0:00:00 –> 0:00:01.96 Funding for Yale Cancer Answers
0:00:01.96 –> 0:00:03.92 is provided by Smilow Cancer
0:00:03.99 –> 0:00:05.69 Hospital and AstraZeneca.
0:00:07.85 –> 0:00:09.298 Welcome to Yale Cancer
0:00:09.298 –> 0:00:10.746 Answers with your host
0:00:10.75 –> 0:00:12.868 Doctor Anees Chagpar.
0:00:12.868 –> 0:00:14.28 Yale Cancer Answers features the latest
0:00:14.34 –> 0:00:16.46 information on cancer care by
0:00:16.46 –> 0:00:18.156 welcoming oncologists and specialists
0:00:18.156 –> 0:00:20.442 who are on the forefront of the
0:00:20.442 –> 0:00:22.368 battle to fight cancer. This week
0:00:22.368 –> 0:00:24.188 it's a conversation about transfusion
0:00:24.19 –> 0:00:26 oncology with Doctor Edward Snyder.
0:00:26 –> 0:00:28.124 Doctor Snyder is a professor of
0:00:28.124 –> 0:00:30.333 laboratory medicine at the Yale School
0:00:30.333 –> 0:00:32.529 of Medicine where Doctor Chagpar is
0:00:32.53 –> 0:00:36.07 a professor of surgical oncology.
0:00:36.07 –> 0:00:38.266 Maybe we can start off by
0:00:38.266 –> 0:00:40.69 you telling us a little bit
0:00:40.69 –> 0:00:44.146 about yourself and what it is you do.
0:00:44.15 –> 0:00:46.46 I'm a professor of laboratory medicine.
0:00:46.46 –> 0:00:48.385 I've been in the field
0:00:48.385 –> 0:00:49.925 for almost four decades,
0:00:49.93 –> 0:00:52.74 and transfusion medicine is basically
0:00:52.74 –> 0:00:55.337 what I do, all aspects of it,
0:00:55.34 –> 0:00:56.688 supplying the blood,
0:00:56.688 –> 0:00:58.71 seeing people who have any reactions
0:00:58.771 –> 0:01:00.251 and providing consultation to
0:01:00.251 –> 0:01:01.361 oncologists whose patients
0:01:01.361 –> 0:01:03.53 may need a blood transfusion.
0:01:03.53 –> 0:01:05.39 And they have some difficulties.

0:01:07.25 –> 0:01:09.476 Talk a bit more about that whole specialty.

0:01:09.48 –> 0:01:11.468 Because for many of us

0:01:11.468 –> 0:01:13.404 we don't really think about

0:01:13.404 –> 0:01:15.428 transfusion medicine or transfusion

0:01:15.43 –> 0:01:18.406 oncology as a specialty in and of itself.

0:01:21.158 –> 0:01:23.65 Tell us a bit more about

0:01:23.65 –> 0:01:25.885 what's the purview of

0:01:25.885 –> 0:01:27.226 people who specialize in that area?

0:01:27.23 –> 0:01:31.437 Transfusion medicine is an area

0:01:31.44 –> 0:01:34.624 that originally started off in

0:01:34.624 –> 0:01:37.697 pathology and what happened was as

0:01:37.7 –> 0:01:40.046 the field grew pretty much stimulated

0:01:40.046 –> 0:01:41.61 by infectious disease concerns,

0:01:41.61 –> 0:01:44.522 it became much more of a consultive

0:01:44.522 –> 0:01:46.69 service involving medicine and surgery,

0:01:46.69 –> 0:01:48.64 so the term blood banking,

0:01:48.64 –> 0:01:51.482 which was really more of the storing

0:01:51.482 –> 0:01:54.252 of blood and so forth which we

0:01:54.252 –> 0:01:56.86 can talk about in a little bit,

0:01:56.86 –> 0:01:59.506 but the consultative aspect of the service

0:01:59.506 –> 0:02:02.019 where we talked to other physicians,

0:02:02.02 –> 0:02:04.2 you had trouble providing blood

0:02:04.2 –> 0:02:06.79 products for patients because of

0:02:06.79 –> 0:02:09.17 a variety of concerns and people from

0:02:09.17 –> 0:02:11.63 a variety of specialties, pathology,

0:02:11.63 –> 0:02:13.72 my backgrounds in internal medicine

0:02:13.72 –> 0:02:14.556 and hematology,

0:02:14.56 –> 0:02:17.068 others are in anesthesiology or surgery.

0:02:20.126 –> 0:02:22.918 And it is more than just storing blood in a refrigerator.

0:02:22.92 –> 0:02:26.56 It really has to do with supplying the

0:02:26.56 –> 0:02:29.183 appropriate blood component for a patient
0:02:29.183 –> 0:02:32.93 in the right amount and at the right time.
0:02:32.93 –> 0:02:34.034 And most physicians, the terminology
0:02:36.68 –> 0:02:38.18 I use or phrase I use,
0:02:38.18 –> 0:02:40.148 if you don't know your jewels,
0:02:40.774 –> 0:02:42.958 know your jeweler, and most physicians don't
0:02:42.958 –> 0:02:45.068 really know much about blood transfusion,
0:02:45.07 –> 0:02:47.359 so they rely very heavily on the blood bank.
0:02:47.36 –> 0:02:49.313 Tell us a little
0:02:49.313 –> 0:02:51.378 bit more about the role of
0:02:51.378 –> 0:02:52.934 transfusion medicine in oncology.
0:02:52.94 –> 0:02:55.252 I mean, many of us think about using
0:02:55.252 –> 0:02:56.978 blood in trauma situations where
0:02:56.978 –> 0:02:59.498 people have lost a lot of blood.
0:02:59.5 –> 0:03:00.868 But for cancer patients,
0:03:00.868 –> 0:03:03.63 things might be a little bit different.
0:03:03.63 –> 0:03:05.863 What are the needs of cancer patients
0:03:05.863 –> 0:03:07.89 when it comes to transfusions?
0:03:09.2 –> 0:03:11.678 Many of the chemotherapeutic
0:03:11.678 –> 0:03:14.205 regimens that are used to treat
0:03:14.205 –> 0:03:16.641 cancer cause what's called a
0:03:16.641 –> 0:03:18.727 hyperproliferative state in the bone marrow.
0:03:18.73 –> 0:03:21.81 That is, the bone marrow is affected
0:03:21.81 –> 0:03:24.632 by the chemotherapy in ways that are
0:03:24.632 –> 0:03:27.86 similar to the effect it has on the tumor.
0:03:27.86 –> 0:03:30.275 And the goal of chemotherapy
0:03:30.275 –> 0:03:32.599 would be to specifically have a
0:03:32.599 –> 0:03:35.023 negative impact on the tumor and
0:03:35.023 –> 0:03:37.777 to leave all healthy tissue alone.
0:03:39.87 –> 0:03:42.12 The chemotherapy also lowers the bone
0:03:42.12 –> 0:03:44.648 marrow's ability to make new blood cells,

0:03:44.65 –> 0:03:46.122 red cells or platelets,
0:03:46.122 –> 0:03:47.594 and when that happens,
0:03:47.6 –> 0:03:49.676 the patient becomes anemic and then
0:03:49.676 –> 0:03:52.28 they need a blood transfusion or if
0:03:52.28 –> 0:03:54.584 their platelet count gets very low,
0:03:54.59 –> 0:03:56.43 they'll need a platelet transfusion.
0:03:56.43 –> 0:03:59.358 The concern is that when you start giving
0:03:59.358 –> 0:04:01.799 blood products to people that they can
0:04:01.799 –> 0:04:04.16 develop an antibody to the component,
0:04:04.16 –> 0:04:07.096 the same way when you get a vaccination,
0:04:07.1 –> 0:04:09.998 you develop an antibody to the material
0:04:10 –> -0:00:00.001 that's injected and some people develop
0:04:11.885 –> 0:04:13.77 antibodies to red blood cells.
0:04:13.77 –> 0:04:16.409 Inside they have hemoglobin,
0:04:16.41 –> 0:04:17.538 which carries oxygen,
0:04:17.538 –> 0:04:18.666 which is important.
0:04:18.67 –> 0:04:21.622 But the surface of the cell is also studded
0:04:21.622 –> 0:04:24.698 with a variety of chemicals called antigens,
0:04:24.7 –> 0:04:26.968 which are foreign to some patients.
0:04:26.97 –> 0:04:29.595 Not everyone has the same blood type.
0:04:29.6 –> 0:04:31.49 Everyone knows about ABO types,
0:04:31.49 –> 0:04:33.842 but there are hundreds of other
0:04:33.842 –> 0:04:36.388 blood types that are on the cell,
0:04:36.39 –> 0:04:39.029 most of which are not clinically significant,
0:04:39.03 –> 0:04:40.215 but some are.
0:04:40.215 –> 0:04:42.585 And when some of those blood
0:04:42.585 –> 0:04:45.047 types of the transfused blood,
0:04:45.05 –> 0:04:47.618 even though they're compatible for the
0:04:47.618 –> 0:04:50.798 ABO system and also the RH system which
0:04:50.798 –> 0:04:53.8 many people know of many of the other
0:04:53.8 –> 0:04:56.326 blood antigens with names that most

0:04:56.326 –> 0:04:58.79 people probably haven't heard of,

0:05:01.62 –> 0:05:04.038 they can develop antibodies to that,

0:05:04.04 –> 0:05:05.636 and when that happens,

0:05:05.636 –> 0:05:07.631 it becomes difficult to find

0:05:07.631 –> 0:05:09.288 blood for that patient,

0:05:09.29 –> 0:05:10.942 especially if they've had

0:05:10.942 –> 0:05:11.768 multiple transfusions.

0:05:11.77 –> 0:05:13.55 And they've developed multiple antibodies,

0:05:13.55 –> 0:05:15.685 so the blood bank director and that

0:05:15.685 –> 0:05:17.871 point the consults with the oncologist

0:05:17.871 –> 0:05:20.283 because the patient has gotten chemotherapy,

0:05:20.29 –> 0:05:22.342 their blood count is dropped and

0:05:22.342 –> 0:05:24.808 they need to get a transfusion most

0:05:24.808 –> 0:05:27.202 of the time it's not a problem

0:05:27.274 –> 0:05:28.81 if things go smoothly,

0:05:28.81 –> 0:05:30.988 but on occasion when there are

0:05:30.988 –> 0:05:33.205 problems they contact the blood bank

0:05:33.205 –> 0:05:35.655 and we work with the physician to

0:05:35.655 –> 0:05:37.69 determine how much blood is needed.

0:05:37.69 –> 0:05:38.046 Also,

0:05:38.046 –> 0:05:40.182 many surgical patients who have cancer

0:05:40.182 –> 0:05:42.459 require blood during operative procedures.

0:05:42.46 –> 0:05:45.12 And we work with the surgeons as

0:05:45.12 –> 0:05:48.811 well to see how much blood is needed

0:05:48.811 –> 0:05:51.271 and whether they need platelets.

0:05:51.28 –> 0:05:52.45 For example,

0:05:52.45 –> 0:05:54.79 platelets are little fragments

0:05:54.79 –> 0:05:56.545 of blood cells.

0:05:56.55 –> 0:05:58.122 Unrelated to red cells,

0:05:58.122 –> 0:05:59.694 although they all derived

0:05:59.694 –> 0:06:01.13 from common lineages,

0:06:01.13 –> 0:06:05.938 going way way back to embryonic cell growth.
0:06:05.94 –> 0:06:07.968 And platelets are also needed and
0:06:07.968 –> 0:06:10.122 for patients and the number of
0:06:10.122 –> 0:06:12.33 platelets may be lower because again,
0:06:12.33 –> 0:06:14.05 the chemotherapy or other illnesses
0:06:14.05 –> 0:06:16.554 that are part of the illness itself
0:06:16.554 –> 0:06:18.72 may cause the platelets to drop.
0:06:18.72 –> 0:06:21.56 So if you were to transfuse a platelet,
0:06:21.56 –> 0:06:23.474 the platelet count may not go
0:06:23.474 –> 0:06:24.75 up to the level
0:06:24.826 –> 0:06:27.315 that's wanted, and you wind up having
0:06:27.315 –> 0:06:29.268 a patient who can't really receive
0:06:29.268 –> 0:06:31.223 platelet transfusions and get
0:06:31.223 –> 0:06:33.28 the response that's needed.
0:06:33.28 –> 0:06:36.544 The platelet count is not
0:06:36.55 –> 0:06:38.986 elevated as expected and that definitely
0:06:38.986 –> 0:06:41.008 requires a consultation from the
0:06:41.008 –> 0:06:43.018 blood bank with the clinician to
0:06:43.018 –> 0:06:45.149 determine what other options there are,
0:06:45.15 –> 0:06:47.02 and there are multiple options
0:06:47.02 –> 0:06:48.516 for finding compatible platelets.
0:06:48.52 –> 0:06:51.288 Then there are other patients who
0:06:51.288 –> 0:06:53.713 have other illnesses where the plasma
0:06:53.713 –> 0:06:56.75 levels of some plasma products may be low,
0:06:56.75 –> 0:06:59.734 and they would need a plasma transfusion,
0:06:59.74 –> 0:07:03.496 so blood banks get involved in a
0:07:03.5 –> 0:07:05.996 variety of issues related to oncology,
0:07:06 –> 0:07:08.684 whether it's surgical or
0:07:08.684 –> 0:07:10.697 whether it's chemotherapy, or
0:07:10.7 –> 0:07:12.64 whether it's illness based.
0:07:12.64 –> 0:07:13.804 In some cancers,

0:07:13.81 –> 0:07:16.69 the bone marrow is affected by the growth
0:07:16.69 –> 0:07:19.514 of the tumor and the tumor actually
0:07:19.514 –> 0:07:22.369 replaces some of the bone marrow
0:07:22.37 –> 0:07:26.479 causing platelet counts to become too low
0:07:26.48 –> 0:07:28.958 and for patients who actually have a good
0:07:28.958 –> 0:07:31.175 lifestyle and we consult for those
0:07:31.175 –> 0:07:33.7 issues as well, so
0:07:33.7 –> 0:07:34.42 in addition,
0:07:34.42 –> 0:07:36.658 if someone gets a transfusion and
0:07:36.658 –> 0:07:39.118 they have a reaction of some type,
0:07:39.12 –> 0:07:42 whether it's a nallergic reaction or a fever,
0:07:42 –> 0:07:44.166 we consult with that as well.
0:07:44.17 –> 0:07:45.614 So we're pretty busy.
0:07:45.614 –> 0:07:47.78 It's a very clinically oriented specialty.
0:07:47.78 –> 0:07:51.029 You make a few really good points,
0:07:51.03 –> 0:07:53.263 and one of which is that some
0:07:53.263 –> 0:07:55.123 cancer patients will need repetitive
0:07:55.123 –> 0:07:57.218 transfusions and can build up
0:07:57.22 –> 0:07:58.876 these antibody responses.
0:07:58.876 –> 0:08:01.636 So just out of curiosity,
0:08:01.64 –> 0:08:03.908 how do you get around that?
0:08:05.374 –> 0:08:08.047 I think this is a question that
0:08:08.047 –> 0:08:10.057 many patients and their families
0:08:10.057 –> 0:08:12.792 may have is should we be donating
0:08:12.792 –> 0:08:14.898 our own blood and banking it,
0:08:14.9 –> 0:08:16.412 knowing that we may,
0:08:16.412 –> 0:08:18.16 with chemotherapy, for example,
0:08:18.16 –> 0:08:21.13 need a transfusion in the future?
0:08:21.13 –> 0:08:23.67 Are there particular banks that
0:08:23.67 –> 0:08:26.824 have rare blood types where
0:08:26.824 –> 0:08:29.449 people who have developed

0:08:29.449 –> 0:08:31.549 many antibodies to various

0:08:31.641 –> 0:08:34.569 antigens can still find blood?

0:08:34.57 –> 0:08:38.189 How do you work around those issues?

0:08:39.14 –> 0:08:41.078 Well, one needs to be creative,

0:08:41.08 –> 0:08:42.7 so let's get some definitions,

0:08:42.7 –> 0:08:44.465 orthologous blood auto logus who

0:08:44.465 –> 0:08:46.23 pronounced autologous is your own

0:08:46.285 –> 0:08:47.887 blood being given back to you,

0:08:47.89 –> 0:08:50.474 and so some of our listeners may say,

0:08:50.48 –> 0:08:53.064 well, why can't I store my own blood?

0:08:53.07 –> 0:08:55.654 Well, if your blood count is high enough,

0:08:55.66 –> 0:08:57.903 you can store your own blood

0:08:57.903 –> 0:08:59.954 someplace and it used to be very popular

0:08:59.954 –> 0:09:02.508 to do that during the AIDS

0:09:02.508 –> 0:09:04.739 epidemic when people were very concerned

0:09:04.74 –> 0:09:06.36 but that when the AIDS,

0:09:06.36 –> 0:09:08.982 a virus and how to treat, it became.

0:09:08.982 –> 0:09:10.687 Part of standard of care

0:09:10.687 –> 0:09:12.43 for for AIDS patients,

0:09:12.43 –> 0:09:14.425 the need to provide it their own

0:09:14.425 –> 0:09:16.329 blood really wasn't important anymore.

0:09:16.33 –> 0:09:18.598 And many blood centers stopped that practice.

0:09:18.6 –> 0:09:20.586 One of the problems with donating

0:09:20.586 –> 0:09:22.913 your own blood is you have to

0:09:22.913 –> 0:09:24.773 have a blood count high enough,

0:09:24.78 –> 0:09:27.055 otherwise you become anemic and you just

0:09:27.055 –> 0:09:29.681 have to give you the blood right back

0:09:29.681 –> 0:09:31.977 or they were actually blood banks that

0:09:31.977 –> 0:09:34.521 were set up where you could freeze blood,

0:09:34.53 –> 0:09:37.13 which was fine as I used to say,

0:09:37.13 –> 0:09:39.755 unless you're on a vacation in Hawaii.

0:09:39.76 –> 0:09:41.422 And something happens and you need
0:09:41.422 –> 0:09:43.508 blood and the blood is frozen in the
0:09:43.508 –> 0:09:45.46 New York or in Washington or New Haven.
0:09:45.46 –> 0:09:48.628 And you can't get to it.
0:09:48.63 –> 0:09:50.65 It became clear that donating
0:09:50.65 –> 0:09:52.67 blood for yourself really wasn't
0:09:52.736 –> 0:09:54.296 going to be very useful,
0:09:54.3 –> 0:09:56.19 and practice is not really
0:09:56.19 –> 0:09:58.08 done much anymore at all.
0:09:58.08 –> 0:10:00.88 Very some places don't even accept some blood
0:10:00.88 –> 0:10:03.37 centers don't even accept autologous blood.
0:10:03.37 –> 0:10:06.401 The second would be a directed donation
0:10:06.401 –> 0:10:09.196 where a family member would donate
0:10:09.196 –> 0:10:12.028 a unit of blood specifically for.
0:10:12.03 –> 0:10:13.206 The patient that requires,
0:10:13.206 –> 0:10:15.63 of course that the blood be compatible,
0:10:15.63 –> 0:10:17.26 which is often is not.
0:10:17.26 –> 0:10:18.241 In addition, come,
0:10:18.241 –> 0:10:19.876 it's not just a relative,
0:10:19.88 –> 0:10:21.515 but some people wanted close
0:10:21.515 –> 0:10:22.169 personal friends,
0:10:22.17 –> 0:10:22.496 or,
0:10:22.496 –> 0:10:24.126 as I used to comment,
0:10:24.13 –> 0:10:25.765 the captain of their bowling
0:10:25.765 –> 0:10:27.4 team was a close friend,
0:10:27.4 –> 0:10:29.395 so they wanted the captain of the
0:10:29.395 –> 0:10:31.362 bowling team to donate blood for
0:10:31.362 –> 0:10:33.107 them because they believe that
0:10:33.107 –> 0:10:34.918 because they were their friend,
0:10:34.92 –> 0:10:36.43 they were biologically safer as
0:10:36.43 –> 0:10:38.717 a donor and they didn't have to

0:10:38.717 –> 0:10:40.145 worry about different diseases.

0:10:40.15 –> 0:10:42.579 Well, quite frankly, you don't know what.

0:10:42.58 –> 0:10:45.485 The captain of your bowling team is,

0:10:45.49 –> 0:10:48.818 it does after they leave the bowling alley.

0:10:48.82 –> 0:10:50.998 So directed donations as a means

0:10:50.998 –> 0:10:52.968 of getting blood from someone

0:10:52.968 –> 0:10:55.218 you're comfortable with doesn't is

0:10:55.218 –> 0:10:57.56 in practice much anymore either.

0:10:57.56 –> 0:11:00.88 So that leaves us with the third category,

0:11:00.88 –> 0:11:03.799 which is what is called allogenic LLOGENEC,

0:11:03.8 –> 0:11:06.29 which is blood from other people.

0:11:06.29 –> 0:11:09.202 And that's what almost all the blood

0:11:09.202 –> 0:11:12.386 that we provide is blood from people

0:11:12.386 –> 0:11:15.17 who are concerned about their fellow.

0:11:15.17 –> 0:11:18.075 Human and they donate blood or they

0:11:18.075 –> 0:11:20.638 donate platelets or they donate red

0:11:20.638 –> 0:11:23.104 cells or plasma to blood centers.

0:11:23.11 –> 0:11:24.886 And that's the blood that's given.

0:11:24.89 –> 0:11:26.822 We have ways of matching the blood

0:11:26.822 –> 0:11:28.66 so that the antigens I talked

0:11:28.66 –> 0:11:30.235 about are not a problem.

0:11:30.24 –> 0:11:32.608 We pick out for someone who was typo.

0:11:32.61 –> 0:11:33.798 We give old blood.

0:11:33.798 –> 0:11:35.283 If someone is type A,

0:11:35.29 –> 0:11:37.159 we can give type A blood or

0:11:37.159 –> 0:11:39.306 type O blood and so forth and

0:11:39.306 –> 0:11:41.226 so on for the various antigens.

0:11:41.23 –> 0:11:43.204 And we have a whole system

0:11:43.204 –> 0:11:45.47 set up in blood banking of.

0:11:45.47 –> 0:11:48.102 Of cells that allow us to determine

0:11:48.102 –> 0:11:50.291 blood that's compatible and we do

0:11:50.291 –> 0:11:52.277 that so that kind of compatibility
0:11:52.277 –> 0:11:54.401 testing is sort of the bread and
0:11:54.401 –> 0:11:56.387 butter of what blood banks do and
0:11:56.387 –> 0:11:58.718 and that's that is taken care of if
0:11:58.718 –> 0:12:00.578 it comes to problems where someone
0:12:00.578 –> 0:12:02.878 with a local blood bank can't
0:12:02.878 –> 0:12:04.614 find anything that's compatible.
0:12:04.62 –> 0:12:06.776 You have systems like the Red Cross
0:12:06.776 –> 0:12:09.098 that have 35 or 40 blood centers
0:12:09.098 –> 0:12:11.096 around the country and they have
0:12:11.169 –> 0:12:13.287 what they call rare donor files
0:12:13.287 –> 0:12:15.492 where they have peoples blood types
0:12:15.492 –> 0:12:18.264 on record and they can ask for
0:12:18.264 –> 0:12:21.173 blood to be sent if they have them
0:12:21.173 –> 0:12:23.723 frozen or they may have liquid
0:12:23.723 –> 0:12:25.615 units that aren't frozen.
0:12:25.62 –> 0:12:27.834 And there are ways of working
0:12:27.834 –> 0:12:29.818 with the larger blood providers
0:12:29.818 –> 0:12:31.988 to work around that issue.
0:12:31.99 –> 0:12:33.975 There are other blood systems
0:12:33.975 –> 0:12:35.563 besides the ABO system.
0:12:35.57 –> 0:12:38.266 One is the HLA system and
0:12:38.266 –> 0:12:41.051 people may have antibodies to HLA or
0:12:41.051 –> 0:12:43.93 they may have antibodies to platelets.
0:12:43.93 –> 0:12:46.12 There are platelet antigens like there
0:12:46.12 –> 0:12:49.114 are red cells and again the Red
0:12:49.114 –> 0:12:51.28 Cross has donor records and we
0:12:51.28 –> 0:12:54.16 can test and find people who are
0:12:54.16 –> 0:12:56.235 compatible for the patient.
0:12:56.24 –> 0:12:57.99 There's a whole series of
0:12:57.99 –> 0:13:00.04 things that we have to do.

0:13:00.04 –> 0:13:02.476 You can't just have a small blood
0:13:02.476 –> 0:13:04.867 bank working on its own.
0:13:04.87 –> 0:13:08.32 You really need to be part of a large system,
0:13:08.32 –> 0:13:10.04 certainly a hospital like Yale,
0:13:10.04 –> 0:13:12.455 with 1600 beds and many,
0:13:12.46 –> 0:13:14.025 many patients who are fortunately
0:13:14.025 –> 0:13:16.039 living longer and longer with malignant
0:13:16.039 –> 0:13:17.627 conditions that are treatable.
0:13:17.63 –> 0:13:20.129 But when they're transfused a lot during
0:13:20.129 –> 0:13:22.459 their therapy when they come back,
0:13:22.46 –> 0:13:25.004 if they have a relapse then the
0:13:25.004 –> 0:13:27.399 possibility of having incompatible blood
0:13:27.4 –> 0:13:29.848 either for red cells or incompatibility
0:13:29.848 –> 0:13:32.213 with platelets becomes a real issue
0:13:32.213 –> 0:13:34.537 and you need a large support structure
0:13:34.537 –> 0:13:36.653 in blood centers to provide blood
0:13:36.653 –> 0:13:39.112 so that the patient can be treated
0:13:39.112 –> 0:13:41.308 and go into remission again.
0:13:41.31 –> 0:13:44.238 So there's a lot we have to do.
0:13:44.24 –> 0:13:46.662 We consult on a lot of different
0:13:46.662 –> 0:13:49.359 issues and it keeps us pretty busy.
0:13:50.36 –> 0:13:53.062 Great, well, we're going to take a
0:13:53.062 –> 0:13:55.609 short break for a medical minute.
0:13:55.61 –> 0:13:58.034 Please stay tuned to learn more
0:13:58.034 –> 0:13:59.246 about transfusion oncology
0:13:59.25 –> 0:14:01.668 with my guest doctor Edward Snyder.
0:14:01.67 –> 0:14:03.69 Funding for Yale Cancer Answers
0:14:03.69 –> 0:14:05.71 comes from Smilow Cancer Hospital where
0:14:05.71 –> 0:14:08.104 15 care centers offer access to
0:14:08.104 –> 0:14:09.7 oncologists committed to providing
0:14:09.761 –> 0:14:12.179 patients with cancer and blood diseases

0:14:12.18 –> 0:14:13.392 individualized, innovative care.
0:14:13.392 –> 0:14:15.808 Find a Smilow Care Center near
0:14:15.808 –> 0:14:17.014 you at yalecancercenter.org.
0:14:19.07 –> 0:14:21.608 The American Cancer Society estimates that
0:14:21.608 –> 0:14:24.521 over 200,000 cases of Melanoma will be
0:14:24.521 –> 0:14:27.202 diagnosed in the United States this year,
0:14:27.21 –> 0:14:30.059 with over 1000 patients in Connecticut alone.
0:14:30.06 –> 0:14:32.095 While Melanoma accounts for only
0:14:32.095 –> 0:14:34.462 about 1% of skin cancer cases,
0:14:34.462 –> 0:14:37.39 it causes the most skin cancer deaths,
0:14:37.39 –> 0:14:38.93 but when detected early,
0:14:38.93 –> 0:14:41.86 it is easily treated and highly curable.
0:14:41.86 –> 0:14:44.32 Clinical trials are currently underway
0:14:44.32 –> 0:14:46.288 at federally designated Comprehensive
0:14:46.288 –> 0:14:48.474 cancer centers such as Yale Cancer
0:14:48.474 –> 0:14:50.7 Center and at Smilow Cancer Hospital
0:14:50.7 –> 0:14:52.74 to test innovative new treatments
0:14:52.74 –> 0:14:53.556 for Melanoma.
0:14:53.56 –> 0:14:56.104 The goal of the specialized programs
0:14:56.104 –> 0:14:58.253 of research excellence and Skin
0:14:58.253 –> 0:15:00.515 Cancer Grant is to better understand
0:15:00.515 –> 0:15:02.529 the biology of skin cancer
0:15:02.53 –> 0:15:04.265 with a focus on discovering
0:15:04.265 –> 0:15:06.615 targets that will lead to improved
0:15:06.615 –> 0:15:08.238 diagnosis and treatment.
0:15:08.24 –> 0:15:10.34 More information is available at
0:15:10.34 –> 0:15:11.6 yalecancercenter.org. You're listening
0:15:11.6 –> 0:15:13.139 to Connecticut Public Radio.
0:15:15.69 –> 0:15:17.88 Welcome back to Yale Cancer Answers.
0:15:17.88 –> 0:15:20.848 This is doctor Anees Chagpar and I'm
0:15:20.848 –> 0:15:23.744 joined tonight by my guest Doctor Ed Snyder.

0:15:23.744 –> 0:15:25.252 We're talking about transfusion
0:15:25.252 –> 0:15:27.37 oncology and right before the break
0:15:27.37 –> 0:15:29.708 Ed you were talking about the fact
0:15:29.708 –> 0:15:31.696 that some cancer patients require
0:15:31.696 –> 0:15:33.528 multiple transfusions and there's
0:15:33.528 –> 0:15:36.587 really a benefit to being part of a
0:15:36.587 –> 0:15:38.675 large system such as the Red Cross,
0:15:38.675 –> 0:15:41.16 where if you have developed
0:15:41.16 –> 0:15:43.797 antibodies to a particular antigen in blood,
0:15:43.8 –> 0:15:47.016 that there still are rare donors who
0:15:47.02 –> 0:15:49.19 could provide blood for you,
0:15:49.19 –> 0:15:51.728 but I wonder about other modalities
0:15:51.728 –> 0:15:53.931 that might actually reduce our
0:15:53.931 –> 0:15:55.679 need for blood transfusions.
0:15:55.68 –> 0:15:57.845 So what are your thoughts
0:15:57.845 –> 0:15:59.577 on things like that?
0:15:59.58 –> 0:16:02.541 I know that for many of our
0:16:02.541 –> 0:16:04.769 cancer patients there are drugs,
0:16:04.77 –> 0:16:05.868 for example,
0:16:05.868 –> 0:16:09.162 that oncologists use either to increase
0:16:09.162 –> 0:16:12.746 red blood cells or white blood cells.
0:16:12.75 –> 0:16:14.787 How effective are they and do
0:16:14.787 –> 0:16:17.03 you find that that reduces the
0:16:17.03 –> 0:16:18.766 transfusion needs for patients?
0:16:19.86 –> 0:16:22.793 Well, yes, the saying that we have
0:16:22.793 –> 0:16:25.201 in transfusion is the safest unit
0:16:25.201 –> 0:16:28.09 of blood is the one you don't get.
0:16:28.09 –> 0:16:30.328 And even though we do everything
0:16:30.328 –> 0:16:33.189 we can to ensure the blood safety,
0:16:33.19 –> 0:16:35.542 there are still the possibility of concerns
0:16:35.542 –> 0:16:37.889 regarding fever or transmission of illnesses.

0:16:37.89 –> 0:16:40.887 As anytime you do any kind of a
0:16:40.887 –> 0:16:43.302 transplant which really a transplant
0:16:43.302 –> 0:16:46.52 is really what a blood transfusion is.
0:16:46.52 –> 0:16:49.744 Only it's a transplant of red blood cells.
0:16:49.75 –> 0:16:50.193 Platelets.
0:16:50.193 –> 0:16:52.851 There are a variety of reagents which
0:16:52.851 –> 0:16:55.523 are designed to stimulate red cell
0:16:55.523 –> 0:16:58.055 production from some of those have
0:16:58.055 –> 0:17:00.194 shown to cause problems and are
0:17:00.194 –> 0:17:02.59 not used as often as they were.
0:17:07.08 –> 0:17:09.999 There are agents that can be used
0:17:09.999 –> 0:17:11.92 to stimulate platelets as well.
0:17:18.02 –> 0:17:20.498 But those are predicated on the fact
0:17:20.498 –> 0:17:23.078 that your bone marrow can actually make
0:17:23.078 –> 0:17:25.685 more if your bone marrow is damaged
0:17:25.685 –> 0:17:28.261 and you don't have the cells that
0:17:28.261 –> 0:17:30.48 can respond to those chemicals and
0:17:30.48 –> 0:17:33.126 actually make more of those kinds of
0:17:33.126 –> 0:17:35.95 cells that they're not going to be effective.
0:17:35.95 –> 0:17:37.78 Although there are those chemical
0:17:37.78 –> 0:17:39.98 reagents that can be used,
0:17:39.98 –> 0:17:42.17 they may in some patients have
0:17:42.17 –> 0:17:44.016 limited usefulness, so a transfusion
0:17:44.016 –> 0:17:45.876 I think although people try
0:17:45.876 –> 0:17:47.609 to minimize the times,
0:17:47.61 –> 0:17:49.59 blood transfusions are needed,
0:17:49.59 –> 0:17:52.56 they still need to be there.
0:17:52.56 –> 0:17:54.174 One of the things that's important
0:17:54.174 –> 0:17:56.417 about that is a concern about the reactions.
0:17:58.27 –> 0:18:00.798 And there's a variety of types of reactions,
0:18:00.8 –> 0:18:03.97 one of which is a febrile which is a fever,

0:18:03.97 –> 0:18:05.555 and that's because when you're

0:18:05.555 –> 0:18:06.823 giving a foreign protein,

0:18:06.83 –> 0:18:09.358 which blood cells have proteins on them,

0:18:09.36 –> 0:18:10.95 you can get a fever.

0:18:10.95 –> 0:18:12.53 There's that in and of

0:18:12.53 –> 0:18:13.794 itself is not dangerous.

0:18:13.8 –> 0:18:14.434 It's uncomfortable,

0:18:14.434 –> 0:18:16.97 and we like to minimize that from happening.

0:18:16.97 –> 0:18:19.506 But patients do can get a fever.

0:18:19.51 –> 0:18:21.09 They can also get hives,

0:18:21.09 –> 0:18:22.76 or they can get allergic

0:18:22.76 –> 0:18:25.178 reactions they can also have some

0:18:25.178 –> 0:18:26.79 other kinds of complications,

0:18:26.79 –> 0:18:28.835 all of which the transfusion

0:18:28.835 –> 0:18:31.735 service is aware of and we try

0:18:31.735 –> 0:18:34.039 to minimize as much as possible.

0:18:34.04 –> 0:18:36.055 One of the areas that's

0:18:36.055 –> 0:18:38.07 a really big concern is,

0:18:38.07 –> 0:18:39.73 as I mentioned earlier,

0:18:39.73 –> 0:18:41.805 infectious problems and that

0:18:41.805 –> 0:18:44.474 has led to the production of a whole

0:18:44.474 –> 0:18:46.939 new field of transfusion medicine,

0:18:46.94 –> 0:18:48.552 which is pathogen reduction.

0:18:51.031 –> 0:18:52.414 10-15 years ago

0:18:52.414 –> 0:18:56.16 if there was a virus that came out

0:18:56.16 –> 0:18:58.355 like Zika or West Nile,

0:18:58.36 –> 0:19:01.256 we knew there was a virus

0:19:01.256 –> 0:19:04.169 that had entered the blood supply,

0:19:04.17 –> 0:19:06.654 molecular biology was used to

0:19:06.654 –> 0:19:07.896 identify the virus,

0:19:07.9 –> 0:19:10.39 determine where it could be neutralized, and

0:19:10.39 –> 0:19:12.88 tests were made to identify it,
0:19:12.88 –> 0:19:14.125 treatments were developed.
0:19:14.125 –> 0:19:17.03 But then all of that cost money,
0:19:17.03 –> 0:19:20.124 and then the hospitals and the blood
0:19:20.124 –> 0:19:23.359 centers had to spend a lot of money.
0:19:23.36 –> 0:19:23.876 For that,
0:19:23.876 –> 0:19:25.94 the FDA took a long time to approve
0:19:26.003 –> 0:19:28.037 the testing and evaluation of
0:19:28.037 –> 0:19:29.91 donors for that particular illness.
0:19:29.91 –> 0:19:32.094 And while all this was going on,
0:19:32.1 –> 0:19:33.655 Medicare may or may not
0:19:33.655 –> 0:19:34.899 have reimbursed for it.
0:19:34.9 –> 0:19:37.26 So there was a financial what I call
0:19:37.26 –> 0:19:39.268 the banking part of blood banking,
0:19:39.27 –> 0:19:41.454 and then every time you got through
0:19:41.454 –> 0:19:43.686 with one virus, another one came along.
0:19:43.686 –> 0:19:46.648 So the field decided to move to a new type
0:19:46.648 –> 0:19:49.26 of tech that is called a reactive approach.
0:19:49.26 –> 0:19:51.132 That is, you identify a pathogen
0:19:51.132 –> 0:19:53.419 of some sort or something that
0:19:53.42 –> 0:19:55.39 shouldn't be in blood,
0:19:55.39 –> 0:19:58.134 whether it's a virus or bacteria,
0:19:58.14 –> 0:20:00.576 and then you try to mitigate
0:20:00.576 –> 0:20:04.029 it or get rid of it.
0:20:04.03 –> 0:20:05.598 This pathogen reduction technology
0:20:05.598 –> 0:20:07.536 is not reactive, it's proactive.
0:20:07.536 –> 0:20:10.182 There are reagents that are put into
0:20:10.182 –> 0:20:13.224 the blood bag that are designed to
0:20:13.224 –> 0:20:14.952 inactivate pathogens by attacking
0:20:15.025 –> 0:20:17.384 the DNA and RNA of those pathogens,
0:20:17.39 –> 0:20:18.228 blood cells,

0:20:18.228 –> 0:20:20.742 the human red cells and platelets
0:20:20.742 –> 0:20:23.568 do not have DNA or RNA because
0:20:23.57 –> 0:20:25.238 it's not part of what that
0:20:25.238 –> 0:20:26.072 particular cell has,
0:20:26.08 –> 0:20:28.304 they had them when they were growing,
0:20:28.31 –> 0:20:29.99 but when they become mature cells,
0:20:29.99 –> 0:20:31.658 the DNA and RNA isn't there.
0:20:31.66 –> 0:20:33.796 So the only thing that has DNA or
0:20:33.796 –> 0:20:36.399 RNA in a unit of blood is a pathogen.
0:20:36.4 –> 0:20:38.409 So if you can put chemicals in
0:20:38.409 –> 0:20:40.029 that affect the DNA or RNA,
0:20:40.03 –> 0:20:41.545 you're really sparing the good
0:20:41.545 –> 0:20:43.344 cells and you're just trying to
0:20:43.344 –> 0:20:44.499 get rid of any pathogen.
0:20:44.5 –> 0:20:46.652 Well, you can say with all the testing
0:20:46.652 –> 0:20:48.68 why should there be a pathogen there?
0:20:48.68 –> 0:20:49.481 There shouldn't be,
0:20:49.481 –> 0:20:50.816 but sometimes pathogens are in
0:20:50.816 –> 0:20:52.308 very low levels like bacteria,
0:20:52.31 –> 0:20:54.18 but then they can grow.
0:20:54.18 –> 0:20:54.948 Other times,
0:20:54.948 –> 0:20:58.02 new viruses come in like the COVID-19
0:20:58.092 –> 0:21:01.074 virus is not transmitted by blood,
0:21:01.08 –> 0:21:01.486 fortunately,
0:21:01.486 –> 0:21:03.516 as bad as it is,
0:21:03.52 –> 0:21:05.55 and it's a horrific virus,
0:21:05.55 –> 0:21:08.385 but it is not transmissible by blood.
0:21:08.39 –> 0:21:11.046 The HIV virus or AIDS with
0:21:11.046 –> 0:21:12.595 the pathogen reduction technology
0:21:12.595 –> 0:21:15.416 it puts reagents in the blood
0:21:15.416 –> 0:21:17.764 bag that will inactivate pathogens

0:21:17.764 –> 0:21:20.099 and many pathogens share common
0:21:20.099 –> 0:21:23.066 DNA or RNA types so that the
0:21:23.066 –> 0:21:25.1 reagents that are put in
0:21:25.1 –> 0:21:27.17 will be effective against them.
0:21:27.17 –> 0:21:29.325 And indeed the pathogen reduction
0:21:29.325 –> 0:21:31.48 technology that has been studied
0:21:31.55 –> 0:21:33.38 and proven to be successful
0:21:33.38 –> 0:21:35.864 it doesn't
0:21:35.864 –> 0:21:37.52 activate the COVID-19 virus,
0:21:37.52 –> 0:21:39.998 although it's not a bloodborne problem,
0:21:40 –> 0:21:42.49 but the next one might be,
0:21:42.49 –> 0:21:45.1 so pathogen reduction has been approved
0:21:45.1 –> 0:21:48.25 for platelets and for plasma they are
0:21:48.25 –> 0:21:50.465 currently doing clinical trials for
0:21:50.465 –> 0:21:53.164 red cells and we are doing several
0:21:53.164 –> 0:21:55.305 of those trials at Yale and at
0:21:55.305 –> 0:21:57.675 15 other sites around the country
0:21:57.675 –> 0:22:00.435 and once we have pathogen
0:22:00.435 –> 0:22:02.691 reduction approved then we will have
0:22:02.757 –> 0:22:04.701 a much safer blood supply because
0:22:04.701 –> 0:22:07.452 not only will we be testing for known
0:22:07.452 –> 0:22:09.267 viruses and pathogens and bacteria,
0:22:09.27 –> 0:22:11.09 but also for unknown ones,
0:22:11.09 –> 0:22:13.274 which is critical for the safety
0:22:13.274 –> 0:22:14.73 of the blood supply.
0:22:14.73 –> 0:22:16.178 These kinds of technologies,
0:22:16.178 –> 0:22:17.988 molecular diagnostics and so forth
0:22:17.988 –> 0:22:20.186 are really the future of transfusion.
0:22:20.19 –> 0:22:20.926 In addition,
0:22:20.926 –> 0:22:23.134 there are other types of approaches,
0:22:23.134 –> 0:22:24.66 immunotherapy to treat patients

0:22:24.66 –> 0:22:25.749 instead of using
0:22:25.75 –> 0:22:27.46 chemotherapy that I mentioned earlier,
0:22:27.46 –> 0:22:28.9 which can have cytotoxic,
0:22:28.9 –> 0:22:31.06 which means it's toxic to cells
0:22:31.125 –> 0:22:33.057 which can lower the amount
0:22:33.057 –> 0:22:34.345 of bone marrow that
0:22:34.411 –> 0:22:36.55 you have. Other types of therapy CAR
0:22:36.55 –> 0:22:38.89 T cell therapy you may have heard
0:22:38.89 –> 0:22:41.002 of or other types of immunotherapy
0:22:41.002 –> 0:22:43.507 where you do not depress the bone
0:22:43.507 –> 0:22:45.59 marrow when those patients may not
0:22:45.59 –> 0:22:47.34 need transfusions because their blood
0:22:47.34 –> 0:22:49.688 counts don't get that become that low.
0:22:49.69 –> 0:22:52.072 There are other aspects of transfusion
0:22:52.072 –> 0:22:54.066 medicine that those patients
0:22:54.066 –> 0:22:56.754 require and we don't have time in this
0:22:56.76 –> 0:22:59.35 discussion to go into all of that,
0:22:59.35 –> 0:23:02.07 but you can be sure that the blood
0:23:02.07 –> 0:23:03.637 transfusion service at the Hospital
0:23:03.637 –> 0:23:06.091 is working closely with the oncologists
0:23:06.091 –> 0:23:08.711 and the surgeons to ensure that the
0:23:08.711 –> 0:23:11.11 best and the safest possible blood for
0:23:11.11 –> 0:23:13.09 their patients and our field grows
0:23:13.09 –> 0:23:15.629 as the field of therapeutics grows.
0:23:15.63 –> 0:23:17.85 So we have the patient's best
0:23:17.85 –> 0:23:18.96 interest at heart.
0:23:18.96 –> 0:23:22.155 There are many sort of tricks in our bag
0:23:22.155 –> 0:23:25.32 if you will, of how we can provide
0:23:25.32 –> 0:23:26.856 safe blood pathogen reduction.
0:23:26.86 –> 0:23:29.572 Again, is a critical advance in the field
0:23:29.572 –> 0:23:32.38 and we just have one more cell type.

0:23:32.38 –> 0:23:34.837 The red cells that the research

0:23:34.837 –> 0:23:36.18 is being done on

0:23:36.18 –> 0:23:39.12 now to have that available in

0:23:39.12 –> 0:23:41.08 a couple of years.

0:23:41.08 –> 0:23:42.16 And the goal,

0:23:42.16 –> 0:23:42.88 of course,

0:23:42.88 –> 0:23:45.281 is to be able to treat patients

0:23:45.281 –> 0:23:47.125 and eventually just do away

0:23:47.125 –> 0:23:48.995 with this field of transfusion,

0:23:49 –> 0:23:51.88 because you won't need to give blood.

0:23:51.88 –> 0:23:54.4 But that's not in the foreseeable future,

0:23:54.4 –> 0:23:56.912 so the best we can do is provide

0:23:56.912 –> 0:23:58.72 the safest possible blood,

0:23:58.72 –> 0:24:00.16 the least amount needed,

0:24:00.16 –> 0:24:01.96 and the best quality for

0:24:01.96 –> 0:24:02.902 our patients.

0:24:02.902 –> 0:24:04.786 And you mentioned

0:24:04.786 –> 0:24:06.638 the term pathogen reduction

0:24:06.64 –> 0:24:08.708 it's not pathogen elimination,

0:24:08.708 –> 0:24:11.202 but it still is

0:24:11.202 –> 0:24:13.734 really low odds that people get

0:24:13.734 –> 0:24:15.829 infections with blood these days.

0:24:15.83 –> 0:24:18.777 Can you remind us about those numbers?

0:24:18.78 –> 0:24:21.396 What is the risk of

0:24:21.396 –> 0:24:24.005 getting HIV or hepatitis from a

0:24:24.005 –> 0:24:26.36 bag of blood these days?

0:24:26.36 –> 0:24:29.728 The risk of HIV is in the millions,

0:24:29.73 –> 0:24:33.09 one in a million, one in many millions.

0:24:33.09 –> 0:24:34.263 That's for HIV.

0:24:34.263 –> 0:24:37.72 It's also true for other types of viruses.

0:24:37.72 –> 0:24:40.54 Hepatitis is somewhere in the range

0:24:40.54 –> 0:24:43.899 of about one in 250,000 to 100.

0:24:43.9 –> 0:24:46.322 I'm sorry 1 to 250,000

0:24:46.322 –> 0:24:49.369 to 1 to 500,000 for bacteria.

0:24:49.37 –> 0:24:52.142 The numbers are higher because bacteria

0:24:52.142 –> 0:24:54.696 are much different organisms than viruses

0:24:54.696 –> 0:24:57.248 so the risk of getting a septic

0:24:57.318 –> 0:24:59.898 transfusion reaction is extremely low,

0:24:59.9 –> 0:25:02.959 but the risk of getting some bacteria

0:25:02.959 –> 0:25:05.421 growing in blood is somewhere in

0:25:05.421 –> 0:25:08.449 the range of 1 to the 30,000 in

0:25:08.449 –> 0:25:11.167 that range which are several orders

0:25:11.167 –> 0:25:13.589 of magnitude less than the HIV.

0:25:13.589 –> 0:25:16.06 Part of that problem is you can't

0:25:16.143 –> 0:25:18.627 test for all the different kinds

0:25:18.627 –> 0:25:20.66 of bacteria that there are.

0:25:20.66 –> 0:25:22.36 Some of them grow slowly.

0:25:22.36 –> 0:25:25.064 It depends on where the bacteria came from.

0:25:25.07 –> 0:25:27.436 There shouldn't be any bacteria in blood,

0:25:27.44 –> 0:25:29.82 and most of the time they're not.

0:25:29.82 –> 0:25:31.51 But that's where the pathogen

0:25:31.51 –> 0:25:32.524 reduction comes in,

0:25:32.53 –> 0:25:34.046 because pathogen reduction would

0:25:34.046 –> 0:25:36.32 inactivate any viruses or any bacteria

0:25:36.383 –> 0:25:38.623 that get through the testing that we have.

0:25:38.63 –> 0:25:41.115 So it's not something

0:25:41.115 –> 0:25:43.103 to be concerned about.

0:25:43.11 –> 0:25:45.427 Because the donor

0:25:45.427 –> 0:25:47.17 history is extremely inquisitive.

0:25:47.17 –> 0:25:50.482 We're asking a lot of questions,

0:25:50.49 –> 0:25:53.434 many of which took years

0:25:53.44 –> 0:25:55.276 to get accepted because

0:25:55.276 –> 0:25:57.894 a lot of the questions relate to
0:25:57.894 –> 0:26:00.534 sexual practices and many people were
0:26:00.534 –> 0:26:02.772 offended by those questions when we
0:26:02.772 –> 0:26:04.88 started asking it when we realized
0:26:04.88 –> 0:26:06.73 that HIV was sexually transmitted.
0:26:06.73 –> 0:26:09.226 But it was required to do it
0:26:09.226 –> 0:26:11.75 for the safety of the patients
0:26:11.75 –> 0:26:14.02 who are receiving the blood.
0:26:14.02 –> 0:26:16.393 But now that we know more about
0:26:16.393 –> 0:26:18.649 how to treat these diseases,
0:26:18.65 –> 0:26:21.15 many of those individuals come
0:26:21.15 –> 0:26:23.382 who are negative for these various
0:26:23.382 –> 0:26:25.718 tests are able to donate blood
0:26:25.718 –> 0:26:28.028 and it's a different field.
0:26:28.03 –> 0:26:31.459 We have to grow with the field as the
0:26:31.46 –> 0:26:33.37 knowledge grows and
0:26:33.37 –> 0:26:34.898 that's what transfusion is,
0:26:34.9 –> 0:26:36.428 there's a practical side
0:26:36.428 –> 0:26:37.956 for the patient care.
0:26:37.96 –> 0:26:40.05 There's the collection side and
0:26:40.05 –> 0:26:42.14 there's also the research side
0:26:42.215 –> 0:26:44.117 which is allowing us to advance
0:26:44.117 –> 0:26:46.738 the field in so many different ways.
0:26:46.74 –> 0:26:49.414 One last question is,
0:26:49.42 –> 0:26:50.779 perhaps,
0:26:50.779 –> 0:26:53.497 we had mentioned the fact that
0:26:53.5 –> 0:26:55.196 as therapeutics advance
0:26:55.196 –> 0:26:58.928 we may have less and less need for
0:26:58.928 –> 0:27:01.47 transfusion, but at the moment it
0:27:01.47 –> 0:27:04.999 still is a part of clinical care.
0:27:05 –> 0:27:08.663 How do you get around the needs of patients

0:27:08.663 –> 0:27:12.36 who cannot take due to religious reasons
0:27:12.36 –> 0:27:13.74 for example, blood?
0:27:13.74 –> 0:27:16.04 Are there other options for
0:27:16.04 –> 0:27:18.339 them outside of a transfusion?
0:27:18.34 –> 0:27:19.72 That's an excellent
0:27:19.72 –> 0:27:21.8 question. There are individuals who
0:27:21.8 –> 0:27:24.87 do not want a blood transfusion.
0:27:24.87 –> 0:27:27.481 For a variety of religious reasons or
0:27:27.481 –> 0:27:29.349 other reasons, for those individuals,
0:27:29.349 –> 0:27:31.214 consultation with the patients physician
0:27:31.214 –> 0:27:33.82 is required, as well as the family.
0:27:33.82 –> 0:27:36.7 We have a family meeting to discuss options
0:27:36.7 –> 0:27:40.154 and if blood transfusion is not one of them
0:27:40.16 –> 0:27:42.813 you mentioned the various reagents that
0:27:42.813 –> 0:27:45.066 are developed to stimulate the production
0:27:45.066 –> 0:27:48 of platelets or red cells in the person.
0:27:48 –> 0:27:50.178 Those chemicals can be given that
0:27:50.178 –> 0:27:52.909 may be possible to take some blood
0:27:52.909 –> 0:27:55.327 from the patient prior to treatment
0:27:55.33 –> 0:27:57.598 and store it so that if the
0:27:57.598 –> 0:27:59.349 patient's count does drop,
0:27:59.35 –> 0:28:01.36 they will have stored their own
0:28:01.36 –> 0:28:03.372 blood in advance, which in someone
0:28:03.372 –> 0:28:05.376 who doesn't want to get transfusion,
0:28:05.38 –> 0:28:07.06 of someone else's blood,
0:28:07.06 –> 0:28:09.74 may be willing to accept their own blood.
0:28:09.74 –> 0:28:11.41 Some individuals don't want to
0:28:11.41 –> 0:28:12.746 accept blood from themselves,
0:28:12.75 –> 0:28:15.095 that's been taken out of their body,
0:28:15.1 –> 0:28:17.11 separated, stored, and then given back.
0:28:17.11 –> 0:28:20.035 So it depends on the degree to which the

0:28:20.035 –> 0:28:22.468 individual will be willing to accept blood,
0:28:22.47 –> 0:28:24.516 but those can cause some very
0:28:24.516 –> 0:28:25.88 difficult treatment situations.
0:28:25.88 –> 0:28:28.736 That has to be discussed with the patient,
0:28:28.74 –> 0:28:29.808 the patient's family,
0:28:29.808 –> 0:28:31.944 the physician and the blood bank.
0:28:31.95 –> 0:28:34.266 Doctor Edward Snyder is a
0:28:34.266 –> 0:28:35.81 professor of laboratory medicine
0:28:35.872 –> 0:28:37.66 at the Yale School of Medicine.
0:28:37.66 –> 0:28:39.26 If you have questions,
0:28:39.26 –> 0:28:40.86 the address is canceranswers@yale.edu
0:28:40.86 –> 0:28:43.064 and past editions of the program
0:28:43.064 –> 0:28:45.08 are available in audio and written
0:28:45.142 –> 0:28:46.936 form at yalecancercenter.org.
0:28:46.94 –> 0:28:49.244 We hope you'll join us next week to
0:28:49.244 –> 0:28:51.471 learn more about the fight against
0:28:51.471 –> 0:28:53.446 cancer here on Connecticut Public
0:28:53.446 –> 0:28:55.92 radio funding for Yale Cancer answers.
0:28:55.92 –> 0:28:58.225 Was provided by Smilow Cancer
0:28:58.225 –> 0:29:00.069 Hospital and AstraZeneca.