WEBVTT

 $00:00:00.000 \longrightarrow 00:00:02.460$ Support for Yale Cancer Answers

NOTE Confidence: 0.8556941

 $00{:}00{:}02.460 \dashrightarrow 00{:}00{:}04.920$ comes from AstraZeneca, dedicated

NOTE Confidence: 0.8556941

 $00:00:04.999 \longrightarrow 00:00:07.344$ to advancing options and providing

NOTE Confidence: 0.8556941

 $00:00:07.344 \longrightarrow 00:00:10.300$ hope for people living with cancer.

NOTE Confidence: 0.8556941

 $00:00:10.300 \longrightarrow 00:00:14.208$ More information at a strazeneca-us.com.

NOTE Confidence: 0.8556941

 $00:00:14.210 \longrightarrow 00:00:16.064$ Welcome to Yale Cancer Answers with

NOTE Confidence: 0.8556941

00:00:16.064 --> 00:00:18.440 your host doctor Anees Chappar.

NOTE Confidence: 0.8556941

 $00:00:18.440 \longrightarrow 00:00:20.240$ Yale Cancer Answers features the

NOTE Confidence: 0.8556941

 $00:00:20.240 \longrightarrow 00:00:22.432$ latest information on cancer care by

NOTE Confidence: 0.8556941

 $00{:}00{:}22.432 \dashrightarrow 00{:}00{:}23.848$ welcoming on cologists and specialists

NOTE Confidence: 0.8556941

 $00:00:23.848 \longrightarrow 00:00:26.260$ who are on the forefront of the

NOTE Confidence: 0.8556941

 $00:00:26.260 \longrightarrow 00:00:28.360$ battle to fight cancer. This week,

NOTE Confidence: 0.8556941

 $00:00:28.360 \longrightarrow 00:00:30.085$ it's a conversation about liver

NOTE Confidence: 0.8556941

 $00{:}00{:}30.085 \dashrightarrow 00{:}00{:}31.810$ cancer with Doctor Mario Strazzabosco,

NOTE Confidence: 0.8556941

 $00:00:31.810 \longrightarrow 00:00:33.814$ Doctor Strazzabosco is a

 $00:00:33.814 \longrightarrow 00:00:35.556$ professor of medicine and clinical

NOTE Confidence: 0.8556941

 $00{:}00{:}35.556 \dashrightarrow 00{:}00{:}37.596$ program leader of the liver Cancer

NOTE Confidence: 0.8556941

 $00:00:37.596 \longrightarrow 00:00:40.089$ program at the Yale School of Medicine,

NOTE Confidence: 0.8556941

 $00:00:40.090 \longrightarrow 00:00:42.160$ where Doctor Chagpar is a

NOTE Confidence: 0.8556941

00:00:42.160 --> 00:00:43.540 professor of surgical oncology.

NOTE Confidence: 0.83157575

 $00:00:45.650 \longrightarrow 00:00:47.436$ Mario, maybe we can start

NOTE Confidence: 0.83157575

 $00:00:47.436 \longrightarrow 00:00:49.500$ off by you telling us a

NOTE Confidence: 0.83157575

 $00:00:49.587 \longrightarrow 00:00:52.127$ little bit about liver cancers.

NOTE Confidence: 0.83157575

 $00{:}00{:}52.130 \dashrightarrow 00{:}00{:}54.155$ So often people have different

NOTE Confidence: 0.83157575

 $00:00:54.155 \longrightarrow 00:00:55.775$ kinds of liver cancers.

NOTE Confidence: 0.83157575

 $00{:}00{:}55.780 \dashrightarrow 00{:}00{:}57.388$ Sometimes cancers have started

NOTE Confidence: 0.83157575

00:00:57.388 --> 00:01:00.668 somewhere else and go to the liver and

NOTE Confidence: 0.83157575

 $00{:}01{:}00.668 \dashrightarrow 00{:}01{:}03.068$ sometimes cancers start in the liver.

NOTE Confidence: 0.83157575

 $00:01:03.070 \longrightarrow 00:01:05.779$ Can you give us a

NOTE Confidence: 0.83157575

00:01:05.779 --> 00:01:08.328 framework of how to think about

NOTE Confidence: 0.83157575

00:01:08.330 --> 00:01:10.082 liver cancers?

 $00{:}01{:}10.082 \dashrightarrow 00{:}01{:}13.171$ We distinguish cancers that start in the liver and

NOTE Confidence: 0.83157575

 $00{:}01{:}13.171 \dashrightarrow 00{:}01{:}15.505$ we call them primary liver cancer,

NOTE Confidence: 0.83157575

 $00:01:15.510 \longrightarrow 00:01:19.390$ from cancer that goes into the liver with

NOTE Confidence: 0.83157575

 $00{:}01{:}19.390 \dashrightarrow 00{:}01{:}23.306$ the primary cancer somewhere else.

NOTE Confidence: 0.83157575

 $00{:}01{:}23.310 \dashrightarrow 00{:}01{:}25.865$ Those are called secondary liver

NOTE Confidence: 0.83157575

 $00:01:25.865 \longrightarrow 00:01:29.030$ cancer and in essence they are

NOTE Confidence: 0.83157575

 $00:01:29.030 \longrightarrow 00:01:31.630$ metastasis from a primary tumor.

NOTE Confidence: 0.83157575

 $00:01:31.630 \longrightarrow 00:01:34.804$ Today the topic will be

NOTE Confidence: 0.83157575

 $00:01:34.804 \longrightarrow 00:01:38.024$ cancer that happens

NOTE Confidence: 0.83157575

 $00:01:38.024 \longrightarrow 00:01:41.510$ in the liver as a primary site.

NOTE Confidence: 0.82089996

 $00:01:42.850 \longrightarrow 00:01:45.447$ And those are less common than the

NOTE Confidence: 0.82089996

00:01:45.447 --> 00:01:47.644 cancers that spread to the liver

NOTE Confidence: 0.82089996

 $00:01:47.644 \longrightarrow 00:01:49.749$ from other sites, is that right?

NOTE Confidence: 0.8644073

00:01:50.770 --> 00:01:52.390 That is right they are

NOTE Confidence: 0.8644073

 $00:01:52.390 \longrightarrow 00:01:53.605$ definitely less common,

 $00:01:53.610 \longrightarrow 00:01:56.403$ but it is true that

NOTE Confidence: 0.8644073

 $00:01:56.403 \longrightarrow 00:01:58.838$ primary liver cancer is actually one

NOTE Confidence: 0.8644073

 $00:01:58.838 \longrightarrow 00:02:01.526$ of the few cancers that are still

NOTE Confidence: 0.8644073

00:02:01.605 --> 00:02:03.680 increasing in terms of incidence

NOTE Confidence: 0.8644073

 $00:02:03.680 \longrightarrow 00:02:06.164$ and also in terms of mortality.

NOTE Confidence: 0.8644073

 $00:02:06.164 \longrightarrow 00:02:08.588$ So tell us a little bit

NOTE Confidence: 0.8644073

 $00:02:08.590 \longrightarrow 00:02:10.620$ more about primary liver cancers.

NOTE Confidence: 0.8644073

 $00:02:10.620 \longrightarrow 00:02:12.240$ Are there different types

NOTE Confidence: 0.8644073

 $00:02:12.240 \longrightarrow 00:02:13.860$ of primary liver cancer?

NOTE Confidence: 0.87478226

 $00:02:14.470 \longrightarrow 00:02:17.440$ Yes, there are several types.

NOTE Confidence: 0.87478226

 $00:02:17.440 \longrightarrow 00:02:21.770$ The two main types are

NOTE Confidence: 0.87478226

00:02:21.770 --> 00:02:24.034 hepatocellular carcinoma,

NOTE Confidence: 0.87478226

 $00:02:24.034 \longrightarrow 00:02:27.816$ which is the cancer

NOTE Confidence: 0.87478226

 $00:02:27.816 \longrightarrow 00:02:31.390$ that starts from the liver cells.

 $00:02:32.348 \longrightarrow 00:02:36.660$ It is the most common of them and the

NOTE Confidence: 0.87478226

 $00{:}02{:}36.660 \dashrightarrow 00{:}02{:}38.796$ other is called cholangiocarcinoma

 $00:02:38.796 \longrightarrow 00:02:42.000$ and that starts from the bile ducts

NOTE Confidence: 0.87478226

 $00:02:42.088 \longrightarrow 00:02:44.596$ inside or outside of the liver.

NOTE Confidence: 0.87478226

 $00:02:44.600 \longrightarrow 00:02:46.238$ And this is less common.

NOTE Confidence: 0.84517926

 $00:02:46.240 \longrightarrow 00:02:49.691$ You mentioned that the

NOTE Confidence: 0.84517926

 $00:02:49.691 \longrightarrow 00:02:53.320$ incidences was increasing. What are

NOTE Confidence: 0.84517926

 $00:02:53.320 \longrightarrow 00:02:57.135$ the risk factors for getting liver cancer?

 $00{:}02{:}58.775 \dashrightarrow 00{:}03{:}02.590$ This is a very important question.

NOTE Confidence: 0.84517926

00:03:02.590 --> 00:03:06.442 So liver cancer is increasing as a result of

NOTE Confidence: 0.84517926

 $00{:}03{:}06.442 \dashrightarrow 00{:}03{:}09.668$ several worldwide epidemiological trends.

NOTE Confidence: 0.84517926

 $00{:}03{:}09.670 \dashrightarrow 00{:}03{:}14.726$ The main risk factor is one, having liver disease.

NOTE Confidence: 0.84517926

00:03:14.730 --> 00:03:17.850 Two having hepatits c, three having

NOTE Confidence: 0.84517926

 $00{:}03{:}17.850 \to 00{:}03{:}20.639$ hepatitis B, four, having an excessive

NOTE Confidence: 0.84517926

 $00:03:20.639 \longrightarrow 00:03:23.669$ consumption of alcohol, five, having

NOTE Confidence: 0.84517926

 $00{:}03{:}23.669 \dashrightarrow 00{:}03{:}27.040$ what we call metabolic syndrome,

NOTE Confidence: 0.84517926

00:03:27.040 --> 00:03:30.729 which is the result of being obese

NOTE Confidence: 0.84517926

 $00:03:30.729 \longrightarrow 00:03:34.070$ or overweight or having diabetes,

 $00:03:34.070 \longrightarrow 00:03:38.330$ or having other cardiovascular risk factors.

NOTE Confidence: 0.84517926

 $00:03:38.330 \longrightarrow 00:03:40.110$ In addition to that,

NOTE Confidence: 0.84517926

00:03:40.110 --> 00:03:42.335 there is a 6th epidemiological

NOTE Confidence: 0.84517926

00:03:42.335 --> 00:03:44.740 trend which is very important,

NOTE Confidence: 0.84517926

 $00:03:44.740 \longrightarrow 00:03:48.943$ which is the poor access to care in certain coun-

tries.

NOTE Confidence: 0.84517926

 $00:03:55.420 \longrightarrow 00:03:58.300$ These are the main factors that

NOTE Confidence: 0.84517926

 $00:03:58.300 \longrightarrow 00:04:00.220$ contribute to increasing the

NOTE Confidence: 0.84517926

 $00{:}04{:}00.306 \dashrightarrow 00{:}04{:}03.026$ incidence of primary liver cancer,

NOTE Confidence: 0.84517926

00:04:03.030 --> 00:04:05.560 and particularly of hepatocellular carcinoma.

NOTE Confidence: 0.84517926

 $00:04:05.560 \longrightarrow 00:04:08.920$ Of course, the combination of these factors

NOTE Confidence: 0.84517926

 $00:04:08.920 \longrightarrow 00:04:12.148$ changes according to the geographical area.

 $00:04:20.772 \longrightarrow 00:04:24.320$ It used to be that in the US,

NOTE Confidence: 0.84517926

 $00{:}04{:}24.320 \dashrightarrow 00{:}04{:}27.440$ the incidence of HCC was lower

NOTE Confidence: 0.84517926

00:04:27.440 --> 00:04:29.700 for example, than Asia, Africa,

NOTE Confidence: 0.84517926

 $00:04:29.700 \longrightarrow 00:04:31.056$ or other places.

NOTE Confidence: 0.84517926

 $00:04:31.056 \longrightarrow 00:04:34.220$ But now with migration and other factors,

 $00:04:34.220 \longrightarrow 00:04:37.732$ it tends to become more equal in terms

NOTE Confidence: 0.84517926

 $00:04:37.732 \longrightarrow 00:04:40.523$ of distribution of risk factors and

NOTE Confidence: 0.84517926

 $00:04:40.523 \longrightarrow 00:04:43.259$ also the risk factors are changing,

NOTE Confidence: 0.84517926

 $00:04:43.260 \longrightarrow 00:04:46.508$ so we used to have a very big

NOTE Confidence: 0.84517926

00:04:46.508 --> 00:04:48.679 impact of hepatitis C.

NOTE Confidence: 0.84517926

 $00:04:48.680 \longrightarrow 00:04:50.940$ Now with the new treatments

 $00:04:52.750 \longrightarrow 00:04:55.914$ we see a rise in the

NOTE Confidence: 0.84517926

00:04:55.914 --> 00:04:56.818 hepatocellular cancer

NOTE Confidence: 0.84517926

 $00:04:56.820 \longrightarrow 00:04:59.150$ which is a consequence of the metabolic

NOTE Confidence: 0.84517926

 $00:04:59.150 \longrightarrow 00:05:01.480$ risk factor such as diabetes,

 $00{:}05{:}02.880 \dashrightarrow 00{:}05{:}06.352$ so the incidence in the US vs Asia

NOTE Confidence: 0.8051847

 $00:05:06.352 \longrightarrow 00:05:09.268$ has increased.

NOTE Confidence: 0.8051847

 $00:05:09.268 \longrightarrow 00:05:12.640$ You mentioned that was due to in part to migra-

tion i.e.

NOTE Confidence: 0.8051847

 $00{:}05{:}12.640 \dashrightarrow 00{:}05{:}15.580$ people from Asia moving to the US which

NOTE Confidence: 0.8051847

 $00:05:15.580 \longrightarrow 00:05:18.220$ might imply some genetic factors.

NOTE Confidence: 0.8051847

 $00:05:18.220 \longrightarrow 00:05:20.938$ So is there a genetic underpinning

 $00:05:20.938 \longrightarrow 00:05:24.268$ to some of these cancers as well?

 $00:05:24.730 \longrightarrow 00:05:27.055$ I think this is more exposure

NOTE Confidence: 0.8051847

 $00:05:27.055 \longrightarrow 00:05:28.915$ to viral hepatitis.

NOTE Confidence: 0.8051847

 $00:05:28.920 \longrightarrow 00:05:32.238$ For example, one of the main factors

NOTE Confidence: 0.8051847

 $00:05:32.240 \longrightarrow 00:05:34.220$ in hepatitis B

NOTE Confidence: 0.8051847

00:05:34.220 --> 00:05:37.190 which is a direct oncogenic virus

NOTE Confidence: 0.8051847

00:05:37.291 --> 00:05:41.080 and it used to be lower here and higher

NOTE Confidence: 0.8051847

 $00:05:41.080 \longrightarrow 00:05:43.400$ for example, in the Mediterranean

NOTE Confidence: 0.8051847

 $00:05:43.400 \longrightarrow 00:05:45.256$ countries and in Asia.

NOTE Confidence: 0.8051847

 $00:05:45.260 \longrightarrow 00:05:48.956$ And changes in the

NOTE Confidence: 0.8051847

 $00{:}05{:}48.956 \to 00{:}05{:}51.310$ worldwide population may change that.

NOTE Confidence: 0.8051847

 $00:05:51.310 \longrightarrow 00:05:53.858$ But one peculiar thing in the

NOTE Confidence: 0.8051847

 $00{:}05{:}53.858 \operatorname{{\mathsf{-->}}} 00{:}05{:}56.828$ US is actually the increase

NOTE Confidence: 0.8051847

 $00:05:56.828 \longrightarrow 00:05:59.208$ of metabolic risk factors.

NOTE Confidence: 0.8051847

00:05:59.210 --> 00:06:01.540 Cancer associated with obesity

 $00:06:02.600 \longrightarrow 00:06:05.780$ and diabetes and one important thing

 $00:06:05.780 \longrightarrow 00:06:08.820$ to understand in terms of liver cancer

NOTE Confidence: 0.8051847

 $00{:}06{:}08.820 \dashrightarrow 00{:}06{:}11.802$ is that whereas we try to focus on

NOTE Confidence: 0.8051847

 $00:06:11.802 \longrightarrow 00:06:14.566$ one risk factor as a matter of fact,

NOTE Confidence: 0.8051847

00:06:14.566 --> 00:06:16.150 patients with liver cancer,

NOTE Confidence: 0.8051847

 $00:06:16.150 \longrightarrow 00:06:18.526$ have several risk factors. It is not unusual

NOTE Confidence: 0.8051847

 $00:06:18.530 \longrightarrow 00:06:20.912$ to find a patient that is

NOTE Confidence: 0.8051847

00:06:20.912 --> 00:06:22.500 overweight, maybe is diabetic,

NOTE Confidence: 0.8051847

 $00:06:22.500 \longrightarrow 00:06:25.140$ which goes with being overweight and

NOTE Confidence: 0.8051847

 $00{:}06{:}25.140 \dashrightarrow 00{:}06{:}28.573$ he didn't know he had hepatitis C

NOTE Confidence: 0.8051847

 $00:06:28.573 \longrightarrow 00:06:31.630$ so lived a normal life with

 $00:06:32.456 \longrightarrow 00:06:35.347$ drinking more than his liver could stand,

NOTE Confidence: 0.8051847

 $00:06:35.350 \longrightarrow 00:06:37.800$ and so here we are and maybe

NOTE Confidence: 0.8051847

 $00:06:37.800 \longrightarrow 00:06:39.640$ even he was smoking.

NOTE Confidence: 0.8051847

 $00{:}06{:}39.640 \dashrightarrow 00{:}06{:}42.520$ So just a regular guy that had

NOTE Confidence: 0.8051847

 $00:06:42.520 \longrightarrow 00:06:45.490$ accrued four risk factors for liver cancer.

NOTE Confidence: 0.8051847

 $00:06:45.490 \longrightarrow 00:06:48.220$ So this is very important to understand

 $00:06:48.220 \longrightarrow 00:06:50.990$ when they add to each

NOTE Confidence: 0.8051847

 $00{:}06{:}50.990 \dashrightarrow 00{:}06{:}53.282$ other the increasing the risk factor

NOTE Confidence: 0.8326694

 $00:06:53.290 \longrightarrow 00:06:53.942$ is exponential.

NOTE Confidence: 0.8326694

 $00:06:53.942 \longrightarrow 00:06:56.550$ I want to pick up on the viral

NOTE Confidence: 0.8326694

 $00:06:56.623 \longrightarrow 00:06:59.047$ hepatitities which increase the risk

NOTE Confidence: 0.8326694

 $00{:}06{:}59.047 \dashrightarrow 00{:}07{:}01.869$ of developing hepatocellular cancer.

NOTE Confidence: 0.8326694

00:07:01.870 --> 00:07:04.678 So hepatitis B and hepatitis C,

NOTE Confidence: 0.8326694

 $00:07:04.680 \longrightarrow 00:07:06.764$ interestingly, as we're living

NOTE Confidence: 0.8326694

 $00{:}07{:}06.764 \dashrightarrow 00{:}07{:}09.372$ through Covid right now, another

NOTE Confidence: 0.8326694

 $00:07:09.372 \longrightarrow 00:07:13.548$ viral disease for which we have a vaccine,

NOTE Confidence: 0.8326694

 $00{:}07{:}13.550 \dashrightarrow 00{:}07{:}16.810$ it's important to understand that

NOTE Confidence: 0.8326694

 $00:07:16.810 \longrightarrow 00:07:20.570$ there are vaccines for hepatitis B&C.

NOTE Confidence: 0.8326694

 $00:07:20.570 \longrightarrow 00:07:23.432$ Have those vaccines had any

NOTE Confidence: 0.8326694

 $00:07:23.432 \longrightarrow 00:07:26.109$ impact on reducing the rates

NOTE Confidence: 0.8326694

 $00:07:26.109 \longrightarrow 00:07:28.670$ of hepatocellular cancer?

NOTE Confidence: 0.78660315

 $00:07:28.670 \longrightarrow 00:07:30.718$ We have vaccination available

00:07:30.718 --> 00:07:34.363 for hepatitis A&B. Hepatitis A is not

NOTE Confidence: 0.78660315

 $00:07:34.363 \longrightarrow 00:07:37.279$ associated with liver cancer, it is the

NOTE Confidence: 0.78660315

00:07:37.279 --> 00:07:40.720 hepatitis that is actually acquired

NOTE Confidence: 0.78660315

 $00:07:40.720 \longrightarrow 00:07:43.248$ through eating shellfish,

NOTE Confidence: 0.78660315

 $00:07:43.250 \longrightarrow 00:07:48.403$ or seafood. Hepatitis B,

NOTE Confidence: 0.78660315

00:07:48.403 --> 00:07:51.709 we have a vaccine which is extremely

NOTE Confidence: 0.78660315

00:07:51.709 --> 00:07:55.208 efficient and we have data showing that,

NOTE Confidence: 0.78660315

 $00:07:55.210 \longrightarrow 00:07:58.521$ for example, in some country in Africa

NOTE Confidence: 0.78660315

00:07:58.521 --> 00:08:01.999 where they had a very high incidence

NOTE Confidence: 0.78660315

 $00:08:01.999 \longrightarrow 00:08:05.694$ of a hepatocellular cancer because of the

NOTE Confidence: 0.78660315

 $00:08:05.694 \dashrightarrow 00:08:08.969$ maternal fetal transmission of hepatitis B,

NOTE Confidence: 0.78660315

 $00:08:08.970 \longrightarrow 00:08:12.138$ they implemented a mass

NOTE Confidence: 0.78660315

 $00{:}08{:}12.138 \dashrightarrow 00{:}08{:}13.722$ vaccination program there.

NOTE Confidence: 0.78660315

 $00:08:13.730 \longrightarrow 00:08:17.018$ And the incidence of liver cancer dropped

NOTE Confidence: 0.78660315

00:08:17.020 --> 00:08:18.620 dramatically, so yes,

 $00:08:18.620 \longrightarrow 00:08:22.163$ it is there and we can decrease the

NOTE Confidence: 0.78660315

 $00{:}08{:}22.163 \to 00{:}08{:}25.319$ incidence with vaccination and in fact

NOTE Confidence: 0.78660315

 $00:08:25.319 \longrightarrow 00:08:29.209$ most people in the younger generation

NOTE Confidence: 0.78660315

 $00:08:29.210 \longrightarrow 00:08:31.090$ are vaccinated for it.

 $00:08:33.440 \longrightarrow 00:08:36.038$ Unfortunately we never made it with

NOTE Confidence: 0.78660315

 $00{:}08{:}36.038 \dashrightarrow 00{:}08{:}39.350$ trying to find a vaccine for hepatitis C because of

NOTE Confidence: 0.78660315

 $00:08:39.350 \longrightarrow 00:08:42.344$ this high variability of the virus.

NOTE Confidence: 0.78660315

 $00:08:42.350 \longrightarrow 00:08:45.032$ But we were lucky because

NOTE Confidence: 0.78660315

 $00:08:45.032 \longrightarrow 00:08:47.600$ we were able to devise

NOTE Confidence: 0.78660315

 $00{:}08{:}47.600 \dashrightarrow 00{:}08{:}50.295$ pharmacological treatment and so now

NOTE Confidence: 0.78660315

 $00{:}08{:}50.295 \dashrightarrow 00{:}08{:}54.232$ we have very effective ways to eradicate

NOTE Confidence: 0.78660315

 $00:08:54.232 \longrightarrow 00:08:57.694$ the virus using small molecule compounds.

NOTE Confidence: 0.78660315

 $00{:}08{:}57.700 \dashrightarrow 00{:}09{:}00.538$ And that is important information.

NOTE Confidence: 0.78660315

 $00{:}09{:}00.540 \dashrightarrow 00{:}09{:}03.156$ And overall I think one message

NOTE Confidence: 0.78660315

00:09:03.156 --> 00:09:06.016 that it would be very important

NOTE Confidence: 0.78660315

 $00:09:06.016 \longrightarrow 00:09:09.076$ to get through to the public, is that

 $00:09:09.080 \longrightarrow 00:09:11.654$ most formal liver disease and therefore

NOTE Confidence: 0.78660315

 $00{:}09{:}11.654 \dashrightarrow 00{:}09{:}14.290$ also liver cancer are preventable.

NOTE Confidence: 0.78660315

 $00:09:14.290 \longrightarrow 00:09:18.074$ And also treatable in terms of liver disease.

NOTE Confidence: 0.78660315

 $00:09:18.080 \longrightarrow 00:09:20.450$ So you can

NOTE Confidence: 0.78660315

00:09:20.450 --> 00:09:23.078 prevent risky behavior for viral

NOTE Confidence: 0.78660315

 $00{:}09{:}23.078 \dashrightarrow 00{:}09{:}26.140$ hepatitis, you can use vaccination.

NOTE Confidence: 0.78660315

 $00:09:26.140 \longrightarrow 00:09:28.650$ You can treat the virus

 $00:09:29.811 \longrightarrow 00:09:33.171$ if you realize you are

NOTE Confidence: 0.78660315

 $00{:}09{:}33.171 \dashrightarrow 00{:}09{:}35.976$ in fected before having a cirrhosis.

NOTE Confidence: 0.78660315

00:09:35.980 --> 00:09:41.680 Avoid, of course,

NOTE Confidence: 0.78660315

 $00:09:41.680 \longrightarrow 00:09:43.420$ excessive use of alcohol.

NOTE Confidence: 0.78660315

 $00:09:43.420 \longrightarrow 00:09:46.962$ You can act on the lifestyle if you

NOTE Confidence: 0.78660315

 $00:09:46.962 \longrightarrow 00:09:50.000$ have diabetes. If you are

NOTE Confidence: 0.78660315

 $00:09:50.000 \longrightarrow 00:09:52.628$ obese,

NOTE Confidence: 0.78660315

 $00:09:52.630 \longrightarrow 00:09:54.378$ you can lose weight.

NOTE Confidence: 0.78660315

 $00:09:54.378 \longrightarrow 00:09:56.563$ You can increase your exercise.

 $00:09:56.570 \longrightarrow 00:09:59.153$ You can control those factors and so

NOTE Confidence: 0.78660315

 $00:09:59.153 \longrightarrow 00:10:02.270$ all of them are actually preventable,

NOTE Confidence: 0.78660315

 $00:10:02.270 \longrightarrow 00:10:04.688$ acting both at a personal level

NOTE Confidence: 0.78660315

 $00{:}10{:}04.688 \dashrightarrow 00{:}10{:}07.519$ and public health action.

 $00:10:08.400 \longrightarrow 00:10:11.238$ Let's pick up on on that.

NOTE Confidence: 0.82099146

 $00:10:11.240 \longrightarrow 00:10:14.390$ You mentioned a

NOTE Confidence: 0.82099146

00:10:14.390 --> 00:10:16.490 number of preventative measures,

NOTE Confidence: 0.82099146

00:10:16.490 --> 00:10:19.115 so if somebody gets vaccinated

NOTE Confidence: 0.82099146

 $00:10:19.115 \longrightarrow 00:10:21.740$ against hepatitis B, for example,

NOTE Confidence: 0.82099146

00:10:21.740 --> 00:10:24.365 and never contracts hepatitis B,

NOTE Confidence: 0.82099146

 $00{:}10{:}24.370 \dashrightarrow 00{:}10{:}26.466$ it's understandable then that

NOTE Confidence: 0.82099146

 $00{:}10{:}26.466 \dashrightarrow 00{:}10{:}29.086$ they've eliminated that risk factor,

NOTE Confidence: 0.82099146

 $00:10:29.090 \longrightarrow 00:10:31.750$ but if they get hepatitis

NOTE Confidence: 0.82099146

 $00{:}10{:}31.750 --> 00{:}10{:}34.870$ C and are treated for it,

NOTE Confidence: 0.82099146

 $00:10:34.870 \longrightarrow 00:10:38.014$ does that eradicate the risk of

NOTE Confidence: 0.82099146

 $00:10:38.014 \longrightarrow 00:10:39.586$ developing hepatocellular carcinoma?

 $00:10:39.590 \longrightarrow 00:10:43.526$ Or is the fact that they already had

NOTE Confidence: 0.82099146

 $00:10:43.526 \longrightarrow 00:10:47.377$ hepatitis C even though it was treated,

00:10:48.204 --> 00:10:50.676 does that still increase their risk?

 $00:10:58.410 \longrightarrow 00:11:00.540$ Number one, there's a lot of

NOTE Confidence: 0.80400974

 $00:11:00.540 \longrightarrow 00:11:03.309$ people that have hepatitis C

NOTE Confidence: 0.80400974

 $00:11:03.310 \longrightarrow 00:11:05.690$ and don't know it, particularly

NOTE Confidence: 0.80400974

00:11:05.690 --> 00:11:08.780 in the so called baby Boomer.

NOTE Confidence: 0.80400974

 $00:11:08.780 \longrightarrow 00:11:15.930 \# 2$ this drug that I was mentioning,

NOTE Confidence: 0.80400974

00:11:15.930 --> 00:11:19.280 DAA, direct active antivirus,

NOTE Confidence: 0.80400974

 $00:11:19.280 \longrightarrow 00:11:21.290$ are extremely

NOTE Confidence: 0.86329997

 $00:11:23.320 \longrightarrow 00:11:25.290$ good and can eradicate

NOTE Confidence: 0.86329997

 $00:11:25.290 \longrightarrow 00:11:27.260$ the virus in most cases.

NOTE Confidence: 0.86329997

 $00:11:27.260 \longrightarrow 00:11:29.618$ Then the question becomes

NOTE Confidence: 0.86329997

00:11:29.620 --> 00:11:32.378 at what stage did you apply that treatment?

NOTE Confidence: 0.86329997

00:11:32.380 --> 00:11:34.750 Did you have just a minor

NOTE Confidence: 0.788159527142857

 $00:11:37.050 \longrightarrow 00:11:40.315$ chronic hepatitis or were

NOTE Confidence: 0.788159527142857

00:11:40.315 --> 00:11:43.580 you already progressed to have

 $00:11:43.690 \longrightarrow 00:11:46.550$ more fibrosis and cirrhosis.

NOTE Confidence: 0.788159527142857

 $00:11:46.550 \longrightarrow 00:11:49.118$ And the risk decreases in

NOTE Confidence: 0.788159527142857

00:11:49.118 --> 00:11:51.438 a different way whether you

NOTE Confidence: 0.788159527142857

00:11:51.438 --> 00:11:53.514 treated hepatitis before becoming

NOTE Confidence: 0.788159527142857

00:11:53.514 --> 00:11:56.690 cirrhotic or when you were already

NOTE Confidence: 0.788159527142857 00:11:56.690 --> 00:11:59.105 cirrhotic? NOTE Confidence: 0.788159527142857

00:11:59.105 --> 00:12:01.037 In this second instance,

NOTE Confidence: 0.788159527142857

 $00{:}12{:}01.040 \dashrightarrow 00{:}12{:}04.896$ the decrease in the risk is less important.

 $00:12:06.241 \longrightarrow 00:12:08.923$ The thing that we learned after treating

NOTE Confidence: 0.788159527142857

00:12:08.923 --> 00:12:11.347 many patients and erradicating

NOTE Confidence: 0.788159527142857

 $00{:}12{:}11.347 \dashrightarrow 00{:}12{:}14.806$ the virus is that the risk of

NOTE Confidence: 0.788159527142857

00:12:14.806 --> 00:12:17.476 having liver cancer was decreasing,

NOTE Confidence: 0.788159527142857

 $00:12:17.480 \longrightarrow 00:12:19.232$ but was not zero.

NOTE Confidence: 0.788159527142857

 $00:12:19.232 \longrightarrow 00:12:22.380$ So there is still a substantial risk,

NOTE Confidence: 0.788159527142857

 $00:12:22.380 \longrightarrow 00:12:25.509$ even if it is, let's say halved.

NOTE Confidence: 0.788159527142857

 $00:12:29.072 \longrightarrow 00:12:31.748$ And there is a big controversy in the literature,

00:12:31.750 --> 00:12:34.426 but I won't go into that,

NOTE Confidence: 0.788159527142857

 $00{:}12{:}34.430 \to 00{:}12{:}38.570$ but I think that one of the problems is,

NOTE Confidence: 0.788159527142857

00:12:38.570 --> 00:12:41.363 the timing in the Natural History

NOTE Confidence: 0.788159527142857

00:12:41.363 --> 00:12:44.169 of disease in which you apply the

NOTE Confidence: 0.788159527142857

00:12:44.169 --> 00:12:47.549 treatment and just to go back to

NOTE Confidence: 0.788159527142857

 $00:12:47.549 \longrightarrow 00:12:50.049$ the beginning of this conversation,

NOTE Confidence: 0.788159527142857

 $00:12:50.050 \longrightarrow 00:12:52.594$ we said most patients

NOTE Confidence: 0.788159527142857

 $00:12:52.594 \longrightarrow 00:12:53.866$ with liver cancer

NOTE Confidence: 0.788159527142857

 $00:12:53.870 \longrightarrow 00:12:56.845$ have more than one risk factor.

NOTE Confidence: 0.788159527142857

 $00:12:56.850 \longrightarrow 00:12:59.394$ So if I only eliminate the

NOTE Confidence: 0.788159527142857

00:12:59.394 --> 00:13:00.666 virus and eradicate it,

NOTE Confidence: 0.788159527142857

 $00{:}13{:}00.670 \dashrightarrow 00{:}13{:}03.645$ I decrease a very important risk factor.

NOTE Confidence: 0.788159527142857

 $00:13:03.650 \longrightarrow 00:13:06.800$ But I don't zero the risk factor

NOTE Confidence: 0.788159527142857

 $00:13:06.800 \longrightarrow 00:13:08.980$ because the patient

NOTE Confidence: 0.788159527142857

00:13:08.980 --> 00:13:11.556 may be diabetic, the patient may be overweight,

00:13:11.560 --> 00:13:13.552 but the patient may be drinking

NOTE Confidence: 0.788159527142857

00:13:13.552 --> 00:13:15.771 or go back to drink because

NOTE Confidence: 0.788159527142857

 $00:13:15.771 \longrightarrow 00:13:18.207$ now he doesn't have the virus.

NOTE Confidence: 0.788159527142857 00:13:18.210 --> 00:13:18.948 So again, NOTE Confidence: 0.788159527142857

 $00:13:18.948 \longrightarrow 00:13:20.793$ one of the important messages

 $00:13:25.410 \longrightarrow 00:13:29.358$ is that liver cancer is a very

NOTE Confidence: 0.788159527142857

00:13:29.358 --> 00:13:30.674 comprehensive approach.

NOTE Confidence: 0.788159527142857

 $00:13:30.680 \longrightarrow 00:13:33.375$ Eliminating the virus is just step one.

NOTE Confidence: 0.788159527142857

 $00:13:33.380 \longrightarrow 00:13:34.928$ We're going to pick

NOTE Confidence: 0.8503824

 $00:13:34.930 \longrightarrow 00:13:38.040$ up on how we deal with all of the other

NOTE Confidence: 0.8503824

 $00:13:38.123 \longrightarrow 00:13:40.709$ lifestyle factors right after we take

NOTE Confidence: 0.8503824

 $00{:}13{:}40.709 \dashrightarrow 00{:}13{:}44.190$ a quick break it for a medical minute.

NOTE Confidence: 0.8503824

 $00{:}13{:}44.190 \dashrightarrow 00{:}13{:}46.470$ Please stay tuned to learn more

NOTE Confidence: 0.8503824

 $00{:}13{:}46.470 \dashrightarrow 00{:}13{:}48.820$ about advances in liver cancer with

NOTE Confidence: 0.8503824

 $00:13:48.820 \longrightarrow 00:13:51.184$ my guest doctor, Mario Strazzabosco.

NOTE Confidence: 0.8503824

 $00:13:51.184 \longrightarrow 00:13:53.237$ Support for Yale Cancer Answers

 $00:13:53.237 \longrightarrow 00:13:55.679$ comes from AstraZeneca, working to

NOTE Confidence: 0.8503824

 $00{:}13{:}55.679 \dashrightarrow 00{:}13{:}58.088$ eliminate cancer as a cause of death.

NOTE Confidence: 0.8503824

 $00{:}13{:}58.090 \dashrightarrow 00{:}14{:}01.278$ Learn more at a strazeneca-us.com.

NOTE Confidence: 0.8503824

 $00:14:01.280 \longrightarrow 00:14:03.365$ This is a medical minute

NOTE Confidence: 0.8503824

 $00:14:03.365 \longrightarrow 00:14:04.616$ about smoking cessation.

NOTE Confidence: 0.8503824

 $00:14:04.620 \longrightarrow 00:14:06.700$ There are many obstacles to

NOTE Confidence: 0.8503824

 $00:14:06.700 \longrightarrow 00:14:08.364$ face when quitting smoking,

NOTE Confidence: 0.8503824

 $00:14:08.370 \longrightarrow 00:14:11.289$ as smoking involves the potent drug nicotine.

NOTE Confidence: 0.8503824

 $00:14:11.290 \longrightarrow 00:14:14.209$ But it's a very important lifestyle change,

NOTE Confidence: 0.8503824

 $00:14:14.210 \longrightarrow 00:14:15.458$ especially for patients

NOTE Confidence: 0.8503824

 $00{:}14{:}15.458 \dashrightarrow 00{:}14{:}16.706$ undergoing cancer treatment.

NOTE Confidence: 0.8503824

00:14:16.710 --> 00:14:18.954 Quitting smoking has been shown to

NOTE Confidence: 0.8503824

00:14:18.954 --> 00:14:20.989 positively impact response to treatments,

NOTE Confidence: 0.8503824

 $00:14:20.989 \longrightarrow 00:14:23.359$ decrease the likelihood that patients

NOTE Confidence: 0.8503824

00:14:23.359 --> 00:14:25.255 will develop second malignancies,

NOTE Confidence: 0.8503824

 $00:14:25.315 \longrightarrow 00:14:27.130$ and increase rates of survival.

00:14:27.130 --> 00:14:28.762 Tobacco treatment programs are

NOTE Confidence: 0.8503824

 $00:14:28.762 \longrightarrow 00:14:30.802$ currently being offered at federally

NOTE Confidence: 0.8503824

 $00:14:30.802 \longrightarrow 00:14:32.778$ designated Comprehensive cancer centers

NOTE Confidence: 0.8503824

 $00:14:32.780 \longrightarrow 00:14:34.510$ and operate on the principles

NOTE Confidence: 0.8503824

00:14:34.510 --> 00:14:36.915 of the US Public Health Service

NOTE Confidence: 0.8503824

00:14:36.915 --> 00:14:38.727 clinical practice guidelines.

NOTE Confidence: 0.8503824

 $00:14:38.730 \longrightarrow 00:14:40.845$ All treatment components are evidence

NOTE Confidence: 0.8503824

 $00{:}14{:}40.845 \dashrightarrow 00{:}14{:}43.406$ based and therefore all patients are

NOTE Confidence: 0.8503824

 $00:14:43.406 \longrightarrow 00:14:45.722$ treated with FDA approved first line

NOTE Confidence: 0.8503824

 $00:14:45.722 \longrightarrow 00:14:47.854$ medications for smoking cessation as

NOTE Confidence: 0.8503824

 $00:14:47.854 \longrightarrow 00:14:50.119$ well as smoking cessation counseling

NOTE Confidence: 0.8503824

 $00:14:50.119 \longrightarrow 00:14:52.596$ that stresses appropriate coping skills.

NOTE Confidence: 0.8503824

00:14:52.596 --> 00:14:55.386 More information is available at

NOTE Confidence: 0.8503824

 $00:14:55.386 \longrightarrow 00:14:57.060$ yalecancercenter.org you're listening

NOTE Confidence: 0.8503824

 $00:14:57.130 \longrightarrow 00:14:58.970$ to Connecticut Public Radio.

 $00:14:58.970 \longrightarrow 00:14:59.410$ Welcome back to Yale Cancer Answers.

00:15:01.600 --> 00:15:05.096 This is doctor Anees Chappar and

NOTE Confidence: 0.8453298

 $00{:}15{:}05.100 \dashrightarrow 00{:}15{:}07.728$ I'm joined to night by my guest

NOTE Confidence: 0.8453298

00:15:07.728 --> 00:15:09.480 doctor Mario Strazzabosco.

NOTE Confidence: 0.8453298

 $00:15:09.480 \longrightarrow 00:15:12.108$ We're discussing the care of patients

NOTE Confidence: 0.8453298

 $00{:}15{:}12.108 \dashrightarrow 00{:}15{:}14.734$ with liver cancer and right before

NOTE Confidence: 0.8453298

 $00:15:14.734 \longrightarrow 00:15:17.534$ the break Mario you were telling us

NOTE Confidence: 0.8453298

 $00:15:17.534 \longrightarrow 00:15:20.317$ about this plethora of factors that

NOTE Confidence: 0.8453298

00:15:20.317 --> 00:15:23.025 increase people's risk of

NOTE Confidence: 0.8453298

 $00:15:23.025 \longrightarrow 00:15:25.860$ liver cancer and the fact that

NOTE Confidence: 0.8453298

 $00:15:25.860 \longrightarrow 00:15:29.077$ while we do have interventions for

NOTE Confidence: 0.8453298

 $00:15:29.077 \longrightarrow 00:15:31.696$ hepatitis there frequently are other

NOTE Confidence: 0.8453298

 $00{:}15{:}31.696 \dashrightarrow 00{:}15{:}34.750$ factors that are are involved.

NOTE Confidence: 0.8453298

 $00{:}15{:}34.750 \dashrightarrow 00{:}15{:}37.162$ You mentioned a few that I'm

NOTE Confidence: 0.8453298

00:15:37.162 --> 00:15:40.205 going to lump together,

NOTE Confidence: 0.8453298

 $00:15:40.205 \longrightarrow 00:15:42.885$ which are metabolic syndrome.

 $00:15:42.890 \longrightarrow 00:15:44.930$ So obesity and diabetes,

NOTE Confidence: 0.8453298

 $00:15:44.930 \longrightarrow 00:15:47.480$ as well as alcohol which

NOTE Confidence: 0.8453298

 $00:15:47.480 \longrightarrow 00:15:50.017$ can lead to fatty liver.

NOTE Confidence: 0.8453298

 $00:15:50.020 \longrightarrow 00:15:53.282$ So can you tell us a little

NOTE Confidence: 0.8453298

00:15:53.282 --> 00:15:56.129 bit more about fatty liver,

NOTE Confidence: 0.8453298

 $00:15:56.130 \longrightarrow 00:15:59.688$ and whether that impacts the development

NOTE Confidence: 0.8453298

 $00:15:59.690 \longrightarrow 00:16:02.355$ of liver cancer and whether

NOTE Confidence: 0.8453298

 $00:16:02.355 \longrightarrow 00:16:05.020$ there's any quote safe amount

NOTE Confidence: 0.8453298

 $00:16:05.118 \longrightarrow 00:16:08.070$ of alcohol that we can consume?

 $00:16:14.300 \longrightarrow 00:16:17.048$ What we call fatty liver is

NOTE Confidence: 0.83697796

 $00{:}16{:}17.050 \dashrightarrow 00{:}16{:}19.672$ a very common condition which

NOTE Confidence: 0.83697796

 $00{:}16{:}19.672 \dashrightarrow 00{:}16{:}21.985$ is identified by an increased

NOTE Confidence: 0.83697796

 $00{:}16{:}21.985 \dashrightarrow 00{:}16{:}25.317$ deposition of fat in the liver cells.

NOTE Confidence: 0.83697796

 $00{:}16{:}25.320 \dashrightarrow 00{:}16{:}30.600$ Fatty liver can be the result of several

NOTE Confidence: 0.83697796

 $00:16:30.600 \longrightarrow 00:16:36.557$ problems, but most likely it's due to

NOTE Confidence: 0.83697796

 $00:16:36.560 \longrightarrow 00:16:38.940$ the effect of obesity,

00:16:38.940 --> 00:16:42.010 the affect of diabetes, hyperlipidemia,

NOTE Confidence: 0.83697796

 $00{:}16{:}42.010 \dashrightarrow 00{:}16{:}46.150$ and what we call metabolic syndrome,

NOTE Confidence: 0.83697796

 $00:16:46.150 \longrightarrow 00:16:49.950$ which is a complex of

NOTE Confidence: 0.83697796

 $00:16:49.950 \longrightarrow 00:16:51.958$ changes that are increasing

NOTE Confidence: 0.83697796

 $00:16:51.958 \longrightarrow 00:16:54.468$ the risk of cardiac disease.

NOTE Confidence: 0.83697796

 $00:16:54.470 \longrightarrow 00:16:58.478$ This is how we recognize this

NOTE Confidence: 0.83697796

 $00:16:58.480 \longrightarrow 00:17:02.458$ at the beginning and we used to think that fatty

NOTE Confidence: 0.83697796

00:17:02.458 --> 00:17:06.008 liver was a relatively benign condition,

NOTE Confidence: 0.83697796

 $00:17:06.010 \longrightarrow 00:17:08.101$ but now we

NOTE Confidence: 0.83697796

00:17:08.101 --> 00:17:10.889 understand that some patients

NOTE Confidence: 0.83697796

 $00:17:10.889 \longrightarrow 00:17:12.980$ with fatty liver

NOTE Confidence: 0.83697796

 $00:17:12.980 \longrightarrow 00:17:16.115$ will develop an

 $00:17:18.000 \longrightarrow 00:17:19.864$ inflammatory condition of the liver

NOTE Confidence: 0.83697796

 $00{:}17{:}19.864 \dashrightarrow 00{:}17{:}23.570$ that is not any more benign but can

NOTE Confidence: 0.83697796

 $00:17:23.570 \longrightarrow 00:17:26.054$ lead to chronic liver disease like

NOTE Confidence: 0.83697796

 $00:17:26.054 \longrightarrow 00:17:28.773$ cirrhosis and can be associated with

00:17:28.773 --> 00:17:31.033 the development of liver cancer.

NOTE Confidence: 0.83697796

 $00{:}17{:}31.040 \to 00{:}17{:}35.080$ Clearly the amount of people that are

NOTE Confidence: 0.83697796

 $00:17:35.080 \longrightarrow 00:17:41.030$ affected by this condition is very high, so

NOTE Confidence: 0.83697796

 $00:17:41.030 \longrightarrow 00:17:43.280$ the question is how do we

NOTE Confidence: 0.83697796

 $00:17:43.280 \longrightarrow 00:17:44.405$ follow those patients?

NOTE Confidence: 0.83697796

 $00:17:44.410 \longrightarrow 00:17:47.210$ What do we do?

00:17:51.250 --> 00:17:55.255 It would be important to try to prevent it,

NOTE Confidence: 0.83697796

 $00:17:55.260 \longrightarrow 00:17:58.368$ and so how do you prevent it?

NOTE Confidence: 0.83697796

 $00{:}17{:}58.370 \dashrightarrow 00{:}18{:}02.375$ There is data that shows if you lose

NOTE Confidence: 0.83697796

 $00:18:02.375 \longrightarrow 00:18:05.490 \ 10\%$ of your body weight the risk decreases.

NOTE Confidence: 0.83697796

 $00:18:05.490 \longrightarrow 00:18:08.118$ This 10% of your body weight

NOTE Confidence: 0.83697796

00:18:08.118 --> 00:18:10.849 should be lost in your

NOTE Confidence: 0.83697796

 $00:18:10.849 \longrightarrow 00:18:13.079$ abdominal fat because this

NOTE Confidence: 0.83697796

 $00{:}18{:}13.079 \dashrightarrow 00{:}18{:}17.187$ is a fact that is more

NOTE Confidence: 0.83697796

 $00{:}18{:}17.187 \dashrightarrow 00{:}18{:}19.327$ associated with this complication.

NOTE Confidence: 0.83697796

 $00:18:24.660 \longrightarrow 00:18:28.628$ An increase in physical activity is going to play a

role.

 $00:18:28.630 \longrightarrow 00:18:31.600$ We see that with patients that

NOTE Confidence: 0.83697796

 $00:18:31.600 \longrightarrow 00:18:33.085$ have this predisposition,

NOTE Confidence: 0.83697796

00:18:33.090 --> 00:18:36.066 a low carbohydrate diet is preferred.

NOTE Confidence: 0.83697796

 $00:18:36.070 \longrightarrow 00:18:40.525$ They should avoid sodas and so on.

NOTE Confidence: 0.83697796

 $00:18:40.530 \longrightarrow 00:18:44.832$ I do understand this is

NOTE Confidence: 0.83697796

 $00:18:44.832 \longrightarrow 00:18:49.097$ a change in lifestyles which

NOTE Confidence: 0.83697796

 $00:18:49.097 \longrightarrow 00:18:52.880$ are very very difficult to achieve.

NOTE Confidence: 0.83697796

 $00:18:52.880 \longrightarrow 00:18:56.450$ But addressing this metabolic factor is

NOTE Confidence: 0.83697796

 $00:18:56.450 \longrightarrow 00:19:01.510$ really part of the constellation of medical

NOTE Confidence: 0.83697796

 $00:19:01.510 \longrightarrow 00:19:04.520$ action that we need to take.

NOTE Confidence: 0.8428619

 $00:19:10.730 \longrightarrow 00:19:15.032$ I mean it seems like this really,

NOTE Confidence: 0.8428619

 $00:19:15.040 \longrightarrow 00:19:17.902$ that constellation to

NOTE Confidence: 0.8428619

 $00{:}19{:}17.902 \dashrightarrow 00{:}19{:}20.768$ exercise more, lose weight, eat right,

NOTE Confidence: 0.8428619

 $00:19:20.768 \longrightarrow 00:19:23.630$ that's really a constellation for good

NOTE Confidence: 0.8428619

 $00:19:23.707 \longrightarrow 00:19:27.460$ health in general, and it has so many

 $00:19:27.460 \longrightarrow 00:19:29.372$ really important health benefits.

NOTE Confidence: 0.8428619

 $00:19:29.380 \longrightarrow 00:19:31.985$ But one question that people

NOTE Confidence: 0.8428619

 $00:19:31.985 \longrightarrow 00:19:34.590$ may be wondering about is,

NOTE Confidence: 0.8428619

 $00:19:34.590 \longrightarrow 00:19:37.845$ if I've been overweight

NOTE Confidence: 0.8428619

 $00:19:37.845 \longrightarrow 00:19:41.479$ all my life and we know that there is

NOTE Confidence: 0.8428619

00:19:41.480 --> 00:19:44.686 an uptick now

NOTE Confidence: 0.8428619

 $00:19:44.690 \longrightarrow 00:19:46.502$ even in childhood obesity.

NOTE Confidence: 0.8428619

00:19:46.502 --> 00:19:49.740 So if somebody has been overweight, obese,

NOTE Confidence: 0.8428619

00:19:49.740 --> 00:19:52.946 they then lose a bunch of weight,

NOTE Confidence: 0.8428619

 $00:19:52.950 \longrightarrow 00:19:55.561$ is the damage to their liver already

NOTE Confidence: 0.8428619

00:19:55.561 --> 00:19:58.073 done such that you're

NOTE Confidence: 0.8428619

 $00:19:58.073 \longrightarrow 00:20:00.707$ having a relatively small impact on

NOTE Confidence: 0.8428619

 $00:20:00.707 \longrightarrow 00:20:03.050$ reducing hepatocellular carcinoma?

NOTE Confidence: 0.8428619

 $00:20:03.050 \longrightarrow 00:20:05.340$ Or is this really reversible?

 $00:20:11.010 \longrightarrow 00:20:15.220$ If you eliminate the

NOTE Confidence: 0.55396557

00:20:15.220 --> 00:20:17.320 damaging condition to the liver,

 $00:20:17.320 \longrightarrow 00:20:20.800$ you can to a certain extent

NOTE Confidence: 0.55396557

 $00{:}20{:}20{:}800 \dashrightarrow 00{:}20{:}23.120$ reverse the chronic damage.

NOTE Confidence: 0.55396557

 $00:20:23.120 \longrightarrow 00:20:25.334$ We learned this when we started

NOTE Confidence: 0.55396557

 $00:20:25.334 \longrightarrow 00:20:27.510$ to treat patients with hepatitis B and antivirals.

 $00:20:29.726 \longrightarrow 00:20:33.050$ They were very effective in suppressing

NOTE Confidence: 0.55396557

 $00:20:33.153 \longrightarrow 00:20:36.345$ the virus and that patient

NOTE Confidence: 0.55396557

 $00:20:36.350 \longrightarrow 00:20:38.275$ went from a complete cirrhosis

NOTE Confidence: 0.55396557

 $00:20:38.275 \longrightarrow 00:20:39.815$ to an incomplete cirrhosis.

NOTE Confidence: 0.55396557

 $00:20:39.820 \longrightarrow 00:20:42.100$ So yes, there is a remodeling of your

NOTE Confidence: 0.55396557

 $00:20:42.100 \longrightarrow 00:20:44.464$ liver and this is not

NOTE Confidence: 0.55396557

00:20:44.464 --> 00:20:46.744 complete in how much it happens.

NOTE Confidence: 0.55396557

00:20:46.750 --> 00:20:49.438 It depends how far you went,

NOTE Confidence: 0.55396557

 $00:20:49.440 \longrightarrow 00:20:51.504$ but there is to a certain extent

NOTE Confidence: 0.55396557

 $00{:}20{:}51.504 \dashrightarrow 00{:}20{:}53.700$ a remodeling or the liver and

NOTE Confidence: 0.55396557

 $00:20:53.700 \longrightarrow 00:20:55.932$ we saw that happening in patients

NOTE Confidence: 0.55396557

 $00:20:55.932 \longrightarrow 00:20:58.298$ that stopped drinking alcohol.

 $00:20:58.300 \longrightarrow 00:21:00.610$ All of them have an improvement.

NOTE Confidence: 0.55396557

 $00{:}21{:}00.610 \dashrightarrow 00{:}21{:}02.920$ And we saw that with patients

NOTE Confidence: 0.55396557

 $00:21:02.920 \longrightarrow 00:21:04.460$ treated for hepatitis.

NOTE Confidence: 0.55396557

 $00:21:04.460 \longrightarrow 00:21:08.573$ Now to what extent this is going to impact

NOTE Confidence: 0.55396557

 $00:21:08.580 \longrightarrow 00:21:09.660$ the natural

NOTE Confidence: 0.55396557

00:21:09.660 --> 00:21:11.460 history of metabolic liver

NOTE Confidence: 0.55396557

00:21:11.460 --> 00:21:13.100 disease is less certain,

NOTE Confidence: 0.55396557

 $00:21:13.100 \longrightarrow 00:21:16.493$ but it's very likely that we can,

NOTE Confidence: 0.55396557

00:21:16.500 --> 00:21:18.008 for example, if you

NOTE Confidence: 0.55396557

00:21:18.008 --> 00:21:20.270 decrease your body weight,

NOTE Confidence: 0.55396557

 $00:21:20.270 \longrightarrow 00:21:21.305$ your risk decreases.

NOTE Confidence: 0.55396557

 $00:21:21.305 \longrightarrow 00:21:23.375$ Now the trick is that when

NOTE Confidence: 0.55396557

 $00:21:23.375 \longrightarrow 00:21:25.550$ you decrease your body weight,

NOTE Confidence: 0.55396557

00:21:25.550 --> 00:21:28.175 you don't need to get it back,

 $00{:}21{:}28.557 \dashrightarrow 00{:}21{:}31.196$ So it's very easy to decrease 10%

NOTE Confidence: 0.55396557

00:21:31.200 --> 00:21:32.948 of your body weight,

 $00:21:32.948 \longrightarrow 00:21:36.870$ but what it counts is 2 years after.

NOTE Confidence: 0.55396557

00:21:36.870 --> 00:21:38.710 Did you maintain that 10%

NOTE Confidence: 0.55396557

 $00:21:38.710 \longrightarrow 00:21:41.095$ decrease because that is what

NOTE Confidence: 0.55396557

 $00:21:41.095 \longrightarrow 00:21:44.380$ counts in terms of

NOTE Confidence: 0.55396557

 $00:21:44.380 \longrightarrow 00:21:46.040$ risk reduction.

NOTE Confidence: 0.55396557

 $00:21:46.040 \longrightarrow 00:21:47.700$ So you want to

NOTE Confidence: 0.85912085

 $00:21:47.700 \longrightarrow 00:21:49.780$ make sustainable lifestyle changes now.

NOTE Confidence: 0.85912085

 $00:21:49.780 \longrightarrow 00:21:52.204$ One of the things that you

NOTE Confidence: 0.85912085

 $00:21:52.204 \longrightarrow 00:21:54.650$ mentioned was that you've seen the

NOTE Confidence: 0.85912085

 $00:21:54.650 \longrightarrow 00:21:57.261$ fact that you can reduce risk in

NOTE Confidence: 0.85912085

 $00:21:57.261 \longrightarrow 00:21:59.737$ people who have stopped drinking,

NOTE Confidence: 0.85912085

 $00:21:59.740 \longrightarrow 00:22:01.400$ so abstained from alcohol,

NOTE Confidence: 0.85912085

00:22:01.400 --> 00:22:04.720 but some people may be wondering,

NOTE Confidence: 0.85912085

00:22:04.720 --> 00:22:08.040 is there any quote safe limit for alcohol?

NOTE Confidence: 0.85912085

00:22:08.040 --> 00:22:12.190 So if you used to drink 4 drinks a night,

NOTE Confidence: 0.85912085

00:22:12.190 --> 00:22:16.447 is it OK to drink one drink a night?

 $00:22:16.450 \longrightarrow 00:22:19.802$ Is there any safe level of

NOTE Confidence: 0.85912085

 $00:22:19.802 \longrightarrow 00:22:22.963$ alcohol to which the damage to your

NOTE Confidence: 0.85912085

 $00:22:22.963 \longrightarrow 00:22:27.503$ liver is minimal and the risk of

NOTE Confidence: 0.85912085

 $00:22:27.503 \longrightarrow 00:22:30.278$ hepatocellular carcinoma is minuscule?

NOTE Confidence: 0.85912085

 $00:22:30.280 \longrightarrow 00:22:33.472$ Or is all alcohol going to be

NOTE Confidence: 0.85912085

 $00:22:33.472 \longrightarrow 00:22:36.010$ somewhat toxic to your liver?

NOTE Confidence: 0.90211576

 $00:22:40.410 \longrightarrow 00:22:42.414$ We used to think that there

NOTE Confidence: 0.90211576

 $00:22:42.414 \longrightarrow 00:22:43.750$ was a threshold, and

NOTE Confidence: 0.90211576

 $00:22:43.750 \longrightarrow 00:22:46.420$ this is being kind of revised,

NOTE Confidence: 0.90211576

 $00{:}22{:}46.420 \dashrightarrow 00{:}22{:}49.465$ but it's very well known that a little

NOTE Confidence: 0.90211576

 $00{:}22{:}49.465 \dashrightarrow 00{:}22{:}51.956$ amount of alcohol can actually

NOTE Confidence: 0.90211576

 $00{:}22{:}51.956 \dashrightarrow 00{:}22{:}54.160$ improve your metabolic risk.

NOTE Confidence: 0.90211576

00:22:54.160 --> 00:22:55.940 However, how little is enough,

NOTE Confidence: 0.90211576

 $00:22:55.940 \longrightarrow 00:22:58.788$ it doesn't really depend on a fixed dose.

NOTE Confidence: 0.90211576

 $00:22:58.790 \longrightarrow 00:23:01.548$ It depends what your

00:23:01.548 --> 00:23:04.620 genes are and what your history is.

NOTE Confidence: 0.90211576

 $00{:}23{:}04.620 \dashrightarrow 00{:}23{:}06.846$ So if you're drinking alcohol but

NOTE Confidence: 0.90211576

00:23:06.846 --> 00:23:09.299 you have hepatitis C, it's zero,

NOTE Confidence: 0.90211576

 $00:23:09.300 \longrightarrow 00:23:12.132$ there's no even smelling it.

NOTE Confidence: 0.90211576

 $00:23:12.132 \longrightarrow 00:23:15.060$ So it's a difficult question to reply.

00:23:21.740 --> 00:23:25.002 In general your advice is

NOTE Confidence: 0.8339916

 $00:23:25.002 \longrightarrow 00:23:28.170$ abstinences is the gold standard.

NOTE Confidence: 0.8444372

 $00:23:28.170 \longrightarrow 00:23:30.130$ It depends on what your

NOTE Confidence: 0.8444372

 $00:23:30.130 \longrightarrow 00:23:32.090$ overall risk profile is.

NOTE Confidence: 0.8444372

00:23:32.090 --> 00:23:36.010 But let's say if you drink once in a while,

NOTE Confidence: 0.8444372

 $00:23:36.010 \longrightarrow 00:23:38.356$ that is clearly not a problem,

NOTE Confidence: 0.8444372

00:23:38.360 --> 00:23:41.606 But if it's your habit,

NOTE Confidence: 0.8444372

00:23:41.610 --> 00:23:46.188 it may become a problem.

NOTE Confidence: 0.8444372

00:23:46.190 --> 00:23:47.520 This doesn't say that if

NOTE Confidence: 0.8444372

 $00:23:47.520 \longrightarrow 00:23:48.850$ you go out for dinner,

NOTE Confidence: 0.8444372

 $00:23:48.850 \longrightarrow 00:23:50.705$ you can drink a glass of wine.

 $00:23:50.710 \longrightarrow 00:23:52.838$ Of course you can,

NOTE Confidence: 0.8444372

 $00:23:52.838 \longrightarrow 00:23:56.538$ even eating a candy is OK.

NOTE Confidence: 0.8444372

 $00:23:56.540 \longrightarrow 00:24:00.120$ But not OK if you have diabetics.

NOTE Confidence: 0.83842653

 $00:24:00.120 \longrightarrow 00:24:03.135$ This brings us to the point

NOTE Confidence: 0.83842653

00:24:03.135 --> 00:24:06.088 of surveillance of the liver, right?

NOTE Confidence: 0.83842653

 $00{:}24{:}06.088 \dashrightarrow 00{:}24{:}09.670$ How can we tell how damaged our liver is,

NOTE Confidence: 0.83842653

 $00:24:09.670 \longrightarrow 00:24:11.262$ whether it's from diabetes,

NOTE Confidence: 0.83842653

00:24:11.262 --> 00:24:13.252 or whether it's from obesity,

NOTE Confidence: 0.83842653

 $00:24:13.260 \longrightarrow 00:24:15.250$ or whether it's from alcohol,

NOTE Confidence: 0.83842653

 $00:24:15.250 \longrightarrow 00:24:17.240$ or whether it's from hepatitis.

NOTE Confidence: 0.83842653

00:24:17.240 --> 00:24:20.019 As you mentioned before the break,

NOTE Confidence: 0.83842653

 $00:24:20.020 \longrightarrow 00:24:23.204$ we may not even know that we have.

NOTE Confidence: 0.83842653

 $00:24:23.210 \longrightarrow 00:24:25.230$ Are there ways of looking

NOTE Confidence: 0.83842653

 $00:24:25.230 \longrightarrow 00:24:27.580$ at the liver?

NOTE Confidence: 0.8467886

 $00:24:28.460 \longrightarrow 00:24:30.364$ Yes, so everything starts

NOTE Confidence: 0.8467886

 $00:24:30.364 \longrightarrow 00:24:31.792$ from understanding whether

00:24:31.792 --> 00:24:34.398 you liver is damaged or not,

NOTE Confidence: 0.8467886

 $00{:}24{:}34.400 --> 00{:}24{:}37.599$ so you may for any reason do

NOTE Confidence: 0.8467886

 $00:24:37.600 \longrightarrow 00:24:38.971$ some laboratories tests that

NOTE Confidence: 0.8467886

 $00{:}24{:}38.971 \dashrightarrow 00{:}24{:}40.799$ include liver function tests.

NOTE Confidence: 0.8467886

 $00:24:40.800 \longrightarrow 00:24:43.464$ You may get an ultrasound or

NOTE Confidence: 0.8467886

 $00:24:43.464 \longrightarrow 00:24:46.263$ you may get tested for hepatits

NOTE Confidence: 0.8467886

 $00:24:46.263 \longrightarrow 00:24:49.029$ C for example if you

NOTE Confidence: 0.8369727

 $00:24:51.690 \longrightarrow 00:24:54.490$ were born a baby boomer,

NOTE Confidence: 0.8369727

 $00:24:54.490 \longrightarrow 00:24:57.990$ so if you had a risky behavior

00:24:59.740 --> 00:25:02.032 anything that may increase risk,

 $00:25:04.290 \longrightarrow 00:25:06.264$ then a way to understand how

NOTE Confidence: 0.8369727

00:25:06.264 --> 00:25:08.490 chronic is your damage,

NOTE Confidence: 0.8369727

 $00{:}25{:}08.490 \longrightarrow 00{:}25{:}12.434$ you can use a fiber scan so it's like

NOTE Confidence: 0.8369727

 $00:25:12.440 \longrightarrow 00:25:14.395$ a machine that

NOTE Confidence: 0.8369727

 $00:25:14.395 \longrightarrow 00:25:15.959$ looks like an ultrasound,

NOTE Confidence: 0.8369727

 $00:25:15.960 \longrightarrow 00:25:18.856$ but it is not ultasound because this

 $00:25:18.856 \longrightarrow 00:25:21.288$ measures how elastic is your liver and

NOTE Confidence: 0.8369727

 $00{:}25{:}21.288 \dashrightarrow 00{:}25{:}23.972$ that can give us an estimate whether

NOTE Confidence: 0.8369727

 $00{:}25{:}23.972 \dashrightarrow 00{:}25{:}26.906$ you have significant fibrosis or not.

NOTE Confidence: 0.8369727

 $00:25:26.910 \longrightarrow 00:25:29.694$ Or you can do an MRI, there are

NOTE Confidence: 0.8369727

00:25:29.694 --> 00:25:32.189 several ways to understand if you

NOTE Confidence: 0.8369727

 $00:25:32.189 \longrightarrow 00:25:34.334$ liver disease, and

NOTE Confidence: 0.8369727

 $00{:}25{:}34.340 \longrightarrow 00{:}25{:}36.686$ then if you have chronic liver

NOTE Confidence: 0.8369727

 $00:25:36.686 \longrightarrow 00:25:38.250$ disease with significant fibrosis,

NOTE Confidence: 0.8369727

 $00{:}25{:}38.250 \dashrightarrow 00{:}25{:}40.005$ the current guidelines are that

NOTE Confidence: 0.8369727

00:25:40.005 --> 00:25:42.550 you should be doing an ultrasound,

 $00:25:44.110 \longrightarrow 00:25:45.280$ every six months.

NOTE Confidence: 0.7773848

 $00:25:47.320 \longrightarrow 00:25:50.470$ And there is very good evidence that

NOTE Confidence: 0.7773848

 $00{:}25{:}50.470 \dashrightarrow 00{:}25{:}53.926$ this can help diagnose liver cancer

NOTE Confidence: 0.7773848

 $00{:}25{:}53.926 \dashrightarrow 00{:}25{:}57.541$ in early stage and therefore in a

NOTE Confidence: 0.7773848

 $00:25:57.541 \longrightarrow 00:26:00.547$ stage when the treatment can be successful.

NOTE Confidence: 0.7773848

00:26:00.550 --> 00:26:03.490 There are other patients that may

 $00:26:03.490 \longrightarrow 00:26:05.450$ need screening, like patients

NOTE Confidence: 0.7773848

00:26:05.450 --> 00:26:08.390 mainly from Asia that have hepatitis.

 $00:26:11.960 \longrightarrow 00:26:16.368$ and are less than 40 years of age.

 $00:26:20.410 \longrightarrow 00:26:22.912$ Or for example, a patient with hepatitis C that

NOTE Confidence: 0.7773848

 $00:26:22.912 \longrightarrow 00:26:25.800$ has been treated,

NOTE Confidence: 0.7773848

 $00:26:25.800 \longrightarrow 00:26:28.040$ but they have significant fibrosis.

 $00:26:33.430 \longrightarrow 00:26:36.335$ So the screening is a very important

NOTE Confidence: 0.7773848

 $00{:}26{:}36.335 \dashrightarrow 00{:}26{:}38.977$ component of our strategy, but

NOTE Confidence: 0.7773848

 $00:26:38.977 \longrightarrow 00:26:43.226$ still we see patients coming to the

NOTE Confidence: 0.7773848

 $00:26:43.226 \longrightarrow 00:26:47.212$ clinic with advanced stage cancers.

NOTE Confidence: 0.7773848

 $00:26:47.212 \longrightarrow 00:26:52.430$ Or cancer that is beyond curative options.

NOTE Confidence: 0.7773848

00:26:52.430 --> 00:26:55.146 And that is a failure of screening,

NOTE Confidence: 0.7773848

 $00:26:55.150 \longrightarrow 00:26:57.670$ but of course you can have the

NOTE Confidence: 0.7773848

 $00:26:57.670 \longrightarrow 00:26:59.650$ situation in which the patient

NOTE Confidence: 0.7773848

00:26:59.650 --> 00:27:02.128 didn't know he had liver disease,

NOTE Confidence: 0.7773848

00:27:02.130 --> 00:27:04.853 because a lot of times liver disease

NOTE Confidence: 0.7773848

 $00:27:04.853 \longrightarrow 00:27:07.232$ can be significant but not

 $00:27:07.232 \longrightarrow 00:27:09.500$ symptomatic.

NOTE Confidence: 0.7773848

 $00:27:12.610 \longrightarrow 00:27:15.508$ So still the amount of patients that come

NOTE Confidence: 0.7773848

 $00:27:15.508 \longrightarrow 00:27:18.037$ with advanced liver disease is too high

NOTE Confidence: 0.7773848

00:27:18.040 --> 00:27:21.595 because we do have again

NOTE Confidence: 0.7773848

 $00:27:21.595 \longrightarrow 00:27:25.249$ ways to prevent the cancer, ways to screen

NOTE Confidence: 0.7773848

 $00{:}27{:}25.250 \dashrightarrow 00{:}27{:}28.505$ to get an early diagnosis and it

NOTE Confidence: 0.7773848

00:27:28.505 --> 00:27:31.452 is important because we now have

NOTE Confidence: 0.7773848

 $00:27:31.452 \longrightarrow 00:27:34.374$ several ways to approach liver cancer

NOTE Confidence: 0.7773848

 $00{:}27{:}34.380 \dashrightarrow 00{:}27{:}37.592$ and the rapeutic approaches

NOTE Confidence: 0.7773848

 $00:27:37.592 \longrightarrow 00:27:41.607$ are increasing every year.

NOTE Confidence: 0.7773848

 $00:27:41.610 \longrightarrow 00:27:44.053$ So it's very important to get diagnosed

NOTE Confidence: 0.7773848

 $00:27:44.053 \longrightarrow 00:27:47.823$ and to go to a center where you have a

NOTE Confidence: 0.7773848

 $00:27:47.823 \longrightarrow 00:27:50.083$ multispecialty program so that all

NOTE Confidence: 0.7773848

 $00:27:50.083 \longrightarrow 00:27:52.526$ aspects of the care can be addressed

NOTE Confidence: 0.7773848

 $00:27:52.530 \longrightarrow 00:27:54.350$ at the highest professional level.

NOTE Confidence: 0.88499576

 $00:27:55.440 \longrightarrow 00:27:57.820$ And it brings back one of the other

 $00:27:57.820 \longrightarrow 00:27:59.677$ risk factors that you mentioned

NOTE Confidence: 0.88499576

 $00{:}27{:}59.677 \dashrightarrow 00{:}28{:}02.351$ which was access to care people who

NOTE Confidence: 0.88499576

 $00:28:02.351 \longrightarrow 00:28:04.538$ don't have good access to care,

NOTE Confidence: 0.88499576

 $00:28:04.540 \longrightarrow 00:28:06.260$ and I wonder whether you

NOTE Confidence: 0.88499576

 $00:28:06.260 \longrightarrow 00:28:08.550$ mentioned that as a risk factor.

NOTE Confidence: 0.88499576

00:28:08.550 --> 00:28:11.830 Because if you don't have access to care,

NOTE Confidence: 0.88499576

00:28:11.830 --> 00:28:13.510 you can't get appropriate screening,

NOTE Confidence: 0.88499576

 $00:28:13.510 \longrightarrow 00:28:14.518$ is that right?

NOTE Confidence: 0.84985775

00:28:15.600 --> 00:28:17.338 You cannot and appropriate care

 $00:28:20.710 \longrightarrow 00:28:23.559$ is something that we will be

NOTE Confidence: 0.84985775

00:28:23.559 --> 00:28:25.500 investigating next because it's really

NOTE Confidence: 0.84985775

 $00:28:25.500 \longrightarrow 00:28:28.380$ a pity that you have ways to prevent it,

NOTE Confidence: 0.84985775

 $00:28:28.380 \longrightarrow 00:28:30.683$ way ato treat it, but people don't

NOTE Confidence: 0.84985775

 $00{:}28{:}30.683 \dashrightarrow 00{:}28{:}33.120$ even get close to that opportunity.

NOTE Confidence: 0.84985775

00:28:33.120 --> 00:28:34.218 It's really saddening.

NOTE Confidence: 0.868863

 $00{:}28{:}35.030 \dashrightarrow 00{:}28{:}37.148$ Doctor Mario Strazzabosco is a

 $00:28:37.148 \longrightarrow 00:28:38.990$ professor of medicine and clinical

NOTE Confidence: 0.868863

 $00:28:38.990 \longrightarrow 00:28:41.180$ program leader of the Liver Cancer

NOTE Confidence: 0.868863

 $00:28:41.180 \longrightarrow 00:28:43.858$ program at the Yale School of Medicine.

NOTE Confidence: 0.868863

 $00:28:43.860 \longrightarrow 00:28:45.336$ If you have questions,

NOTE Confidence: 0.868863

 $00{:}28{:}45.336 \dashrightarrow 00{:}28{:}46.812$ the address is canceranswers@yale.edu

NOTE Confidence: 0.868863

 $00:28:46.812 \longrightarrow 00:28:48.853$ and past editions of the program

NOTE Confidence: 0.868863

 $00:28:48.853 \longrightarrow 00:28:50.713$ are available in audio and written

NOTE Confidence: 0.868863

 $00{:}28{:}50.775 \dashrightarrow 00{:}28{:}52.329$ form at yale cancercenter.org.

NOTE Confidence: 0.868863

 $00:28:52.330 \longrightarrow 00:28:54.802$ We hope you'll join us next week to

NOTE Confidence: 0.868863

 $00{:}28{:}54.802 \dashrightarrow 00{:}28{:}57.189$ learn more about the fight against

NOTE Confidence: 0.868863

 $00{:}28{:}57.189 \dashrightarrow 00{:}29{:}00.072$ cancer here on Connecticut Public Radio.