

Yale CANCER
CENTER
answers

WNPR Connecticut Public Radio



Hosts

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**Helping Cancer Patients
through Blood Donation**

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Yale Cancer Center Answers

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Welcome to Yale Cancer Center Answers with Drs. Ed Chu and Francine Foss, I am Bruce Barber. Dr. Chu is Deputy Director and Chief of Medical Oncology at Yale Cancer Center and Dr. Foss is a Professor of Medical Oncology and Dermatology specializing in the treatment of lymphomas. If you would like to join the conversation you can contact the doctors directly. The address is canceranswers@yale.edu and the phone number is 1888-234-4YCC. This evening Francine welcomes Paul Sullivan and Ed Snyder. Paul is the CEO of the Connecticut Chapter of the Red Cross and Dr. Snyder is the Director of the Yale Blood Bank and Transfusion Service. Here is Francine Foss.

Foss Let's start off by talking in general about why it's important to give blood.

Sullivan We need blood because quite frankly the Red Cross supports all of the Connecticut Acute Care Hospitals and we want to make sure that we are able to be there when blood is needed. Blood is used in a myriad of different situations to support people from acute situations, traumas and emergencies, to chemotherapy and ongoing treatment; it's one of those things that literally sustains, saves lives.

Foss Paul, earlier this month there was a major disaster in Connecticut and you got called in to help out, could you talk about that?

Sullivan The Middletown tragedy was just not a tragedy, five people died, and many more were injured. The Red Cross is there to support our hospitals. Obviously it's the medical professionals in the hospitals who do the actual heavy lifting of saving and sustaining lives, our job is to make sure that there is blood when needed. In that case, the good news was that we had seen strong donations in the weeks prior to that so we had a good inventory going into that situation and although the actual situation didn't require huge numbers of units, we were in a position to make sure that we had blood available. We did support Yale, Hartford, and other hospitals with pretty significant numbers of red cells where there was concern that there may be many injured.

Snyder We received about 135 units from the Red Cross that day and although that seems like a lot when you consider that the initial reports were that there were over 100 casualties, it may not have been sufficient considering the potential injury and loss of blood that so many patients may have had. The job in the blood bank in that situation is to manage the inventory and ensure that there is enough blood for the patients that need it of all different kinds. The red blood cells, which are used for people to keep their blood counts up so they can carry oxygen to their lungs, platelets, which are small fragments of other cells that are used to help clotting, as well as plasma, which is another blood component that's used to help clotting. All of these different products that are obtained from one unit of blood were needed, and in 2010 it is important to ensure that the best possible care can be given to everyone. The challenge is when you have a disaster and potentially there are people coming to the hospital without any kind of prior notice and that requires that the Red Cross have

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enough additional blood supplies to send blood down if needed not only to Yale, but to Hartford and other hospitals in the state.

- Foss We were lucky this time to have blood on reserve, but in the case of these disasters how often do you actually have available what's necessary?
- Sullivan The hard part of preparing for disasters is obviously the unknown. So, what we do is work very hard to try to make sure we have an ample supply on our shelves and we measure that in terms of days of availability. Months like January and February, usually we have a pretty good supply and that's because we get a lot of support from regular blood donors, schools are in session and I think people can fit us into their normal lives. Our challenge is that we have got to build a bigger roster of blood donors because, quite frankly, where we really see a shortage is usually around holidays and then coming up in the summer, it's always a very tough time for us. And so part of our message is we need to get people in the habit of giving blood year round. Very few people actually realize, but Connecticut is not self sufficient in terms of its own blood needs. We actually import about 10,000 units of blood every year from other parts of the country and if you think about disaster preparedness, obviously being reliant on other parts of the country is not the situation you want to be in. Part of our big message is that we need people to call 1-800-GIVE-LIFE and get into the habit of giving blood.
- Foss Ed, can you tell us what kind of folks are eligible to give blood? Is everybody eligible? And how would one know whether they should give blood?
- Snyder There is a questionnaire that needs to be answered and there is an interview where patients are screened by the Red Cross personnel to ensure that there is no history of any situations that may preclude their donating, such as if they have been taking certain kinds of medications, or if they have traveled to certain parts of the world where there is endemic infectious diseases.
- Sullivan That's right, the quick answer to your question is that you have to be 17 years or older, you have to weigh 110 pounds and be generally in good health. What Ed is explaining is beyond that, we obviously want to make sure that it is safe for the person giving blood and safe for the person receiving blood, so we do a health questionnaire as Ed was explaining.
- Snyder In fact, in some parts of the country, I think the age is going below 17 with parental consent.
- Sullivan Actually, in most parts of the country now, in fact Connecticut is a little bit unique in the sense that all of our neighboring states, most of the states in the Northeast, allow 16 year olds to give blood.

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We have an initiative to try to bring that to Connecticut to let more people get involved in the blood program.

- Synder I think it's important that this is not been done to get around the parents concerns. If the parents have concerns that the child should not donate, then certainly they need to express that, but the idea is that if you can get someone to learn to donate at a young age, it will hopefully stay with them as they get older, because the need for blood is only going to increase. Programs that use lots of blood are increasing as science and medicine are able to salvage patients who otherwise might not have been able to have been successfully treated, whether with surgery or with chemotherapy for different cancers. The need for blood is constant, and although there are lots of advertisements you hear on the radio for bloodless surgery and bloodless medicine, when someone is bleeding and they need to be transfused, blood is required. There are many cases where they are using less blood and that's certainly the goal, but for accidents like happened earlier this month in Middletown, blood is the only life saving material that would be required.
- Sullivan I think that's very well said, no one receives a transfusion that doesn't absolutely need it. It's one of those things that again, there is a lot of hope, and lot of work being done on whether there is a blood substitute or ways to reduce the use of blood and all that is terrific, but at the end of the day, we still see our demand, and the need of hospitals going up year after year and so part of our goal again is to grow the blood supply, grow our donor base so that we have enough on hand.
- Foss And no of us ever know, obviously, when ourselves, or our family members, are gong to need blood. Can you talk a little about the first time donor, somebody who has never given blood who is going in for the first time, what are they going to experience?
- Sullivan There are three basic parts to giving blood. A new donor just needs to relax and recognize that they are doing something profoundly good for somebody else. It's a serious process, but is also a pretty simple process. We ask people to come well hydrated, to eat a good meal before so they feel good, but coming in you will go through three basic steps. We will go through a health history, as were talking about earlier, where we will make sure that it's safe for you as well as safe for someone receiving your blood. We do ask some personal questions, but again, the main message there is making sure that it will be safe for all involved. The second part is obviously giving blood. It's actually a phlebotomy where we collect the blood. It can be a little bit intimidating, but you can always look away and we collect blood inside your arm where there are actually very few nerves, so it's a pinch, but it does not particularly hurt, and then we ask you to stay with us after your donation for about 10, 15, 20 minutes in our, what we call canteen, which is the juice and cookie area and we do that to make sure people feel good before they go on their way.

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- Foss And there are blood donation centers around the state, but Ed, can you talk about hospitals and blood drives a little bit?
- Snyder Well some hospitals have a blood donor area where people can come and donate. We don't have that at Yale for someone donating, but we do sponsor drives about five times a year from the Red Cross at Yale-New Haven Hospital. In addition, Yale University sponsors several drives and this way the Red Cross comes down and people can walk in or sign up to donate blood. What Paul talked about with the screening of the donors, it is critical because the times when the patient does need blood, and I stress that to reinforce which you said Francine earlier that a patient only receives a transfusion when it's absolutely necessary, it's important that even when that time occurs the patient and the patient's family realize that the blood is the safe and is as pure as is possible. That whatever it takes to make the blood supply safe is being done by the Red Cross and that let's you talk to your patient and explain that this is something that's helpful to them and is much more likely to be life saving and help them get home to their families, which is what it's all about. All of these questions, even though they are fairly invasive, and a lot of the questions many-many years ago would never have been thought of, but with the way society is changing and the need to disclose all kinds of activities, its important for people to realize this is done to protect the recipient.
- Foss A lot of our listeners are probably worried about getting blood with respect to certain viruses like HIV, can you talk a little about the safety of the blood supply from that point of view?
- Sullivan Yes, the Red Cross, as do other blood centers, all test for HIV, the AIDS virus, hepatitis C and hepatitis B, and for other types of agents like HTLV-I, and various other kinds of viruses are tested for. The risk of getting HIV from a unit of blood is vanishingly small. I imagine that there are probably not more than a very few cases at all that occur nationally, and of the 14 million units of blood drawn a year, the Red Cross approximately draws about 60% of that and the incidence of HIV from blood transmission is essentially vanished. The risk is about 1 in 4 million for getting a unit and that would be a very unusual situation for that to occur. People have to realize that they have a much better understanding of the population of the risk of HIV transmission, but still when the time comes to get the unit of blood there are concerns and we try to train the physicians to tell the patients the best information so they can make an informed decision.
- Foss Paul, can you go back for a minute and talk about the donors now. If you have donated blood once, will you get called back a second time? Is there a process for calling people back, or is it strictly voluntary?
- Sullivan Blood donation is always voluntary, but that said, when someone comes in and donates one of the things we do is try to get information about how we can contact you again and we do that just for

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what we have been talking about, which is we have more need than we have donors in Connecticut and we do reach out to folks, we try to explain to them how important it is, but we also try to make it convenient for them. We call and let people know when our upcoming blood draw is and that we are going to be in their area. We reach out to folks via e-mail, mail, pretty much you name it we are going to try to reach you and we are going to do it hopefully in a way that doesn't bother you. We do tend to be pretty persistent from the standpoint that it's such an important thing for people to do that we want to make sure they know how easy it is.

Foss Ed, there are certainly some blood types that are rare and those are instances where we may have to try to solicit blood from specific donors, could you talk about those rare types and how important it is for those folks to be willing to go back?

Snyder Most people remember from high school that O is the universal donor and AB is the universal recipient. Essentially that's still true, but they are much more sophisticated these days and we are very aware of what blood types can be used. If you are AB, for example, you can receive type A or you can receive type B red cells. We work with the Red Cross very closely when we monitor our inventory each day to ensure that there is enough blood available. For those patients who have very rare blood types or transfusion problems, the Red Cross has a superb reference laboratory where they can determine what the various proteins in the blood or so called antibodies are, which may have an impact on the transfusion. This is done 24x7, 366, we even do the leap year day, because the sick never take a holiday and its our obligation to provide blood for these patients when they need it and have it be the safest blood possible. We are aware of all these and the Red Cross works very closely with us.

Sullivan One of the things that we are always trying to do is make sure that we build our inventory of those rare blood types because obviously one of the most important things for people getting transfused is to make sure we have the best possible match, just as Ed was talking about. So, one of the things we have been doing here in Connecticut is trying to get all of Connecticut's communities involved, and what I mean by that is just as the core blood types vary by ethnicity, rare blood types also are highly correlated to particular ethnicities, and so if we are going to serve all Connecticut's communities, we need to be collecting blood from all of Connecticut's communities. One of the big initiatives that we have had is to bring more African Americans, more Hispanics into the blood program both because we need them to overcome the fact that we don't collect enough in Connecticut in general, but also we need to be making sure that we have those donors as part of our general pool so that we can identify people with rare blood types to make sure that we are serving that same population.

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Foss Thank you Ed and Paul, we are going to take a break now for a medical minute. Please stay tuned to learn more about the process of giving blood with Dr. Ed Snyder and Paul Sullivan.

*Medical
Minute*

It's estimated that over 2 million men in the US are currently living with prostate cancer. It's a matter of fact that one in six American men will develop prostate cancer in the course of his lifetime. The good news is that major advances in the detection and treatment of prostate cancer have dramatically decreased the number of men who die from this disease. Screening for prostate cancer can be performed quickly and easily in a physician's office using two simple tests, a physical exam and a blood test. Clinical trials are currently underway at federally designated comprehensive cancer centers like the one at Yale to test innovative new treatments for prostate cancer. The patients enrolled in these trials are given access to experimental medicines not yet approved by the Food and Drug Administration. This has been a medical minute and you will find more information at yalecancercenter.org. You are listening to the WNPR Health Forum on the Connecticut Public Broadcasting Network.

Foss Welcome back to Yale Cancer Center Answers. This is Dr. Francine Foss and I am joined by Paul Sullivan, CEO of the Connecticut Blood Bank and Dr. Ed Snyder who is Director of the Yale Blood Bank and Transfusion Service. We are here discussing the process of blood donation. We talked a little bit about how important it is to give blood and most of our discussions were focused on the red blood cell component, but Ed, you mentioned that we also take other components out of the blood such as platelets and the serum, can you talk about what those are used for?

Snyder The human blood, although it looks like its all red, actually has products in it that are yellow. Red cells are used to carry oxygen, the oxygen is carried on a molecule called hemoglobin, which is red in color, and that is why blood looks red; there are a lot more red cells than other kinds of cells. Then there are cells that are involved in clotting, which are called platelets, and then there are other components of the blood, the liquid portion and the plasma, which are clotting factors as well as a lot of other things, but from the perspective of transfusion, its the plasma, the platelets, and the red cells that are most important. We transfuse 60,000 blood products a year at Yale, about 20,000 to 30,000 red cells, about 22,000 units of platelets, and about 9,000 units of plasma. Fortunately, we have learned how to take 1 unit of blood and divide it into two to three different components. So, when someone donates a unit of whole blood, it's made into red cells and part of it may be made into platelets and part made into plasma so that you can actually serve three people with one donation, which is why the process of giving blood is so important. At Yale, we have had a tremendous growth over the past several years in programs that require blood. The Smilow Cancer Hospital just opened and we expect to increase dramatically the number of patients with cancer who are treated in Connecticut so that they don't have to travel to Boston or New York to get the best possible therapy, it would be right here in Connecticut. These therapies often require blood

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and Dr. Dennis Cooper and Dr. Stuart Seropian are part of the stem cell transplant team. Dr. Cooper, being the leader of that team, works very closely with the blood bank and uses blood products as necessary to treat patients who are getting chemotherapy. Dr. Sukru Emre, who is the leader of the liver transplant program, has raised the quality of the liver transplant programs to levels that are probably the best in the country and he doesn't use very much blood, but when he needs platelets or plasma, the blood needs to be there. There are varieties of different products if your blood count is normal but you have low platelets, then you just need a platelet transfusion. We do not transfuse whole blood to treat all the problems and that's a fairly sophisticated side of medical care, which the blood bank and the transfusion service specialize in.

Foss Paul, could you talk about the issue of the platelets in the serum? Do the average blood donors really know about that when you talk to them about donating blood, or do they think that they are just donating the red cells? Do they understand the complexity of blood itself?

Sullivan I think some do, we have a number of very dedicated donors who really appreciate quite frankly all of the good things that can be done with blood in terms of both separating it into the core components or even taking the plasma and fractionating it into its proteins. It has become remarkable how over the years blood banking, which in some ways remains a very simple concept, has become fairly high science in terms of its impact. As far as the donors, for many of them they just know that if they give blood someone on the other side will be saved or sustained by it, but to be assured, there are some people who understand the ins and outs of it. One of the things we try to do at the Red Cross is educate people about the whole process and part of that is because we want to be good stewards of the blood we collect so we actually do take the time to try to educate our donors on how they can best help us, what their blood type is, how does that impact us, and by their blood type, what procedure or process we would like to collect their blood, meaning would we like them to be a platelet donor or would we like them to be a whole blood donor and so on?

Snyder I think it's important to underscore what Paul is talking about, in 2010 it takes a village to take care of each other. Blood donors realize that they are giving blood for someone they have never met and probably never will meet, but will be able to survive an illness, a father will be able to go home to their child and their wife, a mother can go home to her family, grandparents can see their grandchildren graduate from college. These are things that are done at the highest of altruism to go to a blood donor site and stick out your arm and have someone put a needle in your arm, which is not the most pleasant thing to happen, but you are doing it to help other people and this village concept is the only way that as we move forward with medical care and the need to help one another, this is an example of how the Red Cross is not only there in disasters with hot coffee, blankets, and donuts, but is also there to ensure that blood is there to help people in need.

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- Foss Sometimes we actually call people in for platelets because our patients require specific HLA-matched platelets, can you tell us how often that happens?
- Snyder It's a bit of a complicated issue, and I will try to make it as understandable as I can. Everyone knows about blood types A, B, and O and we just talked about type A and type B. Well there are other types of blood types on other cells. The platelets, for example, have a whole different group of blood types called HLA, which stands for human leukocyte antigen, and some people when they get platelets develop antibodies so that additional transfusions of platelets may not work and they need to have platelets that are their specific type. To donate this, since you cannot really get enough platelets out of one blood donation, the industry has developed what is called apheresis technology. Apheresis is a Greek term actually meaning to withdraw, and it is basically like a cream separator. A needle is put in the donor's arm and blood comes out and the specific part of the blood that's needed is collected by machine. It is an automated process. It can take anywhere from about an hour or less to donate the equivalent of about 5 units of platelets from one donor and apheresis donors are used increasingly to provide blood or platelets specifically for cancer patients who may have antibodies, and there are special groups of donors who can come to the Red Cross periodically and donate for someone in need there, their platelets have been typed and the Red Cross knows who they are and there are others who come in and donate without having been typed just to supply for the general inventory. It's a fairly complicated issue, but there are times when specific blood types other than red cells are needed and the Red Cross is there to supply the needs of all the hospitals in the state.
- Foss This brings up a good point, which is that a lot of folks when they have a family member who is ill in the hospital, having surgery, or perhaps somebody with cancer and is needing blood, a lot of family members offer to come in to donate blood thinking perhaps it might be a directed donation for their family member, often times the blood does not match, but Ed, can you talk about directed donations?
- Snyder Directed donations was a very strong program several years ago when people were concerned about HIV and they wanted to ensure that blood for the relatives only came from them. You are absolutely correct in that not everyone is a match even though it may be your brother or sister or some other type of blood relative, that does not necessarily mean that the blood is compatible. These days' people sometimes do request directed donations and the Red Cross is willing to provide it. We just have to make sure the administrative tracking is such that the right blood gets to the right person and that it's easily done. We try to reassure people that the blood supply is safe and that directed donation is not required, that giving altruistically so that anybody could make use of the blood is preferred, but in some situations where people feel the need to you can also donate for yourself if your blood count is high enough and that can be discussed with your doctor, that's called autologous donation, autologous meaning donating for yourself, where if you are having an

elective surgery you can donate blood that can be stored to be transfused back into you. Whether its autologous donation or whether it's a relative directed donation, these are all doable, but by and large the strong request is that people donate blood for the general population as Paul, I am sure you could expand on.

- Sullivan It's simply that we need blood ahead of when it's needed. We need it for people who may need it unexpectedly and given the level of testing and given the fact that I think we do have an excellent system to make sure that blood is as safe as it can be for someone who needs it, I think our village is best served, as Ed said earlier, when we all give into a common pool and share when we need it.
- Foss This might be a good time to talk about how the blood is stored, is it kept fresh, is it frozen, and how long can it actually last?
- Sullivan Well blood has a shelf life and that's why we are constantly out there trying to replenish our inventories. Some things are a little easier to manage, plasma can be frozen, and so we can keep it up to a year and sometimes beyond if it's a particularly rare kind of unit. Red cells last for about 42 days, so we are constantly needing to make sure that we have a good inventory and the hardest product that we deal with is our platelet product, which is crucial as Ed was mentioning earlier and that only has a 5-day shelf life. If you think about it, people always ask why we are always in trouble, why we are always searching for new blood donors, or why can't you just build an inventory? Well the truth is, with a five-day shelf life, we have to be out there everyday. So, a snowstorm comes along and it reduces our inventory by one day's collection and that's a 20% decrease almost by definition of our inventory. If you think about that anytime we have a snowstorm, anytime that we have a holiday, we really have to scramble before and after to make sure that we have enough platelets available just because, quite frankly, they only last for five days.
- Snyder Another thing to consider if you have a blood drive and 20,000 people show up, five days later, the platelets won't be good anymore. You have to start all over, so there is a medical side of transfusion and blood donation that's absolutely critical for patients, families, and donors to be aware of.
- Foss Ed and Paul, we didn't really touch on another topic I would like to just briefly mention at the end and that is the whole issue of umbilical cord blood and whether or not we have an umbilical cord blood bank here in Connecticut.
- Snyder Well, we need another whole program to discuss that, but right now there is no umbilical cord transplantation at Yale. In the fall of this year, there will be a pediatric bone marrow transplant who is coming on board who will probably set up the program as far as donating blood. The

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Connecticut Legislature has passed laws that obstetricians are required to notify mothers to be who are delivering of the opportunities and the options for taking care of their cord blood if they wanted to store it for private banks or public banks. We can talk about this possibly at another time, but the obstetricians have the information, it's a Connecticut law that they will be notified and the legislature just earlier this month had a meeting to discuss the setting up of a cord bank in Connecticut and exactly how that would happen.

Foss And again this umbilical cord blood will be used primarily for stem cell transplantation?

Snyder Yes, although there is tremendous research going on in use for other purposes, it would be primarily for stem cell transplants as another source of cells in addition to bone marrow.

Sullivan I just can wrap up by saying that we are so appreciative of you helping us to get the word out about how important it is to give blood and if I could, if people could call 1-800-GIVE-LIFE or they can go to our web page at www.redcrossblood.org type in your zip code and we will have blood drives near you, I guarantee it, we are out there almost everyday of the year as Ed said, we are a 24x7, 366 operation and so our Connecticut Hospitals so we all need to work together and make sure that we can help each other out.

Foss I am hoping that this show significantly increases the volume of calls that you get.

Sullivan Well I hope so too.

Foss Ed and Paul, I would like to thank you both for joining me on Yale Cancer Center Answers. This has been a terrific show and provides a wonderful overview for anybody who is interested in donating blood. Until next week, this is Dr. Francine Foss from Yale Cancer Center wishing you a safe and healthy week.

If you have questions or would like to share your comments, visit yalecancercenter.org, where you can also subscribe to our podcast and find written transcripts of past programs. I am Bruce Barber and you are listening to the WNPR Health Forum on the Connecticut Public Broadcasting Network.