WEBVTT

00:00:00.000 --> 00:00:02.148 Funding for Yale Cancer Answers is

NOTE Confidence: 0.789423786363636

00:00:02.148 --> 00:00:04.180 provided by Smilow Cancer Hospital.

NOTE Confidence: 0.721511609090909

00:00:06.490 --> 00:00:08.764 Welcome to Yale Cancer Answers with

NOTE Confidence: 0.721511609090909

00:00:08.764 --> 00:00:10.870 your host Doctor Anees Chagpar.

NOTE Confidence: 0.721511609090909

00:00:10.870 --> 00:00:12.720 Yale Cancer Answers features the

NOTE Confidence: 0.721511609090909

00:00:12.720 --> 00:00:14.991 latest information on cancer care by

NOTE Confidence: 0.721511609090909

00:00:14.991 --> 00:00:16.447 welcoming oncologists and specialists

NOTE Confidence: 0.721511609090909

00:00:16.447 --> 00:00:18.888 who are on the forefront of the

NOTE Confidence: 0.721511609090909

00:00:18.888 --> 00:00:20.618 battle to fight cancer. This week,

NOTE Confidence: 0.721511609090909

00:00:20.618 --> 00:00:22.138 it's a conversation about the

NOTE Confidence: 0.721511609090909

00:00:22.138 --> 00:00:24.190 role of Agent Orange in certain

NOTE Confidence: 0.721511609090909

00:00:24.190 --> 00:00:25.985 cancers with Doctor Rory Shallis.

NOTE Confidence: 0.721511609090909

00:00:25.990 --> 00:00:27.730 Dr Shallis is an assistant

NOTE Confidence: 0.721511609090909

00:00:27.730 --> 00:00:29.470 professor of medicine in hematology

NOTE Confidence: 0.721511609090909

00:00:29.529 --> 00:00:31.269 at the Yale School of Medicine,

NOTE Confidence: 0.721511609090909

00:00:31.270 --> 00:00:33.075 where Doctor Chagpar is a

NOTE Confidence: 0.721511609090909

00:00:33.075 --> 00:00:34.519 professor of surgical oncology.

NOTE Confidence: 0.902514190869565

00:00:35.770 --> 00:00:37.706 So Rory maybe we can start off by

NOTE Confidence: 0.902514190869565

00:00:37.706 --> 00:00:39.512 you telling us a little bit more

NOTE Confidence: 0.902514190869565

00:00:39.512 --> 00:00:41.369 about yourself and what it is you do.

NOTE Confidence: 0.74656865875

00:00:42.000 --> 00:00:43.640 I'm originally from New Jersey,

NOTE Confidence: 0.74656865875

00:00:43.640 --> 00:00:46.100 South Jersey and in particular for

NOTE Confidence: 0.74656865875

00:00:46.171 --> 00:00:48.655 those that know there are difference.

NOTE Confidence: 0.74656865875

00:00:48.660 --> 00:00:50.170 Graduated from Rutgers College with

NOTE Confidence: 0.74656865875

00:00:50.170 --> 00:00:52.177 a BA and cell biology, neuroscience,

NOTE Confidence: 0.74656865875

00:00:52.177 --> 00:00:55.159 medical degree at the same place,

NOTE Confidence: 0.74656865875

00:00:55.160 --> 00:00:58.562 residency at Brown and then Fellowship and

NOTE Confidence: 0.74656865875

00:00:58.562 --> 00:01:00.938 Hematology Oncology at Yale was privileged

NOTE Confidence: 0.74656865875

00:01:00.938 --> 00:01:02.821 to stay on as faculty and currently

NOTE Confidence: 0.74656865875

00:01:02.821 --> 00:01:04.780 in the role of assistant professor.

NOTE Confidence: 0.74656865875

00:01:04.780 --> 00:01:06.690 I currently specialize in the

NOTE Confidence: 0.74656865875

00:01:06.690 --> 00:01:08.600 management of acute myeloid leukemia

NOTE Confidence: 0.74656865875

00:01:08.662 --> 00:01:10.399 and myelodysplastic syndromes.

NOTE Confidence: 0.74656865875

00:01:10.400 --> 00:01:12.616 Otherwise known as AML.

NOTE Confidence: 0.74656865875

00:01:12.616 --> 00:01:14.278 And MD S.

NOTE Confidence: 0.74656865875

00:01:14.280 --> 00:01:16.146 So that's generally my my practice.

NOTE Confidence: 0.918354944444444

00:01:17.140 --> 00:01:18.640 Tell us a little bit more

NOTE Confidence: 0.918354944444444

00:01:18.640 --> 00:01:19.390 about your research,

NOTE Confidence: 0.878191823333333

00:01:19.860 --> 00:01:21.460 sure, so I mean,

NOTE Confidence: 0.878191823333333

00:01:21.460 --> 00:01:23.460 my research is mostly focused.

NOTE Confidence: 0.878191823333333

00:01:23.460 --> 00:01:26.554 As I said on patients that are

NOTE Confidence: 0.878191823333333

00:01:26.554 --> 00:01:27.880 unfortunately afflicted with

NOTE Confidence: 0.878191823333333

00:01:27.960 --> 00:01:30.410 AML and MD S but not dissimilar

NOTE Confidence: 0.878191823333333

00:01:30.410 --> 00:01:32.226 from other folks that consider

NOTE Confidence: 0.878191823333333

00:01:32.226 --> 00:01:34.086 themselves specialists in this area.

NOTE Confidence: 0.878191823333333

00:01:34.090 --> 00:01:36.156 I do see, you know, a fair bit about

NOTE Confidence: 0.878191823333333

00:01:36.156 --> 00:01:38.400 a fair bit of patience with them,

NOTE Confidence: 0.878191823333333

00:01:38.400 --> 00:01:39.864 other myeloid malignancies and

NOTE Confidence: 0.878191823333333

00:01:39.864 --> 00:01:42.060 other forms of leukemia as well.

NOTE Confidence: 0.878191823333333

00:01:42.060 --> 00:01:43.868 Most of my research is and is by

NOTE Confidence: 0.878191823333333

00:01:43.868 --> 00:01:45.829 way of clinical clinical trials,

NOTE Confidence: 0.878191823333333

00:01:45.830 --> 00:01:48.080 but I do maintain an interest

NOTE Confidence: 0.878191823333333

00:01:48.080 --> 00:01:50.010 in outcomes research as well,

NOTE Confidence: 0.878191823333333

00:01:50.010 --> 00:01:52.162 and perhaps you know on some of the

NOTE Confidence: 0.878191823333333

00:01:52.162 --> 00:01:53.958 topics that you wish to speak of.

NOTE Confidence: 0.902169705

00:01:54.700 --> 00:01:56.625 Yeah, so so why don't we dive

NOTE Confidence: 0.902169705

00:01:56.625 --> 00:01:58.524 a little bit more into myeloid

NOTE Confidence: 0.902169705

00:01:58.524 --> 00:02:01.247 leukemias and and you can tell us a

NOTE Confidence: 0.902169705

00:02:01.247 --> 00:02:03.424 little bit more about what they are,

NOTE Confidence: 0.902169705

00:02:03.430 --> 00:02:06.566 what causes them, how common they are,

NOTE Confidence: 0.902169705

00:02:06.570 --> 00:02:08.560 and what the prognosis is.

NOTE Confidence: 0.779756653333333

00:02:10.040 --> 00:02:12.160 Them all you know pretty

NOTE Confidence: 0.779756653333333

00:02:12.160 --> 00:02:13.856 important questions and all.

NOTE Confidence: 0.779756653333333

00:02:13.860 --> 00:02:15.260 Could be pretty lengthy answers,

NOTE Confidence: 0.779756653333333

00:02:15.260 --> 00:02:18.080 but I'll try to summarize it as best I can,

NOTE Confidence: 0.779756653333333

00:02:18.080 --> 00:02:18.880 especially just considering you

NOTE Confidence: 0.779756653333333

00:02:18.880 --> 00:02:20.319 know what I presume is going to be.

NOTE Confidence: 0.779756653333333

00:02:20.320 --> 00:02:22.012 The audience here.

NOTE Confidence: 0.779756653333333

00:02:22.012 --> 00:02:25.960 Myeloid leukemia is a general term actually,

NOTE Confidence: 0.779756653333333

00:02:25.960 --> 00:02:28.242 and and taken simply refers to a

NOTE Confidence: 0.779756653333333

00:02:28.242 --> 00:02:30.699 malignant state of the white blood cells.

NOTE Confidence: 0.779756653333333

00:02:30.700 --> 00:02:31.316 More specifically,

NOTE Confidence: 0.779756653333333

00:02:31.316 --> 00:02:32.856 those that are not lymphoid,

NOTE Confidence: 0.779756653333333

00:02:32.860 --> 00:02:34.939 2 general types and this is not

NOTE Confidence: 0.779756653333333

00:02:34.939 --> 00:02:36.938 perfectly stated of white blood cells,

NOTE Confidence: 0.779756653333333

00:02:36.940 --> 00:02:37.969 myeloid and lymphoid.

NOTE Confidence: 0.779756653333333

00:02:37.969 --> 00:02:40.027 The myeloid group of cells originate

NOTE Confidence: 0.779756653333333

00:02:40.027 --> 00:02:42.283 in the bone marrow or the essentially

NOTE Confidence: 0.779756653333333

00:02:42.283 --> 00:02:44.649 what I tell patients is the factory for.

NOTE Confidence: 0.779756653333333

00:02:44.650 --> 00:02:46.590 Where these are made and

NOTE Confidence: 0.779756653333333

00:02:46.590 --> 00:02:48.142 once assembled or mature,

NOTE Confidence: 0.779756653333333

00:02:48.150 --> 00:02:49.662 leave the marrow to enter the

NOTE Confidence: 0.779756653333333

00:02:49.662 --> 00:02:51.020 bloodstream and perform their duties,

NOTE Confidence: 0.779756653333333

00:02:51.020 --> 00:02:52.676 including fighting off infections

NOTE Confidence: 0.779756653333333

00:02:52.676 --> 00:02:54.746 among a few other roles.

NOTE Confidence: 0.779756653333333

00:02:54.750 --> 00:02:56.850 This is a near continuous process.

NOTE Confidence: 0.779756653333333

00:02:56.850 --> 00:02:57.222 Unfortunately,

NOTE Confidence: 0.779756653333333

00:02:57.222 --> 00:02:59.082 this process can be disrupted

NOTE Confidence: 0.779756653333333

00:02:59.082 --> 00:03:01.552 by a number of mechanisms that

NOTE Confidence: 0.779756653333333

00:03:01.552 --> 00:03:03.827 basically injure the machinery that

NOTE Confidence: 0.779756653333333

00:03:03.827 --> 00:03:05.862 make healthy myeloid white blood

NOTE Confidence: 0.779756653333333

00:03:05.862 --> 00:03:07.983 cells that can cause a ruckus on

NOTE Confidence: 0.779756653333333

00:03:07.983 --> 00:03:09.535 the factory floor so that they're

NOTE Confidence: 0.779756653333333

00:03:09.535 --> 00:03:11.089 really not made into the same

NOTE Confidence: 0.779756653333333

00:03:11.089 --> 00:03:12.667 quantity but also the same quality.

NOTE Confidence: 0.779756653333333

00:03:12.670 --> 00:03:14.274 We think with enough.

NOTE Confidence: 0.779756653333333

00:03:14.274 --> 00:03:17.500 Injury to specific parts of that machinery.

NOTE Confidence: 0.779756653333333

00:03:17.500 --> 00:03:19.915 The process can be stalled entirely in

NOTE Confidence: 0.779756653333333

00:03:19.915 --> 00:03:22.077 certain areas where you know they are.

NOTE Confidence: 0.779756653333333

00:03:22.080 --> 00:03:24.271 There's a backlog of the of the

NOTE Confidence: 0.779756653333333

00:03:24.271 --> 00:03:25.638 myeloid white cell building

NOTE Confidence: 0.779756653333333

00:03:25.638 --> 00:03:27.780 blocks or precursors that we call

NOTE Confidence: 0.779756653333333

00:03:27.780 --> 00:03:29.360 blasts when in excess.

NOTE Confidence: 0.779756653333333

00:03:29.360 --> 00:03:31.140 This generally heralds a typically

NOTE Confidence: 0.779756653333333

00:03:31.140 --> 00:03:33.243 aggressive form of disease and at

NOTE Confidence: 0.779756653333333

00:03:33.243 --> 00:03:34.821 a certain point defines what we

NOTE Confidence: 0.779756653333333

00:03:34.821 --> 00:03:36.600 call an acute myeloid leukemia.

NOTE Confidence: 0.779756653333333

00:03:36.600 --> 00:03:38.833 AML not every form of myeloid leukemia

NOTE Confidence: 0.779756653333333

00:03:38.833 --> 00:03:41.360 or or even amount for that matter,

NOTE Confidence: 0.779756653333333

00:03:41.360 --> 00:03:42.068 or are identical,

NOTE Confidence: 0.779756653333333

00:03:42.068 --> 00:03:44.011 so you know this might be related to

NOTE Confidence: 0.779756653333333

00:03:44.011 --> 00:03:45.475 the fact that there are different.

NOTE Confidence: 0.779756653333333

00:03:45.480 --> 00:03:46.724 Parts of the machinery,

NOTE Confidence: 0.779756653333333

00:03:46.724 --> 00:03:48.279 whether they are specific genetic

NOTE Confidence: 0.779756653333333

00:03:48.279 --> 00:03:49.958 mutations in these cells or disruptions

NOTE Confidence: 0.779756653333333

00:03:49.958 --> 00:03:51.610 of larger portions of these cells,

NOTE Confidence: 0.779756653333333

00:03:51.610 --> 00:03:53.306 DNA called the chromosomes,

NOTE Confidence: 0.779756653333333

00:03:53.306 --> 00:03:55.850 are detected and drive the cells

NOTE Confidence: 0.779756653333333

00:03:55.922 --> 00:03:58.306 towards this usually unequivocally

NOTE Confidence: 0.779756653333333

00:03:58.306 --> 00:04:00.610 problem problematic. State.

NOTE Confidence: 0.779756653333333

00:04:00.610 --> 00:04:01.990 How common are they?

NOTE Confidence: 0.779756653333333

00:04:01.990 --> 00:04:04.060 It's I mean it's all relative,

NOTE Confidence: 0.779756653333333

00:04:04.060 --> 00:04:05.154 you know,

NOTE Confidence: 0.779756653333333

00:04:05.154 --> 00:04:07.889 in the hematologic malignancy world,

NOTE Confidence: 0.779756653333333

00:04:07.890 --> 00:04:09.444 there are some that are more common

NOTE Confidence: 0.779756653333333

00:04:09.444 --> 00:04:09.888 than others.

NOTE Confidence: 0.779756653333333

00:04:09.890 --> 00:04:11.610 When it comes to MD S and AML.

NOTE Confidence: 0.779756653333333

00:04:11.610 --> 00:04:13.650 Generally we we regard the

NOTE Confidence: 0.779756653333333

00:04:13.650 --> 00:04:15.690 incidence as being in the.

NOTE Confidence: 0.779756653333333

00:04:15.690 --> 00:04:17.770 In the order of maybe three to four

NOTE Confidence: 0.779756653333333

00:04:17.770 --> 00:04:19.838 per 100,000 population or person years,

NOTE Confidence: 0.779756653333333

00:04:19.840 --> 00:04:22.060 so I wouldn't call them rare,

NOTE Confidence: 0.779756653333333

00:04:22.060 --> 00:04:23.698 but I wouldn't call them common,

NOTE Confidence: 0.779756653333333

00:04:23.700 --> 00:04:26.353 and the prognosis for each of these

NOTE Confidence: 0.779756653333333

00:04:26.353 --> 00:04:28.690 diseases there's a lot of variance,

NOTE Confidence: 0.779756653333333

00:04:28.690 --> 00:04:29.838 and this depends on.

NOTE Confidence: 0.779756653333333

00:04:29.838 --> 00:04:31.955 Really a lot of variables and some

NOTE Confidence: 0.779756653333333

00:04:31.955 --> 00:04:33.630 of which were really refining.

NOTE Confidence: 0.779756653333333

00:04:33.630 --> 00:04:36.038 You know progressively and perhaps some we

NOTE Confidence: 0.779756653333333

00:04:36.038 --> 00:04:38.300 haven't even really figured out just yet.

NOTE Confidence: 0.779756653333333

00:04:38.300 --> 00:04:39.880 It can range from,

NOTE Confidence: 0.779756653333333

00:04:39.880 --> 00:04:40.670 you know,

NOTE Confidence: 0.779756653333333

00:04:40.670 --> 00:04:42.655 from just a patient being

NOTE Confidence: 0.779756653333333

00:04:42.655 --> 00:04:43.846 recommended for observation.

NOTE Confidence: 0.779756653333333

00:04:43.850 --> 00:04:45.110 You know it's something that can

NOTE Confidence: 0.779756653333333

00:04:45.110 --> 00:04:46.690 be regarded as a chronic illness.

NOTE Confidence: 0.779756653333333

00:04:46.690 --> 00:04:47.635 Like you know,

NOTE Confidence: 0.779756653333333

00:04:47.635 --> 00:04:49.525 blood pressure issues or cholesterol issues,

NOTE Confidence: 0.779756653333333

00:04:49.530 --> 00:04:52.750 and often doesn't really cause any problems.

NOTE Confidence: 0.779756653333333

00:04:52.750 --> 00:04:53.026 Conversely,

NOTE Confidence: 0.779756653333333

00:04:53.026 --> 00:04:54.406 there are patients that you

NOTE Confidence: 0.779756653333333

00:04:54.406 --> 00:04:55.234 know have disease,

NOTE Confidence: 0.779756653333333

00:04:55.240 --> 00:04:56.475 which is clearly aggressive and

NOTE Confidence: 0.779756653333333

00:04:56.475 --> 00:04:58.123 comes with a whole host of problems

NOTE Confidence: 0.779756653333333

00:04:58.123 --> 00:04:59.595 for which we have to be a bit

NOTE Confidence: 0.906027601818182

00:04:59.641 --> 00:05:00.786 more aggressive. And our

NOTE Confidence: 0.906027601818182

00:05:00.786 --> 00:05:01.638 and our management approach.

NOTE Confidence: 0.800845123333333

00:05:02.870 --> 00:05:05.366 And So what? What causes us?

NOTE Confidence: 0.800845123333333

00:05:05.370 --> 00:05:07.398 I mean, when we think about

NOTE Confidence: 0.800845123333333

00:05:07.398 --> 00:05:08.750 other kinds of cancers,

NOTE Confidence: 0.800845123333333

00:05:08.750 --> 00:05:11.750 sometimes we know an etiologic factor.

NOTE Confidence: 0.800845123333333

00:05:11.750 --> 00:05:14.654 So for example, I think everybody kind of

NOTE Confidence: 0.800845123333333

00:05:14.654 --> 00:05:17.549 knows that smoking can cause lung cancer.

NOTE Confidence: 0.800845123333333

00:05:17.550 --> 00:05:20.005 We know that exposure to

NOTE Confidence: 0.800845123333333

00:05:20.005 --> 00:05:21.969 sunlight can cause Melanoma.

NOTE Confidence: 0.800845123333333

00:05:21.970 --> 00:05:24.105 We don't know too much about AML,

NOTE Confidence: 0.800845123333333

00:05:24.110 --> 00:05:25.664 so talk a little bit about what

NOTE Confidence: 0.800845123333333

00:05:25.664 --> 00:05:27.785 we do know and what we don't know

NOTE Confidence: 0.800845123333333

00:05:27.785 --> 00:05:29.185 about factors that cause this.

NOTE Confidence: 0.851323101428571

00:05:30.990 --> 00:05:33.930 Great question and and happy to help there.

NOTE Confidence: 0.851323101428571

00:05:33.930 --> 00:05:36.170 There is evidence that some AML is

NOTE Confidence: 0.851323101428571

00:05:36.170 --> 00:05:38.709 what we call quote UN quote de Novo,

NOTE Confidence: 0.851323101428571

00:05:38.710 --> 00:05:40.444 meaning it arises quote from nothing

NOTE Confidence: 0.851323101428571

00:05:40.444 --> 00:05:42.729 and quote to take the Latin literally.

NOTE Confidence: 0.851323101428571

00:05:42.730 --> 00:05:44.978 But really, every you know every day our

NOTE Confidence: 0.851323101428571

00:05:44.978 --> 00:05:47.272 marrow stem cells and their their cousins

NOTE Confidence: 0.851323101428571

00:05:47.272 --> 00:05:49.275 or related cells are replicating and

NOTE Confidence: 0.851323101428571

00:05:49.275 --> 00:05:51.435 there are inherent errors in the DNA that

NOTE Confidence: 0.851323101428571

00:05:51.435 --> 00:05:53.408 come about and are usually, you know,

NOTE Confidence: 0.851323101428571

00:05:53.410 --> 00:05:56.248 repaired via our really innate mechanisms.

NOTE Confidence: 0.851323101428571

00:05:56.250 --> 00:05:58.210 But sometimes these aren't repaired,

NOTE Confidence: 0.851323101428571

00:05:58.210 --> 00:05:58.622 you know?

NOTE Confidence: 0.851323101428571

00:05:58.622 --> 00:06:00.270 So this is where some of this machinery.

NOTE Confidence: 0.851323101428571

00:06:00.270 --> 00:06:02.286 Can be damaged and put the cells

NOTE Confidence: 0.851323101428571

00:06:02.286 --> 00:06:04.458 in the path to become leukemic.

NOTE Confidence: 0.851323101428571

00:06:04.460 --> 00:06:05.815 So it's really through no

NOTE Confidence: 0.851323101428571

00:06:05.815 --> 00:06:07.819 fault of you know of their own,

NOTE Confidence: 0.851323101428571

00:06:07.820 --> 00:06:09.703 but this is still kind of a

NOTE Confidence: 0.851323101428571

00:06:09.703 --> 00:06:11.220 you know a A theory.

NOTE Confidence: 0.851323101428571

00:06:11.220 --> 00:06:13.140 Beyond this we do know that you know,

NOTE Confidence: 0.851323101428571

00:06:13.140 --> 00:06:15.162 as you stated there are several

NOTE Confidence: 0.851323101428571

00:06:15.162 --> 00:06:16.940 causes to these disruptions to

NOTE Confidence: 0.851323101428571

00:06:16.940 --> 00:06:18.740 the biology that previously normal

NOTE Confidence: 0.851323101428571

00:06:18.740 --> 00:06:20.800 cells you know can become leukemic.

NOTE Confidence: 0.851323101428571

00:06:20.800 --> 00:06:22.640 Probably the most well defined.

NOTE Confidence: 0.851323101428571

00:06:22.640 --> 00:06:24.607 I would say our exposures to things

NOTE Confidence: 0.851323101428571

00:06:24.607 --> 00:06:26.572 that are really meant to damage the

NOTE Confidence: 0.851323101428571

00:06:26.572 --> 00:06:28.879 cellular DNA and for and for good reason.

NOTE Confidence: 0.851323101428571

00:06:28.880 --> 00:06:30.700 These are certain chemotherapies.

NOTE Confidence: 0.851323101428571

00:06:30.700 --> 00:06:32.065 And radio therapies.

NOTE Confidence: 0.851323101428571

00:06:32.070 --> 00:06:33.840 Therapeutic radiation that you know is

NOTE Confidence: 0.851323101428571

00:06:33.840 --> 00:06:36.467 used to be solid tumors like breast cancer,

NOTE Confidence: 0.851323101428571

00:06:36.470 --> 00:06:37.266 lung cancer,

NOTE Confidence: 0.851323101428571

00:06:37.266 --> 00:06:38.460 relatively common cancers,

NOTE Confidence: 0.851323101428571

00:06:38.460 --> 00:06:40.330 and for which these therapies

NOTE Confidence: 0.851323101428571

00:06:40.330 --> 00:06:41.590 you know are game changers.

NOTE Confidence: 0.851323101428571

00:06:41.590 --> 00:06:42.582 These are effective therapies

NOTE Confidence: 0.851323101428571

00:06:42.582 --> 00:06:44.470 and can cure a lot of cancer,

NOTE Confidence: 0.851323101428571

00:06:44.470 --> 00:06:46.594 but there's a small but appreciable

NOTE Confidence: 0.851323101428571

00:06:46.594 --> 00:06:49.069 risk that the marrow cells are exposed

NOTE Confidence: 0.851323101428571

00:06:49.069 --> 00:06:51.435 to these these therapies and and the

NOTE Confidence: 0.851323101428571

00:06:51.435 --> 00:06:53.650 damage they they they they induce,

NOTE Confidence: 0.851323101428571

00:06:53.650 --> 00:06:55.745 and these cells acquire these

NOTE Confidence: 0.851323101428571

00:06:55.745 --> 00:06:57.840 abnormalities and this increases the

NOTE Confidence: 0.851323101428571

00:06:57.912 --> 00:07:00.330 risk of developing a myeloid leukemia.

NOTE Confidence: 0.851323101428571

00:07:00.330 --> 00:07:01.686 Non therapeutic exposures which I think

NOTE Confidence: 0.851323101428571

00:07:01.686 --> 00:07:03.379 is more to what you're getting at,

NOTE Confidence: 0.851323101428571

00:07:03.380 --> 00:07:04.864 are also described, however,

NOTE Confidence: 0.851323101428571

00:07:04.864 --> 00:07:07.090 so one of the clearest examples

NOTE Confidence: 0.851323101428571

00:07:07.153 --> 00:07:09.008 of this are unfortunately I don't

NOTE Confidence: 0.851323101428571

00:07:09.008 --> 00:07:09.778 wanna say a good example.

NOTE Confidence: 0.851323101428571

00:07:09.780 --> 00:07:12.556 I'll say a clear example is are

NOTE Confidence: 0.851323101428571

00:07:12.556 --> 00:07:14.044 there studies that have shown or

NOTE Confidence: 0.851323101428571

00:07:14.044 --> 00:07:16.201 or looked at sort of the long term

NOTE Confidence: 0.851323101428571

00:07:16.201 --> 00:07:17.638 outcomes of individuals that were

NOTE Confidence: 0.851323101428571

00:07:17.638 --> 00:07:19.492 exposed to the radiation from the

NOTE Confidence: 0.851323101428571

00:07:19.492 --> 00:07:20.751 atomic bomb explosions from,

NOTE Confidence: 0.851323101428571

00:07:20.751 --> 00:07:21.413 you know,

NOTE Confidence: 0.851323101428571

00:07:21.413 --> 00:07:23.399 the 1940s and Nagasaki and Hiroshima.

NOTE Confidence: 0.851323101428571

00:07:23.400 --> 00:07:25.220 This is particle radiation,

NOTE Confidence: 0.851323101428571

00:07:25.220 --> 00:07:27.040 specifically beta beta particles,

NOTE Confidence: 0.851323101428571

00:07:27.040 --> 00:07:30.726 but also gamma radiation with regards to.

NOTE Confidence: 0.851323101428571

00:07:30.726 --> 00:07:33.036 Other forms there is electromagnetic

NOTE Confidence: 0.851323101428571

00:07:33.036 --> 00:07:34.807 electromagnetic radiation in certain

NOTE Confidence: 0.851323101428571

00:07:34.807 --> 00:07:36.367 settings that are implicated.

NOTE Confidence: 0.851323101428571

00:07:36.370 --> 00:07:37.778 Non therapeutic chemical exposures

NOTE Confidence: 0.851323101428571

00:07:37.778 --> 00:07:39.890 are also shown in some studies,

NOTE Confidence: 0.851323101428571

00:07:39.890 --> 00:07:41.210 including benzene.

NOTE Confidence: 0.851323101428571

00:07:41.210 --> 00:07:44.510 Dioxin is formaldehyde as well.

NOTE Confidence: 0.851323101428571

00:07:44.510 --> 00:07:46.160 Obesity has been linked to a

NOTE Confidence: 0.851323101428571

00:07:46.160 --> 00:07:47.530 slightly higher risk of AML.

NOTE Confidence: 0.851323101428571

00:07:47.530 --> 00:07:49.195 Other non modifiable risk factors

NOTE Confidence: 0.851323101428571

00:07:49.195 --> 00:07:51.369 as we call them contribute as well,

NOTE Confidence: 0.851323101428571

00:07:51.370 --> 00:07:53.642 one being male as there is a slight

NOTE Confidence: 0.851323101428571

00:07:53.642 --> 00:07:55.478 predominance. The other is age.

NOTE Confidence: 0.851323101428571

00:07:55.478 --> 00:07:57.026 AML is a disease.

NOTE Confidence: 0.851323101428571

00:07:57.030 --> 00:07:58.470 Sorry for saying is a disease

NOTE Confidence: 0.851323101428571

00:07:58.470 --> 00:07:59.190 that the elderly,

NOTE Confidence: 0.851323101428571

00:07:59.190 --> 00:08:00.966 the median age at diagnosis is.

NOTE Confidence: 0.851323101428571

00:08:00.970 --> 00:08:02.074 Around 68 years,

NOTE Confidence: 0.851323101428571

00:08:02.074 --> 00:08:05.329 but the risk is higher the older you are.

NOTE Confidence: 0.851323101428571

00:08:05.330 --> 00:08:06.530 And this might be because people

NOTE Confidence: 0.851323101428571

00:08:06.530 --> 00:08:07.900 that have been on Earth longer,

NOTE Confidence: 0.851323101428571

00:08:07.900 --> 00:08:09.545 they've had longer time to to be

NOTE Confidence: 0.851323101428571

00:08:09.545 --> 00:08:11.143 exposed to the things that you

NOTE Confidence: 0.851323101428571

00:08:11.143 --> 00:08:12.259 know we just discussed.

NOTE Confidence: 0.817978706666667

00:08:13.880 --> 00:08:16.103 So you know, unpacking a few of the things

NOTE Confidence: 0.817978706666667

00:08:16.103 --> 00:08:18.142 that you mentioned, the first thing,

NOTE Confidence: 0.817978706666667

00:08:18.142 --> 00:08:20.557 and I'm sure that listeners who may

NOTE Confidence: 0.817978706666667

00:08:20.557 --> 00:08:23.070 be on chemotherapy for a variety of

NOTE Confidence: 0.817978706666667

00:08:23.140 --> 00:08:25.780 reasons or may have undergone therapeutic

NOTE Confidence: 0.817978706666667

00:08:25.780 --> 00:08:28.360 radiation for a variety of cancers,

NOTE Confidence: 0.817978706666667

00:08:28.360 --> 00:08:30.568 often think that you know these

NOTE Confidence: 0.817978706666667

00:08:30.568 --> 00:08:32.961 therapies are are really trying to

NOTE Confidence: 0.817978706666667

00:08:32.961 --> 00:08:35.076 treat whatever their malignancy is,

NOTE Confidence: 0.817978706666667

00:08:35.080 --> 00:08:36.704 whether it's breast cancer,

NOTE Confidence: 0.817978706666667

00:08:36.704 --> 00:08:38.580 colon cancer, lung cancer,

NOTE Confidence: 0.817978706666667

00:08:38.580 --> 00:08:41.760 others that are are more common,

NOTE Confidence: 0.817978706666667

00:08:41.760 --> 00:08:44.049 and so when you said there's a

NOTE Confidence: 0.817978706666667

00:08:44.049 --> 00:08:45.960 small but still appreciable.

NOTE Confidence: 0.817978706666667

00:08:45.960 --> 00:08:50.426 Risk of developing AML with these therapies?

NOTE Confidence: 0.817978706666667

00:08:50.430 --> 00:08:52.859 How small is small and should people

NOTE Confidence: 0.817978706666667

00:08:52.859 --> 00:08:55.402 really be scared that they are now

NOTE Confidence: 0.817978706666667

00:08:55.402 --> 00:08:57.187 trading one cancer for another?

NOTE Confidence: 0.86018157125

00:08:58.850 --> 00:09:00.885 It's a very, very poignant

NOTE Confidence: 0.86018157125

00:09:00.885 --> 00:09:02.106 and important question,

NOTE Confidence: 0.86018157125

00:09:02.110 --> 00:09:04.756 and it's it's certainly relevant one,

NOTE Confidence: 0.86018157125

00:09:04.760 --> 00:09:05.940 you know, the risk depends

NOTE Confidence: 0.86018157125

00:09:05.940 --> 00:09:07.120 on a number of things.

NOTE Confidence: 0.86018157125

00:09:07.120 --> 00:09:09.367 The agents use the dose of radiation,

NOTE Confidence: 0.86018157125

00:09:09.370 --> 00:09:10.576 and to where these you know.

NOTE Confidence: 0.86018157125

00:09:10.580 --> 00:09:12.926 These agents are really being applied.

NOTE Confidence: 0.86018157125

00:09:12.930 --> 00:09:15.184 They're not very specific for tumor tissue,

NOTE Confidence: 0.86018157125

00:09:15.190 --> 00:09:16.762 they're just hopefully preferentially.

NOTE Confidence: 0.86018157125

00:09:16.762 --> 00:09:18.486 You know, damaging those cells.

NOTE Confidence: 0.86018157125

00:09:18.486 --> 00:09:20.830 Which are, you know if they're malignant,

NOTE Confidence: 0.86018157125

00:09:20.830 --> 00:09:22.462 or probably you know more apt

NOTE Confidence: 0.86018157125

00:09:22.462 --> 00:09:24.166 to to undergo the pathways that

NOTE Confidence: 0.86018157125

00:09:24.166 --> 00:09:26.390 drive them to death in a good way.

NOTE Confidence: 0.86018157125

00:09:26.390 --> 00:09:28.400 You know for the patient.

NOTE Confidence: 0.86018157125

00:09:28.400 --> 00:09:29.376 But if I had to kind of give

NOTE Confidence: 0.86018157125

00:09:29.376 --> 00:09:30.239 you a specific number,

NOTE Confidence: 0.86018157125

00:09:30.240 --> 00:09:32.440 it's in the order of single digit percents,

NOTE Confidence: 0.86018157125

00:09:32.440 --> 00:09:34.192 probably in the order of probably

NOTE Confidence: 0.86018157125

00:09:34.192 --> 00:09:36.198 no less than no less than 1%,

NOTE Confidence: 0.86018157125

00:09:36.200 --> 00:09:38.960 but probably no higher than the than 9%,

NOTE Confidence: 0.86018157125

00:09:38.960 --> 00:09:40.272 depending on the setting.

NOTE Confidence: 0.86018157125

00:09:40.272 --> 00:09:42.240 So you know there's a difference.

NOTE Confidence: 0.86018157125

00:09:42.240 --> 00:09:46.519 Say 1% is not 0% and it's not 0.001%,

NOTE Confidence: 0.86018157125

00:09:46.519 --> 00:09:48.892 there's always a a risk benefit calculation

NOTE Confidence: 0.86018157125

00:09:48.892 --> 00:09:51.816 on the provider side and always a risk

NOTE Confidence: 0.86018157125

00:09:51.816 --> 00:09:53.740 benefit discussion that should be had,

NOTE Confidence: 0.86018157125

00:09:53.740 --> 00:09:55.235 you know, in conjunction with

NOTE Confidence: 0.86018157125

00:09:55.235 --> 00:09:56.940 the patient you know before us.

NOTE Confidence: 0.86018157125

00:09:56.940 --> 00:09:58.660 Hopefully this conversation is open.

NOTE Confidence: 0.86018157125

00:09:58.660 --> 00:10:00.910 As it should be and thorough,

NOTE Confidence: 0.86018157125

00:10:00.910 --> 00:10:02.206 because this is like I said,

NOTE Confidence: 0.86018157125

00:10:02.210 --> 00:10:03.080 it's you know I don't want

NOTE Confidence: 0.86018157125

00:10:03.080 --> 00:10:04.190 to call it a nominal risk,

NOTE Confidence: 0.86018157125

00:10:04.190 --> 00:10:05.192 it is appreciable.

NOTE Confidence: 0.86018157125

00:10:05.192 --> 00:10:07.530 But as you've kind of just echoed,

NOTE Confidence: 0.86018157125

00:10:07.530 --> 00:10:09.854 you know these are effective therapies that

NOTE Confidence: 0.86018157125

00:10:09.854 --> 00:10:12.508 are shown to unequivocally increase the.

NOTE Confidence: 0.86018157125

00:10:12.510 --> 00:10:14.238 You know, not only the risk of the rates.

NOTE Confidence: 0.86018157125

00:10:14.240 --> 00:10:16.510 Sorry of of prolonged survival,

NOTE Confidence: 0.86018157125

00:10:16.510 --> 00:10:17.730 but cure for many,

NOTE Confidence: 0.86018157125

00:10:17.730 --> 00:10:19.255 many patients and you know,

NOTE Confidence: 0.86018157125

00:10:19.260 --> 00:10:20.010 as it stands right now,

NOTE Confidence: 0.86018157125

00:10:20.010 --> 00:10:22.000 these are still gold standards.

NOTE Confidence: 0.86018157125

00:10:22.000 --> 00:10:24.625 You know of care may be in,

NOTE Confidence: 0.86018157125

00:10:24.630 --> 00:10:25.100 you know,

NOTE Confidence: 0.86018157125

00:10:25.100 --> 00:10:26.040 the decades to come,

NOTE Confidence: 0.86018157125

00:10:26.040 --> 00:10:27.816 and hopefully in the not too distant future

NOTE Confidence: 0.86018157125

00:10:27.816 --> 00:10:29.537 you know the need for these therapies.

NOTE Confidence: 0.86018157125

00:10:29.540 --> 00:10:31.634 Might be maybe pushed aside or

NOTE Confidence: 0.86018157125

00:10:31.634 --> 00:10:33.534 slowly phased out with more

NOTE Confidence: 0.86018157125

00:10:33.534 --> 00:10:35.679 specific and less toxic therapies,

NOTE Confidence: 0.861932077647059

00:10:36.650 --> 00:10:39.530 so which brings us to one or two

NOTE Confidence: 0.861932077647059

00:10:39.530 --> 00:10:41.815 further questions to kind of unpack

NOTE Confidence: 0.861932077647059

00:10:41.815 --> 00:10:44.298 that even further, so one is,

NOTE Confidence: 0.861932077647059

00:10:44.298 --> 00:10:46.382 you know, you had mentioned that

NOTE Confidence: 0.861932077647059

00:10:46.382 --> 00:10:48.140 the prognosis of AML really varies,

NOTE Confidence: 0.861932077647059

00:10:48.140 --> 00:10:49.905 and for some patients it's

NOTE Confidence: 0.861932077647059

00:10:49.905 --> 00:10:51.670 just a a chronic illness.

NOTE Confidence: 0.861932077647059

00:10:51.670 --> 00:10:54.046 It's it's kind of it just follows along.

NOTE Confidence: 0.861932077647059

00:10:54.050 --> 00:10:56.042 Just like you know,

NOTE Confidence: 0.861932077647059

00:10:56.042 --> 00:10:57.564 hypertension or something else.

NOTE Confidence: 0.861932077647059

00:10:57.564 --> 00:10:58.874 And it really doesn't cause

NOTE Confidence: 0.861932077647059

00:10:58.874 --> 00:11:00.280 a whole lot of problems.

NOTE Confidence: 0.861932077647059

00:11:00.280 --> 00:11:02.083 And other patients,

NOTE Confidence: 0.861932077647059

00:11:02.083 --> 00:11:05.088 it can really be problematic.

NOTE Confidence: 0.861932077647059

00:11:05.090 --> 00:11:07.082 Do we know whether the prognosis

NOTE Confidence: 0.861932077647059

00:11:07.082 --> 00:11:09.630 is linked to the etiologic factor?

NOTE Confidence: 0.861932077647059

00:11:09.630 --> 00:11:10.677 So, for example,

NOTE Confidence: 0.861932077647059

00:11:10.677 --> 00:11:12.771 some people may be more willing

NOTE Confidence: 0.861932077647059

00:11:12.771 --> 00:11:15.081 to trade one cancer for another

NOTE Confidence: 0.861932077647059

00:11:15.081 --> 00:11:17.351 potentially or or even the risk

NOTE Confidence: 0.861932077647059

00:11:17.351 --> 00:11:19.241 of developing AML if we knew

NOTE Confidence: 0.861932077647059

00:11:19.241 --> 00:11:21.910 that the AML that was caused by

NOTE Confidence: 0.861932077647059

00:11:21.910 --> 00:11:24.490 people who had been exposed to

NOTE Confidence: 0.861932077647059

00:11:24.578 --> 00:11:26.894 chemotherapy for therapeutic intent

NOTE Confidence: 0.861932077647059

00:11:26.894 --> 00:11:30.368 was really more of the benign.

NOTE Confidence: 0.861932077647059

00:11:30.370 --> 00:11:32.295 Indolent kind of AML rather

NOTE Confidence: 0.861932077647059

00:11:32.295 --> 00:11:33.835 than the more aggressive.

NOTE Confidence: 0.861932077647059

00:11:33.840 --> 00:11:35.590 Do we know whether there's

NOTE Confidence: 0.861932077647059

00:11:35.590 --> 00:11:37.340 any linkage based on ideology?

NOTE Confidence: 0.825689475

00:11:39.150 --> 00:11:40.950 I probably say that biology matters,

NOTE Confidence: 0.825689475

00:11:40.950 --> 00:11:42.790 and when I'm, you know,

NOTE Confidence: 0.825689475

00:11:42.790 --> 00:11:43.786 that's sort of a, you know,

NOTE Confidence: 0.825689475

00:11:43.790 --> 00:11:46.090 a vague a vague statement.

NOTE Confidence: 0.825689475

00:11:46.090 --> 00:11:48.898 But really, it's you know what damage has

NOTE Confidence: 0.825689475

00:11:48.898 --> 00:11:51.629 been induced in these leukemia cells or

NOTE Confidence: 0.825689475

00:11:51.629 --> 00:11:53.910 the cells that eventually promote you.

NOTE Confidence: 0.825689475

00:11:53.910 --> 00:11:55.790 Know the development of leukemia.

NOTE Confidence: 0.825689475

00:11:55.790 --> 00:11:59.031 There are some exposures that are more

NOTE Confidence: 0.825689475

00:11:59.031 --> 00:12:01.270 classically associated with particular,

NOTE Confidence: 0.825689475

00:12:01.270 --> 00:12:04.238 you know, damage damages to the damage to

NOTE Confidence: 0.825689475

00:12:04.238 --> 00:12:09.160 the DNA of of these leukemia cells some.

NOTE Confidence: 0.825689475

00:12:09.160 --> 00:12:10.040 Are unfortunately,

NOTE Confidence: 0.825689475

00:12:10.040 --> 00:12:12.680 you know pretty well described as

NOTE Confidence: 0.825689475

00:12:12.680 --> 00:12:14.656 being predictive of stubborn disease

NOTE Confidence: 0.825689475

00:12:14.656 --> 00:12:17.064 when it comes to things like prior

NOTE Confidence: 0.825689475

00:12:17.131 --> 00:12:18.979 chemotherapies in particular,

NOTE Confidence: 0.825689475

00:12:18.980 --> 00:12:21.300 classes of chemotherapies as

NOTE Confidence: 0.825689475

00:12:21.300 --> 00:12:23.040 well as radiotherapy.

NOTE Confidence: 0.825689475

00:12:23.040 --> 00:12:25.330 There are these are therapies

NOTE Confidence: 0.825689475

00:12:25.330 --> 00:12:27.620 which are probably more associated

NOTE Confidence: 0.825689475

00:12:27.694 --> 00:12:29.620 with what we call adverse disease,

NOTE Confidence: 0.825689475

00:12:29.620 --> 00:12:30.592 adverse risk biology,

NOTE Confidence: 0.825689475

00:12:30.592 --> 00:12:32.536 some things that can induce a

NOTE Confidence: 0.825689475

00:12:32.536 --> 00:12:34.511 lot of DNA damage or chromosome

NOTE Confidence: 0.825689475

00:12:34.511 --> 00:12:36.616 like large segments of DNA which

NOTE Confidence: 0.825689475

00:12:36.616 --> 00:12:38.038 other chromosomes can be.

NOTE Confidence: 0.825689475

00:12:38.038 --> 00:12:39.851 You know it just in and of

NOTE Confidence: 0.825689475

00:12:39.851 --> 00:12:41.100 themselves sort of removed,

NOTE Confidence: 0.825689475

00:12:41.100 --> 00:12:44.090 duplicated and there are some

NOTE Confidence: 0.825689475

00:12:44.090 --> 00:12:45.884 poor risk lesions,

NOTE Confidence: 0.825689475

00:12:45.890 --> 00:12:48.962 specifically one in TP 53 which

NOTE Confidence: 0.825689475

00:12:48.962 --> 00:12:51.530 unfortunately is among those that.

NOTE Confidence: 0.825689475

00:12:51.530 --> 00:12:54.176 Are the kind of the the worst to have

NOTE Confidence: 0.825689475

00:12:54.176 --> 00:12:57.190 in a leukemia cell among other cancers,

NOTE Confidence: 0.825689475

00:12:57.190 --> 00:12:58.548 and you know this is 1 lesion,

NOTE Confidence: 0.825689475

00:12:58.550 --> 00:13:00.704 which is unfortunately the most commonly

NOTE Confidence: 0.825689475

00:13:00.704 --> 00:13:02.869 observed across all the tumor types,

NOTE Confidence: 0.825689475

00:13:02.870 --> 00:13:04.915 so it's not necessarily that

NOTE Confidence: 0.825689475

00:13:04.915 --> 00:13:06.960 the the treatment itself is

NOTE Confidence: 0.825689475

00:13:07.034 --> 00:13:09.810 independently predictive of prognosis.

NOTE Confidence: 0.825689475

00:13:09.810 --> 00:13:10.785 It's more, say,

NOTE Confidence: 0.825689475

00:13:10.785 --> 00:13:13.060 the the middle man that induces the

NOTE Confidence: 0.825689475

00:13:13.131 --> 00:13:15.315 damage and the damage itself is

NOTE Confidence: 0.825689475

00:13:15.315 --> 00:13:17.410 really what predicts more stubborn,

NOTE Confidence: 0.825689475

00:13:17.410 --> 00:13:18.602 you know, disease, biology,

NOTE Confidence: 0.825689475

00:13:18.602 --> 00:13:20.390 biology that would predict a lack

NOTE Confidence: 0.825689475

00:13:20.439 --> 00:13:21.659 of response to frontline.

NOTE Confidence: 0.825689475

00:13:21.660 --> 00:13:22.752 Therapies and unfortunately,

NOTE Confidence: 0.825689475

00:13:22.752 --> 00:13:25.130 among patients that are, you know,

NOTE Confidence: 0.825689475

00:13:25.130 --> 00:13:28.350 fortunate to achieve some form of remission.

NOTE Confidence: 0.825689475

00:13:28.350 --> 00:13:28.613 Unfortunately,

NOTE Confidence: 0.825689475

00:13:28.613 --> 00:13:30.454 don't stay in remission for that long,

NOTE Confidence: 0.8269314

00:13:31.290 --> 00:13:34.450 and so you know the the last question

NOTE Confidence: 0.8269314

00:13:34.450 --> 00:13:38.074 I'll ask you before we take our break is.

NOTE Confidence: 0.8269314

00:13:38.080 --> 00:13:40.996 In the patients with AML who

NOTE Confidence: 0.8269314

00:13:40.996 --> 00:13:43.520 have a more aggressive form,

NOTE Confidence: 0.8269314

00:13:43.520 --> 00:13:45.390 is it treated with chemotherapy

NOTE Confidence: 0.8269314

00:13:45.390 --> 00:13:47.415 and radiation, and if so,

NOTE Confidence: 0.8269314

00:13:47.415 --> 00:13:49.540 couldn't that induce even more

NOTE Confidence: 0.8269314

00:13:49.540 --> 00:13:51.658 toxicity like it does this

NOTE Confidence: 0.8269314

00:13:51.658 --> 00:13:53.638 then become a vicious cycle?

NOTE Confidence: 0.851908105454546

00:13:56.080 --> 00:13:57.550 If you were to ask a leukemia

NOTE Confidence: 0.851908105454546

00:13:57.550 --> 00:13:58.400 specialist 20 years ago,

NOTE Confidence: 0.851908105454546

00:13:58.400 --> 00:14:00.199 this would have been a shorter answer.

NOTE Confidence: 0.851908105454546

00:14:00.200 --> 00:14:01.992 You know we're learning about this is

NOTE Confidence: 0.851908105454546

00:14:01.992 --> 00:14:03.784 about the biology of disease and how this

NOTE Confidence: 0.851908105454546

00:14:03.784 --> 00:14:06.115 can be sort of sub route based on the

NOTE Confidence: 0.851908105454546

00:14:06.115 --> 00:14:07.419 mechanisms and classical combination,

NOTE Confidence: 0.851908105454546

00:14:07.420 --> 00:14:08.740 chemotherapy has been the gold

NOTE Confidence: 0.851908105454546

00:14:08.740 --> 00:14:10.312 standard for for many patients since

NOTE Confidence: 0.851908105454546

00:14:10.312 --> 00:14:11.761 the early 1970s and this is still

NOTE Confidence: 0.851908105454546

00:14:11.761 --> 00:14:13.437 the case for many subsets of disease.

NOTE Confidence: 0.851908105454546

00:14:13.440 --> 00:14:15.407 This is what we call quote intensive

NOTE Confidence: 0.851908105454546

00:14:15.407 --> 00:14:16.955 therapy and quote meeting and

NOTE Confidence: 0.851908105454546

00:14:16.955 --> 00:14:18.893 has the potential to strain major

NOTE Confidence: 0.851908105454546

00:14:18.893 --> 00:14:20.320 organs including the GI, tract,

NOTE Confidence: 0.851908105454546

00:14:20.320 --> 00:14:21.760 kidneys, liver, heart, lungs,

NOTE Confidence: 0.851908105454546

00:14:21.760 --> 00:14:23.085 and it will undoubtedly injure

NOTE Confidence: 0.851908105454546

00:14:23.085 --> 00:14:24.885 the bone marrow, both bad cells.

NOTE Confidence: 0.851908105454546

00:14:24.885 --> 00:14:25.890 In good cells,

NOTE Confidence: 0.851908105454546

00:14:25.890 --> 00:14:28.370 just we hope the bad cells are the ones which

NOTE Confidence: 0.851908105454546

00:14:28.434 --> 00:14:31.210 are preferentially yeah exposed and die.

NOTE Confidence: 0.851908105454546

00:14:31.210 --> 00:14:32.990 As you can imagine,

NOTE Confidence: 0.851908105454546

00:14:32.990 --> 00:14:34.481 at every patient can accept these risks

NOTE Confidence: 0.851908105454546

00:14:34.481 --> 00:14:35.870 that come with intensive therapy.

NOTE Confidence: 0.851908105454546

00:14:35.870 --> 00:14:38.040 The older patient or the the person

NOTE Confidence: 0.851908105454546

00:14:38.040 --> 00:14:39.952 that already has strained organ

NOTE Confidence: 0.851908105454546

00:14:39.952 --> 00:14:42.432 function might not be best suited to

NOTE Confidence: 0.851908105454546

00:14:42.432 --> 00:14:43.703 really receive intensive therapy.

NOTE Confidence: 0.851908105454546

00:14:43.703 --> 00:14:45.569 We do have less intensive therapies

NOTE Confidence: 0.851908105454546

00:14:45.569 --> 00:14:46.994 that are reasonably effective and

NOTE Confidence: 0.851908105454546

00:14:46.994 --> 00:14:48.880 this is really served as the backbone

NOTE Confidence: 0.851908105454546

00:14:48.880 --> 00:14:50.356 upon which some of these newer

NOTE Confidence: 0.851908105454546

00:14:50.356 --> 00:14:51.658 agents as you were alluding to,

NOTE Confidence: 0.851908105454546

00:14:51.658 --> 00:14:52.030 you know,

NOTE Confidence: 0.851908105454546

00:14:52.030 --> 00:14:53.416 have been studied and have been shown

NOTE Confidence: 0.851908105454546

00:14:53.416 --> 00:14:54.998 to be better and and quite tolerable.

NOTE Confidence: 0.851908105454546

00:14:55.000 --> 00:14:56.638 With the older intensive therapy quote,

NOTE Confidence: 0.851908105454546

00:14:56.640 --> 00:14:58.265 UN quote ineligible patient this

NOTE Confidence: 0.851908105454546

00:14:58.265 --> 00:14:59.890 then fosters newer combinations and

NOTE Confidence: 0.851908105454546

00:14:59.947 --> 00:15:01.843 even the study of these combination

NOTE Confidence: 0.851908105454546

00:15:01.843 --> 00:15:03.107 therapies in younger patients,

NOTE Confidence: 0.851908105454546

00:15:03.110 --> 00:15:05.665 perhaps even those that are eligible for

NOTE Confidence: 0.851908105454546

00:15:05.665 --> 00:15:07.899 intensive therapy at the starting line.

NOTE Confidence: 0.84186406736

00:15:07.980 --> 00:15:09.751 Well, we'll dive a little bit more

NOTE Confidence: 0.84186406736

00:15:09.751 --> 00:15:11.547 into all of the exciting developments

NOTE Confidence: 0.84186406736

00:15:11.547 --> 00:15:13.822 there right after we take a short

NOTE Confidence: 0.84186406736

00:15:13.881 --> 00:15:15.366 break for a medical minute.

NOTE Confidence: 0.84186406736

00:15:15.370 --> 00:15:18.530 Please stay tuned to learn more about AML,

NOTE Confidence: 0.84186406736

00:15:18.530 --> 00:15:20.235 its treatment, and about Agent

NOTE Confidence: 0.84186406736

00:15:20.235 --> 00:15:22.479 Orange right after we take a break.

NOTE Confidence: 0.75052598375

00:15:22.870 --> 00:15:24.130 Funding for Yale Cancer

NOTE Confidence: 0.75052598375

00:15:24.130 --> 00:15:25.390 Answers is provided by.

NOTE Confidence: 0.75052598375

00:15:25.390 --> 00:15:27.898 Milo Cancer Hospital where you can

NOTE Confidence: 0.75052598375

00:15:27.898 --> 00:15:30.221 view videos from their integrative

NOTE Confidence: 0.75052598375

00:15:30.221 --> 00:15:32.509 medicine team by searching

NOTE Confidence: 0.75052598375

00:15:32.509 --> 00:15:34.797 Yale Cancer Center Integrative

NOTE Confidence: 0.75052598375

00:15:34.797 --> 00:15:36.918 Medicine playlist on YouTube.

NOTE Confidence: 0.75052598375

00:15:36.920 --> 00:15:38.560 There are many obstacles to

NOTE Confidence: 0.75052598375

00:15:38.560 --> 00:15:39.872 face when quitting smoking.

NOTE Confidence: 0.75052598375

00:15:39.880 --> 00:15:41.698 As smoking involves the potent drug.

NOTE Confidence: 0.75052598375

00:15:41.700 --> 00:15:43.955 Nicotine quitting smoking is a

NOTE Confidence: 0.75052598375

00:15:43.955 --> 00:15:45.759 very important lifestyle change,

NOTE Confidence: 0.75052598375

00:15:45.760 --> 00:15:47.239 especially for patients

NOTE Confidence: 0.75052598375

00:15:47.239 --> 00:15:48.718 undergoing cancer treatment,

NOTE Confidence: 0.75052598375

00:15:48.720 --> 00:15:50.946 as it's been shown to positively

NOTE Confidence: 0.75052598375

00:15:50.946 --> 00:15:52.430 impact response to treatments

NOTE Confidence: 0.75052598375

00:15:52.492 --> 00:15:54.707 decrease the likelihood that patients

NOTE Confidence: 0.75052598375

00:15:54.707 --> 00:15:56.479 will develop second malignancies

NOTE Confidence: 0.75052598375

00:15:56.479 --> 00:15:58.599 and increase rates of survival.

NOTE Confidence: 0.75052598375

00:15:58.600 --> 00:16:00.795 Tobacco treatment programs are currently

NOTE Confidence: 0.75052598375

00:16:00.795 --> 00:16:02.990 being offered at federally designated

NOTE Confidence: 0.75052598375

00:16:03.052 --> 00:16:04.472 Comprehensive cancer centers such

NOTE Confidence: 0.75052598375

00:16:04.472 --> 00:16:06.940 as Yale Cancer Center and Smilow

NOTE Confidence: 0.75052598375

00:16:06.940 --> 00:16:08.772 Cancer Hospital all treatment

NOTE Confidence: 0.75052598375

00:16:08.772 --> 00:16:11.062 components are evidence based and

NOTE Confidence: 0.75052598375

00:16:11.062 --> 00:16:13.503 patients are treated with FDA approved

NOTE Confidence: 0.75052598375

00:16:13.503 --> 00:16:15.990 first line medications as well as

NOTE Confidence: 0.75052598375

00:16:15.990 --> 00:16:18.026 smoking cessation counseling that

NOTE Confidence: 0.75052598375

00:16:18.026 --> 00:16:20.062 stresses appropriate coping skills.

NOTE Confidence: 0.75052598375

00:16:20.070 --> 00:16:23.060 More information is available at

NOTE Confidence: 0.75052598375

00:16:23.060 --> 00:16:24.350 yalecancercenter.org you're listening

NOTE Confidence: 0.75052598375

00:16:24.350 --> 00:16:26.070 to Connecticut Public Radio.

NOTE Confidence: 0.82807185

00:16:27.380 --> 00:16:29.516 Welcome back to Yale Cancer Answers.

NOTE Confidence: 0.82807185

00:16:29.520 --> 00:16:32.056 This is doctor Anees Chagpar and I'm joined

NOTE Confidence: 0.82807185

00:16:32.056 --> 00:16:34.460 tonight by my guest Doctor Rory Shallis.

NOTE Confidence: 0.82807185

00:16:34.460 --> 00:16:39.059 We're talking about a ML and you know how

NOTE Confidence: 0.82807185

00:16:39.059 --> 00:16:43.422 this cancer of white blood cells really is?

NOTE Confidence: 0.82807185

00:16:43.422 --> 00:16:46.019 The result of derangement of DNA that

NOTE Confidence: 0.82807185

00:16:46.019 --> 00:16:48.816 can occur due to a variety of causes,

NOTE Confidence: 0.82807185

00:16:48.820 --> 00:16:51.186 and we talked a little bit about

NOTE Confidence: 0.82807185

00:16:51.186 --> 00:16:53.677 the fact that one of those causes

NOTE Confidence: 0.82807185

00:16:53.680 --> 00:16:57.470 is actually therapies from cancer.

NOTE Confidence: 0.82807185

00:16:57.470 --> 00:17:00.450 Treatments like chemotherapy or radiation,

NOTE Confidence: 0.82807185

00:17:00.450 --> 00:17:02.618 which inflict DNA damage.

NOTE Confidence: 0.82807185

00:17:02.618 --> 00:17:05.870 Now all of us know that.

NOTE Confidence: 0.82807185

00:17:05.870 --> 00:17:08.000 The majority of these treatments tend

NOTE Confidence: 0.82807185

00:17:08.000 --> 00:17:10.489 to be more targeted towards cancers,

NOTE Confidence: 0.82807185

00:17:10.490 --> 00:17:12.490 which are rapidly dividing.

NOTE Confidence: 0.82807185

00:17:12.490 --> 00:17:15.490 But what about people who don't

NOTE Confidence: 0.82807185

00:17:15.576 --> 00:17:18.522 have cancers and who are inflicted

NOTE Confidence: 0.82807185

00:17:18.522 --> 00:17:21.714 with DNA damage causing agents like

NOTE Confidence: 0.82807185

00:17:21.714 --> 00:17:24.559 chemical weapons or doctor Shallis?

NOTE Confidence: 0.82807185

00:17:24.560 --> 00:17:26.835 You mentioned before the break

NOTE Confidence: 0.82807185

00:17:26.835 --> 00:17:29.110 things like radiation from nuclear

NOTE Confidence: 0.82807185

00:17:29.180 --> 00:17:30.788 accidents or worse yet,

NOTE Confidence: 0.82807185

00:17:30.790 --> 00:17:34.510 atomic bombs like Hiroshima and Nagasaki.

NOTE Confidence: 0.82807185

00:17:34.510 --> 00:17:36.106 Can you talk a little bit more?

NOTE Confidence: 0.82807185

00:17:36.110 --> 00:17:39.701 About how those have an implication in

NOTE Confidence: 0.82807185

00:17:39.701 --> 00:17:42.930 terms of developing myeloid leukemias.

NOTE Confidence: 0.819274761428571

00:17:44.400 --> 00:17:46.437 You said it quite quite nicely there.

NOTE Confidence: 0.819274761428571

00:17:46.440 --> 00:17:48.858 Unfortunately, many patients are, you know,

NOTE Confidence: 0.819274761428571

00:17:48.860 --> 00:17:50.925 unbeknownst to them and folks around them,

NOTE Confidence: 0.819274761428571

00:17:50.930 --> 00:17:52.358 exposed to things that.

NOTE Confidence: 0.819274761428571

00:17:52.358 --> 00:17:55.350 It might just take time in the order

NOTE Confidence: 0.819274761428571

00:17:55.350 --> 00:17:57.666 of years to decades to understand

NOTE Confidence: 0.819274761428571

00:17:57.666 --> 00:18:00.045 that these can be detrimental to

NOTE Confidence: 0.819274761428571

00:18:00.045 --> 00:18:01.270 the genetic machinery you know,

NOTE Confidence: 0.819274761428571

00:18:01.270 --> 00:18:03.958 DNA damage, and even some of the things

NOTE Confidence: 0.819274761428571

00:18:03.958 --> 00:18:06.248 that can influence the machinery

NOTE Confidence: 0.819274761428571

00:18:06.248 --> 00:18:08.828 that aren't necessarily DNA damage.

NOTE Confidence: 0.819274761428571

00:18:08.830 --> 00:18:10.750 This is often accidental.

NOTE Confidence: 0.819274761428571

00:18:10.750 --> 00:18:12.478 There are, you know,

NOTE Confidence: 0.819274761428571

00:18:12.478 --> 00:18:13.630 chemical spills, contamination,

NOTE Confidence: 0.819274761428571

00:18:13.630 --> 00:18:15.796 events and things that are used

NOTE Confidence: 0.819274761428571

00:18:15.796 --> 00:18:18.329 in in a weaponized sense as well.

NOTE Confidence: 0.819274761428571

00:18:18.330 --> 00:18:21.066 There is also an implication that there are.

NOTE Confidence: 0.819274761428571

00:18:21.070 --> 00:18:23.170 Ambient forms of these potential

NOTE Confidence: 0.819274761428571

00:18:23.170 --> 00:18:24.850 carcinogens or leukemogenesis you

NOTE Confidence: 0.819274761428571

00:18:24.850 --> 00:18:27.553 know as we call them as a relates to

NOTE Confidence: 0.819274761428571

00:18:27.553 --> 00:18:29.410 the development of myeloid leukemias.

NOTE Confidence: 0.819274761428571

00:18:29.410 --> 00:18:31.190 There are several examples radiation.

NOTE Confidence: 0.819274761428571

00:18:31.190 --> 00:18:31.626 We mentioned,

NOTE Confidence: 0.819274761428571

00:18:31.626 --> 00:18:33.152 things like dioxin wins and you know

NOTE Confidence: 0.819274761428571

00:18:33.152 --> 00:18:34.782 you know you had mentioned earlier the

NOTE Confidence: 0.819274761428571

00:18:34.782 --> 00:18:36.373 break that you wanted to discuss a

NOTE Confidence: 0.819274761428571

00:18:36.373 --> 00:18:37.871 little bit about ancient orange as well.

NOTE Confidence: 0.819274761428571

00:18:37.880 --> 00:18:38.940 This is, you know,

NOTE Confidence: 0.819274761428571

00:18:38.940 --> 00:18:40.265 one of the most infamous,

NOTE Confidence: 0.819274761428571

00:18:40.270 --> 00:18:42.400 if not the most infamous sort

NOTE Confidence: 0.819274761428571

00:18:42.400 --> 00:18:45.205 of vehicle by which one of these

NOTE Confidence: 0.819274761428571

00:18:45.205 --> 00:18:46.945 agents leukemia genic agents,

NOTE Confidence: 0.819274761428571

00:18:46.950 --> 00:18:48.108 was delivered to.

NOTE Confidence: 0.819274761428571

00:18:48.108 --> 00:18:48.494 Unfortunately,

NOTE Confidence: 0.819274761428571

00:18:48.494 --> 00:18:50.424 I would say innumerable individuals,

NOTE Confidence: 0.819274761428571

00:18:50.430 --> 00:18:51.648 since we don't really know the full.

NOTE Confidence: 0.819274761428571

00:18:51.650 --> 00:18:52.439 The full number.

NOTE Confidence: 0.853044284444444

00:18:53.000 --> 00:18:54.960 So talk a little bit more about

NOTE Confidence: 0.853044284444444

00:18:54.960 --> 00:18:56.393 Agent Orange. What is it?

NOTE Confidence: 0.853044284444444

00:18:56.393 --> 00:18:58.139 What do we know about it?

NOTE Confidence: 0.853044284444444

00:18:58.140 --> 00:19:00.597 What do we know about its implications

NOTE Confidence: 0.853044284444444

00:19:00.597 --> 00:19:02.710 in terms of developing AML

NOTE Confidence: 0.619093886666667

00:19:03.120 --> 00:19:05.256 Agent Orange? You know pervasive term,

NOTE Confidence: 0.619093886666667

00:19:05.260 --> 00:19:06.658 but you know, in my experience,

NOTE Confidence: 0.619093886666667

00:19:06.660 --> 00:19:07.708 many folks don't understand

NOTE Confidence: 0.619093886666667

00:19:07.708 --> 00:19:09.612 what it actually is. It's it's.

NOTE Confidence: 0.619093886666667

00:19:09.612 --> 00:19:11.316 It's essentially it's a

NOTE Confidence: 0.619093886666667

00:19:11.316 --> 00:19:12.594 combination of herbicides.

NOTE Confidence: 0.619093886666667

00:19:12.600 --> 00:19:13.728 2 herbicide herbicides specifically

NOTE Confidence: 0.619093886666667

00:19:13.728 --> 00:19:15.138 in one to one mixture,

NOTE Confidence: 0.619093886666667

00:19:15.140 --> 00:19:17.720 both of which were commercially available

NOTE Confidence: 0.619093886666667

00:19:17.720 --> 00:19:20.560 as early as the 1940s, you know.

NOTE Confidence: 0.619093886666667

00:19:20.560 --> 00:19:22.330 And because it was an effective.

NOTE Confidence: 0.619093886666667

00:19:22.330 --> 00:19:23.863 Herbicide it was used by the US

NOTE Confidence: 0.619093886666667

00:19:23.863 --> 00:19:25.300 military during the Vietnam conflict.

NOTE Confidence: 0.619093886666667

00:19:25.300 --> 00:19:28.809 As early as I want to say 1961 or 1962

NOTE Confidence: 0.619093886666667

00:19:28.809 --> 00:19:31.630 as a defoliant meaning it would rapidly

NOTE Confidence: 0.619093886666667

00:19:31.714 --> 00:19:34.228 clear thick areas of vegetation to

NOTE Confidence: 0.619093886666667

00:19:34.228 --> 00:19:37.378 allow our forces to be more effective.

NOTE Confidence: 0.619093886666667

00:19:37.380 --> 00:19:38.850 It was delivered by both air but

NOTE Confidence: 0.619093886666667

00:19:38.850 --> 00:19:40.409 as well as ground there were,

NOTE Confidence: 0.619093886666667

00:19:40.410 --> 00:19:41.424 you know, manual.

NOTE Confidence: 0.619093886666667

00:19:41.424 --> 00:19:43.114 You know applicants going on

NOTE Confidence: 0.619093886666667

00:19:43.114 --> 00:19:44.660 and throwing the same time,

NOTE Confidence: 0.619093886666667

00:19:44.660 --> 00:19:46.646 but the herbicide spray missions you

NOTE Confidence: 0.619093886666667

00:19:46.646 --> 00:19:48.892 know the aircraft were part of what

NOTE Confidence: 0.619093886666667

00:19:48.892 --> 00:19:50.608 was called Operation Ranch Hand and

NOTE Confidence: 0.619093886666667

00:19:50.608 --> 00:19:52.585 an estimated it was at least 15.

NOTE Confidence: 0.619093886666667

00:19:52.590 --> 00:19:54.742 They wanna say 15 to 20 million gallons

NOTE Confidence: 0.619093886666667

00:19:54.742 --> 00:19:56.989 gallons were delivered over these areas over.

NOTE Confidence: 0.619093886666667

00:19:56.990 --> 00:19:58.516 You know the years that you know

NOTE Confidence: 0.619093886666667

00:19:58.516 --> 00:19:59.810 the forces were in that area.

NOTE Confidence: 0.619093886666667

00:19:59.810 --> 00:20:02.390 Agent Orange however, was found.

NOTE Confidence: 0.619093886666667

00:20:02.390 --> 00:20:02.830 You know.

NOTE Confidence: 0.619093886666667

00:20:02.830 --> 00:20:04.150 Unfortunately it took some time to,

NOTE Confidence: 0.619093886666667

00:20:04.150 --> 00:20:04.718 you know,

NOTE Confidence: 0.619093886666667

00:20:04.718 --> 00:20:06.706 realize this was found to be regularly

NOTE Confidence: 0.619093886666667

00:20:06.706 --> 00:20:08.045 contaminated by a chemical known as

NOTE Confidence: 0.619093886666667

00:20:08.045 --> 00:20:09.799 I'm not going to say the whole name,

NOTE Confidence: 0.619093886666667

00:20:09.800 --> 00:20:11.530 but it's abbreviated as TCDD.

NOTE Confidence: 0.619093886666667

00:20:11.530 --> 00:20:13.918 This is a specific form of

NOTE Confidence: 0.619093886666667

00:20:13.918 --> 00:20:16.260 a benzo dioxin a dioxin.

NOTE Confidence: 0.619093886666667

00:20:16.260 --> 00:20:17.080 These are as a group.

NOTE Confidence: 0.619093886666667

00:20:17.080 --> 00:20:18.712 These are substances that are made

NOTE Confidence: 0.619093886666667

00:20:18.712 --> 00:20:20.779 up of two benzene rings that are

NOTE Confidence: 0.619093886666667

00:20:20.779 --> 00:20:22.627 joined chemically and really could be.

NOTE Confidence: 0.619093886666667

00:20:22.630 --> 00:20:23.950 Unique by additions to,

NOTE Confidence: 0.619093886666667

00:20:23.950 --> 00:20:24.610 you know,

NOTE Confidence: 0.619093886666667

00:20:24.610 --> 00:20:26.754 usually through chlorine substitutions.

NOTE Confidence: 0.619093886666667

00:20:26.754 --> 00:20:27.290 Unfortunately,

NOTE Confidence: 0.619093886666667

00:20:27.290 --> 00:20:30.290 TCDD is a known carcinogen and

NOTE Confidence: 0.619093886666667

00:20:30.290 --> 00:20:31.790 teratogen as well.

NOTE Confidence: 0.619093886666667

00:20:31.790 --> 00:20:33.652 One of the first means by which

NOTE Confidence: 0.619093886666667

00:20:33.652 --> 00:20:35.428 it was realized that Agent Orange

NOTE Confidence: 0.619093886666667

00:20:35.428 --> 00:20:37.264 was a delivery mechanism for a

NOTE Confidence: 0.619093886666667

00:20:37.264 --> 00:20:38.827 known toxin of this magnitude

NOTE Confidence: 0.619093886666667

00:20:38.827 --> 00:20:40.864 was the fact that these areas of

NOTE Confidence: 0.619093886666667

00:20:40.864 --> 00:20:42.268 Vietnam over the next few years

NOTE Confidence: 0.619093886666667

00:20:42.268 --> 00:20:43.867 you know they did see an increase

NOTE Confidence: 0.619093886666667

00:20:43.867 --> 00:20:45.570 in the rate of of birth defects,

NOTE Confidence: 0.619093886666667

00:20:45.570 --> 00:20:46.898 and unfortunately a lot

NOTE Confidence: 0.619093886666667

00:20:46.898 --> 00:20:48.226 of stillbirths as well.

NOTE Confidence: 0.619093886666667

00:20:48.230 --> 00:20:48.720 Further study,

NOTE Confidence: 0.619093886666667

00:20:48.720 --> 00:20:50.680 and this is mostly like lab and and

NOTE Confidence: 0.619093886666667

00:20:50.736 --> 00:20:52.745 mouse based studies in the United States.

NOTE Confidence: 0.619093886666667

00:20:52.750 --> 00:20:54.300 And around the same time,

NOTE Confidence: 0.619093886666667

00:20:54.300 --> 00:20:55.700 given these findings clinically in

NOTE Confidence: 0.619093886666667

00:20:55.700 --> 00:20:57.480 those areas led to the appropriate

NOTE Confidence: 0.619093886666667

00:20:57.480 --> 00:20:59.460 conclusion that this was a problem,

NOTE Confidence: 0.619093886666667

00:20:59.460 --> 00:21:00.948 and the US eventually did end

NOTE Confidence: 0.619093886666667

00:21:00.948 --> 00:21:02.588 these missions and the use of

NOTE Confidence: 0.619093886666667

00:21:02.588 --> 00:21:03.476 Agent Orange altogether,

NOTE Confidence: 0.619093886666667

00:21:03.480 --> 00:21:07.520 and in 1971 as it relates to cancers.

NOTE Confidence: 0.619093886666667

00:21:07.520 --> 00:21:08.108 And, you know,

NOTE Confidence: 0.619093886666667

00:21:08.108 --> 00:21:09.480 I hopefully do get to talk about,

NOTE Confidence: 0.619093886666667

00:21:09.480 --> 00:21:11.104 you know its relation to, we think,

NOTE Confidence: 0.619093886666667

00:21:11.104 --> 00:21:12.714 and the myeloid leukemia realm.

NOTE Confidence: 0.619093886666667

00:21:12.720 --> 00:21:13.842 A number of studies you know

NOTE Confidence: 0.619093886666667

00:21:13.842 --> 00:21:15.360 if you know that have found an

NOTE Confidence: 0.619093886666667

00:21:15.360 --> 00:21:16.560 increased risk of breast cancer,

NOTE Confidence: 0.619093886666667

00:21:16.560 --> 00:21:18.860 GI cancer, some lung cancers,

NOTE Confidence: 0.619093886666667

00:21:18.860 --> 00:21:19.304 kidney cancer,

NOTE Confidence: 0.619093886666667

00:21:19.304 --> 00:21:20.858 you know these were well done studies

NOTE Confidence: 0.619093886666667

00:21:20.858 --> 00:21:22.177 that showed that were basically,

NOTE Confidence: 0.619093886666667

00:21:22.180 --> 00:21:23.650 you know, among patients that are

NOTE Confidence: 0.619093886666667

00:21:23.650 --> 00:21:25.169 sorry folks that were exposed to.

NOTE Confidence: 0.619093886666667

00:21:25.170 --> 00:21:27.708 TCDD, and not necessarily Agent Orange.

NOTE Confidence: 0.619093886666667

00:21:27.710 --> 00:21:29.325 There is an appreciable risk

NOTE Confidence: 0.619093886666667

00:21:29.325 --> 00:21:30.294 regarding the hematologic

NOTE Confidence: 0.619093886666667

00:21:30.294 --> 00:21:31.769 malignancies or or blood cancers,

NOTE Confidence: 0.619093886666667

00:21:31.770 --> 00:21:33.648 which is my area of expertise.

NOTE Confidence: 0.619093886666667

00:21:33.650 --> 00:21:35.750 TCDD is linked to an increased

NOTE Confidence: 0.619093886666667

00:21:35.750 --> 00:21:37.150 risk of both Hodgkin

NOTE Confidence: 0.786769311333333

00:21:37.219 --> 00:21:39.209 and non non Hodgkin lymphoma,

NOTE Confidence: 0.786769311333333

00:21:39.210 --> 00:21:41.585 as well as another malignancy

NOTE Confidence: 0.786769311333333

00:21:41.585 --> 00:21:43.485 known as multiple myeloma.

NOTE Confidence: 0.786769311333333

00:21:43.490 --> 00:21:46.450 The one rub is that you know exposure to TCDD

NOTE Confidence: 0.786769311333333

00:21:46.519 --> 00:21:49.343 is uncommon and the disease is of interest.

NOTE Confidence: 0.786769311333333

00:21:49.350 --> 00:21:50.878 You know are also uncommon and so and

NOTE Confidence: 0.786769311333333

00:21:50.878 --> 00:21:52.320 some people also don't live long enough

NOTE Confidence: 0.786769311333333

00:21:52.320 --> 00:21:53.730 to get these diseases of interest.

NOTE Confidence: 0.786769311333333

00:21:53.730 --> 00:21:55.700 So you're studying an uncommon.

NOTE Confidence: 0.786769311333333

00:21:55.700 --> 00:21:58.360 Among uncommon, with perhaps not enough time,

NOTE Confidence: 0.786769311333333

00:21:58.360 --> 00:21:59.977 and this is likely why some other

NOTE Confidence: 0.786769311333333

00:21:59.977 --> 00:22:01.375 studies have shown quote no increased

NOTE Confidence: 0.786769311333333

00:22:01.375 --> 00:22:03.260 risk to which you know many of us say,

NOTE Confidence: 0.786769311333333

00:22:03.260 --> 00:22:04.580 you know, have a you know,

NOTE Confidence: 0.786769311333333

00:22:04.580 --> 00:22:05.345 raise an eyebrow.

NOTE Confidence: 0.786769311333333

00:22:05.345 --> 00:22:07.130 However, the weight of evidence you know

NOTE Confidence: 0.786769311333333

00:22:07.177 --> 00:22:08.845 in some is really clearly established.

NOTE Confidence: 0.786769311333333

00:22:08.850 --> 00:22:11.178 That CD is a known carcinogen.

NOTE Confidence: 0.786769311333333

00:22:11.180 --> 00:22:13.020 Its most critical designation you

NOTE Confidence: 0.786769311333333

00:22:13.020 --> 00:22:16.026 know among some of the very well

NOTE Confidence: 0.786769311333333

00:22:16.026 --> 00:22:18.218 respected communities and organizations.

NOTE Confidence: 0.786769311333333

00:22:18.220 --> 00:22:20.726 The most I'd say weighted is the

NOTE Confidence: 0.786769311333333

00:22:20.726 --> 00:22:22.182 International Agency for Research

NOTE Confidence: 0.786769311333333

00:22:22.182 --> 00:22:23.438 on Cancer or IR,

NOTE Confidence: 0.786769311333333

00:22:23.440 --> 00:22:25.576 which is the agency of the

NOTE Confidence: 0.786769311333333

00:22:25.576 --> 00:22:26.644 World Health Organization.

NOTE Confidence: 0.786769311333333

00:22:26.650 --> 00:22:27.706 And another relevant organization,

NOTE Confidence: 0.786769311333333

00:22:27.706 --> 00:22:29.599 at least you know for the folks

NOTE Confidence: 0.786769311333333

00:22:29.599 --> 00:22:31.147 you know about which we're talking.

NOTE Confidence: 0.786769311333333

00:22:31.150 --> 00:22:32.341 You know veterans,

NOTE Confidence: 0.786769311333333

00:22:32.341 --> 00:22:33.929 the Veterans Administration VA

NOTE Confidence: 0.786769311333333

00:22:33.929 --> 00:22:35.873 also recognizes that there's enough

NOTE Confidence: 0.786769311333333

00:22:35.873 --> 00:22:37.949 evidence to conclude that you know

NOTE Confidence: 0.786769311333333

00:22:37.949 --> 00:22:39.949 exposure to TCDD via Agent Orange,

NOTE Confidence: 0.786769311333333

00:22:39.950 --> 00:22:42.550 you know, was was causative,

NOTE Confidence: 0.786769311333333

00:22:42.550 --> 00:22:43.288 and sorry,

NOTE Confidence: 0.786769311333333

00:22:43.288 --> 00:22:45.871 it was associated in some cases causally

NOTE Confidence: 0.786769311333333

00:22:45.871 --> 00:22:47.740 associated with the development of.

NOTE Confidence: 0.786769311333333

00:22:47.740 --> 00:22:48.720 Several cancers.

NOTE Confidence: 0.910358643333334

00:22:50.000 --> 00:22:51.848 And so if you're a vet and

NOTE Confidence: 0.910358643333334

00:22:51.848 --> 00:22:53.279 you're listening to this show,

NOTE Confidence: 0.910358643333334

00:22:53.280 --> 00:22:57.655 and you know that you were exposed,

NOTE Confidence: 0.910358643333334

00:22:57.660 --> 00:23:00.300 what kinds of things should you be doing?

NOTE Confidence: 0.910358643333334

00:23:00.300 --> 00:23:01.773 So number one?

NOTE Confidence: 0.910358643333334

00:23:01.773 --> 00:23:04.719 Are there particular tests that you

NOTE Confidence: 0.910358643333334

00:23:04.719 --> 00:23:07.975 should be doing in terms of screening?

NOTE Confidence: 0.910358643333334

00:23:07.980 --> 00:23:11.046 We we know about screening tests

NOTE Confidence: 0.910358643333334

00:23:11.046 --> 00:23:14.419 for breast cancer and colon cancer,

NOTE Confidence: 0.910358643333334

00:23:14.420 --> 00:23:19.370 but not so much for leukemias #2.

NOTE Confidence: 0.910358643333334

00:23:19.370 --> 00:23:21.820 Are there symptoms that you

NOTE Confidence: 0.910358643333334

00:23:21.820 --> 00:23:24.530 should be looking for and #3?

NOTE Confidence: 0.910358643333334

00:23:24.530 --> 00:23:26.816 Is there anything you can do

NOTE Confidence: 0.910358643333334

00:23:26.816 --> 00:23:28.866 now that the exposures already

NOTE Confidence: 0.910358643333334

00:23:28.866 --> 00:23:31.106 happened to lower your risk?

NOTE Confidence: 0.864576917894737

00:23:32.500 --> 00:23:34.090 Good questions and I would probably

NOTE Confidence: 0.864576917894737

00:23:34.090 --> 00:23:35.979 start by saying that you know more

NOTE Confidence: 0.864576917894737

00:23:35.979 --> 00:23:37.527 than the patient shares the burden.

NOTE Confidence: 0.864576917894737

00:23:37.530 --> 00:23:40.178 This is up to the provider to really

NOTE Confidence: 0.864576917894737

00:23:40.178 --> 00:23:42.362 be mindful of exposures you know,

NOTE Confidence: 0.864576917894737

00:23:42.362 --> 00:23:44.168 including you know Agent Orange exposure,

NOTE Confidence: 0.864576917894737

00:23:44.170 --> 00:23:45.688 which at this point is usually

NOTE Confidence: 0.864576917894737

00:23:45.688 --> 00:23:47.553 well documented and in fact the VA

NOTE Confidence: 0.864576917894737

00:23:47.553 --> 00:23:48.888 really concedes that anyone serving

NOTE Confidence: 0.864576917894737

00:23:48.888 --> 00:23:50.647 during a certain period of time in

NOTE Confidence: 0.864576917894737

00:23:50.647 --> 00:23:52.254 a certain area has been exposed

NOTE Confidence: 0.864576917894737

00:23:52.254 --> 00:23:54.858 to Agent Orange with regards to,

NOTE Confidence: 0.864576917894737

00:23:54.860 --> 00:23:56.180 you know, cancer in general.

NOTE Confidence: 0.864576917894737

00:23:56.180 --> 00:23:57.636 You mentioned some of the you know,

NOTE Confidence: 0.864576917894737

00:23:57.640 --> 00:23:58.540 the clear.

NOTE Confidence: 0.864576917894737

00:23:58.540 --> 00:24:00.790 You know, screening procedures for

NOTE Confidence: 0.864576917894737

00:24:00.790 --> 00:24:02.990 certain cancers at the moment.

NOTE Confidence: 0.864576917894737

00:24:02.990 --> 00:24:04.706 There's really no evidence to suggest

NOTE Confidence: 0.864576917894737

00:24:04.706 --> 00:24:06.441 that you know that these practices

NOTE Confidence: 0.864576917894737

00:24:06.441 --> 00:24:08.601 should be changed or altered in a way

NOTE Confidence: 0.864576917894737

00:24:08.659 --> 00:24:10.595 just based on an exposure in the past.

NOTE Confidence: 0.864576917894737

00:24:10.600 --> 00:24:12.707 When it comes to a new diagnosis

NOTE Confidence: 0.864576917894737

00:24:12.707 --> 00:24:14.675 of myeloid leukemia like AML or I

NOTE Confidence: 0.864576917894737

00:24:14.675 --> 00:24:16.440 would even consider MD S, you know,

NOTE Confidence: 0.864576917894737

00:24:16.440 --> 00:24:17.715 patients can come to attention

NOTE Confidence: 0.864576917894737

00:24:17.715 --> 00:24:18.929 in a number of ways.

NOTE Confidence: 0.864576917894737

00:24:18.930 --> 00:24:20.220 We do see patients who have,

NOTE Confidence: 0.864576917894737

00:24:20.220 --> 00:24:21.500 you know, as you said,

NOTE Confidence: 0.864576917894737

00:24:21.500 --> 00:24:22.778 quote UN quote, routine blood work,

NOTE Confidence: 0.864576917894737

00:24:22.780 --> 00:24:24.474 and there are abnormalities that you know

NOTE Confidence: 0.864576917894737

00:24:24.474 --> 00:24:25.650 that eventually prompted evaluation.

NOTE Confidence: 0.864576917894737

00:24:25.650 --> 00:24:27.570 But this is not common.

NOTE Confidence: 0.864576917894737

00:24:27.570 --> 00:24:27.841 Typically,

NOTE Confidence: 0.864576917894737

00:24:27.841 --> 00:24:30.009 there is a symptom that prompts blood work.

NOTE Confidence: 0.864576917894737

00:24:30.010 --> 00:24:31.542 Whether this is something

NOTE Confidence: 0.864576917894737

00:24:31.542 --> 00:24:33.074 as nonspecific as fatigue.

NOTE Confidence: 0.864576917894737

00:24:33.080 --> 00:24:34.250 But also shortness of breath,

NOTE Confidence: 0.864576917894737

00:24:34.250 --> 00:24:36.525 which is usually a consequence of anemia,

NOTE Confidence: 0.864576917894737

00:24:36.530 --> 00:24:37.264 uncommonly bleeding,

NOTE Confidence: 0.864576917894737

00:24:37.264 --> 00:24:39.099 which is usually a consequence

NOTE Confidence: 0.864576917894737

00:24:39.099 --> 00:24:40.590 of low platelet count.

NOTE Confidence: 0.864576917894737

00:24:40.590 --> 00:24:42.396 There are patients who present with

NOTE Confidence: 0.864576917894737

00:24:42.396 --> 00:24:44.040 other complications of the disease,

NOTE Confidence: 0.864576917894737

00:24:44.040 --> 00:24:45.888 either by way of it's inflammatory

NOTE Confidence: 0.864576917894737

00:24:45.888 --> 00:24:48.043 nature such as fever or with true

NOTE Confidence: 0.864576917894737

00:24:48.043 --> 00:24:49.759 infection because of a lengthy and

NOTE Confidence: 0.864576917894737

00:24:49.759 --> 00:24:51.675 and low white blood cell count

NOTE Confidence: 0.864576917894737

00:24:51.675 --> 00:24:53.625 that predisposes a patient to such.

NOTE Confidence: 0.864576917894737

00:24:53.625 --> 00:24:54.750 Unfortunately, some patients,

NOTE Confidence: 0.864576917894737

00:24:54.750 --> 00:24:57.849 you know do come to us much sicker,

NOTE Confidence: 0.864576917894737

00:24:57.850 --> 00:24:59.615 with the clearly more aggressive

NOTE Confidence: 0.864576917894737

00:24:59.615 --> 00:25:01.027 forms of the disease.

NOTE Confidence: 0.864576917894737

00:25:01.030 --> 00:25:01.876 You know others, like I said,

NOTE Confidence: 0.864576917894737

00:25:01.880 --> 00:25:03.644 with an isolated asymptomatic.

NOTE Confidence: 0.864576917894737

00:25:03.644 --> 00:25:06.044 Blood count immorality but the need

NOTE Confidence: 0.864576917894737

00:25:06.044 --> 00:25:08.190 for treatment is usually always sorry.

NOTE Confidence: 0.864576917894737

00:25:08.190 --> 00:25:10.640 Is is always the same for pretty

NOTE Confidence: 0.864576917894737

00:25:10.640 --> 00:25:11.980 much every patient.

NOTE Confidence: 0.864576917894737

00:25:11.980 --> 00:25:16.210 So at the moment exposure doesn't

NOTE Confidence: 0.864576917894737

00:25:16.210 --> 00:25:18.100 really buy the book by anyone.

NOTE Confidence: 0.864576917894737

00:25:18.100 --> 00:25:20.760 Any change to sort of screening procedures,

NOTE Confidence: 0.864576917894737

00:25:20.760 --> 00:25:22.424 but I would as a provider just knowing

NOTE Confidence: 0.864576917894737

00:25:22.424 --> 00:25:23.699 that there's a history out there,

NOTE Confidence: 0.864576917894737

00:25:23.700 --> 00:25:25.200 either documented or through you know,

NOTE Confidence: 0.864576917894737

00:25:25.200 --> 00:25:28.056 our routine history and and physical

NOTE Confidence: 0.864576917894737

00:25:28.060 --> 00:25:30.340 just has me a bit more mindful in

NOTE Confidence: 0.864576917894737

00:25:30.340 --> 00:25:32.218 looking out for things and maybe

NOTE Confidence: 0.864576917894737

00:25:32.218 --> 00:25:33.454 in a biased sense.

NOTE Confidence: 0.864576917894737

00:25:33.460 --> 00:25:35.380 I do sort of change my my monitoring.

NOTE Confidence: 0.864576917894737

00:25:35.380 --> 00:25:36.900 Practices from a CBC monitoring

NOTE Confidence: 0.864576917894737

00:25:36.900 --> 00:25:38.420 standpoint or you know looking

NOTE Confidence: 0.864576917894737

00:25:38.473 --> 00:25:40.063 for different things on exam that

NOTE Confidence: 0.864576917894737

00:25:40.063 --> 00:25:41.370 might lend weight to hey,

NOTE Confidence: 0.864576917894737

00:25:41.370 --> 00:25:42.214 we should be looking.

NOTE Confidence: 0.864576917894737

00:25:42.214 --> 00:25:43.800 You know at this thing next or

NOTE Confidence: 0.864576917894737

00:25:43.800 --> 00:25:44.610 do additional testing.

NOTE Confidence: 0.936118305

00:25:45.680 --> 00:25:47.330 Is there anything that people

NOTE Confidence: 0.936118305

00:25:47.330 --> 00:25:48.980 can do to prevent cancers?

NOTE Confidence: 0.936118305

00:25:48.980 --> 00:25:50.928 Many, many patients kind

NOTE Confidence: 0.936118305

00:25:50.928 --> 00:25:53.193 of ask about that, right?

NOTE Confidence: 0.936118305

00:25:53.193 --> 00:25:55.697 Like, is there something that I should eat?

NOTE Confidence: 0.936118305

00:25:55.700 --> 00:25:58.572 Should I try antioxidants?

NOTE Confidence: 0.936118305

00:25:58.572 --> 00:26:01.444 What about hyperbaric oxygen?

NOTE Confidence: 0.936118305

00:26:01.450 --> 00:26:03.641 What is your advice to to people

NOTE Confidence: 0.936118305

00:26:03.641 --> 00:26:05.758 who have been exposed to Agent

NOTE Confidence: 0.936118305

00:26:05.758 --> 00:26:07.966 Orange who are listening to this

NOTE Confidence: 0.936118305

00:26:07.966 --> 00:26:10.104 show and are worried about the

NOTE Confidence: 0.936118305

00:26:10.104 --> 00:26:11.927 fact that this increases their

NOTE Confidence: 0.936118305

00:26:11.927 --> 00:26:14.201 risk and want to do something

NOTE Confidence: 0.936118305

00:26:14.201 --> 00:26:15.870 proactively to reduce that risk?

NOTE Confidence: 0.812678866666667

00:26:17.180 --> 00:26:20.180 Important, it starts with establishing care.

NOTE Confidence: 0.812678866666667

00:26:20.180 --> 00:26:22.070 You know if we're talking about veterans,

NOTE Confidence: 0.812678866666667

00:26:22.070 --> 00:26:24.218 and in particular many are not

NOTE Confidence: 0.812678866666667

00:26:24.218 --> 00:26:26.081 really taking advantage of the

NOTE Confidence: 0.812678866666667

00:26:26.081 --> 00:26:28.235 services to which they are entitled.

NOTE Confidence: 0.812678866666667

00:26:28.240 --> 00:26:30.877 You know there is a a framework known as

NOTE Confidence: 0.812678866666667

00:26:30.877 --> 00:26:33.137 service connection that is can be navigated

NOTE Confidence: 0.812678866666667

00:26:33.137 --> 00:26:35.636 with some of the patient advocates and

NOTE Confidence: 0.812678866666667

00:26:35.636 --> 00:26:37.958 the provider charged with the care.

NOTE Confidence: 0.812678866666667

00:26:37.960 --> 00:26:39.880 For a veteran. You know,

NOTE Confidence: 0.812678866666667

00:26:39.880 --> 00:26:41.356 especially one that was exposed to

NOTE Confidence: 0.812678866666667

00:26:41.356 --> 00:26:42.870 Agent Orange that can secure you,

NOTE Confidence: 0.812678866666667

00:26:42.870 --> 00:26:44.130 know additional benefits just

NOTE Confidence: 0.812678866666667

00:26:44.130 --> 00:26:45.390 based on that exposure,

NOTE Confidence: 0.812678866666667

00:26:45.390 --> 00:26:46.794 and anything that comes.

NOTE Confidence: 0.812678866666667

00:26:46.794 --> 00:26:47.847 Down the road,

NOTE Confidence: 0.812678866666667

00:26:47.850 --> 00:26:49.990 which at this point we can for the most part,

NOTE Confidence: 0.812678866666667

00:26:49.990 --> 00:26:52.876 presume was related to that exposure.

NOTE Confidence: 0.812678866666667

00:26:52.880 --> 00:26:54.992 So it starts with just establishing

NOTE Confidence: 0.812678866666667

00:26:54.992 --> 00:26:56.910 care you know at the VA.

NOTE Confidence: 0.812678866666667

00:26:56.910 --> 00:26:58.184 Or you know if you're not a

NOTE Confidence: 0.812678866666667

00:26:58.184 --> 00:26:59.330 veteran and you know another,

NOTE Confidence: 0.812678866666667

00:26:59.330 --> 00:27:01.350 another facility that can provide

NOTE Confidence: 0.812678866666667

00:27:01.350 --> 00:27:04.070 really the same level of services,

NOTE Confidence: 0.812678866666667

00:27:04.070 --> 00:27:05.486 what can be done otherwise beyond

NOTE Confidence: 0.812678866666667

00:27:05.486 --> 00:27:07.099 the things we we talked about.

NOTE Confidence: 0.812678866666667

00:27:07.100 --> 00:27:08.740 I don't want to sound like a nihilist

NOTE Confidence: 0.812678866666667

00:27:08.740 --> 00:27:09.990 and forgive me for saying this.

NOTE Confidence: 0.812678866666667

00:27:09.990 --> 00:27:11.366 But it's, you know,

NOTE Confidence: 0.812678866666667

00:27:11.366 --> 00:27:13.430 and it's unlikely it is sorry.

NOTE Confidence: 0.812678866666667

00:27:13.430 --> 00:27:15.182 It's likely that there will always

NOTE Confidence: 0.812678866666667

00:27:15.182 --> 00:27:17.250 be cancer and and always be anal.

NOTE Confidence: 0.812678866666667

00:27:17.250 --> 00:27:17.504 NBS,

NOTE Confidence: 0.812678866666667

00:27:17.504 --> 00:27:19.282 mostly because of you kind of harkening

NOTE Confidence: 0.812678866666667

00:27:19.282 --> 00:27:21.610 back to what you had just kind of mentioned.

NOTE Confidence: 0.812678866666667

00:27:21.610 --> 00:27:23.344 You know the you know there

NOTE Confidence: 0.812678866666667

00:27:23.344 --> 00:27:25.060 are things that are natural.

NOTE Confidence: 0.812678866666667

00:27:25.060 --> 00:27:26.761 You know the natural world in which

NOTE Confidence: 0.812678866666667

00:27:26.761 --> 00:27:28.871 we live is brutal and we're likely

NOTE Confidence: 0.812678866666667

00:27:28.871 --> 00:27:30.531 being continually exposed albeit at

NOTE Confidence: 0.812678866666667

00:27:30.531 --> 00:27:32.718 low levels to ambient things that are,

NOTE Confidence: 0.812678866666667

00:27:32.720 --> 00:27:34.820 you know, likely naturally carcinogenic.

NOTE Confidence: 0.812678866666667

00:27:34.820 --> 00:27:36.276 Unfortunately such as background

NOTE Confidence: 0.812678866666667

00:27:36.276 --> 00:27:38.460 radiation from from radon for instance,

NOTE Confidence: 0.812678866666667

00:27:38.460 --> 00:27:39.384 which is the leading cause of

NOTE Confidence: 0.812678866666667

00:27:39.384 --> 00:27:40.468 the thought to be the you know,

NOTE Confidence: 0.812678866666667

00:27:40.470 --> 00:27:42.462 the second leading cause of lung

NOTE Confidence: 0.812678866666667

00:27:42.462 --> 00:27:43.541 cancer or cosmic radiation,

NOTE Confidence: 0.812678866666667

00:27:43.541 --> 00:27:45.023 to which we will likely always

NOTE Confidence: 0.812678866666667

00:27:45.023 --> 00:27:46.380 be exposed to some degree.

NOTE Confidence: 0.812678866666667

00:27:46.380 --> 00:27:47.108 These are.

NOTE Confidence: 0.812678866666667

00:27:47.108 --> 00:27:48.928 Extreme examples I'll give you,

NOTE Confidence: 0.812678866666667

00:27:48.930 --> 00:27:51.527 but I think they serve the point.

NOTE Confidence: 0.812678866666667

00:27:51.530 --> 00:27:53.522 This does not mean we should be lax

NOTE Confidence: 0.812678866666667

00:27:53.522 --> 00:27:55.828 in coming up with alternatives, you know.

NOTE Confidence: 0.812678866666667

00:27:55.828 --> 00:27:56.710 To spare exposure,

NOTE Confidence: 0.812678866666667

00:27:56.710 --> 00:27:57.766 you know if we're talking about,

NOTE Confidence: 0.812678866666667

00:27:57.770 --> 00:27:59.942 you know occupational exposures

NOTE Confidence: 0.812678866666667

00:27:59.942 --> 00:28:02.406 as well as well as medical

NOTE Confidence: 0.812678866666667

00:28:02.406 --> 00:28:04.126 exposures or the ambient setting.

NOTE Confidence: 0.812678866666667

00:28:04.130 --> 00:28:05.782 It would be nice to have solvents

NOTE Confidence: 0.812678866666667

00:28:05.782 --> 00:28:07.857 that are as efficient as a starting

NOTE Confidence: 0.812678866666667

00:28:07.857 --> 00:28:09.613 material to make plastics, resins,

NOTE Confidence: 0.812678866666667

00:28:09.613 --> 00:28:11.828 and spare workers to benzene,

NOTE Confidence: 0.812678866666667

00:28:11.830 --> 00:28:14.098 to which we really don't know the true quote,

NOTE Confidence: 0.812678866666667

00:28:14.100 --> 00:28:15.084 unquote safe level.

NOTE Confidence: 0.812678866666667

00:28:15.084 --> 00:28:17.278 You know, which I think is a misnomer.

NOTE Confidence: 0.812678866666667

00:28:17.280 --> 00:28:18.852 Or chronic low dose exposure that

NOTE Confidence: 0.812678866666667

00:28:18.852 --> 00:28:20.758 you know a body like like OSHA,

NOTE Confidence: 0.812678866666667

00:28:20.760 --> 00:28:21.813 for instance, establishes.

NOTE Confidence: 0.812678866666667

00:28:21.813 --> 00:28:23.919 It's possible that there may be

NOTE Confidence: 0.812678866666667

00:28:23.919 --> 00:28:25.951 no safe exposure to anything out

NOTE Confidence: 0.812678866666667

00:28:25.951 --> 00:28:28.233 there which can be invoked as a

NOTE Confidence: 0.812678866666667

00:28:28.233 --> 00:28:29.758 carcinogen or leukemogenesis to bring

NOTE Confidence: 0.812678866666667

00:28:29.758 --> 00:28:32.050 it back to my my area of interest.

NOTE Confidence: 0.899513511764706

00:28:32.700 --> 00:28:34.908 Doctor Rory Shallis is an assistant

NOTE Confidence: 0.899513511764706

00:28:34.908 --> 00:28:36.811 professor of medicine in hematology

NOTE Confidence: 0.899513511764706

00:28:36.811 --> 00:28:39.019 at the Yale School of Medicine.

NOTE Confidence: 0.899513511764706

00:28:39.020 --> 00:28:41.088 If you have questions,

NOTE Confidence: 0.899513511764706

00:28:41.088 --> 00:28:43.107 the address is canceranswers@yale.edu

NOTE Confidence: 0.899513511764706

00:28:43.107 --> 00:28:45.909 and past editions of the program

NOTE Confidence: 0.899513511764706

00:28:45.909 --> 00:28:48.350 are available in audio and written

NOTE Confidence: 0.899513511764706

00:28:48.350 --> 00:28:49.319 form at yalecancercenter.org.

NOTE Confidence: 0.899513511764706

00:28:49.319 --> 00:28:51.871 We hope you'll join us next week to

NOTE Confidence: 0.899513511764706

00:28:51.871 --> 00:28:53.811 learn more about the fight against

NOTE Confidence: 0.899513511764706

00:28:53.811 --> 00:28:55.381 cancer here on Connecticut Public

NOTE Confidence: 0.899513511764706

00:28:55.432 --> 00:28:57.220 Radio. Funding for Yale Cancer Answers

NOTE Confidence: 0.899513511764706

00:28:57.220 --> 00:29:00.000 is provided by Smilow Cancer Hospital.