

WEBVTT

NOTE duration: "01:26:49.899"

NOTE Confidence: 0.994924

00:00:00.080 --> 00:00:01.540 Going to introduce doctor Mercurio,

NOTE Confidence: 0.994924

00:00:01.599 --> 00:00:02.580 and we'll get started.

NOTE Confidence: 0.95103955

00:00:03.360 --> 00:00:04.960 So Mark Mercurio is, of

NOTE Confidence: 0.95103955

00:00:04.960 --> 00:00:06.899 course, a professor of, pediatrics

NOTE Confidence: 0.95103955

00:00:07.120 --> 00:00:09.280 and our founding director, now

NOTE Confidence: 0.95103955

00:00:09.280 --> 00:00:10.480 co director of the program

NOTE Confidence: 0.95103955

00:00:10.480 --> 00:00:11.920 for biomedical ethics at Yale

NOTE Confidence: 0.95103955

00:00:11.920 --> 00:00:13.200 School of Medicine and is

NOTE Confidence: 0.95103955

00:00:13.200 --> 00:00:14.880 also the founding director of

NOTE Confidence: 0.95103955

00:00:14.880 --> 00:00:16.824 the Yale Pediatrics ethics program

NOTE Confidence: 0.95103955

00:00:16.824 --> 00:00:18.185 at Yale new New Haven

NOTE Confidence: 0.95103955

00:00:18.185 --> 00:00:19.005 Children's Hospital.

NOTE Confidence: 0.9093458

00:00:19.385 --> 00:00:20.685 He was for many years

NOTE Confidence: 0.9906184

00:00:20.985 --> 00:00:22.904 chief of neonatal perinatal medicine

NOTE Confidence: 0.9906184

00:00:22.904 --> 00:00:24.425 at Yale, having stepped down
NOTE Confidence: 0.9906184

00:00:24.425 --> 00:00:25.544 from that role in twenty
NOTE Confidence: 0.9906184

00:00:25.544 --> 00:00:27.384 twenty two. He received his
NOTE Confidence: 0.9906184

00:00:27.384 --> 00:00:29.704 undergraduate degree in biochemical sciences
NOTE Confidence: 0.9906184

00:00:29.704 --> 00:00:30.845 from Princeton University,
NOTE Confidence: 0.9814774

00:00:31.660 --> 00:00:33.440 an MD from Columbia University,
NOTE Confidence: 0.9814774

00:00:33.500 --> 00:00:34.880 and he completed his pediatrics
NOTE Confidence: 0.9814774

00:00:34.940 --> 00:00:36.400 residency and neonatology
NOTE Confidence: 0.99966776

00:00:36.780 --> 00:00:37.280 fellowship
NOTE Confidence: 0.9996891

00:00:37.740 --> 00:00:38.640 here at Yale.
NOTE Confidence: 0.9881876

00:00:39.739 --> 00:00:41.180 After fellowship, he serves he
NOTE Confidence: 0.9881876

00:00:41.180 --> 00:00:42.640 served as an attending neonatologist
NOTE Confidence: 0.9881876

00:00:42.860 --> 00:00:44.059 at Yale and founding director
NOTE Confidence: 0.9881876

00:00:44.059 --> 00:00:45.280 of the newborn ICU
NOTE Confidence: 0.93520015

00:00:45.615 --> 00:00:47.055 at Lawrence and Memorial Hospital
NOTE Confidence: 0.93520015

00:00:47.055 --> 00:00:48.195 in New London, Connecticut.

NOTE Confidence: 0.9971805
00:00:48.655 --> 00:00:49.534 And he earned an MA
NOTE Confidence: 0.9971805
00:00:49.534 --> 00:00:51.155 in philosophy from Brown University
NOTE Confidence: 0.9971805
00:00:51.295 --> 00:00:52.495 before he returned to Yale
NOTE Confidence: 0.9971805
00:00:52.495 --> 00:00:53.635 full time afterwards.
NOTE Confidence: 0.9451996
00:00:54.415 --> 00:00:55.935 Doctor Mercurio has for many
NOTE Confidence: 0.9451996
00:00:55.935 --> 00:00:57.055 years been very active in
NOTE Confidence: 0.9451996
00:00:57.055 --> 00:00:58.895 the in neonatology and medical
NOTE Confidence: 0.9451996
00:00:58.895 --> 00:00:59.795 ethics education,
NOTE Confidence: 0.9654297
00:01:00.640 --> 00:01:03.120 for residents, fellows, nursing, attending
NOTE Confidence: 0.9654297
00:01:03.120 --> 00:01:05.780 physicians, PA students, medical students,
NOTE Confidence: 0.9654297
00:01:06.000 --> 00:01:07.300 as well as many others.
NOTE Confidence: 0.9819509
00:01:07.920 --> 00:01:08.720 He has been a member
NOTE Confidence: 0.9819509
00:01:08.720 --> 00:01:09.920 of the medical faculty for
NOTE Confidence: 0.9819509
00:01:09.920 --> 00:01:11.200 the fellowships at Auschwitz for
NOTE Confidence: 0.9819509
00:01:11.200 --> 00:01:12.480 the study of professional ethics,
NOTE Confidence: 0.9819509

00:01:12.480 --> 00:01:14.240 also known as FASB, since
NOTE Confidence: 0.9819509

00:01:14.240 --> 00:01:16.015 twenty ten. He's a former
NOTE Confidence: 0.9819509

00:01:16.015 --> 00:01:17.455 chair of the American Academy
NOTE Confidence: 0.9819509

00:01:17.455 --> 00:01:19.155 of Pediatrics section on bioethics
NOTE Confidence: 0.9819509

00:01:19.295 --> 00:01:20.655 and an original co editor
NOTE Confidence: 0.9819509

00:01:20.655 --> 00:01:21.935 of the American Academy of
NOTE Confidence: 0.9819509

00:01:21.935 --> 00:01:22.435 Pediatrics,
NOTE Confidence: 0.997932

00:01:23.375 --> 00:01:25.155 resident curriculum in bioethics.
NOTE Confidence: 0.9373451

00:01:25.855 --> 00:01:26.575 He is a fellow of
NOTE Confidence: 0.9373451

00:01:26.575 --> 00:01:27.694 the Hastings Center and member
NOTE Confidence: 0.9373451

00:01:27.694 --> 00:01:29.295 of the American Pediatric Society.
NOTE Confidence: 0.9373451

00:01:29.295 --> 00:01:30.690 And in twenty twenty three,
NOTE Confidence: 0.9373451

00:01:30.770 --> 00:01:32.370 he received the William G.
NOTE Confidence: 0.9373451

00:01:32.370 --> 00:01:34.370 Bartolome Award for ethical excellence
NOTE Confidence: 0.9373451

00:01:34.370 --> 00:01:35.810 from the American Academy of
NOTE Confidence: 0.9373451

00:01:35.810 --> 00:01:36.310 Pediatrics.

NOTE Confidence: 0.98949873
00:01:37.090 --> 00:01:38.390 Mark, take it away.
NOTE Confidence: 0.9809925
00:01:43.185 --> 00:01:44.885 Alright. Playing a home game.
NOTE Confidence: 0.9009759
00:01:45.425 --> 00:01:46.565 So here, first
NOTE Confidence: 0.7710447
00:01:47.104 --> 00:01:48.545 First favorite out there because
NOTE Confidence: 0.7710447
00:01:48.545 --> 00:01:48.945 I think
NOTE Confidence: 0.93595296
00:01:51.025 --> 00:01:51.825 I have to look at
NOTE Confidence: 0.93595296
00:01:51.825 --> 00:01:52.785 it twice. It's a little,
NOTE Confidence: 0.93595296
00:01:52.785 --> 00:01:54.465 you know, a little excessive.
NOTE Confidence: 0.93595296
00:01:54.465 --> 00:01:55.765 Let's see if this works.
NOTE Confidence: 0.9916135
00:01:56.210 --> 00:01:57.909 Look at that. We're in.
NOTE Confidence: 0.9916135
00:01:57.969 --> 00:01:58.930 Well, thank you guys so
NOTE Confidence: 0.9916135
00:01:58.930 --> 00:01:59.810 much for coming out on
NOTE Confidence: 0.9916135
00:01:59.810 --> 00:02:01.090 a cold night. I I
NOTE Confidence: 0.9916135
00:02:01.090 --> 00:02:01.890 do think this is a
NOTE Confidence: 0.9916135
00:02:01.890 --> 00:02:03.350 fascinating subject, so,
NOTE Confidence: 0.89820254

00:02:04.130 --> 00:02:05.490 let me just get right
NOTE Confidence: 0.89820254
00:02:05.490 --> 00:02:07.350 to it. Artificial womb technology.
NOTE Confidence: 0.89820254
00:02:07.570 --> 00:02:08.010 And,
NOTE Confidence: 0.9711814
00:02:08.450 --> 00:02:09.569 I do think it's coming,
NOTE Confidence: 0.9711814
00:02:09.569 --> 00:02:10.965 and we will talk about
NOTE Confidence: 0.9711814
00:02:10.965 --> 00:02:12.165 that in more depth. So
NOTE Confidence: 0.9711814
00:02:12.165 --> 00:02:12.885 I appreciate it. I see
NOTE Confidence: 0.9711814
00:02:12.885 --> 00:02:13.525 a lot of a lot
NOTE Confidence: 0.9711814
00:02:13.525 --> 00:02:14.245 of friends who,
NOTE Confidence: 0.98404366
00:02:14.725 --> 00:02:15.685 who made the effort today,
NOTE Confidence: 0.98404366
00:02:15.685 --> 00:02:16.565 and I really appreciate it.
NOTE Confidence: 0.98404366
00:02:16.565 --> 00:02:17.445 Let's see if this works
NOTE Confidence: 0.98404366
00:02:17.445 --> 00:02:18.485 if I just do that.
NOTE Confidence: 0.98404366
00:02:18.485 --> 00:02:20.005 It does. So disclosures, I
NOTE Confidence: 0.98404366
00:02:20.005 --> 00:02:21.285 steal pictures from Google. I
NOTE Confidence: 0.98404366
00:02:21.285 --> 00:02:22.405 think you probably knew that

NOTE Confidence: 0.98404366
00:02:22.405 --> 00:02:22.710 already.
NOTE Confidence: 0.9718473
00:02:23.910 --> 00:02:25.190 So a quick overview of
NOTE Confidence: 0.9718473
00:02:25.190 --> 00:02:26.150 what we're gonna do tonight.
NOTE Confidence: 0.9718473
00:02:26.150 --> 00:02:27.450 We're gonna talk about extremely
NOTE Confidence: 0.9718473
00:02:27.510 --> 00:02:29.030 preterm birth. We're gonna talk
NOTE Confidence: 0.9718473
00:02:29.030 --> 00:02:30.810 about artificial womb technology,
NOTE Confidence: 0.99622136
00:02:31.190 --> 00:02:32.070 a little bit about the
NOTE Confidence: 0.99622136
00:02:32.070 --> 00:02:33.350 nuts and bolts, and then
NOTE Confidence: 0.99622136
00:02:33.350 --> 00:02:35.290 about research ethics guidelines.
NOTE Confidence: 0.962037
00:02:36.470 --> 00:02:37.545 There's gotta be some ethics
NOTE Confidence: 0.962037
00:02:37.545 --> 00:02:38.505 here. There is an ethics
NOTE Confidence: 0.962037
00:02:38.505 --> 00:02:39.705 conference. We'll talk about some
NOTE Confidence: 0.962037
00:02:39.705 --> 00:02:41.385 ethical considerations in using this
NOTE Confidence: 0.962037
00:02:41.385 --> 00:02:41.885 technology,
NOTE Confidence: 0.97281754
00:02:42.745 --> 00:02:43.705 and then some questions I
NOTE Confidence: 0.97281754

00:02:43.705 --> 00:02:44.585 think need to be answered.
NOTE Confidence: 0.97281754

00:02:44.585 --> 00:02:45.625 And then there's gonna be
NOTE Confidence: 0.97281754

00:02:45.625 --> 00:02:46.825 time for your thoughts, which
NOTE Confidence: 0.97281754

00:02:46.825 --> 00:02:48.365 I'm very interested in hearing
NOTE Confidence: 0.9810544

00:02:48.665 --> 00:02:50.159 on this subject. So let's
NOTE Confidence: 0.9810544

00:02:50.159 --> 00:02:51.519 get to it. So first
NOTE Confidence: 0.9810544

00:02:51.519 --> 00:02:52.400 of all, this is what
NOTE Confidence: 0.9810544

00:02:52.400 --> 00:02:54.159 it looks like if you're
NOTE Confidence: 0.9810544

00:02:54.159 --> 00:02:55.760 inside a womb. So where'd
NOTE Confidence: 0.9810544

00:02:55.760 --> 00:02:56.579 Isaac go?
NOTE Confidence: 0.7443421

00:02:56.959 --> 00:02:57.459 Isaac.
NOTE Confidence: 0.9988974

00:02:59.040 --> 00:03:00.079 Why are we looking at
NOTE Confidence: 0.9988974

00:03:00.079 --> 00:03:00.579 that?
NOTE Confidence: 0.99469084

00:03:01.200 --> 00:03:02.719 There we go. And then
NOTE Confidence: 0.99469084

00:03:02.719 --> 00:03:03.620 we get this.
NOTE Confidence: 0.99066514

00:03:05.235 --> 00:03:05.735 Alright.

NOTE Confidence: 0.9992032
00:03:06.755 --> 00:03:07.655 Any questions?
NOTE Confidence: 0.99343234
00:03:08.035 --> 00:03:09.155 I think this is good.
NOTE Confidence: 0.99343234
00:03:09.155 --> 00:03:09.955 I think we'll use this
NOTE Confidence: 0.99343234
00:03:09.955 --> 00:03:11.555 instead of that. Alright. The
NOTE Confidence: 0.99343234
00:03:11.555 --> 00:03:12.915 picture's up there. Very good.
NOTE Confidence: 0.99343234
00:03:12.915 --> 00:03:13.635 Alright. So this is what
NOTE Confidence: 0.99343234
00:03:13.635 --> 00:03:14.435 it looks like on the
NOTE Confidence: 0.99343234
00:03:14.435 --> 00:03:15.335 inside. Right?
NOTE Confidence: 0.96371204
00:03:15.875 --> 00:03:17.415 The in utero support,
NOTE Confidence: 0.9532533
00:03:17.730 --> 00:03:18.930 what it's like for a
NOTE Confidence: 0.9532533
00:03:18.930 --> 00:03:20.050 fetus. And you can see,
NOTE Confidence: 0.9532533
00:03:20.050 --> 00:03:21.250 of course, you guys know
NOTE Confidence: 0.9532533
00:03:21.250 --> 00:03:22.530 this, that what did your
NOTE Confidence: 0.9532533
00:03:22.530 --> 00:03:24.150 mother provide you with warmth?
NOTE Confidence: 0.8504559
00:03:24.530 --> 00:03:25.810 You know, ninety eight point
NOTE Confidence: 0.8504559

00:03:25.810 --> 00:03:27.250 six, her body temperature rate,
NOTE Confidence: 0.8504559

00:03:27.250 --> 00:03:28.549 or close to it. It
NOTE Confidence: 0.8504559

00:03:28.610 --> 00:03:29.810 might actually be exactly like
NOTE Confidence: 0.8504559

00:03:29.810 --> 00:03:29.970 that.
NOTE Confidence: 0.9318869

00:03:31.534 --> 00:03:33.215 Nutrition via the umbilical cord.
NOTE Confidence: 0.9318869

00:03:33.215 --> 00:03:34.114 Of course, homeostasis.
NOTE Confidence: 0.99674886

00:03:34.735 --> 00:03:35.555 You remember
NOTE Confidence: 0.96365035

00:03:36.174 --> 00:03:37.534 as a fetus worrying about
NOTE Confidence: 0.96365035

00:03:37.534 --> 00:03:38.974 maintaining your serum sodium in
NOTE Confidence: 0.96365035

00:03:38.974 --> 00:03:40.174 the normal you don't remember
NOTE Confidence: 0.96365035

00:03:40.174 --> 00:03:40.974 that because you didn't have
NOTE Confidence: 0.96365035

00:03:40.974 --> 00:03:41.855 to do that because your
NOTE Confidence: 0.96365035

00:03:41.855 --> 00:03:42.735 mother took care of that.
NOTE Confidence: 0.96365035

00:03:42.735 --> 00:03:43.935 The placenta takes care of
NOTE Confidence: 0.96365035

00:03:43.935 --> 00:03:45.440 that. There's a fluid environment
NOTE Confidence: 0.96365035

00:03:45.440 --> 00:03:46.560 for growth, which is actually

NOTE Confidence: 0.96365035
00:03:46.560 --> 00:03:48.320 quite important. For example, the
NOTE Confidence: 0.96365035
00:03:48.320 --> 00:03:49.840 lungs can't develop unless there's
NOTE Confidence: 0.96365035
00:03:49.840 --> 00:03:51.140 an adequate fluid environment.
NOTE Confidence: 0.9998441
00:03:51.600 --> 00:03:52.100 Oxygenation
NOTE Confidence: 0.9616436
00:03:52.720 --> 00:03:54.000 from the placenta through the
NOTE Confidence: 0.9616436
00:03:54.000 --> 00:03:55.360 umbilical cord, of course, that's
NOTE Confidence: 0.9616436
00:03:55.360 --> 00:03:56.560 essential. And you can take
NOTE Confidence: 0.9616436
00:03:56.560 --> 00:03:57.360 a look for those of
NOTE Confidence: 0.9616436
00:03:57.360 --> 00:03:58.125 medical students
NOTE Confidence: 0.94117165
00:03:58.525 --> 00:04:00.445 recognize this as basically the
NOTE Confidence: 0.94117165
00:04:00.445 --> 00:04:01.345 fetal physiology.
NOTE Confidence: 0.9853792
00:04:01.725 --> 00:04:02.685 And to orient you, of
NOTE Confidence: 0.9853792
00:04:02.685 --> 00:04:03.825 course, we have the placenta
NOTE Confidence: 0.9825785
00:04:04.125 --> 00:04:05.345 and the blood coming
NOTE Confidence: 0.9926949
00:04:05.645 --> 00:04:07.005 from the placenta and up
NOTE Confidence: 0.9926949

00:04:07.005 --> 00:04:08.525 here into the right heart
NOTE Confidence: 0.9926949

00:04:08.525 --> 00:04:09.265 and crossing
NOTE Confidence: 0.94959015

00:04:09.565 --> 00:04:10.525 right to left at the
NOTE Confidence: 0.94959015

00:04:10.525 --> 00:04:11.910 foramen ovale and at the
NOTE Confidence: 0.94959015

00:04:11.910 --> 00:04:12.650 ductus arteriosus.
NOTE Confidence: 0.94753355

00:04:13.270 --> 00:04:14.630 Don't worry about this, but
NOTE Confidence: 0.94753355

00:04:14.630 --> 00:04:15.989 the the key point of
NOTE Confidence: 0.94753355

00:04:15.989 --> 00:04:16.730 this picture
NOTE Confidence: 0.9755182

00:04:17.190 --> 00:04:18.330 is that as a fetus,
NOTE Confidence: 0.9755182

00:04:18.550 --> 00:04:19.910 you don't really even need
NOTE Confidence: 0.9755182

00:04:19.910 --> 00:04:21.190 your lungs, and you don't
NOTE Confidence: 0.9755182

00:04:21.190 --> 00:04:22.389 send very much blood to
NOTE Confidence: 0.9755182

00:04:22.389 --> 00:04:23.750 your lungs. Little bit goes
NOTE Confidence: 0.9755182

00:04:23.750 --> 00:04:24.630 there so the lungs can
NOTE Confidence: 0.9755182

00:04:24.630 --> 00:04:25.815 grow and develop, but you
NOTE Confidence: 0.9755182

00:04:25.815 --> 00:04:26.855 don't need your lungs because

NOTE Confidence: 0.9755182
00:04:26.855 --> 00:04:27.895 that's not where the oxygen's
NOTE Confidence: 0.9755182
00:04:27.895 --> 00:04:28.935 coming from. Of course, you're
NOTE Confidence: 0.9755182
00:04:28.935 --> 00:04:31.015 underwater. The oxygen is coming
NOTE Confidence: 0.9755182
00:04:31.015 --> 00:04:32.375 from the placenta. So your
NOTE Confidence: 0.9755182
00:04:32.375 --> 00:04:33.654 mother provided you with all
NOTE Confidence: 0.9755182
00:04:33.654 --> 00:04:35.515 this, so the lesson is
NOTE Confidence: 0.9755182
00:04:35.654 --> 00:04:36.875 when you get home tonight,
NOTE Confidence: 0.9755182
00:04:37.095 --> 00:04:38.555 call your mother.
NOTE Confidence: 0.9943191
00:04:40.150 --> 00:04:41.029 Now let's see if we
NOTE Confidence: 0.9943191
00:04:41.029 --> 00:04:42.229 can get this. Okay. Now
NOTE Confidence: 0.9943191
00:04:42.229 --> 00:04:43.990 the transition to extrauterine life,
NOTE Confidence: 0.9943191
00:04:43.990 --> 00:04:45.370 which is the most fascinating
NOTE Confidence: 0.9943191
00:04:45.509 --> 00:04:46.630 hour of your life, and
NOTE Confidence: 0.9943191
00:04:46.630 --> 00:04:48.069 you don't remember that either.
NOTE Confidence: 0.9943191
00:04:48.069 --> 00:04:49.449 But we have to maintain
NOTE Confidence: 0.9943191

00:04:49.589 --> 00:04:50.970 as we made that transition,
NOTE Confidence: 0.9943191

00:04:51.029 --> 00:04:52.710 we had to maintain warmth,
NOTE Confidence: 0.9943191

00:04:52.710 --> 00:04:53.930 nutrition, homeostasis.
NOTE Confidence: 0.9669212

00:04:55.485 --> 00:04:56.525 Do we need that fluid
NOTE Confidence: 0.9669212

00:04:56.525 --> 00:04:57.485 environment for growth? Well, we
NOTE Confidence: 0.9669212

00:04:57.485 --> 00:04:58.365 really don't anymore, and, of
NOTE Confidence: 0.9669212

00:04:58.365 --> 00:04:59.964 course, it was lost. K?
NOTE Confidence: 0.9669212

00:04:59.964 --> 00:05:01.324 Do we need oxygenation? Of
NOTE Confidence: 0.9669212

00:05:01.324 --> 00:05:02.525 course, we do. We made
NOTE Confidence: 0.9669212

00:05:02.525 --> 00:05:04.365 that transition very quickly from
NOTE Confidence: 0.9669212

00:05:04.365 --> 00:05:05.025 the placenta
NOTE Confidence: 0.97919655

00:05:05.485 --> 00:05:07.005 to our own lungs. And,
NOTE Confidence: 0.97919655

00:05:07.324 --> 00:05:08.760 and this is all these
NOTE Confidence: 0.97919655

00:05:08.760 --> 00:05:09.639 things have to happen in
NOTE Confidence: 0.97919655

00:05:09.639 --> 00:05:11.320 this transition. And it's just
NOTE Confidence: 0.97919655

00:05:11.320 --> 00:05:11.820 fascinating

NOTE Confidence: 0.9753395
00:05:12.360 --> 00:05:14.139 that it usually goes right
NOTE Confidence: 0.9753395
00:05:14.200 --> 00:05:15.639 because it's pretty complicated. So
NOTE Confidence: 0.9753395
00:05:15.639 --> 00:05:16.520 all those things that were
NOTE Confidence: 0.9753395
00:05:16.520 --> 00:05:18.040 provided on the inside, so
NOTE Confidence: 0.9753395
00:05:18.040 --> 00:05:19.000 much of that is still
NOTE Confidence: 0.9753395
00:05:19.000 --> 00:05:20.440 needed on the outside. And
NOTE Confidence: 0.9753395
00:05:20.440 --> 00:05:21.560 the transition, as I say,
NOTE Confidence: 0.9753395
00:05:21.560 --> 00:05:23.035 is fascinating stuff, and some
NOTE Confidence: 0.9753395
00:05:23.035 --> 00:05:24.235 people, including some in this
NOTE Confidence: 0.9753395
00:05:24.235 --> 00:05:25.515 room, spend their whole life
NOTE Confidence: 0.9753395
00:05:25.515 --> 00:05:27.195 working on this. It's really
NOTE Confidence: 0.9753395
00:05:27.195 --> 00:05:28.875 interesting. And ninety percent of
NOTE Confidence: 0.9753395
00:05:28.875 --> 00:05:29.915 the time, it's it goes
NOTE Confidence: 0.9753395
00:05:29.915 --> 00:05:30.714 fine, by the way, if
NOTE Confidence: 0.9753395
00:05:30.714 --> 00:05:31.995 anybody here is waiting for
NOTE Confidence: 0.9753395

00:05:31.995 --> 00:05:33.515 their baby. It usually goes
NOTE Confidence: 0.9753395

00:05:33.515 --> 00:05:34.815 just fine. Now
NOTE Confidence: 0.94024265

00:05:35.150 --> 00:05:36.589 not always, though. Right? And
NOTE Confidence: 0.94024265

00:05:36.589 --> 00:05:37.330 in particular,
NOTE Confidence: 0.9804295

00:05:38.029 --> 00:05:39.390 sometimes the babies come out
NOTE Confidence: 0.9804295

00:05:39.390 --> 00:05:40.430 early. And I wanna talk
NOTE Confidence: 0.9804295

00:05:40.430 --> 00:05:41.710 a bit about the babies
NOTE Confidence: 0.9804295

00:05:41.710 --> 00:05:43.230 that come out very early,
NOTE Confidence: 0.9804295

00:05:43.230 --> 00:05:45.470 extremely preterm birth. All the
NOTE Confidence: 0.9804295

00:05:45.470 --> 00:05:46.830 systems that have to kick
NOTE Confidence: 0.9804295

00:05:46.830 --> 00:05:47.330 in
NOTE Confidence: 0.9956848

00:05:47.645 --> 00:05:48.685 have to kick in too
NOTE Confidence: 0.9956848

00:05:48.685 --> 00:05:50.125 soon. Okay? So the lungs
NOTE Confidence: 0.9956848

00:05:50.125 --> 00:05:51.245 which are needed for gas
NOTE Confidence: 0.9956848

00:05:51.245 --> 00:05:53.105 exchange, they're not really physiologically
NOTE Confidence: 0.9956848

00:05:53.325 --> 00:05:54.925 ready. Again, the students know

NOTE Confidence: 0.9956848

00:05:54.925 --> 00:05:56.625 that there's not adequate pulmonary

NOTE Confidence: 0.9956848

00:05:56.765 --> 00:05:58.285 surfactant to keep the lungs

NOTE Confidence: 0.9956848

00:05:58.285 --> 00:05:59.745 from collapsing. Yes.

NOTE Confidence: 0.9156149

00:06:00.970 --> 00:06:02.190 Oh, you were just waving.

NOTE Confidence: 0.8756296

00:06:02.889 --> 00:06:03.690 Oh, you said, alright. Well,

NOTE Confidence: 0.8756296

00:06:03.690 --> 00:06:04.730 it's good to see. Alright.

NOTE Confidence: 0.8756296

00:06:04.730 --> 00:06:05.230 So,

NOTE Confidence: 0.99864674

00:06:05.930 --> 00:06:07.950 there's not enough pulmonary surfactant,

NOTE Confidence: 0.97839576

00:06:08.410 --> 00:06:09.850 but there's also other structural

NOTE Confidence: 0.97839576

00:06:09.850 --> 00:06:11.210 immatures. The lungs are not

NOTE Confidence: 0.97839576

00:06:11.210 --> 00:06:12.250 ready, and this is often

NOTE Confidence: 0.97839576

00:06:12.250 --> 00:06:13.665 the limiting factor for how

NOTE Confidence: 0.97839576

00:06:13.665 --> 00:06:15.525 small a baby can survive.

NOTE Confidence: 0.9876987

00:06:15.904 --> 00:06:17.105 And the progress that's been

NOTE Confidence: 0.9876987

00:06:17.105 --> 00:06:17.985 made in the past half

NOTE Confidence: 0.9876987

00:06:17.985 --> 00:06:19.345 century of keeping these tiny
NOTE Confidence: 0.9876987

00:06:19.345 --> 00:06:20.785 babies alive, a lot of
NOTE Confidence: 0.9876987

00:06:20.785 --> 00:06:21.745 it has been about better
NOTE Confidence: 0.9876987

00:06:21.745 --> 00:06:23.044 and better ways to ventilate
NOTE Confidence: 0.9959634

00:06:23.345 --> 00:06:25.185 immature lungs, particularly at the
NOTE Confidence: 0.9959634

00:06:25.185 --> 00:06:27.525 borderline gestational ages of survival.
NOTE Confidence: 0.98753685

00:06:28.199 --> 00:06:29.479 Also, you don't have enough
NOTE Confidence: 0.98753685

00:06:29.479 --> 00:06:30.520 skin. You don't have enough
NOTE Confidence: 0.98753685

00:06:30.520 --> 00:06:31.020 subcutaneous
NOTE Confidence: 0.98224515

00:06:31.400 --> 00:06:33.100 fat to maintain body temperature.
NOTE Confidence: 0.98224515

00:06:33.240 --> 00:06:34.600 You don't have enough skin.
NOTE Confidence: 0.98224515

00:06:34.600 --> 00:06:35.800 The skin is not developed
NOTE Confidence: 0.98224515

00:06:35.800 --> 00:06:36.680 enough to keep the water
NOTE Confidence: 0.98224515

00:06:36.680 --> 00:06:37.880 on the inside. So these
NOTE Confidence: 0.98224515

00:06:37.880 --> 00:06:39.319 extremely short babies, if you
NOTE Confidence: 0.98224515

00:06:39.319 --> 00:06:40.355 put them out in the

NOTE Confidence: 0.98224515

00:06:40.355 --> 00:06:41.475 open room, they're gonna get

NOTE Confidence: 0.98224515

00:06:41.475 --> 00:06:42.595 cold very quickly, and they're

NOTE Confidence: 0.98224515

00:06:42.595 --> 00:06:44.115 gonna get dehydrated very quickly

NOTE Confidence: 0.98224515

00:06:44.115 --> 00:06:45.315 because of the evaporative water

NOTE Confidence: 0.98224515

00:06:45.315 --> 00:06:47.654 loss. Alright? Everything, the intestinal

NOTE Confidence: 0.98224515

00:06:47.714 --> 00:06:48.995 tract, on and on, all

NOTE Confidence: 0.98224515

00:06:48.995 --> 00:06:50.214 these systems here

NOTE Confidence: 0.99448556

00:06:50.595 --> 00:06:51.875 are not ready to come

NOTE Confidence: 0.99448556

00:06:51.875 --> 00:06:53.175 out. Nevertheless,

NOTE Confidence: 0.9982371

00:06:53.714 --> 00:06:54.855 the critical care,

NOTE Confidence: 0.99162483

00:06:55.529 --> 00:06:56.810 which means the staff and

NOTE Confidence: 0.99162483

00:06:56.810 --> 00:06:58.250 the technology, including some folks

NOTE Confidence: 0.99162483

00:06:58.250 --> 00:06:59.690 who are here tonight, critical

NOTE Confidence: 0.99162483

00:06:59.690 --> 00:07:00.830 care often

NOTE Confidence: 0.98272574

00:07:01.210 --> 00:07:03.210 saves these tiny babies. It's

NOTE Confidence: 0.98272574

00:07:03.210 --> 00:07:04.350 really quite remarkable.
NOTE Confidence: 0.9807869

00:07:06.410 --> 00:07:08.270 But at the very limits,
NOTE Confidence: 0.9807869

00:07:08.525 --> 00:07:09.885 which we'll call twenty two
NOTE Confidence: 0.9807869

00:07:09.885 --> 00:07:11.505 to twenty five weeks gestation,
NOTE Confidence: 0.97676045

00:07:12.205 --> 00:07:13.885 normal being thirty seven to
NOTE Confidence: 0.97676045

00:07:13.885 --> 00:07:15.005 forty one. We'll say forty.
NOTE Confidence: 0.97676045

00:07:15.005 --> 00:07:16.285 Right? So forty weeks is
NOTE Confidence: 0.97676045

00:07:16.285 --> 00:07:17.565 a ballpark for what normal
NOTE Confidence: 0.97676045

00:07:17.565 --> 00:07:19.085 gestation is. When kids are
NOTE Confidence: 0.97676045

00:07:19.085 --> 00:07:20.365 born between twenty two and
NOTE Confidence: 0.97676045

00:07:20.365 --> 00:07:22.525 twenty five weeks, that's considered
NOTE Confidence: 0.97676045

00:07:22.525 --> 00:07:23.025 borderline.
NOTE Confidence: 0.9975352

00:07:23.440 --> 00:07:25.940 There's substantial morbidity and mortality
NOTE Confidence: 0.94405174

00:07:26.639 --> 00:07:28.500 notable at these lowest gestational
NOTE Confidence: 0.94405174

00:07:28.639 --> 00:07:30.180 ages. Alright? And
NOTE Confidence: 0.977898

00:07:30.480 --> 00:07:31.840 the fellows have heard me

NOTE Confidence: 0.977898
00:07:31.840 --> 00:07:32.639 say, though I haven't been
NOTE Confidence: 0.977898
00:07:32.639 --> 00:07:33.600 in the ICU this year,
NOTE Confidence: 0.977898
00:07:33.600 --> 00:07:34.480 so they don't hear it
NOTE Confidence: 0.977898
00:07:34.480 --> 00:07:35.600 as much, but I've spent
NOTE Confidence: 0.977898
00:07:35.600 --> 00:07:36.580 many years teaching
NOTE Confidence: 0.9702265
00:07:36.985 --> 00:07:38.105 the rule number one and
NOTE Confidence: 0.9702265
00:07:38.105 --> 00:07:39.485 rule number two of neonatology.
NOTE Confidence: 0.9702265
00:07:39.705 --> 00:07:41.005 There's only five rules altogether.
NOTE Confidence: 0.9702265
00:07:41.145 --> 00:07:42.185 Someday, I'll tell all the
NOTE Confidence: 0.9702265
00:07:42.185 --> 00:07:43.545 medical students. Rule number one
NOTE Confidence: 0.9702265
00:07:43.545 --> 00:07:45.465 of of neonatology is that
NOTE Confidence: 0.9702265
00:07:45.465 --> 00:07:46.845 ventilators save babies.
NOTE Confidence: 0.99940324
00:07:47.305 --> 00:07:48.265 And rule number two of
NOTE Confidence: 0.99940324
00:07:48.265 --> 00:07:48.765 neonatology
NOTE Confidence: 0.9656434
00:07:49.305 --> 00:07:51.165 is that ventilators kill babies.
NOTE Confidence: 0.9656434

00:07:51.419 --> 00:07:53.340 Okay? It's a real problem
NOTE Confidence: 0.9656434

00:07:53.340 --> 00:07:54.639 when we take this immature
NOTE Confidence: 0.9656434

00:07:54.699 --> 00:07:56.300 lung and we expose it
NOTE Confidence: 0.9656434

00:07:56.300 --> 00:07:57.419 to the pressure from that
NOTE Confidence: 0.9656434

00:07:57.419 --> 00:07:59.419 ventilator. We expose it to
NOTE Confidence: 0.9656434

00:07:59.419 --> 00:08:00.780 extra oxygen. We get free
NOTE Confidence: 0.9656434

00:08:00.780 --> 00:08:02.060 radical damage. Right? We've got
NOTE Confidence: 0.9656434

00:08:02.060 --> 00:08:04.075 oxygen toxicity. We've got what
NOTE Confidence: 0.9656434

00:08:04.075 --> 00:08:05.595 we call volume trauma because
NOTE Confidence: 0.9656434

00:08:05.595 --> 00:08:06.875 we stretch out those lungs
NOTE Confidence: 0.9656434

00:08:06.875 --> 00:08:08.155 in ways that they can't
NOTE Confidence: 0.9656434

00:08:08.155 --> 00:08:10.075 really tolerate well. You see,
NOTE Confidence: 0.9656434

00:08:10.075 --> 00:08:11.035 even if you're not used
NOTE Confidence: 0.9656434

00:08:11.035 --> 00:08:12.255 to looking at X rays,
NOTE Confidence: 0.9656434

00:08:12.555 --> 00:08:13.515 you see the picture on
NOTE Confidence: 0.9656434

00:08:13.515 --> 00:08:14.475 the left of a normal

NOTE Confidence: 0.9656434
00:08:14.475 --> 00:08:15.995 chest X-ray, and you see
NOTE Confidence: 0.9656434
00:08:15.995 --> 00:08:16.875 the picture on the light.
NOTE Confidence: 0.9656434
00:08:16.875 --> 00:08:18.590 And, of course, the the
NOTE Confidence: 0.9656434
00:08:18.590 --> 00:08:20.030 area that's just mostly black
NOTE Confidence: 0.9656434
00:08:20.030 --> 00:08:21.310 or light gray, that's because
NOTE Confidence: 0.9656434
00:08:21.310 --> 00:08:22.750 it's mostly just air. But
NOTE Confidence: 0.9656434
00:08:22.750 --> 00:08:23.789 over here, you see all
NOTE Confidence: 0.9656434
00:08:23.789 --> 00:08:25.150 this white stuff. White stuff
NOTE Confidence: 0.9656434
00:08:25.150 --> 00:08:26.830 is the denser stuff. That's
NOTE Confidence: 0.9656434
00:08:26.830 --> 00:08:28.050 the this fibrosis,
NOTE Confidence: 0.9812373
00:08:28.830 --> 00:08:30.190 the scarring, if you will,
NOTE Confidence: 0.9812373
00:08:30.190 --> 00:08:31.395 in the lung and other
NOTE Confidence: 0.9812373
00:08:31.395 --> 00:08:32.915 areas of air trapping. The
NOTE Confidence: 0.9812373
00:08:32.915 --> 00:08:34.695 lungs can be horribly damaged.
NOTE Confidence: 0.993951
00:08:35.235 --> 00:08:36.675 The earlier that baby is,
NOTE Confidence: 0.993951

00:08:36.675 --> 00:08:37.875 the more likely it is
NOTE Confidence: 0.993951

00:08:37.875 --> 00:08:38.995 that we're gonna have trouble
NOTE Confidence: 0.993951

00:08:38.995 --> 00:08:40.535 with what we call bronchopulmonary
NOTE Confidence: 0.99484277

00:08:41.315 --> 00:08:43.095 dysplasia, which is essential
NOTE Confidence: 0.9752459

00:08:43.554 --> 00:08:45.315 essentially lung damage caused by
NOTE Confidence: 0.9752459

00:08:45.315 --> 00:08:45.975 the combination
NOTE Confidence: 0.9996879

00:08:46.660 --> 00:08:47.800 of extreme prematurity
NOTE Confidence: 0.953859

00:08:48.820 --> 00:08:50.980 and positive pressure ventilation, which
NOTE Confidence: 0.953859

00:08:50.980 --> 00:08:51.780 we have to do to
NOTE Confidence: 0.953859

00:08:51.780 --> 00:08:52.679 keep them alive,
NOTE Confidence: 0.96292055

00:08:53.380 --> 00:08:55.540 and oxygen toxicity because we
NOTE Confidence: 0.96292055

00:08:55.540 --> 00:08:56.920 put them in extra supplemental
NOTE Confidence: 0.96292055

00:08:56.980 --> 00:08:58.260 oxygen. Right? And, again, some
NOTE Confidence: 0.96292055

00:08:58.260 --> 00:08:59.059 people in the room were
NOTE Confidence: 0.96292055

00:08:59.059 --> 00:09:00.260 thinking, I can't believe he's
NOTE Confidence: 0.96292055

00:09:00.260 --> 00:09:01.140 telling this stuff because it's

NOTE Confidence: 0.96292055
00:09:01.140 --> 00:09:02.295 so obvious. And other people
NOTE Confidence: 0.96292055
00:09:02.295 --> 00:09:03.515 in the room were thinking,
NOTE Confidence: 0.96292055
00:09:03.575 --> 00:09:04.695 I never heard this stuff.
NOTE Confidence: 0.96292055
00:09:04.695 --> 00:09:06.215 But, you know, that's we
NOTE Confidence: 0.96292055
00:09:06.215 --> 00:09:07.815 have this eclectic audience. That's
NOTE Confidence: 0.96292055
00:09:07.815 --> 00:09:08.455 part of the fun of
NOTE Confidence: 0.96292055
00:09:08.455 --> 00:09:10.054 this. We're gonna get to
NOTE Confidence: 0.96292055
00:09:10.054 --> 00:09:11.255 other interesting things, and I
NOTE Confidence: 0.96292055
00:09:11.255 --> 00:09:12.455 wanna build on this a
NOTE Confidence: 0.96292055
00:09:12.455 --> 00:09:13.655 bit. But it's important to
NOTE Confidence: 0.96292055
00:09:13.655 --> 00:09:15.095 remember that that the things
NOTE Confidence: 0.96292055
00:09:15.095 --> 00:09:16.679 we do damage these lungs
NOTE Confidence: 0.96292055
00:09:16.679 --> 00:09:17.800 terribly. And make no mistake
NOTE Confidence: 0.96292055
00:09:17.800 --> 00:09:18.679 about it. Some of these
NOTE Confidence: 0.96292055
00:09:18.679 --> 00:09:20.459 kids die from bronchopulmonary
NOTE Confidence: 0.999593

00:09:21.000 --> 00:09:21.500 dysplasia.
NOTE Confidence: 0.9991946

00:09:22.439 --> 00:09:23.179 In addition,
NOTE Confidence: 0.99924207

00:09:23.720 --> 00:09:25.899 that extremely premature brain
NOTE Confidence: 0.97604895

00:09:26.839 --> 00:09:28.920 doesn't tolerate the fluctuations in
NOTE Confidence: 0.97604895

00:09:28.920 --> 00:09:29.420 oxygenation,
NOTE Confidence: 0.95729476

00:09:29.904 --> 00:09:31.765 the fluctuations in blood pressure,
NOTE Confidence: 0.98352045

00:09:32.145 --> 00:09:34.385 and recognizing these pictures is
NOTE Confidence: 0.98352045

00:09:34.385 --> 00:09:36.065 not so important as me
NOTE Confidence: 0.98352045

00:09:36.065 --> 00:09:37.025 telling you. And I wonder
NOTE Confidence: 0.98352045

00:09:37.025 --> 00:09:38.225 if this cursor shows up.
NOTE Confidence: 0.98352045

00:09:38.225 --> 00:09:39.025 Does it show up on
NOTE Confidence: 0.98352045

00:09:39.025 --> 00:09:40.625 there? Yeah. It does. So
NOTE Confidence: 0.98352045

00:09:40.625 --> 00:09:42.225 these are ultrasounds. And if
NOTE Confidence: 0.98352045

00:09:42.225 --> 00:09:43.684 you're really smart, you realize,
NOTE Confidence: 0.98352045

00:09:43.790 --> 00:09:44.830 look over here on this
NOTE Confidence: 0.98352045

00:09:44.830 --> 00:09:45.870 one, the blood is on

NOTE Confidence: 0.98352045
00:09:45.870 --> 00:09:46.750 one side, but in the
NOTE Confidence: 0.98352045
00:09:46.910 --> 00:09:47.870 in this picture, it's on
NOTE Confidence: 0.98352045
00:09:47.870 --> 00:09:49.070 the other side. So some
NOTE Confidence: 0.98352045
00:09:49.070 --> 00:09:50.290 of these don't line up.
NOTE Confidence: 0.98352045
00:09:50.590 --> 00:09:52.270 Don't worry about that. What
NOTE Confidence: 0.98352045
00:09:52.270 --> 00:09:53.230 we have is because of
NOTE Confidence: 0.98352045
00:09:53.230 --> 00:09:54.590 an immature structure of the
NOTE Confidence: 0.98352045
00:09:54.590 --> 00:09:55.950 brain, we have a tendency
NOTE Confidence: 0.98352045
00:09:55.950 --> 00:09:56.610 to bleed.
NOTE Confidence: 0.996859
00:09:57.345 --> 00:09:58.865 Alright? And so that can
NOTE Confidence: 0.996859
00:09:58.865 --> 00:09:59.925 lead to significant
NOTE Confidence: 0.98719496
00:10:00.304 --> 00:10:01.764 permanent brain injury.
NOTE Confidence: 0.9734151
00:10:02.225 --> 00:10:03.745 Moreover, even in the absence
NOTE Confidence: 0.9734151
00:10:03.745 --> 00:10:04.865 of bleeding, on the right,
NOTE Confidence: 0.9734151
00:10:04.865 --> 00:10:06.304 you see a phenomenon that's
NOTE Confidence: 0.9734151

00:10:06.304 --> 00:10:06.804 intraventricular
NOTE Confidence: 0.9948423

00:10:07.264 --> 00:10:08.324 hemorrhage, IVH.
NOTE Confidence: 0.9923212

00:10:09.540 --> 00:10:11.140 The more premature a baby
NOTE Confidence: 0.9923212

00:10:11.140 --> 00:10:12.500 is, the more likely they
NOTE Confidence: 0.9923212

00:10:12.500 --> 00:10:13.720 are to have that bleeding,
NOTE Confidence: 0.9923212

00:10:13.779 --> 00:10:15.059 to have damage because of
NOTE Confidence: 0.9923212

00:10:15.059 --> 00:10:15.959 lack of oxygen.
NOTE Confidence: 0.98797965

00:10:16.740 --> 00:10:18.100 On the right, you see
NOTE Confidence: 0.98797965

00:10:18.100 --> 00:10:19.720 a cartoon showing basically
NOTE Confidence: 0.9981414

00:10:20.100 --> 00:10:21.640 some areas that are darker.
NOTE Confidence: 0.99657094

00:10:21.945 --> 00:10:22.825 What's the point of that
NOTE Confidence: 0.99657094

00:10:22.825 --> 00:10:23.785 for us here? It's called
NOTE Confidence: 0.99657094

00:10:23.785 --> 00:10:24.285 periventricular
NOTE Confidence: 0.9945844

00:10:24.665 --> 00:10:25.165 leukomalacia.
NOTE Confidence: 0.9475355

00:10:25.785 --> 00:10:27.145 It's damage to the brain
NOTE Confidence: 0.9475355

00:10:27.145 --> 00:10:27.645 parenchyma

NOTE Confidence: 0.95654935

00:10:28.425 --> 00:10:30.125 just superior to the ventricles

NOTE Confidence: 0.95654935

00:10:30.184 --> 00:10:31.725 here, okay, around the ventricles.

NOTE Confidence: 0.98877025

00:10:32.265 --> 00:10:33.885 Brain damage from bleeding,

NOTE Confidence: 0.9906167

00:10:34.230 --> 00:10:36.309 from ischemic damage. And the

NOTE Confidence: 0.9906167

00:10:36.309 --> 00:10:38.149 more premature than that baby is,

NOTE Confidence: 0.9906167

00:10:38.149 --> 00:10:39.610 the more likely they are

NOTE Confidence: 0.9906167

00:10:39.750 --> 00:10:42.149 to have that damage. Okay?

NOTE Confidence: 0.9906167

00:10:42.149 --> 00:10:43.750 So there it is. Everything

NOTE Confidence: 0.9906167

00:10:43.750 --> 00:10:44.790 you wanted to know about

NOTE Confidence: 0.9906167

00:10:44.790 --> 00:10:46.630 neonatology in in three easy

NOTE Confidence: 0.9906167

00:10:46.630 --> 00:10:47.130 minutes.

NOTE Confidence: 0.9843455

00:10:47.684 --> 00:10:48.325 But I want you to

NOTE Confidence: 0.9843455

00:10:48.325 --> 00:10:49.684 know that this picture is

NOTE Confidence: 0.9843455

00:10:49.684 --> 00:10:51.285 interesting. Right? But what's really

NOTE Confidence: 0.9843455

00:10:51.285 --> 00:10:52.325 interesting is what does it

NOTE Confidence: 0.9843455

00:10:52.325 --> 00:10:53.385 mean to the kid?
NOTE Confidence: 0.9984417

00:10:53.765 --> 00:10:54.645 What it means to the
NOTE Confidence: 0.9984417

00:10:54.645 --> 00:10:56.105 kid is that motor function
NOTE Confidence: 0.99962425

00:10:56.885 --> 00:10:57.865 can be injured
NOTE Confidence: 0.9682853

00:10:59.285 --> 00:11:00.640 permanently, and a child can
NOTE Confidence: 0.9682853

00:11:00.640 --> 00:11:01.840 be left, for example, with
NOTE Confidence: 0.9682853

00:11:01.840 --> 00:11:04.240 cerebral palsy. Cognitive function can
NOTE Confidence: 0.9682853

00:11:04.240 --> 00:11:05.920 be injured permanently. So these
NOTE Confidence: 0.9682853

00:11:05.920 --> 00:11:07.440 kids may have developmental delay.
NOTE Confidence: 0.9682853

00:11:07.440 --> 00:11:08.740 They may have low IQ
NOTE Confidence: 0.8884418

00:11:09.200 --> 00:11:10.500 excuse me, low IQ,
NOTE Confidence: 0.99753964

00:11:10.960 --> 00:11:11.860 learning disabilities.
NOTE Confidence: 0.9883815

00:11:12.365 --> 00:11:13.165 Some of these kids are
NOTE Confidence: 0.9883815

00:11:13.165 --> 00:11:14.524 gonna have autism. There's an
NOTE Confidence: 0.9883815

00:11:14.524 --> 00:11:16.045 increased risk of autism with
NOTE Confidence: 0.9883815

00:11:16.045 --> 00:11:17.024 these tiny babies.

NOTE Confidence: 0.9989045
00:11:17.485 --> 00:11:18.845 Lots of this trouble brought
NOTE Confidence: 0.9989045
00:11:18.845 --> 00:11:19.345 on
NOTE Confidence: 0.99935836
00:11:19.725 --> 00:11:21.425 by being on the outside
NOTE Confidence: 0.91712767
00:11:22.125 --> 00:11:23.665 too soon. Alright?
NOTE Confidence: 0.98604363
00:11:24.410 --> 00:11:25.370 For all the reasons we
NOTE Confidence: 0.98604363
00:11:25.370 --> 00:11:26.809 talked about. Now we'll get
NOTE Confidence: 0.98604363
00:11:26.809 --> 00:11:28.170 back to that, but let's
NOTE Confidence: 0.98604363
00:11:28.170 --> 00:11:29.150 do it this way.
NOTE Confidence: 0.98688406
00:11:29.610 --> 00:11:31.150 And let's talk about artificial
NOTE Confidence: 0.98688406
00:11:31.210 --> 00:11:32.650 womb technology, why you came
NOTE Confidence: 0.98688406
00:11:32.650 --> 00:11:34.010 here today. So what's the
NOTE Confidence: 0.98688406
00:11:34.010 --> 00:11:35.850 idea? The idea is that
NOTE Confidence: 0.98688406
00:11:35.850 --> 00:11:37.895 we wanna target those earliest
NOTE Confidence: 0.98688406
00:11:37.955 --> 00:11:39.635 gestational ages, twenty two to
NOTE Confidence: 0.98688406
00:11:39.635 --> 00:11:41.095 twenty four weeks maybe.
NOTE Confidence: 0.9077637

00:11:41.715 --> 00:11:42.835 Interestingly, those are when you

NOTE Confidence: 0.9077637

00:11:42.835 --> 00:11:43.815 see the ZPD.

NOTE Confidence: 0.9561971

00:11:44.195 --> 00:11:45.315 Those are in what have

NOTE Confidence: 0.9561971

00:11:45.315 --> 00:11:47.015 been called some by some,

NOTE Confidence: 0.9561971

00:11:47.315 --> 00:11:48.615 the zone of parental

NOTE Confidence: 0.9982687

00:11:48.995 --> 00:11:49.495 discretion.

NOTE Confidence: 0.958477

00:11:50.230 --> 00:11:50.710 Now those of you who

NOTE Confidence: 0.958477

00:11:50.710 --> 00:11:51.990 are interested in ethics may

NOTE Confidence: 0.958477

00:11:51.990 --> 00:11:53.110 kinda get what that term

NOTE Confidence: 0.958477

00:11:53.110 --> 00:11:53.610 means.

NOTE Confidence: 0.9938987

00:11:53.990 --> 00:11:55.270 And what that term means

NOTE Confidence: 0.9938987

00:11:55.270 --> 00:11:56.230 is this is an area

NOTE Confidence: 0.9938987

00:11:56.230 --> 00:11:57.350 where we give parents a

NOTE Confidence: 0.9938987

00:11:57.350 --> 00:11:58.250 lot of discretion

NOTE Confidence: 0.99924654

00:11:58.630 --> 00:11:59.990 about how aggressive we will

NOTE Confidence: 0.99924654

00:11:59.990 --> 00:12:01.429 or won't be in trying

NOTE Confidence: 0.99924654

00:12:01.429 --> 00:12:02.970 to keep this baby alive.

NOTE Confidence: 0.8323431

00:12:03.515 --> 00:12:04.735 K. So for example,

NOTE Confidence: 0.98080933

00:12:05.275 --> 00:12:06.395 a child who's born at

NOTE Confidence: 0.98080933

00:12:06.395 --> 00:12:07.995 twenty eight weeks, we don't

NOTE Confidence: 0.98080933

00:12:07.995 --> 00:12:09.115 really give the parents that

NOTE Confidence: 0.98080933

00:12:09.115 --> 00:12:10.475 much discretion. The chance of

NOTE Confidence: 0.98080933

00:12:10.475 --> 00:12:11.675 survival and a good outcome

NOTE Confidence: 0.98080933

00:12:11.675 --> 00:12:13.115 is so high that the

NOTE Confidence: 0.98080933

00:12:13.115 --> 00:12:14.554 general feeling within the profession

NOTE Confidence: 0.98080933

00:12:14.554 --> 00:12:15.515 and within the society is

NOTE Confidence: 0.98080933

00:12:15.515 --> 00:12:16.635 that this kid deserves a

NOTE Confidence: 0.98080933

00:12:16.635 --> 00:12:17.850 chance. We're gonna do our

NOTE Confidence: 0.98080933

00:12:17.850 --> 00:12:18.730 best to try and save

NOTE Confidence: 0.98080933

00:12:18.730 --> 00:12:20.090 this baby. We don't ask

NOTE Confidence: 0.98080933

00:12:20.090 --> 00:12:20.890 the parents, what do you

NOTE Confidence: 0.98080933

00:12:20.890 --> 00:12:22.110 think we should do here?
NOTE Confidence: 0.9897699

00:12:22.570 --> 00:12:23.210 On the other hand, a
NOTE Confidence: 0.9897699

00:12:23.210 --> 00:12:24.330 child who's born at twenty
NOTE Confidence: 0.9897699

00:12:24.330 --> 00:12:24.830 weeks,
NOTE Confidence: 0.96806794

00:12:25.370 --> 00:12:26.410 we don't think no matter
NOTE Confidence: 0.96806794

00:12:26.410 --> 00:12:27.290 what we do, when there's
NOTE Confidence: 0.96806794

00:12:27.290 --> 00:12:28.410 no evidence, no matter what
NOTE Confidence: 0.96806794

00:12:28.410 --> 00:12:29.290 we do, we can't save
NOTE Confidence: 0.96806794

00:12:29.290 --> 00:12:30.315 that child. And so we
NOTE Confidence: 0.96806794

00:12:30.315 --> 00:12:31.195 don't ask the parents, do
NOTE Confidence: 0.96806794

00:12:31.195 --> 00:12:31.755 you want us to do
NOTE Confidence: 0.96806794

00:12:31.755 --> 00:12:33.035 all these invasive and terribly
NOTE Confidence: 0.96806794

00:12:33.035 --> 00:12:34.395 difficult things to the child
NOTE Confidence: 0.96806794

00:12:34.395 --> 00:12:35.275 if we know it can't
NOTE Confidence: 0.96806794

00:12:35.275 --> 00:12:35.775 work?
NOTE Confidence: 0.9896802

00:12:36.315 --> 00:12:37.755 But in this range, twenty

NOTE Confidence: 0.9896802
00:12:37.755 --> 00:12:38.715 two to twenty four, we're
NOTE Confidence: 0.9896802
00:12:38.715 --> 00:12:39.855 in that zone of parental
NOTE Confidence: 0.9896802
00:12:39.915 --> 00:12:41.915 discretion, and it's directly relevant
NOTE Confidence: 0.9896802
00:12:41.915 --> 00:12:42.735 to our discussion
NOTE Confidence: 0.9998704
00:12:43.220 --> 00:12:43.800 of artificial
NOTE Confidence: 0.97141004
00:12:44.100 --> 00:12:44.840 womb technology.
NOTE Confidence: 0.98132217
00:12:45.220 --> 00:12:46.900 Okay? And the AWT is
NOTE Confidence: 0.98132217
00:12:46.900 --> 00:12:48.740 intended to reduce not just
NOTE Confidence: 0.98132217
00:12:48.740 --> 00:12:50.020 the high mortality that we
NOTE Confidence: 0.98132217
00:12:50.020 --> 00:12:51.540 see here, but also the
NOTE Confidence: 0.98132217
00:12:51.540 --> 00:12:52.900 high morbidity, which is to
NOTE Confidence: 0.98132217
00:12:52.900 --> 00:12:54.260 say the damage. And I've
NOTE Confidence: 0.98132217
00:12:54.260 --> 00:12:55.300 focused on the brain and
NOTE Confidence: 0.98132217
00:12:55.300 --> 00:12:56.580 the lungs. There's other things
NOTE Confidence: 0.98132217
00:12:56.580 --> 00:12:57.675 as well, but we can
NOTE Confidence: 0.98132217

00:12:57.675 --> 00:12:59.115 focus largely on the brain
NOTE Confidence: 0.98132217

00:12:59.115 --> 00:13:00.315 and the lungs that are
NOTE Confidence: 0.98132217

00:13:00.315 --> 00:13:01.375 likely to be injured.
NOTE Confidence: 0.99802

00:13:02.155 --> 00:13:03.515 What's the idea? The idea
NOTE Confidence: 0.99802

00:13:03.515 --> 00:13:04.715 is that when a kid
NOTE Confidence: 0.99802

00:13:04.715 --> 00:13:05.455 is born,
NOTE Confidence: 0.9156144

00:13:05.995 --> 00:13:07.275 we're gonna put this kid,
NOTE Confidence: 0.9156144

00:13:07.595 --> 00:13:08.635 directly at the excuse me,
NOTE Confidence: 0.9156144

00:13:08.635 --> 00:13:09.675 young lady. There's seats right
NOTE Confidence: 0.9156144

00:13:09.675 --> 00:13:10.475 here in the front row
NOTE Confidence: 0.9156144

00:13:10.475 --> 00:13:11.375 if you'd like.
NOTE Confidence: 0.93822205

00:13:12.395 --> 00:13:13.170 Yeah. That's the one I
NOTE Confidence: 0.93822205

00:13:13.170 --> 00:13:13.970 can pick on her. She's
NOTE Confidence: 0.93822205

00:13:13.970 --> 00:13:14.929 been picking on me for
NOTE Confidence: 0.93822205

00:13:14.929 --> 00:13:15.970 forty three years. I can
NOTE Confidence: 0.93822205

00:13:15.970 --> 00:13:16.950 pick on her.

NOTE Confidence: 0.98122615

00:13:18.929 --> 00:13:20.290 So the idea is we

NOTE Confidence: 0.98122615

00:13:20.290 --> 00:13:21.250 can place this kid on

NOTE Confidence: 0.98122615

00:13:21.250 --> 00:13:23.250 the artificial womb for two

NOTE Confidence: 0.98122615

00:13:23.250 --> 00:13:24.530 to four weeks during that

NOTE Confidence: 0.98122615

00:13:24.530 --> 00:13:26.610 most vulnerable period, vulnerable to

NOTE Confidence: 0.98122615

00:13:26.610 --> 00:13:28.485 the to for death, vulnerable

NOTE Confidence: 0.98122615

00:13:28.485 --> 00:13:29.845 to lung injury, vulnerable to

NOTE Confidence: 0.98122615

00:13:29.845 --> 00:13:31.365 brain injury, just for a

NOTE Confidence: 0.98122615

00:13:31.365 --> 00:13:33.125 couple weeks. And then this

NOTE Confidence: 0.98122615

00:13:33.125 --> 00:13:34.804 kid when the kid comes

NOTE Confidence: 0.98122615

00:13:34.804 --> 00:13:36.005 out of that, this kid

NOTE Confidence: 0.98122615

00:13:36.005 --> 00:13:37.445 can be much more likely

NOTE Confidence: 0.98122615

00:13:37.445 --> 00:13:38.565 to survive and much less

NOTE Confidence: 0.98122615

00:13:38.565 --> 00:13:40.245 likely to have suffered permanent

NOTE Confidence: 0.98122615

00:13:40.245 --> 00:13:41.559 injury. Now importantly,

NOTE Confidence: 0.9671359

00:13:41.940 --> 00:13:43.380 gestational age is lower than
NOTE Confidence: 0.9671359

00:13:43.380 --> 00:13:44.980 this. The technology is simply
NOTE Confidence: 0.9671359

00:13:44.980 --> 00:13:46.339 not feasible, that the catheters
NOTE Confidence: 0.9671359

00:13:46.339 --> 00:13:47.700 can't get that small, for
NOTE Confidence: 0.9671359

00:13:47.700 --> 00:13:50.360 example. Okay? And also importantly,
NOTE Confidence: 0.9671359

00:13:50.500 --> 00:13:51.800 the people who have developed
NOTE Confidence: 0.9671359

00:13:51.860 --> 00:13:52.600 this technology
NOTE Confidence: 0.99778134

00:13:53.459 --> 00:13:55.365 have assured us the goal
NOTE Confidence: 0.99778134

00:13:55.365 --> 00:13:55.865 is
NOTE Confidence: 0.9990335

00:13:56.165 --> 00:13:57.545 not to lower the threshold
NOTE Confidence: 0.9990335

00:13:57.684 --> 00:13:58.725 at which we can save
NOTE Confidence: 0.9990335

00:13:58.725 --> 00:13:59.225 babies.
NOTE Confidence: 0.9465767

00:13:59.845 --> 00:14:00.665 The threshold
NOTE Confidence: 0.95553416

00:14:01.045 --> 00:14:02.485 is twenty two weeks, but
NOTE Confidence: 0.95553416

00:14:02.485 --> 00:14:03.285 really it's not. We can
NOTE Confidence: 0.95553416

00:14:03.285 --> 00:14:04.085 get into that in the

NOTE Confidence: 0.95553416
00:14:04.085 --> 00:14:05.385 end if you want. But
NOTE Confidence: 0.95553416
00:14:05.445 --> 00:14:06.485 right here, we're we're gonna
NOTE Confidence: 0.95553416
00:14:06.485 --> 00:14:07.900 get into some numbers for
NOTE Confidence: 0.95553416
00:14:07.900 --> 00:14:08.620 those of you who are
NOTE Confidence: 0.95553416
00:14:08.620 --> 00:14:10.140 not medically inclined. Sorry. We
NOTE Confidence: 0.95553416
00:14:10.140 --> 00:14:11.100 need to have some data
NOTE Confidence: 0.95553416
00:14:11.100 --> 00:14:12.160 in all this conversation.
NOTE Confidence: 0.98377216
00:14:12.620 --> 00:14:13.900 But that's the idea, is
NOTE Confidence: 0.98377216
00:14:13.900 --> 00:14:15.280 to try and reduce mortality
NOTE Confidence: 0.98377216
00:14:15.340 --> 00:14:17.200 and morbidity in that range,
NOTE Confidence: 0.98377216
00:14:17.500 --> 00:14:19.180 but not to lower the
NOTE Confidence: 0.98377216
00:14:19.180 --> 00:14:21.100 gestational age threshold. So how
NOTE Confidence: 0.98377216
00:14:21.100 --> 00:14:22.080 would this work?
NOTE Confidence: 0.9912312
00:14:22.775 --> 00:14:24.315 Well, the folks at,
NOTE Confidence: 0.9599853
00:14:25.015 --> 00:14:27.095 Children's Hospital of Philadelphia have
NOTE Confidence: 0.9599853

00:14:27.095 --> 00:14:29.175 developed something called Extend. This

NOTE Confidence: 0.9599853

00:14:29.175 --> 00:14:30.875 is not the only artificial

NOTE Confidence: 0.9599853

00:14:31.015 --> 00:14:32.615 womb technology that's being worked

NOTE Confidence: 0.9599853

00:14:32.615 --> 00:14:33.575 on. It is, I think,

NOTE Confidence: 0.9599853

00:14:33.575 --> 00:14:34.775 the most interesting and the

NOTE Confidence: 0.9599853

00:14:34.775 --> 00:14:36.135 most promising. And here you

NOTE Confidence: 0.9599853

00:14:36.135 --> 00:14:36.935 see, this is from a

NOTE Confidence: 0.9599853

00:14:36.935 --> 00:14:39.550 publication in two thousand seventeen.

NOTE Confidence: 0.9599853

00:14:39.610 --> 00:14:40.330 And this is when I

NOTE Confidence: 0.9599853

00:14:40.330 --> 00:14:41.770 first really learned about this,

NOTE Confidence: 0.9599853

00:14:41.770 --> 00:14:42.730 which is already now a

NOTE Confidence: 0.9599853

00:14:42.730 --> 00:14:44.490 little while away. Right? And

NOTE Confidence: 0.9599853

00:14:44.490 --> 00:14:45.610 so if we can if

NOTE Confidence: 0.9599853

00:14:45.610 --> 00:14:46.490 we get a look at

NOTE Confidence: 0.9599853

00:14:46.490 --> 00:14:48.010 this, we see what's happening

NOTE Confidence: 0.9599853

00:14:48.010 --> 00:14:49.690 here. This is obviously a

NOTE Confidence: 0.9599853
00:14:49.690 --> 00:14:50.890 a fetal lamb or a
NOTE Confidence: 0.9599853
00:14:50.890 --> 00:14:51.390 lamb,
NOTE Confidence: 0.9726624
00:14:52.535 --> 00:14:54.135 and this is delivered by
NOTE Confidence: 0.9726624
00:14:54.135 --> 00:14:55.895 c section. And right away,
NOTE Confidence: 0.9726624
00:14:55.895 --> 00:14:57.015 before this lamb even takes
NOTE Confidence: 0.9726624
00:14:57.015 --> 00:14:58.214 a breath, this lamb goes
NOTE Confidence: 0.9726624
00:14:58.214 --> 00:15:00.214 inside a plastic bag filled
NOTE Confidence: 0.9726624
00:15:00.214 --> 00:15:00.955 with fluid,
NOTE Confidence: 0.9648604
00:15:01.495 --> 00:15:03.195 an amniotic fluid substitute.
NOTE Confidence: 0.9818256
00:15:03.654 --> 00:15:05.500 Right? So so still inside
NOTE Confidence: 0.9818256
00:15:05.500 --> 00:15:06.940 that fluid environment, just like
NOTE Confidence: 0.9818256
00:15:06.940 --> 00:15:08.480 in the womb, the umbilical
NOTE Confidence: 0.9818256
00:15:08.620 --> 00:15:10.140 vessels are immediately hooked up
NOTE Confidence: 0.9818256
00:15:10.140 --> 00:15:11.760 to this oxygenator pump.
NOTE Confidence: 0.98235166
00:15:12.220 --> 00:15:12.720 Okay?
NOTE Confidence: 0.9755727

00:15:13.100 --> 00:15:14.860 Again, simulating, if you will,
NOTE Confidence: 0.9755727

00:15:14.860 --> 00:15:15.600 the placenta.
NOTE Confidence: 0.9888555

00:15:15.900 --> 00:15:17.180 So the placenta does all
NOTE Confidence: 0.9888555

00:15:17.180 --> 00:15:18.300 kinds of other stuff that
NOTE Confidence: 0.9888555

00:15:18.300 --> 00:15:19.200 this thing can't.
NOTE Confidence: 0.9757179

00:15:19.675 --> 00:15:21.355 Now the idea is that
NOTE Confidence: 0.9757179

00:15:21.355 --> 00:15:22.555 the blood is gonna get
NOTE Confidence: 0.9757179

00:15:22.555 --> 00:15:23.995 pumped out of here, pumped
NOTE Confidence: 0.9757179

00:15:23.995 --> 00:15:24.495 by
NOTE Confidence: 0.95556897

00:15:25.595 --> 00:15:27.435 the the lamb's own heart,
NOTE Confidence: 0.95556897

00:15:27.435 --> 00:15:28.315 and this was really the
NOTE Confidence: 0.95556897

00:15:28.315 --> 00:15:29.915 huge innovation. This is so
NOTE Confidence: 0.95556897

00:15:29.915 --> 00:15:31.195 low resistance. That's all it
NOTE Confidence: 0.95556897

00:15:31.195 --> 00:15:32.635 takes. Blood goes through here,
NOTE Confidence: 0.95556897

00:15:32.635 --> 00:15:34.475 gets oxygenated, and goes back
NOTE Confidence: 0.95556897

00:15:34.475 --> 00:15:35.760 in. If you look subtly,

NOTE Confidence: 0.95556897
00:15:35.820 --> 00:15:37.100 the cartoonist here show that
NOTE Confidence: 0.95556897
00:15:37.100 --> 00:15:38.700 this is redder blood coming
NOTE Confidence: 0.95556897
00:15:38.700 --> 00:15:39.899 out of this, pass this
NOTE Confidence: 0.95556897
00:15:39.899 --> 00:15:41.260 oxygen. And by the way,
NOTE Confidence: 0.95556897
00:15:41.260 --> 00:15:42.380 we can hang this IV
NOTE Confidence: 0.95556897
00:15:42.380 --> 00:15:43.980 bag here and feed in
NOTE Confidence: 0.95556897
00:15:43.980 --> 00:15:44.480 nutrients.
NOTE Confidence: 0.9898392
00:15:45.100 --> 00:15:46.380 Right? And by the way,
NOTE Confidence: 0.9898392
00:15:46.380 --> 00:15:47.740 you see over here, we
NOTE Confidence: 0.9898392
00:15:47.740 --> 00:15:49.600 can exchange that fluid periodically
NOTE Confidence: 0.9898392
00:15:49.740 --> 00:15:50.815 to keep that clean. But
NOTE Confidence: 0.9898392
00:15:50.815 --> 00:15:51.615 all this has to be
NOTE Confidence: 0.9898392
00:15:51.615 --> 00:15:52.675 kept very sterile.
NOTE Confidence: 0.92381
00:15:53.055 --> 00:15:54.835 Right? So the the oxygenator
NOTE Confidence: 0.9656707
00:15:55.455 --> 00:15:56.415 to take the place, if
NOTE Confidence: 0.9656707

00:15:56.415 --> 00:15:57.475 you will, of the placenta,
NOTE Confidence: 0.9930259

00:15:58.175 --> 00:15:58.895 the the,
NOTE Confidence: 0.9140274

00:15:59.695 --> 00:16:01.295 this plastic bag called a
NOTE Confidence: 0.9140274

00:16:01.295 --> 00:16:02.115 bio bag
NOTE Confidence: 0.96157247

00:16:02.780 --> 00:16:04.460 to serve, as the as
NOTE Confidence: 0.96157247

00:16:04.460 --> 00:16:05.580 the amnion. Right? As the
NOTE Confidence: 0.96157247

00:16:05.580 --> 00:16:07.420 amniotic sac. And we have
NOTE Confidence: 0.96157247

00:16:07.420 --> 00:16:08.960 a very low resistance circuit.
NOTE Confidence: 0.96157247

00:16:09.020 --> 00:16:10.080 But this is obviously
NOTE Confidence: 0.97408855

00:16:10.460 --> 00:16:11.660 science fiction. Right? And this
NOTE Confidence: 0.97408855

00:16:11.660 --> 00:16:13.660 couldn't possibly actually work in
NOTE Confidence: 0.97408855

00:16:13.660 --> 00:16:15.340 real life, except if you
NOTE Confidence: 0.97408855

00:16:15.340 --> 00:16:16.160 take a look,
NOTE Confidence: 0.99912727

00:16:17.020 --> 00:16:17.760 it does.
NOTE Confidence: 0.9915129

00:16:18.375 --> 00:16:19.895 Okay? And this film is
NOTE Confidence: 0.9915129

00:16:19.895 --> 00:16:21.035 years old already.

NOTE Confidence: 0.99032104

00:16:21.495 --> 00:16:23.095 You see that little guy

NOTE Confidence: 0.99032104

00:16:23.095 --> 00:16:23.915 kicking around?

NOTE Confidence: 0.9973664

00:16:25.255 --> 00:16:26.635 So delivered by

NOTE Confidence: 0.94245934

00:16:27.095 --> 00:16:28.235 cesarean section.

NOTE Confidence: 0.9601398

00:16:28.535 --> 00:16:30.295 Immediately, the umbilical vessels are

NOTE Confidence: 0.9601398

00:16:30.295 --> 00:16:32.135 hooked up and placed into

NOTE Confidence: 0.9601398

00:16:32.135 --> 00:16:33.195 the bio bag.

NOTE Confidence: 0.99164695

00:16:34.980 --> 00:16:35.940 Gonna stay in there for

NOTE Confidence: 0.99164695

00:16:35.940 --> 00:16:36.900 two to four weeks when

NOTE Confidence: 0.99164695

00:16:36.900 --> 00:16:38.020 the lungs are at their

NOTE Confidence: 0.99164695

00:16:38.020 --> 00:16:39.380 most vulnerable. And the idea

NOTE Confidence: 0.99164695

00:16:39.380 --> 00:16:41.060 being that this gestational age

NOTE Confidence: 0.99164695

00:16:41.060 --> 00:16:42.340 of the lamb is supposed

NOTE Confidence: 0.99164695

00:16:42.340 --> 00:16:42.920 to correlate

NOTE Confidence: 0.9656858

00:16:43.460 --> 00:16:44.820 with about twenty twenty three

NOTE Confidence: 0.9656858

00:16:44.820 --> 00:16:46.260 to twenty four weeks in
NOTE Confidence: 0.9656858

00:16:46.260 --> 00:16:47.565 the human being, plus
NOTE Confidence: 0.97517174

00:16:50.285 --> 00:16:51.885 there. He's going around. Well,
NOTE Confidence: 0.97517174

00:16:51.885 --> 00:16:53.085 guess what happens? They keep
NOTE Confidence: 0.97517174

00:16:53.085 --> 00:16:54.445 him in there for two
NOTE Confidence: 0.97517174

00:16:54.445 --> 00:16:55.265 to four weeks,
NOTE Confidence: 0.9705842

00:16:55.725 --> 00:16:57.585 and then they deliver him.
NOTE Confidence: 0.9931837

00:16:57.965 --> 00:16:59.165 And now during those two
NOTE Confidence: 0.9931837

00:16:59.165 --> 00:17:00.205 to four weeks, what happened?
NOTE Confidence: 0.9931837

00:17:00.205 --> 00:17:01.805 Those lungs had further growth
NOTE Confidence: 0.9931837

00:17:01.805 --> 00:17:02.465 and development
NOTE Confidence: 0.9994999

00:17:02.810 --> 00:17:04.190 in that fluid environment.
NOTE Confidence: 0.9920252

00:17:04.730 --> 00:17:06.010 What happened? There were no
NOTE Confidence: 0.9920252

00:17:06.010 --> 00:17:07.690 fluctuations in blood pressure as
NOTE Confidence: 0.9920252

00:17:07.690 --> 00:17:08.570 much as there are when
NOTE Confidence: 0.9920252

00:17:08.570 --> 00:17:10.109 it's on the outside prematurely.

NOTE Confidence: 0.99415404
00:17:10.730 --> 00:17:12.169 There were no deep dips
NOTE Confidence: 0.99415404
00:17:12.169 --> 00:17:13.450 in oxygenation as it can
NOTE Confidence: 0.99415404
00:17:13.450 --> 00:17:14.669 happen when they're outside.
NOTE Confidence: 0.98293227
00:17:14.970 --> 00:17:16.410 So all these things mean
NOTE Confidence: 0.98293227
00:17:16.410 --> 00:17:18.190 that perhaps we've also protected
NOTE Confidence: 0.9996314
00:17:18.675 --> 00:17:19.335 the brain.
NOTE Confidence: 0.9995321
00:17:20.035 --> 00:17:20.855 It works.
NOTE Confidence: 0.994139
00:17:21.315 --> 00:17:22.615 It's been shown to work,
NOTE Confidence: 0.9995769
00:17:22.994 --> 00:17:23.735 many times.
NOTE Confidence: 0.96701664
00:17:24.195 --> 00:17:25.795 It works in lambs. So
NOTE Confidence: 0.96701664
00:17:25.795 --> 00:17:26.935 what happened was,
NOTE Confidence: 0.98141843
00:17:28.515 --> 00:17:29.715 in just over a year
NOTE Confidence: 0.98141843
00:17:29.715 --> 00:17:31.155 ago, September of twenty twenty
NOTE Confidence: 0.98141843
00:17:31.155 --> 00:17:32.755 three, the FDA held a
NOTE Confidence: 0.98141843
00:17:32.755 --> 00:17:34.390 hearing for first in human
NOTE Confidence: 0.98141843

00:17:34.390 --> 00:17:34.890 trials.
NOTE Confidence: 0.9466586
00:17:35.350 --> 00:17:36.470 We've seen that it works
NOTE Confidence: 0.9466586
00:17:36.470 --> 00:17:37.670 in lambs. And by the
NOTE Confidence: 0.9466586
00:17:37.670 --> 00:17:38.790 way, some of these lambs
NOTE Confidence: 0.9466586
00:17:38.790 --> 00:17:40.630 can be sacrificed afterwards, and
NOTE Confidence: 0.9466586
00:17:40.630 --> 00:17:41.910 their brains examined under a
NOTE Confidence: 0.9466586
00:17:41.910 --> 00:17:43.130 microscope, and it appears
NOTE Confidence: 0.8950252
00:17:43.510 --> 00:17:45.270 that they look good and
NOTE Confidence: 0.8950252
00:17:45.270 --> 00:17:46.710 that lambs look good. But,
NOTE Confidence: 0.8950252
00:17:46.710 --> 00:17:47.210 obviously,
NOTE Confidence: 0.93932545
00:17:47.590 --> 00:17:49.304 what a what a lamb
NOTE Confidence: 0.93932545
00:17:49.304 --> 00:17:50.524 has to do neurologically
NOTE Confidence: 0.96176934
00:17:50.904 --> 00:17:52.105 is so much less complex
NOTE Confidence: 0.96176934
00:17:52.105 --> 00:17:52.904 than what we expect of
NOTE Confidence: 0.96176934
00:17:52.904 --> 00:17:53.865 the human brain over the
NOTE Confidence: 0.96176934
00:17:53.865 --> 00:17:55.625 course of life. But it

NOTE Confidence: 0.96176934
00:17:55.625 --> 00:17:56.684 looks good microscopically
NOTE Confidence: 0.9944711
00:17:56.984 --> 00:17:57.725 and clinically.
NOTE Confidence: 0.991257
00:17:58.184 --> 00:17:59.544 Fantastic. So now the FDA
NOTE Confidence: 0.991257
00:17:59.544 --> 00:18:00.605 is having a hearing
NOTE Confidence: 0.96401256
00:18:00.919 --> 00:18:02.380 in twenty twenty three about
NOTE Confidence: 0.96401256
00:18:02.440 --> 00:18:03.400 what's the deal we're gonna
NOTE Confidence: 0.96401256
00:18:03.400 --> 00:18:04.359 do first in human trials.
NOTE Confidence: 0.96401256
00:18:04.359 --> 00:18:05.400 And the folks from Children's
NOTE Confidence: 0.96401256
00:18:05.400 --> 00:18:06.380 Hospital of Philadelphia
NOTE Confidence: 0.99919176
00:18:06.760 --> 00:18:07.820 presented their data
NOTE Confidence: 0.9641906
00:18:08.119 --> 00:18:09.580 and talked about their technology.
NOTE Confidence: 0.9753489
00:18:09.960 --> 00:18:10.760 And I was asked to
NOTE Confidence: 0.9753489
00:18:10.760 --> 00:18:12.039 come and talk about the
NOTE Confidence: 0.9753489
00:18:12.039 --> 00:18:13.799 ethical concerns. Are there ethical
NOTE Confidence: 0.9753489
00:18:13.799 --> 00:18:14.919 concerns? Because I had written
NOTE Confidence: 0.9753489

00:18:14.919 --> 00:18:16.645 about that after that two
NOTE Confidence: 0.9753489

00:18:16.645 --> 00:18:17.925 thousand seventeen article. I was
NOTE Confidence: 0.9753489

00:18:17.925 --> 00:18:19.305 asked by that journal pediatric
NOTE Confidence: 0.9753489

00:18:19.365 --> 00:18:20.405 research, what do you make
NOTE Confidence: 0.9753489

00:18:20.405 --> 00:18:21.045 of this? And that's when
NOTE Confidence: 0.9753489

00:18:21.045 --> 00:18:21.845 I learned about it. I
NOTE Confidence: 0.9753489

00:18:21.845 --> 00:18:23.285 said, wow. This is amazing
NOTE Confidence: 0.9753489

00:18:23.285 --> 00:18:24.085 stuff. I mean, you can
NOTE Confidence: 0.9753489

00:18:24.085 --> 00:18:25.125 you can admit. You can
NOTE Confidence: 0.9753489

00:18:25.125 --> 00:18:26.805 agree. Seeing that lamb inside
NOTE Confidence: 0.9753489

00:18:26.805 --> 00:18:28.744 that bag is quite remarkable
NOTE Confidence: 0.9753489

00:18:28.805 --> 00:18:30.725 quite remarkable. So the question
NOTE Confidence: 0.9753489

00:18:30.725 --> 00:18:31.225 becomes,
NOTE Confidence: 0.9985045

00:18:31.780 --> 00:18:32.820 once it's been shown to
NOTE Confidence: 0.9985045

00:18:32.820 --> 00:18:34.660 be safe, feasible, and effective
NOTE Confidence: 0.9985045

00:18:34.660 --> 00:18:35.720 in animal studies,

NOTE Confidence: 0.99915427
00:18:36.180 --> 00:18:37.880 what questions should be answered
NOTE Confidence: 0.99915427
00:18:38.100 --> 00:18:38.600 before
NOTE Confidence: 0.98526543
00:18:39.059 --> 00:18:40.920 the first human is placed
NOTE Confidence: 0.98526543
00:18:41.220 --> 00:18:43.000 on artificial womb technology?
NOTE Confidence: 0.9020543
00:18:44.295 --> 00:18:45.195 Saw some considerations.
NOTE Confidence: 0.97492284
00:18:45.815 --> 00:18:47.095 Saw some some bread and
NOTE Confidence: 0.97492284
00:18:47.095 --> 00:18:48.775 butter pediatric ethics for us
NOTE Confidence: 0.97492284
00:18:48.775 --> 00:18:49.494 as we look at this
NOTE Confidence: 0.97492284
00:18:49.494 --> 00:18:51.015 stuff. So this is from,
NOTE Confidence: 0.93071526
00:18:51.415 --> 00:18:52.615 a fellow named Rick Kodesh
NOTE Confidence: 0.93071526
00:18:52.615 --> 00:18:53.975 who's out in Ohio, a
NOTE Confidence: 0.93071526
00:18:53.975 --> 00:18:55.435 well known pediatric ethicist
NOTE Confidence: 0.96950114
00:18:55.735 --> 00:18:57.735 who's asked a really important
NOTE Confidence: 0.96950114
00:18:57.735 --> 00:18:59.100 question. It's It's one that
NOTE Confidence: 0.96950114
00:18:59.100 --> 00:19:00.800 we always face with regard
NOTE Confidence: 0.96950114

00:19:00.940 --> 00:19:01.680 to pediatric
NOTE Confidence: 0.9998112

00:19:02.059 --> 00:19:02.559 research.
NOTE Confidence: 0.95258087

00:19:02.940 --> 00:19:04.460 Now remember, when we they
NOTE Confidence: 0.95258087

00:19:04.460 --> 00:19:05.500 didn't talk about first in
NOTE Confidence: 0.95258087

00:19:05.500 --> 00:19:07.340 human. The FDA wasn't asking
NOTE Confidence: 0.95258087

00:19:07.340 --> 00:19:08.300 about when do we just
NOTE Confidence: 0.95258087

00:19:08.300 --> 00:19:09.500 start doing this on babies
NOTE Confidence: 0.95258087

00:19:09.500 --> 00:19:10.460 because that's not the right
NOTE Confidence: 0.95258087

00:19:10.460 --> 00:19:11.180 way to do it, and
NOTE Confidence: 0.95258087

00:19:11.180 --> 00:19:12.059 I think most of you
NOTE Confidence: 0.95258087

00:19:12.059 --> 00:19:12.940 know this. The right way
NOTE Confidence: 0.95258087

00:19:12.940 --> 00:19:13.740 to do it is to
NOTE Confidence: 0.95258087

00:19:13.740 --> 00:19:14.914 study it. We need to
NOTE Confidence: 0.95258087

00:19:14.914 --> 00:19:16.674 do trials, controlled trials to
NOTE Confidence: 0.95258087

00:19:16.674 --> 00:19:17.554 see if this is actually
NOTE Confidence: 0.95258087

00:19:17.554 --> 00:19:19.494 better than standard therapy.

NOTE Confidence: 0.94333386
00:19:20.195 --> 00:19:22.115 So what Rick Kotash, tells
NOTE Confidence: 0.94333386
00:19:22.115 --> 00:19:23.155 us about how we approach
NOTE Confidence: 0.94333386
00:19:23.234 --> 00:19:24.695 we've got a vulnerable population,
NOTE Confidence: 0.94333386
00:19:24.914 --> 00:19:25.715 and I will tell you
NOTE Confidence: 0.94333386
00:19:25.715 --> 00:19:26.595 that always when we talk
NOTE Confidence: 0.94333386
00:19:26.595 --> 00:19:28.195 about research in babies, we're
NOTE Confidence: 0.94333386
00:19:28.195 --> 00:19:29.395 talking about a risk of
NOTE Confidence: 0.94333386
00:19:29.395 --> 00:19:29.895 exploitation.
NOTE Confidence: 0.96483797
00:19:30.434 --> 00:19:31.630 We got a very vulnerable
NOTE Confidence: 0.96483797
00:19:31.690 --> 00:19:33.210 population, and we've got two
NOTE Confidence: 0.96483797
00:19:33.210 --> 00:19:34.250 things that may be in
NOTE Confidence: 0.96483797
00:19:34.250 --> 00:19:35.609 conflict. One is the best
NOTE Confidence: 0.96483797
00:19:35.609 --> 00:19:37.130 interest of the child subject
NOTE Confidence: 0.96483797
00:19:37.130 --> 00:19:38.029 here of baby.
NOTE Confidence: 0.991939
00:19:38.330 --> 00:19:39.389 The other is the potential
NOTE Confidence: 0.991939

00:19:39.450 --> 00:19:41.289 benefit to science and to
NOTE Confidence: 0.991939
00:19:41.289 --> 00:19:42.889 future babies, and these are
NOTE Confidence: 0.991939
00:19:42.889 --> 00:19:43.710 in the balance.
NOTE Confidence: 0.9992999
00:19:44.164 --> 00:19:45.605 So which one should count
NOTE Confidence: 0.9992999
00:19:45.605 --> 00:19:46.345 for more?
NOTE Confidence: 0.96635205
00:19:46.804 --> 00:19:48.404 Well, what professor Kotich tells
NOTE Confidence: 0.96635205
00:19:48.404 --> 00:19:49.684 us, and I'm inclined to
NOTE Confidence: 0.96635205
00:19:49.684 --> 00:19:50.184 agree,
NOTE Confidence: 0.98144376
00:19:51.044 --> 00:19:52.885 is that individual beneficence must
NOTE Confidence: 0.98144376
00:19:52.885 --> 00:19:54.645 take precedence over collective notions
NOTE Confidence: 0.98144376
00:19:54.645 --> 00:19:56.585 of beneficence, and the pediatric
NOTE Confidence: 0.98144376
00:19:56.725 --> 00:19:57.625 research community
NOTE Confidence: 0.90619826
00:19:58.005 --> 00:19:59.304 must remember that our
NOTE Confidence: 0.8490354
00:19:59.650 --> 00:20:01.109 responsibilities to individual children
NOTE Confidence: 0.99832046
00:20:01.490 --> 00:20:03.350 outweigh more speculative concerns
NOTE Confidence: 0.9904477
00:20:03.650 --> 00:20:05.990 about potential benefits for future

NOTE Confidence: 0.9904477
00:20:06.130 --> 00:20:07.750 benefits excuse me, future
NOTE Confidence: 0.9998048
00:20:08.130 --> 00:20:08.630 generations
NOTE Confidence: 0.95846575
00:20:09.170 --> 00:20:11.109 of children. You may agree.
NOTE Confidence: 0.97059155
00:20:11.644 --> 00:20:12.764 You may disagree. You may
NOTE Confidence: 0.97059155
00:20:12.764 --> 00:20:13.404 think it's a bit of
NOTE Confidence: 0.97059155
00:20:13.404 --> 00:20:15.085 a threshold argument. Depends on
NOTE Confidence: 0.97059155
00:20:15.085 --> 00:20:16.044 how much the risk there
NOTE Confidence: 0.97059155
00:20:16.044 --> 00:20:17.004 is to the baby. Depends
NOTE Confidence: 0.97059155
00:20:17.004 --> 00:20:17.884 on how much benefit there
NOTE Confidence: 0.97059155
00:20:17.884 --> 00:20:19.404 are to future babies. We
NOTE Confidence: 0.97059155
00:20:19.404 --> 00:20:20.284 can get into that a
NOTE Confidence: 0.97059155
00:20:20.284 --> 00:20:21.644 bit. But there's a basic
NOTE Confidence: 0.97059155
00:20:21.644 --> 00:20:22.924 tenant, and I think he's
NOTE Confidence: 0.97059155
00:20:22.924 --> 00:20:23.904 right about that.
NOTE Confidence: 0.99722964
00:20:24.600 --> 00:20:26.680 Now you're thinking, shouldn't someone
NOTE Confidence: 0.99722964

00:20:26.680 --> 00:20:29.160 have rules about research on
NOTE Confidence: 0.99722964

00:20:29.160 --> 00:20:30.059 human subjects?
NOTE Confidence: 0.97352046

00:20:30.520 --> 00:20:32.460 Good news. There are rules.
NOTE Confidence: 0.97352046

00:20:32.680 --> 00:20:34.040 So the department of health
NOTE Confidence: 0.97352046

00:20:34.040 --> 00:20:35.480 and human services don't even
NOTE Confidence: 0.97352046

00:20:35.480 --> 00:20:36.600 get started. The department of
NOTE Confidence: 0.97352046

00:20:36.600 --> 00:20:37.820 health and human services
NOTE Confidence: 0.96150935

00:20:38.434 --> 00:20:40.195 has rules long standing rules
NOTE Confidence: 0.96150935

00:20:40.195 --> 00:20:41.875 called the common rule about
NOTE Confidence: 0.96150935

00:20:41.875 --> 00:20:43.795 research with human subjects. And
NOTE Confidence: 0.96150935

00:20:43.795 --> 00:20:45.075 in particular, there are areas
NOTE Confidence: 0.96150935

00:20:45.075 --> 00:20:46.994 about kids. And in particular,
NOTE Confidence: 0.96150935

00:20:46.994 --> 00:20:48.615 there's area about research involving
NOTE Confidence: 0.96150935

00:20:48.675 --> 00:20:49.415 with kids
NOTE Confidence: 0.9689618

00:20:49.875 --> 00:20:51.910 greater than minimal risk, but
NOTE Confidence: 0.9689618

00:20:51.910 --> 00:20:53.590 presenting the prospect of direct

NOTE Confidence: 0.9689618
00:20:53.590 --> 00:20:55.510 benefit to the individual subject.
NOTE Confidence: 0.9689618
00:20:55.510 --> 00:20:56.790 Because if we're experimenting with
NOTE Confidence: 0.9689618
00:20:56.790 --> 00:20:57.990 this technology, we take a
NOTE Confidence: 0.9689618
00:20:57.990 --> 00:20:59.030 kid who's got a high
NOTE Confidence: 0.9689618
00:20:59.030 --> 00:21:00.390 chance of dying, and we
NOTE Confidence: 0.9689618
00:21:00.390 --> 00:21:01.270 put him in that bio
NOTE Confidence: 0.9689618
00:21:01.270 --> 00:21:02.230 bag for a couple weeks,
NOTE Confidence: 0.9689618
00:21:02.230 --> 00:21:03.609 and he he might survive.
NOTE Confidence: 0.97418106
00:21:03.910 --> 00:21:05.450 He might benefit from participating
NOTE Confidence: 0.97418106
00:21:05.670 --> 00:21:06.835 in the trial. So So
NOTE Confidence: 0.97418106
00:21:06.835 --> 00:21:08.135 they give us three rules.
NOTE Confidence: 0.98841006
00:21:09.555 --> 00:21:10.835 First, we're gonna do this
NOTE Confidence: 0.98841006
00:21:10.835 --> 00:21:11.715 only if and these are
NOTE Confidence: 0.98841006
00:21:11.715 --> 00:21:13.335 ands, not ors. Three conditions.
NOTE Confidence: 0.98841006
00:21:13.635 --> 00:21:14.675 The first is the risk
NOTE Confidence: 0.98841006

00:21:14.675 --> 00:21:16.455 is justified by the anticipated
NOTE Confidence: 0.98841006

00:21:16.595 --> 00:21:17.895 benefits to the subjects.
NOTE Confidence: 0.9436503

00:21:18.970 --> 00:21:20.090 The second is the relation
NOTE Confidence: 0.9436503

00:21:20.090 --> 00:21:21.370 of the antititional benefits of
NOTE Confidence: 0.9436503

00:21:21.370 --> 00:21:22.810 the risk is at least
NOTE Confidence: 0.9436503

00:21:22.810 --> 00:21:23.470 as favorable
NOTE Confidence: 0.9992791

00:21:24.010 --> 00:21:25.870 as what's already available.
NOTE Confidence: 0.99521965

00:21:27.130 --> 00:21:28.810 Okay? And the third is
NOTE Confidence: 0.99521965

00:21:28.810 --> 00:21:30.350 adequate provisions are made
NOTE Confidence: 0.9992628

00:21:30.730 --> 00:21:32.575 for getting permission of the
NOTE Confidence: 0.9992628

00:21:32.575 --> 00:21:33.554 parents or guardians.
NOTE Confidence: 0.993731

00:21:33.855 --> 00:21:35.234 These are our three requirements.
NOTE Confidence: 0.9985153

00:21:35.615 --> 00:21:36.494 So let's take a look
NOTE Confidence: 0.9985153

00:21:36.494 --> 00:21:37.294 at these one at a
NOTE Confidence: 0.9985153

00:21:37.294 --> 00:21:38.654 time. The first is about
NOTE Confidence: 0.9985153

00:21:38.654 --> 00:21:40.515 anticipated benefits to the subjects.

NOTE Confidence: 0.98682135
00:21:40.975 --> 00:21:42.255 One thing to remind you
NOTE Confidence: 0.98682135
00:21:42.255 --> 00:21:44.755 of, there's two research subjects.
NOTE Confidence: 0.9959081
00:21:45.350 --> 00:21:46.470 Right? Because we're talking about
NOTE Confidence: 0.9959081
00:21:46.470 --> 00:21:47.770 doing a cesarean section
NOTE Confidence: 0.99033386
00:21:48.070 --> 00:21:49.190 on someone who maybe not
NOTE Confidence: 0.99033386
00:21:49.190 --> 00:21:50.390 otherwise would have needed. We
NOTE Confidence: 0.99033386
00:21:50.390 --> 00:21:51.350 don't do c sections every
NOTE Confidence: 0.99033386
00:21:51.350 --> 00:21:52.230 time someone's gonna have a
NOTE Confidence: 0.99033386
00:21:52.230 --> 00:21:53.590 baby early. So this is
NOTE Confidence: 0.99033386
00:21:53.590 --> 00:21:54.550 someone who might not have
NOTE Confidence: 0.99033386
00:21:54.550 --> 00:21:55.910 needed a c section. Right?
NOTE Confidence: 0.99033386
00:21:55.910 --> 00:21:57.350 So the protocol could involve
NOTE Confidence: 0.99033386
00:21:57.350 --> 00:21:58.650 c section in a setting
NOTE Confidence: 0.99033386
00:21:58.710 --> 00:21:59.990 where otherwise would not have
NOTE Confidence: 0.99033386
00:21:59.990 --> 00:22:01.130 been clinically indicated.
NOTE Confidence: 0.9534336

00:22:01.484 --> 00:22:02.605 This poses risk to the
NOTE Confidence: 0.9534336

00:22:02.605 --> 00:22:04.045 pregnant patient and, by the
NOTE Confidence: 0.9534336

00:22:04.045 --> 00:22:05.744 way, risks to future pregnancies
NOTE Confidence: 0.998573

00:22:06.525 --> 00:22:08.225 and risks to future babies
NOTE Confidence: 0.998573

00:22:08.445 --> 00:22:10.145 that she might have. Right?
NOTE Confidence: 0.998573

00:22:10.205 --> 00:22:11.325 So that's one of the
NOTE Confidence: 0.998573

00:22:11.325 --> 00:22:12.865 research subjects. Now
NOTE Confidence: 0.9483882

00:22:13.325 --> 00:22:14.445 there's, of course, obviously, the
NOTE Confidence: 0.9483882

00:22:14.445 --> 00:22:15.565 risks and benefits to the
NOTE Confidence: 0.9483882

00:22:15.565 --> 00:22:16.545 baby as well.
NOTE Confidence: 0.9880605

00:22:16.920 --> 00:22:17.960 Now the second one, this
NOTE Confidence: 0.9880605

00:22:17.960 --> 00:22:18.520 is where a lot of
NOTE Confidence: 0.9880605

00:22:18.520 --> 00:22:19.400 the meat of this is.
NOTE Confidence: 0.9880605

00:22:19.400 --> 00:22:20.780 The relation of the anticipated
NOTE Confidence: 0.9880605

00:22:20.920 --> 00:22:22.200 benefit is at least as
NOTE Confidence: 0.9880605

00:22:22.200 --> 00:22:23.820 favorable as that presented

NOTE Confidence: 0.95291126

00:22:24.200 --> 00:22:26.520 by available alternative approaches. And

NOTE Confidence: 0.95291126

00:22:26.520 --> 00:22:27.640 here's where the data that

NOTE Confidence: 0.95291126

00:22:27.640 --> 00:22:28.920 was published by this research

NOTE Confidence: 0.95291126

00:22:28.920 --> 00:22:30.619 group where I took issue

NOTE Confidence: 0.95291126

00:22:30.760 --> 00:22:32.380 because they published some survival

NOTE Confidence: 0.95291126

00:22:32.440 --> 00:22:33.715 statistics that I think, frankly,

NOTE Confidence: 0.95291126

00:22:33.715 --> 00:22:34.375 were outdated.

NOTE Confidence: 0.87321305

00:22:34.755 --> 00:22:36.195 So I showed this current

NOTE Confidence: 0.87321305

00:22:36.195 --> 00:22:37.154 statistics of the f b

NOTE Confidence: 0.87321305

00:22:37.154 --> 00:22:37.895 a FDA,

NOTE Confidence: 0.9925629

00:22:38.515 --> 00:22:39.395 and I share some of

NOTE Confidence: 0.9925629

00:22:39.395 --> 00:22:40.294 that with you.

NOTE Confidence: 0.9665063

00:22:40.595 --> 00:22:41.315 So take a look at

NOTE Confidence: 0.9665063

00:22:41.315 --> 00:22:42.115 this, if you will. This

NOTE Confidence: 0.9665063

00:22:42.115 --> 00:22:43.475 is from the Neonatal Research

NOTE Confidence: 0.9665063

00:22:43.475 --> 00:22:45.075 Network, which is, like, twenty
NOTE Confidence: 0.9665063

00:22:45.075 --> 00:22:45.895 three, I think,
NOTE Confidence: 0.9997156

00:22:46.434 --> 00:22:46.934 academic
NOTE Confidence: 0.987278

00:22:47.740 --> 00:22:48.539 centers in the in the
NOTE Confidence: 0.987278

00:22:48.539 --> 00:22:50.140 United States who pool their
NOTE Confidence: 0.987278

00:22:50.140 --> 00:22:51.760 data for purposes of research.
NOTE Confidence: 0.97954226

00:22:52.380 --> 00:22:53.179 And these are their and
NOTE Confidence: 0.97954226

00:22:53.179 --> 00:22:53.980 if you look at this,
NOTE Confidence: 0.97954226

00:22:53.980 --> 00:22:55.260 what you see is, the
NOTE Confidence: 0.97954226

00:22:55.260 --> 00:22:56.059 red box is what I
NOTE Confidence: 0.97954226

00:22:56.059 --> 00:22:56.940 want you to focus on.
NOTE Confidence: 0.97954226

00:22:56.940 --> 00:22:58.700 That's survival. Okay? Survival to
NOTE Confidence: 0.97954226

00:22:58.700 --> 00:22:59.200 discharge.
NOTE Confidence: 0.99532133

00:22:59.659 --> 00:23:01.365 Right? That's survival for twenty
NOTE Confidence: 0.99532133

00:23:01.365 --> 00:23:02.805 two weeks, twenty three weeks,
NOTE Confidence: 0.99532133

00:23:02.805 --> 00:23:04.005 twenty four weeks, and twenty

NOTE Confidence: 0.99532133
00:23:04.005 --> 00:23:05.445 five weeks. And what you
NOTE Confidence: 0.99532133
00:23:05.445 --> 00:23:06.984 see, for example, is survival
NOTE Confidence: 0.9688989
00:23:07.365 --> 00:23:08.505 at twenty two weeks.
NOTE Confidence: 0.9599112
00:23:08.805 --> 00:23:10.244 These data, of course, are
NOTE Confidence: 0.9599112
00:23:10.244 --> 00:23:11.365 old now. It's two thousand
NOTE Confidence: 0.9599112
00:23:11.365 --> 00:23:13.065 thirteen to two thousand eighteen,
NOTE Confidence: 0.95574313
00:23:13.445 --> 00:23:14.805 just published in two thousand
NOTE Confidence: 0.95574313
00:23:14.805 --> 00:23:15.625 twenty two.
NOTE Confidence: 0.97023386
00:23:16.005 --> 00:23:16.930 Because this is tricky because
NOTE Confidence: 0.97023386
00:23:16.930 --> 00:23:17.730 you also wanna know how
NOTE Confidence: 0.97023386
00:23:17.730 --> 00:23:18.690 they do a couple years
NOTE Confidence: 0.97023386
00:23:18.690 --> 00:23:20.050 later. So you can't publish
NOTE Confidence: 0.97023386
00:23:20.050 --> 00:23:21.890 last week's survival data and
NOTE Confidence: 0.97023386
00:23:21.890 --> 00:23:23.590 also have disability data.
NOTE Confidence: 0.99352425
00:23:24.050 --> 00:23:25.490 Tricky. So this is what
NOTE Confidence: 0.99352425

00:23:25.490 --> 00:23:26.369 we have to work with.
NOTE Confidence: 0.99352425

00:23:26.369 --> 00:23:28.369 Right? Ten percent survival at
NOTE Confidence: 0.99352425

00:23:28.369 --> 00:23:30.210 twenty two weeks, forty nine
NOTE Confidence: 0.99352425

00:23:30.210 --> 00:23:31.750 percent at twenty three weeks,
NOTE Confidence: 0.97089154

00:23:32.255 --> 00:23:33.855 sixty nine, just about seventy
NOTE Confidence: 0.97089154

00:23:33.855 --> 00:23:35.135 percent at twenty four weeks.
NOTE Confidence: 0.97089154

00:23:35.135 --> 00:23:36.415 So, for example, if we
NOTE Confidence: 0.97089154

00:23:36.415 --> 00:23:37.455 say, well, at twenty four
NOTE Confidence: 0.97089154

00:23:37.455 --> 00:23:38.655 weeks, the kid was probably
NOTE Confidence: 0.97089154

00:23:38.655 --> 00:23:39.935 gonna die if we didn't
NOTE Confidence: 0.97089154

00:23:39.935 --> 00:23:40.915 use this technology.
NOTE Confidence: 0.9649754

00:23:41.215 --> 00:23:42.095 Let's say, hang on. It
NOTE Confidence: 0.9649754

00:23:42.095 --> 00:23:43.375 looks like seventy percent of
NOTE Confidence: 0.9649754

00:23:43.375 --> 00:23:44.115 them survive.
NOTE Confidence: 0.9958772

00:23:44.460 --> 00:23:45.580 Well, at twenty two weeks,
NOTE Confidence: 0.9958772

00:23:45.580 --> 00:23:46.080 however,

NOTE Confidence: 0.99174213
00:23:46.539 --> 00:23:48.059 the survival is only ten
NOTE Confidence: 0.99174213
00:23:48.059 --> 00:23:48.559 percent.
NOTE Confidence: 0.99945104
00:23:49.020 --> 00:23:49.520 Right?
NOTE Confidence: 0.9793779
00:23:49.980 --> 00:23:51.600 Except it's not that simple.
NOTE Confidence: 0.9974894
00:23:51.980 --> 00:23:53.260 Because when they looked at
NOTE Confidence: 0.9974894
00:23:53.260 --> 00:23:54.320 all of these data,
NOTE Confidence: 0.9948382
00:23:54.700 --> 00:23:55.580 what they looked at, of
NOTE Confidence: 0.9948382
00:23:55.580 --> 00:23:57.119 course, was overall survival.
NOTE Confidence: 0.97063154
00:23:57.500 --> 00:23:58.859 And the tricky part is
NOTE Confidence: 0.97063154
00:23:58.859 --> 00:24:00.059 in those days, in that
NOTE Confidence: 0.97063154
00:24:00.059 --> 00:24:01.555 era, at twenty two weeks
NOTE Confidence: 0.97063154
00:24:01.555 --> 00:24:02.295 in particular,
NOTE Confidence: 0.980777
00:24:02.915 --> 00:24:03.795 most of the time, we
NOTE Confidence: 0.980777
00:24:03.795 --> 00:24:04.675 didn't even try to save
NOTE Confidence: 0.980777
00:24:04.675 --> 00:24:05.175 them.
NOTE Confidence: 0.9458865

00:24:05.555 --> 00:24:06.275 There have been a been
NOTE Confidence: 0.9458865

00:24:06.275 --> 00:24:07.395 a conversation with the parents
NOTE Confidence: 0.9458865

00:24:07.395 --> 00:24:08.595 for whatever reason. So the
NOTE Confidence: 0.9458865

00:24:08.595 --> 00:24:09.955 relevant question is not what's
NOTE Confidence: 0.9458865

00:24:09.955 --> 00:24:11.395 the overall survival at twenty
NOTE Confidence: 0.9458865

00:24:11.395 --> 00:24:12.855 two weeks with current technology.
NOTE Confidence: 0.9661522

00:24:13.869 --> 00:24:15.710 The smart relevant question is,
NOTE Confidence: 0.9661522

00:24:15.710 --> 00:24:16.929 what would be the survival
NOTE Confidence: 0.9661522

00:24:16.990 --> 00:24:18.130 with current technology
NOTE Confidence: 0.9951641

00:24:18.510 --> 00:24:20.029 if we tried? And the
NOTE Confidence: 0.9951641

00:24:20.029 --> 00:24:20.990 answer to that is quite
NOTE Confidence: 0.9951641

00:24:20.990 --> 00:24:22.109 different. Look at the blue
NOTE Confidence: 0.9951641

00:24:22.109 --> 00:24:23.309 box. So you see ten
NOTE Confidence: 0.9951641

00:24:23.309 --> 00:24:24.190 percent up here in the
NOTE Confidence: 0.9951641

00:24:24.190 --> 00:24:25.549 red box. Hey. It's thirty
NOTE Confidence: 0.9951641

00:24:25.549 --> 00:24:26.850 percent when we try.

NOTE Confidence: 0.988275
00:24:27.505 --> 00:24:28.945 And at twenty four weeks,
NOTE Confidence: 0.988275
00:24:28.945 --> 00:24:30.625 it's forty nine percent overall,
NOTE Confidence: 0.988275
00:24:30.625 --> 00:24:32.304 but fifty five percent when
NOTE Confidence: 0.988275
00:24:32.304 --> 00:24:33.044 we try.
NOTE Confidence: 0.9908684
00:24:33.424 --> 00:24:34.385 And at twenty four and
NOTE Confidence: 0.9908684
00:24:34.385 --> 00:24:35.744 twenty five weeks, the numbers
NOTE Confidence: 0.9908684
00:24:35.744 --> 00:24:37.025 don't change because we almost
NOTE Confidence: 0.9908684
00:24:37.025 --> 00:24:37.924 always try.
NOTE Confidence: 0.9749628
00:24:38.625 --> 00:24:40.145 This is for major academic
NOTE Confidence: 0.9749628
00:24:40.145 --> 00:24:41.520 centers in the US. Okay?
NOTE Confidence: 0.9749628
00:24:41.600 --> 00:24:42.560 So let's focus just for
NOTE Confidence: 0.9749628
00:24:42.560 --> 00:24:43.680 fun on twenty two weeks
NOTE Confidence: 0.9749628
00:24:43.680 --> 00:24:44.660 right at the edge.
NOTE Confidence: 0.9826297
00:24:45.040 --> 00:24:46.080 Right? So we thought it
NOTE Confidence: 0.9826297
00:24:46.080 --> 00:24:47.060 was ten percent.
NOTE Confidence: 0.9327342

00:24:47.440 --> 00:24:48.820 Really, it's thirty percent.
NOTE Confidence: 0.972953

00:24:49.760 --> 00:24:50.800 And and that, of course,
NOTE Confidence: 0.972953

00:24:50.800 --> 00:24:51.760 is is those are very
NOTE Confidence: 0.972953

00:24:51.760 --> 00:24:53.040 different numbers when we're saying,
NOTE Confidence: 0.972953

00:24:53.040 --> 00:24:54.000 well, what are our chances
NOTE Confidence: 0.972953

00:24:54.000 --> 00:24:55.220 of saving this kid,
NOTE Confidence: 0.9600865

00:24:56.155 --> 00:24:57.655 you know, with current technology?
NOTE Confidence: 0.9600865

00:24:57.875 --> 00:24:59.315 Now more recent stuff was
NOTE Confidence: 0.9600865

00:24:59.315 --> 00:25:00.515 published just a few months
NOTE Confidence: 0.9600865

00:25:00.515 --> 00:25:02.515 ago. The Vermont Oxford Network
NOTE Confidence: 0.9600865

00:25:02.515 --> 00:25:04.055 published their data. We participate
NOTE Confidence: 0.9600865

00:25:04.115 --> 00:25:05.635 in that. Six hundred and
NOTE Confidence: 0.9600865

00:25:05.635 --> 00:25:07.655 thirty six US hospitals. Okay?
NOTE Confidence: 0.9600865

00:25:07.909 --> 00:25:09.429 Here's our survival at twenty
NOTE Confidence: 0.9600865

00:25:09.429 --> 00:25:10.390 two weeks. Remember, we looked
NOTE Confidence: 0.9600865

00:25:10.390 --> 00:25:11.429 at it. It was ten

NOTE Confidence: 0.9600865
00:25:11.429 --> 00:25:13.049 percent overall, thirty percent
NOTE Confidence: 0.97481525
00:25:13.750 --> 00:25:15.190 if we tried. Well, they
NOTE Confidence: 0.97481525
00:25:15.190 --> 00:25:16.630 said, guess what? It's twenty
NOTE Confidence: 0.97481525
00:25:16.630 --> 00:25:17.909 five percent overall. This was
NOTE Confidence: 0.97481525
00:25:17.909 --> 00:25:19.590 a newer epic, two thousand
NOTE Confidence: 0.97481525
00:25:19.590 --> 00:25:20.090 twenty
NOTE Confidence: 0.9943399
00:25:20.695 --> 00:25:22.234 to two thousand twenty two.
NOTE Confidence: 0.9943399
00:25:22.455 --> 00:25:23.815 So they said, no. Actually,
NOTE Confidence: 0.9943399
00:25:23.815 --> 00:25:25.255 it's twenty five percent, but
NOTE Confidence: 0.9943399
00:25:25.255 --> 00:25:26.775 it's thirty six percent when
NOTE Confidence: 0.9943399
00:25:26.775 --> 00:25:27.435 we tried.
NOTE Confidence: 0.9591647
00:25:28.375 --> 00:25:29.415 Now we're up to thirty
NOTE Confidence: 0.9591647
00:25:29.415 --> 00:25:30.775 six percent. Alright. Well, now
NOTE Confidence: 0.9591647
00:25:30.775 --> 00:25:31.734 we know the real number.
NOTE Confidence: 0.9591647
00:25:31.734 --> 00:25:32.695 Right? And in fact, they
NOTE Confidence: 0.9591647

00:25:32.695 --> 00:25:33.895 also published this. Okay. It's

NOTE Confidence: 0.9591647

00:25:33.895 --> 00:25:35.175 thirty six percent at twenty

NOTE Confidence: 0.9591647

00:25:35.175 --> 00:25:35.975 two weeks. So you look

NOTE Confidence: 0.9591647

00:25:35.975 --> 00:25:37.010 at this bar graph that

NOTE Confidence: 0.9591647

00:25:37.010 --> 00:25:38.390 way, and this is survival.

NOTE Confidence: 0.9591647

00:25:38.529 --> 00:25:39.649 So we see survival at

NOTE Confidence: 0.9591647

00:25:39.649 --> 00:25:40.770 twenty two weeks was thirty

NOTE Confidence: 0.9591647

00:25:40.770 --> 00:25:42.289 six percent. By twenty three

NOTE Confidence: 0.9591647

00:25:42.289 --> 00:25:43.490 weeks, it was fifty five

NOTE Confidence: 0.9591647

00:25:43.490 --> 00:25:45.090 percent. So by twenty three

NOTE Confidence: 0.9591647

00:25:45.090 --> 00:25:46.309 weeks in the US,

NOTE Confidence: 0.9318039

00:25:46.690 --> 00:25:47.990 we save most.

NOTE Confidence: 0.93104607

00:25:48.835 --> 00:25:50.275 Say something more than half.

NOTE Confidence: 0.93104607

00:25:50.275 --> 00:25:51.475 Right? And by twenty four

NOTE Confidence: 0.93104607

00:25:51.475 --> 00:25:52.995 weeks, we save about three

NOTE Confidence: 0.93104607

00:25:52.995 --> 00:25:54.275 quarters. You see the seventy

NOTE Confidence: 0.93104607
00:25:54.275 --> 00:25:55.015 one percent.
NOTE Confidence: 0.9741323
00:25:55.475 --> 00:25:56.755 So that's important. When we're
NOTE Confidence: 0.9741323
00:25:56.755 --> 00:25:58.055 thinking about doing something
NOTE Confidence: 0.7637311
00:25:58.355 --> 00:25:59.095 pretty impressive
NOTE Confidence: 0.9535731
00:25:59.635 --> 00:26:00.835 like the bio bag, like
NOTE Confidence: 0.9535731
00:26:00.835 --> 00:26:02.890 the artificial womb, recognized, for
NOTE Confidence: 0.9535731
00:26:02.890 --> 00:26:03.930 example, at twenty four weeks,
NOTE Confidence: 0.9535731
00:26:03.930 --> 00:26:04.810 there's already a three out
NOTE Confidence: 0.9535731
00:26:04.810 --> 00:26:05.930 of four chance we could
NOTE Confidence: 0.9535731
00:26:05.930 --> 00:26:07.050 save this kid just with
NOTE Confidence: 0.9535731
00:26:07.050 --> 00:26:07.950 current technology.
NOTE Confidence: 0.9696902
00:26:08.410 --> 00:26:09.450 But we're looking at twenty
NOTE Confidence: 0.9696902
00:26:09.450 --> 00:26:10.250 two weeks right at the
NOTE Confidence: 0.9696902
00:26:10.250 --> 00:26:11.450 edge. Now this number is
NOTE Confidence: 0.9696902
00:26:11.450 --> 00:26:13.130 really thirty six percent. Well,
NOTE Confidence: 0.9696902

00:26:13.130 --> 00:26:14.330 stay tuned because guess what?
NOTE Confidence: 0.9696902

00:26:14.330 --> 00:26:15.615 The Japanese, who have always
NOTE Confidence: 0.9696902

00:26:15.615 --> 00:26:16.895 been very aggressive about this
NOTE Confidence: 0.9696902

00:26:16.895 --> 00:26:17.775 stuff and very good at
NOTE Confidence: 0.9696902

00:26:17.775 --> 00:26:18.895 it, they looked at their
NOTE Confidence: 0.9696902

00:26:18.895 --> 00:26:20.335 neonatal research network, and they
NOTE Confidence: 0.9696902

00:26:20.335 --> 00:26:21.455 said, well, when we get
NOTE Confidence: 0.9696902

00:26:21.455 --> 00:26:22.494 these kids to the NICU,
NOTE Confidence: 0.9696902

00:26:22.494 --> 00:26:23.535 when we really try, we
NOTE Confidence: 0.9696902

00:26:23.535 --> 00:26:24.515 save half of
NOTE Confidence: 0.9811057

00:26:25.055 --> 00:26:26.734 them at twenty two weeks.
NOTE Confidence: 0.9811057

00:26:26.734 --> 00:26:27.695 So the number was ten
NOTE Confidence: 0.9811057

00:26:27.695 --> 00:26:29.160 percent, never minus thirty percent,
NOTE Confidence: 0.95327854

00:26:29.640 --> 00:26:31.340 never minus thirty six percent,
NOTE Confidence: 0.95327854

00:26:31.480 --> 00:26:33.160 never mind it's fifty percent.
NOTE Confidence: 0.95327854

00:26:33.160 --> 00:26:34.280 Alright? Why aren't we having

NOTE Confidence: 0.95327854
00:26:34.280 --> 00:26:36.040 fun yet? How about Iowa
NOTE Confidence: 0.95327854
00:26:36.040 --> 00:26:37.080 right here in the US
NOTE Confidence: 0.95327854
00:26:37.080 --> 00:26:38.680 of A? These guys are
NOTE Confidence: 0.95327854
00:26:38.680 --> 00:26:39.580 super aggressive,
NOTE Confidence: 0.9866101
00:26:40.200 --> 00:26:41.560 and these guys are are
NOTE Confidence: 0.9866101
00:26:41.560 --> 00:26:42.520 really good at it as
NOTE Confidence: 0.9866101
00:26:42.520 --> 00:26:43.660 well. They have these specific
NOTE Confidence: 0.9866101
00:26:43.720 --> 00:26:45.065 protocols, a special
NOTE Confidence: 0.95105577
00:26:45.684 --> 00:26:47.144 special small baby team.
NOTE Confidence: 0.9885499
00:26:47.445 --> 00:26:48.404 They use a lot of
NOTE Confidence: 0.9885499
00:26:48.404 --> 00:26:49.544 antenatal steroids.
NOTE Confidence: 0.9578841
00:26:50.484 --> 00:26:51.764 The punchline is at twenty
NOTE Confidence: 0.9578841
00:26:51.764 --> 00:26:53.044 two weeks, they save two
NOTE Confidence: 0.9578841
00:26:53.044 --> 00:26:53.544 thirds
NOTE Confidence: 0.95872813
00:26:54.085 --> 00:26:55.605 at twenty two weeks. See
NOTE Confidence: 0.95872813

00:26:55.605 --> 00:26:57.465 that? Twenty two weeks gestational
NOTE Confidence: 0.95872813

00:26:57.524 --> 00:26:58.980 age of birth, twenty two,
NOTE Confidence: 0.95872813

00:26:58.980 --> 00:27:00.100 twenty three, and twenty four.
NOTE Confidence: 0.95872813

00:27:00.100 --> 00:27:00.920 And here you
NOTE Confidence: 0.9675597

00:27:01.380 --> 00:27:03.220 see survival to discharge, sixty
NOTE Confidence: 0.9675597

00:27:03.220 --> 00:27:03.880 four percent,
NOTE Confidence: 0.9682401

00:27:04.180 --> 00:27:05.780 eighty two percent, eighty nine
NOTE Confidence: 0.9682401

00:27:05.780 --> 00:27:07.480 percent. See. But over there,
NOTE Confidence: 0.9667638

00:27:08.340 --> 00:27:10.420 Brad Jubler, pediatrician extraordinaire, is
NOTE Confidence: 0.9667638

00:27:10.420 --> 00:27:11.300 saying to me, hey. But
NOTE Confidence: 0.9667638

00:27:11.300 --> 00:27:12.580 look at these numbers. These
NOTE Confidence: 0.9667638

00:27:12.580 --> 00:27:14.205 numbers are very low. This
NOTE Confidence: 0.9667638

00:27:14.205 --> 00:27:15.424 is a single center.
NOTE Confidence: 0.9807222

00:27:15.804 --> 00:27:17.404 This isn't as powerful as
NOTE Confidence: 0.9807222

00:27:17.404 --> 00:27:18.205 when we read a whole
NOTE Confidence: 0.9807222

00:27:18.205 --> 00:27:19.645 research network and there's hundreds

NOTE Confidence: 0.9807222
00:27:19.645 --> 00:27:20.924 of kids. This is very
NOTE Confidence: 0.9807222
00:27:20.924 --> 00:27:21.965 anecdotal. Right? And two or
NOTE Confidence: 0.9807222
00:27:21.965 --> 00:27:22.845 three good babies or two
NOTE Confidence: 0.9807222
00:27:22.845 --> 00:27:23.885 or three bad babies could
NOTE Confidence: 0.9807222
00:27:23.885 --> 00:27:25.244 throw this number in a
NOTE Confidence: 0.9807222
00:27:25.244 --> 00:27:27.325 in a significant direction. But
NOTE Confidence: 0.9807222
00:27:27.325 --> 00:27:29.085 this is roughly at Iowa,
NOTE Confidence: 0.9807222
00:27:29.085 --> 00:27:30.899 they say, we save two
NOTE Confidence: 0.9807222
00:27:30.899 --> 00:27:32.019 out of three. That was
NOTE Confidence: 0.9807222
00:27:32.019 --> 00:27:33.619 already published five years ago,
NOTE Confidence: 0.9807222
00:27:33.619 --> 00:27:34.820 and they're talking about a
NOTE Confidence: 0.9807222
00:27:34.820 --> 00:27:36.039 two thousand six
NOTE Confidence: 0.9882599
00:27:36.419 --> 00:27:37.799 to two thousand fifteen
NOTE Confidence: 0.9785081
00:27:38.659 --> 00:27:40.340 birth cohort. At twenty two
NOTE Confidence: 0.9785081
00:27:40.340 --> 00:27:41.880 weeks, current technology,
NOTE Confidence: 0.972624

00:27:42.215 --> 00:27:43.335 they say they can save
NOTE Confidence: 0.972624

00:27:43.335 --> 00:27:44.695 two thirds. And by the
NOTE Confidence: 0.972624

00:27:44.695 --> 00:27:46.315 way, more recently, anecdotally,
NOTE Confidence: 0.99947757

00:27:46.775 --> 00:27:47.655 they say they can do
NOTE Confidence: 0.99947757

00:27:47.655 --> 00:27:48.555 better than that.
NOTE Confidence: 0.97174627

00:27:49.015 --> 00:27:50.935 Nagano Children's Hospital in Japan.
NOTE Confidence: 0.97174627

00:27:50.935 --> 00:27:52.055 Hey, man. Basically, we can
NOTE Confidence: 0.97174627

00:27:52.055 --> 00:27:53.015 save just about all of
NOTE Confidence: 0.97174627

00:27:53.015 --> 00:27:53.515 them.
NOTE Confidence: 0.9399573

00:27:53.975 --> 00:27:55.255 Okay. Twenty two weeks. Look
NOTE Confidence: 0.9399573

00:27:55.255 --> 00:27:56.695 at your gestational age, twenty
NOTE Confidence: 0.9399573

00:27:56.695 --> 00:27:57.355 two weeks.
NOTE Confidence: 0.9740462

00:27:57.760 --> 00:27:59.280 Survival's eighty one percent. But
NOTE Confidence: 0.9740462

00:27:59.280 --> 00:28:00.000 when they admit them to
NOTE Confidence: 0.9740462

00:28:00.000 --> 00:28:00.960 the NICU, the ones where
NOTE Confidence: 0.9740462

00:28:00.960 --> 00:28:02.080 they try, that's probably a

NOTE Confidence: 0.9740462

00:28:02.080 --> 00:28:03.280 good proxy for when we

NOTE Confidence: 0.9740462

00:28:03.280 --> 00:28:05.119 tried. Ninety three percent. So

NOTE Confidence: 0.9740462

00:28:05.119 --> 00:28:06.320 somewhere from eighty to ninety

NOTE Confidence: 0.9740462

00:28:06.320 --> 00:28:06.820 percent,

NOTE Confidence: 0.98319376

00:28:07.280 --> 00:28:08.020 they save.

NOTE Confidence: 0.9704151

00:28:08.400 --> 00:28:10.740 Again, a single center study,

NOTE Confidence: 0.9704151

00:28:10.960 --> 00:28:13.035 very low numbers. Interesting, but

NOTE Confidence: 0.98350614

00:28:13.655 --> 00:28:14.775 maybe not something to hang

NOTE Confidence: 0.98350614

00:28:14.775 --> 00:28:15.975 our hat on. Except now

NOTE Confidence: 0.98350614

00:28:15.975 --> 00:28:16.855 we have another place that

NOTE Confidence: 0.98350614

00:28:16.855 --> 00:28:18.695 says we can save nearly

NOTE Confidence: 0.98350614

00:28:18.695 --> 00:28:19.975 all of them at twenty

NOTE Confidence: 0.98350614

00:28:19.975 --> 00:28:20.475 two

NOTE Confidence: 0.9995538

00:28:20.855 --> 00:28:21.355 weeks.

NOTE Confidence: 0.9608826

00:28:22.695 --> 00:28:24.455 That's crazy because everybody knows

NOTE Confidence: 0.9608826

00:28:24.455 --> 00:28:25.575 that survival at twenty two
NOTE Confidence: 0.9608826

00:28:25.575 --> 00:28:27.100 weeks is impossible. Believe me.
NOTE Confidence: 0.9608826

00:28:27.100 --> 00:28:28.380 I was raised on that.
NOTE Confidence: 0.9608826

00:28:28.380 --> 00:28:29.019 But like a lot of
NOTE Confidence: 0.9608826

00:28:29.019 --> 00:28:30.619 things that are impossible, turns
NOTE Confidence: 0.9608826

00:28:30.619 --> 00:28:31.419 out not to be the
NOTE Confidence: 0.9608826

00:28:31.419 --> 00:28:31.919 case.
NOTE Confidence: 0.8757785

00:28:32.460 --> 00:28:33.440 Right? Now
NOTE Confidence: 0.9743415

00:28:33.740 --> 00:28:35.019 this is something that the
NOTE Confidence: 0.9743415

00:28:35.019 --> 00:28:36.299 clinicians in the room know
NOTE Confidence: 0.9743415

00:28:36.299 --> 00:28:37.980 very well, but the students
NOTE Confidence: 0.9743415

00:28:37.980 --> 00:28:38.940 need to learn and others
NOTE Confidence: 0.9743415

00:28:38.940 --> 00:28:39.659 in the room would be
NOTE Confidence: 0.9743415

00:28:39.659 --> 00:28:41.115 interested in, that it's not
NOTE Confidence: 0.9743415

00:28:41.115 --> 00:28:43.615 just about gestational age. Okay?
NOTE Confidence: 0.9743415

00:28:43.835 --> 00:28:44.875 So, in fact, we have

NOTE Confidence: 0.9743415

00:28:44.875 --> 00:28:46.395 this, predictor tool we can

NOTE Confidence: 0.9743415

00:28:46.395 --> 00:28:47.435 use by putting in other

NOTE Confidence: 0.9743415

00:28:47.435 --> 00:28:48.635 factors. So take a look

NOTE Confidence: 0.9743415

00:28:48.635 --> 00:28:49.675 at this, the likelihood of

NOTE Confidence: 0.9743415

00:28:49.675 --> 00:28:51.135 survival if we try.

NOTE Confidence: 0.9986452

00:28:51.755 --> 00:28:53.135 At twenty two weeks,

NOTE Confidence: 0.98243827

00:28:53.450 --> 00:28:54.410 a boy and by the

NOTE Confidence: 0.98243827

00:28:54.410 --> 00:28:55.770 way, the older you are,

NOTE Confidence: 0.98243827

00:28:55.770 --> 00:28:57.050 the better you do. The

NOTE Confidence: 0.98243827

00:28:57.050 --> 00:28:57.930 girls do better than the

NOTE Confidence: 0.98243827

00:28:57.930 --> 00:28:59.610 boys. Bigger does better than

NOTE Confidence: 0.98243827

00:28:59.610 --> 00:29:01.370 smaller. Singletons do better than

NOTE Confidence: 0.98243827

00:29:01.370 --> 00:29:02.250 twins, and if you get

NOTE Confidence: 0.98243827

00:29:02.250 --> 00:29:03.450 steroids, you do better than

NOTE Confidence: 0.98243827

00:29:03.450 --> 00:29:04.650 if you didn't. That's true

NOTE Confidence: 0.98243827

00:29:04.650 --> 00:29:05.850 for just about everything. That's
NOTE Confidence: 0.98243827

00:29:05.850 --> 00:29:07.550 another conversation. Alright. So
NOTE Confidence: 0.97575986

00:29:08.055 --> 00:29:09.335 look at this. If the
NOTE Confidence: 0.97575986

00:29:09.335 --> 00:29:10.535 mother gets steroids, to be
NOTE Confidence: 0.97575986

00:29:10.535 --> 00:29:11.835 specific, before delivery.
NOTE Confidence: 0.9412106

00:29:12.375 --> 00:29:13.735 So twenty two weeks small
NOTE Confidence: 0.9412106

00:29:13.735 --> 00:29:15.975 boy, fifteen percent chance. Twenty
NOTE Confidence: 0.9412106

00:29:15.975 --> 00:29:17.995 two weeks, slightly larger girl,
NOTE Confidence: 0.9412106

00:29:18.055 --> 00:29:20.135 singleton, got steroids, forty four
NOTE Confidence: 0.9412106

00:29:20.135 --> 00:29:21.995 percent chance. A threefold difference.
NOTE Confidence: 0.9412106

00:29:22.020 --> 00:29:23.140 So when we just talk
NOTE Confidence: 0.9412106

00:29:23.140 --> 00:29:24.840 about gestational age,
NOTE Confidence: 0.99857426

00:29:25.140 --> 00:29:26.440 that's an inappropriate
NOTE Confidence: 0.9998233

00:29:26.900 --> 00:29:27.400 proxy
NOTE Confidence: 0.9903993

00:29:27.780 --> 00:29:29.800 for prognosis, but it's still
NOTE Confidence: 0.9903993

00:29:30.020 --> 00:29:32.040 widely used. There's marked variation

NOTE Confidence: 0.9903993
00:29:32.100 --> 00:29:32.760 in prognosis
NOTE Confidence: 0.98718005
00:29:33.140 --> 00:29:34.900 within a certain gestational age,
NOTE Confidence: 0.98718005
00:29:34.900 --> 00:29:37.140 and gestational age alone is
NOTE Confidence: 0.98718005
00:29:37.140 --> 00:29:37.720 a poor
NOTE Confidence: 0.9886624
00:29:38.155 --> 00:29:39.295 proxy for prognosis.
NOTE Confidence: 0.99814236
00:29:39.835 --> 00:29:41.195 Important when we're trying to
NOTE Confidence: 0.99814236
00:29:41.195 --> 00:29:42.975 figure out which patients
NOTE Confidence: 0.9843415
00:29:43.275 --> 00:29:45.055 should go onto the artificial
NOTE Confidence: 0.9843415
00:29:45.195 --> 00:29:46.335 womb or into
NOTE Confidence: 0.9743984
00:29:47.115 --> 00:29:48.955 the artificial womb. Right? Trying
NOTE Confidence: 0.9743984
00:29:48.955 --> 00:29:50.155 to figure out what are
NOTE Confidence: 0.9743984
00:29:50.155 --> 00:29:51.195 the chances this kid would
NOTE Confidence: 0.9743984
00:29:51.195 --> 00:29:52.235 have survived just with the
NOTE Confidence: 0.9743984
00:29:52.235 --> 00:29:53.460 things we already have
NOTE Confidence: 0.98401237
00:29:53.940 --> 00:29:55.159 It's not so simple.
NOTE Confidence: 0.99919266

00:29:56.340 --> 00:29:56.840 Now
NOTE Confidence: 0.9555099

00:29:57.220 --> 00:29:59.220 this outcome is used. This
NOTE Confidence: 0.9555099

00:29:59.220 --> 00:30:00.260 special tool that we have
NOTE Confidence: 0.9555099

00:30:00.260 --> 00:30:02.020 is a statistical tool. It's
NOTE Confidence: 0.9555099

00:30:02.020 --> 00:30:04.179 available online that predicts, but
NOTE Confidence: 0.9555099

00:30:04.179 --> 00:30:05.860 it's it's widely used here
NOTE Confidence: 0.9555099

00:30:05.860 --> 00:30:07.299 and elsewhere to to give
NOTE Confidence: 0.9555099

00:30:07.299 --> 00:30:07.799 prognosis.
NOTE Confidence: 0.96494174

00:30:08.365 --> 00:30:09.644 But it's important to know
NOTE Confidence: 0.96494174

00:30:09.644 --> 00:30:10.845 that it's based on data
NOTE Confidence: 0.96494174

00:30:10.845 --> 00:30:12.125 from nineteen ninety eight to
NOTE Confidence: 0.96494174

00:30:12.125 --> 00:30:13.245 two thousand three, from a
NOTE Confidence: 0.96494174

00:30:13.245 --> 00:30:14.765 generation ago. The thing is
NOTE Confidence: 0.96494174

00:30:14.765 --> 00:30:15.965 on the computer now that
NOTE Confidence: 0.96494174

00:30:15.965 --> 00:30:16.705 we're using,
NOTE Confidence: 0.99824363

00:30:17.404 --> 00:30:18.684 and it doesn't account for

NOTE Confidence: 0.99824363
00:30:18.684 --> 00:30:20.144 the substantial variation,
NOTE Confidence: 0.9980251
00:30:21.005 --> 00:30:22.065 in US hospitals.
NOTE Confidence: 0.93677443
00:30:22.960 --> 00:30:24.580 So remember we're talking about
NOTE Confidence: 0.9916381
00:30:25.280 --> 00:30:26.400 we should only use this
NOTE Confidence: 0.9916381
00:30:26.400 --> 00:30:27.360 if it's got a better
NOTE Confidence: 0.9916381
00:30:27.360 --> 00:30:29.680 chance. The the anticipated benefit
NOTE Confidence: 0.9916381
00:30:29.680 --> 00:30:30.560 to the risk is at
NOTE Confidence: 0.9916381
00:30:30.560 --> 00:30:32.240 least as favorable as what's
NOTE Confidence: 0.9916381
00:30:32.240 --> 00:30:33.220 already available.
NOTE Confidence: 0.99937683
00:30:34.560 --> 00:30:35.060 Now
NOTE Confidence: 0.97643685
00:30:35.524 --> 00:30:36.404 this brings us to a
NOTE Confidence: 0.97643685
00:30:36.404 --> 00:30:37.845 really interesting and difficult question
NOTE Confidence: 0.97643685
00:30:37.845 --> 00:30:38.644 as we try and ask
NOTE Confidence: 0.97643685
00:30:38.644 --> 00:30:40.725 the ethical questions. What survival
NOTE Confidence: 0.97643685
00:30:40.725 --> 00:30:42.904 data and currently available technology
NOTE Confidence: 0.97643685

00:30:43.125 --> 00:30:44.985 should be used for determination
NOTE Confidence: 0.97643685

00:30:45.125 --> 00:30:46.884 of relative risk? Right? We're
NOTE Confidence: 0.97643685

00:30:46.884 --> 00:30:48.245 talking about the overall US
NOTE Confidence: 0.97643685

00:30:48.245 --> 00:30:50.330 data, the neonatal research network
NOTE Confidence: 0.97643685

00:30:50.330 --> 00:30:52.010 that said, you know, thirty
NOTE Confidence: 0.97643685

00:30:52.010 --> 00:30:54.170 percent survival. The Vermont Oxford
NOTE Confidence: 0.97643685

00:30:54.170 --> 00:30:55.690 network said thirty six percent
NOTE Confidence: 0.97643685

00:30:55.690 --> 00:30:56.970 survival. The centers with the
NOTE Confidence: 0.97643685

00:30:56.970 --> 00:30:58.570 best outcome that say eighty
NOTE Confidence: 0.97643685

00:30:58.570 --> 00:31:00.090 to ninety percent survival. I'm
NOTE Confidence: 0.97643685

00:31:00.090 --> 00:31:01.290 just talking about twenty two
NOTE Confidence: 0.97643685

00:31:01.290 --> 00:31:01.790 weeks.
NOTE Confidence: 0.9961932

00:31:02.284 --> 00:31:03.404 That's a big difference when
NOTE Confidence: 0.9961932

00:31:03.404 --> 00:31:05.424 we're counseling parents, for example,
NOTE Confidence: 0.9961932

00:31:05.644 --> 00:31:06.924 to get informed consent for
NOTE Confidence: 0.9961932

00:31:06.924 --> 00:31:07.585 this study.

NOTE Confidence: 0.9510222

00:31:09.245 --> 00:31:10.284 Should it be based on

NOTE Confidence: 0.9510222

00:31:10.284 --> 00:31:11.365 tater where the where the

NOTE Confidence: 0.9510222

00:31:11.365 --> 00:31:13.745 where the artificial womb technology

NOTE Confidence: 0.9510222

00:31:13.965 --> 00:31:15.210 is to be trialed? So

NOTE Confidence: 0.9510222

00:31:15.370 --> 00:31:16.429 can the folks at Philadelphia

NOTE Confidence: 0.9510222

00:31:16.490 --> 00:31:17.450 say, well, here, we can't

NOTE Confidence: 0.9510222

00:31:17.450 --> 00:31:18.490 save twenty two weekers at

NOTE Confidence: 0.9510222

00:31:18.490 --> 00:31:19.690 all. So, clearly, we should

NOTE Confidence: 0.9510222

00:31:19.690 --> 00:31:20.490 just put these kids in

NOTE Confidence: 0.9510222

00:31:20.490 --> 00:31:22.250 the bio bag because they

NOTE Confidence: 0.9510222

00:31:22.250 --> 00:31:23.789 all die even though

NOTE Confidence: 0.9545997

00:31:24.169 --> 00:31:25.690 across town, maybe someone's saving

NOTE Confidence: 0.9545997

00:31:25.690 --> 00:31:27.370 half of them or more.

NOTE Confidence: 0.9545997

00:31:27.370 --> 00:31:28.330 That doesn't make a lot

NOTE Confidence: 0.9545997

00:31:28.330 --> 00:31:29.995 of sense, does it? So

NOTE Confidence: 0.9545997

00:31:29.995 --> 00:31:31.355 should a trial center first
NOTE Confidence: 0.9545997

00:31:31.355 --> 00:31:32.414 emulate centers
NOTE Confidence: 0.9850808

00:31:32.715 --> 00:31:34.815 with best outcomes before trying
NOTE Confidence: 0.9850808

00:31:34.875 --> 00:31:36.335 artificial womb technology?
NOTE Confidence: 0.9817859

00:31:36.794 --> 00:31:37.294 And,
NOTE Confidence: 0.953386

00:31:37.995 --> 00:31:39.115 there's a couple people in
NOTE Confidence: 0.953386

00:31:39.115 --> 00:31:39.835 the room that know very
NOTE Confidence: 0.953386

00:31:39.835 --> 00:31:40.794 well that we went down
NOTE Confidence: 0.953386

00:31:40.794 --> 00:31:42.815 this path before a generation
NOTE Confidence: 0.953386

00:31:42.955 --> 00:31:44.280 ago, and I'll get to
NOTE Confidence: 0.953386

00:31:44.280 --> 00:31:45.560 that. Because it seems odd
NOTE Confidence: 0.953386

00:31:45.560 --> 00:31:47.000 for one center to say,
NOTE Confidence: 0.953386

00:31:47.000 --> 00:31:48.280 these babies all die, so
NOTE Confidence: 0.953386

00:31:48.280 --> 00:31:49.660 we can try something extraordinary.
NOTE Confidence: 0.953386

00:31:49.880 --> 00:31:51.080 When other centers say, we
NOTE Confidence: 0.953386

00:31:51.080 --> 00:31:52.120 can save most of these

NOTE Confidence: 0.953386

00:31:52.120 --> 00:31:52.620 babies.

NOTE Confidence: 0.9594771

00:31:54.600 --> 00:31:55.640 These questions have to be

NOTE Confidence: 0.9594771

00:31:55.640 --> 00:31:57.000 answered before the first human

NOTE Confidence: 0.9594771

00:31:57.000 --> 00:31:58.520 being goes into that bio

NOTE Confidence: 0.9594771

00:31:58.520 --> 00:31:59.475 bag as part of a

NOTE Confidence: 0.9594771

00:31:59.475 --> 00:32:00.455 trial or otherwise.

NOTE Confidence: 0.9948663

00:32:01.715 --> 00:32:02.995 But it's not just about

NOTE Confidence: 0.9948663

00:32:02.995 --> 00:32:04.835 survival anyway. Right? Let's not

NOTE Confidence: 0.9948663

00:32:04.835 --> 00:32:05.335 forget

NOTE Confidence: 0.9705485

00:32:05.715 --> 00:32:07.315 that its outcome is also

NOTE Confidence: 0.9705485

00:32:07.315 --> 00:32:09.075 about morbidity, about the injury

NOTE Confidence: 0.9705485

00:32:09.075 --> 00:32:10.435 we talked about early on,

NOTE Confidence: 0.9705485

00:32:10.435 --> 00:32:11.395 about some kids who are

NOTE Confidence: 0.9705485

00:32:11.395 --> 00:32:12.995 left with really rough cerebral

NOTE Confidence: 0.9705485

00:32:12.995 --> 00:32:15.620 palsy, significant cognitive injury, also

NOTE Confidence: 0.9705485

00:32:15.620 --> 00:32:18.200 visual deficits, hearing deficits, autism,
NOTE Confidence: 0.9705485

00:32:18.420 --> 00:32:19.620 so many problems these kids
NOTE Confidence: 0.9705485

00:32:19.620 --> 00:32:20.360 can have,
NOTE Confidence: 0.99864227

00:32:20.660 --> 00:32:22.440 and the pulmonary issues. Right?
NOTE Confidence: 0.9994615

00:32:22.820 --> 00:32:23.320 So
NOTE Confidence: 0.9477855

00:32:23.700 --> 00:32:24.660 maybe we could make this
NOTE Confidence: 0.9477855

00:32:24.660 --> 00:32:25.620 better if we put those
NOTE Confidence: 0.9477855

00:32:25.620 --> 00:32:27.060 lungs inside the bile bags
NOTE Confidence: 0.9477855

00:32:27.060 --> 00:32:28.515 for a month before we
NOTE Confidence: 0.9477855

00:32:28.515 --> 00:32:30.035 expose them to pipe, the
NOTE Confidence: 0.9477855

00:32:30.035 --> 00:32:30.535 two
NOTE Confidence: 0.9462097

00:32:30.915 --> 00:32:33.075 positive pressure ventilation, before we
NOTE Confidence: 0.9462097

00:32:33.075 --> 00:32:35.175 pushed on them every every
NOTE Confidence: 0.9462097

00:32:35.235 --> 00:32:35.895 two seconds
NOTE Confidence: 0.97814804

00:32:36.195 --> 00:32:37.495 for a couple of weeks.
NOTE Confidence: 0.97814804

00:32:37.715 --> 00:32:38.915 Maybe we could reduce that

NOTE Confidence: 0.97814804

00:32:38.915 --> 00:32:40.195 pulmonary embitter. The same thing

NOTE Confidence: 0.97814804

00:32:40.195 --> 00:32:41.235 with the brain. If we

NOTE Confidence: 0.97814804

00:32:41.235 --> 00:32:42.150 kept the brain in that

NOTE Confidence: 0.97814804

00:32:42.150 --> 00:32:43.750 calmer environment, maybe that could

NOTE Confidence: 0.97814804

00:32:43.750 --> 00:32:44.410 be better.

NOTE Confidence: 0.98060226

00:32:45.030 --> 00:32:46.310 So we've got the short

NOTE Confidence: 0.98060226

00:32:46.310 --> 00:32:47.830 term evidence about survival we

NOTE Confidence: 0.98060226

00:32:47.830 --> 00:32:49.350 can compare, but, of course,

NOTE Confidence: 0.98060226

00:32:49.350 --> 00:32:50.010 hard term

NOTE Confidence: 0.99968326

00:32:50.390 --> 00:32:51.770 benefit of this technology

NOTE Confidence: 0.9773787

00:32:52.230 --> 00:32:53.350 is so much harder to

NOTE Confidence: 0.9773787

00:32:53.350 --> 00:32:54.550 assess. So we measure the

NOTE Confidence: 0.9773787

00:32:54.550 --> 00:32:55.750 stuff that's easy to measure,

NOTE Confidence: 0.9773787

00:32:55.750 --> 00:32:56.725 and we love it. So

NOTE Confidence: 0.9773787

00:32:56.725 --> 00:32:57.605 we said, look. We did

NOTE Confidence: 0.9773787

00:32:57.605 --> 00:32:59.125 an ultrasound, and we showed
NOTE Confidence: 0.9773787

00:32:59.125 --> 00:33:00.884 interventricular hemorrhage. Good. We can
NOTE Confidence: 0.9773787

00:33:00.884 --> 00:33:01.524 look at it a week,
NOTE Confidence: 0.9773787

00:33:01.524 --> 00:33:02.325 and we can say, look.
NOTE Confidence: 0.9773787

00:33:02.325 --> 00:33:03.284 Yes. There was a bleed
NOTE Confidence: 0.9773787

00:33:03.284 --> 00:33:04.404 inside the brain. Cool. We
NOTE Confidence: 0.9773787

00:33:04.404 --> 00:33:05.524 can look with an ultrasound
NOTE Confidence: 0.9773787

00:33:05.524 --> 00:33:06.565 in a week and tell
NOTE Confidence: 0.9773787

00:33:06.565 --> 00:33:07.225 you that.
NOTE Confidence: 0.9698604

00:33:08.245 --> 00:33:10.004 That's a lot easier than
NOTE Confidence: 0.9698604

00:33:10.004 --> 00:33:11.365 figuring out what the kid's
NOTE Confidence: 0.9698604

00:33:11.365 --> 00:33:12.480 gonna be like in first
NOTE Confidence: 0.9833941

00:33:13.280 --> 00:33:14.960 grade or beyond that. And
NOTE Confidence: 0.9833941

00:33:14.960 --> 00:33:16.000 I can promise you this,
NOTE Confidence: 0.9833941

00:33:16.000 --> 00:33:16.960 unless one of you guys
NOTE Confidence: 0.9833941

00:33:16.960 --> 00:33:18.500 has some really cool technology,

NOTE Confidence: 0.9833941
00:33:18.799 --> 00:33:19.679 no one knows for sure
NOTE Confidence: 0.9833941
00:33:19.679 --> 00:33:20.400 what this kid's gonna be
NOTE Confidence: 0.9833941
00:33:20.400 --> 00:33:21.280 like in the first grade
NOTE Confidence: 0.9833941
00:33:21.280 --> 00:33:21.780 until
NOTE Confidence: 0.9877253
00:33:22.160 --> 00:33:23.360 he's in the first grade.
NOTE Confidence: 0.9877253
00:33:23.360 --> 00:33:24.900 And unless he's really advanced,
NOTE Confidence: 0.9877253
00:33:24.960 --> 00:33:26.400 that ain't happening in seven
NOTE Confidence: 0.9877253
00:33:26.400 --> 00:33:28.485 days. Right? So there's this
NOTE Confidence: 0.9877253
00:33:28.485 --> 00:33:29.765 big lag time in trying
NOTE Confidence: 0.9877253
00:33:29.765 --> 00:33:31.045 to figure this out. It's
NOTE Confidence: 0.9877253
00:33:31.045 --> 00:33:31.865 really problematic.
NOTE Confidence: 0.97030157
00:33:32.885 --> 00:33:34.405 So what matters to the
NOTE Confidence: 0.97030157
00:33:34.405 --> 00:33:35.845 kids? What matters to the
NOTE Confidence: 0.97030157
00:33:35.845 --> 00:33:37.365 parents is not what the
NOTE Confidence: 0.97030157
00:33:37.365 --> 00:33:39.045 head ultrasound looks like, is
NOTE Confidence: 0.97030157

00:33:39.045 --> 00:33:40.325 not the stuff we can
NOTE Confidence: 0.97030157

00:33:40.325 --> 00:33:41.870 measure. The head ultrasound
NOTE Confidence: 0.9998157

00:33:42.490 --> 00:33:43.710 is only interesting
NOTE Confidence: 0.95335215

00:33:44.010 --> 00:33:45.210 insofar as it helps us
NOTE Confidence: 0.95335215

00:33:45.210 --> 00:33:46.490 treat the kid, and it
NOTE Confidence: 0.95335215

00:33:46.490 --> 00:33:47.390 usually doesn't.
NOTE Confidence: 0.88803

00:33:47.930 --> 00:33:48.890 But it's really in so
NOTE Confidence: 0.88803

00:33:48.890 --> 00:33:50.490 interesting insofar as it helps
NOTE Confidence: 0.88803

00:33:50.490 --> 00:33:51.230 us predict
NOTE Confidence: 0.9914323

00:33:51.930 --> 00:33:53.130 the degree of injury this
NOTE Confidence: 0.9914323

00:33:53.130 --> 00:33:54.510 child will be left with.
NOTE Confidence: 0.9705115

00:33:54.875 --> 00:33:55.675 Because what do you really
NOTE Confidence: 0.9705115

00:33:55.675 --> 00:33:56.475 care about if you're the
NOTE Confidence: 0.9705115

00:33:56.475 --> 00:33:58.015 parents of a tiny baby?
NOTE Confidence: 0.9705115

00:33:58.235 --> 00:33:59.595 You care about how's this
NOTE Confidence: 0.9705115

00:33:59.595 --> 00:34:00.555 kid gonna do on the

NOTE Confidence: 0.9705115
00:34:00.555 --> 00:34:02.235 playing field, and how's this
NOTE Confidence: 0.9705115
00:34:02.235 --> 00:34:03.455 kid gonna do intellectually,
NOTE Confidence: 0.9263234
00:34:03.995 --> 00:34:04.495 cognitively.
NOTE Confidence: 0.94735247
00:34:04.955 --> 00:34:06.155 Right? And what you really
NOTE Confidence: 0.94735247
00:34:06.155 --> 00:34:07.275 care about if you're thinking
NOTE Confidence: 0.94735247
00:34:07.275 --> 00:34:08.235 about it is how much
NOTE Confidence: 0.94735247
00:34:08.235 --> 00:34:09.435 is this child gonna enjoy
NOTE Confidence: 0.94735247
00:34:09.435 --> 00:34:10.094 his life.
NOTE Confidence: 0.9615003
00:34:10.460 --> 00:34:11.579 Right? And these things are
NOTE Confidence: 0.9615003
00:34:11.579 --> 00:34:13.420 related, but not necessarily determinative,
NOTE Confidence: 0.9615003
00:34:13.420 --> 00:34:14.539 which is obviously that a
NOTE Confidence: 0.9615003
00:34:14.539 --> 00:34:15.920 child could have a significant
NOTE Confidence: 0.9615003
00:34:16.059 --> 00:34:16.559 disability
NOTE Confidence: 0.9641779
00:34:17.180 --> 00:34:18.059 and still get a lot
NOTE Confidence: 0.9641779
00:34:18.059 --> 00:34:19.279 of pleasure out of life.
NOTE Confidence: 0.9641779

00:34:19.500 --> 00:34:21.019 So these are complicated questions,

NOTE Confidence: 0.9641779

00:34:21.019 --> 00:34:22.380 but bear in mind that

NOTE Confidence: 0.9641779

00:34:22.380 --> 00:34:23.739 it's about survival, but it's

NOTE Confidence: 0.9641779

00:34:23.739 --> 00:34:25.680 also about morbidity and disability.

NOTE Confidence: 0.99959695

00:34:26.594 --> 00:34:27.555 So we do have some

NOTE Confidence: 0.99959695

00:34:27.555 --> 00:34:29.015 data with regard to disability.

NOTE Confidence: 0.95473576

00:34:29.395 --> 00:34:30.675 Let's look at again once

NOTE Confidence: 0.95473576

00:34:30.675 --> 00:34:33.175 again, the, neonatal research network

NOTE Confidence: 0.95473576

00:34:33.234 --> 00:34:34.355 from that same paper I

NOTE Confidence: 0.95473576

00:34:34.355 --> 00:34:36.035 was quoting earlier from twenty

NOTE Confidence: 0.95473576

00:34:36.035 --> 00:34:37.315 twenty two, but bear in

NOTE Confidence: 0.95473576

00:34:37.315 --> 00:34:38.675 mind that's from patients born

NOTE Confidence: 0.95473576

00:34:38.675 --> 00:34:39.655 two thousand thirteen

NOTE Confidence: 0.959737

00:34:40.299 --> 00:34:41.579 to two thousand eighteen. Well,

NOTE Confidence: 0.959737

00:34:41.579 --> 00:34:42.460 look here. Look at these

NOTE Confidence: 0.959737

00:34:42.460 --> 00:34:43.500 bar graphs. So on the

NOTE Confidence: 0.959737
00:34:43.500 --> 00:34:45.200 y axis, you see oh,
NOTE Confidence: 0.959737
00:34:45.260 --> 00:34:46.219 hope you guys got all
NOTE Confidence: 0.959737
00:34:46.219 --> 00:34:47.359 that because it was fast.
NOTE Confidence: 0.95180553
00:34:47.900 --> 00:34:49.440 And now we're out.
NOTE Confidence: 0.93008214
00:34:55.415 --> 00:34:57.015 That ain't good. Now we're
NOTE Confidence: 0.93008214
00:34:57.015 --> 00:34:58.135 gonna ask Isaac to come
NOTE Confidence: 0.93008214
00:34:58.135 --> 00:34:58.455 back. This usually doesn't,
NOTE Confidence: 0.97829354
00:34:59.975 --> 00:35:01.094 go this way. Let's try
NOTE Confidence: 0.97829354
00:35:01.094 --> 00:35:02.215 this. How about if we
NOTE Confidence: 0.97829354
00:35:02.215 --> 00:35:03.835 do that? That worked. Alright.
NOTE Confidence: 0.97829354
00:35:03.975 --> 00:35:04.935 We're back in. Thank you,
NOTE Confidence: 0.97829354
00:35:04.935 --> 00:35:06.075 sir. Good job.
NOTE Confidence: 0.9943076
00:35:08.180 --> 00:35:08.900 Take a look at the
NOTE Confidence: 0.9943076
00:35:08.900 --> 00:35:10.020 bar graph. On the y
NOTE Confidence: 0.9943076
00:35:10.020 --> 00:35:11.160 axis, we have
NOTE Confidence: 0.97395265

00:35:11.460 --> 00:35:12.739 the percent of children from
NOTE Confidence: 0.97395265

00:35:12.739 --> 00:35:13.940 zero to a hundred. And
NOTE Confidence: 0.97395265

00:35:13.940 --> 00:35:14.980 on the x axis, we
NOTE Confidence: 0.97395265

00:35:14.980 --> 00:35:16.180 have these bar graphs. And
NOTE Confidence: 0.97395265

00:35:16.180 --> 00:35:17.220 I wanna focus in on
NOTE Confidence: 0.97395265

00:35:17.220 --> 00:35:18.020 the red box on the
NOTE Confidence: 0.97395265

00:35:18.020 --> 00:35:19.380 kids at twenty three twenty
NOTE Confidence: 0.97395265

00:35:19.380 --> 00:35:20.420 two, twenty three, and twenty
NOTE Confidence: 0.97395265

00:35:20.420 --> 00:35:21.640 four weeks at birth.
NOTE Confidence: 0.9935642

00:35:21.940 --> 00:35:23.160 Okay? Now
NOTE Confidence: 0.9955676

00:35:23.864 --> 00:35:25.145 the dark is the severe
NOTE Confidence: 0.9955676

00:35:25.145 --> 00:35:25.645 neurodevelopmental
NOTE Confidence: 0.96571606

00:35:26.025 --> 00:35:27.945 impairment. We're talking about cognitive
NOTE Confidence: 0.96571606

00:35:27.945 --> 00:35:29.645 cerebral palsy, vision, and hearing.
NOTE Confidence: 0.96571606

00:35:29.705 --> 00:35:31.005 That's what's being measured.
NOTE Confidence: 0.9717125

00:35:31.305 --> 00:35:32.505 And the middle the medium

NOTE Confidence: 0.9717125
00:35:32.505 --> 00:35:34.105 bar is moderate impairment, and
NOTE Confidence: 0.9717125
00:35:34.105 --> 00:35:35.385 the light bar is mild
NOTE Confidence: 0.9717125
00:35:35.385 --> 00:35:36.285 or no impairment.
NOTE Confidence: 0.9720624
00:35:36.989 --> 00:35:38.190 Okay? We take a look
NOTE Confidence: 0.9720624
00:35:38.190 --> 00:35:39.230 at twenty two weeks, for
NOTE Confidence: 0.9720624
00:35:39.230 --> 00:35:40.989 example, and we see that,
NOTE Confidence: 0.9720624
00:35:40.989 --> 00:35:42.270 you know, maybe half these
NOTE Confidence: 0.9720624
00:35:42.270 --> 00:35:43.469 kids have no or mild
NOTE Confidence: 0.9720624
00:35:43.469 --> 00:35:43.969 impairment.
NOTE Confidence: 0.9466246
00:35:44.270 --> 00:35:45.310 But look at the end.
NOTE Confidence: 0.9466246
00:35:45.310 --> 00:35:46.989 Right? Twenty nine kids either
NOTE Confidence: 0.9466246
00:35:46.989 --> 00:35:48.110 at this network. It's not
NOTE Confidence: 0.9466246
00:35:48.110 --> 00:35:49.010 a lot of kids.
NOTE Confidence: 0.9767777
00:35:49.310 --> 00:35:49.844 As soon as we get
NOTE Confidence: 0.9767777
00:35:49.844 --> 00:35:51.605 to twenty three weeks, suddenly,
NOTE Confidence: 0.9767777

00:35:51.605 --> 00:35:52.805 it's two hundred and eighty
NOTE Confidence: 0.9767777

00:35:52.805 --> 00:35:53.305 four
NOTE Confidence: 0.9632857

00:35:53.685 --> 00:35:54.565 kids. That's a lot of
NOTE Confidence: 0.9632857

00:35:54.565 --> 00:35:55.844 kids, and it's roughly a
NOTE Confidence: 0.9632857

00:35:55.844 --> 00:35:57.525 third in each category. And
NOTE Confidence: 0.9632857

00:35:57.525 --> 00:35:59.125 at twenty four weeks, roughly
NOTE Confidence: 0.9632857

00:35:59.125 --> 00:36:00.425 a third in each category.
NOTE Confidence: 0.9632857

00:36:00.485 --> 00:36:01.285 But you see as we
NOTE Confidence: 0.9632857

00:36:01.285 --> 00:36:02.425 go up in gestational
NOTE Confidence: 0.9947551

00:36:02.725 --> 00:36:04.250 age, the percentage of kids
NOTE Confidence: 0.9947551

00:36:04.250 --> 00:36:05.790 with no or mild neurodevelopmental
NOTE Confidence: 0.96118706

00:36:06.170 --> 00:36:06.489 impairment
NOTE Confidence: 0.851707

00:36:07.450 --> 00:36:08.969 Okay. With no or mild
NOTE Confidence: 0.851707

00:36:08.969 --> 00:36:09.469 neurodevelopmental
NOTE Confidence: 0.9987771

00:36:09.930 --> 00:36:10.250 impairment
NOTE Confidence: 0.78796566

00:36:10.810 --> 00:36:11.850 thank you. I'm sorry. Continue

NOTE Confidence: 0.78796566
00:36:11.930 --> 00:36:12.890 there we go. Hang on
NOTE Confidence: 0.78796566
00:36:12.890 --> 00:36:13.790 to that. That's good.
NOTE Confidence: 0.9224153
00:36:14.330 --> 00:36:15.770 It continues to go up.
NOTE Confidence: 0.9224153
00:36:15.770 --> 00:36:16.810 But these are the ones
NOTE Confidence: 0.9224153
00:36:16.810 --> 00:36:17.950 we're focused on.
NOTE Confidence: 0.9830293
00:36:18.305 --> 00:36:19.425 Right? These are the ones
NOTE Confidence: 0.9830293
00:36:19.425 --> 00:36:21.265 we're focused on, but it's
NOTE Confidence: 0.9830293
00:36:21.265 --> 00:36:22.725 an important thing about this,
NOTE Confidence: 0.9830293
00:36:22.785 --> 00:36:24.785 which is that this is
NOTE Confidence: 0.9830293
00:36:24.785 --> 00:36:25.285 follow-up
NOTE Confidence: 0.92533135
00:36:26.145 --> 00:36:27.045 at two years.
NOTE Confidence: 0.9384519
00:36:27.425 --> 00:36:28.385 And that's what we look
NOTE Confidence: 0.9384519
00:36:28.385 --> 00:36:29.105 at. And this is how
NOTE Confidence: 0.9384519
00:36:29.105 --> 00:36:30.725 we counsel parents that
NOTE Confidence: 0.9443517
00:36:31.210 --> 00:36:32.170 that cognitive that,
NOTE Confidence: 0.99302036

00:36:32.890 --> 00:36:34.250 prognosis tool that we all
NOTE Confidence: 0.99302036

00:36:34.250 --> 00:36:35.070 use online,
NOTE Confidence: 0.992819

00:36:35.370 --> 00:36:36.730 that's based on two year
NOTE Confidence: 0.992819

00:36:36.730 --> 00:36:37.870 outcomes. Okay?
NOTE Confidence: 0.97236174

00:36:38.650 --> 00:36:40.430 Now the folks at Japan,
NOTE Confidence: 0.97236174

00:36:40.489 --> 00:36:42.010 by the way, their network,
NOTE Confidence: 0.97236174

00:36:42.010 --> 00:36:44.010 fifty two tertiary centers, they
NOTE Confidence: 0.97236174

00:36:44.010 --> 00:36:44.730 take a look and they
NOTE Confidence: 0.97236174

00:36:44.730 --> 00:36:46.110 say at twenty two weeks,
NOTE Confidence: 0.99434656

00:36:46.505 --> 00:36:47.705 roughly half these kids have
NOTE Confidence: 0.99434656

00:36:47.705 --> 00:36:48.205 neurodevelopmental
NOTE Confidence: 0.9991292

00:36:48.505 --> 00:36:49.005 impairment.
NOTE Confidence: 0.93234974

00:36:49.705 --> 00:36:51.305 K? Now it's very commonly
NOTE Confidence: 0.93234974

00:36:51.305 --> 00:36:51.805 felt
NOTE Confidence: 0.9011891

00:36:52.344 --> 00:36:52.844 incorrectly
NOTE Confidence: 0.9827929

00:36:53.145 --> 00:36:54.105 that all these kids are

NOTE Confidence: 0.9827929

00:36:54.105 --> 00:36:55.705 left with devastating impairment or

NOTE Confidence: 0.9827929

00:36:55.705 --> 00:36:57.065 almost all of them. They're

NOTE Confidence: 0.9827929

00:36:57.065 --> 00:36:58.425 not. Maybe a third, a

NOTE Confidence: 0.9827929

00:36:58.425 --> 00:36:59.945 third, a third, maybe roughly

NOTE Confidence: 0.9827929

00:36:59.945 --> 00:37:00.905 half the kids have no

NOTE Confidence: 0.9827929

00:37:00.905 --> 00:37:01.405 impairment.

NOTE Confidence: 0.98954827

00:37:01.890 --> 00:37:02.769 I'm trying to give you

NOTE Confidence: 0.98954827

00:37:02.769 --> 00:37:04.150 just an order of magnitude.

NOTE Confidence: 0.98954827

00:37:04.210 --> 00:37:05.569 Okay? And, again, we're still

NOTE Confidence: 0.98954827

00:37:05.569 --> 00:37:06.769 talking here about two hundred

NOTE Confidence: 0.98954827

00:37:06.769 --> 00:37:08.210 and seventy one kids, and

NOTE Confidence: 0.98954827

00:37:08.210 --> 00:37:09.029 that's something.

NOTE Confidence: 0.98602784

00:37:09.329 --> 00:37:09.829 Okay?

NOTE Confidence: 0.98369825

00:37:10.529 --> 00:37:12.289 But that's still not huge

NOTE Confidence: 0.98369825

00:37:12.289 --> 00:37:13.170 numbers, but it gives us

NOTE Confidence: 0.98369825

00:37:13.170 --> 00:37:14.724 some order of magnitude. The
NOTE Confidence: 0.98369825

00:37:14.724 --> 00:37:16.325 folks at Iowa, they say
NOTE Confidence: 0.98369825

00:37:16.325 --> 00:37:17.685 no or mild impairment in
NOTE Confidence: 0.98369825

00:37:17.685 --> 00:37:19.285 more than half. At twenty
NOTE Confidence: 0.98369825

00:37:19.285 --> 00:37:21.065 two weeks, fifty five percent
NOTE Confidence: 0.98369825

00:37:21.285 --> 00:37:22.825 have no or mild impairment.
NOTE Confidence: 0.98369825

00:37:22.964 --> 00:37:24.244 But remember, that's at eighteen
NOTE Confidence: 0.98369825

00:37:24.244 --> 00:37:25.765 to twenty two months. And
NOTE Confidence: 0.98369825

00:37:25.765 --> 00:37:26.265 the
NOTE Confidence: 0.97643423

00:37:26.750 --> 00:37:28.989 NICHD, the neonatal research network
NOTE Confidence: 0.97643423

00:37:28.989 --> 00:37:30.369 data that we all use,
NOTE Confidence: 0.976497

00:37:31.630 --> 00:37:32.989 it's based on follow-up at
NOTE Confidence: 0.976497

00:37:32.989 --> 00:37:34.030 eighteen to twenty two months
NOTE Confidence: 0.976497

00:37:34.030 --> 00:37:35.329 for around two years.
NOTE Confidence: 0.931513

00:37:36.589 --> 00:37:38.050 But it's been a generations
NOTE Confidence: 0.96572256

00:37:38.430 --> 00:37:40.109 since Maureen Hack out in

NOTE Confidence: 0.96572256
00:37:40.109 --> 00:37:41.250 Ohio showed
NOTE Confidence: 0.9934314
00:37:42.135 --> 00:37:43.735 that that's not enough time
NOTE Confidence: 0.9934314
00:37:43.735 --> 00:37:45.094 to figure out how injured
NOTE Confidence: 0.9934314
00:37:45.094 --> 00:37:46.315 the kid's gonna be.
NOTE Confidence: 0.9679405
00:37:46.775 --> 00:37:47.975 So she said, well, if
NOTE Confidence: 0.9679405
00:37:47.975 --> 00:37:48.935 we look at these kids,
NOTE Confidence: 0.9679405
00:37:48.935 --> 00:37:49.975 these were these were not
NOTE Confidence: 0.9679405
00:37:49.975 --> 00:37:51.175 the tiniest babies what we'd
NOTE Confidence: 0.9679405
00:37:51.175 --> 00:37:52.295 call today, because this is
NOTE Confidence: 0.9679405
00:37:52.375 --> 00:37:53.175 like I said, this was
NOTE Confidence: 0.9679405
00:37:53.175 --> 00:37:54.535 published in two thousand five.
NOTE Confidence: 0.9679405
00:37:54.535 --> 00:37:55.575 So she's looking at kids
NOTE Confidence: 0.9679405
00:37:55.575 --> 00:37:56.695 from the nineteen eighties and
NOTE Confidence: 0.9679405
00:37:56.695 --> 00:37:58.029 nineties. Right? And she's showing
NOTE Confidence: 0.9679405
00:37:58.029 --> 00:37:58.910 that the very low birth
NOTE Confidence: 0.9679405

00:37:58.910 --> 00:38:00.109 weight newborns, if you look
NOTE Confidence: 0.9679405

00:38:00.109 --> 00:38:01.329 at them at twenty months,
NOTE Confidence: 0.8652695

00:38:01.710 --> 00:38:03.489 thirty nine percent have moderate
NOTE Confidence: 0.9951787

00:38:03.950 --> 00:38:04.690 to severe
NOTE Confidence: 0.975509

00:38:05.230 --> 00:38:06.910 cognitive impairment. But look at
NOTE Confidence: 0.975509

00:38:06.910 --> 00:38:08.029 those same kids at eight
NOTE Confidence: 0.975509

00:38:08.029 --> 00:38:08.910 years, and that number is
NOTE Confidence: 0.975509

00:38:08.910 --> 00:38:09.809 less than half.
NOTE Confidence: 0.9719096

00:38:10.835 --> 00:38:12.194 But still now, we are
NOTE Confidence: 0.9719096

00:38:12.194 --> 00:38:13.974 counseling parents and each other
NOTE Confidence: 0.9719096

00:38:14.035 --> 00:38:15.315 based on two year outcomes
NOTE Confidence: 0.9719096

00:38:15.315 --> 00:38:16.355 because that's how we do
NOTE Confidence: 0.9719096

00:38:16.355 --> 00:38:17.795 it, because we don't have
NOTE Confidence: 0.9719096

00:38:17.795 --> 00:38:18.674 to wait as long to
NOTE Confidence: 0.9719096

00:38:18.674 --> 00:38:20.454 find out. Bear in mind
NOTE Confidence: 0.9719096

00:38:20.674 --> 00:38:22.775 that that's probably overly pessimistic

NOTE Confidence: 0.9719096
00:38:22.994 --> 00:38:24.454 in terms of severe impairment.
NOTE Confidence: 0.95921516
00:38:25.059 --> 00:38:26.500 Then again, it's too soon
NOTE Confidence: 0.95921516
00:38:26.500 --> 00:38:27.460 to know about some other
NOTE Confidence: 0.95921516
00:38:27.460 --> 00:38:28.839 things like learning problems,
NOTE Confidence: 0.9966985
00:38:29.140 --> 00:38:29.960 like autism.
NOTE Confidence: 0.98048306
00:38:31.059 --> 00:38:32.420 Okay? So those two year
NOTE Confidence: 0.98048306
00:38:32.420 --> 00:38:32.920 outcomes
NOTE Confidence: 0.9991715
00:38:33.219 --> 00:38:34.420 are dicey, but that's still
NOTE Confidence: 0.9991715
00:38:34.420 --> 00:38:35.640 what's commonly used.
NOTE Confidence: 0.9901705
00:38:36.420 --> 00:38:38.035 Now there's something else. We've
NOTE Confidence: 0.9901705
00:38:38.035 --> 00:38:39.555 talked about whether you die.
NOTE Confidence: 0.9901705
00:38:39.555 --> 00:38:40.675 We've talked about whether you're
NOTE Confidence: 0.9901705
00:38:40.675 --> 00:38:41.575 left with disabilities.
NOTE Confidence: 0.9914942
00:38:41.955 --> 00:38:43.175 There's another thing.
NOTE Confidence: 0.99931675
00:38:43.555 --> 00:38:45.395 Pain may actually influence the
NOTE Confidence: 0.99931675

00:38:45.395 --> 00:38:46.695 development of the brain.
NOTE Confidence: 0.9142057

00:38:47.875 --> 00:38:49.015 Okay? Now
NOTE Confidence: 0.9317851

00:38:49.395 --> 00:38:50.195 we take a look at
NOTE Confidence: 0.9317851

00:38:50.195 --> 00:38:51.175 these three individuals,
NOTE Confidence: 0.9906099

00:38:51.980 --> 00:38:53.359 two human, one nonhuman,
NOTE Confidence: 0.96363956

00:38:53.900 --> 00:38:54.859 it looks to me this
NOTE Confidence: 0.96363956

00:38:54.859 --> 00:38:55.980 one getting a heel stick,
NOTE Confidence: 0.96363956

00:38:55.980 --> 00:38:56.940 and we don't do heel
NOTE Confidence: 0.96363956

00:38:56.940 --> 00:38:58.299 sticks on babies, in the
NOTE Confidence: 0.96363956

00:38:58.299 --> 00:39:00.140 newborn intensive care unit except,
NOTE Confidence: 0.96363956

00:39:00.140 --> 00:39:01.260 like, every hour. I mean,
NOTE Confidence: 0.96363956

00:39:01.260 --> 00:39:02.140 it's just that they get
NOTE Confidence: 0.96363956

00:39:02.140 --> 00:39:03.440 a lot of heel sticks.
NOTE Confidence: 0.99586236

00:39:03.739 --> 00:39:04.239 Okay?
NOTE Confidence: 0.9691266

00:39:04.835 --> 00:39:05.875 And just being on the
NOTE Confidence: 0.9691266

00:39:05.875 --> 00:39:06.835 outside, when you were supposed

NOTE Confidence: 0.9691266
00:39:06.835 --> 00:39:07.555 to be in a nice
NOTE Confidence: 0.9691266
00:39:07.555 --> 00:39:09.815 bag of body temperature water,
NOTE Confidence: 0.9648305
00:39:10.114 --> 00:39:11.075 just being on the outside
NOTE Confidence: 0.9648305
00:39:11.075 --> 00:39:12.214 could be a pretty unpleasant
NOTE Confidence: 0.9648305
00:39:12.275 --> 00:39:13.555 experience to be constantly being
NOTE Confidence: 0.9648305
00:39:13.555 --> 00:39:14.055 manipulated,
NOTE Confidence: 0.984382
00:39:14.594 --> 00:39:15.954 get, you know, lots of
NOTE Confidence: 0.984382
00:39:15.954 --> 00:39:17.654 needles, lots of tubes.
NOTE Confidence: 0.9994551
00:39:18.170 --> 00:39:19.290 It's it can't be a
NOTE Confidence: 0.9994551
00:39:19.290 --> 00:39:20.190 pleasant existence.
NOTE Confidence: 0.99788964
00:39:20.570 --> 00:39:22.250 Now this may influence brain
NOTE Confidence: 0.99788964
00:39:22.250 --> 00:39:23.450 development. It looks to me
NOTE Confidence: 0.99788964
00:39:23.610 --> 00:39:24.489 I can't prove it to
NOTE Confidence: 0.99788964
00:39:24.489 --> 00:39:25.530 you. It looks to me
NOTE Confidence: 0.99788964
00:39:25.530 --> 00:39:26.430 that this individual
NOTE Confidence: 0.9466676

00:39:27.050 --> 00:39:28.489 looks remarkably like a lamb,
NOTE Confidence: 0.9466676

00:39:28.489 --> 00:39:29.690 not a human being. This
NOTE Confidence: 0.9466676

00:39:29.690 --> 00:39:30.810 individual is having a more
NOTE Confidence: 0.9466676

00:39:30.810 --> 00:39:32.510 relaxed experience. No needles.
NOTE Confidence: 0.9881468

00:39:33.085 --> 00:39:35.105 Okay? No fluctuations in temperature.
NOTE Confidence: 0.99809515

00:39:35.485 --> 00:39:36.765 No being handled. I'm sitting
NOTE Confidence: 0.99809515

00:39:36.765 --> 00:39:37.565 here in this bag of
NOTE Confidence: 0.99809515

00:39:37.565 --> 00:39:38.625 water for a month.
NOTE Confidence: 0.9971309

00:39:39.165 --> 00:39:39.665 Okay?
NOTE Confidence: 0.97956544

00:39:40.125 --> 00:39:41.085 It's not a bad way
NOTE Confidence: 0.97956544

00:39:41.085 --> 00:39:42.065 to live. Now
NOTE Confidence: 0.98616916

00:39:42.445 --> 00:39:43.485 I can't prove that that's
NOTE Confidence: 0.98616916

00:39:43.485 --> 00:39:44.685 a more pleasant existence than
NOTE Confidence: 0.98616916

00:39:44.685 --> 00:39:45.645 this, but think about the
NOTE Confidence: 0.98616916

00:39:45.645 --> 00:39:47.325 possibility. What's interesting is we
NOTE Confidence: 0.98616916

00:39:47.325 --> 00:39:48.780 talk about pain in terms

NOTE Confidence: 0.98616916
00:39:48.780 --> 00:39:49.820 of how it affects brain
NOTE Confidence: 0.98616916
00:39:49.820 --> 00:39:51.100 development. But this is an
NOTE Confidence: 0.98616916
00:39:51.100 --> 00:39:52.219 ethics seminar, so I want
NOTE Confidence: 0.98616916
00:39:52.219 --> 00:39:53.180 you to think about pain
NOTE Confidence: 0.98616916
00:39:53.180 --> 00:39:54.700 in another way too. I
NOTE Confidence: 0.98616916
00:39:54.700 --> 00:39:55.760 want you to ask yourself,
NOTE Confidence: 0.98616916
00:39:55.980 --> 00:39:57.260 even if it doesn't affect
NOTE Confidence: 0.98616916
00:39:57.260 --> 00:39:58.000 brain development,
NOTE Confidence: 0.9997353
00:39:58.540 --> 00:39:59.600 does it matter
NOTE Confidence: 0.9739903
00:40:00.474 --> 00:40:02.094 that a baby suffers pain?
NOTE Confidence: 0.9747823
00:40:02.954 --> 00:40:03.994 Even if the baby doesn't
NOTE Confidence: 0.9747823
00:40:03.994 --> 00:40:04.954 remember pain when he's three
NOTE Confidence: 0.9747823
00:40:04.954 --> 00:40:05.915 years old, boy, that really
NOTE Confidence: 0.9747823
00:40:05.915 --> 00:40:06.555 hurt when I was a
NOTE Confidence: 0.9747823
00:40:06.555 --> 00:40:08.474 newborn. Even if someone doesn't
NOTE Confidence: 0.9747823

00:40:08.474 --> 00:40:09.994 remember pain, I wanna suggest
NOTE Confidence: 0.9747823

00:40:09.994 --> 00:40:11.114 to you that anybody, whether
NOTE Confidence: 0.9747823

00:40:11.114 --> 00:40:11.994 it's a baby or whether
NOTE Confidence: 0.9747823

00:40:11.994 --> 00:40:12.795 it's an adult in the
NOTE Confidence: 0.9747823

00:40:12.795 --> 00:40:13.835 last day of life, who's
NOTE Confidence: 0.9747823

00:40:13.835 --> 00:40:15.055 not gonna remember anything,
NOTE Confidence: 0.9761476

00:40:15.609 --> 00:40:17.050 even if someone doesn't remember
NOTE Confidence: 0.9761476

00:40:17.050 --> 00:40:18.410 their pain or someone who's
NOTE Confidence: 0.9761476

00:40:18.410 --> 00:40:19.150 just perioperative
NOTE Confidence: 0.92774683

00:40:19.450 --> 00:40:20.650 and they experience pain, then
NOTE Confidence: 0.92774683

00:40:20.650 --> 00:40:21.690 someone gives them a medication
NOTE Confidence: 0.92774683

00:40:21.690 --> 00:40:22.989 so they don't remember it.
NOTE Confidence: 0.9763562

00:40:23.450 --> 00:40:24.829 Anybody's pain matters,
NOTE Confidence: 0.9999399

00:40:25.290 --> 00:40:25.790 including
NOTE Confidence: 0.96983594

00:40:26.250 --> 00:40:27.609 the baby's pain. Alright? I
NOTE Confidence: 0.96983594

00:40:27.609 --> 00:40:28.245 think that,

NOTE Confidence: 0.97717977

00:40:28.805 --> 00:40:30.405 has a significant interest. And

NOTE Confidence: 0.97717977

00:40:30.405 --> 00:40:32.185 the technology, the point being,

NOTE Confidence: 0.97717977

00:40:32.245 --> 00:40:33.065 has the potential

NOTE Confidence: 0.99973595

00:40:33.365 --> 00:40:34.585 to reduce the pain.

NOTE Confidence: 0.96761096

00:40:35.045 --> 00:40:36.645 Alright. The third requirement that

NOTE Confidence: 0.96761096

00:40:36.645 --> 00:40:37.545 we need before

NOTE Confidence: 0.9826164

00:40:37.845 --> 00:40:39.285 the common rule tells us

NOTE Confidence: 0.9826164

00:40:39.285 --> 00:40:40.745 we can try this technology

NOTE Confidence: 0.9826164

00:40:40.885 --> 00:40:42.825 out on humans, adequate provisions

NOTE Confidence: 0.9826164

00:40:42.885 --> 00:40:43.560 are made for

NOTE Confidence: 0.92628235

00:40:44.040 --> 00:40:45.800 informed consent, informed permission of

NOTE Confidence: 0.92628235

00:40:45.800 --> 00:40:46.460 the parents.

NOTE Confidence: 0.9310979

00:40:46.840 --> 00:40:48.360 So this is very interesting.

NOTE Confidence: 0.9310979

00:40:48.360 --> 00:40:49.640 Right? Because here's how we

NOTE Confidence: 0.9310979

00:40:49.640 --> 00:40:50.920 get consent. And my friend

NOTE Confidence: 0.9310979

00:40:50.920 --> 00:40:51.800 Sarah knows this, and the
NOTE Confidence: 0.9310979

00:40:51.800 --> 00:40:52.300 neonatologist
NOTE Confidence: 0.9673225

00:40:52.600 --> 00:40:53.960 know this. This is this
NOTE Confidence: 0.9673225

00:40:53.960 --> 00:40:55.480 is how it works. We're
NOTE Confidence: 0.9673225

00:40:55.480 --> 00:40:56.520 gonna have a life and
NOTE Confidence: 0.9673225

00:40:56.520 --> 00:40:58.540 death conversation about your child,
NOTE Confidence: 0.9798483

00:40:59.094 --> 00:41:00.375 And we're gonna do it
NOTE Confidence: 0.9798483

00:41:00.375 --> 00:41:01.495 with someone who has been
NOTE Confidence: 0.9798483

00:41:01.495 --> 00:41:02.795 awake for thirty six
NOTE Confidence: 0.9900549

00:41:03.255 --> 00:41:05.195 hours, is in terrible pain,
NOTE Confidence: 0.97789735

00:41:05.815 --> 00:41:08.295 and is completely exhausted, and
NOTE Confidence: 0.97789735

00:41:08.295 --> 00:41:09.335 is scared out of her
NOTE Confidence: 0.97789735

00:41:09.335 --> 00:41:10.375 mind. Alright. Let's have a
NOTE Confidence: 0.97789735

00:41:10.375 --> 00:41:11.815 life and death conversation. Well,
NOTE Confidence: 0.97789735

00:41:11.815 --> 00:41:13.415 between contractions, we'll do it.
NOTE Confidence: 0.97789735

00:41:13.415 --> 00:41:14.430 We'll talk for a couple.

NOTE Confidence: 0.97789735
00:41:14.510 --> 00:41:16.109 Now it doesn't usually happen
NOTE Confidence: 0.97789735
00:41:16.109 --> 00:41:17.630 that way, but it often
NOTE Confidence: 0.97789735
00:41:17.630 --> 00:41:19.150 happens that way. That's the
NOTE Confidence: 0.97789735
00:41:19.150 --> 00:41:20.430 setting where we get permission
NOTE Confidence: 0.97789735
00:41:20.430 --> 00:41:21.550 to do things for babies.
NOTE Confidence: 0.97789735
00:41:21.550 --> 00:41:22.349 Should we or should we
NOTE Confidence: 0.97789735
00:41:22.349 --> 00:41:23.329 not attempt resuscitation?
NOTE Confidence: 0.9584058
00:41:23.790 --> 00:41:25.469 You might think, that's nuts.
NOTE Confidence: 0.9584058
00:41:25.469 --> 00:41:26.430 And I would say having
NOTE Confidence: 0.9584058
00:41:26.430 --> 00:41:27.710 done that for forty years,
NOTE Confidence: 0.9584058
00:41:27.710 --> 00:41:28.369 it is.
NOTE Confidence: 0.990427
00:41:28.695 --> 00:41:29.735 We don't have a whole
NOTE Confidence: 0.990427
00:41:29.735 --> 00:41:30.935 lot of choice except to
NOTE Confidence: 0.990427
00:41:30.935 --> 00:41:32.135 just impose our will on
NOTE Confidence: 0.990427
00:41:32.135 --> 00:41:33.895 the situation without even checking
NOTE Confidence: 0.990427

00:41:33.895 --> 00:41:35.255 with the mother. That doesn't

NOTE Confidence: 0.990427

00:41:35.255 --> 00:41:36.395 seem quite right either.

NOTE Confidence: 0.99239254

00:41:36.855 --> 00:41:37.355 Right?

NOTE Confidence: 0.99930656

00:41:37.975 --> 00:41:38.475 So

NOTE Confidence: 0.9851572

00:41:39.175 --> 00:41:40.135 aside from the mode of

NOTE Confidence: 0.9851572

00:41:40.135 --> 00:41:41.335 delivery, by the way, in

NOTE Confidence: 0.9851572

00:41:41.335 --> 00:41:42.135 terms of doing a c

NOTE Confidence: 0.9851572

00:41:42.135 --> 00:41:43.590 section on the pregnant patient,

NOTE Confidence: 0.9851572

00:41:43.670 --> 00:41:44.950 this is an easy one.

NOTE Confidence: 0.9851572

00:41:44.950 --> 00:41:45.750 We can have a whole

NOTE Confidence: 0.9851572

00:41:45.750 --> 00:41:46.790 hour on it, students, but

NOTE Confidence: 0.9851572

00:41:46.790 --> 00:41:47.670 for now, just take my

NOTE Confidence: 0.9851572

00:41:47.670 --> 00:41:48.870 word for it. We're not

NOTE Confidence: 0.9851572

00:41:48.870 --> 00:41:49.989 gonna do that without her

NOTE Confidence: 0.9851572

00:41:49.989 --> 00:41:51.430 permission. We don't care who

NOTE Confidence: 0.9851572

00:41:51.430 --> 00:41:52.230 thinks it's a good idea.

NOTE Confidence: 0.9851572

00:41:52.230 --> 00:41:53.190 It's not gonna happen without

NOTE Confidence: 0.9851572

00:41:53.190 --> 00:41:55.110 her permission. Okay? Aside from

NOTE Confidence: 0.9851572

00:41:55.110 --> 00:41:55.610 that,

NOTE Confidence: 0.9768137

00:41:56.675 --> 00:41:57.795 who has to give consent

NOTE Confidence: 0.9768137

00:41:57.795 --> 00:41:59.795 for this artificial womb technology?

NOTE Confidence: 0.9768137

00:41:59.795 --> 00:42:01.094 One parent, both parents?

NOTE Confidence: 0.9828946

00:42:01.715 --> 00:42:03.155 Whose permission is needed to

NOTE Confidence: 0.9828946

00:42:03.155 --> 00:42:04.355 take the kid out? Because

NOTE Confidence: 0.9828946

00:42:04.355 --> 00:42:05.715 most clinical trials, right, at

NOTE Confidence: 0.9828946

00:42:05.715 --> 00:42:06.594 any point, you're free to

NOTE Confidence: 0.9828946

00:42:06.594 --> 00:42:07.094 withdraw.

NOTE Confidence: 0.9851985

00:42:07.395 --> 00:42:08.594 So the kid is inside

NOTE Confidence: 0.9851985

00:42:08.594 --> 00:42:10.239 that bag. At some point,

NOTE Confidence: 0.9851985

00:42:10.239 --> 00:42:10.880 he's in there for a

NOTE Confidence: 0.9851985

00:42:10.880 --> 00:42:12.480 week. Everything's going well. And

NOTE Confidence: 0.9851985

00:42:12.480 --> 00:42:13.760 then the mother says, take
NOTE Confidence: 0.9851985

00:42:13.760 --> 00:42:15.040 him out. And the father
NOTE Confidence: 0.9851985

00:42:15.040 --> 00:42:16.180 says, don't do that.
NOTE Confidence: 0.97954446

00:42:16.720 --> 00:42:17.840 You gotta be prepared for
NOTE Confidence: 0.97954446

00:42:17.840 --> 00:42:18.720 your plan, and you need
NOTE Confidence: 0.97954446

00:42:18.720 --> 00:42:19.680 to be prepared for your
NOTE Confidence: 0.97954446

00:42:19.680 --> 00:42:21.200 plan. I suggest not when
NOTE Confidence: 0.97954446

00:42:21.200 --> 00:42:22.000 we've got a kid who's
NOTE Confidence: 0.97954446

00:42:22.000 --> 00:42:22.800 been in the bag for
NOTE Confidence: 0.97954446

00:42:22.800 --> 00:42:24.344 a week. These are conversations
NOTE Confidence: 0.97954446

00:42:24.405 --> 00:42:25.125 we need to have to
NOTE Confidence: 0.97954446

00:42:25.125 --> 00:42:25.625 have
NOTE Confidence: 0.9970968

00:42:26.005 --> 00:42:26.505 before
NOTE Confidence: 0.96480834

00:42:26.805 --> 00:42:28.105 first in human trials.
NOTE Confidence: 0.97696733

00:42:28.405 --> 00:42:29.525 Now we're gonna go out
NOTE Confidence: 0.97696733

00:42:29.525 --> 00:42:30.485 there a little bit. Okay?

NOTE Confidence: 0.97696733
00:42:30.485 --> 00:42:31.285 And we're gonna because this
NOTE Confidence: 0.97696733
00:42:31.285 --> 00:42:32.405 is ethics, so we gotta
NOTE Confidence: 0.97696733
00:42:32.405 --> 00:42:33.045 go out there a little
NOTE Confidence: 0.97696733
00:42:33.045 --> 00:42:34.245 bit. So let's talk about
NOTE Confidence: 0.97696733
00:42:34.245 --> 00:42:36.440 words because words matter. What
NOTE Confidence: 0.97696733
00:42:36.440 --> 00:42:37.740 do we call that individual
NOTE Confidence: 0.97696733
00:42:38.040 --> 00:42:39.740 on the artificial womb technology?
NOTE Confidence: 0.97696733
00:42:40.040 --> 00:42:41.100 Is it a fetus?
NOTE Confidence: 0.9988002
00:42:42.120 --> 00:42:43.020 Is it a neonate?
NOTE Confidence: 0.971221
00:42:43.800 --> 00:42:45.240 Interestingly enough, in that first
NOTE Confidence: 0.971221
00:42:45.240 --> 00:42:46.380 article about this,
NOTE Confidence: 0.94985867
00:42:46.680 --> 00:42:48.120 sometimes they were called they
NOTE Confidence: 0.94985867
00:42:48.120 --> 00:42:49.844 called it a fetal lamb,
NOTE Confidence: 0.94985867
00:42:49.905 --> 00:42:51.344 and sometimes they called it
NOTE Confidence: 0.94985867
00:42:51.344 --> 00:42:52.705 a neonatal lamb. The people
NOTE Confidence: 0.94985867

00:42:52.705 --> 00:42:54.305 who developed this technology and
NOTE Confidence: 0.94985867

00:42:54.305 --> 00:42:55.605 were using it on animals
NOTE Confidence: 0.94985867

00:42:55.825 --> 00:42:57.585 really weren't clear. One philosopher
NOTE Confidence: 0.94985867

00:42:57.585 --> 00:42:58.385 says, well, we're gonna give
NOTE Confidence: 0.94985867

00:42:58.385 --> 00:42:59.025 it a new name. We're
NOTE Confidence: 0.94985867

00:42:59.025 --> 00:42:59.745 gonna call it a just
NOTE Confidence: 0.94985867

00:42:59.745 --> 00:43:00.485 state link.
NOTE Confidence: 0.9736219

00:43:00.969 --> 00:43:02.010 And the people who developed
NOTE Confidence: 0.9736219

00:43:02.010 --> 00:43:03.290 the technology said, well, that's
NOTE Confidence: 0.9736219

00:43:03.290 --> 00:43:03.790 stupid.
NOTE Confidence: 0.96087396

00:43:05.450 --> 00:43:06.650 You know, and that we
NOTE Confidence: 0.96087396

00:43:06.650 --> 00:43:07.370 shouldn't give it a new
NOTE Confidence: 0.96087396

00:43:07.370 --> 00:43:08.170 name. And then a couple
NOTE Confidence: 0.96087396

00:43:08.170 --> 00:43:09.050 years later, they said, we're
NOTE Confidence: 0.96087396

00:43:09.050 --> 00:43:10.250 giving it a new name.
NOTE Confidence: 0.96087396

00:43:10.250 --> 00:43:11.469 We're calling it a.

NOTE Confidence: 0.93978655
00:43:12.250 --> 00:43:13.545 Alright? So you guys can
NOTE Confidence: 0.93978655
00:43:13.545 --> 00:43:14.505 decide. Maybe there'll be a
NOTE Confidence: 0.93978655
00:43:14.505 --> 00:43:15.785 competition to see who can
NOTE Confidence: 0.93978655
00:43:15.785 --> 00:43:17.244 name what this entity is.
NOTE Confidence: 0.93978655
00:43:17.464 --> 00:43:18.204 Who cares?
NOTE Confidence: 0.9560725
00:43:18.825 --> 00:43:20.445 Ah, you should care. Right?
NOTE Confidence: 0.9560725
00:43:20.505 --> 00:43:21.885 You should care because
NOTE Confidence: 0.99926907
00:43:22.585 --> 00:43:24.285 moral status is sometimes
NOTE Confidence: 0.9995183
00:43:24.585 --> 00:43:25.085 determined
NOTE Confidence: 0.9993215
00:43:25.385 --> 00:43:26.825 or influenced by what we
NOTE Confidence: 0.9993215
00:43:26.825 --> 00:43:27.724 call something
NOTE Confidence: 0.9415948
00:43:28.270 --> 00:43:29.950 or someone. Right? How a
NOTE Confidence: 0.9415948
00:43:29.950 --> 00:43:31.710 moral status is defined by
NOTE Confidence: 0.9415948
00:43:31.710 --> 00:43:32.370 the philosopher,
NOTE Confidence: 0.8692653
00:43:32.910 --> 00:43:34.030 Mary Ann Warren, is how
NOTE Confidence: 0.8692653

00:43:34.030 --> 00:43:35.790 much an individual's interest should

NOTE Confidence: 0.8692653

00:43:35.790 --> 00:43:36.290 count.

NOTE Confidence: 0.9436463

00:43:36.830 --> 00:43:37.330 Alright?

NOTE Confidence: 0.96397156

00:43:37.630 --> 00:43:39.310 We generally agree that a

NOTE Confidence: 0.96397156

00:43:39.310 --> 00:43:40.445 human being has a higher

NOTE Confidence: 0.96397156

00:43:40.445 --> 00:43:41.805 moral status than a cat,

NOTE Confidence: 0.96397156

00:43:41.805 --> 00:43:42.765 which has a higher moral

NOTE Confidence: 0.96397156

00:43:42.765 --> 00:43:45.265 status than a rock. Okay?

NOTE Confidence: 0.96397156

00:43:45.485 --> 00:43:47.245 How much an individual's interests

NOTE Confidence: 0.96397156

00:43:47.245 --> 00:43:49.085 or or welfare counts? That's

NOTE Confidence: 0.96397156

00:43:49.085 --> 00:43:50.765 the moral status. What's gonna

NOTE Confidence: 0.96397156

00:43:50.765 --> 00:43:51.805 be the moral status of

NOTE Confidence: 0.96397156

00:43:51.805 --> 00:43:52.605 this thing? The same as

NOTE Confidence: 0.96397156

00:43:52.605 --> 00:43:53.485 what we assign to a

NOTE Confidence: 0.96397156

00:43:53.485 --> 00:43:54.844 fetus, what we assign to

NOTE Confidence: 0.96397156

00:43:54.844 --> 00:43:55.505 a neonate,

NOTE Confidence: 0.9833072

00:43:55.830 --> 00:43:56.890 something in between.

NOTE Confidence: 0.9863281

00:43:57.350 --> 00:43:59.110 There's legal issues. There's cultural

NOTE Confidence: 0.9863281

00:43:59.110 --> 00:44:00.969 issues. There's ethical considerations.

NOTE Confidence: 0.9935404

00:44:01.510 --> 00:44:02.710 I hate to say it,

NOTE Confidence: 0.9935404

00:44:02.710 --> 00:44:03.830 but this stuff has to

NOTE Confidence: 0.9935404

00:44:03.830 --> 00:44:05.350 be worked out, really thought

NOTE Confidence: 0.9935404

00:44:05.350 --> 00:44:07.210 about before we do this

NOTE Confidence: 0.9935404

00:44:07.270 --> 00:44:08.330 on human beings.

NOTE Confidence: 0.9772942

00:44:09.765 --> 00:44:10.805 Now the good news is

NOTE Confidence: 0.9772942

00:44:10.805 --> 00:44:12.405 there's some analogy here. And

NOTE Confidence: 0.9772942

00:44:12.405 --> 00:44:13.305 this remember,

NOTE Confidence: 0.9790518

00:44:13.684 --> 00:44:15.045 students of ethics, we like

NOTE Confidence: 0.9790518

00:44:15.045 --> 00:44:16.325 this. We like kazoo history.

NOTE Confidence: 0.9790518

00:44:16.325 --> 00:44:17.204 We say, well, how are

NOTE Confidence: 0.9790518

00:44:17.204 --> 00:44:18.085 we gonna solve this? Well,

NOTE Confidence: 0.9790518

00:44:18.085 --> 00:44:19.204 do we have an analogous
NOTE Confidence: 0.9790518
00:44:19.204 --> 00:44:20.645 case that we've already solved?
NOTE Confidence: 0.9790518
00:44:20.645 --> 00:44:22.005 And, indeed, we have. Right?
NOTE Confidence: 0.9790518
00:44:22.005 --> 00:44:22.885 What you see on the
NOTE Confidence: 0.9790518
00:44:22.885 --> 00:44:24.710 left is your favorite technology,
NOTE Confidence: 0.9790518
00:44:24.930 --> 00:44:26.630 which is the extend technology.
NOTE Confidence: 0.9790518
00:44:26.770 --> 00:44:28.310 Right? That's our artificial womb.
NOTE Confidence: 0.9790518
00:44:28.370 --> 00:44:29.330 That's the limb. On the
NOTE Confidence: 0.9790518
00:44:29.330 --> 00:44:30.870 right, you see extracorporeal
NOTE Confidence: 0.9983602
00:44:31.730 --> 00:44:33.410 membrane oxygenation, which is a
NOTE Confidence: 0.9983602
00:44:33.410 --> 00:44:34.950 technology that's been in use
NOTE Confidence: 0.9983602
00:44:35.010 --> 00:44:35.510 for
NOTE Confidence: 0.99236137
00:44:35.864 --> 00:44:36.844 thirty some years,
NOTE Confidence: 0.9876871
00:44:37.145 --> 00:44:38.685 in Connecticut and forty years
NOTE Confidence: 0.9876871
00:44:38.825 --> 00:44:39.325 overall.
NOTE Confidence: 0.9747854
00:44:39.705 --> 00:44:41.465 And, basically, it'll look familiar

NOTE Confidence: 0.9747854
00:44:41.465 --> 00:44:42.025 if you look at it.
NOTE Confidence: 0.9747854
00:44:42.025 --> 00:44:42.905 I'm gonna use the cursor
NOTE Confidence: 0.9747854
00:44:42.905 --> 00:44:44.344 hopefully without losing my slide.
NOTE Confidence: 0.9747854
00:44:44.344 --> 00:44:45.465 But what basically you see
NOTE Confidence: 0.9747854
00:44:45.465 --> 00:44:46.585 is that these two catheters
NOTE Confidence: 0.9747854
00:44:46.585 --> 00:44:47.645 are put in the heart.
NOTE Confidence: 0.9747854
00:44:47.780 --> 00:44:48.900 This is a big full
NOTE Confidence: 0.9747854
00:44:48.900 --> 00:44:50.099 term baby, not a tiny
NOTE Confidence: 0.9747854
00:44:50.099 --> 00:44:51.380 preemie. This is a full
NOTE Confidence: 0.9747854
00:44:51.380 --> 00:44:53.300 term baby whose lungs simply
NOTE Confidence: 0.9747854
00:44:53.300 --> 00:44:54.359 cannot oxygenate
NOTE Confidence: 0.98682195
00:44:55.140 --> 00:44:56.680 for a while, not permanently,
NOTE Confidence: 0.98682195
00:44:56.900 --> 00:44:57.859 but maybe we need a
NOTE Confidence: 0.98682195
00:44:57.859 --> 00:44:59.219 week for these lungs to
NOTE Confidence: 0.98682195
00:44:59.219 --> 00:45:00.339 get out of some serious
NOTE Confidence: 0.98682195

00:45:00.339 --> 00:45:00.839 disease.
NOTE Confidence: 0.9722135
00:45:01.575 --> 00:45:02.695 So we put a catheter
NOTE Confidence: 0.9722135
00:45:02.695 --> 00:45:04.055 here. We drain some blood
NOTE Confidence: 0.9722135
00:45:04.055 --> 00:45:05.494 out. We pump it past
NOTE Confidence: 0.9722135
00:45:05.494 --> 00:45:06.935 an oxygenator. Oops. Excuse me.
NOTE Confidence: 0.9722135
00:45:06.935 --> 00:45:07.815 We pump it past an
NOTE Confidence: 0.9722135
00:45:07.815 --> 00:45:08.315 oxygenator,
NOTE Confidence: 0.9924817
00:45:08.855 --> 00:45:09.974 and we put it back
NOTE Confidence: 0.9924817
00:45:09.974 --> 00:45:10.474 in.
NOTE Confidence: 0.9555502
00:45:10.855 --> 00:45:12.135 See, again, the nice red
NOTE Confidence: 0.9555502
00:45:12.135 --> 00:45:13.494 stuff. K. We put it
NOTE Confidence: 0.9555502
00:45:13.494 --> 00:45:14.855 back in. We've got this
NOTE Confidence: 0.9555502
00:45:14.855 --> 00:45:17.035 external oxygenator. We've done this.
NOTE Confidence: 0.9555502
00:45:17.310 --> 00:45:18.350 So we've got a sort
NOTE Confidence: 0.9555502
00:45:18.350 --> 00:45:19.469 of analogy except it's a
NOTE Confidence: 0.9555502
00:45:19.469 --> 00:45:20.430 full term instead of a

NOTE Confidence: 0.9555502

00:45:20.430 --> 00:45:21.489 preterm baby.

NOTE Confidence: 0.977057

00:45:22.350 --> 00:45:23.630 And what do we call

NOTE Confidence: 0.977057

00:45:23.630 --> 00:45:24.510 it? We don't call it

NOTE Confidence: 0.977057

00:45:24.510 --> 00:45:25.870 a fetonate because it's a

NOTE Confidence: 0.977057

00:45:25.870 --> 00:45:27.730 lot like that fetal circulation

NOTE Confidence: 0.99118215

00:45:28.030 --> 00:45:28.910 that you saw at the

NOTE Confidence: 0.99118215

00:45:28.910 --> 00:45:29.950 very beginning. That's why I

NOTE Confidence: 0.99118215

00:45:29.950 --> 00:45:31.154 showed you the picture where

NOTE Confidence: 0.99118215

00:45:31.154 --> 00:45:32.875 we're really bypassing the lungs

NOTE Confidence: 0.99118215

00:45:32.875 --> 00:45:34.234 for the most part to

NOTE Confidence: 0.99118215

00:45:34.234 --> 00:45:36.655 some external thing that oxygenates

NOTE Confidence: 0.99118215

00:45:36.795 --> 00:45:37.454 the blood.

NOTE Confidence: 0.962098

00:45:38.155 --> 00:45:39.434 Right? It's a lot like

NOTE Confidence: 0.962098

00:45:39.434 --> 00:45:40.094 a fetus,

NOTE Confidence: 0.99756306

00:45:40.635 --> 00:45:41.994 but we don't agonize over

NOTE Confidence: 0.99756306

00:45:41.994 --> 00:45:43.035 what we call this thing.
NOTE Confidence: 0.99756306

00:45:43.035 --> 00:45:44.094 We call this thing
NOTE Confidence: 0.99911225

00:45:44.969 --> 00:45:45.710 a neonate
NOTE Confidence: 0.9977037

00:45:46.330 --> 00:45:47.230 on ECMO.
NOTE Confidence: 0.9279528

00:45:47.850 --> 00:45:49.610 Now interestingly enough, little known
NOTE Confidence: 0.9279528

00:45:49.610 --> 00:45:50.110 fact,
NOTE Confidence: 0.999341

00:45:50.730 --> 00:45:51.690 the first time this was
NOTE Confidence: 0.999341

00:45:51.690 --> 00:45:52.510 done in Connecticut,
NOTE Confidence: 0.9878158

00:45:52.890 --> 00:45:54.670 I was actually the the
NOTE Confidence: 0.9878158

00:45:54.730 --> 00:45:56.590 the physician who did it.
NOTE Confidence: 0.9878158

00:45:56.650 --> 00:45:57.950 I ran the whole thing.
NOTE Confidence: 0.9406368

00:45:59.210 --> 00:45:59.710 And,
NOTE Confidence: 0.989337

00:46:00.185 --> 00:46:01.805 okay, that's not entirely true.
NOTE Confidence: 0.989337

00:46:01.945 --> 00:46:03.065 I I was never near
NOTE Confidence: 0.989337

00:46:03.065 --> 00:46:04.205 the kid. But
NOTE Confidence: 0.9247946

00:46:05.785 --> 00:46:07.385 interestingly enough, the physician who

NOTE Confidence: 0.9247946
00:46:07.385 --> 00:46:07.885 did
NOTE Confidence: 0.9597703
00:46:08.185 --> 00:46:09.225 put the first patient on
NOTE Confidence: 0.9597703
00:46:09.225 --> 00:46:10.185 ECMO in the state of
NOTE Confidence: 0.9597703
00:46:10.185 --> 00:46:12.105 Connecticut is actually here. So
NOTE Confidence: 0.9597703
00:46:12.105 --> 00:46:14.069 the pediatric ethics program salutes
NOTE Confidence: 0.9597703
00:46:14.069 --> 00:46:16.069 doctor Steve Peterick, who started
NOTE Confidence: 0.9597703
00:46:16.069 --> 00:46:17.670 ECMO in Connecticut, who start
NOTE Confidence: 0.9597703
00:46:17.750 --> 00:46:18.630 yeah. Go ahead. Clap. Don't
NOTE Confidence: 0.9597703
00:46:18.630 --> 00:46:19.690 be afraid to clap.
NOTE Confidence: 0.9983854
00:46:21.989 --> 00:46:22.969 So it's been
NOTE Confidence: 0.97876257
00:46:23.510 --> 00:46:25.029 forty years plus thirty five
NOTE Confidence: 0.97876257
00:46:25.029 --> 00:46:25.989 years since we've done it
NOTE Confidence: 0.97876257
00:46:25.989 --> 00:46:27.295 here in Connecticut, and we
NOTE Confidence: 0.97876257
00:46:27.295 --> 00:46:28.655 don't agonize over what to
NOTE Confidence: 0.97876257
00:46:28.655 --> 00:46:30.094 call that child. We call
NOTE Confidence: 0.97876257

00:46:30.094 --> 00:46:31.455 it a child. Should it
NOTE Confidence: 0.97876257

00:46:31.455 --> 00:46:32.835 be different? Because
NOTE Confidence: 0.97068906

00:46:33.135 --> 00:46:34.735 what this extend is, and
NOTE Confidence: 0.97068906

00:46:34.735 --> 00:46:36.575 the brilliant people that developed
NOTE Confidence: 0.97068906

00:46:36.575 --> 00:46:37.614 it probably wouldn't like me
NOTE Confidence: 0.97068906

00:46:37.614 --> 00:46:38.975 saying it. Man, it's ECMO
NOTE Confidence: 0.97068906

00:46:38.975 --> 00:46:40.895 in a bag. Okay? That's
NOTE Confidence: 0.97068906

00:46:40.895 --> 00:46:42.609 essentially what we're doing. Now
NOTE Confidence: 0.97068906

00:46:42.609 --> 00:46:43.430 it's really,
NOTE Confidence: 0.96948034

00:46:44.130 --> 00:46:45.170 not that hard as you
NOTE Confidence: 0.96948034

00:46:45.170 --> 00:46:46.690 can kinda tell from this
NOTE Confidence: 0.96948034

00:46:46.690 --> 00:46:47.190 picture.
NOTE Confidence: 0.95807505

00:46:47.650 --> 00:46:49.190 Alright? This is technologically
NOTE Confidence: 0.99450827

00:46:50.290 --> 00:46:52.210 not simple. In theory, if
NOTE Confidence: 0.99450827

00:46:52.210 --> 00:46:53.010 you look back at that
NOTE Confidence: 0.99450827

00:46:53.010 --> 00:46:54.450 picture I'm afraid of losing

NOTE Confidence: 0.99450827
00:46:54.450 --> 00:46:55.484 things. If you look at
NOTE Confidence: 0.99450827
00:46:55.484 --> 00:46:57.164 this cartoon, in theory, it's
NOTE Confidence: 0.99450827
00:46:57.164 --> 00:46:58.844 really not complicated at all.
NOTE Confidence: 0.99450827
00:46:58.844 --> 00:47:00.605 But in reality, making it
NOTE Confidence: 0.99450827
00:47:00.605 --> 00:47:02.864 work is incredibly labor intensive,
NOTE Confidence: 0.99450827
00:47:02.924 --> 00:47:03.964 requires a great deal of
NOTE Confidence: 0.99450827
00:47:03.964 --> 00:47:05.404 expertise. I taught him everything
NOTE Confidence: 0.99450827
00:47:05.404 --> 00:47:07.110 he knows. So this is
NOTE Confidence: 0.99108446
00:47:07.590 --> 00:47:09.270 this is not easy, but
NOTE Confidence: 0.99108446
00:47:09.270 --> 00:47:10.390 it's doable. So when we
NOTE Confidence: 0.99108446
00:47:10.390 --> 00:47:11.590 look at this, we say,
NOTE Confidence: 0.99108446
00:47:11.590 --> 00:47:12.630 this is gonna be hard.
NOTE Confidence: 0.99108446
00:47:12.630 --> 00:47:13.590 It looks easy in the
NOTE Confidence: 0.99108446
00:47:13.590 --> 00:47:15.350 cartoon. It's gonna require a
NOTE Confidence: 0.99108446
00:47:15.350 --> 00:47:16.170 lot of people,
NOTE Confidence: 0.9610689

00:47:16.470 --> 00:47:17.590 you know, for a while,
NOTE Confidence: 0.9610689

00:47:17.590 --> 00:47:18.710 while that's while we're using
NOTE Confidence: 0.9610689

00:47:18.710 --> 00:47:20.230 the technology, so does what
NOTE Confidence: 0.9610689

00:47:20.230 --> 00:47:21.895 we already use. So does
NOTE Confidence: 0.9610689

00:47:21.895 --> 00:47:22.955 what we already use.
NOTE Confidence: 0.98931664

00:47:23.415 --> 00:47:24.635 So that said,
NOTE Confidence: 0.96604186

00:47:25.175 --> 00:47:26.295 we can do this. What
NOTE Confidence: 0.96604186

00:47:26.295 --> 00:47:27.415 is interesting about this picture,
NOTE Confidence: 0.96604186

00:47:27.415 --> 00:47:28.215 which I think I got
NOTE Confidence: 0.96604186

00:47:28.215 --> 00:47:29.975 from Steve, actually, what's interesting
NOTE Confidence: 0.96604186

00:47:29.975 --> 00:47:31.495 about this picture is there's
NOTE Confidence: 0.96604186

00:47:31.495 --> 00:47:31.995 no
NOTE Confidence: 0.9723551

00:47:32.295 --> 00:47:33.810 people except for the baby.
NOTE Confidence: 0.9723551

00:47:33.969 --> 00:47:34.770 Right? So you put the
NOTE Confidence: 0.9723551

00:47:34.770 --> 00:47:35.410 kid in the room all
NOTE Confidence: 0.9723551

00:47:35.410 --> 00:47:36.530 by himself. Right? Well, I'm

NOTE Confidence: 0.9723551
00:47:36.530 --> 00:47:37.489 sure what happened in this
NOTE Confidence: 0.9723551
00:47:37.489 --> 00:47:39.170 picture was when Steve probably
NOTE Confidence: 0.9723551
00:47:39.170 --> 00:47:40.130 shot this picture. He said,
NOTE Confidence: 0.9723551
00:47:40.130 --> 00:47:41.650 alright. Everybody just step aside
NOTE Confidence: 0.9723551
00:47:41.650 --> 00:47:42.530 for two seconds so I
NOTE Confidence: 0.9723551
00:47:42.530 --> 00:47:43.570 can take this picture because
NOTE Confidence: 0.9723551
00:47:43.570 --> 00:47:44.530 there's plenty of people in
NOTE Confidence: 0.9723551
00:47:44.530 --> 00:47:46.094 the room all the time.
NOTE Confidence: 0.9723551
00:47:46.255 --> 00:47:47.535 Okay? When those first kids
NOTE Confidence: 0.9723551
00:47:47.535 --> 00:47:48.895 were on, doctor Pedic was
NOTE Confidence: 0.9723551
00:47:48.895 --> 00:47:49.935 in the room all day
NOTE Confidence: 0.9723551
00:47:49.935 --> 00:47:51.535 and all night and all
NOTE Confidence: 0.9723551
00:47:51.535 --> 00:47:53.295 the next day. It's hard
NOTE Confidence: 0.9723551
00:47:53.295 --> 00:47:55.155 work. But guess what?
NOTE Confidence: 0.9989407
00:47:55.535 --> 00:47:56.515 We do hard.
NOTE Confidence: 0.9996458

00:47:56.815 --> 00:47:57.855 We do hard. That's not
NOTE Confidence: 0.9996458

00:47:57.855 --> 00:47:59.055 a reason not to do
NOTE Confidence: 0.9996458

00:47:59.055 --> 00:47:59.555 this.
NOTE Confidence: 0.9844593

00:48:01.170 --> 00:48:02.369 Now, by the way, we
NOTE Confidence: 0.9844593

00:48:02.369 --> 00:48:03.809 talked about lowering the threshold
NOTE Confidence: 0.9844593

00:48:03.809 --> 00:48:04.869 for attempted resuscitation.
NOTE Confidence: 0.9813807

00:48:05.329 --> 00:48:06.369 Well, twenty two weeks is
NOTE Confidence: 0.9813807

00:48:06.369 --> 00:48:07.250 as low as you can
NOTE Confidence: 0.9813807

00:48:07.250 --> 00:48:08.550 go to keep someone alive.
NOTE Confidence: 0.9813807

00:48:08.690 --> 00:48:10.450 Everybody knows it's impossible for
NOTE Confidence: 0.9813807

00:48:10.450 --> 00:48:11.410 a human being to be
NOTE Confidence: 0.9813807

00:48:11.410 --> 00:48:13.170 kept alive ex utero, young
NOTE Confidence: 0.9813807

00:48:13.170 --> 00:48:14.849 within twenty two weeks. But
NOTE Confidence: 0.9813807

00:48:14.849 --> 00:48:15.730 like a lot of things
NOTE Confidence: 0.9813807

00:48:15.730 --> 00:48:17.125 everyone knows, turns out not
NOTE Confidence: 0.9813807

00:48:17.125 --> 00:48:18.325 to be true. Here's the

NOTE Confidence: 0.9813807
00:48:18.325 --> 00:48:19.685 first published report from an
NOTE Confidence: 0.9813807
00:48:19.685 --> 00:48:21.125 academic center of a kid
NOTE Confidence: 0.9813807
00:48:21.125 --> 00:48:22.505 born at twenty one weeks,
NOTE Confidence: 0.91128373
00:48:22.805 --> 00:48:24.265 four hundred and ten grams.
NOTE Confidence: 0.91128373
00:48:24.325 --> 00:48:26.165 That's couple ounces shy of
NOTE Confidence: 0.91128373
00:48:26.165 --> 00:48:27.705 a pound, let you know.
NOTE Confidence: 0.99098873
00:48:28.325 --> 00:48:29.285 And this kid at twenty
NOTE Confidence: 0.99098873
00:48:29.285 --> 00:48:30.905 four months was doing fine.
NOTE Confidence: 0.9710627
00:48:31.690 --> 00:48:32.410 And by the way, the
NOTE Confidence: 0.9710627
00:48:32.410 --> 00:48:33.530 folks in Iowa have a
NOTE Confidence: 0.9710627
00:48:33.530 --> 00:48:35.390 series of several. They now
NOTE Confidence: 0.9710627
00:48:35.530 --> 00:48:36.350 not infrequently,
NOTE Confidence: 0.9981071
00:48:37.530 --> 00:48:38.430 attempt resuscitation
NOTE Confidence: 0.9263022
00:48:38.730 --> 00:48:40.410 at twenty one weeks. And
NOTE Confidence: 0.9263022
00:48:40.410 --> 00:48:41.290 that is and I said,
NOTE Confidence: 0.9263022

00:48:41.290 --> 00:48:42.170 look at my funeral here
NOTE Confidence: 0.9263022

00:48:42.170 --> 00:48:43.210 with one of my obstetric
NOTE Confidence: 0.9263022

00:48:43.210 --> 00:48:44.330 colleagues. Looks like she's gonna
NOTE Confidence: 0.9263022

00:48:44.330 --> 00:48:45.705 lose her mind. But that
NOTE Confidence: 0.9263022

00:48:46.025 --> 00:48:47.545 that happens, and and and
NOTE Confidence: 0.9263022

00:48:47.545 --> 00:48:48.344 I'll get back to you
NOTE Confidence: 0.9263022

00:48:48.344 --> 00:48:49.305 because I was invited to
NOTE Confidence: 0.9263022

00:48:49.305 --> 00:48:50.105 come out there and give
NOTE Confidence: 0.9263022

00:48:50.105 --> 00:48:51.625 grand rounds, give obstetrics grand
NOTE Confidence: 0.9263022

00:48:51.625 --> 00:48:52.985 rounds while people talk about
NOTE Confidence: 0.9263022

00:48:52.985 --> 00:48:54.045 this. And
NOTE Confidence: 0.99925166

00:48:54.905 --> 00:48:56.205 the line continues
NOTE Confidence: 0.9248151

00:48:56.505 --> 00:48:57.625 to move like it or
NOTE Confidence: 0.9248151

00:48:57.625 --> 00:48:58.125 not.
NOTE Confidence: 0.9991435

00:48:59.090 --> 00:49:00.390 So what does this mean?
NOTE Confidence: 0.99517834

00:49:00.850 --> 00:49:01.890 To me, this means that

NOTE Confidence: 0.99517834
00:49:01.890 --> 00:49:02.610 even though the goal is
NOTE Confidence: 0.99517834
00:49:02.610 --> 00:49:03.910 not to lower the gestational
NOTE Confidence: 0.99517834
00:49:04.050 --> 00:49:05.650 age threshold with this new
NOTE Confidence: 0.99517834
00:49:05.650 --> 00:49:06.150 technology,
NOTE Confidence: 0.96582144
00:49:06.850 --> 00:49:08.450 sooner or later, a parent
NOTE Confidence: 0.96582144
00:49:08.450 --> 00:49:09.410 is gonna ask us to
NOTE Confidence: 0.96582144
00:49:09.410 --> 00:49:10.530 do it. Sooner or later,
NOTE Confidence: 0.96582144
00:49:10.530 --> 00:49:11.410 someone is gonna be in
NOTE Confidence: 0.96582144
00:49:11.410 --> 00:49:12.450 labor at twenty one and
NOTE Confidence: 0.96582144
00:49:12.450 --> 00:49:13.565 a half weeks, and we're
NOTE Confidence: 0.96582144
00:49:13.565 --> 00:49:14.445 gonna say this baby is
NOTE Confidence: 0.96582144
00:49:14.445 --> 00:49:15.565 gonna be born today, and
NOTE Confidence: 0.96582144
00:49:15.565 --> 00:49:16.925 I'm sorry there's nothing we
NOTE Confidence: 0.96582144
00:49:16.925 --> 00:49:18.125 can do. And it's gonna
NOTE Confidence: 0.96582144
00:49:18.125 --> 00:49:19.405 be someone who's educated enough
NOTE Confidence: 0.96582144

00:49:19.405 --> 00:49:20.525 to know about this technology.

NOTE Confidence: 0.96582144

00:49:20.525 --> 00:49:22.045 It's gonna say, will you

NOTE Confidence: 0.96582144

00:49:22.045 --> 00:49:23.025 please try

NOTE Confidence: 0.92464113

00:49:23.325 --> 00:49:24.785 the artificial womb technology?

NOTE Confidence: 0.9794371

00:49:25.580 --> 00:49:26.620 I'm not saying you should

NOTE Confidence: 0.9794371

00:49:26.620 --> 00:49:27.580 or you shouldn't. What I'm

NOTE Confidence: 0.9794371

00:49:27.580 --> 00:49:29.100 saying is you don't wait

NOTE Confidence: 0.9794371

00:49:29.100 --> 00:49:30.380 until the first time someone

NOTE Confidence: 0.9794371

00:49:30.380 --> 00:49:31.660 asks that in a clinical

NOTE Confidence: 0.9794371

00:49:31.660 --> 00:49:32.160 setting

NOTE Confidence: 0.96056956

00:49:32.460 --> 00:49:33.900 before asking that to each

NOTE Confidence: 0.96056956

00:49:33.900 --> 00:49:34.400 other.

NOTE Confidence: 0.993452

00:49:34.940 --> 00:49:36.380 And not just sitting around

NOTE Confidence: 0.993452

00:49:36.380 --> 00:49:37.580 thinking about it, but coming

NOTE Confidence: 0.993452

00:49:37.580 --> 00:49:39.105 up with a feasible,

NOTE Confidence: 0.9986141

00:49:39.725 --> 00:49:41.505 fair, ethically defensible

NOTE Confidence: 0.9962148
00:49:41.885 --> 00:49:42.385 answer
NOTE Confidence: 0.99710286
00:49:43.245 --> 00:49:45.025 before the first human being
NOTE Confidence: 0.99710286
00:49:45.165 --> 00:49:45.985 goes in.
NOTE Confidence: 0.94680774
00:49:46.925 --> 00:49:48.285 Alright. So now there's wider
NOTE Confidence: 0.94680774
00:49:48.285 --> 00:49:49.965 societal effects. So somebody on
NOTE Confidence: 0.94680774
00:49:49.965 --> 00:49:51.085 Wired last year, oh, a
NOTE Confidence: 0.94680774
00:49:51.085 --> 00:49:52.140 year and a half ago,
NOTE Confidence: 0.94680774
00:49:52.219 --> 00:49:53.819 published this thing saying, listen,
NOTE Confidence: 0.94680774
00:49:53.819 --> 00:49:54.480 man. Ectogenesis,
NOTE Confidence: 0.97175837
00:49:54.859 --> 00:49:56.219 which is gestation outside of
NOTE Confidence: 0.97175837
00:49:56.219 --> 00:49:57.579 the artificial womb, this is
NOTE Confidence: 0.97175837
00:49:57.579 --> 00:49:59.099 gonna be real soon, and
NOTE Confidence: 0.97175837
00:49:59.099 --> 00:50:00.859 this could cause potential harm.
NOTE Confidence: 0.97175837
00:50:00.859 --> 00:50:02.719 This could really screw up
NOTE Confidence: 0.97175837
00:50:02.859 --> 00:50:04.000 reproductive rights.
NOTE Confidence: 0.961903

00:50:04.885 --> 00:50:06.085 Because now what's gonna happen

NOTE Confidence: 0.961903

00:50:06.085 --> 00:50:07.605 is, well, some philosophers say

NOTE Confidence: 0.961903

00:50:07.605 --> 00:50:09.765 that that that, women in

NOTE Confidence: 0.961903

00:50:09.765 --> 00:50:11.045 reproduction are gonna be replaced.

NOTE Confidence: 0.961903

00:50:11.045 --> 00:50:11.925 And, Anna, let's not get

NOTE Confidence: 0.961903

00:50:11.925 --> 00:50:12.565 into that. I mean, this

NOTE Confidence: 0.961903

00:50:12.565 --> 00:50:13.605 is say, alright. That's a

NOTE Confidence: 0.961903

00:50:13.605 --> 00:50:14.725 little out there. But this

NOTE Confidence: 0.961903

00:50:14.725 --> 00:50:16.165 is important because they talk

NOTE Confidence: 0.961903

00:50:16.165 --> 00:50:17.685 about ectogenesis, which means we

NOTE Confidence: 0.961903

00:50:17.685 --> 00:50:19.285 can start from a single

NOTE Confidence: 0.961903

00:50:19.285 --> 00:50:20.920 cell and develop a human

NOTE Confidence: 0.961903

00:50:20.920 --> 00:50:21.420 being

NOTE Confidence: 0.9314744

00:50:21.800 --> 00:50:23.000 all the way to blive

NOTE Confidence: 0.9314744

00:50:23.000 --> 00:50:23.820 it on the outside,

NOTE Confidence: 0.99497575

00:50:24.440 --> 00:50:24.940 okay,

NOTE Confidence: 0.99879104
00:50:25.960 --> 00:50:27.500 to a full term baby.
NOTE Confidence: 0.9873693
00:50:28.040 --> 00:50:29.180 But here's the deal.
NOTE Confidence: 0.98987865
00:50:29.960 --> 00:50:31.719 Some abortion laws are indeed
NOTE Confidence: 0.98987865
00:50:31.719 --> 00:50:33.000 based on viability, and this
NOTE Confidence: 0.98987865
00:50:33.000 --> 00:50:33.739 could influence
NOTE Confidence: 0.9917487
00:50:34.085 --> 00:50:35.224 reproductive rights.
NOTE Confidence: 0.9675152
00:50:35.525 --> 00:50:38.105 But remember the science. Ectogenesis
NOTE Confidence: 0.9888787
00:50:38.644 --> 00:50:39.545 is a distraction,
NOTE Confidence: 0.9865766
00:50:39.924 --> 00:50:40.964 which is to say that
NOTE Confidence: 0.9865766
00:50:40.964 --> 00:50:42.404 that technology that takes us
NOTE Confidence: 0.9865766
00:50:42.404 --> 00:50:43.844 from single cell to a
NOTE Confidence: 0.9865766
00:50:43.844 --> 00:50:45.525 living full term baby, that
NOTE Confidence: 0.9865766
00:50:45.525 --> 00:50:47.529 technology is not even on
NOTE Confidence: 0.9865766
00:50:47.529 --> 00:50:48.890 the next horizon after the
NOTE Confidence: 0.9865766
00:50:48.890 --> 00:50:49.710 next horizon.
NOTE Confidence: 0.96666753

00:50:50.329 --> 00:50:51.369 So I don't think our
NOTE Confidence: 0.96666753

00:50:51.369 --> 00:50:52.890 opinions about that should influence
NOTE Confidence: 0.96666753

00:50:52.890 --> 00:50:53.930 whether we can use this
NOTE Confidence: 0.96666753

00:50:53.930 --> 00:50:55.529 technology now to try and
NOTE Confidence: 0.96666753

00:50:55.529 --> 00:50:56.489 save some babies who we
NOTE Confidence: 0.96666753

00:50:56.489 --> 00:50:57.930 might potentially save. So when
NOTE Confidence: 0.96666753

00:50:57.930 --> 00:50:59.769 folks say, Ectogenesis, oh my
NOTE Confidence: 0.96666753

00:50:59.769 --> 00:51:01.049 god. But you might remember,
NOTE Confidence: 0.96666753

00:51:01.049 --> 00:51:01.905 those of you who are
NOTE Confidence: 0.96666753

00:51:02.065 --> 00:51:03.025 really old, which is to
NOTE Confidence: 0.96666753

00:51:03.025 --> 00:51:03.925 say my
NOTE Confidence: 0.96812856

00:51:05.025 --> 00:51:06.545 age, might remember, and it's
NOTE Confidence: 0.96812856

00:51:06.545 --> 00:51:07.665 gonna sound funny to the
NOTE Confidence: 0.96812856

00:51:07.665 --> 00:51:09.185 students. But her name was
NOTE Confidence: 0.96812856

00:51:09.185 --> 00:51:10.085 Louise Brown.
NOTE Confidence: 0.9914168

00:51:10.545 --> 00:51:12.065 And when we were young,

NOTE Confidence: 0.9914168
00:51:12.065 --> 00:51:12.965 but not babies,
NOTE Confidence: 0.9668734
00:51:13.344 --> 00:51:14.799 she was the first test
NOTE Confidence: 0.9668734
00:51:14.799 --> 00:51:15.839 tube baby they called. It
NOTE Confidence: 0.9668734
00:51:15.839 --> 00:51:16.799 was the first in vitro
NOTE Confidence: 0.9668734
00:51:16.799 --> 00:51:18.160 fertilization case. It was in
NOTE Confidence: 0.9668734
00:51:18.160 --> 00:51:19.780 England. Right? Doctor Steptoe.
NOTE Confidence: 0.9694834
00:51:20.239 --> 00:51:20.480 And,
NOTE Confidence: 0.95757407
00:51:21.200 --> 00:51:22.400 and the the the country
NOTE Confidence: 0.95757407
00:51:22.400 --> 00:51:23.920 went wild. This is nuts.
NOTE Confidence: 0.95757407
00:51:23.920 --> 00:51:25.460 This is crazy. Well, now
NOTE Confidence: 0.95757407
00:51:25.520 --> 00:51:26.819 that's just what we do.
NOTE Confidence: 0.9900431
00:51:27.155 --> 00:51:27.954 And most of us think
NOTE Confidence: 0.9900431
00:51:27.954 --> 00:51:28.675 that's a nice thing to
NOTE Confidence: 0.9900431
00:51:28.675 --> 00:51:29.634 make available to people who
NOTE Confidence: 0.9900431
00:51:29.634 --> 00:51:30.195 are trying to have a
NOTE Confidence: 0.9900431

00:51:30.195 --> 00:51:31.335 baby and having difficulty.
NOTE Confidence: 0.89915115

00:51:31.875 --> 00:51:33.494 Alright? So Ectogenesis,
NOTE Confidence: 0.9792608

00:51:33.875 --> 00:51:35.155 though, that's a distraction. We've
NOTE Confidence: 0.9792608

00:51:35.155 --> 00:51:35.954 gotta figure out what to
NOTE Confidence: 0.9792608

00:51:35.954 --> 00:51:37.094 do about this technology
NOTE Confidence: 0.95084053

00:51:37.395 --> 00:51:38.355 here and now. But by
NOTE Confidence: 0.95084053

00:51:38.355 --> 00:51:39.155 the way, it's not just
NOTE Confidence: 0.95084053

00:51:39.155 --> 00:51:40.850 some writers on Wired. This
NOTE Confidence: 0.95084053

00:51:40.850 --> 00:51:42.290 is Vardit Rovitsky, who some
NOTE Confidence: 0.95084053

00:51:42.290 --> 00:51:43.489 of you might remember was
NOTE Confidence: 0.95084053

00:51:43.489 --> 00:51:44.710 our invited speaker.
NOTE Confidence: 0.9968683

00:51:45.010 --> 00:51:45.810 I think she was our
NOTE Confidence: 0.9968683

00:51:45.810 --> 00:51:46.630 Duffy lecturer,
NOTE Confidence: 0.99957436

00:51:47.810 --> 00:51:48.710 which is our
NOTE Confidence: 0.9996268

00:51:49.410 --> 00:51:50.310 highest honor.
NOTE Confidence: 0.9716362

00:51:50.610 --> 00:51:52.130 She is the the president

NOTE Confidence: 0.9716362

00:51:52.130 --> 00:51:53.170 of the Hastings Center, the

NOTE Confidence: 0.9716362

00:51:53.170 --> 00:51:55.355 country's leading bioethics think tank.

NOTE Confidence: 0.9716362

00:51:55.355 --> 00:51:56.395 She's also on the faculty

NOTE Confidence: 0.9716362

00:51:56.395 --> 00:51:57.915 of Harvard. There's another Harvard

NOTE Confidence: 0.9716362

00:51:57.915 --> 00:51:59.295 faculty member down there,

NOTE Confidence: 0.9747608

00:51:59.755 --> 00:52:01.594 doctor King. And they're telling

NOTE Confidence: 0.9747608

00:52:01.594 --> 00:52:02.875 us in a political climate

NOTE Confidence: 0.9747608

00:52:02.875 --> 00:52:04.954 where reproductive rights are being

NOTE Confidence: 0.9747608

00:52:04.954 --> 00:52:06.234 curtailed in the name of

NOTE Confidence: 0.9747608

00:52:06.234 --> 00:52:07.214 protecting fetuses,

NOTE Confidence: 0.98573226

00:52:07.869 --> 00:52:09.869 Safe and effective artificial wombs

NOTE Confidence: 0.98573226

00:52:09.869 --> 00:52:11.089 could be used to argue

NOTE Confidence: 0.98573226

00:52:11.310 --> 00:52:12.589 that the fetus is not

NOTE Confidence: 0.98573226

00:52:12.589 --> 00:52:13.550 only has a right to

NOTE Confidence: 0.98573226

00:52:13.550 --> 00:52:14.670 live, but also has the

NOTE Confidence: 0.98573226

00:52:14.670 --> 00:52:16.510 right to any and all
NOTE Confidence: 0.98573226

00:52:16.510 --> 00:52:18.349 medical care available. Now follow
NOTE Confidence: 0.98573226

00:52:18.349 --> 00:52:19.469 what they're saying to us.
NOTE Confidence: 0.98573226

00:52:19.469 --> 00:52:20.910 This is in Scientific American
NOTE Confidence: 0.98573226

00:52:20.910 --> 00:52:22.325 last year. They're saying that
NOTE Confidence: 0.98573226

00:52:22.325 --> 00:52:24.085 such an argument could promote
NOTE Confidence: 0.98573226

00:52:24.085 --> 00:52:24.585 legislation
NOTE Confidence: 0.99959093

00:52:25.444 --> 00:52:27.625 that requires dangerous surgery
NOTE Confidence: 0.93367577

00:52:28.164 --> 00:52:28.664 despite
NOTE Confidence: 0.9979772

00:52:29.125 --> 00:52:29.785 a patient's
NOTE Confidence: 0.9983462

00:52:30.085 --> 00:52:30.585 objection.
NOTE Confidence: 0.97727144

00:52:31.045 --> 00:52:32.244 So what they're suggesting is
NOTE Confidence: 0.97727144

00:52:32.244 --> 00:52:33.444 now a woman's in labor
NOTE Confidence: 0.97727144

00:52:33.444 --> 00:52:35.180 at twenty two weeks.
NOTE Confidence: 0.97017866

00:52:35.560 --> 00:52:37.320 And now, you know, that
NOTE Confidence: 0.97017866

00:52:37.320 --> 00:52:38.440 we know we could save

NOTE Confidence: 0.97017866
00:52:38.440 --> 00:52:39.719 this kid if we've got
NOTE Confidence: 0.97017866
00:52:39.719 --> 00:52:40.920 this technology. Let's say we're
NOTE Confidence: 0.97017866
00:52:40.920 --> 00:52:41.640 at a point where the
NOTE Confidence: 0.97017866
00:52:41.640 --> 00:52:43.640 technology is is perfected or
NOTE Confidence: 0.97017866
00:52:43.640 --> 00:52:44.619 is really good.
NOTE Confidence: 0.94998705
00:52:45.000 --> 00:52:46.380 We could save this kid.
NOTE Confidence: 0.94998705
00:52:46.520 --> 00:52:47.424 So So if she doesn't
NOTE Confidence: 0.94998705
00:52:47.424 --> 00:52:48.305 want it, well, then we're
NOTE Confidence: 0.94998705
00:52:48.305 --> 00:52:49.025 gonna tell, well, you have
NOTE Confidence: 0.94998705
00:52:49.025 --> 00:52:50.005 to have a c section
NOTE Confidence: 0.94998705
00:52:50.145 --> 00:52:51.585 so we can use the
NOTE Confidence: 0.94998705
00:52:51.585 --> 00:52:52.325 bio bag
NOTE Confidence: 0.9439141
00:52:53.344 --> 00:52:54.305 even if she doesn't want
NOTE Confidence: 0.9439141
00:52:54.305 --> 00:52:55.825 the seizures. That's the fear.
NOTE Confidence: 0.9439141
00:52:55.825 --> 00:52:57.025 And so these authors are
NOTE Confidence: 0.9439141

00:52:57.025 --> 00:52:58.464 saying and these let's say
NOTE Confidence: 0.9439141

00:52:58.464 --> 00:52:59.924 these aren't these are serious
NOTE Confidence: 0.9519556

00:53:00.339 --> 00:53:02.500 academics. They're saying, therefore, hold
NOTE Confidence: 0.9519556

00:53:02.500 --> 00:53:03.940 on. Let's not move forward
NOTE Confidence: 0.9519556

00:53:03.940 --> 00:53:05.060 with this technology because this
NOTE Confidence: 0.9519556

00:53:05.060 --> 00:53:06.440 can have a serious implication
NOTE Confidence: 0.9597896

00:53:06.739 --> 00:53:09.300 for reproductive rights, serious societal
NOTE Confidence: 0.9597896

00:53:09.300 --> 00:53:09.800 implications.
NOTE Confidence: 0.98213464

00:53:10.339 --> 00:53:11.859 So that's something that we
NOTE Confidence: 0.98213464

00:53:11.859 --> 00:53:12.599 should consider.
NOTE Confidence: 0.9780123

00:53:13.455 --> 00:53:14.575 But I got something else
NOTE Confidence: 0.9780123

00:53:14.575 --> 00:53:15.614 to consider. Then I'm done.
NOTE Confidence: 0.9780123

00:53:15.614 --> 00:53:16.495 This isn't gonna go on,
NOTE Confidence: 0.9780123

00:53:16.655 --> 00:53:17.775 we're gonna we're gonna end
NOTE Confidence: 0.9780123

00:53:17.775 --> 00:53:18.815 in five minutes, and then
NOTE Confidence: 0.9780123

00:53:18.815 --> 00:53:20.114 I wanna hear from you.

NOTE Confidence: 0.9780123

00:53:20.255 --> 00:53:21.455 But there's something else to

NOTE Confidence: 0.9780123

00:53:21.455 --> 00:53:21.955 consider.

NOTE Confidence: 0.9512855

00:53:22.335 --> 00:53:24.835 Alright. Remember doctor Kotish's balance.

NOTE Confidence: 0.9512855

00:53:24.975 --> 00:53:27.475 Individual beneficence must take precedence

NOTE Confidence: 0.9949254

00:53:28.020 --> 00:53:29.960 over collective notions of beneficence.

NOTE Confidence: 0.9949254

00:53:30.100 --> 00:53:31.219 We gotta be careful not

NOTE Confidence: 0.9949254

00:53:31.219 --> 00:53:32.820 to sacrifice one kid for

NOTE Confidence: 0.9949254

00:53:32.820 --> 00:53:34.360 the benefit of future kids,

NOTE Confidence: 0.9949254

00:53:34.660 --> 00:53:35.160 basically.

NOTE Confidence: 0.9670403

00:53:35.540 --> 00:53:36.580 And by the way, I

NOTE Confidence: 0.9670403

00:53:36.580 --> 00:53:37.860 put these two pictures here

NOTE Confidence: 0.9670403

00:53:37.860 --> 00:53:39.219 because sometimes we're thinking and

NOTE Confidence: 0.9670403

00:53:39.219 --> 00:53:40.340 looking at this kid. This

NOTE Confidence: 0.9670403

00:53:40.340 --> 00:53:41.540 kid becomes the kid on

NOTE Confidence: 0.9670403

00:53:41.540 --> 00:53:42.665 the right. Kid on the

NOTE Confidence: 0.9670403

00:53:42.665 --> 00:53:43.545 left becomes the kid on
NOTE Confidence: 0.9670403

00:53:43.545 --> 00:53:45.145 the right, becomes you or
NOTE Confidence: 0.9670403

00:53:45.145 --> 00:53:46.665 me. Right? That that's our
NOTE Confidence: 0.9670403

00:53:46.665 --> 00:53:48.105 goal. That's who we're working
NOTE Confidence: 0.9670403

00:53:48.105 --> 00:53:49.565 for is that kid
NOTE Confidence: 0.9643654

00:53:49.864 --> 00:53:51.145 who obviously aspires to be
NOTE Confidence: 0.9643654

00:53:51.145 --> 00:53:52.665 a Yale medical student, and
NOTE Confidence: 0.9643654

00:53:52.665 --> 00:53:54.285 there is no higher honor.
NOTE Confidence: 0.9615356

00:53:54.744 --> 00:53:57.280 Okay? So we're balancing the
NOTE Confidence: 0.9615356

00:53:57.280 --> 00:53:58.400 best interest of the child
NOTE Confidence: 0.9615356

00:53:58.400 --> 00:53:59.760 subject against the science of
NOTE Confidence: 0.9615356

00:53:59.760 --> 00:54:01.040 others. Ah, but here's an
NOTE Confidence: 0.9615356

00:54:01.040 --> 00:54:02.579 interesting question. Right?
NOTE Confidence: 0.99913937

00:54:03.200 --> 00:54:04.660 May we also say
NOTE Confidence: 0.9690455

00:54:05.599 --> 00:54:07.599 that individual beneficence must not
NOTE Confidence: 0.9690455

00:54:07.599 --> 00:54:08.339 take precedence

NOTE Confidence: 0.9284082

00:54:08.755 --> 00:54:10.455 over collective notions of beneficence.

NOTE Confidence: 0.9284082

00:54:10.675 --> 00:54:11.955 That's doctor Kotish, but I

NOTE Confidence: 0.9284082

00:54:11.955 --> 00:54:13.955 say, or collective notions of

NOTE Confidence: 0.9284082

00:54:13.955 --> 00:54:14.455 harm.

NOTE Confidence: 0.9937544

00:54:15.474 --> 00:54:16.915 Is there a threshold of

NOTE Confidence: 0.9937544

00:54:16.915 --> 00:54:19.094 anticipation of anticipated harm

NOTE Confidence: 0.9987511

00:54:19.395 --> 00:54:20.295 to the society

NOTE Confidence: 0.9853543

00:54:20.989 --> 00:54:22.770 to reproductive rights, for example,

NOTE Confidence: 0.9853543

00:54:22.910 --> 00:54:24.609 that would trump individual beneficence.

NOTE Confidence: 0.9814106

00:54:24.910 --> 00:54:26.609 Because what we may potentially

NOTE Confidence: 0.9814106

00:54:26.670 --> 00:54:28.190 be saying is, yes. I

NOTE Confidence: 0.9814106

00:54:28.190 --> 00:54:29.309 mean, not today, but if

NOTE Confidence: 0.9814106

00:54:29.309 --> 00:54:30.910 this technology, we move forward

NOTE Confidence: 0.9814106

00:54:30.910 --> 00:54:31.950 with it. Yes. We could

NOTE Confidence: 0.9814106

00:54:31.950 --> 00:54:33.150 save your child in the

NOTE Confidence: 0.9814106

00:54:33.150 --> 00:54:34.270 upper right, but we're not
NOTE Confidence: 0.9814106

00:54:34.270 --> 00:54:35.230 gonna do it because this
NOTE Confidence: 0.9814106

00:54:35.230 --> 00:54:36.530 could have harm to society
NOTE Confidence: 0.993049

00:54:37.035 --> 00:54:38.155 or this could harm,
NOTE Confidence: 0.9476564

00:54:38.555 --> 00:54:39.775 people in the future.
NOTE Confidence: 0.9060088

00:54:40.555 --> 00:54:42.075 That's a really interesting question.
NOTE Confidence: 0.9060088

00:54:42.075 --> 00:54:44.315 Okay? Individual deficits must take
NOTE Confidence: 0.9060088

00:54:44.315 --> 00:54:45.614 precedence, but also
NOTE Confidence: 0.9817317

00:54:45.915 --> 00:54:47.594 over collective notions of harm.
NOTE Confidence: 0.9817317

00:54:47.594 --> 00:54:48.954 Can we say that? It's
NOTE Confidence: 0.9817317

00:54:48.954 --> 00:54:50.474 a fascinating question. Of course,
NOTE Confidence: 0.9817317

00:54:50.474 --> 00:54:51.934 is it a threshold argument?
NOTE Confidence: 0.9817317

00:54:52.230 --> 00:54:53.590 Might this depend then on
NOTE Confidence: 0.9817317

00:54:53.590 --> 00:54:54.330 the likelihood
NOTE Confidence: 0.9967726

00:54:54.869 --> 00:54:56.489 and magnitude of the anticipated
NOTE Confidence: 0.9967726

00:54:56.630 --> 00:54:57.989 harm? So if there's a

NOTE Confidence: 0.9967726
00:54:57.989 --> 00:54:59.030 tiny bit of harm to
NOTE Confidence: 0.9967726
00:54:59.030 --> 00:54:59.989 a very small number of
NOTE Confidence: 0.9967726
00:54:59.989 --> 00:55:01.690 people deep in the future,
NOTE Confidence: 0.993983
00:55:02.230 --> 00:55:03.110 we would say, well, we
NOTE Confidence: 0.993983
00:55:03.110 --> 00:55:04.310 gotta save this baby if
NOTE Confidence: 0.993983
00:55:04.310 --> 00:55:05.555 we can. If there's a
NOTE Confidence: 0.993983
00:55:05.555 --> 00:55:06.915 colossal harm to a lot
NOTE Confidence: 0.993983
00:55:06.915 --> 00:55:08.435 of people next week, we
NOTE Confidence: 0.993983
00:55:08.435 --> 00:55:09.555 might be less inclined to
NOTE Confidence: 0.993983
00:55:09.555 --> 00:55:10.295 go forward.
NOTE Confidence: 0.9811006
00:55:10.835 --> 00:55:12.515 The likelihood and magnitude of
NOTE Confidence: 0.9811006
00:55:12.515 --> 00:55:14.275 the anticipated harm and the
NOTE Confidence: 0.9811006
00:55:14.275 --> 00:55:14.775 likelihood
NOTE Confidence: 0.9994815
00:55:15.075 --> 00:55:15.735 and magnitude
NOTE Confidence: 0.98129827
00:55:16.195 --> 00:55:17.875 of the anticipated benefit. So,
NOTE Confidence: 0.98129827

00:55:17.875 --> 00:55:19.635 for example, if artificial womb

NOTE Confidence: 0.98129827

00:55:19.635 --> 00:55:21.330 can save fifty percent of

NOTE Confidence: 0.98129827

00:55:21.330 --> 00:55:21.830 people,

NOTE Confidence: 0.9988729

00:55:22.290 --> 00:55:24.210 okay, and current technology can

NOTE Confidence: 0.9988729

00:55:24.210 --> 00:55:25.590 save forty five percent

NOTE Confidence: 0.9869965

00:55:26.290 --> 00:55:28.070 with the same disability profile,

NOTE Confidence: 0.9869965

00:55:28.130 --> 00:55:28.790 for example,

NOTE Confidence: 0.96748334

00:55:29.330 --> 00:55:30.950 that's not a great anticipated

NOTE Confidence: 0.96748334

00:55:31.090 --> 00:55:32.450 benefit. So if there's a

NOTE Confidence: 0.96748334

00:55:32.450 --> 00:55:33.970 huge societal harm, maybe we

NOTE Confidence: 0.96748334

00:55:33.970 --> 00:55:35.844 shouldn't go forward. But somebody,

NOTE Confidence: 0.96748334

00:55:35.844 --> 00:55:37.125 that means you guys, need

NOTE Confidence: 0.96748334

00:55:37.125 --> 00:55:37.925 to be thinking about it.

NOTE Confidence: 0.96748334

00:55:37.925 --> 00:55:39.364 And now we're do excuse

NOTE Confidence: 0.96748334

00:55:39.364 --> 00:55:40.245 me. Now we're doing some

NOTE Confidence: 0.96748334

00:55:40.245 --> 00:55:40.745 ethics.

NOTE Confidence: 0.9632813

00:55:41.125 --> 00:55:42.325 But remember, we're doing this

NOTE Confidence: 0.9632813

00:55:42.325 --> 00:55:43.525 because someone's trying to save

NOTE Confidence: 0.9632813

00:55:43.525 --> 00:55:44.885 some kids. That's why we're

NOTE Confidence: 0.9632813

00:55:44.885 --> 00:55:46.405 doing all this stuff. So

NOTE Confidence: 0.9632813

00:55:46.405 --> 00:55:47.605 someone's gotta put their nickel

NOTE Confidence: 0.9632813

00:55:47.605 --> 00:55:48.965 down, and my friend Stephanie

NOTE Confidence: 0.9632813

00:55:48.965 --> 00:55:51.280 Kukura did. Okay? So how

NOTE Confidence: 0.9632813

00:55:51.280 --> 00:55:52.480 bad does the risk have

NOTE Confidence: 0.9632813

00:55:52.480 --> 00:55:53.760 to be? How likely does

NOTE Confidence: 0.9632813

00:55:53.760 --> 00:55:54.400 it have to be that

NOTE Confidence: 0.9632813

00:55:54.400 --> 00:55:56.000 a baby's gonna die before

NOTE Confidence: 0.9632813

00:55:56.000 --> 00:55:56.960 we're willing to say, sure.

NOTE Confidence: 0.9632813

00:55:56.960 --> 00:55:58.020 Put them in the bag.

NOTE Confidence: 0.9783992

00:55:58.400 --> 00:55:59.599 She says, alright. I'll I'll

NOTE Confidence: 0.9783992

00:55:59.599 --> 00:56:01.119 play. She says less than

NOTE Confidence: 0.9783992

00:56:01.119 --> 00:56:03.200 twenty percent predicted survival. Now

NOTE Confidence: 0.9783992

00:56:03.200 --> 00:56:04.319 if you if we follow

NOTE Confidence: 0.9783992

00:56:04.319 --> 00:56:05.059 her recommendation,

NOTE Confidence: 0.99545616

00:56:06.215 --> 00:56:07.495 if you remember, it was

NOTE Confidence: 0.99545616

00:56:07.495 --> 00:56:08.635 only the tiniest

NOTE Confidence: 0.7014171

00:56:08.935 --> 00:56:09.435 male,

NOTE Confidence: 0.98904896

00:56:10.455 --> 00:56:11.435 tiny male,

NOTE Confidence: 0.9969886

00:56:12.775 --> 00:56:13.995 twenty two weeks,

NOTE Confidence: 0.917599

00:56:14.855 --> 00:56:16.055 who didn't get steroids who

NOTE Confidence: 0.917599

00:56:16.055 --> 00:56:16.775 are gonna be less than

NOTE Confidence: 0.917599

00:56:16.775 --> 00:56:18.055 twenty percent. It's pretty much

NOTE Confidence: 0.917599

00:56:18.055 --> 00:56:19.015 everybody that we keep track

NOTE Confidence: 0.917599

00:56:19.015 --> 00:56:19.655 of has got a better

NOTE Confidence: 0.917599

00:56:19.655 --> 00:56:20.614 than twenty percent chance to

NOTE Confidence: 0.917599

00:56:20.614 --> 00:56:22.200 survive. Just a really scrawny

NOTE Confidence: 0.917599

00:56:22.200 --> 00:56:23.820 boys who don't get steroids.

NOTE Confidence: 0.9640289
00:56:24.120 --> 00:56:25.800 Okay? Then she's saying and,
NOTE Confidence: 0.9640289
00:56:25.800 --> 00:56:26.600 of course, the people who
NOTE Confidence: 0.9640289
00:56:26.600 --> 00:56:27.719 want who are championing this
NOTE Confidence: 0.9640289
00:56:27.719 --> 00:56:29.160 technology, who've spent their lives
NOTE Confidence: 0.9640289
00:56:29.160 --> 00:56:30.680 developing it, they don't wanna
NOTE Confidence: 0.9640289
00:56:30.680 --> 00:56:32.040 do that. They wanna put
NOTE Confidence: 0.9640289
00:56:32.040 --> 00:56:33.080 lots of kids on it
NOTE Confidence: 0.9640289
00:56:33.080 --> 00:56:33.880 to find out if it
NOTE Confidence: 0.9640289
00:56:33.880 --> 00:56:34.780 works or not.
NOTE Confidence: 0.9396647
00:56:35.395 --> 00:56:36.675 Okay? Now what she's saying
NOTE Confidence: 0.9396647
00:56:36.675 --> 00:56:37.475 is that once we've shown
NOTE Confidence: 0.9396647
00:56:37.475 --> 00:56:38.295 that it works,
NOTE Confidence: 0.96265686
00:56:38.595 --> 00:56:39.635 then basically move up and
NOTE Confidence: 0.96265686
00:56:39.635 --> 00:56:40.675 we say the threshold is
NOTE Confidence: 0.96265686
00:56:40.675 --> 00:56:41.715 there's a twenty to fifty
NOTE Confidence: 0.96265686

00:56:41.715 --> 00:56:43.395 percent chance of survival, we
NOTE Confidence: 0.96265686

00:56:43.395 --> 00:56:44.355 should use it. And then
NOTE Confidence: 0.96265686

00:56:44.355 --> 00:56:45.555 we talk about long term
NOTE Confidence: 0.96265686

00:56:45.555 --> 00:56:47.075 neurodevelopment. But she wants to
NOTE Confidence: 0.96265686

00:56:47.075 --> 00:56:48.515 start with twenty percent. You
NOTE Confidence: 0.96265686

00:56:48.515 --> 00:56:50.115 guys are gonna decide, is
NOTE Confidence: 0.96265686

00:56:50.115 --> 00:56:51.880 that right? How low does
NOTE Confidence: 0.96265686

00:56:51.880 --> 00:56:53.160 the likelihood of survival have
NOTE Confidence: 0.96265686

00:56:53.160 --> 00:56:54.120 to be for us to
NOTE Confidence: 0.96265686

00:56:54.120 --> 00:56:55.160 be willing to put this
NOTE Confidence: 0.96265686

00:56:55.160 --> 00:56:55.660 kid
NOTE Confidence: 0.9924438

00:56:56.120 --> 00:56:57.660 on the artificial womb?
NOTE Confidence: 0.99833304

00:56:58.840 --> 00:57:00.520 Alright. So we need concrete
NOTE Confidence: 0.99833304

00:57:00.520 --> 00:57:01.020 recommendations.
NOTE Confidence: 0.9395476

00:57:01.320 --> 00:57:02.680 This is wrapping up three
NOTE Confidence: 0.9395476

00:57:02.680 --> 00:57:03.180 things

NOTE Confidence: 0.97795105
00:57:03.924 --> 00:57:04.964 for us to think about.
NOTE Confidence: 0.97795105
00:57:04.964 --> 00:57:05.765 Questions that have to be
NOTE Confidence: 0.97795105
00:57:05.765 --> 00:57:07.045 answered, in my opinion, before
NOTE Confidence: 0.97795105
00:57:07.045 --> 00:57:08.025 the human trials.
NOTE Confidence: 0.9996537
00:57:08.325 --> 00:57:10.344 What's the appropriate survival prognosis
NOTE Confidence: 0.9996537
00:57:10.484 --> 00:57:12.184 threshold with current technology
NOTE Confidence: 0.91864413
00:57:12.724 --> 00:57:14.505 for early artificial womb trials?
NOTE Confidence: 0.91666514
00:57:14.964 --> 00:57:16.404 And what likelihood and severity
NOTE Confidence: 0.91666514
00:57:16.404 --> 00:57:17.204 of anticipates
NOTE Confidence: 0.9984381
00:57:17.684 --> 00:57:18.744 anticipated disability
NOTE Confidence: 0.99991924
00:57:19.230 --> 00:57:20.050 do we need
NOTE Confidence: 0.98933357
00:57:20.510 --> 00:57:21.790 to take that risk of
NOTE Confidence: 0.98933357
00:57:21.790 --> 00:57:22.930 the artificial womb?
NOTE Confidence: 0.9689259
00:57:23.390 --> 00:57:25.070 And lastly, what likelihood and
NOTE Confidence: 0.9689259
00:57:25.070 --> 00:57:26.590 severity of harm to others,
NOTE Confidence: 0.9689259

00:57:26.590 --> 00:57:28.910 for example, reproductive rights, if

NOTE Confidence: 0.9689259

00:57:28.910 --> 00:57:31.305 any, should delay human trials?

NOTE Confidence: 0.9689259

00:57:31.385 --> 00:57:32.585 These are easy questions. You

NOTE Confidence: 0.9689259

00:57:32.585 --> 00:57:33.464 guys have got a half

NOTE Confidence: 0.9689259

00:57:33.464 --> 00:57:34.905 an hour, so let me

NOTE Confidence: 0.9689259

00:57:34.905 --> 00:57:36.045 know because

NOTE Confidence: 0.9576056

00:57:36.345 --> 00:57:37.944 I'm done, and I wanna

NOTE Confidence: 0.9576056

00:57:37.944 --> 00:57:38.825 hear from you. And by

NOTE Confidence: 0.9576056

00:57:38.825 --> 00:57:39.865 the way, this is not

NOTE Confidence: 0.9576056

00:57:39.865 --> 00:57:41.085 just some kind of exercise

NOTE Confidence: 0.9576056

00:57:41.224 --> 00:57:42.184 because, by the way, the

NOTE Confidence: 0.9576056

00:57:42.184 --> 00:57:43.305 debate is still going on

NOTE Confidence: 0.9576056

00:57:43.305 --> 00:57:44.460 on a national level.

NOTE Confidence: 0.9596912

00:57:45.099 --> 00:57:46.780 And last I heard, which

NOTE Confidence: 0.9596912

00:57:46.780 --> 00:57:47.980 was last week, there was

NOTE Confidence: 0.9596912

00:57:47.980 --> 00:57:49.280 no answer from the FDA.

NOTE Confidence: 0.9596912
00:57:49.500 --> 00:57:50.300 And I think they've been
NOTE Confidence: 0.9596912
00:57:50.300 --> 00:57:51.260 busy for the weeks and
NOTE Confidence: 0.9596912
00:57:51.260 --> 00:57:52.700 so. So or maybe not.
NOTE Confidence: 0.9596912
00:57:52.700 --> 00:57:53.580 Maybe they don't have much
NOTE Confidence: 0.9596912
00:57:53.580 --> 00:57:54.880 to do. I don't know.
NOTE Confidence: 0.9596912
00:57:54.940 --> 00:57:55.820 But the point is this
NOTE Confidence: 0.9596912
00:57:55.820 --> 00:57:57.339 is an ongoing question that
NOTE Confidence: 0.9596912
00:57:57.339 --> 00:57:58.720 that we as an academic
NOTE Confidence: 0.9596912
00:57:58.859 --> 00:58:00.535 community and we as a
NOTE Confidence: 0.9596912
00:58:00.535 --> 00:58:01.035 society
NOTE Confidence: 0.9978072
00:58:01.815 --> 00:58:03.655 need to face before we
NOTE Confidence: 0.9978072
00:58:03.655 --> 00:58:04.795 start putting babies
NOTE Confidence: 0.98276085
00:58:05.095 --> 00:58:06.775 on the artificial womb. Now
NOTE Confidence: 0.98276085
00:58:06.775 --> 00:58:07.815 I wanna hear from you.
NOTE Confidence: 0.98276085
00:58:07.815 --> 00:58:09.355 Sarah, you're in charge.
NOTE Confidence: 0.9990821

00:58:09.655 --> 00:58:10.875 Thank you very much.
NOTE Confidence: 0.8993729

00:58:14.600 --> 00:58:15.400 Alright. Thank you. Before I
NOTE Confidence: 0.8993729

00:58:15.400 --> 00:58:16.280 go over there, though Yeah.
NOTE Confidence: 0.8993729

00:58:16.280 --> 00:58:17.000 Let me grab it here.
NOTE Confidence: 0.8993729

00:58:17.080 --> 00:58:18.520 Some high technology. No. I'm
NOTE Confidence: 0.8993729

00:58:18.520 --> 00:58:19.420 gonna do this.
NOTE Confidence: 0.94378656

00:58:20.040 --> 00:58:20.540 See?
NOTE Confidence: 0.65389186

00:58:21.480 --> 00:58:22.440 You know, what? Going the
NOTE Confidence: 0.65389186

00:58:22.440 --> 00:58:23.180 wrong way.
NOTE Confidence: 0.8901638

00:58:23.480 --> 00:58:24.680 This only take about twenty
NOTE Confidence: 0.8901638

00:58:24.680 --> 00:58:26.200 minutes, so sit tight. Alright.
NOTE Confidence: 0.8901638

00:58:26.200 --> 00:58:27.000 Well, I'm gonna pull up
NOTE Confidence: 0.8901638

00:58:27.000 --> 00:58:27.880 that chair. You go where
NOTE Confidence: 0.8901638

00:58:27.880 --> 00:58:28.760 you're gonna time. That's where
NOTE Confidence: 0.8901638

00:58:28.760 --> 00:58:29.660 I'm gonna sit.
NOTE Confidence: 0.98161507

00:58:31.985 --> 00:58:32.865 On the table. And I'm

NOTE Confidence: 0.98161507
00:58:33.025 --> 00:58:33.825 Otherwise, they can't see me.
NOTE Confidence: 0.98161507
00:58:33.825 --> 00:58:35.345 I'm too short. Okay. I'll
NOTE Confidence: 0.98161507
00:58:35.345 --> 00:58:36.165 pull it around.
NOTE Confidence: 0.92106956
00:58:39.105 --> 00:58:40.245 Bear with me here.
NOTE Confidence: 0.99375844
00:58:42.970 --> 00:58:43.450 Alright.
NOTE Confidence: 0.99360144
00:58:44.010 --> 00:58:44.750 Any questions
NOTE Confidence: 0.9980451
00:58:45.130 --> 00:58:46.090 to start us off in
NOTE Confidence: 0.9980451
00:58:46.090 --> 00:58:46.750 the audience?
NOTE Confidence: 0.9848155
00:58:47.210 --> 00:58:47.850 Certainly, we
NOTE Confidence: 0.73801094
00:58:48.650 --> 00:58:49.790 Got questions there?
NOTE Confidence: 0.8277143
00:58:50.090 --> 00:58:50.890 Okay. So you can you
NOTE Confidence: 0.8277143
00:58:50.890 --> 00:58:52.650 can share with the with
NOTE Confidence: 0.8277143
00:58:52.650 --> 00:58:53.930 the Great. She'll read the
NOTE Confidence: 0.8277143
00:58:53.930 --> 00:58:55.530 ones that she wants to
NOTE Confidence: 0.8277143
00:58:55.530 --> 00:58:56.845 leave. And I wanna hear
NOTE Confidence: 0.8277143

00:58:56.845 --> 00:58:57.885 you. Which is that one?
NOTE Confidence: 0.8277143

00:58:57.885 --> 00:58:58.845 Alright. Well, we'll start from
NOTE Confidence: 0.8277143

00:58:58.845 --> 00:58:59.885 the Zoom. Let's start with
NOTE Confidence: 0.8277143

00:58:59.885 --> 00:59:00.765 the audience, and then,
NOTE Confidence: 0.7126854

00:59:01.245 --> 00:59:02.365 I I didn't came out
NOTE Confidence: 0.7126854

00:59:02.365 --> 00:59:02.945 in the.
NOTE Confidence: 0.98529553

00:59:04.125 --> 00:59:05.085 I I didn't think we
NOTE Confidence: 0.98529553

00:59:05.085 --> 00:59:06.285 had any takers, but if
NOTE Confidence: 0.98529553

00:59:06.285 --> 00:59:07.825 there is a taker alright.
NOTE Confidence: 0.9624828

00:59:09.325 --> 00:59:10.385 Doctor Hughes.
NOTE Confidence: 0.99562705

00:59:11.580 --> 00:59:12.320 Thank you,
NOTE Confidence: 0.9420428

00:59:12.700 --> 00:59:13.200 sir.
NOTE Confidence: 0.9018069

00:59:14.780 --> 00:59:15.520 Would you,
NOTE Confidence: 0.99930567

00:59:17.420 --> 00:59:18.000 mind considering
NOTE Confidence: 0.98719156

00:59:19.260 --> 00:59:21.200 or thinking with us about
NOTE Confidence: 0.8562755

00:59:21.980 --> 00:59:22.480 cost?

NOTE Confidence: 0.998698
00:59:23.100 --> 00:59:23.600 And
NOTE Confidence: 0.99543095
00:59:23.994 --> 00:59:25.435 does that figure into the
NOTE Confidence: 0.99543095
00:59:25.435 --> 00:59:26.335 harm calculation?
NOTE Confidence: 0.9790614
00:59:26.875 --> 00:59:28.795 And if so, how? And
NOTE Confidence: 0.9790614
00:59:28.795 --> 00:59:29.994 it's not any different from
NOTE Confidence: 0.9790614
00:59:29.994 --> 00:59:31.675 lots of other technologies that
NOTE Confidence: 0.9790614
00:59:31.675 --> 00:59:32.734 that are under development
NOTE Confidence: 0.98785394
00:59:33.675 --> 00:59:34.635 when we have all these
NOTE Confidence: 0.98785394
00:59:34.635 --> 00:59:35.135 considerations
NOTE Confidence: 0.9996105
00:59:35.755 --> 00:59:36.255 about
NOTE Confidence: 0.94594795
00:59:37.195 --> 00:59:38.655 lack of equity and
NOTE Confidence: 0.90200263
00:59:40.210 --> 00:59:41.250 and issues. Thank you. Thank
NOTE Confidence: 0.90200263
00:59:41.250 --> 00:59:43.010 you, sir. So Yeah. What
NOTE Confidence: 0.90200263
00:59:43.010 --> 00:59:44.530 do you think? Great. Am
NOTE Confidence: 0.90200263
00:59:44.530 --> 00:59:45.303 I on? What do you
NOTE Confidence: 0.90200263

00:59:45.303 --> 00:59:45.970 think? Hear him. Is that
NOTE Confidence: 0.90200263

00:59:45.970 --> 00:59:47.330 working? Yep. So it's a
NOTE Confidence: 0.90200263

00:59:47.330 --> 00:59:49.270 great question about cost. Right?
NOTE Confidence: 0.90200263

00:59:49.410 --> 00:59:50.850 A cost is not meaningless
NOTE Confidence: 0.90200263

00:59:50.850 --> 00:59:51.350 here,
NOTE Confidence: 0.9963601

00:59:52.845 --> 00:59:54.365 and it's very hard to
NOTE Confidence: 0.9963601

00:59:54.365 --> 00:59:56.125 figure out. So this is
NOTE Confidence: 0.9963601

00:59:56.125 --> 00:59:57.105 gonna be expensive
NOTE Confidence: 0.9432252

00:59:57.805 --> 00:59:59.425 just as ECMO is expensive.
NOTE Confidence: 0.98889697

01:00:00.205 --> 01:00:01.645 Here's the thing. We play
NOTE Confidence: 0.98889697

01:00:01.645 --> 01:00:02.465 in neonatology
NOTE Confidence: 0.98710406

01:00:03.165 --> 01:00:04.710 with very high stakes, which
NOTE Confidence: 0.98710406

01:00:04.710 --> 01:00:05.510 is to say if we
NOTE Confidence: 0.98710406

01:00:05.510 --> 01:00:06.390 do a good job, we
NOTE Confidence: 0.98710406

01:00:06.390 --> 01:00:07.910 just bought somebody eighty years
NOTE Confidence: 0.98710406

01:00:07.910 --> 01:00:08.890 or ninety years.

NOTE Confidence: 0.9996754
01:00:10.230 --> 01:00:10.730 Now
NOTE Confidence: 0.9981652
01:00:11.349 --> 01:00:12.869 if we prevent eighty or
NOTE Confidence: 0.9981652
01:00:12.869 --> 01:00:14.570 ninety years of severe disability
NOTE Confidence: 0.9981652
01:00:14.710 --> 01:00:15.690 with this technology,
NOTE Confidence: 0.98365796
01:00:16.230 --> 01:00:18.070 that's a colossal savings. So,
NOTE Confidence: 0.98365796
01:00:18.070 --> 01:00:19.609 yes, there were high costs.
NOTE Confidence: 0.98365796
01:00:19.835 --> 01:00:20.875 In the end, is this
NOTE Confidence: 0.98365796
01:00:20.875 --> 01:00:22.875 gonna cost money or save
NOTE Confidence: 0.98365796
01:00:22.875 --> 01:00:23.994 money? I don't know the
NOTE Confidence: 0.98365796
01:00:23.994 --> 01:00:25.115 answer to that. It's a
NOTE Confidence: 0.98365796
01:00:25.115 --> 01:00:25.615 consideration.
NOTE Confidence: 0.99828255
01:00:26.315 --> 01:00:26.815 But
NOTE Confidence: 0.9237348
01:00:27.115 --> 01:00:28.634 the this gets to the
NOTE Confidence: 0.9237348
01:00:28.634 --> 01:00:29.914 point, and, Jack, I'm glad
NOTE Confidence: 0.9237348
01:00:29.914 --> 01:00:31.434 you raised it. Because as
NOTE Confidence: 0.9237348

01:00:31.434 --> 01:00:32.494 we're having this
NOTE Confidence: 0.95173043

01:00:32.875 --> 01:00:34.634 national dialogue, I hope, about
NOTE Confidence: 0.95173043

01:00:34.634 --> 01:00:35.970 this, that's gotta be one
NOTE Confidence: 0.95173043

01:00:35.970 --> 01:00:36.890 of the things we talk
NOTE Confidence: 0.95173043

01:00:36.890 --> 01:00:38.350 about. Because there are people
NOTE Confidence: 0.95173043

01:00:38.410 --> 01:00:39.850 way smarter than me, like
NOTE Confidence: 0.95173043

01:00:39.850 --> 01:00:41.050 you, who can actually sit
NOTE Confidence: 0.95173043

01:00:41.050 --> 01:00:42.650 down and let's run some
NOTE Confidence: 0.95173043

01:00:42.650 --> 01:00:43.150 scenarios.
NOTE Confidence: 0.9916793

01:00:43.450 --> 01:00:44.650 Let's run some numbers and
NOTE Confidence: 0.9916793

01:00:44.650 --> 01:00:45.690 do our best to figure
NOTE Confidence: 0.9916793

01:00:45.690 --> 01:00:46.730 out what this is gonna
NOTE Confidence: 0.9916793

01:00:46.730 --> 01:00:47.930 do. He talked about harm
NOTE Confidence: 0.9916793

01:00:47.930 --> 01:00:48.725 to others. So, of course,
NOTE Confidence: 0.9916793

01:00:48.725 --> 01:00:49.925 what he's talking about is,
NOTE Confidence: 0.9916793

01:00:49.925 --> 01:00:50.965 right, is if we can

NOTE Confidence: 0.9916793
01:00:50.965 --> 01:00:52.245 save this baby for the
NOTE Confidence: 0.9916793
01:00:52.245 --> 01:00:53.205 same money that we could
NOTE Confidence: 0.9916793
01:00:53.205 --> 01:00:53.865 have used,
NOTE Confidence: 0.9989126
01:00:54.245 --> 01:00:55.365 to provide free lunch to
NOTE Confidence: 0.9989126
01:00:55.365 --> 01:00:56.425 ten thousand children,
NOTE Confidence: 0.99913615
01:00:56.965 --> 01:00:58.245 then maybe that wasn't the
NOTE Confidence: 0.99913615
01:00:58.245 --> 01:00:59.205 right way to spend that
NOTE Confidence: 0.99913615
01:00:59.205 --> 01:00:59.705 money
NOTE Confidence: 0.96492875
01:01:00.085 --> 01:01:00.965 if that money would have
NOTE Confidence: 0.96492875
01:01:00.965 --> 01:01:02.325 been spent providing free lunch
NOTE Confidence: 0.96492875
01:01:02.325 --> 01:01:03.960 to ten thousand children. So
NOTE Confidence: 0.96492875
01:01:03.960 --> 01:01:05.160 cost is important. I'm right
NOTE Confidence: 0.96492875
01:01:05.160 --> 01:01:06.040 there with you, Jack, but
NOTE Confidence: 0.96492875
01:01:06.040 --> 01:01:07.180 I would not assume
NOTE Confidence: 0.97062397
01:01:07.480 --> 01:01:09.080 that that's a deal breaker,
NOTE Confidence: 0.97062397

01:01:09.080 --> 01:01:10.940 one. The second thing is,
NOTE Confidence: 0.98590267

01:01:11.720 --> 01:01:13.180 again, speaking as a neonatologist,
NOTE Confidence: 0.98590267

01:01:13.400 --> 01:01:14.760 so you know my bias
NOTE Confidence: 0.98590267

01:01:14.760 --> 01:01:15.720 and what I wanna what
NOTE Confidence: 0.98590267

01:01:15.720 --> 01:01:16.920 I spend my life doing
NOTE Confidence: 0.98590267

01:01:16.920 --> 01:01:18.119 here, is that what we
NOTE Confidence: 0.98590267

01:01:18.119 --> 01:01:19.340 spend on these babies
NOTE Confidence: 0.99358416

01:01:19.855 --> 01:01:21.295 is a rounding error compared
NOTE Confidence: 0.99358416

01:01:21.295 --> 01:01:22.015 to what we spend on
NOTE Confidence: 0.99358416

01:01:22.015 --> 01:01:22.995 people in their nineties.
NOTE Confidence: 0.9289868

01:01:23.615 --> 01:01:24.115 So,
NOTE Confidence: 0.8836155

01:01:24.655 --> 01:01:26.115 again, speaking as an neonatologist,
NOTE Confidence: 0.9788741

01:01:26.415 --> 01:01:27.695 if you're coming for somebody
NOTE Confidence: 0.9788741

01:01:27.695 --> 01:01:28.595 because of cost,
NOTE Confidence: 0.99524266

01:01:28.975 --> 01:01:30.095 don't come for the babies
NOTE Confidence: 0.99524266

01:01:30.095 --> 01:01:30.595 first.

NOTE Confidence: 0.9980207
01:01:30.895 --> 01:01:31.395 Okay?
NOTE Confidence: 0.9243244
01:01:32.095 --> 01:01:33.535 That sounds great and heroic
NOTE Confidence: 0.9243244
01:01:33.535 --> 01:01:34.195 and dramatic.
NOTE Confidence: 0.9433608
01:01:34.520 --> 01:01:35.480 Fact is he's got an
NOTE Confidence: 0.9433608
01:01:35.480 --> 01:01:37.579 excellent point that that there
NOTE Confidence: 0.9433608
01:01:37.640 --> 01:01:38.460 is no
NOTE Confidence: 0.96630436
01:01:39.079 --> 01:01:40.440 we don't have unlimited funds,
NOTE Confidence: 0.96630436
01:01:40.440 --> 01:01:41.319 and we have to use
NOTE Confidence: 0.96630436
01:01:41.319 --> 01:01:42.680 the money wisely. And when
NOTE Confidence: 0.96630436
01:01:42.680 --> 01:01:44.359 someone's gotta think about how
NOTE Confidence: 0.96630436
01:01:44.359 --> 01:01:45.560 this might affect our our
NOTE Confidence: 0.96630436
01:01:45.560 --> 01:01:47.655 financial situation. Yes. Yeah. I
NOTE Confidence: 0.96630436
01:01:47.655 --> 01:01:48.615 I just wanted to say
NOTE Confidence: 0.96630436
01:01:48.615 --> 01:01:50.135 that I'm I'm glad we
NOTE Confidence: 0.96630436
01:01:50.135 --> 01:01:51.655 went to the moon, and,
NOTE Confidence: 0.96630436

01:01:51.975 --> 01:01:52.695 I think we ought to
NOTE Confidence: 0.96630436

01:01:52.695 --> 01:01:53.435 keep trying.
NOTE Confidence: 0.95040417

01:01:56.855 --> 01:01:58.375 Other questions from the audience.
NOTE Confidence: 0.95040417

01:01:58.375 --> 01:01:58.875 Yes.
NOTE Confidence: 0.99851656

01:02:03.960 --> 01:02:05.660 Hi. You had a slide
NOTE Confidence: 0.99851656

01:02:05.720 --> 01:02:06.780 earlier connecting
NOTE Confidence: 0.91389143

01:02:07.080 --> 01:02:08.680 this Hold that. Hold that.
NOTE Confidence: 0.91389143

01:02:08.680 --> 01:02:09.560 It's close to me. Hi.
NOTE Confidence: 0.91389143

01:02:09.560 --> 01:02:10.600 It's not you. It's me.
NOTE Confidence: 0.91389143

01:02:10.600 --> 01:02:11.320 I don't hear what go
NOTE Confidence: 0.91389143

01:02:11.320 --> 01:02:12.360 ahead. You had a slide
NOTE Confidence: 0.91389143

01:02:12.360 --> 01:02:14.600 earlier connecting this artificial womb
NOTE Confidence: 0.91389143

01:02:14.600 --> 01:02:15.100 technology,
NOTE Confidence: 0.9952494

01:02:16.200 --> 01:02:18.015 to abortion somehow. Could you
NOTE Confidence: 0.9952494

01:02:18.255 --> 01:02:19.795 clarify the point you were
NOTE Confidence: 0.9148277

01:02:20.255 --> 01:02:21.694 making on this slide? Sure.

NOTE Confidence: 0.9148277
01:02:21.694 --> 01:02:22.734 So the the the point
NOTE Confidence: 0.9148277
01:02:22.734 --> 01:02:25.154 was that that that some
NOTE Confidence: 0.97802365
01:02:26.095 --> 01:02:26.914 have postulated,
NOTE Confidence: 0.98515034
01:02:27.535 --> 01:02:28.035 including,
NOTE Confidence: 0.9523268
01:02:28.575 --> 01:02:30.654 doctors Ravitzky and King and
NOTE Confidence: 0.9523268
01:02:30.654 --> 01:02:32.460 Scientific American, is that this
NOTE Confidence: 0.9523268
01:02:32.460 --> 01:02:34.940 could influence reproductive rights because
NOTE Confidence: 0.9523268
01:02:34.940 --> 01:02:36.060 a woman who, for example,
NOTE Confidence: 0.9523268
01:02:36.060 --> 01:02:37.660 says, I want to terminate
NOTE Confidence: 0.9523268
01:02:37.660 --> 01:02:38.619 because I don't wanna be
NOTE Confidence: 0.9523268
01:02:38.619 --> 01:02:40.380 pregnant anymore, then we as
NOTE Confidence: 0.9523268
01:02:40.380 --> 01:02:41.900 a society could say, okay.
NOTE Confidence: 0.9523268
01:02:41.900 --> 01:02:43.100 You don't wanna be pregnant.
NOTE Confidence: 0.9523268
01:02:43.100 --> 01:02:43.820 Then you have a c
NOTE Confidence: 0.9523268
01:02:43.820 --> 01:02:44.619 section, and we put the
NOTE Confidence: 0.9523268

01:02:44.619 --> 01:02:46.160 baby in the artificial womb.
NOTE Confidence: 0.96815413

01:02:46.695 --> 01:02:47.335 And so you had to
NOTE Confidence: 0.96815413

01:02:47.335 --> 01:02:48.295 have a c section even
NOTE Confidence: 0.96815413

01:02:48.295 --> 01:02:49.495 though you didn't want one.
NOTE Confidence: 0.96815413

01:02:49.495 --> 01:02:51.335 So in that way, among
NOTE Confidence: 0.96815413

01:02:51.335 --> 01:02:52.695 other ways, it could potentially
NOTE Confidence: 0.96815413

01:02:52.695 --> 01:02:54.455 limited reproductive rights. Now you
NOTE Confidence: 0.96815413

01:02:54.455 --> 01:02:55.735 may say, that's quite a
NOTE Confidence: 0.96815413

01:02:55.735 --> 01:02:57.015 stretch. You gotta understand that's
NOTE Confidence: 0.96815413

01:02:57.095 --> 01:02:58.375 we're bioethicists. We get paid
NOTE Confidence: 0.96815413

01:02:58.375 --> 01:02:59.415 to do these stretches. You
NOTE Confidence: 0.96815413

01:02:59.415 --> 01:03:00.375 know? And some people are
NOTE Confidence: 0.96815413

01:03:00.375 --> 01:03:01.830 saying, nope. Not a stretch.
NOTE Confidence: 0.96815413

01:03:01.830 --> 01:03:03.350 I mean, so all depends
NOTE Confidence: 0.96815413

01:03:03.350 --> 01:03:04.150 on who you are and
NOTE Confidence: 0.96815413

01:03:04.150 --> 01:03:05.030 how you view it, but

NOTE Confidence: 0.96815413
01:03:05.030 --> 01:03:05.990 that's the point they were
NOTE Confidence: 0.96815413
01:03:05.990 --> 01:03:06.490 making.
NOTE Confidence: 0.98403937
01:03:06.790 --> 01:03:07.590 Thank you. It's a good
NOTE Confidence: 0.98403937
01:03:07.590 --> 01:03:08.870 question. Can I ask a
NOTE Confidence: 0.98403937
01:03:08.870 --> 01:03:09.930 follow-up on that?
NOTE Confidence: 0.94791293
01:03:10.390 --> 01:03:11.130 Which is,
NOTE Confidence: 0.99684316
01:03:11.430 --> 01:03:12.870 in your opinion, how much
NOTE Confidence: 0.99684316
01:03:12.870 --> 01:03:14.150 of a stretch is that
NOTE Confidence: 0.99684316
01:03:14.150 --> 01:03:16.150 versus how how concerning of
NOTE Confidence: 0.99684316
01:03:16.150 --> 01:03:17.535 a consideration is that?
NOTE Confidence: 0.9812606
01:03:22.335 --> 01:03:23.615 Not that my opinion is
NOTE Confidence: 0.9812606
01:03:23.615 --> 01:03:24.895 any more informed than anyone
NOTE Confidence: 0.9812606
01:03:24.895 --> 01:03:25.795 else in the room.
NOTE Confidence: 0.9784741
01:03:26.174 --> 01:03:27.775 But since you asked, fair
NOTE Confidence: 0.9784741
01:03:27.775 --> 01:03:28.815 enough, you hold my feet
NOTE Confidence: 0.9784741

01:03:28.815 --> 01:03:29.555 to the fire.
NOTE Confidence: 0.98220634
01:03:29.980 --> 01:03:30.780 If you asked me that
NOTE Confidence: 0.98220634
01:03:30.780 --> 01:03:32.240 question six months ago,
NOTE Confidence: 0.974823
01:03:32.620 --> 01:03:33.500 I would say to you
NOTE Confidence: 0.974823
01:03:33.500 --> 01:03:35.020 it's not a risk or
NOTE Confidence: 0.974823
01:03:35.020 --> 01:03:36.380 it's a minimal risk. I
NOTE Confidence: 0.974823
01:03:36.380 --> 01:03:37.520 would say to you now
NOTE Confidence: 0.96722984
01:03:37.900 --> 01:03:38.880 that I think
NOTE Confidence: 0.9702784
01:03:39.180 --> 01:03:40.780 in New Haven, Connecticut, it
NOTE Confidence: 0.9702784
01:03:40.780 --> 01:03:42.460 is still an extremely low
NOTE Confidence: 0.9702784
01:03:42.460 --> 01:03:44.105 risk, but not a zero
NOTE Confidence: 0.9702784
01:03:44.105 --> 01:03:45.785 risk. I would say that
NOTE Confidence: 0.9702784
01:03:45.785 --> 01:03:47.224 in many other states, there
NOTE Confidence: 0.9702784
01:03:47.224 --> 01:03:48.505 may be a somewhat higher
NOTE Confidence: 0.9702784
01:03:48.505 --> 01:03:49.325 risk, particularly
NOTE Confidence: 0.9263746
01:03:50.025 --> 01:03:50.905 when it gets back to

NOTE Confidence: 0.9263746

01:03:50.905 --> 01:03:52.665 moral status because people are

NOTE Confidence: 0.9263746

01:03:52.665 --> 01:03:53.865 arguing over the fetus who

NOTE Confidence: 0.9263746

01:03:53.865 --> 01:03:54.984 had the same moral status

NOTE Confidence: 0.9263746

01:03:54.984 --> 01:03:56.185 as a baby. So it's

NOTE Confidence: 0.9263746

01:03:56.185 --> 01:03:57.145 less of a stretch for

NOTE Confidence: 0.9263746

01:03:57.145 --> 01:03:57.964 them ethically

NOTE Confidence: 0.96998906

01:03:58.460 --> 01:03:59.819 to say, well, we're gonna

NOTE Confidence: 0.96998906

01:03:59.819 --> 01:04:00.779 have this one person do

NOTE Confidence: 0.96998906

01:04:00.779 --> 01:04:01.579 this in order to save

NOTE Confidence: 0.96998906

01:04:01.579 --> 01:04:03.420 this other person's life if

NOTE Confidence: 0.96998906

01:04:03.420 --> 01:04:04.799 they have equal moral status.

NOTE Confidence: 0.96998906

01:04:04.859 --> 01:04:06.140 Now mind you, even that

NOTE Confidence: 0.96998906

01:04:06.140 --> 01:04:07.119 for most bioethicists

NOTE Confidence: 0.976434

01:04:07.420 --> 01:04:08.619 is a bridge too far

NOTE Confidence: 0.976434

01:04:08.619 --> 01:04:09.500 because we say, well, you

NOTE Confidence: 0.976434

01:04:09.500 --> 01:04:11.019 don't force people to have
NOTE Confidence: 0.976434

01:04:11.180 --> 01:04:12.380 to donate their bone marrow
NOTE Confidence: 0.976434

01:04:12.380 --> 01:04:13.440 to save their brother.
NOTE Confidence: 0.9892539

01:04:13.805 --> 01:04:14.525 Why would you force a
NOTE Confidence: 0.9892539

01:04:14.525 --> 01:04:15.325 woman to have a c
NOTE Confidence: 0.9892539

01:04:15.325 --> 01:04:16.625 section to save her baby?
NOTE Confidence: 0.98426336

01:04:17.485 --> 01:04:18.525 But as you know, as
NOTE Confidence: 0.98426336

01:04:18.525 --> 01:04:19.485 everybody in the room knows,
NOTE Confidence: 0.98426336

01:04:19.485 --> 01:04:21.005 this is heated stuff. This
NOTE Confidence: 0.98426336

01:04:21.005 --> 01:04:22.605 is complicated stuff. So I
NOTE Confidence: 0.98426336

01:04:22.605 --> 01:04:24.445 don't think that they are
NOTE Confidence: 0.98426336

01:04:24.445 --> 01:04:25.965 crazy to posit it as
NOTE Confidence: 0.98426336

01:04:25.965 --> 01:04:26.625 a possibility.
NOTE Confidence: 0.9988375

01:04:27.245 --> 01:04:28.045 I don't think it's a
NOTE Confidence: 0.9988375

01:04:28.045 --> 01:04:30.430 high possibility today, but these
NOTE Confidence: 0.9988375

01:04:30.430 --> 01:04:31.570 are uncertain times.

NOTE Confidence: 0.98459744
01:04:34.990 --> 01:04:35.950 Thanks a lot for your
NOTE Confidence: 0.98459744
01:04:35.950 --> 01:04:37.410 talk. Thank you.
NOTE Confidence: 0.96778107
01:04:38.670 --> 01:04:39.390 Question, I you know, I
NOTE Confidence: 0.96778107
01:04:39.390 --> 01:04:40.430 think when you're when you're
NOTE Confidence: 0.96778107
01:04:40.430 --> 01:04:42.050 considering the utility of artificial
NOTE Confidence: 0.96778107
01:04:42.110 --> 01:04:43.390 wound technology, the other side
NOTE Confidence: 0.96778107
01:04:43.390 --> 01:04:44.530 of the coin is,
NOTE Confidence: 0.9693952
01:04:44.945 --> 01:04:46.225 you know, how bad is
NOTE Confidence: 0.9693952
01:04:46.225 --> 01:04:47.905 the ventilator induced lung injury.
NOTE Confidence: 0.9693952
01:04:47.905 --> 01:04:49.585 And just wondering from a
NOTE Confidence: 0.9693952
01:04:49.585 --> 01:04:50.085 neonatology
NOTE Confidence: 0.83543295
01:04:50.385 --> 01:04:51.445 perspective if,
NOTE Confidence: 0.99520504
01:04:53.744 --> 01:04:54.244 if
NOTE Confidence: 0.99123967
01:04:54.705 --> 01:04:56.385 you think that with improvements
NOTE Confidence: 0.99123967
01:04:56.385 --> 01:04:57.825 in ventilator technology, the rates
NOTE Confidence: 0.99123967

01:04:57.825 --> 01:04:59.285 of BPD have gotten better
NOTE Confidence: 0.9431019

01:04:59.720 --> 01:05:00.779 and or if you anticipate
NOTE Confidence: 0.9431019

01:05:00.839 --> 01:05:02.359 that happening or changing at
NOTE Confidence: 0.9431019

01:05:02.359 --> 01:05:03.480 all sort of in the
NOTE Confidence: 0.9431019

01:05:03.480 --> 01:05:04.539 foreseeable future?
NOTE Confidence: 0.9831415

01:05:05.240 --> 01:05:06.039 Well, I think that's a
NOTE Confidence: 0.9831415

01:05:06.039 --> 01:05:07.160 great question. And the answer
NOTE Confidence: 0.9831415

01:05:07.160 --> 01:05:08.440 is we've certainly gotten better
NOTE Confidence: 0.9831415

01:05:08.440 --> 01:05:09.400 and smarter about how we
NOTE Confidence: 0.9831415

01:05:09.400 --> 01:05:10.920 use ventilators, how we use
NOTE Confidence: 0.9831415

01:05:10.920 --> 01:05:11.420 oxygen.
NOTE Confidence: 0.97219294

01:05:12.279 --> 01:05:13.640 So, yeah, there's things we
NOTE Confidence: 0.97219294

01:05:13.640 --> 01:05:15.605 can do with, high frequency
NOTE Confidence: 0.97219294

01:05:15.605 --> 01:05:17.365 ventilation, potentially with jet ventilation.
NOTE Confidence: 0.97219294

01:05:17.365 --> 01:05:18.405 There's things we can do
NOTE Confidence: 0.97219294

01:05:18.405 --> 01:05:19.625 to decrease the likelihood

NOTE Confidence: 0.95583385
01:05:20.005 --> 01:05:21.204 of severe damage to the
NOTE Confidence: 0.95583385
01:05:21.204 --> 01:05:21.704 lungs.
NOTE Confidence: 0.96097475
01:05:22.724 --> 01:05:23.525 And that has to be
NOTE Confidence: 0.96097475
01:05:23.525 --> 01:05:25.285 figured in. Because, for example,
NOTE Confidence: 0.96097475
01:05:25.285 --> 01:05:26.405 if someone is just using
NOTE Confidence: 0.96097475
01:05:26.405 --> 01:05:27.765 a conventional ventilator and they
NOTE Confidence: 0.96097475
01:05:27.765 --> 01:05:28.990 say, there's just too high
NOTE Confidence: 0.96097475
01:05:28.990 --> 01:05:30.110 a risk of damaging these
NOTE Confidence: 0.96097475
01:05:30.110 --> 01:05:31.790 lungs. So, you know, at
NOTE Confidence: 0.96097475
01:05:31.790 --> 01:05:33.070 this gestation age, so we're
NOTE Confidence: 0.96097475
01:05:33.070 --> 01:05:34.130 gonna go with the artificial
NOTE Confidence: 0.96097475
01:05:34.270 --> 01:05:34.770 womb.
NOTE Confidence: 0.92243224
01:05:35.550 --> 01:05:36.510 Someone might say, well, hang
NOTE Confidence: 0.92243224
01:05:36.510 --> 01:05:37.710 on. Why don't you try
NOTE Confidence: 0.92243224
01:05:37.710 --> 01:05:38.830 a high frequency or now,
NOTE Confidence: 0.92243224

01:05:38.830 --> 01:05:40.290 Steve, you again, and Sam?
NOTE Confidence: 0.92243224

01:05:40.365 --> 01:05:41.325 I mean, with the jet,
NOTE Confidence: 0.92243224

01:05:41.325 --> 01:05:42.285 with these tiny babies, are
NOTE Confidence: 0.92243224

01:05:42.285 --> 01:05:43.485 you having some success with
NOTE Confidence: 0.92243224

01:05:43.485 --> 01:05:44.145 the jet
NOTE Confidence: 0.9619169

01:05:44.685 --> 01:05:45.985 in terms of preventing BPD
NOTE Confidence: 0.9619169

01:05:46.045 --> 01:05:47.005 too soon to really answer
NOTE Confidence: 0.9619169

01:05:47.005 --> 01:05:47.744 that question?
NOTE Confidence: 0.93223757

01:05:48.365 --> 01:05:50.125 High frequency compared to Say
NOTE Confidence: 0.93223757

01:05:50.125 --> 01:05:50.625 again?
NOTE Confidence: 0.9452459

01:05:50.925 --> 01:05:52.685 High frequency compared to conventional
NOTE Confidence: 0.9452459

01:05:52.685 --> 01:05:52.925 ventil
NOTE Confidence: 0.95353377

01:05:53.725 --> 01:05:55.310 High frequency compared to conventional
NOTE Confidence: 0.95353377

01:05:55.310 --> 01:05:56.590 ventilation hasn't really shown a
NOTE Confidence: 0.95353377

01:05:56.590 --> 01:05:57.790 reduction in BPD. Actually, in
NOTE Confidence: 0.95353377

01:05:57.790 --> 01:05:59.310 the last ten years, BPD

NOTE Confidence: 0.95353377
01:05:59.310 --> 01:06:00.350 has not really budged in
NOTE Confidence: 0.95353377
01:06:00.350 --> 01:06:01.470 terms of the frequency of
NOTE Confidence: 0.95353377
01:06:01.470 --> 01:06:02.510 the outcome. More babies are
NOTE Confidence: 0.95353377
01:06:02.510 --> 01:06:04.430 surviving, some more surviving to
NOTE Confidence: 0.95353377
01:06:04.430 --> 01:06:05.230 the the age at which
NOTE Confidence: 0.95353377
01:06:05.230 --> 01:06:06.510 they develop BPD. So I'd
NOTE Confidence: 0.95353377
01:06:06.510 --> 01:06:08.085 say if if anything, BPD
NOTE Confidence: 0.95353377
01:06:08.105 --> 01:06:09.925 is static or or climbing.
NOTE Confidence: 0.9705139
01:06:10.385 --> 01:06:11.425 So you were asking, why
NOTE Confidence: 0.9705139
01:06:11.425 --> 01:06:12.785 can't I bring a national
NOTE Confidence: 0.9705139
01:06:12.785 --> 01:06:14.065 expert on BPD to these
NOTE Confidence: 0.9705139
01:06:14.065 --> 01:06:15.185 talks? The answer is, hey,
NOTE Confidence: 0.9705139
01:06:15.185 --> 01:06:16.085 man. I did.
NOTE Confidence: 0.917039
01:06:16.385 --> 01:06:17.585 Okay. And I did. That's
NOTE Confidence: 0.917039
01:06:17.585 --> 01:06:18.785 doctor Sam Gentle. He knows
NOTE Confidence: 0.917039

01:06:18.785 --> 01:06:20.245 where of he speaks. Now
NOTE Confidence: 0.95867467

01:06:21.119 --> 01:06:22.079 that doesn't mean we can't
NOTE Confidence: 0.95867467

01:06:22.079 --> 01:06:23.599 get better at it. And
NOTE Confidence: 0.95867467

01:06:23.599 --> 01:06:24.799 so maybe things we could
NOTE Confidence: 0.95867467

01:06:24.799 --> 01:06:26.400 do. And it's that gets
NOTE Confidence: 0.95867467

01:06:26.400 --> 01:06:28.480 back to remember that second,
NOTE Confidence: 0.95867467

01:06:28.799 --> 01:06:30.000 point of the common rule,
NOTE Confidence: 0.95867467

01:06:30.000 --> 01:06:31.519 which was the thing we're
NOTE Confidence: 0.95867467

01:06:31.519 --> 01:06:32.420 trying to use
NOTE Confidence: 0.99866456

01:06:33.065 --> 01:06:34.905 has to be better than
NOTE Confidence: 0.99866456

01:06:34.905 --> 01:06:36.365 the best available alternatives.
NOTE Confidence: 0.96629685

01:06:36.985 --> 01:06:37.945 So it may be there's
NOTE Confidence: 0.96629685

01:06:37.945 --> 01:06:39.065 other ways we could ventilate
NOTE Confidence: 0.96629685

01:06:39.065 --> 01:06:40.125 the kid. But, frankly,
NOTE Confidence: 0.9665549

01:06:40.505 --> 01:06:42.185 BPD, as difficult as it
NOTE Confidence: 0.9665549

01:06:42.185 --> 01:06:42.685 is,

NOTE Confidence: 0.98848337
01:06:43.305 --> 01:06:44.425 it I don't think it
NOTE Confidence: 0.98848337
01:06:44.425 --> 01:06:46.605 scares people as much as
NOTE Confidence: 0.98848337
01:06:46.665 --> 01:06:47.485 the severe,
NOTE Confidence: 0.95361304
01:06:48.320 --> 01:06:48.820 neurologic,
NOTE Confidence: 0.99639827
01:06:49.120 --> 01:06:49.620 neurodevelopmental
NOTE Confidence: 0.9392435
01:06:50.000 --> 01:06:50.500 impairment
NOTE Confidence: 0.9596588
01:06:50.800 --> 01:06:51.520 that so many of these
NOTE Confidence: 0.9596588
01:06:51.520 --> 01:06:52.400 kids have left with. And,
NOTE Confidence: 0.9596588
01:06:52.400 --> 01:06:53.760 of course, the the the
NOTE Confidence: 0.9596588
01:06:53.760 --> 01:06:55.200 mortality as well. But it's
NOTE Confidence: 0.9596588
01:06:55.280 --> 01:06:57.520 BPD remains terribly important. Some
NOTE Confidence: 0.9596588
01:06:57.520 --> 01:06:58.560 people spend their lives trying
NOTE Confidence: 0.9596588
01:06:58.560 --> 01:06:59.460 to work it out.
NOTE Confidence: 0.9822933
01:07:00.115 --> 01:07:01.235 It's terribly important. There may
NOTE Confidence: 0.9822933
01:07:01.235 --> 01:07:02.035 be ways to make it
NOTE Confidence: 0.9822933

01:07:02.035 --> 01:07:02.995 better. So that's a good
NOTE Confidence: 0.9822933

01:07:02.995 --> 01:07:04.295 point. That's a fair point.
NOTE Confidence: 0.977241

01:07:05.795 --> 01:07:06.915 Just not just not as
NOTE Confidence: 0.977241

01:07:06.915 --> 01:07:08.355 Sam pointed out that we
NOTE Confidence: 0.977241

01:07:08.355 --> 01:07:09.635 don't have that trick, in
NOTE Confidence: 0.977241

01:07:09.635 --> 01:07:11.075 our back pocket right yet.
NOTE Confidence: 0.977241

01:07:11.075 --> 01:07:12.515 Hey, doctor Mercurio. Nice to
NOTE Confidence: 0.977241

01:07:12.515 --> 01:07:13.635 see you. Happy twenty twenty
NOTE Confidence: 0.977241

01:07:13.635 --> 01:07:14.135 five.
NOTE Confidence: 0.9598055

01:07:15.630 --> 01:07:16.910 It's not really a question,
NOTE Confidence: 0.9598055

01:07:16.910 --> 01:07:17.789 more of a more of
NOTE Confidence: 0.9598055

01:07:17.789 --> 01:07:18.910 a comment. So going off
NOTE Confidence: 0.9598055

01:07:18.910 --> 01:07:19.950 the concern about,
NOTE Confidence: 0.98458767

01:07:21.869 --> 01:07:23.410 abortion laws and,
NOTE Confidence: 0.9717356

01:07:24.029 --> 01:07:25.470 the current political status of
NOTE Confidence: 0.9717356

01:07:25.470 --> 01:07:26.589 that and the two Harvard

NOTE Confidence: 0.9717356
01:07:26.589 --> 01:07:27.789 physicians saying this might not
NOTE Confidence: 0.9717356
01:07:27.789 --> 01:07:28.895 be the right time. I
NOTE Confidence: 0.9717356
01:07:28.895 --> 01:07:29.694 think what I would say
NOTE Confidence: 0.9717356
01:07:29.694 --> 01:07:30.895 to that is abortion has
NOTE Confidence: 0.9717356
01:07:30.895 --> 01:07:32.655 been a contentious issue in
NOTE Confidence: 0.9717356
01:07:32.655 --> 01:07:34.035 our nation for for many
NOTE Confidence: 0.97188467
01:07:34.575 --> 01:07:35.775 maybe going on centuries, and
NOTE Confidence: 0.97188467
01:07:35.775 --> 01:07:36.734 that's not an argument that's
NOTE Confidence: 0.97188467
01:07:36.734 --> 01:07:38.015 gonna go away. So if
NOTE Confidence: 0.97188467
01:07:38.015 --> 01:07:39.714 you're waiting for political consensus
NOTE Confidence: 0.97188467
01:07:39.855 --> 01:07:41.635 to develop on fetal personhood
NOTE Confidence: 0.97188467
01:07:41.694 --> 01:07:42.194 or
NOTE Confidence: 0.9535871
01:07:42.540 --> 01:07:43.200 when consciousness
NOTE Confidence: 0.93659884
01:07:44.060 --> 01:07:45.420 has developed, that's not gonna
NOTE Confidence: 0.93659884
01:07:45.420 --> 01:07:47.100 happen. And so if you
NOTE Confidence: 0.93659884

01:07:47.100 --> 01:07:47.600 push,
NOTE Confidence: 0.95763206
01:07:49.180 --> 01:07:50.220 if you push if you
NOTE Confidence: 0.95763206
01:07:50.220 --> 01:07:51.260 use that as a reasoning
NOTE Confidence: 0.95763206
01:07:51.260 --> 01:07:51.660 to not,
NOTE Confidence: 0.9792487
01:07:52.940 --> 01:07:54.300 begin testing this, it's never
NOTE Confidence: 0.9792487
01:07:54.300 --> 01:07:55.340 gonna happen. You know? You're
NOTE Confidence: 0.9792487
01:07:55.340 --> 01:07:56.540 not gonna get fifty states
NOTE Confidence: 0.9792487
01:07:56.540 --> 01:07:57.440 to ever agree
NOTE Confidence: 0.9997081
01:07:58.015 --> 01:07:58.835 on on anything.
NOTE Confidence: 0.9997621
01:07:59.775 --> 01:08:00.915 Okay. Thank you.
NOTE Confidence: 0.9893837
01:08:06.015 --> 01:08:06.994 Oh, there we go.
NOTE Confidence: 0.99588233
01:08:11.559 --> 01:08:12.359 Hi. I'm not sure if
NOTE Confidence: 0.99588233
01:08:12.359 --> 01:08:13.000 you have an answer to
NOTE Confidence: 0.99588233
01:08:13.000 --> 01:08:14.039 this question, but I was
NOTE Confidence: 0.99588233
01:08:14.039 --> 01:08:14.539 wondering,
NOTE Confidence: 0.9694252
01:08:15.160 --> 01:08:16.600 just thinking about the FDA.

NOTE Confidence: 0.9694252

01:08:16.600 --> 01:08:18.300 Are there any other conversations

NOTE Confidence: 0.9694252

01:08:18.360 --> 01:08:19.800 happening in different countries of

NOTE Confidence: 0.9694252

01:08:19.800 --> 01:08:21.640 different regulatory agencies about this

NOTE Confidence: 0.9694252

01:08:21.640 --> 01:08:22.140 technology?

NOTE Confidence: 0.9109624

01:08:22.600 --> 01:08:24.280 Especially especially I'm thinking about

NOTE Confidence: 0.9109624

01:08:24.280 --> 01:08:24.780 other

NOTE Confidence: 0.97377354

01:08:25.104 --> 01:08:26.864 countries don't necessarily have this,

NOTE Confidence: 0.97377354

01:08:27.344 --> 01:08:29.025 like, reproductive rights really playing

NOTE Confidence: 0.97377354

01:08:29.025 --> 01:08:30.465 into that conversation, and it's

NOTE Confidence: 0.97377354

01:08:30.465 --> 01:08:31.344 a lot more secure, and

NOTE Confidence: 0.97377354

01:08:31.344 --> 01:08:32.625 that's not really a valid

NOTE Confidence: 0.97377354

01:08:32.625 --> 01:08:33.925 threat. So I'm just wondering

NOTE Confidence: 0.97377354

01:08:34.224 --> 01:08:35.264 That's a great question. I

NOTE Confidence: 0.97377354

01:08:35.264 --> 01:08:36.385 think some of this technology

NOTE Confidence: 0.97377354

01:08:36.385 --> 01:08:38.304 is actually being trialed, in

NOTE Confidence: 0.97377354

01:08:38.304 --> 01:08:38.804 Japan.
NOTE Confidence: 0.952928

01:08:40.090 --> 01:08:41.770 And I'm not personally familiar
NOTE Confidence: 0.952928

01:08:41.770 --> 01:08:43.210 with exactly what that conversation
NOTE Confidence: 0.952928

01:08:43.210 --> 01:08:44.010 is, but I wanna make
NOTE Confidence: 0.952928

01:08:44.010 --> 01:08:45.530 the point to to the
NOTE Confidence: 0.952928

01:08:45.530 --> 01:08:46.570 question the gentleman in the
NOTE Confidence: 0.952928

01:08:46.570 --> 01:08:47.450 last in the back asked,
NOTE Confidence: 0.952928

01:08:47.450 --> 01:08:48.489 which you which is relevant
NOTE Confidence: 0.952928

01:08:48.489 --> 01:08:49.710 to yours as well, was,
NOTE Confidence: 0.952928

01:08:49.850 --> 01:08:51.550 I've talked about this technology,
NOTE Confidence: 0.9598481

01:08:52.314 --> 01:08:54.074 the extend technology, which I
NOTE Confidence: 0.9598481

01:08:54.074 --> 01:08:54.974 think is fascinating.
NOTE Confidence: 0.9188876

01:08:55.275 --> 01:08:56.474 But it requires us to
NOTE Confidence: 0.9188876

01:08:56.474 --> 01:08:58.875 decide before birth. We're gonna
NOTE Confidence: 0.9188876

01:08:58.875 --> 01:08:59.755 do a c section take
NOTE Confidence: 0.9188876

01:08:59.755 --> 01:09:01.114 to get output directly into

NOTE Confidence: 0.9188876

01:09:01.114 --> 01:09:02.014 the bio bag.

NOTE Confidence: 0.97677517

01:09:02.395 --> 01:09:04.814 Other technologies, other artificial placenta

NOTE Confidence: 0.97677517

01:09:04.875 --> 01:09:06.715 technologies are we could take

NOTE Confidence: 0.97677517

01:09:06.715 --> 01:09:08.310 the child out, try for

NOTE Confidence: 0.97677517

01:09:08.310 --> 01:09:09.570 a bit on the ventilator,

NOTE Confidence: 0.97677517

01:09:09.710 --> 01:09:11.310 see how we're doing, and

NOTE Confidence: 0.97677517

01:09:11.310 --> 01:09:12.750 if we fail, hook the

NOTE Confidence: 0.97677517

01:09:12.750 --> 01:09:14.189 umbilical vessels up to a

NOTE Confidence: 0.97677517

01:09:14.189 --> 01:09:15.250 membrane oxygenator

NOTE Confidence: 0.947908

01:09:15.710 --> 01:09:17.469 and basically do something more

NOTE Confidence: 0.947908

01:09:17.469 --> 01:09:18.910 akin to ECMO, which is

NOTE Confidence: 0.947908

01:09:18.910 --> 01:09:19.870 to say we're not inside

NOTE Confidence: 0.947908

01:09:19.870 --> 01:09:20.850 that fluid environment.

NOTE Confidence: 0.96750236

01:09:21.225 --> 01:09:22.665 And some of the advantages

NOTE Confidence: 0.96750236

01:09:22.665 --> 01:09:23.784 of that fluid environment, I

NOTE Confidence: 0.96750236

01:09:23.784 --> 01:09:24.685 think you understand.
NOTE Confidence: 0.9993477

01:09:25.064 --> 01:09:26.764 So the conversation
NOTE Confidence: 0.9116715

01:09:27.064 --> 01:09:28.045 I mean, that may
NOTE Confidence: 0.9610329

01:09:28.905 --> 01:09:30.185 be that's another way to
NOTE Confidence: 0.9610329

01:09:30.185 --> 01:09:31.465 do this, if you will,
NOTE Confidence: 0.9610329

01:09:31.465 --> 01:09:32.744 is is is after the
NOTE Confidence: 0.9610329

01:09:32.744 --> 01:09:33.990 kid comes out, figure out
NOTE Confidence: 0.9610329

01:09:34.150 --> 01:09:34.830 if we're like I do
NOTE Confidence: 0.9610329

01:09:34.830 --> 01:09:36.150 it as a rescue therapy
NOTE Confidence: 0.9610329

01:09:36.150 --> 01:09:37.270 instead of as a preventive
NOTE Confidence: 0.9610329

01:09:37.270 --> 01:09:38.230 therapy. But in terms of
NOTE Confidence: 0.9610329

01:09:38.230 --> 01:09:39.590 the conversation in other countries,
NOTE Confidence: 0.9610329

01:09:39.590 --> 01:09:40.550 it's a great question. And,
NOTE Confidence: 0.9610329

01:09:40.550 --> 01:09:41.590 honestly, I don't know the
NOTE Confidence: 0.9610329

01:09:41.590 --> 01:09:42.490 answer to it.
NOTE Confidence: 0.8512989

01:09:45.350 --> 01:09:46.310 Is she here? And then

NOTE Confidence: 0.8512989

01:09:46.310 --> 01:09:47.370 over there, Steve.

NOTE Confidence: 0.92460847

01:09:47.725 --> 01:09:48.925 You you mentioned that the

NOTE Confidence: 0.92460847

01:09:48.925 --> 01:09:50.205 intention of the technology is

NOTE Confidence: 0.92460847

01:09:50.205 --> 01:09:51.085 not to push the limit

NOTE Confidence: 0.92460847

01:09:51.085 --> 01:09:51.645 of of vi

NOTE Confidence: 0.9323051

01:09:52.445 --> 01:09:53.824 you mentioned that the technology,

NOTE Confidence: 0.9323051

01:09:54.045 --> 01:09:55.165 like, the intent behind is

NOTE Confidence: 0.9323051

01:09:55.165 --> 01:09:56.205 not to push the limit

NOTE Confidence: 0.9323051

01:09:56.205 --> 01:09:57.965 of viability to, like, push

NOTE Confidence: 0.9323051

01:09:57.965 --> 01:09:58.925 it down to twenty one

NOTE Confidence: 0.9323051

01:09:58.925 --> 01:10:00.220 weeks. But But just I'm

NOTE Confidence: 0.9323051

01:10:00.220 --> 01:10:01.100 trying to think about this

NOTE Confidence: 0.9323051

01:10:01.100 --> 01:10:02.540 pragmatically in your first question

NOTE Confidence: 0.9323051

01:10:02.540 --> 01:10:04.060 about the percent threshold of

NOTE Confidence: 0.9323051

01:10:04.060 --> 01:10:06.240 survival or survival without morbidity.

NOTE Confidence: 0.9323051

01:10:06.380 --> 01:10:07.580 It's it would seem kind
NOTE Confidence: 0.9323051

01:10:07.580 --> 01:10:08.700 of prudent to use twenty
NOTE Confidence: 0.9323051

01:10:08.700 --> 01:10:10.140 one weeks because of the
NOTE Confidence: 0.9323051

01:10:10.140 --> 01:10:11.820 the variability ins of survival
NOTE Confidence: 0.9323051

01:10:11.820 --> 01:10:12.945 in twenty two weeks.
NOTE Confidence: 0.9860122

01:10:13.665 --> 01:10:14.784 If you're, you know, quoting
NOTE Confidence: 0.9860122

01:10:14.784 --> 01:10:15.985 such a a vast range
NOTE Confidence: 0.9860122

01:10:15.985 --> 01:10:17.344 of thirty to eighty percent
NOTE Confidence: 0.9860122

01:10:17.344 --> 01:10:17.844 survival,
NOTE Confidence: 0.94715476

01:10:18.224 --> 01:10:19.025 why not just do it
NOTE Confidence: 0.94715476

01:10:19.025 --> 01:10:20.485 in the the the parivable
NOTE Confidence: 0.94715476

01:10:20.704 --> 01:10:22.564 or the the likely nonviable,
NOTE Confidence: 0.96294343

01:10:23.344 --> 01:10:24.784 fetus? I'm just I'm I'm
NOTE Confidence: 0.96294343

01:10:24.784 --> 01:10:25.744 putting myself in a room
NOTE Confidence: 0.96294343

01:10:25.744 --> 01:10:26.465 with a a bunch of
NOTE Confidence: 0.96294343

01:10:26.465 --> 01:10:27.744 neos trying to design a

NOTE Confidence: 0.96294343
01:10:27.744 --> 01:10:29.420 trial and not being able
NOTE Confidence: 0.96294343
01:10:29.420 --> 01:10:30.960 to to define that consensus
NOTE Confidence: 0.96294343
01:10:31.020 --> 01:10:32.380 because I was gonna argue,
NOTE Confidence: 0.96294343
01:10:32.380 --> 01:10:33.739 well, we can save twenty
NOTE Confidence: 0.96294343
01:10:33.739 --> 01:10:35.580 two weekers irrespective of the
NOTE Confidence: 0.96294343
01:10:35.580 --> 01:10:36.080 interventions.
NOTE Confidence: 0.96910745
01:10:36.860 --> 01:10:38.219 Whereas, you know, other centers
NOTE Confidence: 0.96910745
01:10:38.219 --> 01:10:39.739 that don't have such survival
NOTE Confidence: 0.96910745
01:10:39.739 --> 01:10:40.939 rates will will argue if
NOTE Confidence: 0.96910745
01:10:40.939 --> 01:10:41.520 they wanna,
NOTE Confidence: 0.9615183
01:10:42.365 --> 01:10:43.405 enroll at their center and
NOTE Confidence: 0.9615183
01:10:43.405 --> 01:10:44.685 they would have equipoise. So
NOTE Confidence: 0.9615183
01:10:44.685 --> 01:10:45.805 I'm just kinda curious as
NOTE Confidence: 0.9615183
01:10:45.805 --> 01:10:46.925 to why not twenty one.
NOTE Confidence: 0.9615183
01:10:46.925 --> 01:10:48.205 It's a great question, and
NOTE Confidence: 0.9615183

01:10:48.205 --> 01:10:48.705 scientifically,
NOTE Confidence: 0.95280457

01:10:49.005 --> 01:10:50.765 it makes sense. There's at
NOTE Confidence: 0.95280457

01:10:50.765 --> 01:10:52.445 least three reasons why we
NOTE Confidence: 0.95280457

01:10:52.445 --> 01:10:53.805 wouldn't do that. The the
NOTE Confidence: 0.95280457

01:10:53.805 --> 01:10:55.689 first that's easiest is that
NOTE Confidence: 0.95280457

01:10:55.689 --> 01:10:56.510 they tell us,
NOTE Confidence: 0.9532987

01:10:56.970 --> 01:10:57.850 and I believe them that
NOTE Confidence: 0.9532987

01:10:57.850 --> 01:10:59.210 that that they the technology
NOTE Confidence: 0.9532987

01:10:59.210 --> 01:11:00.170 simply can't work on that
NOTE Confidence: 0.9532987

01:11:00.250 --> 01:11:01.850 on babies that small. But,
NOTE Confidence: 0.9532987

01:11:01.850 --> 01:11:02.810 of course, you know that
NOTE Confidence: 0.9532987

01:11:02.810 --> 01:11:04.570 there's big twenty one weekers
NOTE Confidence: 0.9532987

01:11:04.570 --> 01:11:05.930 and small twenty two weekers.
NOTE Confidence: 0.9532987

01:11:05.930 --> 01:11:06.890 But one is it's just
NOTE Confidence: 0.9532987

01:11:06.890 --> 01:11:08.330 not feasible. So that's easy.
NOTE Confidence: 0.9532987

01:11:08.330 --> 01:11:10.010 They answer the question. Then,

NOTE Confidence: 0.9532987
01:11:10.010 --> 01:11:11.314 of course, we have to
NOTE Confidence: 0.9532987
01:11:11.314 --> 01:11:12.075 say, well, what if it
NOTE Confidence: 0.9532987
01:11:12.075 --> 01:11:12.795 were feasible? What if we
NOTE Confidence: 0.9532987
01:11:12.795 --> 01:11:13.835 had a really big twenty
NOTE Confidence: 0.9532987
01:11:13.835 --> 01:11:14.575 one weaker?
NOTE Confidence: 0.9772002
01:11:15.115 --> 01:11:16.314 The other reasons are that
NOTE Confidence: 0.9772002
01:11:16.314 --> 01:11:17.354 when you talk about pushing
NOTE Confidence: 0.9772002
01:11:17.354 --> 01:11:19.195 that line back below twenty
NOTE Confidence: 0.9772002
01:11:19.195 --> 01:11:21.135 two weeks, you see neonatologists.
NOTE Confidence: 0.9540737
01:11:21.515 --> 01:11:22.314 You can actually watch it.
NOTE Confidence: 0.9540737
01:11:22.314 --> 01:11:23.115 You can hear it if
NOTE Confidence: 0.9540737
01:11:23.115 --> 01:11:24.015 you're on the street. Neonatologists'
NOTE Confidence: 0.9540737
01:11:24.314 --> 01:11:25.135 heads exploding
NOTE Confidence: 0.95292765
01:11:25.740 --> 01:11:27.420 because, because caring for these
NOTE Confidence: 0.95292765
01:11:27.420 --> 01:11:28.540 kids at twenty two weeks
NOTE Confidence: 0.95292765

01:11:28.540 --> 01:11:29.740 is and I've seen some
NOTE Confidence: 0.95292765

01:11:29.740 --> 01:11:30.860 NICU nurses' heads that might
NOTE Confidence: 0.95292765

01:11:30.860 --> 01:11:31.680 explode too,
NOTE Confidence: 0.9895911

01:11:32.060 --> 01:11:33.120 that it's so difficult.
NOTE Confidence: 0.9908754

01:11:33.500 --> 01:11:35.100 And what we feel that
NOTE Confidence: 0.9908754

01:11:35.100 --> 01:11:36.300 we put these kids through
NOTE Confidence: 0.9908754

01:11:36.300 --> 01:11:37.580 is such a difficult time
NOTE Confidence: 0.9908754

01:11:37.580 --> 01:11:38.700 that to move that line
NOTE Confidence: 0.9908754

01:11:38.700 --> 01:11:39.979 to many people seems just
NOTE Confidence: 0.9908754

01:11:39.979 --> 01:11:41.325 the wrong thing to do.
NOTE Confidence: 0.91788864

01:11:42.365 --> 01:11:43.885 And so they they wanted
NOTE Confidence: 0.91788864

01:11:43.885 --> 01:11:44.685 to say that, I think,
NOTE Confidence: 0.91788864

01:11:44.685 --> 01:11:45.585 in part because
NOTE Confidence: 0.9906109

01:11:45.885 --> 01:11:47.565 if we focused on that,
NOTE Confidence: 0.9906109

01:11:47.565 --> 01:11:48.865 we, the profession,
NOTE Confidence: 0.95332426

01:11:49.405 --> 01:11:51.405 we, the scientific community, would

NOTE Confidence: 0.95332426
01:11:51.405 --> 01:11:53.245 never get behind this. So
NOTE Confidence: 0.95332426
01:11:53.245 --> 01:11:54.045 why is it there saying,
NOTE Confidence: 0.95332426
01:11:54.045 --> 01:11:55.085 no. This isn't about moving
NOTE Confidence: 0.95332426
01:11:55.085 --> 01:11:56.280 the threshold. This is about
NOTE Confidence: 0.95332426
01:11:56.280 --> 01:11:57.320 doing a better job for
NOTE Confidence: 0.95332426
01:11:57.320 --> 01:11:58.460 the kids we're already
NOTE Confidence: 0.96429694
01:11:58.920 --> 01:11:59.420 treating.
NOTE Confidence: 0.95704526
01:11:59.880 --> 01:12:01.159 Now from a scientific point
NOTE Confidence: 0.95704526
01:12:01.159 --> 01:12:02.360 of view, what you're saying
NOTE Confidence: 0.95704526
01:12:02.360 --> 01:12:04.199 makes sense. The third reason
NOTE Confidence: 0.95704526
01:12:04.199 --> 01:12:05.159 not to, though, is the
NOTE Confidence: 0.95704526
01:12:05.159 --> 01:12:06.679 same concerns that Vardit Ravitsky
NOTE Confidence: 0.95704526
01:12:06.679 --> 01:12:07.719 and others raised. As you
NOTE Confidence: 0.95704526
01:12:07.719 --> 01:12:09.079 move that further back, the
NOTE Confidence: 0.95704526
01:12:09.079 --> 01:12:10.199 fears about how that's gonna
NOTE Confidence: 0.95704526

01:12:10.199 --> 01:12:12.175 influence reproductive rights are only

NOTE Confidence: 0.95704526

01:12:12.175 --> 01:12:13.215 gonna become worse. So for

NOTE Confidence: 0.95704526

01:12:13.215 --> 01:12:14.495 all those reasons, they're not

NOTE Confidence: 0.95704526

01:12:14.495 --> 01:12:15.375 doing it. But they'll just

NOTE Confidence: 0.95704526

01:12:15.375 --> 01:12:16.275 start by saying

NOTE Confidence: 0.95841974

01:12:16.655 --> 01:12:17.775 that that we don't have

NOTE Confidence: 0.95841974

01:12:17.775 --> 01:12:18.574 the technology. We don't have

NOTE Confidence: 0.95841974

01:12:18.574 --> 01:12:19.695 the catheters aren't small enough

NOTE Confidence: 0.95841974

01:12:19.695 --> 01:12:20.814 or whatever. So that's why

NOTE Confidence: 0.95841974

01:12:20.814 --> 01:12:21.775 we don't do it. But

NOTE Confidence: 0.95841974

01:12:21.775 --> 01:12:23.375 it's a it's not a

NOTE Confidence: 0.95841974

01:12:23.375 --> 01:12:24.750 bad question. It's not a

NOTE Confidence: 0.95841974

01:12:24.750 --> 01:12:26.270 bad question. But I think

NOTE Confidence: 0.95841974

01:12:26.270 --> 01:12:27.630 it's gonna scare a lot

NOTE Confidence: 0.95841974

01:12:27.630 --> 01:12:28.270 of people. And by the

NOTE Confidence: 0.95841974

01:12:28.270 --> 01:12:29.390 way, again, for some perspective

NOTE Confidence: 0.95841974
01:12:29.390 --> 01:12:30.270 or someone who's been at
NOTE Confidence: 0.95841974
01:12:30.270 --> 01:12:31.150 this for a while, and
NOTE Confidence: 0.95841974
01:12:31.150 --> 01:12:32.110 this was raised recently. I
NOTE Confidence: 0.95841974
01:12:32.110 --> 01:12:33.330 was talking to a colleague
NOTE Confidence: 0.95841974
01:12:33.390 --> 01:12:34.830 of my generation at another
NOTE Confidence: 0.95841974
01:12:34.830 --> 01:12:36.430 place who was saying, yep.
NOTE Confidence: 0.95841974
01:12:36.430 --> 01:12:37.150 I was it was last
NOTE Confidence: 0.95841974
01:12:37.150 --> 01:12:38.770 week. I was at, Nationwide
NOTE Confidence: 0.95841974
01:12:38.910 --> 01:12:40.104 in in Ohio. They said,
NOTE Confidence: 0.95841974
01:12:40.104 --> 01:12:41.145 yeah. I remember when we
NOTE Confidence: 0.95841974
01:12:41.145 --> 01:12:42.104 went from twenty six to
NOTE Confidence: 0.95841974
01:12:42.104 --> 01:12:43.545 twenty five weeks, and everybody's
NOTE Confidence: 0.95841974
01:12:43.545 --> 01:12:44.905 head exploded. And then pretty
NOTE Confidence: 0.95841974
01:12:44.905 --> 01:12:45.945 soon, that just became what
NOTE Confidence: 0.95841974
01:12:45.945 --> 01:12:46.905 we did. Then we went
NOTE Confidence: 0.95841974

01:12:46.905 --> 01:12:47.945 from twenty five to twenty
NOTE Confidence: 0.95841974

01:12:47.945 --> 01:12:49.064 four, and everybody went nuts.
NOTE Confidence: 0.95841974

01:12:49.064 --> 01:12:49.865 You're out of your mind.
NOTE Confidence: 0.95841974

01:12:49.865 --> 01:12:50.665 Don't do that. And now
NOTE Confidence: 0.95841974

01:12:50.665 --> 01:12:51.625 as you saw, we can
NOTE Confidence: 0.95841974

01:12:51.625 --> 01:12:52.825 save almost all those kids.
NOTE Confidence: 0.95841974

01:12:52.825 --> 01:12:53.705 And most of them have
NOTE Confidence: 0.95841974

01:12:53.705 --> 01:12:54.832 a pretty good outcome. And
NOTE Confidence: 0.95841974

01:12:54.832 --> 01:12:56.293 then we went from twenty
NOTE Confidence: 0.95841974

01:12:56.293 --> 01:12:57.754 four eight, etcetera. So every
NOTE Confidence: 0.95841974

01:12:57.754 --> 01:12:59.215 time the line moves, people
NOTE Confidence: 0.95841974

01:12:59.215 --> 01:13:00.676 say, that's crazy. Don't do
NOTE Confidence: 0.95841974

01:13:00.676 --> 01:13:02.429 it. And we and we
NOTE Confidence: 0.95841974

01:13:02.429 --> 01:13:03.890 know now we can't possibly
NOTE Confidence: 0.95841974

01:13:03.890 --> 01:13:05.351 go any lower, and then
NOTE Confidence: 0.95841974

01:13:05.351 --> 01:13:07.104 we do. So our fear

NOTE Confidence: 0.95841974
01:13:07.104 --> 01:13:08.566 of moving the line, I
NOTE Confidence: 0.95841974
01:13:08.566 --> 01:13:10.054 don't think by itself is
NOTE Confidence: 0.95841974
01:13:10.054 --> 01:13:11.435 a sound ethical argument.
NOTE Confidence: 0.97984666
01:13:12.935 --> 01:13:13.895 But I'm scared too. I
NOTE Confidence: 0.97984666
01:13:13.895 --> 01:13:14.695 mean, if you ask me
NOTE Confidence: 0.97984666
01:13:14.695 --> 01:13:15.335 right now, what do you
NOTE Confidence: 0.97984666
01:13:15.335 --> 01:13:16.395 say we start trying?
NOTE Confidence: 0.930189
01:13:16.854 --> 01:13:18.455 Meantime, next week, I'm going
NOTE Confidence: 0.930189
01:13:18.455 --> 01:13:19.814 three weeks. I'm going Iowa
NOTE Confidence: 0.930189
01:13:19.814 --> 01:13:20.935 where they've already done that,
NOTE Confidence: 0.930189
01:13:20.935 --> 01:13:21.814 where they offer it at
NOTE Confidence: 0.930189
01:13:21.814 --> 01:13:23.310 twenty one weeks. I'm curious
NOTE Confidence: 0.930189
01:13:23.310 --> 01:13:24.430 to find out exactly how
NOTE Confidence: 0.930189
01:13:24.430 --> 01:13:25.229 they're doing and what's going
NOTE Confidence: 0.930189
01:13:25.229 --> 01:13:25.729 on.
NOTE Confidence: 0.9471692

01:13:26.670 --> 01:13:27.170 Steve.
NOTE Confidence: 0.9182134
01:13:28.990 --> 01:13:30.510 Hey, Mark. Oh, Steve. I
NOTE Confidence: 0.9182134
01:13:30.510 --> 01:13:31.010 have
NOTE Confidence: 0.9462445
01:13:31.870 --> 01:13:32.910 a a question about the
NOTE Confidence: 0.9462445
01:13:32.910 --> 01:13:34.030 the I guess it's the
NOTE Confidence: 0.9462445
01:13:34.030 --> 01:13:35.310 middle of the three standards
NOTE Confidence: 0.9462445
01:13:35.310 --> 01:13:36.750 that that says we should
NOTE Confidence: 0.9462445
01:13:36.750 --> 01:13:37.250 only
NOTE Confidence: 0.88038677
01:13:39.784 --> 01:13:41.304 be offering this if it's
NOTE Confidence: 0.88038677
01:13:41.304 --> 01:13:41.864 gonna be,
NOTE Confidence: 0.926149
01:13:43.545 --> 01:13:44.125 if the
NOTE Confidence: 0.9170503
01:13:45.064 --> 01:13:46.104 If it's better than what's
NOTE Confidence: 0.9170503
01:13:46.104 --> 01:13:47.385 already available, Fred. Better than
NOTE Confidence: 0.9170503
01:13:47.385 --> 01:13:48.445 what's already available.
NOTE Confidence: 0.9895519
01:13:50.660 --> 01:13:51.460 This is a question that
NOTE Confidence: 0.9895519
01:13:51.460 --> 01:13:52.340 comes up with, you know,

NOTE Confidence: 0.9895519
01:13:52.340 --> 01:13:52.840 xenotransplant.
NOTE Confidence: 0.99773055
01:13:53.300 --> 01:13:54.200 It comes up
NOTE Confidence: 0.9726136
01:13:54.660 --> 01:13:56.600 with CAR T cancer therapy.
NOTE Confidence: 0.9726136
01:13:56.660 --> 01:13:58.100 Right? Anytime anytime there's a
NOTE Confidence: 0.9726136
01:13:58.100 --> 01:14:00.100 new therapy, we wanna test
NOTE Confidence: 0.9726136
01:14:00.100 --> 01:14:01.140 it by giving it to
NOTE Confidence: 0.9726136
01:14:01.140 --> 01:14:02.100 the people who will not
NOTE Confidence: 0.9726136
01:14:02.100 --> 01:14:03.800 benefit from the existing therapies
NOTE Confidence: 0.9726136
01:14:03.860 --> 01:14:05.064 for the most part. So
NOTE Confidence: 0.9726136
01:14:05.064 --> 01:14:06.445 first, that's gonna give you
NOTE Confidence: 0.9726136
01:14:06.744 --> 01:14:08.264 it's gonna make your new
NOTE Confidence: 0.9726136
01:14:08.264 --> 01:14:10.104 thing look really terrible. Right?
NOTE Confidence: 0.9726136
01:14:10.104 --> 01:14:11.304 Because we're trying it on
NOTE Confidence: 0.9726136
01:14:11.304 --> 01:14:12.665 the people who are too
NOTE Confidence: 0.9726136
01:14:12.665 --> 01:14:13.945 high risk for our current
NOTE Confidence: 0.9726136

01:14:13.945 --> 01:14:15.304 system. So it's gonna be
NOTE Confidence: 0.9726136

01:14:15.385 --> 01:14:16.744 they're gonna get terrible outcomes.
NOTE Confidence: 0.9726136

01:14:16.744 --> 01:14:17.820 You can you can guess.
NOTE Confidence: 0.9726136

01:14:17.979 --> 01:14:18.939 Right? For the same reasons
NOTE Confidence: 0.9726136

01:14:18.939 --> 01:14:20.139 they get terrible outcomes in
NOTE Confidence: 0.9726136

01:14:20.139 --> 01:14:21.199 our existing system,
NOTE Confidence: 0.96684

01:14:21.500 --> 01:14:22.780 they're gonna get terrible outcomes
NOTE Confidence: 0.96684

01:14:22.780 --> 01:14:24.460 in the experimental thing. So
NOTE Confidence: 0.96684

01:14:24.460 --> 01:14:25.500 you're gonna have to do
NOTE Confidence: 0.96684

01:14:25.500 --> 01:14:27.280 some work to very incrementally
NOTE Confidence: 0.96684

01:14:27.500 --> 01:14:28.780 move up who you're testing
NOTE Confidence: 0.96684

01:14:28.780 --> 01:14:30.300 this on based on what
NOTE Confidence: 0.96684

01:14:30.300 --> 01:14:31.739 you learn. So so so
NOTE Confidence: 0.96684

01:14:31.739 --> 01:14:33.345 it it biases the the
NOTE Confidence: 0.96684

01:14:33.345 --> 01:14:34.965 experiment toward toward failure.
NOTE Confidence: 0.9588491

01:14:35.425 --> 01:14:36.785 And maybe that's worth it

NOTE Confidence: 0.9588491
01:14:36.785 --> 01:14:37.825 because we're supposed to be
NOTE Confidence: 0.9588491
01:14:37.825 --> 01:14:38.965 caring more about
NOTE Confidence: 0.9708143
01:14:39.505 --> 01:14:41.505 individual beneficence than about systemic
NOTE Confidence: 0.9708143
01:14:41.505 --> 01:14:43.185 effect. Okay. But there's another
NOTE Confidence: 0.9708143
01:14:43.185 --> 01:14:44.564 thing that it rules out,
NOTE Confidence: 0.9708143
01:14:44.864 --> 01:14:45.525 which is
NOTE Confidence: 0.9332085
01:14:46.225 --> 01:14:47.104 coming up with a new
NOTE Confidence: 0.9332085
01:14:47.104 --> 01:14:48.564 technology that is
NOTE Confidence: 0.9995368
01:14:49.369 --> 01:14:51.229 eighty five percent as effective
NOTE Confidence: 0.9995368
01:14:51.449 --> 01:14:52.750 as what we have now
NOTE Confidence: 0.9243615
01:14:53.369 --> 01:14:54.729 and cost one tenth as
NOTE Confidence: 0.9243615
01:14:54.729 --> 01:14:55.689 much, or it can be
NOTE Confidence: 0.9243615
01:14:55.689 --> 01:14:57.369 done by a single dock
NOTE Confidence: 0.9243615
01:14:57.369 --> 01:14:58.969 in a in a empty
NOTE Confidence: 0.9243615
01:14:58.969 --> 01:14:59.469 room
NOTE Confidence: 0.8145344

01:15:00.010 --> 01:15:00.510 in,
NOTE Confidence: 0.8991618
01:15:01.689 --> 01:15:02.590 Sierra Leone.
NOTE Confidence: 0.9867689
01:15:04.265 --> 01:15:05.545 That if if we only
NOTE Confidence: 0.9867689
01:15:05.545 --> 01:15:06.045 ever
NOTE Confidence: 0.92144126
01:15:06.745 --> 01:15:07.965 wanna test things
NOTE Confidence: 0.9956869
01:15:09.064 --> 01:15:10.604 that are clinically better
NOTE Confidence: 0.9941559
01:15:11.145 --> 01:15:12.285 than what we have,
NOTE Confidence: 0.98607993
01:15:13.385 --> 01:15:14.665 that seems to lead us
NOTE Confidence: 0.98607993
01:15:14.665 --> 01:15:16.345 away from testing things that
NOTE Confidence: 0.98607993
01:15:16.345 --> 01:15:17.225 might not be as good
NOTE Confidence: 0.98607993
01:15:17.225 --> 01:15:18.104 as what we have, but
NOTE Confidence: 0.98607993
01:15:18.104 --> 01:15:20.079 they'll be much more accessible
NOTE Confidence: 0.98607993
01:15:20.300 --> 01:15:21.439 to many more people.
NOTE Confidence: 0.99736595
01:15:23.579 --> 01:15:24.639 That's a good point.
NOTE Confidence: 0.8955166
01:15:25.659 --> 01:15:26.159 Remembering,
NOTE Confidence: 0.98627335
01:15:27.739 --> 01:15:28.619 I think that's a good

NOTE Confidence: 0.98627335

01:15:28.619 --> 01:15:29.679 point when you take,

NOTE Confidence: 0.9630176

01:15:30.539 --> 01:15:32.320 the the the broad view.

NOTE Confidence: 0.9630176

01:15:32.495 --> 01:15:34.515 Take the societal view, etcetera.

NOTE Confidence: 0.975849

01:15:34.975 --> 01:15:36.095 When we're talking to the

NOTE Confidence: 0.975849

01:15:36.095 --> 01:15:37.475 parents of a given child

NOTE Confidence: 0.975849

01:15:37.775 --> 01:15:38.814 and say, we have something

NOTE Confidence: 0.975849

01:15:38.814 --> 01:15:40.175 here that's almost as good

NOTE Confidence: 0.975849

01:15:40.175 --> 01:15:41.775 as current therapy, but it's

NOTE Confidence: 0.975849

01:15:41.775 --> 01:15:42.975 gonna cost a lot less

NOTE Confidence: 0.975849

01:15:42.975 --> 01:15:44.495 money. It's the rare parent

NOTE Confidence: 0.975849

01:15:44.495 --> 01:15:45.375 who's gonna say go for

NOTE Confidence: 0.975849

01:15:45.375 --> 01:15:46.814 it. Because, frankly, among other

NOTE Confidence: 0.975849

01:15:46.814 --> 01:15:47.820 things first of all, even

NOTE Confidence: 0.975849

01:15:47.820 --> 01:15:48.739 if I was paying for

NOTE Confidence: 0.975849

01:15:48.739 --> 01:15:49.820 it myself, I wouldn't do

NOTE Confidence: 0.975849

01:15:49.820 --> 01:15:51.920 that. But among other things,
NOTE Confidence: 0.975849

01:15:52.060 --> 01:15:53.179 almost no one's actually paying
NOTE Confidence: 0.975849

01:15:53.179 --> 01:15:54.000 for this themselves.
NOTE Confidence: 0.94878757

01:15:54.380 --> 01:15:55.500 So to get someone to
NOTE Confidence: 0.94878757

01:15:55.500 --> 01:15:56.780 actually consent for that with
NOTE Confidence: 0.94878757

01:15:56.780 --> 01:15:57.900 given if you give true
NOTE Confidence: 0.94878757

01:15:57.900 --> 01:15:59.659 and permission really, right, in
NOTE Confidence: 0.94878757

01:15:59.659 --> 01:16:00.955 pediatrics, to get true and
NOTE Confidence: 0.94878757

01:16:00.955 --> 01:16:02.314 informed permission to say, this
NOTE Confidence: 0.94878757

01:16:02.314 --> 01:16:03.035 is not gonna be as
NOTE Confidence: 0.94878757

01:16:03.035 --> 01:16:03.995 good as what we're doing
NOTE Confidence: 0.94878757

01:16:03.995 --> 01:16:05.195 on the other kids, but
NOTE Confidence: 0.94878757

01:16:05.195 --> 01:16:06.875 it's gonna cost your insurance
NOTE Confidence: 0.94878757

01:16:06.875 --> 01:16:08.314 company or the federal government
NOTE Confidence: 0.94878757

01:16:08.314 --> 01:16:09.675 or whoever's paying the bill.
NOTE Confidence: 0.94878757

01:16:09.675 --> 01:16:11.135 It's gonna cost them less.

NOTE Confidence: 0.94878757
01:16:11.195 --> 01:16:12.795 What I would say probably
NOTE Confidence: 0.94878757
01:16:12.795 --> 01:16:13.835 what most people would say
NOTE Confidence: 0.94878757
01:16:13.835 --> 01:16:15.375 is, not on my kid.
NOTE Confidence: 0.961943
01:16:16.020 --> 01:16:16.900 So it's gonna be very
NOTE Confidence: 0.961943
01:16:16.900 --> 01:16:18.360 difficult to do. Nevertheless,
NOTE Confidence: 0.9909976
01:16:18.820 --> 01:16:20.579 your point stands that in
NOTE Confidence: 0.9909976
01:16:20.579 --> 01:16:22.260 the big picture, given the
NOTE Confidence: 0.9909976
01:16:22.260 --> 01:16:24.520 realities of limited resources,
NOTE Confidence: 0.94992393
01:16:25.139 --> 01:16:26.179 it might be a smart
NOTE Confidence: 0.94992393
01:16:26.179 --> 01:16:26.979 thing to do, but it's
NOTE Confidence: 0.94992393
01:16:26.979 --> 01:16:27.860 gonna be very hard to
NOTE Confidence: 0.94992393
01:16:27.860 --> 01:16:28.979 get informed permission to do
NOTE Confidence: 0.94992393
01:16:28.979 --> 01:16:30.465 it. Yeah. They're probably what
NOTE Confidence: 0.94992393
01:16:30.465 --> 01:16:31.185 we have to do is,
NOTE Confidence: 0.94992393
01:16:31.425 --> 01:16:33.104 test it abroad using money
NOTE Confidence: 0.94992393

01:16:33.104 --> 01:16:34.945 from, US state oh, no.
NOTE Confidence: 0.94992393

01:16:34.945 --> 01:16:35.685 Never mind.
NOTE Confidence: 0.9695798

01:16:37.264 --> 01:16:38.145 Yeah. That's great. And that's
NOTE Confidence: 0.9695798

01:16:38.145 --> 01:16:39.185 why we zoom this out
NOTE Confidence: 0.9695798

01:16:39.185 --> 01:16:39.985 so we can piss off
NOTE Confidence: 0.9695798

01:16:39.985 --> 01:16:41.185 as many people as possible.
NOTE Confidence: 0.9695798

01:16:41.185 --> 01:16:42.465 Thanks for that, Steve. That's
NOTE Confidence: 0.9695798

01:16:42.465 --> 01:16:43.685 great. That's great.
NOTE Confidence: 0.99319124

01:16:44.064 --> 01:16:45.045 Thank you, Steve.
NOTE Confidence: 0.6053334

01:16:45.890 --> 01:16:47.170 Yeah. Maybe maybe more of
NOTE Confidence: 0.6053334

01:16:47.170 --> 01:16:47.750 a sudden.
NOTE Confidence: 0.7436098

01:16:48.050 --> 01:16:48.650 Wait. Wait. Wait. Wait. Wait.
NOTE Confidence: 0.7436098

01:16:48.650 --> 01:16:50.470 Wait. You know, questionnaires.
NOTE Confidence: 0.88447964

01:16:51.010 --> 01:16:51.810 And then and then you
NOTE Confidence: 0.88447964

01:16:51.810 --> 01:16:52.850 go yeah. No problem. Yeah.
NOTE Confidence: 0.88447964

01:16:52.850 --> 01:16:53.570 Come on, Brett. Take it

NOTE Confidence: 0.88447964
01:16:53.570 --> 01:16:54.450 easy. Will you waste your
NOTE Confidence: 0.88447964
01:16:54.450 --> 01:16:54.950 turn?
NOTE Confidence: 0.97823614
01:16:56.050 --> 01:16:57.570 I, I I think I
NOTE Confidence: 0.97823614
01:16:57.570 --> 01:16:58.770 have a question in here.
NOTE Confidence: 0.97823614
01:16:58.770 --> 01:16:59.250 I think,
NOTE Confidence: 0.96995795
01:17:00.035 --> 01:17:01.415 you know, it's not unique
NOTE Confidence: 0.96995795
01:17:01.475 --> 01:17:02.755 to this situation that all
NOTE Confidence: 0.96995795
01:17:02.755 --> 01:17:04.195 the time in pregnancy, we're
NOTE Confidence: 0.96995795
01:17:04.195 --> 01:17:06.455 asking pregnant people to balance
NOTE Confidence: 0.96995795
01:17:06.675 --> 01:17:07.655 risk to them
NOTE Confidence: 0.99092346
01:17:08.115 --> 01:17:09.475 for benefit for the fetus
NOTE Confidence: 0.99092346
01:17:09.475 --> 01:17:10.215 or neonate.
NOTE Confidence: 0.9665618
01:17:10.915 --> 01:17:12.435 That happens with a variety
NOTE Confidence: 0.9665618
01:17:12.435 --> 01:17:14.275 of clinical scenarios. I think
NOTE Confidence: 0.9665618
01:17:14.275 --> 01:17:15.840 one of the most challenging
NOTE Confidence: 0.9665618

01:17:15.840 --> 01:17:16.800 things in taking care of
NOTE Confidence: 0.9665618

01:17:16.800 --> 01:17:18.080 these patients, delivering at the
NOTE Confidence: 0.9665618

01:17:18.080 --> 01:17:19.140 threshold of viability,
NOTE Confidence: 0.9698068

01:17:19.600 --> 01:17:20.800 when talking about mode of
NOTE Confidence: 0.9698068

01:17:20.800 --> 01:17:22.660 delivery specifically, is
NOTE Confidence: 0.96801156

01:17:23.040 --> 01:17:24.880 talking about future risk and
NOTE Confidence: 0.96801156

01:17:24.880 --> 01:17:25.760 kind of how how do
NOTE Confidence: 0.96801156

01:17:25.760 --> 01:17:27.060 you balance in that conversation
NOTE Confidence: 0.9795916

01:17:27.360 --> 01:17:28.420 a benefit today
NOTE Confidence: 0.9703715

01:17:28.800 --> 01:17:30.314 against risk in the future
NOTE Confidence: 0.9703715

01:17:30.395 --> 01:17:31.275 potentially. So if you're doing
NOTE Confidence: 0.9703715

01:17:31.275 --> 01:17:32.715 a cesarean at twenty two
NOTE Confidence: 0.9703715

01:17:32.715 --> 01:17:33.835 or twenty three weeks, as
NOTE Confidence: 0.9703715

01:17:33.835 --> 01:17:35.195 you know, it's gonna be
NOTE Confidence: 0.9703715

01:17:35.195 --> 01:17:37.195 a classical histrotomy, always a
NOTE Confidence: 0.9703715

01:17:37.195 --> 01:17:37.935 c section,

NOTE Confidence: 0.99474746
01:17:38.314 --> 01:17:40.074 risk of accreta, uterine rupture,
NOTE Confidence: 0.99474746
01:17:40.074 --> 01:17:40.795 kind of all of these
NOTE Confidence: 0.99474746
01:17:40.795 --> 01:17:42.015 things. And I think that,
NOTE Confidence: 0.99474746
01:17:42.155 --> 01:17:43.240 you know, when you're when
NOTE Confidence: 0.99474746
01:17:43.240 --> 01:17:45.160 you're talking about this new
NOTE Confidence: 0.99474746
01:17:45.160 --> 01:17:45.660 technology,
NOTE Confidence: 0.98042804
01:17:46.200 --> 01:17:47.479 I think that's, like, one
NOTE Confidence: 0.98042804
01:17:47.479 --> 01:17:48.680 of the hardest pieces for
NOTE Confidence: 0.98042804
01:17:48.680 --> 01:17:50.360 us doing the counseling about
NOTE Confidence: 0.98042804
01:17:50.360 --> 01:17:51.320 mode of delivery. And if
NOTE Confidence: 0.98042804
01:17:51.320 --> 01:17:52.280 you're gonna talk about doing
NOTE Confidence: 0.98042804
01:17:52.280 --> 01:17:54.060 a hundred percent c sections
NOTE Confidence: 0.98042804
01:17:54.200 --> 01:17:55.420 to to sort of
NOTE Confidence: 0.93862844
01:17:55.755 --> 01:17:56.975 enable this technology,
NOTE Confidence: 0.9943124
01:17:57.515 --> 01:17:58.555 and you're talking about, you
NOTE Confidence: 0.9943124

01:17:58.555 --> 01:18:00.475 know, counseling someone who's scared

NOTE Confidence: 0.9943124

01:18:00.475 --> 01:18:01.295 and in pain

NOTE Confidence: 0.96124834

01:18:01.595 --> 01:18:02.475 is and that's what I

NOTE Confidence: 0.96124834

01:18:02.475 --> 01:18:04.075 think is hard for us

NOTE Confidence: 0.96124834

01:18:04.075 --> 01:18:05.115 is is kinda how do

NOTE Confidence: 0.96124834

01:18:05.115 --> 01:18:05.915 you how do you weigh

NOTE Confidence: 0.96124834

01:18:05.915 --> 01:18:07.215 that against the benefit

NOTE Confidence: 0.9267715

01:18:07.595 --> 01:18:09.550 today if Take aside the

NOTE Confidence: 0.9267715

01:18:09.550 --> 01:18:11.330 considerations of the political climate,

NOTE Confidence: 0.9647017

01:18:11.790 --> 01:18:12.910 but, you know, about about

NOTE Confidence: 0.9647017

01:18:12.910 --> 01:18:13.870 what we see as this

NOTE Confidence: 0.9647017

01:18:13.870 --> 01:18:15.790 person's potential future risk. And

NOTE Confidence: 0.9647017

01:18:15.790 --> 01:18:17.229 we offer Caesarean because we

NOTE Confidence: 0.9647017

01:18:17.229 --> 01:18:17.970 believe in

NOTE Confidence: 0.9815523

01:18:18.430 --> 01:18:20.510 reproductive choice and, you know,

NOTE Confidence: 0.9815523

01:18:20.510 --> 01:18:21.630 the the benefit that it

NOTE Confidence: 0.9815523
01:18:21.630 --> 01:18:22.770 could hold for today.
NOTE Confidence: 0.9764215
01:18:23.135 --> 01:18:24.495 But, you know, against, like,
NOTE Confidence: 0.9764215
01:18:24.495 --> 01:18:26.435 this kind of lifetime potentiation
NOTE Confidence: 0.9764215
01:18:26.655 --> 01:18:27.854 of of risk for the
NOTE Confidence: 0.9764215
01:18:27.935 --> 01:18:28.675 that person.
NOTE Confidence: 0.9553249
01:18:29.215 --> 01:18:30.595 That's, I mean, that's,
NOTE Confidence: 0.95936406
01:18:31.615 --> 01:18:32.895 that's beautifully said. I won't
NOTE Confidence: 0.95936406
01:18:32.895 --> 01:18:33.775 paint on your painting because
NOTE Confidence: 0.95936406
01:18:33.775 --> 01:18:34.415 I think you make an
NOTE Confidence: 0.95936406
01:18:34.415 --> 01:18:36.229 excellent point, except to say
NOTE Confidence: 0.95936406
01:18:36.229 --> 01:18:37.430 something that that you and
NOTE Confidence: 0.95936406
01:18:37.430 --> 01:18:38.070 many of the folks in
NOTE Confidence: 0.95936406
01:18:38.070 --> 01:18:38.870 the room know very well,
NOTE Confidence: 0.95936406
01:18:38.870 --> 01:18:39.989 but maybe not everybody, is
NOTE Confidence: 0.95936406
01:18:39.989 --> 01:18:41.270 that at that moment in
NOTE Confidence: 0.95936406

01:18:41.270 --> 01:18:42.469 time and, again, for many
NOTE Confidence: 0.95936406

01:18:42.469 --> 01:18:43.830 people, parents in the room,
NOTE Confidence: 0.95936406

01:18:43.830 --> 01:18:45.210 at that moment in time,
NOTE Confidence: 0.7625852

01:18:45.750 --> 01:18:47.370 the no. The the
NOTE Confidence: 0.9895843

01:18:47.955 --> 01:18:49.474 parents aren't spending a lot
NOTE Confidence: 0.9895843

01:18:49.474 --> 01:18:50.915 of time thinking deep into
NOTE Confidence: 0.9895843

01:18:50.915 --> 01:18:52.034 the future. And so it's
NOTE Confidence: 0.9895843

01:18:52.034 --> 01:18:53.474 the responsibility of a good
NOTE Confidence: 0.9895843

01:18:53.474 --> 01:18:54.915 physician to try and help
NOTE Confidence: 0.9895843

01:18:54.915 --> 01:18:56.514 them think about their future
NOTE Confidence: 0.9895843

01:18:56.514 --> 01:18:57.395 as well as their present.
NOTE Confidence: 0.9895843

01:18:57.395 --> 01:18:59.255 So that classic c section
NOTE Confidence: 0.98827994

01:18:59.635 --> 01:19:01.574 could have implications for this,
NOTE Confidence: 0.98827994

01:19:01.860 --> 01:19:03.780 you know, eighteen year old's
NOTE Confidence: 0.98827994

01:19:03.780 --> 01:19:04.280 future.
NOTE Confidence: 0.93594545

01:19:04.900 --> 01:19:06.659 And that's the hard job

NOTE Confidence: 0.93594545

01:19:06.659 --> 01:19:07.699 that doctor Cross and others

NOTE Confidence: 0.93594545

01:19:07.699 --> 01:19:08.420 have is to try and

NOTE Confidence: 0.93594545

01:19:08.420 --> 01:19:09.780 help them weigh that not

NOTE Confidence: 0.93594545

01:19:09.780 --> 01:19:11.000 an easy thing to do.

NOTE Confidence: 0.93594545

01:19:11.060 --> 01:19:12.179 You made your point beautifully,

NOTE Confidence: 0.93594545

01:19:12.179 --> 01:19:13.060 so I won't mess it

NOTE Confidence: 0.93594545

01:19:13.060 --> 01:19:14.655 up by talking more. Brad's

NOTE Confidence: 0.93594545

01:19:14.655 --> 01:19:16.435 waiting. Yes, sir. Just quickly,

NOTE Confidence: 0.93594545

01:19:16.535 --> 01:19:17.935 it may be more of

NOTE Confidence: 0.93594545

01:19:17.935 --> 01:19:19.715 a scientific question, but theoretically,

NOTE Confidence: 0.93594545

01:19:19.935 --> 01:19:20.995 couldn't this be,

NOTE Confidence: 0.98863345

01:19:22.015 --> 01:19:23.314 this method be

NOTE Confidence: 0.9323675

01:19:23.775 --> 01:19:25.475 cost be lower in cost

NOTE Confidence: 0.8066203

01:19:25.854 --> 01:19:26.575 and lower intent in in

NOTE Confidence: 0.8066203

01:19:26.575 --> 01:19:27.075 in

NOTE Confidence: 0.5544584

01:19:27.455 --> 01:19:27.955 in,
NOTE Confidence: 0.9958331

01:19:28.860 --> 01:19:31.260 intensive nursing care in the
NOTE Confidence: 0.9958331

01:19:31.260 --> 01:19:31.760 newborn
NOTE Confidence: 0.8408048

01:19:32.620 --> 01:19:33.979 in the newborn period and
NOTE Confidence: 0.8408048

01:19:33.979 --> 01:19:35.920 and with less with hopefully
NOTE Confidence: 0.8408048

01:19:36.140 --> 01:19:36.960 better neurodevelopmental
NOTE Confidence: 0.943593

01:19:37.580 --> 01:19:39.100 outcome as for the reasons
NOTE Confidence: 0.943593

01:19:39.100 --> 01:19:40.960 you described as the benefits.
NOTE Confidence: 0.98419774

01:19:41.615 --> 01:19:42.735 And the answer is that's
NOTE Confidence: 0.98419774

01:19:42.735 --> 01:19:44.175 really helpful and really insightful,
NOTE Confidence: 0.98419774

01:19:44.175 --> 01:19:45.854 and you're absolutely right. Is
NOTE Confidence: 0.98419774

01:19:45.854 --> 01:19:47.295 that what could happen is
NOTE Confidence: 0.98419774

01:19:47.295 --> 01:19:48.255 if these kids you know,
NOTE Confidence: 0.98419774

01:19:48.255 --> 01:19:49.055 because some of these kids
NOTE Confidence: 0.98419774

01:19:49.055 --> 01:19:50.015 who have a very difficult
NOTE Confidence: 0.98419774

01:19:50.015 --> 01:19:51.375 time on the ventilator, they

NOTE Confidence: 0.98419774

01:19:51.375 --> 01:19:52.335 end up in the hospital

NOTE Confidence: 0.98419774

01:19:52.335 --> 01:19:54.095 for a long, long, long

NOTE Confidence: 0.98419774

01:19:54.095 --> 01:19:55.375 time. If this gets kids

NOTE Confidence: 0.98419774

01:19:55.375 --> 01:19:56.640 out of the hospital weeks

NOTE Confidence: 0.98419774

01:19:56.640 --> 01:19:57.860 or months sooner

NOTE Confidence: 0.9928416

01:19:58.640 --> 01:19:59.439 than they would have if

NOTE Confidence: 0.9928416

01:19:59.439 --> 01:20:00.979 they just had conventional treatment,

NOTE Confidence: 0.9496423

01:20:01.360 --> 01:20:02.660 that's gonna have a colossal,

NOTE Confidence: 0.9658189

01:20:03.200 --> 01:20:05.360 positive, good effect on overall

NOTE Confidence: 0.9658189

01:20:05.360 --> 01:20:07.439 cost. That's possible. You bet

NOTE Confidence: 0.9658189

01:20:07.600 --> 01:20:08.560 never mind that if we

NOTE Confidence: 0.9658189

01:20:08.560 --> 01:20:09.460 present disability,

NOTE Confidence: 0.99449825

01:20:09.995 --> 01:20:11.755 a lifetime of disability, that

NOTE Confidence: 0.99449825

01:20:11.755 --> 01:20:13.055 could also have a colossal

NOTE Confidence: 0.9768343

01:20:13.515 --> 01:20:15.195 good effect on cost. So

NOTE Confidence: 0.9768343

01:20:15.195 --> 01:20:16.235 you're absolutely right, Brad. This

NOTE Confidence: 0.9768343

01:20:16.235 --> 01:20:17.515 could be expensive. This could

NOTE Confidence: 0.9768343

01:20:17.515 --> 01:20:18.795 also save us a ton

NOTE Confidence: 0.9768343

01:20:18.795 --> 01:20:19.375 of money,

NOTE Confidence: 0.98180956

01:20:19.835 --> 01:20:21.275 and somebody smarter than me

NOTE Confidence: 0.98180956

01:20:21.275 --> 01:20:22.530 needs to do their best

NOTE Confidence: 0.98180956

01:20:22.610 --> 01:20:23.650 to model how this might

NOTE Confidence: 0.98180956

01:20:23.650 --> 01:20:24.449 go. But the truth is,

NOTE Confidence: 0.98180956

01:20:24.449 --> 01:20:25.729 of course, we can't answer

NOTE Confidence: 0.98180956

01:20:25.729 --> 01:20:26.770 it because we really don't

NOTE Confidence: 0.98180956

01:20:26.770 --> 01:20:28.289 know what's gonna happen until

NOTE Confidence: 0.98180956

01:20:28.289 --> 01:20:29.729 we start doing it. And

NOTE Confidence: 0.98180956

01:20:29.729 --> 01:20:30.929 then we really can't answer

NOTE Confidence: 0.98180956

01:20:30.929 --> 01:20:31.729 it because you wanna know,

NOTE Confidence: 0.98180956

01:20:31.729 --> 01:20:32.770 well, how did this go?

NOTE Confidence: 0.98180956

01:20:32.770 --> 01:20:33.889 It went really well. The

NOTE Confidence: 0.98180956
01:20:33.889 --> 01:20:35.090 kid went home much sooner
NOTE Confidence: 0.98180956
01:20:35.090 --> 01:20:36.050 than he would have. Look.
NOTE Confidence: 0.98180956
01:20:36.050 --> 01:20:37.614 His lungs are beautiful. Well,
NOTE Confidence: 0.98180956
01:20:37.614 --> 01:20:38.814 so how's intellectually? I don't
NOTE Confidence: 0.98180956
01:20:38.814 --> 01:20:39.775 know. Come back in seven
NOTE Confidence: 0.98180956
01:20:39.775 --> 01:20:40.915 years, and I'll tell you.
NOTE Confidence: 0.98180956
01:20:41.054 --> 01:20:42.094 So this isn't gonna be
NOTE Confidence: 0.98180956
01:20:42.094 --> 01:20:42.895 an easy thing to sort
NOTE Confidence: 0.98180956
01:20:42.895 --> 01:20:44.415 through, but you're absolutely right.
NOTE Confidence: 0.98180956
01:20:44.415 --> 01:20:46.175 This could could save a
NOTE Confidence: 0.98180956
01:20:46.175 --> 01:20:46.994 lot of money.
NOTE Confidence: 0.96133775
01:20:48.895 --> 01:20:49.854 We have a question from
NOTE Confidence: 0.96133775
01:20:49.854 --> 01:20:50.594 the Zoom.
NOTE Confidence: 0.9910075
01:20:50.974 --> 01:20:52.380 And you sort of you
NOTE Confidence: 0.9910075
01:20:52.380 --> 01:20:53.740 already alluded to this, but
NOTE Confidence: 0.9910075

01:20:53.740 --> 01:20:55.340 I I my interpretation is
NOTE Confidence: 0.9910075

01:20:55.340 --> 01:20:56.460 this person perhaps wants a
NOTE Confidence: 0.9910075

01:20:56.460 --> 01:20:57.439 little bit more granularity.
NOTE Confidence: 0.9773387

01:20:58.140 --> 01:20:59.820 Is using only the gestational
NOTE Confidence: 0.9773387

01:20:59.820 --> 01:21:01.100 age the right criterion for
NOTE Confidence: 0.9773387

01:21:01.100 --> 01:21:02.700 selection criteria? It would seem
NOTE Confidence: 0.9773387

01:21:02.700 --> 01:21:04.380 that severely growth restricted fetuses
NOTE Confidence: 0.9773387

01:21:04.380 --> 01:21:05.920 in a hostile hostile intrauterine
NOTE Confidence: 0.9773387

01:21:06.140 --> 01:21:07.745 environment has a different survival
NOTE Confidence: 0.9773387

01:21:07.745 --> 01:21:09.104 and morbidity profile to compare
NOTE Confidence: 0.9773387

01:21:09.104 --> 01:21:10.145 with. So perhaps you could
NOTE Confidence: 0.9773387

01:21:10.145 --> 01:21:11.104 speak a bit more on
NOTE Confidence: 0.9773387

01:21:11.104 --> 01:21:12.805 sort of how best to
NOTE Confidence: 0.9773387

01:21:12.865 --> 01:21:14.865 select the the first patients
NOTE Confidence: 0.9773387

01:21:14.865 --> 01:21:16.305 who might undergo this. That's
NOTE Confidence: 0.9773387

01:21:16.305 --> 01:21:17.125 really smart,

NOTE Confidence: 0.9577826

01:21:17.985 --> 01:21:19.710 that question. Because, of course,

NOTE Confidence: 0.9577826

01:21:19.790 --> 01:21:21.550 we always talk not always.

NOTE Confidence: 0.9577826

01:21:21.550 --> 01:21:23.070 We commonly speak in terms

NOTE Confidence: 0.9577826

01:21:23.070 --> 01:21:24.830 of gestational age. We just

NOTE Confidence: 0.9577826

01:21:24.830 --> 01:21:25.710 talk, well, should we use

NOTE Confidence: 0.9577826

01:21:25.710 --> 01:21:26.750 this at twenty two weeks,

NOTE Confidence: 0.9577826

01:21:26.750 --> 01:21:27.550 or should we wait for

NOTE Confidence: 0.9577826

01:21:27.550 --> 01:21:28.989 twenty three weeks? But as

NOTE Confidence: 0.9577826

01:21:28.989 --> 01:21:29.950 I showed you, just the

NOTE Confidence: 0.9577826

01:21:30.030 --> 01:21:31.310 they know, the twenty three

NOTE Confidence: 0.9577826

01:21:31.310 --> 01:21:32.510 week the twenty two week

NOTE Confidence: 0.9577826

01:21:32.510 --> 01:21:33.805 girl has a much better

NOTE Confidence: 0.9577826

01:21:33.805 --> 01:21:35.405 chance of survival on conventional

NOTE Confidence: 0.9577826

01:21:35.405 --> 01:21:36.604 therapy than the twenty two

NOTE Confidence: 0.9577826

01:21:36.604 --> 01:21:38.045 week boy. And there's all

NOTE Confidence: 0.9577826

01:21:38.045 --> 01:21:39.325 sorts of different things. And
NOTE Confidence: 0.9577826

01:21:39.325 --> 01:21:40.925 that model that model that
NOTE Confidence: 0.9577826

01:21:40.925 --> 01:21:42.604 we use, that outcomes estimator
NOTE Confidence: 0.9577826

01:21:42.604 --> 01:21:43.805 that we use, all of
NOTE Confidence: 0.9577826

01:21:43.805 --> 01:21:45.104 us in the country use,
NOTE Confidence: 0.9577826

01:21:45.260 --> 01:21:46.460 puts just a few factors
NOTE Confidence: 0.9577826

01:21:46.460 --> 01:21:47.500 in there like size and
NOTE Confidence: 0.9577826

01:21:47.500 --> 01:21:49.180 sex and steroids, a few
NOTE Confidence: 0.9577826

01:21:49.180 --> 01:21:50.460 other factors. But, of course,
NOTE Confidence: 0.9577826

01:21:50.460 --> 01:21:51.660 there's many other things that
NOTE Confidence: 0.9577826

01:21:51.660 --> 01:21:52.939 could influence. Right? So, for
NOTE Confidence: 0.9577826

01:21:52.939 --> 01:21:54.300 example, what the questioner called
NOTE Confidence: 0.9577826

01:21:54.300 --> 01:21:56.460 the hostile intrauterine environment. If
NOTE Confidence: 0.9577826

01:21:56.460 --> 01:21:57.580 this kid's in a situation
NOTE Confidence: 0.9577826

01:21:57.580 --> 01:21:58.945 where I think, this kid
NOTE Confidence: 0.9577826

01:21:58.945 --> 01:21:59.905 really needs to come out,

NOTE Confidence: 0.9577826
01:21:59.905 --> 01:22:00.865 this is not gonna go
NOTE Confidence: 0.9577826
01:22:00.865 --> 01:22:01.365 well,
NOTE Confidence: 0.9555908
01:22:01.745 --> 01:22:03.125 if we continue the pregnancy,
NOTE Confidence: 0.9555908
01:22:03.265 --> 01:22:05.045 that's not that's the exceedingly
NOTE Confidence: 0.9555908
01:22:05.185 --> 01:22:06.465 difficult job of doctor Cross
NOTE Confidence: 0.9555908
01:22:06.465 --> 01:22:07.345 and her colleagues to try
NOTE Confidence: 0.9555908
01:22:07.345 --> 01:22:08.465 and figure out when the
NOTE Confidence: 0.9555908
01:22:08.465 --> 01:22:09.665 kid's better off inside or
NOTE Confidence: 0.9555908
01:22:09.665 --> 01:22:10.945 outside. But that's right. So
NOTE Confidence: 0.9555908
01:22:10.945 --> 01:22:11.745 really what it should be
NOTE Confidence: 0.9555908
01:22:11.745 --> 01:22:13.045 based on is not gestational
NOTE Confidence: 0.9555908
01:22:13.185 --> 01:22:14.630 age. Because as I said,
NOTE Confidence: 0.9555908
01:22:14.630 --> 01:22:15.590 and I'm not the first
NOTE Confidence: 0.9555908
01:22:15.590 --> 01:22:16.810 one to figure this out,
NOTE Confidence: 0.99887604
01:22:17.270 --> 01:22:18.970 gestational age is a poor
NOTE Confidence: 0.99887604

01:22:19.110 --> 01:22:20.729 proxy for prognosis.
NOTE Confidence: 0.9474589

01:22:21.189 --> 01:22:22.310 What it should be based
NOTE Confidence: 0.9474589

01:22:22.310 --> 01:22:23.830 on is prognosis. So that's
NOTE Confidence: 0.9474589

01:22:23.830 --> 01:22:24.710 why you see when I
NOTE Confidence: 0.9474589

01:22:24.710 --> 01:22:26.010 asked you that last question,
NOTE Confidence: 0.9606848

01:22:26.375 --> 01:22:28.375 what likelihood of survival what
NOTE Confidence: 0.9606848

01:22:28.455 --> 01:22:30.455 not what gestational age. What
NOTE Confidence: 0.9606848

01:22:30.455 --> 01:22:31.814 likelihood of survival has to
NOTE Confidence: 0.9606848

01:22:32.055 --> 01:22:33.255 how bad does the likelihood
NOTE Confidence: 0.9606848

01:22:33.255 --> 01:22:34.375 of survival have to be
NOTE Confidence: 0.9606848

01:22:34.375 --> 01:22:35.335 for us to say, sure.
NOTE Confidence: 0.9606848

01:22:35.335 --> 01:22:36.715 Let's try this new technology,
NOTE Confidence: 0.9606848

01:22:36.854 --> 01:22:37.975 or let's study it. Let's
NOTE Confidence: 0.9606848

01:22:37.975 --> 01:22:39.600 do a randomized trial and
NOTE Confidence: 0.9606848

01:22:39.600 --> 01:22:41.199 try it. Now Stephanie Kokura
NOTE Confidence: 0.9606848

01:22:41.199 --> 01:22:42.159 and the people who wrote

NOTE Confidence: 0.9606848

01:22:42.159 --> 01:22:43.860 that paper said twenty percent.

NOTE Confidence: 0.9521052

01:22:44.560 --> 01:22:45.840 Okay. So you say fifteen,

NOTE Confidence: 0.9521052

01:22:45.840 --> 01:22:46.960 and he says twenty five.

NOTE Confidence: 0.9521052

01:22:46.960 --> 01:22:48.420 We're making up numbers here.

NOTE Confidence: 0.9521052

01:22:48.639 --> 01:22:49.439 We've gotta come up with

NOTE Confidence: 0.9521052

01:22:49.439 --> 01:22:50.639 some consensus, but there's nothing

NOTE Confidence: 0.9521052

01:22:50.639 --> 01:22:52.159 magic about twenty percent. And

NOTE Confidence: 0.9521052

01:22:52.159 --> 01:22:53.040 other people would say, no

NOTE Confidence: 0.9521052

01:22:53.040 --> 01:22:53.840 way. It should be ten

NOTE Confidence: 0.9521052

01:22:53.840 --> 01:22:55.195 percent. Others would say, no.

NOTE Confidence: 0.9521052

01:22:55.195 --> 01:22:56.875 Let's do thirty percent because

NOTE Confidence: 0.9521052

01:22:57.114 --> 01:22:58.395 or fifty percent because, look,

NOTE Confidence: 0.9521052

01:22:58.395 --> 01:22:59.614 we're gonna save their brains.

NOTE Confidence: 0.9521052

01:22:59.835 --> 01:23:01.195 Are you sure? Well, no.

NOTE Confidence: 0.9521052

01:23:01.195 --> 01:23:02.395 But we really really hope

NOTE Confidence: 0.9521052

01:23:02.395 --> 01:23:04.475 we are. You know? That's
NOTE Confidence: 0.9521052

01:23:04.475 --> 01:23:05.675 a smart question because it
NOTE Confidence: 0.9521052

01:23:05.675 --> 01:23:06.735 should be about prognosis,
NOTE Confidence: 0.9953272

01:23:07.114 --> 01:23:08.895 not just about gestational age.
NOTE Confidence: 0.9676487

01:23:10.050 --> 01:23:11.250 We have about five more
NOTE Confidence: 0.9676487

01:23:11.250 --> 01:23:13.010 minutes, so time for maybe
NOTE Confidence: 0.9676487

01:23:13.010 --> 01:23:14.469 one or two more question.
NOTE Confidence: 0.9676487

01:23:14.689 --> 01:23:15.909 Oh, there's one. Great.
NOTE Confidence: 0.8501092

01:23:17.489 --> 01:23:17.989 Hello.
NOTE Confidence: 0.96937805

01:23:18.929 --> 01:23:20.849 So you talked about, kind
NOTE Confidence: 0.96937805

01:23:20.849 --> 01:23:22.530 of ECMO working as an
NOTE Confidence: 0.96937805

01:23:22.530 --> 01:23:24.550 analogy specifically for terminology.
NOTE Confidence: 0.9974886

01:23:25.285 --> 01:23:26.025 I'm wondering
NOTE Confidence: 0.9542918

01:23:26.405 --> 01:23:26.905 when
NOTE Confidence: 0.99112785

01:23:27.445 --> 01:23:28.885 ECMO was just starting up,
NOTE Confidence: 0.99112785

01:23:28.885 --> 01:23:30.745 like, in terms of consent,

NOTE Confidence: 0.9529596
01:23:31.125 --> 01:23:32.325 how did that look? You
NOTE Confidence: 0.9529596
01:23:32.325 --> 01:23:33.765 know, you discussed, like, do
NOTE Confidence: 0.9529596
01:23:33.765 --> 01:23:35.385 we need both parents to,
NOTE Confidence: 0.9817454
01:23:36.085 --> 01:23:37.385 consent for extend?
NOTE Confidence: 0.9978274
01:23:37.830 --> 01:23:39.590 Like, what was what's been
NOTE Confidence: 0.9978274
01:23:39.590 --> 01:23:41.290 done previously with ECMO?
NOTE Confidence: 0.9944184
01:23:42.070 --> 01:23:43.030 Now believe it or not,
NOTE Confidence: 0.9944184
01:23:43.030 --> 01:23:44.070 I was actually around when
NOTE Confidence: 0.9944184
01:23:44.070 --> 01:23:45.349 we first started getting consent
NOTE Confidence: 0.9944184
01:23:45.349 --> 01:23:46.710 for people for ECMO. But
NOTE Confidence: 0.9944184
01:23:46.710 --> 01:23:47.590 believe it or not, I
NOTE Confidence: 0.9944184
01:23:47.590 --> 01:23:48.330 did mention
NOTE Confidence: 0.9982889
01:23:48.790 --> 01:23:49.750 I hate to put people
NOTE Confidence: 0.9982889
01:23:49.750 --> 01:23:50.650 on the spot.
NOTE Confidence: 0.88967097
01:23:51.510 --> 01:23:52.305 Do you wanna speak to
NOTE Confidence: 0.88967097

01:23:52.305 --> 01:23:53.025 that? You want me to
NOTE Confidence: 0.88967097

01:23:53.025 --> 01:23:53.765 speak to that?
NOTE Confidence: 0.81599784

01:23:54.545 --> 01:23:55.425 You can speak to that.
NOTE Confidence: 0.81599784

01:23:55.425 --> 01:23:56.385 So it's a difficult question.
NOTE Confidence: 0.81599784

01:23:56.385 --> 01:23:57.585 I'll have it. Yeah. There
NOTE Confidence: 0.81599784

01:23:57.585 --> 01:23:58.325 we go. It's
NOTE Confidence: 0.96288043

01:23:58.785 --> 01:24:00.225 a difficult question if one
NOTE Confidence: 0.96288043

01:24:00.225 --> 01:24:01.344 parent wants the patient to
NOTE Confidence: 0.96288043

01:24:01.344 --> 01:24:02.225 go on ECMO and the
NOTE Confidence: 0.96288043

01:24:02.225 --> 01:24:03.745 other doesn't. So we don't
NOTE Confidence: 0.96288043

01:24:03.745 --> 01:24:04.945 have, like, a set policy
NOTE Confidence: 0.96288043

01:24:04.945 --> 01:24:06.225 that says if one does
NOTE Confidence: 0.96288043

01:24:06.225 --> 01:24:07.939 and one doesn't. We have
NOTE Confidence: 0.96288043

01:24:07.939 --> 01:24:09.380 to approach that individually and
NOTE Confidence: 0.96288043

01:24:09.380 --> 01:24:10.740 figure out what the best
NOTE Confidence: 0.96288043

01:24:10.900 --> 01:24:11.860 I think I think what

NOTE Confidence: 0.96288043
01:24:11.860 --> 01:24:12.660 we would do to start
NOTE Confidence: 0.96288043
01:24:12.660 --> 01:24:13.780 with again, this is Steve
NOTE Confidence: 0.96288043
01:24:13.780 --> 01:24:15.140 Pieterich, the guy who started
NOTE Confidence: 0.96288043
01:24:15.140 --> 01:24:16.740 the ECMO program at Yale
NOTE Confidence: 0.96288043
01:24:16.740 --> 01:24:17.780 and and has done more
NOTE Confidence: 0.96288043
01:24:17.780 --> 01:24:19.000 than anybody in the state.
NOTE Confidence: 0.99082685
01:24:19.460 --> 01:24:20.200 This is
NOTE Confidence: 0.9922806
01:24:23.185 --> 01:24:24.545 this is hard work. Right?
NOTE Confidence: 0.9922806
01:24:24.545 --> 01:24:25.665 And so what we would
NOTE Confidence: 0.9922806
01:24:25.665 --> 01:24:27.425 really do, not a satisfying
NOTE Confidence: 0.9922806
01:24:27.425 --> 01:24:28.864 answer for an ethicist, is
NOTE Confidence: 0.9922806
01:24:28.864 --> 01:24:29.585 what we really do is
NOTE Confidence: 0.9922806
01:24:29.585 --> 01:24:30.465 we work like hell to
NOTE Confidence: 0.9922806
01:24:30.465 --> 01:24:31.185 get the parents on the
NOTE Confidence: 0.9922806
01:24:31.185 --> 01:24:31.925 same page.
NOTE Confidence: 0.99926156

01:24:32.305 --> 01:24:33.364 Failing that,
NOTE Confidence: 0.99081737

01:24:34.370 --> 01:24:35.330 I'm not certain what we
NOTE Confidence: 0.99081737

01:24:35.330 --> 01:24:36.290 would do. It might depend
NOTE Confidence: 0.99081737

01:24:36.290 --> 01:24:37.030 on the situation.
NOTE Confidence: 0.98034316

01:24:37.970 --> 01:24:39.330 One thing interesting about the
NOTE Confidence: 0.98034316

01:24:39.330 --> 01:24:40.689 initiation of ECMO in the
NOTE Confidence: 0.98034316

01:24:40.689 --> 01:24:41.890 early days was it was
NOTE Confidence: 0.98034316

01:24:41.890 --> 01:24:43.570 chosen for patients who we
NOTE Confidence: 0.98034316

01:24:43.570 --> 01:24:45.010 thought had an eighty percent
NOTE Confidence: 0.98034316

01:24:45.010 --> 01:24:46.530 mortality rate. A twenty percent
NOTE Confidence: 0.98034316

01:24:46.530 --> 01:24:47.890 survival rate was how it
NOTE Confidence: 0.98034316

01:24:47.890 --> 01:24:48.630 was recommended,
NOTE Confidence: 0.9946538

01:24:49.025 --> 01:24:50.145 very similar to the numbers
NOTE Confidence: 0.9946538

01:24:50.145 --> 01:24:51.364 that your friends picked.
NOTE Confidence: 0.97191364

01:24:51.824 --> 01:24:53.025 That's that's really interesting. And
NOTE Confidence: 0.97191364

01:24:53.025 --> 01:24:53.824 I wonder if she if

NOTE Confidence: 0.97191364
01:24:54.064 --> 01:24:54.704 I didn't know that. I
NOTE Confidence: 0.97191364
01:24:54.704 --> 01:24:55.425 wonder if that's what she
NOTE Confidence: 0.97191364
01:24:55.585 --> 01:24:56.304 how she came up with
NOTE Confidence: 0.97191364
01:24:56.304 --> 01:24:57.185 that number. If I had
NOTE Confidence: 0.97191364
01:24:57.185 --> 01:24:58.385 read the article more carefully,
NOTE Confidence: 0.97191364
01:24:58.385 --> 01:24:59.185 I might know that. But
NOTE Confidence: 0.97191364
01:24:59.185 --> 01:25:00.625 that's helpful to know, Steve.
NOTE Confidence: 0.97191364
01:25:00.625 --> 01:25:01.900 But remember, and I know
NOTE Confidence: 0.97191364
01:25:01.900 --> 01:25:03.020 you know this better than
NOTE Confidence: 0.97191364
01:25:03.020 --> 01:25:04.380 I, Steve, when we started
NOTE Confidence: 0.97191364
01:25:04.380 --> 01:25:05.580 ECMO, when ECMO was first
NOTE Confidence: 0.97191364
01:25:05.580 --> 01:25:06.860 studying, it was the folks
NOTE Confidence: 0.97191364
01:25:06.860 --> 01:25:08.540 out in Michigan who said,
NOTE Confidence: 0.97191364
01:25:08.540 --> 01:25:09.420 take a look at kids
NOTE Confidence: 0.97191364
01:25:09.420 --> 01:25:11.260 whose whose oxygenation these are
NOTE Confidence: 0.97191364

01:25:11.260 --> 01:25:12.700 full term babies now. Their
NOTE Confidence: 0.97191364

01:25:12.700 --> 01:25:14.220 oxygenation index, which has to
NOTE Confidence: 0.97191364

01:25:14.220 --> 01:25:15.260 do with how much oxygen
NOTE Confidence: 0.97191364

01:25:15.260 --> 01:25:16.485 you're in, how low the
NOTE Confidence: 0.97191364

01:25:16.485 --> 01:25:17.365 oxygen in your blood is,
NOTE Confidence: 0.97191364

01:25:17.365 --> 01:25:18.405 and how high the settings
NOTE Confidence: 0.97191364

01:25:18.405 --> 01:25:19.705 on the ventilator are.
NOTE Confidence: 0.99739933

01:25:20.325 --> 01:25:21.045 Take a look at these
NOTE Confidence: 0.99739933

01:25:21.045 --> 01:25:21.545 kids.
NOTE Confidence: 0.99034107

01:25:21.845 --> 01:25:23.064 Once you reach this
NOTE Confidence: 0.9241495

01:25:24.245 --> 01:25:25.445 point, the this is so
NOTE Confidence: 0.9241495

01:25:25.445 --> 01:25:26.985 bad, their chances of dying
NOTE Confidence: 0.9241495

01:25:27.205 --> 01:25:28.265 are ninety percent.
NOTE Confidence: 0.9642277

01:25:29.050 --> 01:25:30.250 So we take these kids,
NOTE Confidence: 0.9642277

01:25:30.250 --> 01:25:31.050 we put them on that
NOTE Confidence: 0.9642277

01:25:31.050 --> 01:25:32.410 ball, and we save ninety

NOTE Confidence: 0.9642277
01:25:32.410 --> 01:25:33.310 percent of them.
NOTE Confidence: 0.97038245
01:25:33.689 --> 01:25:35.130 Well, that seems pretty convincing.
NOTE Confidence: 0.97038245
01:25:35.130 --> 01:25:37.050 Right? So at Yale, what
NOTE Confidence: 0.97038245
01:25:37.050 --> 01:25:38.250 we did, and it wasn't
NOTE Confidence: 0.97038245
01:25:38.250 --> 01:25:39.210 me, it was others I
NOTE Confidence: 0.97038245
01:25:39.210 --> 01:25:40.490 was working with, said, we
NOTE Confidence: 0.97038245
01:25:40.490 --> 01:25:41.370 take a look at those
NOTE Confidence: 0.97038245
01:25:41.370 --> 01:25:42.430 same kids here
NOTE Confidence: 0.9365274
01:25:43.135 --> 01:25:44.655 who have a ninety percent
NOTE Confidence: 0.9365274
01:25:44.895 --> 01:25:45.875 by your criteria,
NOTE Confidence: 0.9501015
01:25:46.175 --> 01:25:47.535 ninety percent chance of dying
NOTE Confidence: 0.9501015
01:25:47.535 --> 01:25:48.975 on conventional treatment. By the
NOTE Confidence: 0.9501015
01:25:48.975 --> 01:25:50.095 way, we save ninety percent
NOTE Confidence: 0.9501015
01:25:50.095 --> 01:25:51.695 of them. So we'll you
NOTE Confidence: 0.9501015
01:25:51.695 --> 01:25:53.055 have ninety percent mortality for
NOTE Confidence: 0.9501015

01:25:53.055 --> 01:25:54.335 those kids? We've got ten

NOTE Confidence: 0.9501015

01:25:54.335 --> 01:25:55.235 percent mortality.

NOTE Confidence: 0.999577

01:25:55.615 --> 01:25:56.895 Is that because we're so

NOTE Confidence: 0.999577

01:25:56.895 --> 01:25:57.395 smart?

NOTE Confidence: 0.9984613

01:25:57.830 --> 01:25:58.729 No. It's because

NOTE Confidence: 0.98091614

01:25:59.350 --> 01:26:01.270 we borrowed from Columbia, because

NOTE Confidence: 0.98091614

01:26:01.270 --> 01:26:02.310 Columbia had figured out a

NOTE Confidence: 0.98091614

01:26:02.310 --> 01:26:03.510 smarter way to ventilate these

NOTE Confidence: 0.98091614

01:26:03.510 --> 01:26:04.790 babies. So we changed to

NOTE Confidence: 0.98091614

01:26:04.790 --> 01:26:05.670 the point of the man

NOTE Confidence: 0.98091614

01:26:05.670 --> 01:26:07.370 back there about different ventilator

NOTE Confidence: 0.98091614

01:26:07.430 --> 01:26:08.710 strategies. We changed the way

NOTE Confidence: 0.98091614

01:26:08.710 --> 01:26:10.390 we ventilate full term babies

NOTE Confidence: 0.98091614

01:26:10.390 --> 01:26:12.085 with horrible lungs, and we

NOTE Confidence: 0.98091614

01:26:12.085 --> 01:26:13.685 had much better results. Meantime,

NOTE Confidence: 0.98091614

01:26:13.685 --> 01:26:14.805 the guys in Michigan are

NOTE Confidence: 0.98091614
01:26:14.805 --> 01:26:17.205 comparing the old way. And
NOTE Confidence: 0.98091614
01:26:17.205 --> 01:26:18.325 one result that came with
NOTE Confidence: 0.98091614
01:26:18.325 --> 01:26:19.205 that and, Steve, if I'm
NOTE Confidence: 0.98091614
01:26:19.205 --> 01:26:20.564 wrong, please feel free to
NOTE Confidence: 0.98091614
01:26:20.564 --> 01:26:22.104 embarrass me about this, honestly.
NOTE Confidence: 0.98091614
01:26:22.165 --> 01:26:23.285 But one thing that came
NOTE Confidence: 0.98091614
01:26:23.285 --> 01:26:24.239 of that was that the
NOTE Confidence: 0.98091614
01:26:24.239 --> 01:26:25.679 world jumped on the bandwagon
NOTE Confidence: 0.98091614
01:26:25.679 --> 01:26:27.039 with ECMO, and it was
NOTE Confidence: 0.98091614
01:26:27.039 --> 01:26:29.139 many years of using it
NOTE Confidence: 0.95610213
01:26:29.920 --> 01:26:30.960 before we actually had a
NOTE Confidence: 0.95610213
01:26:30.960 --> 01:26:32.719 good randomized trial demonstrating its
NOTE Confidence: 0.95610213
01:26:32.719 --> 01:26:33.760 efficacy. Is that a fair
NOTE Confidence: 0.95610213
01:26:33.760 --> 01:26:35.360 statement? Yes. He says yes.
NOTE Confidence: 0.95610213
01:26:35.360 --> 01:26:36.400 Because this isn't our first
NOTE Confidence: 0.95610213

01:26:36.400 --> 01:26:37.519 conversation with it. He's taught

NOTE Confidence: 0.95610213

01:26:37.519 --> 01:26:38.639 me a lot about this.

NOTE Confidence: 0.95610213

01:26:38.639 --> 01:26:39.965 So I don't want us

NOTE Confidence: 0.95610213

01:26:39.965 --> 01:26:40.685 to be in that same

NOTE Confidence: 0.95610213

01:26:40.685 --> 01:26:42.205 situation with the artificial wound

NOTE Confidence: 0.95610213

01:26:42.205 --> 01:26:43.725 technology where we're just on

NOTE Confidence: 0.95610213

01:26:43.725 --> 01:26:45.085 the bandwagon, wriggling, and no

NOTE Confidence: 0.95610213

01:26:45.085 --> 01:26:46.125 one's actually proven with a

NOTE Confidence: 0.95610213

01:26:46.125 --> 01:26:47.965 randomized trial that it's actually

NOTE Confidence: 0.95610213

01:26:47.965 --> 01:26:49.025 making things better.