The Donor

News and information for blood donors

Summer 2017

ORGAN DONATION

Have you had the conversation?

"Blood helped me to see again!" JO DANIELS

RO BLOOD

A very special blood type

Save a life
Give blood

NHS
Blood and Transplant

A message from Ian Trenholm, Chief Executive

Hello, and welcome to the Summer 2017 edition

I'd ike to thank you all sincerely for your continued support. Since the last edition of the magazine, we have seen blood stocks remaining stable – and that's all thanks to you. You supported our winter appeal, when we asked you to help us to fill the Christmas stockings by making an appointment to donate. Happily, your actions meant that we were able to keep hospitals supplied with life-saving stocks of blood over the festive season.

More recently, we have received an over–whelming public response after the terror attacks in Manchester and London. I would like to thank our long standing donors whose regular donations meant that when the incidents occurred we had enough blood on the shelves to immediately respond to the requests from hospitals. Many others were inspired to come forward to donate and hopefully start the habit of lifetime. I would like to thank all those who came forward to donate as well as my own colleagues who worked incredibly hard in difficult circumstances.

We recently celebrated National Blood Week by highlighting the vital role that donors have – showing that you don't have to be in the operating theatre or hospital ward to save a life; once you've made that critical donation, you can go about your life whilst making such a difference to someone else's.

Blood groups

We explore the different blood groups in this edition, and look specifically at the very rare blood subtype, Ro, and why it is so important – particularly for people requiring regular blood transfusions, such as those with sickle cell disease.

Also covered in this edition is the story of Jo Daniels. Jo's life has been transformed by your donations, and she explains how blood has allowed her to see her daughter again.

"Many others were inspired to come forward to donate and hopefully start the habit of a lifetime"

As we enter the summer months, many of us will be travelling to warmer climates to enjoy a well-deserved holiday. During this time we sometimes see a dip in donations as people go away or their destination means that they can't donate when they return. Please help us to maintain blood stocks by making an appointment to donate before you go on holiday.

We appreciate your dedication to blood and platelet donation. It really does mean so much to so many patients whose lives are saved or improved because of your actions.

Thank you for being there. ●

#GiveBlood #ImThere

Write and tell us your news, views and interesting or unusual donor stories. The Editor, The Donor, NHS Blood and Transplant, 14 Estuary Banks, The Estuary Commerce Park, Speke, Liverpool, L24 8RB or email thedonor@nhsbt.nhs.uk

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Knowing your ABO

As blood donors, you probably know your blood group, but why do we need more blood from some donors than others? And what is a blood group anyway?

A blood group is determined by antigens and antibodies being present or absent in the blood. Antigens are protein molecules found on the surface of red blood cells while antibodies are part of your body's natural defence against invading substances such as viruses and bacteria.

They are made of proteins and float around in the blood's plasma. Antibodies recognise anything foreign in your body and alert your immune system to destroy it.

Whilst there are many different groups and sub types of blood, the two we are most concerned with are the ABO and Rhesus systems. In the ABO system there are four groups:

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Blood group	Antigens	Antibodies
A	A	anti-B
B	B	anti-A
O	None	anti-A & anti-B
AB	A & B	None

In the Rh system there are five main Rhesus (Rh) antigens on red cells: C, c, D, E, e. The most important of these is Rh D. Having the D antigen on red cells makes you positive (+ve) and lacking it makes you negative (-ve). Most (77 per cent) of our donors have the D antigen making them D positive, or, as is usually written on your record, O, A, B, or AB +ve. The remaining 23 per cent lack the D antigen and so are recorded as -ve.

O-ve priority

In the UK population, O is the most common blood group (48 per cent). Around 7 per cent of the population have O negative (O-ve) blood, yet this special group accounts for around 13 per cent of all hospital requests. Why is this type in such demand? It's down to antigens, or rather lack of them. O-ve blood lacks the A, B and D antigens, so it can safely be given to patients with any blood type, because it won't trigger an immune response. O-ve is called universal for obvious reasons! To ensure we always collect enough we now offer O-ve donors 'priority' appointments, so that we are able to better manage the high demand for this group.

There's up to a 1 in 3 chance that if you are O-ve your blood relatives will be too. So if you're an O-ve donor, keep up the good work, and please encourage your family to donate as well!

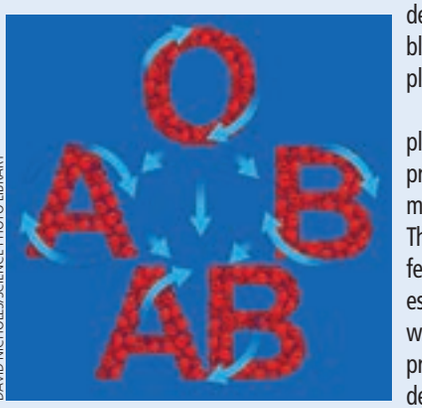
Group A

Group A is the second largest blood group, and about a third of patients at any given time will need it. A group blood, especially A-ve, is a valuable source of platelets because they can be given safely to patients from all ABO groups.

Group B

The other ABO groups are much rarer in the UK, but are especially important for meeting the needs of patients from Black and Minority Ethnic (BAME) communities. For example, just 10 per cent of donors have blood group B, but in South Asian populations it's 20 per cent and Black communities 25 per cent.

In white European communities it's 9 per cent. South Asian communities are more susceptible to thalassemia and Black communities to sickle cell anaemia. Patients with these conditions can require ongoing multiple transfusions so having the closest possible match is essential. If you are B-ve your donations are immensely important because just 2 per cent of the donor population have this blood type.



DAVID NICHOLLS/SCIENCE PHOTO LIBRARY

Some ABO blood groups are very rare in the UK which means it can be harder to find donors

Group AB positive

Whilst demand for AB positive red cells is at its lowest level for over a decade, demand for this blood group's plasma remains.

Fresh frozen plasma is only produced from male donations. This is because female donors – especially those who have been pregnant - can develop antibodies that whilst no danger to themselves, can prove life threatening to patients transfused with their plasma.

Group AB negative

AB negative is the rarest blood type, accounting for just 1 per cent of the donor population. As it is so rare it can be difficult to find new donors and even harder to ensure we always collect enough.

Due to the scarcity of donations, the red cells of this group have a greater importance than the plasma.

AB negative red cells also have the benefit of being compatible with AB positive patients and for these reasons we ask all AB negative donors, whether male or female, to donate as frequently as possible.

More A negative platelet donors

You may have heard that O negative blood (O-ve) can be given to any patient. Well A negative platelets can also be given to any patient requiring a platelet transfusion. We particularly need more A negative blood donors to start donating platelets at one of our donor centres. For more information visit: www.platelets.blood.co.uk or call 0300 123 23 23

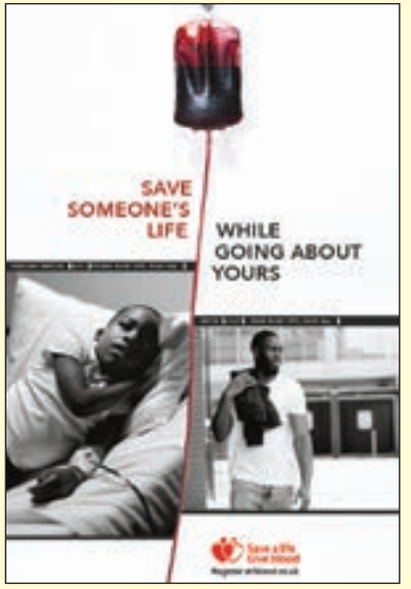
Save someone's life while going about yours

This summer, we celebrated National Blood Week (19th – 25th June) by showing that by being a blood donor, you are able to save lives while going about yours

So, you can be here and be there. You don't need to be in theatre to help the person on the operating table. You don't need to be on the oncology ward to help the person battling cancer. Helping to save lives can be easy; all you need to do is give blood and you'll be there.

As a blood donor, you are one of 900,000 people that selflessly give up their time to save the lives of others. But we need more.

This year alone, we need 200,000 new blood donors to help continue saving lives. We also urgently need 40,000 new black donors. This is to replace donors that can no longer donate, and to make sure that we have the right mix of blood groups.



Sickle cell patients

Mike Stredder, director of blood donation, said, "We urgently need new black donors to help patients with sickle cell: a serious condition and the fastest growing genetic blood disorder in the UK.

"Through closely matched blood for sickle cell patients, we can save them from extreme pain, life threatening infections and other complications such as stroke or loss of vision.

"We hope that the campaign showed what an important part blood donors play in saving lives, and will encourage others to do the same."

Please encourage others to donate

As committed blood donors, please do encourage friends and family to sign up as blood donors this summer.

You can also help to support us by using the hashtag #GiveBlood and sharing your reasons for donating.

If you're eligible to donate, please make an appointment by visiting blood.co.uk or calling 0300 123 23 23.

As always, thank you for your continued support. Thank you for being there. ●

Please make an appointment by visiting blood.co.uk or calling 0300 123 23 23.

Blood helped me to see again!

How a little-known blood component helps treat dry eyes

Dr Jo Daniels, 36, from Bristol, has the autoimmune disease Sjögrens Syndrome. Her immune system has attacked her own tear glands, causing her eyes to dry out. To allow her to see properly and live a normal life, Jo uses a serum made from – donated blood!

Jo had tried various treatments, including very painful surgery on both eyes, but they failed to cure her condition.

It was only when Jo was prescribed serum eye drops (SED) that she was able to get her life back.

Jo is a clinical psychologist and lecturer at the University of Bath, and a mum of two-year-old Oona. She said, "I had got to the point where I couldn't see. I couldn't drive. I was off work for four months and I thought my career was over. It was really upsetting because my daughter was 18 months old and I was afraid I would not be able to see her grow up."

Now Jo can see baby Oona grow up, thanks to serum eye drops made from donated blood

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Jo uses the serum hourly, every day and said if she didn't have it, "Things would become awful again."

She added, "I can only see because people donate blood… I know people are aware that blood saves lives - literally saves lives - but also without blood I wouldn't be able to see my children or live my life as I know it. It saves me terrible pain, my vision and my emotional wellbeing.

"I can't even describe how grateful I am to people who donate blood, for the impact this has had on my life and the lives of my husband and daughter, it is completely immeasurable." ●

What are Serum Eye Drops (SED)?

SED are prescribed when artificial eye drops and other interventions fail to treat dry eyes. The serum can either be extracted from the blood of the patient (autologous) or a blood donor (allogenic).

Jo receives allogenic eye drops, made from blood donated by male A and AB group donors at Liverpool and Manchester donor centres.

The blood is collected into 'dry' collection bags (without anticoagulants) and allowed to clot. Serum is then separated out and diluted to prepare the drops, which are then delivered to the patient's home. ●

A very special blood type

Patients who need regular transfusions often rely on specially matched blood. Which is where the little known Ro sub type comes in

All blood transfusions are matched for ABO group and Rhesus (Rh) group. But there are many other blood groups, and patients who need regular transfusions, for example patients with sickle cell disease, need extensive matching.

What is Ro?

Ro is part of the Rhesus group, which is under the control of two genes - RHD and RHCE. These control the mix of Rh antigens (protein markers) on red cells and give rise to eight potential combinations, one of which is Dce, referred to as Ro.

Ro is more than 10 times more common in individuals from black African or black Caribbean ethnic backgrounds than in those from white ethnic backgrounds. But only 2.2 per cent of donors who gave blood last year have the Ro subtype. That means a potential shortage of Ro blood for the people most likely to need it.

Who has the Ro subtype?

It is important that the blood donor population reflects the population of the UK as a whole. It's even more important when you consider that black communities are much more likely to suffer from sickle cell disease and so need regular blood transfusions that are Ro compatible.

That's just one of the many reasons why we encourage more individuals from black African and black Caribbean ethnic backgrounds to donate blood. (Having the Ro subtype however, does not mean that you have sickle cell disease.)

"Black communities are much more likely to suffer from sickle cell disease and so need regular blood transfusions"

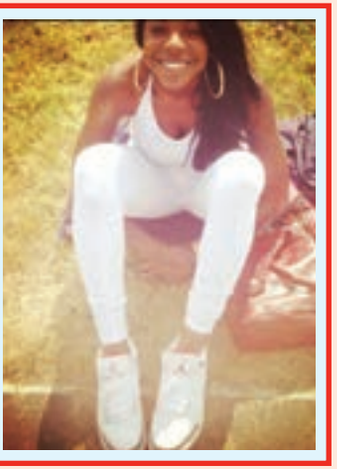
We have started to tell donors if they have the Ro subtype and what this means, in the hope they realise how important making regular donations is. In times of particular need, we may contact these donors outside of their usual donation pattern and ask them to make a special effort to donate.

Anti-Ro

Completely separate from the Ro blood group subtype is an autoantibody (an antibody directed against the body's own proteins) found in the blood called Anti-Ro.

This is the most prevalent autoantibody associated with autoimmune diseases such as Sjögren's Syndrome. There is no connection between having the Ro blood group subtype and carrying the Ro antibody. ●

Why Ro donor Nerissa gives blood



"I witnessed some heart breaking illnesses around me and everything changed. I started donating blood in 2015 when I realised just how needed it was (as) I have the rare blood subtype Ro. Currently 2 per cent of donors have this subtype which hospitals require to treat conditions like sickle cell disease.

"No one chooses to be ill or in a situation where they are going to need the blood of others, but sadly it happens. It is so important that we all come together and help each other because the reality of it is that one day you may find yourself needing the blood of a donor.

"Just think that 10 minutes of your sitting in a chair could help save a person's life, giving them the chance to live the life they truly deserve." ●

Leading a normal life thanks to Ro blood

"I have sickle cell anaemia. My name is Paige and I am 24 years old, and have been having painful crises* for the last 10 years – and nearly lost my life twice as a result.

"Because of sickle cell, my immune system is not very good and I am frequently in hospital with pneumonia. This has affected my lungs badly, and only three quarters of my lungs are working.

"I have had a blood exchange transfusion every 3 months for the past 2 years (and) they have recently increased to every 6 weeks. Without the exchange transfusions I would not be able to live my life the way I do. I would like to thank every donor who has given their time and blood to enable me, and many others like me, to lead a normal life."

**The abnormally shaped blood cells, or sickle cells, can block blood vessels. These painful 'sickle cell crises' may last up to 7 days, and can cause organ and tissue damage.* ●*

Have you had the conversation?

Why it's good to discuss your decision to be an organ and tissue donor with your family

Every day across the UK around three people who could have benefited from a transplant die because there aren't enough organ donors. At the same time, too many families who are faced with the possibility of donating a relative's organs are unaware of what their relative wanted and find themselves having to make a decision on their behalf at a time of deep distress.

Family consulted

Currently only a third of people tell us that their family are aware of their wishes about organ donation. This matters, because a family will be still be consulted and asked for their support for donation to go ahead, even if their loved one is on the NHS Organ Donor Register.

We will be highlighting the importance of telling families your organ donation decision during Organ Donation Week, 4th–10th September 2017. Please save the date and help spread the word by sharing our content on social media.

"I am just so happy that someone and their family agreed to organ donation. I consider myself incredibly lucky"

Ollie developed keratoconus which left him blind in his left eye, but a corneal transplant restored his sight

That's why we encourage people to talk to their families about whether they want to be a donor, to make it easier for them to support their decision if the worst were to happen.

Ollie's story

Ollie Storey, 21, knows all too well the importance of people discussing their donation decision with their families. Ollie started noticing the effects of keratoconus when he was 17. His vision became blurry and distorted.

Ollie said, "I was going places but just as I was leaving college my eyes were giving way. I was completely heartbroken to be losing my sight."

In October 2015, Ollie received a cornea transplant in his left eye. By the time a donor gave him the gift of sight, he was considered legally blind in his left eye as he only had the ability to perceive light. The recovery went well and now Ollie's vision, though not perfect, has considerably improved.

Ollie said, "I am just so happy that someone and their family agreed to organ donation. I consider myself incredibly lucky."

You can help to save or transform lives like Ollie's by signing up as an organ and tissue donor and talking about your decision with those closest to you.

It's an easy process to sign up to the register. Please visit organdonation.nhs.uk or call 0300 123 23 23. ●

You can help to save or transform lives like Ollie's by signing up as an organ and tissue donor and talking about your decision with those closest to you. Visit organdonation.nhs.uk or call 0300 123 23 23.

Helping young people get the message

Organ donation can now be part of the school curriculum

Last year around 1,400 people donated their organs after death, which meant many lives being saved and transformed. Yet still on average three patients die every day in need of a transplant because not enough people are prepared to say yes to organ donation.

In November 2015, working with a group of teachers, we co-created a suite of downloadable education resources (www.organdonation.nhs.uk//about-donation/educational-resources) aimed at students aged 11 - 16. These equip secondary school teachers with the information to educate their key stage 3 and 4 students about organ donation, making it easier for them to talk about organ donation with their family and friends.

The toolkit has three lesson plans and a condensed summary lesson, each linking to the Personal, Social, and Health Education (PSHE) National Curriculum. The lesson plans include PowerPoint slides, student activity sheets with accompanying videos, case studies and a factual student take home sheet to help conversations at home.

We have recently updated the resources to include tissue donation, specifically the donation of sight and to emphasise the importance of discussing donation with friends and family. We also feature two new case studies (Ollie Storey who received a cornea and Izzy Sewell who is currently waiting for a kidney transplant).

We believe educating young people about organ and tissue donation is very important. So if you are a teacher, a friend of a teacher or a parent on the PTA, we need your support to encourage schools to introduce these easy to deliver lessons.

We hope they will educate students, help stimulate debate and discussion among families and encourage students to think about their own organ donation decision. ●

FACEBOOK: nhsorgandonor • TWITTER: @NHSOrganDonor using the #YesIDonate
INSTAGRAM: @nhsorgandonor • YOUTUBE: nhsorgandonation

Changing the future

How we are putting sustainability into action

Every organisation is trying to be greener and we are no exception. So we are working towards a sustainable future by making all our operations as efficient as possible whilst meeting the needs of patients.

We now have a paperless future in our sights. Last year we tested alternative ways of inviting donors to sessions – sending a paper invitation only to those who had a booked appointment.

For donors who did not have a booked appointment, we invited them to the session by email. This change means that we are able to cut paper invitations by a considerable amount, and crucially it is not causing a fall in the numbers of donors that turn up to donate.

We're now rolling out the new system nationally. These changes are good for the environment and the money saved can be used elsewhere in the NHS.

It's easy to book online

Thanks to your feedback we've made some upgrades:

- It's now easier to find a convenient appointment by venue or date
- Improvements to appointment calendar reminders
- A better presentation of your donation milestones.

Booking an appointment has never been easier.

Let us know

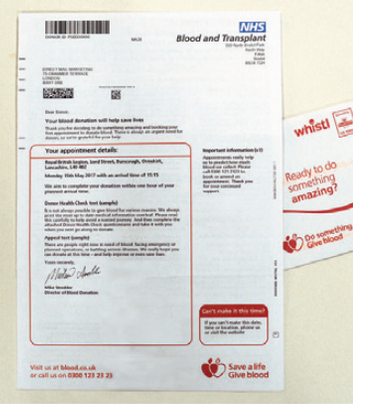
If you already use the app and find it helpful, please leave a review on the stores; we'd love to hear from you!

A shift towards online appointment booking

Helping our move away from paper is our online service. Since its launch in 2013 it has become the most popular way for donors to manage appointments. Almost 1.4 million donors have registered to use the service and nearly 2.8 million appointments have been booked digitally. We now have one of the largest digital booking systems of any blood service in the world.

It's never been easier

If you have an online account, check out our handy mobile app 'NHSGiveBlood' from the App store, Google Play store or the Windows Mobile store. With the app you can speedily book your next appointment, plus you will get useful reminders and updates as well as instant access to health, eligibility and travel questions so you are well prepared for your next visit.



Help make this a paperless process by booking online

And finally...

Save time at your next session by remembering to bring your completed Donor Health Check form with you. ●

FACEBOOK www.facebook.com/NHSBlood www.facebook.com/organdonationuk
TWITTER http://twitter.com/GiveBloodNHS http://twitter.com/NHSBT

The pub quiz guide to platelets

Platelet donor John Curry uses a quiz evening to educate his friends about these important little cells

It was Sunday night in the pub, Quiz Night. I was there with my mates.

"Question 8," said Tony the quizmaster, "Where in the body will you find platelets?"

"In the blood," I whispered to Mike, the team scribe that evening.

"Are you sure?" said fellow quizzer Les, "I've never heard of platelets."

"Trust me, "I said, "I gave some away last Tuesday."

"What, blood?" said Les.

"No, platelets. Write it down, Mike, I'll explain later."

Platelet know-how

We didn't win that night, but we certainly got Question 8 right. Over the final pint of the evening I explained about platelets and being a donor.

"Platelets are like the body's emergency services," I said. "If you get a cut, the platelets rush to the wound and bind together to close the gap and prevent as much blood loss as possible. Without them we would bleed to death."

"But you said you gave them away," team member Ian said. "How does that work? Does it happen when you give blood?"

I explained. "I'm hooked up to a machine which takes the blood through a needle in my arm, the platelets are removed in a filtering system, then the rest of the blood is returned through the same needle back into my arm."

"Les," I said, "Your daughter Molly was ill when she was born wasn't she? I'm sure I remember her having to have platelet treatment."

"You're right," he said, "I'd forgotten that."

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Platelet donor John Curry outside his local pub

"And do you remember Paul's son, Chris, who had the liver transplant? He wouldn't be alive without someone else's platelets. Anyone having chemotherapy might need platelets.

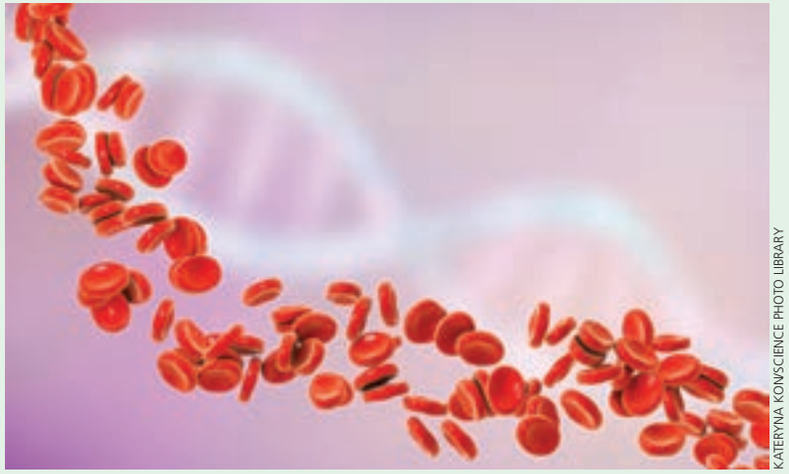
"Here's something else to think about," I warmed to my subject, "whole blood can be stored for about a month but platelets are only usable for a week. The ones I gave last Tuesday were probably saving someone's life by Thursday."

"How often do you donate, then?" Les asked.

"Every 3 or 4 weeks. It usually takes around 80 minutes. So that's about 10 or 11 times a year, say 15 hours of my life. And each one of those donations could help to save 3 adults or 12 children."

I have an idea that the next time I go to the donor centre, I might be taking some new donors with me. ●

How new ways to collect red cells and even create them in the lab could help patients



KATERYNA KON/SCIENCE PHOTO LIBRARY

A new frontier for red cells

We have around 20-30 trillion red cells in our blood at any one time, and every second they are busy taking oxygen to tissues and removing carbon dioxide. They are lifesavers. So anything that makes it easier to collect them and get them to the right patient at the right time is a priority for us.

Double dose donation

So we are looking at a new way of collecting red cells. We are asking some donors with in-demand blood groups, such as O -ve, B -ve and Ro (a Rhesus sub-type) to give a double dose of red cells with each donation. To take the cells, we use a special machine called a cell separator – much in the same way that we extract platelets. This machine takes the blood and separates out the red cells before the rest of the blood components are returned to the donor.

> **"Patients with rare blood group types could be set to benefit from our research into culturing red blood cells in the lab"**

Trials are running in Tooting and Birmingham donor centres. Potential double dose volunteers are assessed at their session. They must weigh more than 70kg and have a haemoglobin level of 140g/l or more. Donors that give double doses will only be invited to give blood twice a year. If the trials are successful, we will roll out the process to every donor centre with a cell separator machine.

Culturing red cells

Patients with rare blood group types could be set to benefit from our research into culturing red blood cells in the lab. NHSBT scientists, based at Filton and the University of Bristol, have developed a process that uses stem cells that are normally discarded during routine processing of blood donations. These cells are cultured in a cocktail of nutrients and growth factors over three weeks to produce tens of billions of fresh reticulocytes – the precursors to red blood cells.

Whilst we will continue to rely on blood from our donors, this lab-grown product has the potential to provide better treatment for patients who need regular transfusions throughout their life (such as those with thalassaemia and sickle cell disease). With this product, patients could need fewer transfusions. This is important because the iron in red cells can build up in tissues, ultimately causing organ damage.

A trial using the cultured cells will start within the next 12 months and eligible participants will be invited from the Cambridge area.

Find details on the trial page at www.bristol.ac.uk/btru/. ●

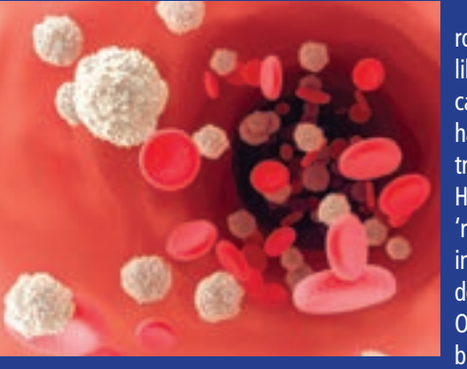
The Red Cell – It's Amazing!

Red cells – or erythrocytes – make up about 40 – 50 per cent of the total blood volume. They are oxygen 'carriers', and transport it from the lungs to all living tissues in the body, taking away the carbon dioxide for the return journey back to the lungs.

During the 120 days of its life, the red cell will travel over 300 miles and go through the heart about 170,000 times – that's about once every minute.

Red cells are made in our bone marrow from stem cells, at a rate of about 2 – 3 million cells per second. In a day, a healthy adult will produce almost 200 billion new red cells to replace those that are lost due to old age.

Unlike most other cells, red blood cells in humans do not have a nucleus and don't contain DNA. This lack of nucleus means that the cells are able to pass freely through the small spaces in the capillaries. Not having DNA prevents any virus from being able to attack red blood cells directly.



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Normal red cells are round and doughnut-like in appearance, and carry a protein called haemoglobin, which transports the oxygen. Haemoglobin is the 'respiratory pigment' in human blood, and determines its red colour. Other organisms have blood of varying colours. Crustaceans, spiders, squid and octopuses have blue blood. Some types of worms and leeches have green blood. Some species of marine worms have violet blood. And insects, including beetles and butterflies, have colourless or pale-yellowish blood.●

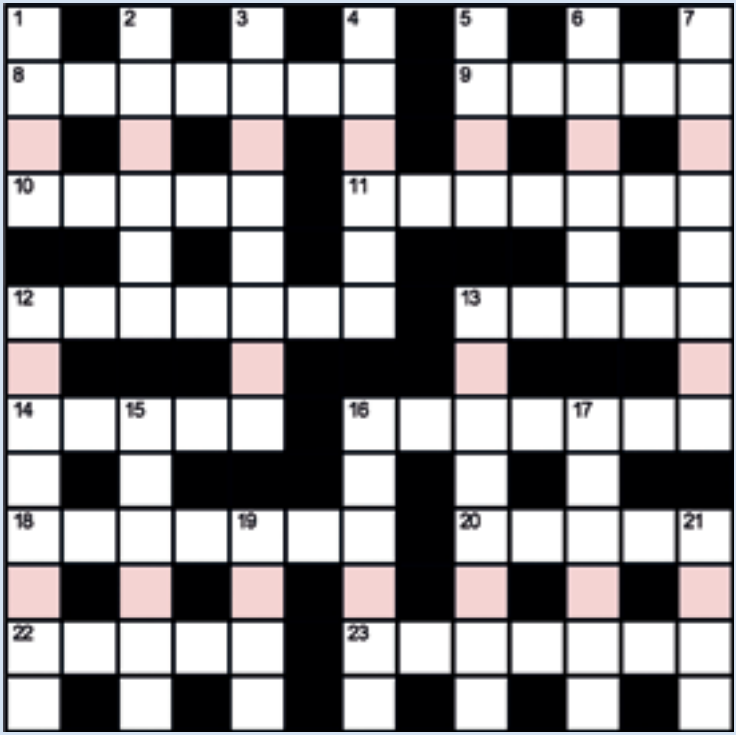
Complete the crossword. The tinted squares, taking in order row by row, spell out a Special Health Authority of the NHS. Send this phrase on a postcard or in a letter together with your name, address and daytime phone number to: Crossword Competition, The Editor, The Donor, NHS Blood and Transplant, 14 Estuary Banks, The Estuary Commerce Park, Speke, Liverpool, L24 8RB. You could win an "amazing" NHS Blood and Transplant prize. Answers and the winner's name will be in the next issue. All entries must be received by August 31st 2017.

ACROSS

8 A Conservative Prime Minister (7)
9 Inuit dwelling (5)
10 Take up (5)
11 Not in good condition (7)
12 Draw (7)
13 Bury (5)
14 Reluctant prophet in OT (5)
16 Percussion instrument (7)
18 Encroachments (7)
20 Pasturage (5)
22 Odds -- or not odds! (5)
23 European country (7)

DOWN

1 Swedish pop group (4)
2 Full-scale (3-3)
3 Walkers' track (8)
4 French writer (6)
5 Youngsters (4)
6 Parade (6)
7 Central American country (8)
12 Attached (8)
13 Supply with water (8)
15 Hospital carers (6)
16 Wrongly informed (6)
17 Long narrow opening (6)
19 Recess (4)
21 Male deer (4)



WE HAVE A WINNER!

Congratulations to Mr Stephen Webster of Hemel Hempstead who successfully answered last issue's crossword. The correct answer was: ERYTHROCYTES

LAST ISSUE'S SOLUTION