 --> 00:08:42.377 disease and there was no outcomes

NOTE Confidence: 0.893257136

00:08:42.380 --> 00:08:43.812 reported for these folks.

NOTE Confidence: 0.893257136

00:08:43.812 --> 00:08:46.580 So a very excluded population of patients,

NOTE Confidence: 0.893257136

00:08:46.580 --> 00:08:48.938 a very big population of patients,

NOTE Confidence: 0.893257136

00:08:48.940 --> 00:08:51.298 but excluded from clinical trials and

NOTE Confidence: 0.893257136

00:08:51.298 --> 00:08:54.168 excluded from from a lot of treatments.

NOTE Confidence: 0.893257136

00:08:54.170 --> 00:08:55.778 And the problem then becomes those

NOTE Confidence: 0.893257136

00:08:55.778 --> 00:08:57.482 that do get enrolled on clinical

NOTE Confidence: 0.893257136

00:08:57.482 --> 00:08:59.210 trials or those that have widespread

NOTE Confidence: 0.893257136

00:08:59.210 --> 00:09:01.010 disease or very measurable disease,

NOTE Confidence: 0.893257136

00:09:01.010 --> 00:09:03.170 they have big tumors, lumpy tumors.

NOTE Confidence: 0.893257136

00:09:03.170 --> 00:09:04.584 And so we look at these graphs

NOTE Confidence: 0.893257136

00:09:04.584 --> 00:09:05.730 and we're very nihilistic.

NOTE Confidence: 0.893257136

00:09:05.730 --> 00:09:07.770 We're like, ah, pertinent metastases.

NOTE Confidence: 0.893257136

00:09:07.770 --> 00:09:07.975 It's,

NOTE Confidence: 0.893257136

00:09:07.975 --> 00:09:08.385 you know,

NOTE Confidence: 0.893257136

00:09:08.385 --> 00:09:09.410 not something that we would

NOTE Confidence: 0.893257136

00:09:09.410 --> 00:09:10.694 take care of and these patients

NOTE Confidence: 0.893257136

00:09:10.694 --> 00:09:11.729 should just go to Hospice.

NOTE Confidence: 0.939974802142857

00:09:11.730 --> 00:09:13.818 And I think palliative care is very important

NOTE Confidence: 0.939974802142857

00:09:13.818 --> 00:09:15.849 in the management of these patients,

NOTE Confidence: 0.939974802142857

00:09:15.850 --> 00:09:18.426 but but just being very nihilistic about this

NOTE Confidence: 0.939974802142857

00:09:18.426 --> 00:09:21.088 disease is not fair to these patients either.

NOTE Confidence: 0.939974802142857

00:09:21.090 --> 00:09:22.530 And in fact, so much so that almost

NOTE Confidence: 0.939974802142857

00:09:22.530 --> 00:09:23.880 five or six years ago, in fact,

NOTE Confidence: 0.939974802142857

00:09:23.880 --> 00:09:25.650 when I started and when I had that graphic,

NOTE Confidence: 0.939974802142857

00:09:25.650 --> 00:09:27.960 none of the surgical textbooks had a

NOTE Confidence: 0.939974802142857

00:09:27.960 --> 00:09:29.610 chapter about peritoneal metastasis.

NOTE Confidence: 0.939974802142857

00:09:29.610 --> 00:09:30.340 It's remarkable.

NOTE Confidence: 0.939974802142857

00:09:30.340 --> 00:09:33.050 Now we do have many chapters because

NOTE Confidence: 0.939974802142857

00:09:33.050 --> 00:09:35.650 of our constant advocacy work.

NOTE Confidence: 0.939974802142857

00:09:35.650 --> 00:09:36.570 And then finally, you know,

NOTE Confidence: 0.939974802142857

00:09:36.570 --> 00:09:38.341 when you think about sort of this

NOTE Confidence: 0.939974802142857

00:09:38.341 --> 00:09:39.610 nihilism around peritoneal metastasis,

NOTE Confidence: 0.939974802142857

00:09:39.610 --> 00:09:40.842 the question is why?

NOTE Confidence: 0.939974802142857

00:09:40.842 --> 00:09:42.382 Why are these patients dying?

NOTE Confidence: 0.939974802142857

00:09:42.390 --> 00:09:43.670 Are they dying of cancer, cataxia?

NOTE Confidence: 0.939974802142857

00:09:43.670 --> 00:09:45.630 Do they die because these patients have

NOTE Confidence: 0.939974802142857

00:09:45.630 --> 00:09:47.186 this sort of overwhelming interleukin

NOTE Confidence: 0.939974802142857

00:09:47.186 --> 00:09:49.070 response that they can't eat or

NOTE Confidence: 0.939974802142857

00:09:49.070 --> 00:09:50.786 drink and they kind of waste away?

NOTE Confidence: 0.939974802142857

00:09:50.790 --> 00:09:52.596 Is this a catabolic phenomena like

NOTE Confidence: 0.939974802142857

00:09:52.596 --> 00:09:55.070 that or the are they just dying

NOTE Confidence: 0.939974802142857

00:09:55.070 --> 00:09:57.070 because they have bowel obstructions?

NOTE Confidence: 0.939974802142857

00:09:57.070 --> 00:09:59.054 It's like if someone had renal failure and

NOTE Confidence: 0.939974802142857

00:09:59.054 --> 00:10:01.228 you don't put them on dialysis and they die,

NOTE Confidence: 0.939974802142857

00:10:01.230 --> 00:10:01.788 you wouldn't say,

NOTE Confidence: 0.939974802142857

00:10:01.788 --> 00:10:02.852 Oh my God, you know,

NOTE Confidence: 0.939974802142857

00:10:02.852 --> 00:10:04.600 renal failure is such a horrible problem

NOTE Confidence: 0.939974802142857

00:10:04.600 --> 00:10:06.315 it it is a horrible problem because

NOTE Confidence: 0.939974802142857

00:10:06.315 --> 00:10:07.830 you don't have treatment for it,

NOTE Confidence: 0.939974802142857

00:10:07.830 --> 00:10:10.126 but if someone has a bowel obstruction

NOTE Confidence: 0.939974802142857

00:10:10.126 --> 00:10:12.560 and and you are unable to fix it.

NOTE Confidence: 0.939974802142857

00:10:12.560 --> 00:10:14.520 You know is that is that truly

NOTE Confidence: 0.939974802142857

00:10:14.520 --> 00:10:16.499 more the nature of the disease or

NOTE Confidence: 0.939974802142857

00:10:16.499 --> 00:10:18.600 is it the biology of these tumors.

NOTE Confidence: 0.939974802142857

00:10:18.600 --> 00:10:20.651 And so one of my colleagues at

NOTE Confidence: 0.939974802142857

00:10:20.651 --> 00:10:22.080 the University of Chicago,

NOTE Confidence: 0.939974802142857

00:10:22.080 --> 00:10:22.650 Ralph Wexselbaum,

NOTE Confidence: 0.939974802142857

00:10:22.650 --> 00:10:25.308 who's one of the the world leaders in in

NOTE Confidence: 0.939974802142857

00:10:25.308 --> 00:10:27.234 the thought process of oligo metastasis

NOTE Confidence: 0.939974802142857

00:10:27.234 --> 00:10:29.398 actually coined the term oligo metastasis.

NOTE Confidence: 0.939974802142857

00:10:29.400 --> 00:10:31.514 And when you look at sort of

NOTE Confidence: 0.939974802142857

00:10:31.520 --> 00:10:33.650 colorectal and this is colorectal

NOTE Confidence: 0.939974802142857

00:10:33.650 --> 00:10:35.354 metastasis with liver tumors,

NOTE Confidence: 0.939974802142857

00:10:35.360 --> 00:10:36.900 there's a completely differential

NOTE Confidence: 0.939974802142857

00:10:36.900 --> 00:10:38.440 expression of micro RNAs.

NOTE Confidence: 0.939974802142857

00:10:38.440 --> 00:10:40.220 There's very different profiles and.

NOTE Confidence: 0.939974802142857

00:10:40.220 --> 00:10:41.928 And they published a lot of subsequent

NOTE Confidence: 0.939974802142857

00:10:41.928 --> 00:10:43.466 work looking at immune rich profiles

NOTE Confidence: 0.939974802142857

00:10:43.466 --> 00:10:44.972 which seem to do really well.

NOTE Confidence: 0.939974802142857

00:10:44.980 --> 00:10:45.378 These patients.

NOTE Confidence: 0.939974802142857

00:10:45.378 --> 00:10:46.970 If you look at the X axis on

NOTE Confidence: 0.939974802142857

00:10:47.023 --> 00:10:48.338 the survival curve over here,

NOTE Confidence: 0.939974802142857

00:10:48.340 --> 00:10:49.588 it's 10 plus years,

NOTE Confidence: 0.939974802142857

00:10:49.588 --> 00:10:51.860 almost 15 years and you have about

NOTE Confidence: 0.939974802142857

00:10:51.860 --> 00:10:54.506 40-40 to 60% of patients actually living

NOTE Confidence: 0.939974802142857

00:10:54.506 --> 00:10:58.159 that long when you have this sort of

NOTE Confidence: 0.939974802142857

00:10:58.159 --> 00:11:00.708 appropriate expression of of your tumor.

NOTE Confidence: 0.939974802142857

00:11:00.708 --> 00:11:02.586 And and and this is one of those

NOTE Confidence: 0.939974802142857

00:11:02.586 --> 00:11:04.452 experiments where you know in this

NOTE Confidence: 0.939974802142857

00:11:04.452 --> 00:11:06.228 specific case they looked at micro

NOTE Confidence: 0.939974802142857

00:11:06.230 --> 00:11:07.916 RNA200C and you basically have vial

NOTE Confidence: 0.939974802142857

00:11:07.916 --> 00:11:09.630 type versus those that express it.

NOTE Confidence: 0.939974802142857

00:11:09.630 --> 00:11:12.078 And of course you can see an oligo

NOTE Confidence: 0.939974802142857

00:11:12.078 --> 00:11:13.508 metastatic phenotype which is

NOTE Confidence: 0.939974802142857

00:11:13.508 --> 00:11:15.028 eligible for surgical therapies,

NOTE Confidence: 0.939974802142857

00:11:15.030 --> 00:11:16.548 radiation or ablation,

NOTE Confidence: 0.939974802142857

00:11:16.548 --> 00:11:19.078 ablative therapies versus those patients

NOTE Confidence: 0.939974802142857

00:11:19.078 --> 00:11:22.038 that have Poly metastatic phenotypes.

NOTE Confidence: 0.939974802142857

00:11:22.040 --> 00:11:24.875 And and similarly when you when you

NOTE Confidence: 0.939974802142857

00:11:24.880 --> 00:11:26.490 essentially reduce the expression of

NOTE Confidence: 0.939974802142857

00:11:26.490 --> 00:11:28.424 these micro RNAs you can actually

NOTE Confidence: 0.939974802142857

00:11:28.424 --> 00:11:30.576 these are these are rat livers and so

NOTE Confidence: 0.939974802142857

00:11:30.576 --> 00:11:32.449 they kind of look funky but you can

NOTE Confidence: 0.939974802142857

00:11:32.449 --> 00:11:34.440 see sort of some of these will have

NOTE Confidence: 0.939974802142857

00:11:34.440 --> 00:11:35.760 oligometastatic disease some of these

NOTE Confidence: 0.939974802142857

00:11:35.809 --> 00:11:37.237 will have polymetastatic disease.

NOTE Confidence: 0.939974802142857

00:11:37.240 --> 00:11:39.460 So clearly there is a differential

NOTE Confidence: 0.939974802142857

00:11:39.460 --> 00:11:41.799 phenotype of patients that can be cured.

NOTE Confidence: 0.939974802142857

00:11:41.800 --> 00:11:43.735 So not all stage 4 cancer is the same

NOTE Confidence: 0.939974802142857

00:11:43.735 --> 00:11:45.889 is is sort of where I I I would try to

NOTE Confidence: 0.925574476666666

00:11:45.948 --> 00:11:47.213 say these three slides or

NOTE Confidence: 0.925574476666666

00:11:47.213 --> 00:11:50.250 what what I wanted to convey.

NOTE Confidence: 0.925574476666666

00:11:50.250 --> 00:11:52.140 And so you know, how do we as surgeons

NOTE Confidence: 0.925574476666666

00:11:52.140 --> 00:11:53.288 approach a problem like this?

NOTE Confidence: 0.925574476666666

00:11:53.290 --> 00:11:55.117 You know, very often we would see

NOTE Confidence: 0.925574476666666

00:11:55.117 --> 00:11:56.450 patients with peritoneal metastasis.

NOTE Confidence: 0.925574476666666

00:11:56.450 --> 00:11:58.170 So you can see the livers down here,

NOTE Confidence: 0.925574476666666

00:11:58.170 --> 00:11:59.784 it's a large amount of peritoneal

NOTE Confidence: 0.925574476666666

00:11:59.784 --> 00:12:01.569 metastasis is the phals form ligament.

NOTE Confidence: 0.925574476666666

00:12:01.570 --> 00:12:02.818 And very often surgeons would come

NOTE Confidence: 0.925574476666666

00:12:02.818 --> 00:12:04.592 out of these cases saying, oh gosh,

NOTE Confidence: 0.925574476666666

00:12:04.592 --> 00:12:06.769 we cannot do anything for these patients.

NOTE Confidence: 0.925574476666666

00:12:06.770 --> 00:12:08.390 But we've subsequently developed

NOTE Confidence: 0.925574476666666

00:12:08.390 --> 00:12:09.605 techniques called peritonectomies.

NOTE Confidence: 0.925574476666666

00:12:09.610 --> 00:12:11.164 I tell patients it's like peeling

NOTE Confidence: 0.925574476666666

00:12:11.164 --> 00:12:12.530 the wallpaper off the walls.

NOTE Confidence: 0.925574476666666

00:12:12.530 --> 00:12:13.602 So essentially you're not

NOTE Confidence: 0.925574476666666

00:12:13.602 --> 00:12:14.406 destroying the walls,

NOTE Confidence: 0.925574476666666

00:12:14.410 --> 00:12:16.900 but you're actually taking disease out.

NOTE Confidence: 0.925574476666666

00:12:16.900 --> 00:12:17.686 And so here you can sort

NOTE Confidence: 0.925574476666666

00:12:17.686 --> 00:12:18.619 of see what it looks like,

NOTE Confidence: 0.925574476666666

00:12:18.620 --> 00:12:20.840 it's that Saran wrap which is

NOTE Confidence: 0.925574476666666

00:12:20.840 --> 00:12:22.320 underneath our our instruments

NOTE Confidence: 0.925574476666666

00:12:22.386 --> 00:12:24.300 right here and the same patient

NOTE Confidence: 0.925574476666666

00:12:24.300 --> 00:12:26.406 you can actually strip or clean

NOTE Confidence: 0.925574476666666

00:12:26.406 --> 00:12:28.180 out that entire peritoneal layer

NOTE Confidence: 0.925574476666666

00:12:28.180 --> 00:12:29.400 by keeping an intact peritoneal

NOTE Confidence: 0.925574476666666

00:12:29.400 --> 00:12:31.198 SAC so that you can actually remove

NOTE Confidence: 0.925574476666666

00:12:31.198 --> 00:12:32.776 all of this in its entirety.

NOTE Confidence: 0.925574476666666

00:12:32.780 --> 00:12:35.265 So it is something that that is

NOTE Confidence: 0.925574476666666

00:12:35.265 --> 00:12:37.180 interesting and surgically would

NOTE Confidence: 0.925574476666666

00:12:37.180 --> 00:12:39.448 become more more aggressive at it.

NOTE Confidence: 0.925574476666666

00:12:39.448 --> 00:12:41.690 But right now this is a very,

NOTE Confidence: 0.925574476666666

00:12:41.690 --> 00:12:43.209 you know it is an aggressive approach.

NOTE Confidence: 0.925574476666666

00:12:43.210 --> 00:12:44.533 You know you can see this is

NOTE Confidence: 0.925574476666666

00:12:44.533 --> 00:12:45.530 a big laparotomy incision.

NOTE Confidence: 0.925574476666666

00:12:45.530 --> 00:12:47.366 The head of the patient is on one side,

NOTE Confidence: 0.925574476666666

00:12:47.370 --> 00:12:48.570 the feeder on the other.

NOTE Confidence: 0.925574476666666

00:12:48.570 --> 00:12:50.845 And after we remove all this cancer,

NOTE Confidence: 0.925574476666666

00:12:50.850 --> 00:12:52.158 we put heated intrapartinial

NOTE Confidence: 0.925574476666666

00:12:52.158 --> 00:12:54.120 chemotherapy and the concept is why

NOTE Confidence: 0.925574476666666

00:12:54.178 --> 00:12:55.969 heated intrapartinial chemotherapy.

NOTE Confidence: 0.925574476666666

00:12:55.970 --> 00:12:58.426 The the concept is that you know you

NOTE Confidence: 0.925574476666666

00:12:58.426 --> 00:13:00.061 have application of chemotherapy at

NOTE Confidence: 0.925574476666666

00:13:00.061 --> 00:13:01.975 high doses which has low toxicity

NOTE Confidence: 0.925574476666666

00:13:01.975 --> 00:13:04.208 to systemic absorption is very low,

NOTE Confidence: 0.925574476666666

00:13:04.210 --> 00:13:06.085 you can actually enhance the

NOTE Confidence: 0.925574476666666

00:13:06.085 --> 00:13:07.585 penetration of the drug.

NOTE Confidence: 0.925574476666666

00:13:07.590 --> 00:13:09.746 You know these tumors are very hypovascular,

NOTE Confidence: 0.925574476666666

00:13:09.750 --> 00:13:11.556 so you can kind of enhance the

NOTE Confidence: 0.925574476666666

00:13:11.556 --> 00:13:12.696 vascularity during that period

NOTE Confidence: 0.925574476666666

00:13:12.696 --> 00:13:13.629 of the application.

NOTE Confidence: 0.925574476666666

00:13:13.630 --> 00:13:14.602 But again it's,

NOTE Confidence: 0.925574476666666

00:13:14.602 --> 00:13:16.546 it's it's a little bit also

NOTE Confidence: 0.925574476666666

00:13:16.546 --> 00:13:17.988 controversial because you know

NOTE Confidence: 0.925574476666666

00:13:17.988 --> 00:13:19.748 how does one application of

NOTE Confidence: 0.925574476666666

00:13:19.748 --> 00:13:21.212 chemotherapy work so effectively

NOTE Confidence: 0.925574476666666

00:13:21.212 --> 00:13:22.600 versus multiple applications that

NOTE Confidence: 0.925574476666666

00:13:22.600 --> 00:13:26.070 we do in the systemic setting.

NOTE Confidence: 0.925574476666666

00:13:26.070 --> 00:13:28.462 And clearly you know now we do these

NOTE Confidence: 0.925574476666666

00:13:28.462 --> 00:13:30.059 laparoscopically as well in selected

NOTE Confidence: 0.925574476666666

00:13:30.059 --> 00:13:31.943 patients when we find disease early,

NOTE Confidence: 0.925574476666666

00:13:31.950 --> 00:13:33.725 so we can deliver heated

NOTE Confidence: 0.925574476666666

00:13:33.725 --> 00:13:34.790 chemotherapy that way.

NOTE Confidence: 0.925574476666666

00:13:34.790 --> 00:13:36.582 And then also now what is what

NOTE Confidence: 0.925574476666666

00:13:36.582 --> 00:13:39.114 is very hot in Europe and Asia

NOTE Confidence: 0.925574476666666

00:13:39.114 --> 00:13:40.392 is intrapertinal aerosolized

NOTE Confidence: 0.925574476666666

00:13:40.392 --> 00:13:42.419 chemotherapy where you can actually

NOTE Confidence: 0.925574476666666

00:13:42.419 --> 00:13:44.465 distribute the drug a lot better

NOTE Confidence: 0.925574476666666

00:13:44.465 --> 00:13:46.179 across the entire pertinal cavity.

NOTE Confidence: 0.925574476666666

00:13:46.179 --> 00:13:48.580 This is called pipec and over 10,000

NOTE Confidence: 0.925574476666666

00:13:48.639 --> 00:13:50.279 procedures have already been done

NOTE Confidence: 0.925574476666666

00:13:50.279 --> 00:13:53.709 in the world for these technologies.

NOTE Confidence: 0.925574476666666

00:13:53.710 --> 00:13:55.852 And as you would imagine a lot

NOTE Confidence: 0.925574476666666

00:13:55.852 --> 00:13:57.606 of these patients require very

NOTE Confidence: 0.925574476666666

00:13:57.606 --> 00:13:59.830 close management as as a team,

NOTE Confidence: 0.925574476666666

00:13:59.830 --> 00:14:02.110 the team that consists of physicians.

NOTE Confidence: 0.925574476666666

00:14:02.110 --> 00:14:04.138 Which consists of nurses and dietitians

NOTE Confidence: 0.925574476666666

00:14:04.138 --> 00:14:06.376 and program and only when you do

NOTE Confidence: 0.925574476666666

00:14:06.376 --> 00:14:08.308 that you're able to achieve you know,

NOTE Confidence: 0.925574476666666

00:14:08.310 --> 00:14:08.784 good outcomes.

NOTE Confidence: 0.925574476666666

00:14:08.784 --> 00:14:10.990 And so this is sort of where you know,

NOTE Confidence: 0.925574476666666

00:14:10.990 --> 00:14:12.802 we were before I left the

NOTE Confidence: 0.925574476666666

00:14:12.802 --> 00:14:13.708 University of Chicago,

NOTE Confidence: 0.925574476666666

00:14:13.710 --> 00:14:16.545 we did about 180 procedures a year.

NOTE Confidence: 0.925574476666666

00:14:16.550 --> 00:14:18.368 We were able to reduce the length of stay

NOTE Confidence: 0.925574476666666

00:14:18.368 --> 00:14:20.146 for patients from 10 days to six days,

NOTE Confidence: 0.925574476666666

00:14:20.150 --> 00:14:21.686 the benchmark programs being

NOTE Confidence: 0.925574476666666

00:14:21.686 --> 00:14:23.990 MD Anderson and Wake Forest and

NOTE Confidence: 0.943723035714286

00:14:24.054 --> 00:14:25.590 readmission rates of 8%.

NOTE Confidence: 0.943723035714286

00:14:25.590 --> 00:14:27.480 So it it took a lot of effort for

NOTE Confidence: 0.943723035714286

00:14:27.480 --> 00:14:29.560 us to bring this program together.

NOTE Confidence: 0.943723035714286

00:14:29.560 --> 00:14:31.320 For patients that that

NOTE Confidence: 0.943723035714286

00:14:31.320 --> 00:14:32.640 had pertinum metastases,

NOTE Confidence: 0.943723035714286

00:14:32.640 --> 00:14:34.116 but the biggest question is well,

NOTE Confidence: 0.943723035714286

00:14:34.120 --> 00:14:35.800 is it, is it helping these patients,

NOTE Confidence: 0.943723035714286

00:14:35.800 --> 00:14:36.900 are they living longer?

NOTE Confidence: 0.943723035714286

00:14:36.900 --> 00:14:38.994 Is it worthwhile to do these aggressive

NOTE Confidence: 0.943723035714286

00:14:38.994 --> 00:14:41.208 approaches for these folks and this

NOTE Confidence: 0.943723035714286

00:14:41.208 --> 00:14:43.152 is what happens when patients get

NOTE Confidence: 0.943723035714286

00:14:43.152 --> 00:14:45.137 selected patients with good performance

NOTE Confidence: 0.943723035714286

00:14:45.137 --> 00:14:46.837 status get systemic chemotherapy,

NOTE Confidence: 0.943723035714286

00:14:46.840 --> 00:14:47.815 that's the reference

NOTE Confidence: 0.943723035714286

00:14:47.815 --> 00:14:49.115 survival data right here.

NOTE Confidence: 0.943723035714286

00:14:49.120 --> 00:14:50.530 And then of course those that

NOTE Confidence: 0.943723035714286

00:14:50.530 --> 00:14:51.235 had cytoreductive surgery,

NOTE Confidence: 0.943723035714286

00:14:51.240 --> 00:14:53.016 this was our own data for

NOTE Confidence: 0.943723035714286

00:14:53.016 --> 00:14:54.200 how these patients did.

NOTE Confidence: 0.943723035714286

00:14:54.200 --> 00:14:56.195 Only about 20% of our high grade

NOTE Confidence: 0.943723035714286

00:14:56.195 --> 00:14:58.039 patients live 10 years or longer.

NOTE Confidence: 0.943723035714286

00:14:58.040 --> 00:14:59.632 So if you look and remember the graph

NOTE Confidence: 0.943723035714286

00:14:59.632 --> 00:15:01.386 that I showed earlier for those that

NOTE Confidence: 0.943723035714286

00:15:01.386 --> 00:15:03.054 enrolled in NCT and clinical trials

NOTE Confidence: 0.943723035714286

00:15:03.054 --> 00:15:04.599 that were good performance status,

NOTE Confidence: 0.943723035714286

00:15:04.600 --> 00:15:05.980 patients got systemic chemotherapy.

NOTE Confidence: 0.943723035714286

00:15:05.980 --> 00:15:08.440 No one lived more than five years.

NOTE Confidence: 0.943723035714286

00:15:08.440 --> 00:15:10.099 So you do have the select population

NOTE Confidence: 0.943723035714286

00:15:10.099 --> 00:15:11.440 of patients that you can help.

NOTE Confidence: 0.943723035714286

00:15:11.440 --> 00:15:13.240 But the question is where do we go from here?

NOTE Confidence: 0.943723035714286

00:15:13.240 --> 00:15:14.800 How do we make this better?

NOTE Confidence: 0.943723035714286

00:15:14.800 --> 00:15:17.144 And this is really where I think it's

NOTE Confidence: 0.943723035714286

00:15:17.144 --> 00:15:19.400 important for all of us to think about it.

NOTE Confidence: 0.943723035714286

00:15:19.400 --> 00:15:20.340 So the first question we

NOTE Confidence: 0.943723035714286

00:15:20.340 --> 00:15:21.280 want to ask ourselves is,

NOTE Confidence: 0.943723035714286

00:15:21.280 --> 00:15:23.180 can you actually prevent

NOTE Confidence: 0.943723035714286

00:15:23.180 --> 00:15:24.130 peritoneal metastasis?

NOTE Confidence: 0.943723035714286

00:15:24.130 --> 00:15:25.890 And I'll show you some science behind this,

NOTE Confidence: 0.943723035714286

00:15:25.890 --> 00:15:27.635 but something that is very

NOTE Confidence: 0.943723035714286

00:15:27.635 --> 00:15:29.380 interesting is that a recent

NOTE Confidence: 0.943723035714286

00:15:29.444 --> 00:15:31.472 trial that was just looking at

NOTE Confidence: 0.943723035714286

00:15:31.472 --> 00:15:33.675 patients that had T4 colon cancers,

NOTE Confidence: 0.943723035714286

00:15:33.675 --> 00:15:35.650 nothing has spread outside and.

NOTE Confidence: 0.924771571111111

00:15:58.700 --> 00:16:00.275 On that patients actually have

NOTE Confidence: 0.924771571111111

00:16:00.275 --> 00:16:01.535 better local regional control.

NOTE Confidence: 0.924771571111111

00:16:01.540 --> 00:16:02.975 If you apply intrapertinal chemotherapy

NOTE Confidence: 0.924771571111111

00:16:02.975 --> 00:16:05.367 at the time of a primary cancer

NOTE Confidence: 0.924771571111111

00:16:05.367 --> 00:16:07.175 resection without pertinal metastasis,

NOTE Confidence: 0.924771571111111

00:16:07.180 --> 00:16:08.800 can you actually,

NOTE Confidence: 0.924771571111111

00:16:08.800 --> 00:16:10.856 can you actually reduce that?

NOTE Confidence: 0.924771571111111

00:16:10.856 --> 00:16:12.382 And so if you think about it

NOTE Confidence: 0.924771571111111

00:16:12.382 --> 00:16:13.859 and this is something I will,

NOTE Confidence: 0.924771571111111

00:16:13.860 --> 00:16:15.348 I will tell you is is

NOTE Confidence: 0.924771571111111

00:16:15.348 --> 00:16:16.092 very interesting science.

NOTE Confidence: 0.924771571111111

00:16:16.100 --> 00:16:17.360 And so this is science that was

NOTE Confidence: 0.924771571111111

00:16:17.360 --> 00:16:18.663 done by one of my colleagues

NOTE Confidence: 0.924771571111111

00:16:18.663 --> 00:16:19.863 at the University of Chicago.

NOTE Confidence: 0.924771571111111

00:16:19.870 --> 00:16:21.010 Where we're thinking about

NOTE Confidence: 0.924771571111111

00:16:21.010 --> 00:16:21.865 the intestinal microbiome,

NOTE Confidence: 0.924771571111111

00:16:21.870 --> 00:16:23.522 I think many of you might might

NOTE Confidence: 0.924771571111111

00:16:23.522 --> 00:16:24.882 have heard about the important

NOTE Confidence: 0.924771571111111

00:16:24.882 --> 00:16:26.682 role of the microbiome and thinking

NOTE Confidence: 0.924771571111111

00:16:26.682 --> 00:16:28.361 about carcinogenesis as well

NOTE Confidence: 0.924771571111111

00:16:28.361 --> 00:16:30.189 as development of metastases.

NOTE Confidence: 0.924771571111111

00:16:30.190 --> 00:16:32.409 And clearly in a Peri operative event

NOTE Confidence: 0.924771571111111

00:16:32.409 --> 00:16:35.230 we change the microbiome of the intestines.

NOTE Confidence: 0.924771571111111

00:16:35.230 --> 00:16:36.694 And so the hypothesis for their

NOTE Confidence: 0.924771571111111

00:16:36.694 --> 00:16:38.139 experiments were to look at what

NOTE Confidence: 0.924771571111111

00:16:38.139 --> 00:16:39.630 happened if you took a Western diet.

NOTE Confidence: 0.924771571111111

00:16:39.630 --> 00:16:41.358 So essentially the experiments

NOTE Confidence: 0.924771571111111

00:16:41.358 --> 00:16:45.006 were in in in mice you basically.

NOTE Confidence: 0.924771571111111

00:16:45.010 --> 00:16:46.183 Resected the colon,

NOTE Confidence: 0.924771571111111

00:16:46.183 --> 00:16:48.529 put colon cancer cells inside it,

NOTE Confidence: 0.924771571111111

00:16:48.530 --> 00:16:50.330 and the mice were either fed a vestrin diet,

NOTE Confidence: 0.924771571111111

00:16:50.330 --> 00:16:51.678 they were fed chow,

NOTE Confidence: 0.924771571111111

00:16:51.678 --> 00:16:53.363 or they were given antibiotics.

NOTE Confidence: 0.924771571111111

00:16:53.370 --> 00:16:56.422 And then you gave them a collagenolytic

NOTE Confidence: 0.924771571111111

00:16:56.422 --> 00:16:57.730 bacteria called ephycallus,

NOTE Confidence: 0.924771571111111

00:16:57.730 --> 00:16:59.725 with the hypothesis that collagenolytic

NOTE Confidence: 0.924771571111111

00:16:59.725 --> 00:17:02.090 bacteria cause increase in astomatic leaks.

NOTE Confidence: 0.924771571111111

00:17:02.090 --> 00:17:03.290 So this is their work.

NOTE Confidence: 0.924771571111111

00:17:03.290 --> 00:17:04.670 This has been their life's work

NOTE Confidence: 0.924771571111111

00:17:04.670 --> 00:17:06.241 on this and it's remarkable and

NOTE Confidence: 0.924771571111111

00:17:06.241 --> 00:17:07.731 there's lots of experiment that

NOTE Confidence: 0.924771571111111

00:17:07.731 --> 00:17:09.249 support that it causes this.

NOTE Confidence: 0.924771571111111

00:17:09.250 --> 00:17:11.470 But what was interesting to me.

NOTE Confidence: 0.924771571111111

00:17:11.470 --> 00:17:13.066 Is when you actually look at this,

NOTE Confidence: 0.924771571111111

00:17:13.070 --> 00:17:13.770 these anastomosis.

NOTE Confidence: 0.924771571111111

00:17:13.770 --> 00:17:15.870 So once you've cut the mice,

NOTE Confidence: 0.924771571111111

00:17:15.870 --> 00:17:18.278 you put them back together and you

NOTE Confidence: 0.924771571111111

00:17:18.278 --> 00:17:19.630 inject collagenolytic bacteria and

NOTE Confidence: 0.924771571111111

00:17:19.630 --> 00:17:21.742 then you put colon cancer cells in there.

NOTE Confidence: 0.924771571111111

00:17:21.750 --> 00:17:23.899 All the all the tumors that developed

NOTE Confidence: 0.924771571111111

00:17:23.899 --> 00:17:25.988 were on the serosal surface and

NOTE Confidence: 0.924771571111111

00:17:25.988 --> 00:17:27.828 not on the mucosal surface.

NOTE Confidence: 0.924771571111111

00:17:27.830 --> 00:17:29.585 So all of them came on the serosal surface.

NOTE Confidence: 0.924771571111111

00:17:29.590 --> 00:17:31.620 A lot of these mice ended up

NOTE Confidence: 0.924771571111111

00:17:31.620 --> 00:17:33.220 dying of peritoneal metastasis.

NOTE Confidence: 0.924771571111111

00:17:33.220 --> 00:17:35.188 It's a very interesting credence to

NOTE Confidence: 0.924771571111111

00:17:35.188 --> 00:17:37.183 the theory that perhaps there may

NOTE Confidence: 0.924771571111111

00:17:37.183 --> 00:17:39.049 be a microbial alteration that is

NOTE Confidence: 0.924771571111111

00:17:39.049 --> 00:17:41.047 occurring in these in these primary

NOTE Confidence: 0.924771571111111

00:17:41.047 --> 00:17:43.015 cancer resections that is leading to

NOTE Confidence: 0.924771571111111

00:17:43.020 --> 00:17:45.220 these patients getting peritoneal metastases.

NOTE Confidence: 0.924771571111111

00:17:45.220 --> 00:17:47.004 And what is very funny is that one

NOTE Confidence: 0.924771571111111

00:17:47.004 --> 00:17:49.042 of our colleagues in Belgium said

NOTE Confidence: 0.924771571111111

00:17:49.042 --> 00:17:51.334 maybe the reason mitomycin which is

NOTE Confidence: 0.924771571111111

00:17:51.334 --> 00:17:52.480 our intraperitoneal chemotherapy

NOTE Confidence: 0.924771571111111

00:17:52.537 --> 00:17:54.577 works is that it is also an antibiotic.

NOTE Confidence: 0.924771571111111

00:17:54.580 --> 00:17:55.900 And again it's not been proven,

NOTE Confidence: 0.924771571111111

00:17:55.900 --> 00:17:57.844 but it's just a very thought

NOTE Confidence: 0.924771571111111

00:17:57.844 --> 00:17:59.560 provoking way of thinking about.

NOTE Confidence: 0.924771571111111

00:17:59.560 --> 00:18:02.045 Where the microbiome lies as we think

NOTE Confidence: 0.924771571111111

00:18:02.045 --> 00:18:04.639 about why patients get hurt in metastasis,

NOTE Confidence: 0.924771571111111

00:18:04.640 --> 00:18:05.956 but if we can find these tumors

NOTE Confidence: 0.924771571111111

00:18:05.956 --> 00:18:07.295 and we can actually detect them

NOTE Confidence: 0.924771571111111

00:18:07.295 --> 00:18:08.753 early and we can treat them,

NOTE Confidence: 0.924771571111111

00:18:08.760 --> 00:18:11.118 these patients beat the survival curves.

NOTE Confidence: 0.924771571111111

00:18:11.120 --> 00:18:13.104 So this is the survival of patients that

NOTE Confidence: 0.924771571111111

00:18:13.104 --> 00:18:15.358 if they were found early and had surgery,

NOTE Confidence: 0.924771571111111

00:18:15.360 --> 00:18:17.394 you can look at the X axis is five

NOTE Confidence: 0.924771571111111

00:18:17.394 --> 00:18:19.280 years and you can see that 90% of

NOTE Confidence: 0.924771571111111

00:18:19.280 --> 00:18:20.960 these patients are alive at five years.

NOTE Confidence: 0.924771571111111

00:18:20.960 --> 00:18:22.091 So really a,

NOTE Confidence: 0.924771571111111

00:18:22.091 --> 00:18:24.353 can you prevent them and B,

NOTE Confidence: 0.924771571111111

00:18:24.360 --> 00:18:25.860 can you find them if they're

NOTE Confidence: 0.924771571111111

00:18:25.860 --> 00:18:27.490 very early and then treat them.

NOTE Confidence: 0.924771571111111

00:18:27.490 --> 00:18:29.107 That is sort of really where we

NOTE Confidence: 0.924771571111111

00:18:29.107 --> 00:18:30.926 need to move the needle and that's

NOTE Confidence: 0.924771571111111

00:18:30.926 --> 00:18:32.534 really where I would love for

NOTE Confidence: 0.924772154399999

00:18:32.587 --> 00:18:35.808 us to think about it, about it together.

NOTE Confidence: 0.924772154399999

00:18:35.810 --> 00:18:38.210 And so the problem is conventional

NOTE Confidence: 0.924772154399999

00:18:38.210 --> 00:18:39.010 cross-sectional imaging.

NOTE Confidence: 0.924772154399999

00:18:39.010 --> 00:18:41.811 So this is a CT scan on a coronal view of a

NOTE Confidence: 0.924772154399999

00:18:41.811 --> 00:18:43.450 patient and on a cross-sectional imaging,

NOTE Confidence: 0.924772154399999

00:18:43.450 --> 00:18:44.910 the peritoneum is incredibly

NOTE Confidence: 0.924772154399999

00:18:44.910 --> 00:18:46.005 difficult to image.

NOTE Confidence: 0.924772154399999

00:18:46.010 --> 00:18:47.486 So the imaging of the peritoneum,

NOTE Confidence: 0.924772154399999

00:18:47.490 --> 00:18:49.560 if you can see my cursor,

NOTE Confidence: 0.924772154399999

00:18:49.560 --> 00:18:52.881 which you cannot, is actually this

NOTE Confidence: 0.924772154399999

00:18:52.881 --> 00:18:56.230 line that kind of goes along the colon.

NOTE Confidence: 0.924772154399999

00:18:56.230 --> 00:18:57.870 It's this sort of little little fun time

NOTE Confidence: 0.946962453333333

00:18:58.070 --> 00:19:00.386 stuff here. This stuff right there,

NOTE Confidence: 0.946962453333333

00:19:00.390 --> 00:19:02.390 that's the first name right there.

NOTE Confidence: 0.939212499655173

00:19:02.390 --> 00:19:04.289 And so it is, it is very difficult for

NOTE Confidence: 0.939212499655173

00:19:04.289 --> 00:19:05.923 us to believe that our radiologists

NOTE Confidence: 0.939212499655173

00:19:05.923 --> 00:19:08.538 are going to be able to tell us that

NOTE Confidence: 0.939212499655173

00:19:08.538 --> 00:19:10.028 a patient has peritoneal metastasis.

NOTE Confidence: 0.939212499655173

00:19:10.030 --> 00:19:11.750 It is just not feasible.

NOTE Confidence: 0.939212499655173

00:19:11.750 --> 00:19:13.250 You can certainly tell if someone

NOTE Confidence: 0.939212499655173

00:19:13.250 --> 00:19:14.470 has liver metastasis or not,

NOTE Confidence: 0.939212499655173

00:19:14.470 --> 00:19:16.132 but it's very difficult to tell

NOTE Confidence: 0.939212499655173

00:19:16.132 --> 00:19:17.550 if they have peritoneal meds.

NOTE Confidence: 0.939212499655173

00:19:17.550 --> 00:19:18.798 And so we've played with this

NOTE Confidence: 0.939212499655173

00:19:18.798 --> 00:19:19.422 along with many,

NOTE Confidence: 0.939212499655173

00:19:19.430 --> 00:19:21.510 many other groups and there's a lot of

NOTE Confidence: 0.939212499655173

00:19:21.510 --> 00:19:23.108 radiomics work that folks have done.

NOTE Confidence: 0.939212499655173

00:19:23.110 --> 00:19:25.150 We've done our own radiomics work.

NOTE Confidence: 0.939212499655173

00:19:25.150 --> 00:19:26.690 We did some work with our physics

NOTE Confidence: 0.939212499655173

00:19:26.690 --> 00:19:28.096 group at the University of Chicago

NOTE Confidence: 0.939212499655173

00:19:28.096 --> 00:19:30.025 and try to kind of pick up better

NOTE Confidence: 0.939212499655173

00:19:30.025 --> 00:19:31.627 ways of looking at the pertinum.

NOTE Confidence: 0.939212499655173

00:19:31.630 --> 00:19:33.310 You can look at panel B,

NOTE Confidence: 0.939212499655173

00:19:33.310 --> 00:19:34.822 you can sort of see how you can

NOTE Confidence: 0.939212499655173

00:19:34.822 --> 00:19:36.171 actually enhance the pertinum better by

NOTE Confidence: 0.939212499655173

00:19:36.171 --> 00:19:37.563 kind of playing around with contrast

NOTE Confidence: 0.939212499655173

00:19:37.610 --> 00:19:39.026 agents and how do you give it later?

NOTE Confidence: 0.939212499655173

00:19:39.030 --> 00:19:41.134 How do you give it earlier and how

NOTE Confidence: 0.939212499655173

00:19:41.134 --> 00:19:43.279 does that kind of make a difference?

NOTE Confidence: 0.939212499655173

00:19:43.280 --> 00:19:44.360 I think the other thing that

NOTE Confidence: 0.939212499655173

00:19:44.360 --> 00:19:45.080 we've very been very,

NOTE Confidence: 0.939212499655173

00:19:45.080 --> 00:19:47.408 very interested in is

NOTE Confidence: 0.939212499655173

00:19:47.408 --> 00:19:49.460 study of circulating DNA,

NOTE Confidence: 0.939212499655173

00:19:49.460 --> 00:19:51.260 whether it's cell free or whether

NOTE Confidence: 0.939212499655173

00:19:51.260 --> 00:19:52.474 it's circulating tumor DNA.

NOTE Confidence: 0.939212499655173

00:19:52.474 --> 00:19:54.358 And clearly we know as surgeons

NOTE Confidence: 0.939212499655173

00:19:54.358 --> 00:19:56.040 that it's very prognostic.

NOTE Confidence: 0.939212499655173

00:19:56.040 --> 00:19:57.531 What do we do with that information

NOTE Confidence: 0.939212499655173

00:19:57.531 --> 00:19:58.622 is still something we're all

NOTE Confidence: 0.939212499655173

00:19:58.622 --> 00:19:59.438 trying to figure out.

NOTE Confidence: 0.939212499655173

00:19:59.440 --> 00:20:00.760 But we know that if they're,

NOTE Confidence: 0.939212499655173

00:20:00.760 --> 00:20:02.391 if they don't have cell free DNA

NOTE Confidence: 0.939212499655173

00:20:02.391 --> 00:20:04.003 prior to surgery and you operate or

NOTE Confidence: 0.939212499655173

00:20:04.003 --> 00:20:05.914 at least vary in cell free DNA before

NOTE Confidence: 0.939212499655173

00:20:05.914 --> 00:20:07.916 surgery you operate and they stay negative.

NOTE Confidence: 0.939212499655173

00:20:07.920 --> 00:20:09.360 These patients will do really well,

NOTE Confidence: 0.939212499655173

00:20:09.360 --> 00:20:11.496 whether it's GI cancers of different

NOTE Confidence: 0.939212499655173

00:20:11.496 --> 00:20:13.669 types or other types of cancers.

NOTE Confidence: 0.939212499655173

00:20:13.670 --> 00:20:15.478 And so this is some of our work

NOTE Confidence: 0.939212499655173

00:20:15.478 --> 00:20:17.395 that just got published as well and

NOTE Confidence: 0.939212499655173

00:20:17.395 --> 00:20:18.865 was one of the plenary sessions.

NOTE Confidence: 0.939212499655173

00:20:18.870 --> 00:20:20.550 Some of you have heard this before.

NOTE Confidence: 0.939212499655173

00:20:20.550 --> 00:20:22.174 But really what we did was we took

NOTE Confidence: 0.939212499655173

00:20:22.174 --> 00:20:23.748 patients who had peritoneum metastases.

NOTE Confidence: 0.939212499655173

00:20:23.750 --> 00:20:26.398 We did surgery for these folks and

NOTE Confidence: 0.939212499655173

00:20:26.398 --> 00:20:27.886 then we studied them and followed

NOTE Confidence: 0.939212499655173

00:20:27.886 --> 00:20:28.673 them at CTDNA.

NOTE Confidence: 0.939212499655173

00:20:28.673 --> 00:20:30.654 We said can we actually figure out

NOTE Confidence: 0.939212499655173

00:20:30.654 --> 00:20:32.558 a better way of identifying these

NOTE Confidence: 0.939212499655173

00:20:32.558 --> 00:20:34.750 tumors early and the answer was yes,

NOTE Confidence: 0.939212499655173

00:20:34.750 --> 00:20:35.950 CTDNA did work for us.

NOTE Confidence: 0.939212499655173

00:20:35.950 --> 00:20:38.106 This is a small sample size with

NOTE Confidence: 0.939212499655173

00:20:38.106 --> 00:20:39.030 with numerous assessments.

NOTE Confidence: 0.939212499655173

00:20:39.030 --> 00:20:40.462 It's not 100% sensitive.

NOTE Confidence: 0.939212499655173

00:20:40.462 --> 00:20:43.316 It was only about 90% sensitive in in this,

NOTE Confidence: 0.939212499655173

00:20:43.316 --> 00:20:45.551 in this cohort and it it did have

NOTE Confidence: 0.939212499655173

00:20:45.551 --> 00:20:46.735 a false negative rate.

NOTE Confidence: 0.939212499655173

00:20:46.740 --> 00:20:49.530 So patients who did have undetectable CTDNA,

NOTE Confidence: 0.939212499655173

00:20:49.530 --> 00:20:51.420 1/5 of them still had peritoneal metastasis.

NOTE Confidence: 0.939212499655173

00:20:51.420 --> 00:20:53.412 And in fact if you look at cohorts

NOTE Confidence: 0.939212499655173

00:20:53.412 --> 00:20:54.660 of different technologies,

NOTE Confidence: 0.939212499655173

00:20:54.660 --> 00:20:57.060 many times you have florid peritoneal

NOTE Confidence: 0.939212499655173

00:20:57.060 --> 00:20:59.592 disease and they shed almost no CTDNA.

NOTE Confidence: 0.939212499655173

00:20:59.592 --> 00:21:01.356 In fact one of our research fellows

NOTE Confidence: 0.939212499655173

00:21:01.356 --> 00:21:03.180 were run in the back has has just

NOTE Confidence: 0.939212499655173

00:21:03.180 --> 00:21:04.780 submitted an abstract where if

NOTE Confidence: 0.939212499655173

00:21:04.780 --> 00:21:07.032 you have a single solitary liver

NOTE Confidence: 0.939212499655173

00:21:07.032 --> 00:21:08.996 metastasis your CTDNA is super high.

NOTE Confidence: 0.939212499655173

00:21:08.996 --> 00:21:11.118 But if you have a full abdomen

NOTE Confidence: 0.939212499655173

00:21:11.118 --> 00:21:12.990 full of peritoneal metastases,

NOTE Confidence: 0.939212499655173

00:21:12.990 --> 00:21:14.803 you have almost no CTDNA in the

NOTE Confidence: 0.939212499655173

00:21:14.803 --> 00:21:16.907 range of like point some MTM per ML.

NOTE Confidence: 0.939212499655173

00:21:16.910 --> 00:21:18.996 So it's a it's a remarkable phenomenon

NOTE Confidence: 0.939212499655173

00:21:18.996 --> 00:21:20.717 that the burden of tumors this

NOTE Confidence: 0.939212499655173

00:21:20.717 --> 00:21:22.495 is almost the same or even many

NOTE Confidence: 0.910183380909091

00:21:22.556 --> 00:21:24.310 fold more, but it doesn't shed it.

NOTE Confidence: 0.910183380909091

00:21:24.310 --> 00:21:26.750 It gives credence to the belief that maybe

NOTE Confidence: 0.910183380909091

00:21:26.750 --> 00:21:28.709 local regional treatments like surgery,

NOTE Confidence: 0.910183380909091

00:21:28.710 --> 00:21:30.134 intravertinal chemotherapy may have

NOTE Confidence: 0.910183380909091

00:21:30.134 --> 00:21:33.225 a role in in these sort of metastatic

NOTE Confidence: 0.910183380909091

00:21:33.225 --> 00:21:35.018 settings and then as expected

NOTE Confidence: 0.910183380909091

00:21:35.018 --> 00:21:37.570 if they shed DNA they do worse.

NOTE Confidence: 0.910183380909091

00:21:37.570 --> 00:21:38.810 If they don't shed DNA,

NOTE Confidence: 0.910183380909091

00:21:38.810 --> 00:21:40.427 they do a lot better and that's

NOTE Confidence: 0.910183380909091

00:21:40.427 --> 00:21:41.968 sort of what we saw in this.

NOTE Confidence: 0.910183380909091

00:21:41.970 --> 00:21:43.944 And the biggest question was we saw

NOTE Confidence: 0.910183380909091

00:21:43.944 --> 00:21:45.663 these patients you know three months

NOTE Confidence: 0.910183380909091

00:21:45.663 --> 00:21:47.567 before they showed up on scans and

NOTE Confidence: 0.910183380909091

00:21:47.619 --> 00:21:49.446 you know ceas and things like that.

NOTE Confidence: 0.910183380909091

00:21:49.450 --> 00:21:51.058 But really the bigger question is

NOTE Confidence: 0.910183380909091

00:21:51.058 --> 00:21:53.159 what are we going to do with that

NOTE Confidence: 0.910183380909091

00:21:53.159 --> 00:21:54.611 information and how do we make

NOTE Confidence: 0.910183380909091

00:21:54.669 --> 00:21:56.249 it practical for our patients.

NOTE Confidence: 0.910183380909091

00:21:56.250 --> 00:21:58.322 And so you know some of our research

NOTE Confidence: 0.910183380909091

00:21:58.322 --> 00:22:00.979 has been focused a lot on looking at

NOTE Confidence: 0.910183380909091

00:22:00.979 --> 00:22:02.742 epigenetic modifications and why this

NOTE Confidence: 0.910183380909091

00:22:02.742 --> 00:22:04.668 is important is because right now.

NOTE Confidence: 0.910183380909091

00:22:04.670 --> 00:22:06.518 We need a large amount of DNA

NOTE Confidence: 0.910183380909091

00:22:06.518 --> 00:22:07.790 to actually do CT DNA,

NOTE Confidence: 0.910183380909091

00:22:07.790 --> 00:22:09.788 to do other types of cfdna.

NOTE Confidence: 0.910183380909091

00:22:09.790 --> 00:22:10.550 And so the question is,

NOTE Confidence: 0.910183380909091

00:22:10.550 --> 00:22:12.454 can we actually extract DNA at very

NOTE Confidence: 0.910183380909091

00:22:12.454 --> 00:22:13.905 low levels without the bisulphite

NOTE Confidence: 0.910183380909091

00:22:13.905 --> 00:22:15.365 conversion so that it doesn't

NOTE Confidence: 0.910183380909091

00:22:15.365 --> 00:22:17.299 destroy a lot of the DNA in the

NOTE Confidence: 0.910183380909091

00:22:17.299 --> 00:22:18.635 blood and then look at alterations

NOTE Confidence: 0.910183380909091

00:22:18.635 --> 00:22:20.910 in a cheap sort of reproducible way?

NOTE Confidence: 0.910183380909091

00:22:20.910 --> 00:22:22.758 And so this is where we work with

NOTE Confidence: 0.910183380909091

00:22:22.758 --> 00:22:24.764 one of our chemists, Schwan hey,

NOTE Confidence: 0.910183380909091

00:22:24.764 --> 00:22:26.966 who actually came and gave chemistry

NOTE Confidence: 0.910183380909091

00:22:26.966 --> 00:22:29.030 grand rounds not long ago at Yale.

NOTE Confidence: 0.910183380909091

00:22:29.030 --> 00:22:30.866 And a phenomenal colleague and collaborator,

NOTE Confidence: 0.910183380909091

00:22:30.870 --> 00:22:32.490 but you know basically looking at

NOTE Confidence: 0.910183380909091

00:22:32.490 --> 00:22:35.016 5 HMC and now we're looking at 5

NOTE Confidence: 0.910183380909091

00:22:35.016 --> 00:22:35.706 MC modifications.

NOTE Confidence: 0.910183380909091

00:22:35.710 --> 00:22:37.762 So we have different sorts of

NOTE Confidence: 0.910183380909091

00:22:37.762 --> 00:22:39.536 modification profiles and and his

NOTE Confidence: 0.910183380909091

00:22:39.536 --> 00:22:42.094 lab has already shown and this is I

NOTE Confidence: 0.910183380909091

00:22:42.094 --> 00:22:43.424 think published in cellular science.

NOTE Confidence: 0.910183380909091

00:22:43.430 --> 00:22:45.950 But looking at sort of the five

NOTE Confidence: 0.910183380909091

00:22:45.950 --> 00:22:47.492 HMC distributions of patients and

NOTE Confidence: 0.910183380909091

00:22:47.492 --> 00:22:48.862 you know essentially with with

NOTE Confidence: 0.910183380909091

00:22:48.862 --> 00:22:50.804 this you can identify patients who

NOTE Confidence: 0.910183380909091

00:22:50.804 --> 00:22:52.148 have cancer versus controls,

NOTE Confidence: 0.910183380909091

00:22:52.150 --> 00:22:54.558 you can look at adenomas versus controls.

NOTE Confidence: 0.910183380909091

00:22:54.560 --> 00:22:56.050 Adenomas versus cancer and then

NOTE Confidence: 0.910183380909091

00:22:56.050 --> 00:22:57.966 what we found was peritoneal disease

NOTE Confidence: 0.910183380909091

00:22:57.966 --> 00:22:59.438 versus no peritoneal disease.

NOTE Confidence: 0.910183380909091

00:22:59.440 --> 00:23:01.600 We also had understanding of the

NOTE Confidence: 0.910183380909091

00:23:01.600 --> 00:23:03.040 mechanistic underpinnings of peritoneal

NOTE Confidence: 0.910183380909091

00:23:03.090 --> 00:23:05.010 metastasis and you know I've identified

NOTE Confidence: 0.910183380909091

00:23:05.010 --> 00:23:06.650 some epithelial meas and camel

NOTE Confidence: 0.910183380909091

00:23:06.650 --> 00:23:07.890 transition markers that potentially

NOTE Confidence: 0.910183380909091

00:23:07.890 --> 00:23:10.786 could be part of our signature to

NOTE Confidence: 0.910183380909091

00:23:10.786 --> 00:23:13.478 identify peritoneal disease better.

NOTE Confidence: 0.910183380909091

00:23:13.480 --> 00:23:14.956 So switching gears a little bit,

NOTE Confidence: 0.910183380909091

00:23:14.960 --> 00:23:17.678 you know So what I what I hope I've

NOTE Confidence: 0.910183380909091

00:23:17.678 --> 00:23:19.786 emphasized in this first few minutes of

NOTE Confidence: 0.910183380909091

00:23:19.786 --> 00:23:22.459 my talk is that peritoneal metastases.

NOTE Confidence: 0.910183380909091

00:23:22.460 --> 00:23:24.458 Maybe a heterogeneous group of things.

NOTE Confidence: 0.910183380909091

00:23:24.460 --> 00:23:26.497 There may be population of patients that

NOTE Confidence: 0.910183380909091

00:23:26.497 --> 00:23:28.658 are treatable with local regional therapies.

NOTE Confidence: 0.910183380909091

00:23:28.660 --> 00:23:30.508 We struggle to figure out how

NOTE Confidence: 0.910183380909091

00:23:30.508 --> 00:23:31.740 to identify these patients,

NOTE Confidence: 0.910183380909091

00:23:31.740 --> 00:23:33.700 whether it's with cross-sectional imaging,

NOTE Confidence: 0.910183380909091

00:23:33.700 --> 00:23:34.268 radio omics,

NOTE Confidence: 0.910183380909091

00:23:34.268 --> 00:23:35.972 that type of work or whether

NOTE Confidence: 0.910183380909091

00:23:35.972 --> 00:23:37.660 it's with cell free DNA work,

NOTE Confidence: 0.910183380909091

00:23:37.660 --> 00:23:38.893 although there's promising

NOTE Confidence: 0.910183380909091

00:23:38.893 --> 00:23:40.948 avenues in both of these.

NOTE Confidence: 0.910183380909091

00:23:40.950 --> 00:23:42.741 So the question comes to how can you actually

NOTE Confidence: 0.910183380909091

00:23:42.741 --> 00:23:44.147 think about treating these patients?

NOTE Confidence: 0.910183380909091

00:23:44.150 --> 00:23:45.627 Are there things we can do differently?

NOTE Confidence: 0.910183380909091

00:23:45.630 --> 00:23:46.104 In clinic,

NOTE Confidence: 0.910183380909091

00:23:46.104 --> 00:23:47.526 we often see patients coming and

NOTE Confidence: 0.910183380909091

00:23:47.526 --> 00:23:48.785 saying I stopped having sugar

NOTE Confidence: 0.910183380909091

00:23:48.785 --> 00:23:50.507 because I was told I have cancer,

NOTE Confidence: 0.910183380909091

00:23:50.510 --> 00:23:52.596 I've told sugar feeds these cancers and

NOTE Confidence: 0.910183380909091

00:23:52.596 --> 00:23:54.349 really what happens to these tumors.

NOTE Confidence: 0.910183380909091

00:23:54.350 --> 00:23:57.465 We believe that these tumors are hypoxic.

NOTE Confidence: 0.944865991666666

00:23:57.470 --> 00:23:59.997 We believe that the peritoneum has very

NOTE Confidence: 0.944865991666666

00:23:59.997 --> 00:24:02.013 little vasculature as compared to say

NOTE Confidence: 0.944865991666666

00:24:02.013 --> 00:24:04.417 the liver and other sort of solid organs

NOTE Confidence: 0.944865991666666

00:24:04.417 --> 00:24:07.910 like the lungs and we all know that.

NOTE Confidence: 0.944865991666666

00:24:07.910 --> 00:24:10.085 You know tumors as they

NOTE Confidence: 0.944865991666666

00:24:10.085 --> 00:24:11.390 develop metastatic potential,

NOTE Confidence: 0.944865991666666

00:24:11.390 --> 00:24:14.510 they rely more on anaerobic pathways,

NOTE Confidence: 0.944865991666666

00:24:14.510 --> 00:24:17.258 but they also still have location

NOTE Confidence: 0.944865991666666

00:24:17.258 --> 00:24:19.090 specific metabolic needs specifically

NOTE Confidence: 0.944865991666666

00:24:19.162 --> 00:24:21.229 around oxidated phosphorylation.

NOTE Confidence: 0.944865991666666

00:24:21.230 --> 00:24:22.150 And so the question is,

NOTE Confidence: 0.944865991666666

00:24:22.150 --> 00:24:24.010 is where are these tumors

NOTE Confidence: 0.944865991666666

00:24:24.010 --> 00:24:25.870 getting their their fuel from?

NOTE Confidence: 0.944865991666666

00:24:25.870 --> 00:24:28.236 So again can you interrupt this field?

NOTE Confidence: 0.944865991666666

00:24:28.240 --> 00:24:29.456 And so we did a couple of trials

NOTE Confidence: 0.944865991666666

00:24:29.456 --> 00:24:30.439 with one of my colleagues,

NOTE Confidence: 0.944865991666666

00:24:30.440 --> 00:24:32.040 Ernst Langel over there where

NOTE Confidence: 0.944865991666666

00:24:32.040 --> 00:24:34.057 we gave patients sort of tracer

NOTE Confidence: 0.944865991666666

00:24:34.057 --> 00:24:36.157 labeled glucose and kind of studied

NOTE Confidence: 0.944865991666666

00:24:36.157 --> 00:24:38.383 these tumors and and clearly they

NOTE Confidence: 0.944865991666666

00:24:38.383 --> 00:24:40.238 go along more anaerobic pathways.

NOTE Confidence: 0.944865991666666

00:24:40.240 --> 00:24:42.659 You see a lot more lactate in these

NOTE Confidence: 0.944865991666666

00:24:42.659 --> 00:24:44.570 in these tumors and they kind of

NOTE Confidence: 0.944865991666666

00:24:44.626 --> 00:24:46.518 use different metabolic substrates

NOTE Confidence: 0.944865991666666

00:24:46.520 --> 00:24:48.356 as they're kind of getting it.

NOTE Confidence: 0.944865991666666

00:24:48.360 --> 00:24:50.720 But what was very interesting is the omentum,

NOTE Confidence: 0.944865991666666

00:24:50.720 --> 00:24:53.155 which is the commonest site

NOTE Confidence: 0.944865991666666

00:24:53.155 --> 00:24:54.616 of peritoneum metastases.

NOTE Confidence: 0.944865991666666

00:24:54.620 --> 00:24:56.584 And we don't know why it does

NOTE Confidence: 0.944865991666666

00:24:56.584 --> 00:24:58.558 have a very rich source of fuel

NOTE Confidence: 0.944865991666666

00:24:58.558 --> 00:25:00.377 with it which is adipocytes.

NOTE Confidence: 0.944865991666666

00:25:00.380 --> 00:25:02.858 And and in these experiments what

NOTE Confidence: 0.944865991666666

00:25:02.858 --> 00:25:04.964 what basically Ernst Group showed

NOTE Confidence: 0.944865991666666

00:25:04.964 --> 00:25:07.486 was that when you actually control

NOTE Confidence: 0.944865991666666

00:25:07.486 --> 00:25:11.686 for Fab BP4 which is which is

NOTE Confidence: 0.944865991666666

00:25:11.686 --> 00:25:13.818 associated integrally with adipocytes,

NOTE Confidence: 0.944865991666666

00:25:13.820 --> 00:25:16.568 you can actually reduce the amount

NOTE Confidence: 0.944865991666666

00:25:16.568 --> 00:25:19.679 of in vivo metastasis in in mice

NOTE Confidence: 0.944865991666666

00:25:19.679 --> 00:25:22.073 and so essentially it is somehow.

NOTE Confidence: 0.944865991666666

00:25:22.080 --> 00:25:22.668 You know,

NOTE Confidence: 0.944865991666666

00:25:22.668 --> 00:25:24.432 lending critics to the theory that

NOTE Confidence: 0.944865991666666

00:25:24.432 --> 00:25:26.251 the momentum and the adipocytes that

NOTE Confidence: 0.944865991666666

00:25:26.251 --> 00:25:28.015 are in the momentum are providing

NOTE Confidence: 0.944865991666666

00:25:28.070 --> 00:25:30.094 fuel as opposed to a lot of the

NOTE Confidence: 0.944865991666666

00:25:30.094 --> 00:25:31.292 vasculature which provides fuel

NOTE Confidence: 0.944865991666666

00:25:31.292 --> 00:25:32.676 to these pertinent metastases.

NOTE Confidence: 0.944865991666666

00:25:32.680 --> 00:25:34.224 Very interesting preliminary work.

NOTE Confidence: 0.944865991666666

00:25:34.224 --> 00:25:37.292 It's again not meant for you know like

NOTE Confidence: 0.944865991666666

00:25:37.292 --> 00:25:39.679 inpatient in in patient care right away,

NOTE Confidence: 0.944865991666666

00:25:39.680 --> 00:25:41.612 but I think very interesting for us

NOTE Confidence: 0.944865991666666

00:25:41.612 --> 00:25:44.128 to think about how do we take care of

NOTE Confidence: 0.944865991666666

00:25:44.128 --> 00:25:46.244 these patients and perhaps how do we

NOTE Confidence: 0.944865991666666

00:25:46.244 --> 00:25:47.869 think about alteration of adipocytes.

NOTE Confidence: 0.944865991666666

00:25:47.870 --> 00:25:49.046 And and the other thing we've

NOTE Confidence: 0.944865991666666

00:25:49.046 --> 00:25:50.507 been very interested in is how do

NOTE Confidence: 0.944865991666666

00:25:50.507 --> 00:25:51.562 we actually enhance the effect

NOTE Confidence: 0.944865991666666

00:25:51.562 --> 00:25:52.510 of intrapertinal chemotherapy,

NOTE Confidence: 0.944865991666666

00:25:52.510 --> 00:25:54.508 how do we leverage this to,

NOTE Confidence: 0.944865991666666

00:25:54.510 --> 00:25:56.064 to enhance the care of these patients.

NOTE Confidence: 0.944865991666666

00:25:56.070 --> 00:25:58.622 So these are patient panels where we had

NOTE Confidence: 0.944865991666666

00:25:58.622 --> 00:26:01.147 patients with high grade unresectable tumors,

NOTE Confidence: 0.944865991666666

00:26:01.150 --> 00:26:03.105 where we did multiple applications

NOTE Confidence: 0.944865991666666

00:26:03.105 --> 00:26:04.669 of intrapertinal chemotherapy only,

NOTE Confidence: 0.944865991666666

00:26:04.670 --> 00:26:07.766 no surgery and we actually almost

NOTE Confidence: 0.944865991666666

00:26:07.766 --> 00:26:09.314 developed complete pathological

NOTE Confidence: 0.944865991666666

00:26:09.314 --> 00:26:11.642 responses as you can see in panel

NOTE Confidence: 0.944865991666666

00:26:11.642 --> 00:26:13.546 C for these patients that had very

NOTE Confidence: 0.944865991666666

00:26:13.546 --> 00:26:15.519 high grade disease that we would not

NOTE Confidence: 0.944865991666666

00:26:15.519 --> 00:26:16.944 have routinely offered surgery for.

NOTE Confidence: 0.944865991666666

00:26:16.950 --> 00:26:18.630 And they lived exactly the same

NOTE Confidence: 0.944865991666666

00:26:18.630 --> 00:26:20.928 as those that we did open big

NOTE Confidence: 0.944865991666666

00:26:20.928 --> 00:26:22.788 cytoreductive surgeries and hypex for.

NOTE Confidence: 0.944865991666666

00:26:22.790 --> 00:26:24.638 But what was more interesting was that a

NOTE Confidence: 0.944865991666666

00:26:24.638 --> 00:26:26.296 lot of these tumors actually developed

NOTE Confidence: 0.944865991666666

00:26:26.296 --> 00:26:28.310 and I don't have that data here,

NOTE Confidence: 0.944865991666666

00:26:28.310 --> 00:26:31.550 but they all had alterations in their P,

NOTE Confidence: 0.944865991666666

00:26:31.550 --> 00:26:32.702 DL1 expression, their C,

NOTE Confidence: 0.944865991666666

00:26:32.702 --> 00:26:32.990 PS:,

NOTE Confidence: 0.944865991666666

00:26:32.990 --> 00:26:35.230 scores to the to the factor where we

NOTE Confidence: 0.944865991666666

00:26:35.230 --> 00:26:38.232 have now a clinical trial for adding

NOTE Confidence: 0.944865991666666

00:26:38.232 --> 00:26:40.128 an intravertinal chemotherapy plus

NOTE Confidence: 0.944865991666666

00:26:40.128 --> 00:26:41.839 immunotherapy for these patients

NOTE Confidence: 0.944865991666666

00:26:41.839 --> 00:26:43.789 that are otherwise cold tumors.

NOTE Confidence: 0.944865991666666

00:26:43.790 --> 00:26:45.530 These are incredibly cold tumors.

NOTE Confidence: 0.944865991666666

00:26:45.530 --> 00:26:47.049 If you look at the TCGA Atlas,

NOTE Confidence: 0.944865991666666

00:26:47.050 --> 00:26:49.129 a lot of these GI tumors actually

NOTE Confidence: 0.944865991666666

00:26:49.129 --> 00:26:50.020 have a lot

NOTE Confidence: 0.931922793888889

00:26:50.091 --> 00:26:52.923 of you know sort of hot immune signatures.

NOTE Confidence: 0.931922793888889

00:26:52.930 --> 00:26:55.234 But when you actually go to giving these

NOTE Confidence: 0.931922793888889

00:26:55.234 --> 00:26:57.273 folks checkpoint inhibition or do any

NOTE Confidence: 0.931922793888889

00:26:57.273 --> 00:26:58.685 sort of conventional immunotherapy,

NOTE Confidence: 0.931922793888889

00:26:58.690 --> 00:27:00.706 they don't respond as well unless they're MSI

NOTE Confidence: 0.931922793888889

00:27:00.706 --> 00:27:02.927 high or they have specific characteristics.

NOTE Confidence: 0.931922793888889

00:27:02.930 --> 00:27:05.749 And so with intrapartinal chemotherapy we

NOTE Confidence: 0.931922793888889

00:27:05.749 --> 00:27:08.141 believe that you can actually change some of

NOTE Confidence: 0.931922793888889

00:27:08.141 --> 00:27:11.990 the the the immune profile of these tumors.

NOTE Confidence: 0.931922793888889

00:27:11.990 --> 00:27:12.949 And so I think in the last,

NOTE Confidence: 0.931922793888889

00:27:12.950 --> 00:27:14.900 you know maybe 5 or 10

NOTE Confidence: 0.931922793888889

00:27:14.900 --> 00:27:17.030 minutes of this of my talk.

NOTE Confidence: 0.931922793888889

00:27:17.030 --> 00:27:19.028 You know I just wanted to tell you that

NOTE Confidence: 0.931922793888889

00:27:19.028 --> 00:27:21.204 there are numerous unanswered questions in

NOTE Confidence: 0.931922793888889

00:27:21.204 --> 00:27:23.104 the management of peritoneal metastasis.

NOTE Confidence: 0.931922793888889

00:27:23.110 --> 00:27:24.993 Numerous I will tell you that we

NOTE Confidence: 0.931922793888889

00:27:24.993 --> 00:27:27.234 don't even know the basics of the

NOTE Confidence: 0.931922793888889

00:27:27.234 --> 00:27:28.949 immune environment of the peritoneum.

NOTE Confidence: 0.931922793888889

00:27:28.950 --> 00:27:29.388 It's fascinating.

NOTE Confidence: 0.931922793888889

00:27:29.388 --> 00:27:30.702 I was talking to Steve Rosenberg

NOTE Confidence: 0.931922793888889

00:27:30.702 --> 00:27:31.630 once and I asked him,

NOTE Confidence: 0.931922793888889

00:27:31.630 --> 00:27:33.184 I said do you understand the immune

NOTE Confidence: 0.931922793888889

00:27:33.184 --> 00:27:34.304 environment of the peritoneum and

NOTE Confidence: 0.931922793888889

00:27:34.304 --> 00:27:35.944 and the bottom line is for for some

NOTE Confidence: 0.931922793888889

00:27:35.994 --> 00:27:37.268 you know many of the labs many,

NOTE Confidence: 0.931922793888889

00:27:37.270 --> 00:27:39.355 many animal models look at

NOTE Confidence: 0.931922793888889

00:27:39.355 --> 00:27:40.189 intrapertinal tumors.

NOTE Confidence: 0.931922793888889

00:27:40.190 --> 00:27:42.325 But we actually don't understand what the

NOTE Confidence: 0.931922793888889

00:27:42.325 --> 00:27:44.149 native immune environment of the pertinum is.

NOTE Confidence: 0.931922793888889

00:27:44.150 --> 00:27:45.625 How is T cell trafficking

NOTE Confidence: 0.931922793888889

00:27:45.625 --> 00:27:46.510 happening over there?

NOTE Confidence: 0.931922793888889

00:27:46.510 --> 00:27:48.071 What is the repertoire of T cells

NOTE Confidence: 0.931922793888889

00:27:48.071 --> 00:27:49.508 that are present in the pertinum.

NOTE Confidence: 0.931922793888889

00:27:49.510 --> 00:27:50.834 We understand what happens

NOTE Confidence: 0.931922793888889

00:27:50.834 --> 00:27:51.827 when there's peritonitis.

NOTE Confidence: 0.931922793888889

00:27:51.830 --> 00:27:53.405 We certainly know that when

NOTE Confidence: 0.931922793888889

00:27:53.405 --> 00:27:54.350 someone has inflammation,

NOTE Confidence: 0.931922793888889

00:27:54.350 --> 00:27:56.789 what happens to these tumors and how do they,

NOTE Confidence: 0.931922793888889

00:27:56.790 --> 00:27:58.710 what happens to the the diseases

NOTE Confidence: 0.931922793888889

00:27:58.710 --> 00:27:59.990 and the inflammatory processes.

NOTE Confidence: 0.931922793888889

00:27:59.990 --> 00:28:01.390 But we don't actually understand

NOTE Confidence: 0.931922793888889

00:28:01.390 --> 00:28:02.805 what happens to these clinically.

NOTE Confidence: 0.931922793888889

00:28:02.805 --> 00:28:04.870 How we see this is many times

NOTE Confidence: 0.931922793888889

00:28:04.870 --> 00:28:06.628 our patients are dying because

NOTE Confidence: 0.931922793888889

00:28:06.628 --> 00:28:08.100 of the inflammatory response.

NOTE Confidence: 0.931922793888889

00:28:08.100 --> 00:28:09.310 They die of bowel obstructions

NOTE Confidence: 0.931922793888889

00:28:09.310 --> 00:28:10.520 because the tumors create the

NOTE Confidence: 0.931922793888889

00:28:10.566 --> 00:28:11.940 significant inflammatory response,

NOTE Confidence: 0.931922793888889

00:28:11.940 --> 00:28:13.515 it causes medenteric fibrosis and

NOTE Confidence: 0.931922793888889

00:28:13.515 --> 00:28:15.920 then we're unable to fix these bowel

NOTE Confidence: 0.931922793888889

00:28:15.920 --> 00:28:17.860 obstructions that these patients have.

NOTE Confidence: 0.931922793888889

00:28:17.860 --> 00:28:19.978 And so we don't understand this.

NOTE Confidence: 0.931922793888889

00:28:19.980 --> 00:28:21.312 The other work that is very

NOTE Confidence: 0.931922793888889

00:28:21.312 --> 00:28:23.025 interesting is that we all know that

NOTE Confidence: 0.931922793888889

00:28:23.025 --> 00:28:24.573 the vent beta ketenin pathways are

NOTE Confidence: 0.931922793888889

00:28:24.573 --> 00:28:26.404 activated in a lot of these GI tumors

NOTE Confidence: 0.931922793888889

00:28:26.404 --> 00:28:27.368 that cause peritoneum metastasis.

NOTE Confidence: 0.931922793888889

00:28:27.368 --> 00:28:29.524 But what we have also seen is

NOTE Confidence: 0.931922793888889

00:28:29.524 --> 00:28:30.779 the conventional bad actors,

NOTE Confidence: 0.931922793888889

00:28:30.780 --> 00:28:32.830 the B RAF mutant tumors.

NOTE Confidence: 0.931922793888889

00:28:32.830 --> 00:28:34.702 They don't do as poorly when

NOTE Confidence: 0.931922793888889

00:28:34.702 --> 00:28:35.950 they have peritoneal metastasis.

NOTE Confidence: 0.931922793888889

00:28:35.950 --> 00:28:38.386 They actually do almost exactly the same.

NOTE Confidence: 0.931922793888889

00:28:38.390 --> 00:28:40.287 And indeed it's the big three CA

NOTE Confidence: 0.931922793888889

00:28:40.287 --> 00:28:41.904 pathways that are mutated that

NOTE Confidence: 0.931922793888889

00:28:41.904 --> 00:28:43.388 seem to predict differently.

NOTE Confidence: 0.931922793888889

00:28:43.390 --> 00:28:45.224 So they do differently based on sort

NOTE Confidence: 0.931922793888889

00:28:45.224 --> 00:28:47.029 of what they're signaling pathways.

NOTE Confidence: 0.931922793888889

00:28:47.030 --> 00:28:48.030 And we don't understand that.

NOTE Confidence: 0.931922793888889

00:28:48.030 --> 00:28:50.150 We don't know why that is the case.

NOTE Confidence: 0.931922793888889

00:28:50.150 --> 00:28:51.182 And then finally,

NOTE Confidence: 0.931922793888889

00:28:51.182 --> 00:28:53.246 there's a lot of science about

NOTE Confidence: 0.931922793888889

00:28:53.246 --> 00:28:54.516 pharmacokinetics of drugs and

NOTE Confidence: 0.931922793888889

00:28:54.516 --> 00:28:55.389 novel drug delivery.

NOTE Confidence: 0.931922793888889

00:28:55.390 --> 00:28:57.917 We know that if you give someone

NOTE Confidence: 0.931922793888889

00:28:57.917 --> 00:29:00.257 systemic chemotherapy by the time it

NOTE Confidence: 0.931922793888889

00:29:00.257 --> 00:29:02.237 crosses the plasma peritoneal barrier.

NOTE Confidence: 0.931922793888889

00:29:02.240 --> 00:29:03.900 The concentration of the drug

NOTE Confidence: 0.931922793888889

00:29:03.900 --> 00:29:05.560 depending on the molecular size

NOTE Confidence: 0.931922793888889

00:29:05.617 --> 00:29:07.354 of it is one by two to the 10th,

NOTE Confidence: 0.931922793888889

00:29:07.360 --> 00:29:10.312 so 1 by 1000 and 24th of the serum

NOTE Confidence: 0.931922793888889

00:29:10.312 --> 00:29:12.360 concentration of this chemotherapeutic

NOTE Confidence: 0.931922793888889

00:29:12.360 --> 00:29:14.236 and and that is a remarkably low

NOTE Confidence: 0.931922793888889

00:29:14.236 --> 00:29:15.448 dose of systemic chemotherapy

NOTE Confidence: 0.931922793888889

00:29:15.448 --> 00:29:17.554 when it comes to the peritoneum.

NOTE Confidence: 0.931922793888889

00:29:17.560 --> 00:29:19.186 The question is how do you

NOTE Confidence: 0.931922793888889

00:29:19.186 --> 00:29:19.999 alter that pharmacokinetics?

NOTE Confidence: 0.931922793888889

00:29:20.000 --> 00:29:21.185 How do you actually change

NOTE Confidence: 0.931922793888889

00:29:21.185 --> 00:29:22.370 that such that your drug

NOTE Confidence: 0.922453161052632

00:29:22.424 --> 00:29:24.054 substrate substrates are able to

NOTE Confidence: 0.922453161052632

00:29:24.054 --> 00:29:25.358 actually enter the peritoneum?

NOTE Confidence: 0.922453161052632

00:29:25.360 --> 00:29:27.160 And how do you think about

NOTE Confidence: 0.922453161052632

00:29:27.160 --> 00:29:27.760 the pharmacokinetics?

NOTE Confidence: 0.922453161052632

00:29:27.760 --> 00:29:30.478 I'm just, I just have two like sort of

NOTE Confidence: 0.922453161052632

00:29:30.478 --> 00:29:33.055 quick slides for for folks to look at.

NOTE Confidence: 0.922453161052632

00:29:33.060 --> 00:29:34.236 And this is the work that was actually

NOTE Confidence: 0.922453161052632

00:29:34.236 --> 00:29:35.459 done by one of our medical students.

NOTE Confidence: 0.922453161052632

00:29:35.460 --> 00:29:36.615 All the work that I've shown today,

NOTE Confidence: 0.922453161052632

00:29:36.620 --> 00:29:38.510 most of it has been done by either our

NOTE Confidence: 0.922453161052632

00:29:38.510 --> 00:29:40.378 lab or one of our collaborator labs.

NOTE Confidence: 0.922453161052632

00:29:40.380 --> 00:29:41.682 And and it's all been driven

NOTE Confidence: 0.922453161052632

00:29:41.682 --> 00:29:43.132 by medical students, residents,

NOTE Confidence: 0.922453161052632

00:29:43.132 --> 00:29:46.300 undergraduate research students, fellows.

NOTE Confidence: 0.922453161052632

00:29:46.300 --> 00:29:47.684 And so I, I,

NOTE Confidence: 0.922453161052632

00:29:47.684 --> 00:29:50.412 we truly have been very hungry for for young,

NOTE Confidence: 0.922453161052632

00:29:50.412 --> 00:29:52.157 you know smart minds to come work

NOTE Confidence: 0.922453161052632

00:29:52.157 --> 00:29:53.984 with us to help figure out how do we

NOTE Confidence: 0.922453161052632

00:29:54.041 --> 00:29:55.775 actually make a difference in this.

NOTE Confidence: 0.922453161052632

00:29:55.780 --> 00:29:57.596 And this is just the work looking at

NOTE Confidence: 0.922453161052632

00:29:57.596 --> 00:29:59.695 the number of pathways that are altered

NOTE Confidence: 0.922453161052632

00:29:59.695 --> 00:30:01.290 for patient with pertinum metastases.

NOTE Confidence: 0.922453161052632

00:30:01.290 --> 00:30:03.346 And you know of course the APC pathways

NOTE Confidence: 0.922453161052632

00:30:03.346 --> 00:30:05.269 are always affected in a lot of these

NOTE Confidence: 0.922453161052632

00:30:05.269 --> 00:30:07.407 GI tumors here as about half of the time.

NOTE Confidence: 0.922453161052632

00:30:07.410 --> 00:30:09.082 But the big three kind is which we

NOTE Confidence: 0.922453161052632

00:30:09.082 --> 00:30:10.774 thought was the most important pathways

NOTE Confidence: 0.922453161052632

00:30:10.774 --> 00:30:12.299 in particular metastasis only about

NOTE Confidence: 0.922453161052632

00:30:12.299 --> 00:30:15.002 17% and of course mad for 11% and

NOTE Confidence: 0.922453161052632

00:30:15.002 --> 00:30:17.234 then this sort of you know and again

NOTE Confidence: 0.922453161052632

00:30:17.234 --> 00:30:18.610 done by one of our medical students.

NOTE Confidence: 0.922453161052632

00:30:18.610 --> 00:30:18.970 So,

NOTE Confidence: 0.922453161052632

00:30:18.970 --> 00:30:21.286 so remarkable sort of work and then

NOTE Confidence: 0.922453161052632

00:30:21.286 --> 00:30:22.834 this is something where we've been

NOTE Confidence: 0.922453161052632

00:30:22.834 --> 00:30:25.192 looking at microparticles and how do you

NOTE Confidence: 0.922453161052632

00:30:25.192 --> 00:30:26.620 actually deliver microparticle based.

NOTE Confidence: 0.922453161052632

00:30:26.620 --> 00:30:27.172 Packlet axle,

NOTE Confidence: 0.922453161052632

00:30:27.172 --> 00:30:29.380 2 tumors and what we discovered is that

NOTE Confidence: 0.922453161052632

00:30:29.435 --> 00:30:31.780 these microparticles are just bound by mucin.

NOTE Confidence: 0.922453161052632

00:30:31.780 --> 00:30:33.362 So mucin just kind of binds it

NOTE Confidence: 0.922453161052632

00:30:33.362 --> 00:30:34.805 and doesn't let it distribute

NOTE Confidence: 0.922453161052632

00:30:34.805 --> 00:30:36.217 within the peritoneal cavity.

NOTE Confidence: 0.922453161052632

00:30:36.220 --> 00:30:37.708 And so this is just sort of some

NOTE Confidence: 0.922453161052632

00:30:37.708 --> 00:30:39.422 of the other work that's coming out

NOTE Confidence: 0.922453161052632

00:30:39.422 --> 00:30:41.199 right now when we've been working with

NOTE Confidence: 0.922453161052632

00:30:41.199 --> 00:30:43.384 one of our pharmacologists to try to

NOTE Confidence: 0.922453161052632

00:30:43.384 --> 00:30:46.060 figure this out and really finding that,

NOTE Confidence: 0.922453161052632

00:30:46.060 --> 00:30:46.972 you know,

NOTE Confidence: 0.922453161052632

00:30:46.972 --> 00:30:49.056 it really binds our nanoparticles

NOTE Confidence: 0.922453161052632

00:30:49.056 --> 00:30:50.488 and microparticles that we're

NOTE Confidence: 0.922453161052632

00:30:50.488 --> 00:30:52.300 introducing in the peritoneal cavity.

NOTE Confidence: 0.922453161052632

00:30:52.300 --> 00:30:56.249 So just kind of a very tough space.

NOTE Confidence: 0.922453161052632

00:30:56.250 --> 00:30:57.786 But that exactly that is why

NOTE Confidence: 0.922453161052632

00:30:57.786 --> 00:30:58.810 it makes it exciting.

NOTE Confidence: 0.922453161052632

00:30:58.810 --> 00:31:01.610 That's why we're Yale because,

NOTE Confidence: 0.922453161052632

00:31:01.610 --> 00:31:02.478 you know, we don't,

NOTE Confidence: 0.922453161052632

00:31:02.478 --> 00:31:03.563 we don't address simple problems.

NOTE Confidence: 0.922453161052632

00:31:03.570 --> 00:31:04.930 We want to take on the tough problems.

NOTE Confidence: 0.922453161052632

00:31:04.930 --> 00:31:06.352 And I think that's where having

NOTE Confidence: 0.922453161052632

00:31:06.352 --> 00:31:08.050 all of you smart folks here is,

NOTE Confidence: 0.922453161052632

00:31:08.050 --> 00:31:10.367 is so important and exciting to me.

NOTE Confidence: 0.922453161052632

00:31:10.370 --> 00:31:12.656 And so my pitch for all of you would

NOTE Confidence: 0.922453161052632

00:31:12.656 --> 00:31:15.126 be that it's a poorly studied field,

NOTE Confidence: 0.922453161052632

00:31:15.130 --> 00:31:16.366 but it has a large impact.

NOTE Confidence: 0.922453161052632

00:31:16.370 --> 00:31:18.788 There's a huge population of patients

NOTE Confidence: 0.922453161052632

00:31:18.788 --> 00:31:20.400 that would benefit tremendously.

NOTE Confidence: 0.922453161052632

00:31:20.400 --> 00:31:22.220 From from improvements in the

NOTE Confidence: 0.922453161052632

00:31:22.220 --> 00:31:23.676 management of peritoneal metastasis.

NOTE Confidence: 0.922453161052632

00:31:23.680 --> 00:31:24.011 So,

NOTE Confidence: 0.922453161052632

00:31:24.011 --> 00:31:27.026 so I welcome all of you if you're interested.

NOTE Confidence: 0.922453161052632

00:31:27.026 --> 00:31:28.394 There's lots of tissue.

NOTE Confidence: 0.922453161052632

00:31:28.400 --> 00:31:30.440 We do laparoscopies for these patients.

NOTE Confidence: 0.922453161052632

00:31:30.440 --> 00:31:31.676 We take out tons of tissue.

NOTE Confidence: 0.922453161052632

00:31:31.680 --> 00:31:33.080 Sometimes my tissue specimens

NOTE Confidence: 0.922453161052632

00:31:33.080 --> 00:31:34.480 go across the alphabet,

NOTE Confidence: 0.922453161052632

00:31:34.480 --> 00:31:36.496 which means I have more than

NOTE Confidence: 0.922453161052632

00:31:36.496 --> 00:31:37.840 26 specimens per case.

NOTE Confidence: 0.922453161052632

00:31:37.840 --> 00:31:40.117 So lots of tissue to be to be drawn.

NOTE Confidence: 0.922453161052632

00:31:40.120 --> 00:31:41.954 Most of these patients are very generous.

NOTE Confidence: 0.922453161052632

00:31:41.960 --> 00:31:43.703 It is not infrequently once a month

NOTE Confidence: 0.922453161052632

00:31:43.703 --> 00:31:45.838 or once twice a month I get an e-mail

NOTE Confidence: 0.922453161052632

00:31:45.838 --> 00:31:47.381 of someone who wants to donate

NOTE Confidence: 0.922453161052632

00:31:47.381 --> 00:31:48.866 their body to science research.

NOTE Confidence: 0.9421404875

00:31:48.870 --> 00:31:50.974 And that is probably the most generous gift

NOTE Confidence: 0.9421404875

00:31:50.974 --> 00:31:53.070 that any any human being can ever make.

NOTE Confidence: 0.9421404875

00:31:53.070 --> 00:31:54.510 But we don't know what to do with that.

NOTE Confidence: 0.9421404875

00:31:54.510 --> 00:31:55.385 Like what do we do with that.

NOTE Confidence: 0.9421404875

00:31:55.390 --> 00:31:58.036 We don't even have a mechanism of of actually

NOTE Confidence: 0.9421404875

00:31:58.036 --> 00:31:59.904 studying that or or making use of it.

NOTE Confidence: 0.9421404875

00:31:59.910 --> 00:32:01.675 It's a nice window of

NOTE Confidence: 0.9421404875

00:32:01.675 --> 00:32:02.396 opportunities environment.

NOTE Confidence: 0.9421404875

00:32:02.396 --> 00:32:04.226 We're able to give chemotherapeutics.

NOTE Confidence: 0.9421404875

00:32:04.230 --> 00:32:06.400 We're able to give Immunotherapeutics

NOTE Confidence: 0.9421404875

00:32:06.400 --> 00:32:08.230 to patients. We do laparoscopies,

NOTE Confidence: 0.9421404875

00:32:08.230 --> 00:32:10.170 we get biopsies, we go do surgery.

NOTE Confidence: 0.9421404875

00:32:10.170 --> 00:32:11.994 2 weeks later, we can actually show

NOTE Confidence: 0.9421404875

00:32:11.994 --> 00:32:14.347 you and get you tissue for how these

NOTE Confidence: 0.9421404875

00:32:14.347 --> 00:32:16.339 patients will do afterwards as well.

NOTE Confidence: 0.9421404875

00:32:16.340 --> 00:32:17.980 I think these patients have

NOTE Confidence: 0.9421404875

00:32:17.980 --> 00:32:19.292 a significantly tough time,

NOTE Confidence: 0.9421404875

00:32:19.300 --> 00:32:20.980 not only with the disease,

NOTE Confidence: 0.9421404875

00:32:20.980 --> 00:32:23.297 the lack of knowledge of the disease.

NOTE Confidence: 0.9421404875

00:32:23.300 --> 00:32:24.518 90% of patients who would come to

NOTE Confidence: 0.9421404875

00:32:24.518 --> 00:32:25.841 my clinic were told they were going

NOTE Confidence: 0.9421404875

00:32:25.841 --> 00:32:26.975 to live less than three months,

NOTE Confidence: 0.9421404875

00:32:26.980 --> 00:32:27.631 90% we actually,

NOTE Confidence: 0.9421404875

00:32:27.631 --> 00:32:29.150 we actually did a survey and we

NOTE Confidence: 0.9421404875

00:32:29.195 --> 00:32:30.551 asked people in our waiting room

NOTE Confidence: 0.9421404875

00:32:30.551 --> 00:32:32.278 and they had been told by some

NOTE Confidence: 0.9421404875

00:32:32.278 --> 00:32:33.573 healthcare provider who did this.

NOTE Confidence: 0.9421404875

00:32:33.580 --> 00:32:35.596 We did a lot of education around this.

NOTE Confidence: 0.9421404875

00:32:35.600 --> 00:32:37.425 We have lots of processes

NOTE Confidence: 0.9421404875

00:32:37.425 --> 00:32:38.520 of working together.

NOTE Confidence: 0.9421404875

00:32:38.520 --> 00:32:39.636 Jen Capital is here and we

NOTE Confidence: 0.9421404875

00:32:39.636 --> 00:32:40.600 were just chatting about this.

NOTE Confidence: 0.9421404875

00:32:40.600 --> 00:32:42.406 But how do we cointegrate palliative

NOTE Confidence: 0.9421404875

00:32:42.406 --> 00:32:44.203 care into our into our clinics

NOTE Confidence: 0.9421404875

00:32:44.203 --> 00:32:46.072 so that we make sure that we're,

NOTE Confidence: 0.9421404875

00:32:46.080 --> 00:32:47.578 we're taking care of the human being

NOTE Confidence: 0.9421404875

00:32:47.578 --> 00:32:49.502 as a whole and not just you know

NOTE Confidence: 0.9421404875

00:32:49.502 --> 00:32:51.239 pertinent metastases or not just GI cancer,

NOTE Confidence: 0.9421404875

00:32:51.240 --> 00:32:52.596 but we're taking care of our,

NOTE Confidence: 0.9421404875

00:32:52.600 --> 00:32:54.536 our patients and appropriately

NOTE Confidence: 0.9421404875

00:32:54.536 --> 00:32:57.440 transitioning when we're not able to

NOTE Confidence: 0.9421404875

00:32:57.440 --> 00:32:58.920 provide them with therapeutic options.

NOTE Confidence: 0.9421404875

00:32:58.920 --> 00:33:01.055 And how do we build clinical trials

NOTE Confidence: 0.9421404875

00:33:01.055 --> 00:33:03.770 in this space you know how do you

NOTE Confidence: 0.9421404875

00:33:03.770 --> 00:33:05.154 advocate for pharma companies.

NOTE Confidence: 0.9421404875

00:33:05.160 --> 00:33:06.462 To to get allow these patients

NOTE Confidence: 0.9421404875

00:33:06.462 --> 00:33:07.680 to get onto clinical trials,

NOTE Confidence: 0.9421404875

00:33:07.680 --> 00:33:09.030 because right now we cannot put

NOTE Confidence: 0.9421404875

00:33:09.030 --> 00:33:10.240 these patients on clinical trials.

NOTE Confidence: 0.9421404875

00:33:10.240 --> 00:33:12.165 Many times you have ascites

NOTE Confidence: 0.9421404875

00:33:12.165 --> 00:33:13.320 that's not enough.

NOTE Confidence: 0.9421404875

00:33:13.320 --> 00:33:15.075 Or if you have tumors which are very small,

NOTE Confidence: 0.9421404875

00:33:15.080 --> 00:33:16.718 don't even fit the 1 centimeter category,

NOTE Confidence: 0.9421404875

00:33:16.720 --> 00:33:18.480 you can't put them on a clinical trial.

NOTE Confidence: 0.9421404875

00:33:18.480 --> 00:33:19.604 So there's a big,

NOTE Confidence: 0.9421404875

00:33:19.604 --> 00:33:21.290 big initiative at the Coke Institute

NOTE Confidence: 0.9421404875

00:33:21.350 --> 00:33:23.100 at MIT where we're trying to get

NOTE Confidence: 0.9421404875

00:33:23.100 --> 00:33:25.155 together to try to figure out how do we,

NOTE Confidence: 0.9421404875

00:33:25.160 --> 00:33:26.200 how do we fix this.

NOTE Confidence: 0.9421404875

00:33:26.200 --> 00:33:27.530 But I think it's a great space

NOTE Confidence: 0.9421404875

00:33:27.530 --> 00:33:28.480 to build a career.

NOTE Confidence: 0.9421404875

00:33:28.480 --> 00:33:30.739 That is what I will tell you when I

NOTE Confidence: 0.9421404875

00:33:30.739 --> 00:33:32.520 started as a surgical oncologist.

NOTE Confidence: 0.9421404875

00:33:32.520 --> 00:33:33.760 You know, every surgical oncologist,

NOTE Confidence: 0.9421404875

00:33:33.760 --> 00:33:35.265 for those of you that may not

NOTE Confidence: 0.9421404875

00:33:35.265 --> 00:33:36.120 know what we do,

NOTE Confidence: 0.9421404875

00:33:36.120 --> 00:33:37.878 we want to do the big

NOTE Confidence: 0.9421404875

00:33:37.878 --> 00:33:38.757 liver pancreas operations.

NOTE Confidence: 0.9421404875

00:33:38.760 --> 00:33:40.027 That is sort of the sexy thing

NOTE Confidence: 0.9421404875

00:33:40.027 --> 00:33:41.119 for us to want to do.

NOTE Confidence: 0.9421404875

00:33:41.120 --> 00:33:42.156 And that's what I wanted to do.

NOTE Confidence: 0.9421404875

00:33:42.160 --> 00:33:43.960 I wanted to do robotic whipples.

NOTE Confidence: 0.9421404875

00:33:43.960 --> 00:33:45.202 That's what I went and trained

NOTE Confidence: 0.9421404875

00:33:45.202 --> 00:33:46.758 and I became an expert in that.

NOTE Confidence: 0.9421404875

00:33:46.760 --> 00:33:48.181 And I said I published the first

NOTE Confidence: 0.9421404875

00:33:48.181 --> 00:33:49.445 series of how to do robotic

NOTE Confidence: 0.9421404875

00:33:49.445 --> 00:33:50.866 whipples and I said this is what

NOTE Confidence: 0.9421404875

00:33:50.911 --> 00:33:52.276 I'm going to make my career on.

NOTE Confidence: 0.9421404875

00:33:52.280 --> 00:33:55.080 And I got a job offer from Milwaukee,

NOTE Confidence: 0.9421404875

00:33:55.080 --> 00:33:56.465 which which changed my life

NOTE Confidence: 0.9421404875

00:33:56.465 --> 00:33:58.825 forever and and I had a job offer

NOTE Confidence: 0.9421404875

00:33:58.825 --> 00:34:00.345 from Mount Sinai and Milwaukee.

NOTE Confidence: 0.938995605

00:34:00.350 --> 00:34:02.350 And I chose the job offer in Milwaukee,

NOTE Confidence: 0.938995605

00:34:02.350 --> 00:34:03.950 even though it paid less, just because

NOTE Confidence: 0.938995605

00:34:03.950 --> 00:34:05.390 I had the right people to work with.

NOTE Confidence: 0.938995605

00:34:05.390 --> 00:34:08.598 I had good mentors and and that

NOTE Confidence: 0.938995605

00:34:08.598 --> 00:34:09.746 was the best decision of my life.

NOTE Confidence: 0.938995605

00:34:09.750 --> 00:34:10.830 But they said, oh, you know,

NOTE Confidence: 0.938995605

00:34:10.830 --> 00:34:12.310 you can do sort of liver and pancreas,

NOTE Confidence: 0.938995605

00:34:12.310 --> 00:34:14.228 but why don't you do this stuff?

NOTE Confidence: 0.938995605

00:34:14.230 --> 00:34:15.206 And I said, oh,

NOTE Confidence: 0.938995605

00:34:15.206 --> 00:34:16.910 OK and and I started doing it.

NOTE Confidence: 0.938995605

00:34:16.910 --> 00:34:18.542 And I love my patient population

NOTE Confidence: 0.938995605

00:34:18.542 --> 00:34:20.030 and I love what I did.

NOTE Confidence: 0.938995605

00:34:20.030 --> 00:34:21.190 It was a tough problem.

NOTE Confidence: 0.938995605

00:34:21.190 --> 00:34:22.709 No one else wanted to do it.

NOTE Confidence: 0.938995605

00:34:22.710 --> 00:34:24.348 And so I got to write the book chapters,

NOTE Confidence: 0.938995605

00:34:24.350 --> 00:34:26.110 I got to write be at the podiums, I got

NOTE Confidence: 0.938995605

00:34:26.110 --> 00:34:27.670 to be coming and doing all of this stuff.

NOTE Confidence: 0.938995605

00:34:27.670 --> 00:34:28.618 And here look at me, I'm,

NOTE Confidence: 0.938995605

00:34:28.618 --> 00:34:30.226 I'm division chief of surgical oncology,

NOTE Confidence: 0.938995605

00:34:30.230 --> 00:34:32.350 one of the best divisions in the world.

NOTE Confidence: 0.938995605

00:34:32.350 --> 00:34:34.240 So it is a remarkable space

NOTE Confidence: 0.938995605

00:34:34.240 --> 00:34:36.150 and not much has changed.

NOTE Confidence: 0.938995605

00:34:36.150 --> 00:34:37.190 Yes, some has changed,

NOTE Confidence: 0.938995605

00:34:37.190 --> 00:34:39.125 but I think it's a great opportunity

NOTE Confidence: 0.938995605

00:34:39.125 --> 00:34:41.309 for those of you that are excited

NOTE Confidence: 0.938995605

00:34:41.310 --> 00:34:42.666 to build your careers on this

NOTE Confidence: 0.938995605

00:34:42.666 --> 00:34:43.805 because there's not those many

NOTE Confidence: 0.938995605

00:34:43.805 --> 00:34:45.100 people that want to do this stuff

NOTE Confidence: 0.938995605

00:34:45.100 --> 00:34:46.588 or can do this stuff really well.

NOTE Confidence: 0.938995605

00:34:46.590 --> 00:34:48.361 So I would say we were looking

NOTE Confidence: 0.938995605

00:34:48.361 --> 00:34:48.867 for collaborations,

NOTE Confidence: 0.938995605

00:34:48.870 --> 00:34:50.614 lots of partnerships and

NOTE Confidence: 0.938995605

00:34:50.614 --> 00:34:53.230 and feel free to reach out.

NOTE Confidence: 0.938995605

00:34:53.230 --> 00:34:54.574 I do have to acknowledge this is

NOTE Confidence: 0.938995605

00:34:54.574 --> 00:34:55.990 obviously not a comprehensive group,

NOTE Confidence: 0.938995605

00:34:55.990 --> 00:34:57.278 but this is some of my group

NOTE Confidence: 0.938995605

00:34:57.278 --> 00:34:58.150 that we've worked really,

NOTE Confidence: 0.938995605

00:34:58.150 --> 00:34:59.940 really closely on for understanding

NOTE Confidence: 0.938995605

00:34:59.940 --> 00:35:02.110 a lot of our chemistry work.

NOTE Confidence: 0.938995605

00:35:02.110 --> 00:35:05.450 A lot of our fellows and residents that I,

NOTE Confidence: 0.938995605

00:35:05.450 --> 00:35:07.150 I have not acknowledged,

NOTE Confidence: 0.938995605

00:35:07.150 --> 00:35:08.941 but I have some of their work in the

NOTE Confidence: 0.938995605

00:35:08.941 --> 00:35:10.763 in the slides that have really been

NOTE Confidence: 0.938995605

00:35:10.763 --> 00:35:12.858 very helpful and a lot of funding that

NOTE Confidence: 0.938995605

00:35:12.858 --> 00:35:14.700 we've had over the years that have

NOTE Confidence: 0.938995605

00:35:14.700 --> 00:35:16.175 that have supported our research.

NOTE Confidence: 0.938995605

00:35:16.180 --> 00:35:17.174 So with that I'm going to stop.

NOTE Confidence: 0.938995605

00:35:17.180 --> 00:35:19.180 I know it's a little early but but

NOTE Confidence: 0.938995605

00:35:19.180 --> 00:35:20.950 I'd welcome any questions or comments

NOTE Confidence: 0.938995605

00:35:20.950 --> 00:35:23.054 and and love a good discussion on

NOTE Confidence: 0.938995605

00:35:23.054 --> 00:35:24.608 this and and of course this is

NOTE Confidence: 0.938995605

00:35:24.608 --> 00:35:26.060 this is my cell phone and e-mail.

NOTE Confidence: 0.938995605

00:35:26.060 --> 00:35:27.580 So thank you again for your attention today.

NOTE Confidence: 0.938995605

00:35:27.580 --> 00:35:27.860 Go ahead

NOTE Confidence: 0.93522202

00:35:29.740 --> 00:35:29.980 Laura. So

NOTE Confidence: 0.935222025

00:35:44.070 --> 00:35:44.510 I think this talk

NOTE Confidence: 0.94025373

00:35:47.990 --> 00:35:50.110 kind of group

NOTE Confidence: 0.943128967142857

00:35:52.710 --> 00:35:56.754 together the context of like a

NOTE Confidence: 0.943128967142857

00:35:56.754 --> 00:36:00.185 legal mess that you need for.

NOTE Confidence: 0.943128967142857

00:36:00.185 --> 00:36:03.554 A lot of life, and normally we obviously

NOTE Confidence: 0.943128967142857

00:36:03.554 --> 00:36:06.410 haven't used either reduction a lot

NOTE Confidence: 0.943128967142857

00:36:06.410 --> 00:36:09.125 without a care of intent in MGI center.

NOTE Confidence: 0.943128967142857

00:36:09.125 --> 00:36:12.148 And I'm hoping you could weigh in on

NOTE Confidence: 0.943128967142857

00:36:12.148 --> 00:36:13.922 your perspective on the difference

NOTE Confidence: 0.943128967142857

00:36:13.922 --> 00:36:16.210 of what your new goals are when

NOTE Confidence: 0.943128967142857

00:36:16.210 --> 00:36:17.810 you're working in this space,

NOTE Confidence: 0.943128967142857

00:36:17.810 --> 00:36:20.730 whether you're considering it,

NOTE Confidence: 0.943128967142857

00:36:20.730 --> 00:36:22.550 no matter whether you're considering

NOTE Confidence: 0.943128967142857

00:36:22.550 --> 00:36:24.982 it like a rapid process or if

NOTE Confidence: 0.943128967142857

00:36:24.982 --> 00:36:26.650 that matters and try to discuss

NOTE Confidence: 0.943128967142857

00:36:26.650 --> 00:36:28.050 that with people as well.

NOTE Confidence: 0.916983122083334

00:36:28.760 --> 00:36:29.768 Yeah. No, great question.

NOTE Confidence: 0.916983122083334

00:36:29.768 --> 00:36:32.092 And I I I would say that one of

NOTE Confidence: 0.916983122083334

00:36:32.092 --> 00:36:33.604 the things that we've tried to

NOTE Confidence: 0.916983122083334

00:36:33.604 --> 00:36:35.480 do quite deliberately is we've,

NOTE Confidence: 0.916983122083334

00:36:35.480 --> 00:36:37.655 we've separated the term cycle

NOTE Confidence: 0.916983122083334

00:36:37.655 --> 00:36:39.395 reduction from say debulking.

NOTE Confidence: 0.916983122083334

00:36:39.400 --> 00:36:41.656 So I think when we use the word

NOTE Confidence: 0.916983122083334

00:36:41.656 --> 00:36:43.080 debulking we're talking about

NOTE Confidence: 0.916983122083334

00:36:43.080 --> 00:36:44.680 enhancing quality of life.

NOTE Confidence: 0.916983122083334

00:36:44.680 --> 00:36:46.480 So those, those are not

NOTE Confidence: 0.916983122083334

00:36:46.480 --> 00:36:47.560 very frequent settings,

NOTE Confidence: 0.916983122083334

00:36:47.560 --> 00:36:49.548 but we would do debulking procedures if

NOTE Confidence: 0.916983122083334

00:36:49.548 --> 00:36:51.303 patients have large amounts of mucinous

NOTE Confidence: 0.916983122083334

00:36:51.303 --> 00:36:53.007 societies or large amount of mucin

NOTE Confidence: 0.916983122083334

00:36:53.007 --> 00:36:54.806 that is debilitating or large ovarian

NOTE Confidence: 0.916983122083334

00:36:54.806 --> 00:36:56.721 metastasis that is making it difficult.

NOTE Confidence: 0.916983122083334

00:36:56.721 --> 00:36:59.367 Those are the bulking but non

NOTE Confidence: 0.916983122083334

00:36:59.370 --> 00:37:00.630 curative intent procedures.

NOTE Confidence: 0.916983122083334

00:37:00.630 --> 00:37:02.730 For the curative intent procedures,

NOTE Confidence: 0.916983122083334

00:37:02.730 --> 00:37:04.854 we call them site reduction and we have very

NOTE Confidence: 0.916983122083334

00:37:04.854 --> 00:37:06.608 specific goals of what we want to achieve,

NOTE Confidence: 0.916983122083334

00:37:06.610 --> 00:37:08.926 which is a CC0 site reduction,

NOTE Confidence: 0.916983122083334

00:37:08.930 --> 00:37:11.324 which means there's no visible cancer

NOTE Confidence: 0.916983122083334

00:37:11.324 --> 00:37:13.450 with oncological principles of surgery.

NOTE Confidence: 0.916983122083334

00:37:13.450 --> 00:37:16.005 So no longer are we satisfied with,

NOTE Confidence: 0.916983122083334

00:37:16.010 --> 00:37:17.698 we just go pluck a little something out

NOTE Confidence: 0.916983122083334

00:37:17.698 --> 00:37:19.410 and feel like we've done a great job.

NOTE Confidence: 0.916983122083334

00:37:19.410 --> 00:37:21.250 We have to be oncologically precise in the

NOTE Confidence: 0.916983122083334

00:37:21.250 --> 00:37:23.088 way we're doing our surgical techniques,

NOTE Confidence: 0.916983122083334

00:37:23.090 --> 00:37:24.368 just like we are when we're

NOTE Confidence: 0.916983122083334

00:37:24.368 --> 00:37:25.007 doing liver resections,

NOTE Confidence: 0.916983122083334

00:37:25.010 --> 00:37:27.236 pancreas resections or things like that.

NOTE Confidence: 0.916983122083334

00:37:27.240 --> 00:37:28.997 The drawback is we can't image it.

NOTE Confidence: 0.916983122083334

00:37:29.000 --> 00:37:30.274 So we don't know what a good,

NOTE Confidence: 0.916983122083334

00:37:30.280 --> 00:37:31.640 you know, good or bad job we've done.

NOTE Confidence: 0.916983122083334

00:37:31.640 --> 00:37:33.075 And so one of the big things

NOTE Confidence: 0.916983122083334

00:37:33.075 --> 00:37:34.646 we've been doing is making sure

NOTE Confidence: 0.916983122083334

00:37:34.646 --> 00:37:35.555 our laparoscopy pictures,

NOTE Confidence: 0.916983122083334

00:37:35.560 --> 00:37:36.980 our surgical pictures are actually

NOTE Confidence: 0.916983122083334

00:37:36.980 --> 00:37:39.040 in the chart and we can review,

NOTE Confidence: 0.916983122083334

00:37:39.040 --> 00:37:40.594 review it with the patients because many

NOTE Confidence: 0.916983122083334

00:37:40.594 --> 00:37:42.320 times they don't even know what's going on,

NOTE Confidence: 0.916983122083334

00:37:42.320 --> 00:37:42.471 right.

NOTE Confidence: 0.916983122083334

00:37:42.471 --> 00:37:43.679 They look at the scan and they're like,

NOTE Confidence: 0.916983122083334

00:37:43.680 --> 00:37:43.912 oh,

NOTE Confidence: 0.916983122083334

00:37:43.912 --> 00:37:45.536 the doctor said I don't have much

NOTE Confidence: 0.916983122083334

00:37:45.536 --> 00:37:47.284 cancer and you look inside and

NOTE Confidence: 0.916983122083334

00:37:47.284 --> 00:37:48.516 there's just cancer everywhere.

NOTE Confidence: 0.916983122083334

00:37:48.520 --> 00:37:51.832 And so, so we're very specific in our intent.

NOTE Confidence: 0.916983122083334

00:37:51.840 --> 00:37:52.984 I think, you know,

NOTE Confidence: 0.916983122083334

00:37:52.984 --> 00:37:54.700 usually I try to have three

NOTE Confidence: 0.916983122083334

00:37:54.767 --> 00:37:56.757 visits with every patient prior.

NOTE Confidence: 0.916983122083334

00:37:56.760 --> 00:37:59.576 And in my ideal world with our palliative

NOTE Confidence: 0.916983122083334

00:37:59.576 --> 00:38:01.639 care physicians for the three visits,

NOTE Confidence: 0.916983122083334

00:38:01.640 --> 00:38:03.075 but really the first visit is where

NOTE Confidence: 0.916983122083334

00:38:03.075 --> 00:38:04.738 I kind of give people hope because

NOTE Confidence: 0.916983122083334

00:38:04.738 --> 00:38:06.520 most of them have already been told,

NOTE Confidence: 0.916983122083334

00:38:06.520 --> 00:38:06.834 you know,

NOTE Confidence: 0.916983122083334

00:38:06.834 --> 00:38:07.619 three months they're going to

NOTE Confidence: 0.916983122083334

00:38:07.619 --> 00:38:08.520 live and die and whatever.

NOTE Confidence: 0.916983122083334

00:38:08.520 --> 00:38:09.565 And I tell them, hey, listen,

NOTE Confidence: 0.916983122083334

00:38:09.565 --> 00:38:10.720 this may not be quite the same.

NOTE Confidence: 0.916983122083334

00:38:10.720 --> 00:38:12.556 Let's assess it and evaluate it.

NOTE Confidence: 0.916983122083334

00:38:12.560 --> 00:38:14.506 The second visit is where we really

NOTE Confidence: 0.916983122083334

00:38:14.506 --> 00:38:16.522 just go through the numbers and again,

NOTE Confidence: 0.916983122083334

00:38:16.522 --> 00:38:17.044 you know,

NOTE Confidence: 0.916983122083334

00:38:17.044 --> 00:38:18.956 you know that very nice essay by

NOTE Confidence: 0.916983122083334

00:38:18.956 --> 00:38:20.391 the evolutionary biologist of like

NOTE Confidence: 0.916983122083334

00:38:20.391 --> 00:38:22.278 how median is not the mean and,

NOTE Confidence: 0.916983122083334

00:38:22.280 --> 00:38:23.750 you know, it's not the message and.

NOTE Confidence: 0.916983122083334

00:38:23.750 --> 00:38:24.221 And you know,

NOTE Confidence: 0.916983122083334

00:38:24.221 --> 00:38:25.006 it's very hard for patients

NOTE Confidence: 0.916983122083334

00:38:25.006 --> 00:38:26.069 to wrap their heads around it,

NOTE Confidence: 0.916983122083334

00:38:26.070 --> 00:38:27.558 but I do think it's important

NOTE Confidence: 0.916983122083334

00:38:27.558 --> 00:38:29.351 for them or their caregivers to

NOTE Confidence: 0.916983122083334

00:38:29.351 --> 00:38:31.221 at least understand what the

NOTE Confidence: 0.916983122083334

00:38:31.221 --> 00:38:32.343 reasonable expectations are.

NOTE Confidence: 0.916983122083334

00:38:32.350 --> 00:38:34.950 What is our survival data that we have?

NOTE Confidence: 0.916983122083334

00:38:34.950 --> 00:38:36.308 What is sort of best case scenario,

NOTE Confidence: 0.916983122083334

00:38:36.310 --> 00:38:37.950 what is worst case scenario?

NOTE Confidence: 0.916983122083334

00:38:37.950 --> 00:38:39.546 And are we using the hitchhiker model,

NOTE Confidence: 0.916983122083334

00:38:39.550 --> 00:38:41.111 like are we trying to keep people

NOTE Confidence: 0.916983122083334

00:38:41.111 --> 00:38:42.480 alive like a diabetes chronic

NOTE Confidence: 0.916983122083334

00:38:42.480 --> 00:38:44.105 disease type model and saying,

NOTE Confidence: 0.916983122083334

00:38:44.110 --> 00:38:44.334 hey,

NOTE Confidence: 0.916983122083334

00:38:44.334 --> 00:38:45.454 we'll look for this next

NOTE Confidence: 0.916983122083334

00:38:45.454 --> 00:38:46.350 disease site or are

NOTE Confidence: 0.914861194285714

00:38:46.402 --> 00:38:47.337 we saying we're going to

NOTE Confidence: 0.914861194285714

00:38:47.337 --> 00:38:48.510 go for a cure or not.

NOTE Confidence: 0.914861194285714

00:38:48.510 --> 00:38:50.358 And that's where we really have a lot

NOTE Confidence: 0.914861194285714

00:38:50.358 --> 00:38:51.514 of conversations about goal matching

NOTE Confidence: 0.914861194285714

00:38:51.514 --> 00:38:53.320 and how are we doing the right thing.

NOTE Confidence: 0.914861194285714

00:38:53.320 --> 00:38:54.664 And then the third visit is just

NOTE Confidence: 0.914861194285714

00:38:54.664 --> 00:38:55.741 much more specific around the

NOTE Confidence: 0.914861194285714

00:38:55.741 --> 00:38:56.876 surgical procedure and what does

NOTE Confidence: 0.914861194285714

00:38:56.876 --> 00:38:58.199 that involve and everything else.

NOTE Confidence: 0.914861194285714

00:38:58.200 --> 00:38:59.432 So, so you know we've tried to

NOTE Confidence: 0.914861194285714

00:38:59.432 --> 00:39:00.840 take a very deliberate approach,

NOTE Confidence: 0.914861194285714

00:39:00.840 --> 00:39:04.480 but I will tell you that having another

NOTE Confidence: 0.914861194285714

00:39:04.480 --> 00:39:08.004 physician or another team member in this

NOTE Confidence: 0.914861194285714

00:39:08.004 --> 00:39:11.238 conversation that may not be a surgeon,

NOTE Confidence: 0.914861194285714

00:39:11.240 --> 00:39:12.836 you know, very often obviously our

NOTE Confidence: 0.914861194285714

00:39:12.836 --> 00:39:14.760 medical oncologist we were Co, you know,

NOTE Confidence: 0.914861194285714

00:39:14.760 --> 00:39:16.460 seeing patients or palliative care

NOTE Confidence: 0.914861194285714

00:39:16.460 --> 00:39:18.620 physicians was really helpful for patients.

NOTE Confidence: 0.914861194285714

00:39:18.620 --> 00:39:20.028 Because, you know, I'm an optimist and I

NOTE Confidence: 0.914861194285714

00:39:20.028 --> 00:39:21.346 can sell things different ways, right.

NOTE Confidence: 0.914861194285714

00:39:21.346 --> 00:39:22.248 I mean I could say, oh,

NOTE Confidence: 0.914861194285714

00:39:22.248 --> 00:39:23.856 you know, surgery is no problem.

NOTE Confidence: 0.914861194285714

00:39:23.860 --> 00:39:24.580 I can take care of it.

NOTE Confidence: 0.914861194285714

00:39:24.580 --> 00:39:27.206 It's a big no, it'll be fine versus,

NOTE Confidence: 0.914861194285714

00:39:27.206 --> 00:39:28.136 you know, Oh my God,

NOTE Confidence: 0.914861194285714

00:39:28.140 --> 00:39:29.124 it's a tough surgery and you're

NOTE Confidence: 0.914861194285714

00:39:29.124 --> 00:39:29.780 going to do poorly.

NOTE Confidence: 0.914861194285714

00:39:29.780 --> 00:39:30.467 So as surgeons,

NOTE Confidence: 0.914861194285714

00:39:30.467 --> 00:39:32.457 we have a lot of power in how

NOTE Confidence: 0.914861194285714

00:39:32.457 --> 00:39:34.102 we can actually navigate this

NOTE Confidence: 0.914861194285714

00:39:34.102 --> 00:39:35.783 conversation and having a sounding

NOTE Confidence: 0.914861194285714

00:39:35.783 --> 00:39:37.890 board for the patients to talk to

NOTE Confidence: 0.914861194285714

00:39:37.890 --> 00:39:41.340 someone who is perhaps not quite,

NOTE Confidence: 0.914861194285714

00:39:41.340 --> 00:39:41.968 you know,

NOTE Confidence: 0.914861194285714

00:39:41.968 --> 00:39:44.264 as narrow minded or or as focused

NOTE Confidence: 0.914861194285714

00:39:44.264 --> 00:39:45.350 I should say.

NOTE Confidence: 0.914861194285714

00:39:45.350 --> 00:39:47.132 Has helped I think generally our

NOTE Confidence: 0.914861194285714

00:39:47.132 --> 00:39:48.603 patients make the right decisions

NOTE Confidence: 0.914861194285714

00:39:48.603 --> 00:39:50.655 and I think for all of us to also

NOTE Confidence: 0.914861194285714

00:39:50.710 --> 00:39:52.366 internalize the fact that you know

NOTE Confidence: 0.914861194285714

00:39:52.366 --> 00:39:54.703 to make sure that we're not pushing

NOTE Confidence: 0.914861194285714

00:39:54.703 --> 00:39:57.310 therapies on our patients and especially

NOTE Confidence: 0.914861194285714

00:39:57.310 --> 00:39:59.702 you know when we're not seeing a

NOTE Confidence: 0.914861194285714

00:39:59.702 --> 00:40:01.390 good sort of outcome on the end.

NOTE Confidence: 0.914861194285714

00:40:01.390 --> 00:40:03.110 So I think it's a very complex thing.

NOTE Confidence: 0.914861194285714

00:40:03.110 --> 00:40:05.340 I mean I think and I'm sure all of us

NOTE Confidence: 0.914861194285714

00:40:05.403 --> 00:40:07.571 face it in our clinics every day and

NOTE Confidence: 0.914861194285714

00:40:07.571 --> 00:40:10.230 and what I'm saying is probably not unique,

NOTE Confidence: 0.914861194285714

00:40:10.230 --> 00:40:12.526 but I think what has helped me.

NOTE Confidence: 0.914861194285714

00:40:12.530 --> 00:40:14.246 Is being deliberate about it and

NOTE Confidence: 0.914861194285714

00:40:14.246 --> 00:40:16.409 and also it has helped our team.

NOTE Confidence: 0.914861194285714

00:40:16.410 --> 00:40:17.208 You know, I will tell you,

NOTE Confidence: 0.914861194285714

00:40:17.210 --> 00:40:20.282 we go through cycles of despair even as,

NOTE Confidence: 0.914861194285714

00:40:20.282 --> 00:40:22.434 you know, physical teams like our,

NOTE Confidence: 0.914861194285714

00:40:22.434 --> 00:40:23.400 our nurses, physicians,

NOTE Confidence: 0.914861194285714

00:40:23.400 --> 00:40:25.290 everyone who takes care of these patients.

NOTE Confidence: 0.914861194285714

00:40:25.290 --> 00:40:26.412 Because you see people that look

NOTE Confidence: 0.914861194285714

00:40:26.412 --> 00:40:27.690 like you could be your friends,

NOTE Confidence: 0.914861194285714

00:40:27.690 --> 00:40:29.270 neighbors, colleagues who are

NOTE Confidence: 0.914861194285714

00:40:29.270 --> 00:40:31.245 dying a very miserable death.

NOTE Confidence: 0.914861194285714

00:40:31.250 --> 00:40:31.913 And you know,

NOTE Confidence: 0.914861194285714

00:40:31.913 --> 00:40:33.460 we took care of all these patients

NOTE Confidence: 0.914861194285714

00:40:33.515 --> 00:40:34.810 all the way through Hospice.

NOTE Confidence: 0.914861194285714

00:40:34.810 --> 00:40:35.515 So it is,

NOTE Confidence: 0.914861194285714

00:40:35.515 --> 00:40:37.160 it is a very difficult thing to

NOTE Confidence: 0.914861194285714

00:40:37.219 --> 00:40:39.163 to kind of be part of the process.

NOTE Confidence: 0.914861194285714

00:40:39.170 --> 00:40:41.090 And so I think it rejuvenates

NOTE Confidence: 0.914861194285714

00:40:41.090 --> 00:40:42.370 to have other physicians,

NOTE Confidence: 0.914861194285714

00:40:42.370 --> 00:40:43.765 providers and then of course

NOTE Confidence: 0.914861194285714

00:40:43.765 --> 00:40:45.160 having a clinic that's balanced

NOTE Confidence: 0.914861194285714

00:40:45.209 --> 00:40:46.868 because you have 20 people that are

NOTE Confidence: 0.914861194285714

00:40:46.868 --> 00:40:48.485 doing great and you have you know

NOTE Confidence: 0.914861194285714

00:40:48.485 --> 00:40:50.250 maybe three or four that are not.

NOTE Confidence: 0.914861194285714

00:40:50.250 --> 00:40:50.730 So

NOTE Confidence: 0.950317

00:40:52.210 --> 00:40:53.330 we're so thrilled you're here.

NOTE Confidence: 0.950317

00:40:53.330 --> 00:40:55.388 I think you've heard me say that

NOTE Confidence: 0.950317

00:40:55.388 --> 00:40:57.647 many times and I'll repeat it again.

NOTE Confidence: 0.950317

00:40:57.650 --> 00:40:59.477 So I'm going to build on the

NOTE Confidence: 0.950317

00:40:59.477 --> 00:41:00.874 conversation that you were more

NOTE Confidence: 0.950317

00:41:00.874 --> 00:41:02.554 we're just having and as curious.

NOTE Confidence: 0.950317

00:41:02.560 --> 00:41:04.648 Just on into patients that come

NOTE Confidence: 0.950317

00:41:04.648 --> 00:41:06.480 to desiring this therapy aren't

NOTE Confidence: 0.950317

00:41:06.480 --> 00:41:08.538 a yearly candidates that or maybe

NOTE Confidence: 0.950317

00:41:08.538 --> 00:41:11.139 it wants to decide not to pursue

NOTE Confidence: 0.950317

00:41:11.139 --> 00:41:13.074 the decide on productive therapy.

NOTE Confidence: 0.950317

00:41:13.080 --> 00:41:15.204 And then the other related to that is he

NOTE Confidence: 0.950317

00:41:15.204 --> 00:41:17.357 talked about the recovery from that surgery.

NOTE Confidence: 0.950317

00:41:17.360 --> 00:41:18.837 So what what does it look like?

NOTE Confidence: 0.91974477875

00:41:21.240 --> 00:41:22.983 Yeah, so I think what when we've

NOTE Confidence: 0.91974477875

00:41:22.983 --> 00:41:24.965 looked at our own data I would say

NOTE Confidence: 0.91974477875

00:41:24.965 --> 00:41:27.820 about 67% of our patients had.

NOTE Confidence: 0.91974477875

00:41:27.820 --> 00:41:29.860 You know, at least a diagnostic

NOTE Confidence: 0.91974477875

00:41:29.860 --> 00:41:31.566 laparoscopy and about 50% of our

NOTE Confidence: 0.91974477875

00:41:31.566 --> 00:41:32.604 patients who came through our doors

NOTE Confidence: 0.91974477875

00:41:32.604 --> 00:41:33.979 ended up having cytoreductive surgery.

NOTE Confidence: 0.91974477875

00:41:33.980 --> 00:41:36.020 So 50% didn't have it.

NOTE Confidence: 0.91974477875

00:41:36.020 --> 00:41:37.352 So as you can tell, we are selective,

NOTE Confidence: 0.91974477875

00:41:37.352 --> 00:41:38.816 but we track our whole cohort.

NOTE Confidence: 0.91974477875

00:41:38.820 --> 00:41:40.408 So we're not just saying, oh,

NOTE Confidence: 0.91974477875

00:41:40.408 --> 00:41:41.724 we're going to just look at those

NOTE Confidence: 0.91974477875

00:41:41.724 --> 00:41:42.910 that we've done surgery and say

NOTE Confidence: 0.91974477875

00:41:42.910 --> 00:41:44.220 this is how well we're doing it.

NOTE Confidence: 0.91974477875

00:41:44.220 --> 00:41:46.060 The second comment is it,

NOTE Confidence: 0.91974477875

00:41:46.060 --> 00:41:48.097 it really dependent on the surgery itself.

NOTE Confidence: 0.91974477875

00:41:48.100 --> 00:41:49.819 So it's a, it's a whole gamut of things.

NOTE Confidence: 0.91974477875

00:41:49.820 --> 00:41:51.260 When we do a laparoscopic hypec,

NOTE Confidence: 0.91974477875

00:41:51.260 --> 00:41:52.376 they go home the same day.

NOTE Confidence: 0.91974477875

00:41:52.380 --> 00:41:54.236 I tell them they can do their normal

NOTE Confidence: 0.91974477875

00:41:54.236 --> 00:41:55.538 physical activities like the next week.

NOTE Confidence: 0.91974477875

00:41:55.540 --> 00:41:57.124 So that's what when we just

NOTE Confidence: 0.91974477875

00:41:57.124 --> 00:41:58.180 do a laparoscopic one,

NOTE Confidence: 0.91974477875

00:41:58.180 --> 00:41:59.884 when we do these big monster

NOTE Confidence: 0.91974477875

00:41:59.884 --> 00:42:01.420 open side reductions, hypex 812,

NOTE Confidence: 0.91974477875

00:42:01.420 --> 00:42:02.100 you know,

NOTE Confidence: 0.91974477875

00:42:02.100 --> 00:42:04.568 14 hour cases right now our median

NOTE Confidence: 0.91974477875

00:42:04.568 --> 00:42:07.046 hospital stays about 5 to 6 days.

NOTE Confidence: 0.91974477875

00:42:07.050 --> 00:42:08.415 But I tell them they feel about

NOTE Confidence: 0.91974477875

00:42:08.415 --> 00:42:10.990 80% of normal in six weeks and they

NOTE Confidence: 0.91974477875

00:42:10.990 --> 00:42:12.818 feel 110% of normal at three months

NOTE Confidence: 0.91974477875

00:42:12.818 --> 00:42:14.329 because now the cancer is better,

NOTE Confidence: 0.91974477875

00:42:14.330 --> 00:42:15.374 so they feel better.

NOTE Confidence: 0.91974477875

00:42:15.374 --> 00:42:16.940 But this is all generally sort

NOTE Confidence: 0.91974477875

00:42:16.996 --> 00:42:17.968 of what things are.

NOTE Confidence: 0.91974477875

00:42:17.970 --> 00:42:20.056 I think the biggest comment we have

NOTE Confidence: 0.91974477875

00:42:20.056 --> 00:42:22.300 during discussion of surgery is not so

NOTE Confidence: 0.91974477875

00:42:22.300 --> 00:42:24.244 much mortality because our mortality rates,

NOTE Confidence: 0.91974477875

00:42:24.250 --> 00:42:24.889 as you saw,

NOTE Confidence: 0.91974477875

00:42:24.889 --> 00:42:25.528 are very low.

NOTE Confidence: 0.91974477875

00:42:25.530 --> 00:42:27.474 It's more about loss of autonomy

NOTE Confidence: 0.91974477875

00:42:27.474 --> 00:42:28.446 and functional independence.

NOTE Confidence: 0.91974477875

00:42:28.450 --> 00:42:30.685 So you know there's an 8% risk

NOTE Confidence: 0.91974477875

00:42:30.685 --> 00:42:33.060 of having failure to thrive.

NOTE Confidence: 0.91974477875

00:42:33.060 --> 00:42:33.980 Which is a difficult problem.

NOTE Confidence: 0.91974477875

00:42:33.980 --> 00:42:35.415 You know then you are on TPN,

NOTE Confidence: 0.91974477875

00:42:35.420 --> 00:42:36.308 you're getting drains,

NOTE Confidence: 0.91974477875

00:42:36.308 --> 00:42:39.024 you have this and that and I think that

NOTE Confidence: 0.91974477875

00:42:39.024 --> 00:42:41.554 is the the the most stressful part of these.

NOTE Confidence: 0.91974477875

00:42:41.554 --> 00:42:43.036 But we've tried to integrate sort

NOTE Confidence: 0.91974477875

00:42:43.036 --> 00:42:44.498 of quality of life initiatives,

NOTE Confidence: 0.91974477875

00:42:44.500 --> 00:42:46.464 you know fertility management,

NOTE Confidence: 0.91974477875

00:42:46.464 --> 00:42:47.937 young patient care,

NOTE Confidence: 0.91974477875

00:42:47.940 --> 00:42:49.560 obviously palliative care and advanced

NOTE Confidence: 0.91974477875

00:42:49.560 --> 00:42:50.856 direct advanced care planning.

NOTE Confidence: 0.91974477875

00:42:50.860 --> 00:42:52.452 So you know the goal is to have

NOTE Confidence: 0.91974477875

00:42:52.452 --> 00:42:54.029 a more comprehensive way that

NOTE Confidence: 0.91974477875

00:42:54.029 --> 00:42:55.899 patients get the most information.

NOTE Confidence: 0.893702826363636

00:42:59.610 --> 00:43:02.122 I know that this is a slowly evolving

NOTE Confidence: 0.893702826363636

00:43:02.122 --> 00:43:03.842 deal with what we discussed,

NOTE Confidence: 0.893702826363636

00:43:03.842 --> 00:43:06.850 but has it been evaluated from a racial,

NOTE Confidence: 0.893702826363636

00:43:06.850 --> 00:43:09.850 ethnic standpoint as far as incidents

NOTE Confidence: 0.893702826363636

00:43:09.850 --> 00:43:11.810 of care communities along with

NOTE Confidence: 0.904163572

00:43:12.370 --> 00:43:13.106 outcomes? Yeah.

NOTE Confidence: 0.904163572

00:43:13.106 --> 00:43:15.410 So I mean, I think we have, you know,

NOTE Confidence: 0.904163572

00:43:15.410 --> 00:43:16.580 obviously our own cohorts and our

NOTE Confidence: 0.904163572

00:43:16.580 --> 00:43:17.769 own data that we've looked at.

NOTE Confidence: 0.904163572

00:43:17.770 --> 00:43:20.490 And in Chicago about 17% of our patients

NOTE Confidence: 0.904163572

00:43:20.490 --> 00:43:22.502 were African American and I think about,

NOTE Confidence: 0.904163572

00:43:22.502 --> 00:43:25.380 you know, maybe another 15% were other

NOTE Confidence: 0.904163572

00:43:25.380 --> 00:43:28.340 ethnicities and everyone else was white.

NOTE Confidence: 0.904163572

00:43:28.340 --> 00:43:30.828 I think the we, we found that our

NOTE Confidence: 0.904163572

00:43:30.828 --> 00:43:32.655 African American patients were less

NOTE Confidence: 0.904163572

00:43:32.655 --> 00:43:34.935 likely to do advanced care planning,

NOTE Confidence: 0.904163572

00:43:34.940 --> 00:43:36.895 they were less likely to

NOTE Confidence: 0.904163572

00:43:36.895 --> 00:43:38.459 look in clinical trials.

NOTE Confidence: 0.904163572

00:43:38.460 --> 00:43:41.476 They were usually presented

NOTE Confidence: 0.904163572

00:43:41.476 --> 00:43:43.740 with a higher PCI score,

NOTE Confidence: 0.904163572

00:43:43.740 --> 00:43:46.060 so higher pertinal index,

NOTE Confidence: 0.904163572

00:43:46.060 --> 00:43:49.618 but actually recovered remarkably the same

NOTE Confidence: 0.904163572

00:43:49.618 --> 00:43:51.990 from cytoreductive surgery procedures.

NOTE Confidence: 0.904163572

00:43:51.990 --> 00:43:54.015 In fact you know at some level I would

NOTE Confidence: 0.904163572

00:43:54.015 --> 00:43:56.205 say that are at least in Chicago

NOTE Confidence: 0.904163572

00:43:56.205 --> 00:43:57.832 or African American population had

NOTE Confidence: 0.904163572

00:43:57.832 --> 00:43:59.644 better social structures than some of

NOTE Confidence: 0.904163572

00:43:59.644 --> 00:44:00.890 our white populations of patients.

NOTE Confidence: 0.904163572

00:44:00.890 --> 00:44:02.641 And I think it's a very selective

NOTE Confidence: 0.904163572

00:44:02.641 --> 00:44:04.369 cohort because I think the the

NOTE Confidence: 0.904163572

00:44:04.369 --> 00:44:05.630 African American patients who were

NOTE Confidence: 0.904163572

00:44:05.630 --> 00:44:07.058 didn't have the means or lived in

NOTE Confidence: 0.904163572

00:44:07.058 --> 00:44:08.428 food deserts or things like that,

NOTE Confidence: 0.904163572

00:44:08.430 --> 00:44:10.230 they probably never made it to our clinics.

NOTE Confidence: 0.904163572

00:44:10.230 --> 00:44:11.686 So I think you know I'm very

NOTE Confidence: 0.904163572

00:44:11.686 --> 00:44:12.310 cognizant of that.

NOTE Confidence: 0.904163572

00:44:12.310 --> 00:44:14.263 But those that did make it to our clinics

NOTE Confidence: 0.904163572

00:44:14.263 --> 00:44:15.830 actually had remarkable social support,

NOTE Confidence: 0.904163572

00:44:15.830 --> 00:44:17.666 so much less rates of post

NOTE Confidence: 0.904163572

00:44:17.666 --> 00:44:19.227 operative depression or you know

NOTE Confidence: 0.904163572

00:44:19.227 --> 00:44:20.597 so they did pretty well.

NOTE Confidence: 0.904163572

00:44:20.600 --> 00:44:21.764 From a survival standpoint,

NOTE Confidence: 0.904163572

00:44:21.764 --> 00:44:22.637 I don't know.

NOTE Confidence: 0.904163572

00:44:22.640 --> 00:44:23.417 Vrun probably left,

NOTE Confidence: 0.904163572

00:44:23.417 --> 00:44:24.971 but I don't think we've seen

NOTE Confidence: 0.904163572

00:44:24.971 --> 00:44:26.480 a significant difference.

NOTE Confidence: 0.904163572

00:44:26.480 --> 00:44:28.272 But I don't think our cohort is big

NOTE Confidence: 0.904163572

00:44:28.272 --> 00:44:30.118 enough to make that conclusive.

NOTE Confidence: 0.950317

00:44:32.920 --> 00:44:33.998 There are a couple of questions in

NOTE Confidence: 0.92817752

00:44:34.000 --> 00:44:38.040 the Q&A and the chat. Ask for Nas feeding

NOTE Confidence: 0.897935457142857

00:44:38.040 --> 00:44:40.434 those questions. OK, I actually got it.

NOTE Confidence: 0.897935457142857

00:44:40.440 --> 00:44:43.160 So Nick, Nick says.

NOTE Confidence: 0.897935457142857

00:44:43.160 --> 00:44:44.732 Is there any consistency in localization

NOTE Confidence: 0.897935457142857

00:44:44.732 --> 00:44:46.440 in terms of where the metastasis

NOTE Confidence: 0.897935457142857

00:44:46.440 --> 00:44:47.960 form in the peritonema momentum?

NOTE Confidence: 0.897935457142857

00:44:47.960 --> 00:44:49.689 I'm wondering if it's random or if

NOTE Confidence: 0.897935457142857

00:44:49.689 --> 00:44:51.438 it's in proximity to lymphoid tissues.

NOTE Confidence: 0.897935457142857

00:44:51.440 --> 00:44:52.240 Nick, you know this is,

NOTE Confidence: 0.897935457142857

00:44:52.240 --> 00:44:54.160 this is a phenomenal question and I will

NOTE Confidence: 0.897935457142857

00:44:54.160 --> 00:44:56.326 tell you that in our minds as surgeons

NOTE Confidence: 0.897935457142857

00:44:56.326 --> 00:44:57.800 there is very remarkable consistency

NOTE Confidence: 0.897935457142857

00:44:57.800 --> 00:45:00.120 like we see it on the right diaphragm.

NOTE Confidence: 0.897935457142857

00:45:00.120 --> 00:45:01.896 We think it's because there's Milky

NOTE Confidence: 0.897935457142857

00:45:01.896 --> 00:45:03.666 spots on the diaphragm, big channels.

NOTE Confidence: 0.897935457142857

00:45:03.666 --> 00:45:05.717 We always see it in the momentum.

NOTE Confidence: 0.897935457142857

00:45:05.720 --> 00:45:07.118 So those are very common sites.

NOTE Confidence: 0.897935457142857

00:45:07.120 --> 00:45:07.392 Mechanistically,

NOTE Confidence: 0.897935457142857

00:45:07.392 --> 00:45:09.296 we see it by the ligament of

NOTE Confidence: 0.897935457142857

00:45:09.296 --> 00:45:10.838 triads as a very common site.

NOTE Confidence: 0.897935457142857

00:45:10.840 --> 00:45:11.956 And then in the pelvic peritoneum,

NOTE Confidence: 0.897935457142857

00:45:11.960 --> 00:45:13.440 especially on the left side,

NOTE Confidence: 0.897935457142857

00:45:13.440 --> 00:45:13.946 in fact,

NOTE Confidence: 0.897935457142857

00:45:13.946 --> 00:45:15.464 you'll see many of these peritoneal

NOTE Confidence: 0.897935457142857

00:45:15.464 --> 00:45:16.817 patients will have bowel obstructions

NOTE Confidence: 0.897935457142857

00:45:16.817 --> 00:45:18.413 and they obstructed the pelvis as

NOTE Confidence: 0.897935457142857

00:45:18.413 --> 00:45:20.039 the sigmoid colon is turning down.

NOTE Confidence: 0.897935457142857

00:45:20.040 --> 00:45:21.264 And in those cases,

NOTE Confidence: 0.897935457142857

00:45:21.264 --> 00:45:22.794 stents don't work very well.

NOTE Confidence: 0.897935457142857

00:45:22.800 --> 00:45:24.276 And so that's usually the thing.

NOTE Confidence: 0.897935457142857

00:45:24.280 --> 00:45:26.210 I don't think it's particularly

NOTE Confidence: 0.897935457142857

00:45:26.210 --> 00:45:27.754 close to lymphoid tissues,

NOTE Confidence: 0.897935457142857

00:45:27.760 --> 00:45:29.692 but I think that's where hopefully

NOTE Confidence: 0.897935457142857

00:45:29.692 --> 00:45:31.625 we'll send you some specimens and

NOTE Confidence: 0.897935457142857

00:45:31.625 --> 00:45:33.662 you can help us figure it out.

NOTE Confidence: 0.897935457142857

00:45:33.670 --> 00:45:34.630 And then I think Guillermo,

NOTE Confidence: 0.897935457142857

00:45:34.630 --> 00:45:36.527 Hi Guillermo it's good to see you

NOTE Confidence: 0.897935457142857

00:45:36.527 --> 00:45:38.863 as one of our my colleagues from

NOTE Confidence: 0.897935457142857

00:45:38.863 --> 00:45:40.355 Mexico who says what are your

NOTE Confidence: 0.897935457142857

00:45:40.355 --> 00:45:41.869 thoughts on the debate for drug

NOTE Confidence: 0.897935457142857

00:45:41.869 --> 00:45:43.229 combinations on hyper protocols.

NOTE Confidence: 0.897935457142857

00:45:43.230 --> 00:45:45.710 I think we just need to do better.

NOTE Confidence: 0.897935457142857

00:45:45.710 --> 00:45:47.117 I think you know mitomycin is like

NOTE Confidence: 0.897935457142857

00:45:47.117 --> 00:45:48.792 a 60 year old drug and you know

NOTE Confidence: 0.897935457142857

00:45:48.792 --> 00:45:50.098 we've we've just got to figure

NOTE Confidence: 0.897935457142857

00:45:50.098 --> 00:45:51.466 out better ways of doing it.

NOTE Confidence: 0.897935457142857

00:45:51.470 --> 00:45:53.025 So people are looking at

NOTE Confidence: 0.897935457142857

00:45:53.025 --> 00:45:54.269 intrapartinal immunotherapy now on

NOTE Confidence: 0.897935457142857

00:45:54.269 --> 00:45:55.669 different versions of cytotoxics.

NOTE Confidence: 0.897935457142857

00:45:55.670 --> 00:45:55.750 Do

NOTE Confidence: 0.950317

00:45:58.390 --> 00:46:00.908 you ever analyzed CTD and A

NOTE Confidence: 0.786220188

00:46:01.910 --> 00:46:05.113 and? We don't but we we there are

NOTE Confidence: 0.786220188

00:46:05.113 --> 00:46:06.718 other groups that have looked

NOTE Confidence: 0.786220188

00:46:06.718 --> 00:46:09.211 at it and certainly it is more

NOTE Confidence: 0.786220188

00:46:09.211 --> 00:46:10.986 sensitive than serum CT DNA.

NOTE Confidence: 0.786220188

00:46:10.990 --> 00:46:12.850 But on the flip side it's

NOTE Confidence: 0.786220188

00:46:12.850 --> 00:46:13.470 logistically impractical.

NOTE Confidence: 0.786220188

00:46:13.470 --> 00:46:14.955 So you know you have to leave a catheter

NOTE Confidence: 0.786220188

00:46:14.955 --> 00:46:16.348 in there and measure it and stuff.

NOTE Confidence: 0.786220188

00:46:16.350 --> 00:46:18.267 So I think that's the the headache with that.

NOTE Confidence: 0.67584795

00:46:22.070 --> 00:46:23.910 Great, ohh, very good. Thank you so much.

NOTE Confidence: 0.67584795

00:46:23.910 --> 00:46:24.990 Thank you all for your attention.