

The Donor

News and information
for blood donors

Winter 2017

RESEARCH

**New steps
towards
lab-produced
platelets**

**We need more
black donors
Why the search is on**

STILL GIVING



**John donates
in style**



Save a life
Give blood

NHS

Blood and Transplant

A message from Ian Trenholm, Chief Executive

Hello, and welcome to the Winter 2017 edition

At this time of year we take stock of where we are and how we got here – the highs and the lows, the successes and the challenges. I am really pleased to be able to tell you that our blood stocks

We have been working in partnership with the Fire Service for some time now, and this year we have built on this as Shadwell Fire Station recently opened its doors to donors, with a fantastic response.

We hope to develop this work and are also looking to increase the number of free venues that can host sessions for us.

In the New Year you may notice some further changes to the way that you give blood – you'll have the same person with you throughout most of your donation. We're also amending the Donor Health Check

to reflect the scientific review completed this year, offering more people the opportunity to donate.

Also in this edition you can read about Chelsea Pensioner, John Wiseman, as he dons his scarlet uniform to donate for the 90th time. We also hear from Laura whose double cornea transplant means she can now see the face of her son, Noah.

We'd also like to congratulate two of our donors, Victoria and Joshua Dear, who married this summer after meeting while donating in St Ives.

As we head into winter I'd like to ask you to remember to book your next appointment. We typically see a dip in blood stocks around Christmas and New Year as time is taken up with the festivities.

Thank you for being a loyal and committed donor. I wish you health and happiness for 2018. ●

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



"We urgently need to recruit 40,000 new black blood donors due to the increasing demand for Ro blood by sickle cell patients"

remain healthy and they have been consistently good throughout the year. This is against a backdrop of some considerable change, so now more than ever I would like to thank each and every one of you for your unwavering commitment to blood donation.

Demand for blood continues to drop and has done for the past few years. However, although we need fewer donations overall, demand for certain blood types is growing, including the rare sub-type Ro. In this edition you can read about the urgent need to recruit 40,000 new black blood donors due to the increasing demand for Ro blood by sickle cell patients.

This year we've made staggering progress on the research and development front. Results from the INTERVAL study have shown that some blood donors can give more often, and we are making strides towards producing bespoke lab-made platelets that can be tailored for the individual. You can also read about how donating blood is just what the doctor ordered, as it helps with the treatment of some patients with genetic haemochromatosis.

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Give the best gift of all this Christmas

It is always a challenge to collect the right amount of blood to meet patient needs over the festive period and this year is no different

The festive season is always a difficult time of year to maintain blood stocks, which usually dip from mid-December to early January.

With the usual winter ailments doing the rounds, making it impossible for some donors to donate, we're also competing for precious time with Christmas shopping and get-togethers with family and friends.

If you are well and able, and haven't already done so, please book your winter appointment today. We guarantee it will be the most appreciated gift you give this year! All blood groups are important, but we're appealing particularly to O-neg, B-neg and A-neg donors to make an appointment, and those with rare blood types.

Visit blood.co.uk or call 0300 123 23 23 to find your nearest session. You can also search and book using our mobile app - search 'NHSGiveBlood' in the app store. ●

NHS Blood and Transplant

Help fill our stockings

Don't leave it to someone else. Make and keep a date to donate before Christmas.

Visit blood.co.uk or call 0300 123 23 23

Download the app NHSGiveBlood

Save a life Give blood

Ask a friend to donate this New Year

We would like to thank all our loyal blood donors for their commitment to saving lives. Could you help us even more by recruiting a friend to donate in 2018?!

New Year's Resolutions are typically about giving up, but we'd like more people to give. Our committed donors are already aware of the value of giving blood and platelets, but just 3 per cent of the eligible

population give blood. This means that we don't always have enough new donors coming forward to provide the right types of blood to match patients' needs and to replace people who can't donate anymore.

Please spread the word, and encourage someone you know to take up this life saving habit! ●

Public Inquiry into blood safety

You may be concerned about stories in the news related to the Public Inquiry announced by the Government into how infected blood was given to patients in the past.

This Inquiry is about blood and blood products provided to patients by the NHS before 1991. There is no connection to the way blood is collected and given to patients today and there is no need for you to be alarmed about giving a donation or receiving a transfusion.

Modern safety standards are very rigorous and our blood supply is one of the safest in the world. Safety is at the forefront of everything we do. We follow strict guidelines and testing procedures designed to protect both donors and patients. We are also subject to regular inspections by independent regulators.

Today, every donor completes an extensive Donor Health Check questionnaire before each donation. This is designed to rule out anyone with possible infections. Those considered at risk of passing on an infection are asked to put off making a donation until it is safe for them to do so.

In addition, all donations are routinely tested for hepatitis B, hepatitis C, hepatitis E, human immunodeficiency virus, syphilis and, for first time donors, human T-lymphotropic virus, before they are released to hospitals. If any blood donation tests positive for infection it is not released and therefore cannot be issued to a patient. And we help the donor with support and advice.

If you are concerned about the safety of blood donation or transfusions speak to your doctor or nurse, or give us a call on 0300 123 23 23. ●

Donors' delight

Life took an unexpected turn for two blood donors who met while donating.

Victoria and Joshua Dear arrived at the same donation session in St Ives back in 2014. "Joshua and I were both donating blood at the Dolphin Hotel and started to chat whilst we were waiting," said Victoria. "We had a mutual friend who, upon hearing we had met, deciding to play cupid so we ended up going on a date, and the rest as they say is history!" They married this summer.

Victoria began donating after her father, who had given almost 100 donations, had a heart attack and had to stop. Victoria decided to continue the tradition in his place. Joshua became a donor when a group of his friends decided to donate after a close friend died.

"It really is such an easy thing to do to save lives," Victoria said. "We now always go to donate together and love seeing the staff who recognise us and know our story." ●



Health Check changes

You may notice some changes to the Donor Health Check (DHC) next time you donate. From January 2018, we are amending the form (along with the welcome booklet) to reflect the changes to the rules on blood donation in England. You can read about these changes online.

The new form will be entitled 'Version 7' (instead of 'Version 6') – and only this form will be accepted at sessions from 8th January 2018.

If you have the older version of the form when attending an appointment on or after this date, please destroy it.

When completing the form please take extra care in reading the questions as some will have changed since you last donated. ●

Getting on like a house on fire

Could you soon be rolling up your sleeve at a fire station near you?

We have teamed up with Fire and Rescue Services across the country to hold donor sessions at their fire stations free of charge. This partnership is especially valuable as it allows us to host sessions in the heart of many communities, such as Shadwell in the borough of Tower Hamlets, London.

Shadwell Fire Station hosted its first public donation session in September. It is the first time we've teamed up with a fire service in the capital. Shadwell is an ethnically diverse community and we hope this means we will collect much-needed blood from the black, Asian and minority ethnic donors from the area.

London Fire Brigade's Borough Commander for Tower Hamlets, Pat Goulbourne, said, "By partnering with NHS Blood and Transplant, we are another step closer to our goal of bringing our fire stations into the heart of the communities they serve.

"Opening up our fire station to support NHSBT means we're able to help local people make potentially lifesaving donations. The Brigade and NHSBT share a common goal – to save lives – so working together is a natural fit. As a blood donor myself, I know it's a simple quick process to donate blood and it can make a huge difference to someone in need."

So far 27 fire stations across the country have passed an assessment to host blood donation sessions and have offered their facilities free of charge. These include



NHSBT staff pictured with fire crew members at Shadwell

stations in County Durham & Darlington, Royal Berkshire & Buckinghamshire, Cambridgeshire, Cheshire and Milton Keynes. Royal Berkshire Fire and Rescue Service was one of the first to work with us, and in March they celebrated making their 1,000th donation, potentially benefiting up to 3,000 people.

This partnership is part of a larger project to try and find donation venues at reduced rates. The current cost of venue hire adds about £3.15 to the cost of obtaining each unit of blood. Using venues that don't charge (or reduce their fees) is important for reinvesting money back into the wider NHS.

NHSBT's Jana Meier said, "The partnerships we have with these fire services have been wonderful in allowing us to access these fantastic venues – many of which allow us to collect blood from over 150 donors in one day. Their kindness in offering us these venues enables us to continue saving and improving lives while making savings to be reinvested back into the NHS. Our success has been possible thanks to the support of these fire services.

"They are championing our cause, and for that we are truly grateful." ●

If you know of a venue that could host a blood donation session free of charge or at a reduced rate, please get in touch. Venues need to be 21 metres by 10 metres in size, with toilet facilities and easy access. Please email (no gaps): Venue.Improvement Team@nhsbt.nhs.uk.

"I'm Donna Akodu, and I just saved my neighbour's life"

In June and July, we saw almost 100,000 people signing up to be blood donors – almost twice as many as the same period last year. We asked one of them, Donna Akodu, about her first time giving blood

Donna made her first donation at Tooting Donor Centre. "I've been putting it off for a while, but today I finally took the plunge," she said. "It's something that you don't know - until you've done it - what to expect.

"As a Christian, God says that we should love our neighbours as ourselves, and love and worship are more than just singing songs on a Sunday morning. If you can actively do something – be a part of a solution – you can actually help your neighbour, and that for me is love in action."

Donna said she found giving blood really easy. "The staff here are wonderful and



"It's humbling because it's a really simple thing. Why didn't I do this sooner - it's nothing to be scared of"

made me feel at ease. You have to fill out some forms and do an initial test to make sure that you can give blood. But they just made me feel really comfortable.

"I found out that the nurse who was taking my blood is my neighbour – and that was amazing! She made me feel really comfortable, and do you know what? Before I knew it, it was actually over! It's humbling because it's a really simple thing. Why didn't I do this sooner - it's nothing to be scared of.

"If we can help our community in this way, by just giving a pint of blood (we) could potentially save someone's life – a baby that might have cancer, or someone that's got sickle cell anaemia. These are our people. This is our community. And we need to be family." ●

A big thank you

If you've given blood for the first time today, thank you and well done! Please continue your good work by making a life saving habit of giving blood and book your next appointment today. ●

Donating in winter

Q What advice do you have for avoiding colds and flu this winter?

One of the best ways to avoid picking up bugs is by thoroughly washing your hands, with soap and hot water, after you have been out and about. Other tips are to keep warm and well fed, exercise regularly, and get enough sleep. If, despite all your precautions, you do get a sore throat, chesty cough or an active cold sore, please don't try and donate, but wait until you are better.

Q Why do you make special winter appeals for blood?

Winter is the season of colds and flu which puts many donors out of action. We rely on those who are fit and healthy to donate to maintain blood stocks. When stocks of specific groups run low, we will make a special appeal for donors to come forward. For example, when floods hit the country back in 2012, donors with blood group O Rh negative were particularly needed.

Q What happens if my session is cancelled due to bad weather?

We will always try to keep sessions running as planned, but we must think of the safety of donors and staff. In severe weather we may need to cancel or re-book a session. If this happens we will give you as much notice as we can. We will aim to re-schedule or offer an alternative session.

If you feel it is unsafe to travel to donate, please let us know as soon as possible on 0300 123 23 23. ●

How your donation gets to the patient

Your donated blood goes directly into a special bag that contains an anti-coagulant to stop it from clotting. This bag is barcoded – unique to you - to ensure that it can be traced at every stage of its journey to the patient.

Your donation is placed with all the other donations from your session into insulated bags and they're taken to the blood centre.

In the processing lab, the blood goes through a process called leucodepletion – the removal of the white cells. Removing these cells reduces the risk of infections such as vCJD being passed to patients, and also reduces the risk of a reaction in

the patient receiving the blood.

Donated blood is usually separated into platelets, red cells and plasma using a centrifuge machine that spins the blood very fast. The plasma is driven to the top of the bag, the red cells to the bottom, and the platelets sit in the middle

A machine then squeezes the bag, separating the components via tubes into different bags. Meanwhile, the samples that were taken with the donation are in the lab. Here they are tested for your blood type (ABO and Rhesus group and rarer blood types) along with a number of infections, including hepatitis B, hepatitis C, hepatitis E,

Opposite: Inside the world's largest blood bank in Filton, Bristol.



Human Immunodeficiency Virus (HIV), syphilis, and Human T Lymphotropic Virus (HTLV). Additional tests may also be carried out, depending on your circumstances and travel history. All test results are recorded on your individual donor record. If all tests are clear, your unique barcode and blood type are labelled onto the blood pack. After storage, the final stop is the hospital where your donation completes its journey when it's transfused into a patient. ●

Changing with the times

How we are planning for the future of blood donation

Our organisation needs to constantly evolve to keep up with a changing world, in particular the falling demand for blood from hospitals. Hospital requests for blood have been falling by 4 per cent every year over the past few years and we expect this trend to continue.

Why is demand dropping?

- Careful ordering by hospitals – better forecasting and blood management techniques have meant that the blood required by patients is more closely matched to the blood supplied by donors.
- Better surgical techniques – simply put, less invasive or ‘keyhole’ surgery causes less blood loss in the operating theatre.

Do you still need my blood?

Despite the drop in demand, we still need you to donate. We need fewer donations overall, but the fall in demand is not the same across all blood types; in fact, demand is growing for some. Universal blood and platelet types – that is O-neg and A-neg – are still very much in demand, and we are particularly keen to attract black donors to help with the rise in patients with sickle cell disease who often require regular transfusions.

We also need to recruit 200,000 new donors this year, to replace the donors who are no longer able to donate.



What will change?

With demand falling, we have to carefully target the way that we collect blood. So we have had to change some donation sessions and ask donors if they can go to a different venue,

usually with larger sessions and a longer opening hours.

Overall, with reduced demand, there will obviously be fewer appointments nationally. As we want to closely match what we collect with the exact demand from hospitals, when you are booking an appointment you could see a message that we have reached our target that day for a particular blood type. This doesn't mean that we don't need you. Please look for your next convenient session as we are very likely to need you then instead.

Right product, time and place

We are modernising our IT systems as part of our drive to optimise the supply of blood to patients. This complements the more targeted approach we're taking as improved IT will help us to meet patients' needs and communicate more effectively with those of you with blood types that are most needed at any particular time.

It is only through your generosity and kindness that we are able to maintain the vital supplies of blood needed by hospital patients and we are very grateful for your continuing support as we adapt to these changes. ●

Use the app!

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

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

Giving the precious gift of sight

Patients are waiting to receive donated corneas to help them see again

Every day we need to collect 10 cornea donations to meet patients' needs, but we're currently falling short of this target.



On World Sight Day in October we launched our 'Let them see what they can only imagine' campaign to encourage more people to sign up for cornea donation after their death and share this decision with those closest to them.

Double transplant

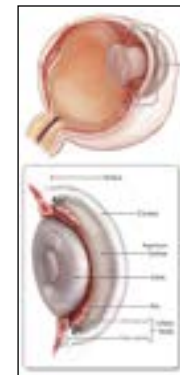
The cornea is the tissue covering the front of the eye. Donated corneas can save or restore the sight of people like Laura who has had corneal transplants in both eyes.

Laura, a mum from London, said, "By the time I had my first transplant I couldn't see out of my right eye. It was just grey. I could see light and dark but no definition at all.

"After both transplants my vision was still blurry at first, but... I could see colours and definition. The blurring eventually settled and the vision is good.

"I can walk through a crowded train station without bumping into people!

Above: Laura says she can now see her son's "lovely little face"
Below: Diagram showing the position of the cornea



EVAN OTOSCENCE PHOTO LIBRARY

Drive confidently at night, sit back in my chair not glued to within an inch of my screen at work! And now I can see my son's lovely little face!

"I feel forever grateful to my donor and their family. Words are not enough to express my gratitude." ●

Who can donate?

Like most organ and tissue donation, corneas are donated after death with the consent of next-of-kin. You are more likely to be able to donate your corneas than your organs as age, poor eyesight, and medical conditions (including some cancers) are not necessarily a barrier to donation.

Here's how you can help support our campaign:

- If you are on the NHS Organ Donor Register already, make sure you tell those closest to you so they know to support your decision
- If you have registered but aren't sure if you said yes to cornea donation, you can amend your preferences at www.organdonation.nhs.uk
- If you aren't already registered, do join! Most people choose to donate all organs and tissues. But if you'd like to select your preference please say yes to cornea donation
- Like and follow us on Facebook and Twitter, and subscribe to our NHS Organ Donation channel on YouTube. Like, share and retweet our videos to help to spread our message ●

Why we need more black blood donors

Sickle cell patients often need regular transfusions so the hunt for compatible donors is urgent

Sickle cell disease is the most common inherited genetic disorder in the UK. The disease is usually found in people of African heritage (in 90 per cent of British patients), although it's also found in those from Caribbean, Middle Eastern and Mediterranean backgrounds.

That's one of the reasons why we urgently need to sign up 40,000 black donors.

People with sickle cell disease produce unusual sickle shaped red blood cells that have a shorter life span than healthy red blood cells and can become stuck in blood vessels because of their irregular shape. This can create very painful "crises" and organ damage. Patients may need regular blood transfusions, and there is a technique called automated red cell exchange (RCE) that is becoming more popular.

New sickle cell treatment

Last year, there were more patients receiving automated RCE than ever before. This treatment makes life easier for these patients for several reasons. Firstly, it is quicker than the other transfusion techniques – often taking a couple of hours rather than up to 6 hours. Secondly, it only needs to happen half as frequently – for

example, every 6 weeks instead of every 3 – 4 weeks. Also, a common side effect of regular transfusions is a build-up of iron in the patient's body, which damages the organs. Automated RCE restricts this, and so this technique is also better for the health of the patient.

More blood needed

So, the treatment does have many advantages, but it requires more blood for each exchange – meaning that we need more donations.

Matching blood

Patients needing regular blood transfusions need more precisely matched blood. Here, ethnicity plays a big role. Most sickle cell patients are of African/Caribbean descent. We therefore need donors of African/Caribbean descent to match with these patients.

Ro is a blood sub-type that is more common in people of African/Caribbean descent, and as such is more common in people with sickle cell disease. The demand for Ro is on the rise - between 2014 and

2016 we saw a 75 per cent increase in the amount of Ro subtype blood issued to hospitals in England. However, only around 2 per cent of donors have this rare sub-type, so meeting the demand can be difficult. We ask Ro donors to give as often as they can, and we're also recruiting more donors who are likely to have this sub-type to ensure patients continue to receive the best possible matched blood.

Recruiting black donors

Ebony Dunkley, senior sister with our Nottingham team, helps in the recruitment of black blood donors. She said, "Historically, sickle cell disease has been misunderstood and inadequately treated. There are now many adults and children who are being maintained on blood transfusions to prevent the life threatening and serious complications of sickle cell and can allow them to live healthy and productive lives.

"It's a truly awful disease. Years ago, they

A special thanks to our black donors

Your blood plays a vital role in helping to save and improve the lives of those living with sickle cell disease in the UK today. Please do encourage family and friends to follow your lead. It means so much to so many. Thank you.

didn't do blood transfusions or exchanges regularly. Treatment was mostly pain relief with morphine. As they were only treating the symptoms, patients went on to suffer complications like strokes. Life expectancy and quality of life was very poor. The exchange process has transformed the lives of patients. It means that they have normal red cells which allows them to go to school, to university, to work, whatever.

"I'm currently working with the University College Hospital London NHS Foundation Trust – which has the largest automated RCE programme in Europe - to develop a suite of case studies to help get the message out about the need for more compatible donors.

"I'm also working with the blood donation teams to educate them about sickle cell disease and the importance of Ro blood. Our donor carers know our donors better than anyone, and have some brilliant ideas about how we encourage more black donors to come forward." ●

Helping people with sickle cell disease

In the UK, 15,000 people have sickle cell disease and about 250 babies are born each year with the condition. It can cause extreme pain, life-threatening infections and other complications such as stroke or loss of vision. Better transfusion practice and other advances in treatment mean that patients are living longer with the disease, driving up the demand for compatible blood.

MOBO joins us to launch the B Positive choir

We worked with the MOBO Awards again this year when we launched the B Positive choir. The choir unites people who live with sickle cell disease (including their helpers, friends and families) through music. Choir members have come together from all over the country to highlight the need for new young donors and to back an urgent appeal for new black donors.

B Positive sang at the MOBO Awards on 29th November and will be performing at a number of locations around the UK to spread the donation message. They will soon be releasing the single



'Rise Up'. To keep up to date with their news, follow the choir on our social channels. ●



Ebony Dunkley with the new sickle cell apheresis treatment machine

Improving your donor experience

We are introducing changes to the donation process which should make your visits easier and more relaxing

We are always working to make your donor experience as smooth as possible, so we are making some changes to our mobile sessions. In the coming months you can expect to be looked after by the same person through most of your visit. This means they will be asking you the health screening questions, testing your iron levels and taking your donation. By reducing how many times you are "handed over" to different staff members, we hope you'll find giving blood easier and more relaxing.

As you can imagine, our staff want to focus on caring for donors before, during and after they give blood. So it would help them enormously if you could make your own hot drink from the machine we are providing. Also, by using our mobile app or visiting blood.co.uk to book your next appointment you'll be helping too. If you have any trouble with this, you can still call us anytime on 0300 123 23 23 to speak to our helpline staff.

More appointments

We are making more use of pre-booked appointments and moving away from walk-in sessions. This helps us to plan blood collection more efficiently. We know that some donors prefer to walk in, and whilst this will still be possible it may mean having to wait longer. Donors will be offered any vacant appointment slots on the day of the session.

If you have an appointment it will help us



You will now be looked after by the same person through most of your donation session

if you arrive on time or cancel at least three days in advance so we can run the session smoothly and offer cancelled bookings to other donors. Your help with this is really appreciated, and we hope that more of you will use the self-service online booking system. This will make it easier for us to

plan blood collections to meet demand from patients and hospitals.

Successful trials

We've been testing these changes with seven teams across the country and got the thumbs up from donors. They report that they like having the same carer throughout their visit, although some had concerns about the self-service aspect of making an appointment online or via the App. So we will be giving you more information at session on how to do this.

Introducing these changes to every team will take about 15 months. Taking this time will allow us to get it right, make it safe and tweak it as we go along if we find we have any problems that didn't show up during the trial. ●

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

Just what the doctor ordered

People with a common genetic condition can donate blood as part of their treatment

Genetic Haemochromatosis (GH) is one of the most common genetic disorders, affecting around 1 in 200 people in the UK. It causes iron levels to build up in the blood over time, which can damage organs and joints in the body if left untreated.

The main and conventional treatment for GH is phlebotomy - taking blood. GH patients can undergo this procedure

as often as once a week during the 'depletion' phase - when their iron levels are particularly high. Once levels have fallen, the patient enters a 'maintenance' phase and may only require phlebotomy 4 or 5 times a year.

The blood that's taken is usually thrown away. But we are working with the Haemochromatosis Society to encourage those that are affected with the condition to become regular blood donors. A win-win arrangement!

Giving blood for better health

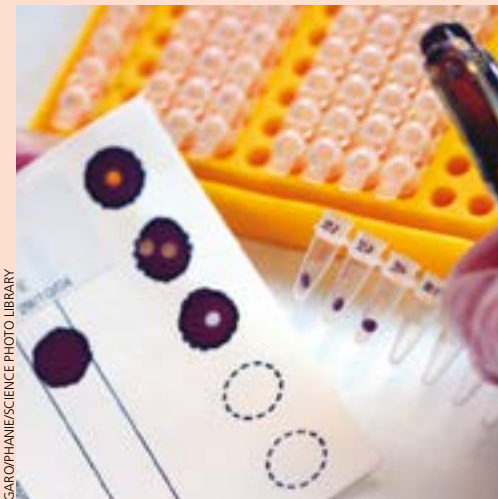
Despite its higher iron levels, GH patients' blood is completely safe to transfuse. People with GH are able to give blood for transfusion providing they meet all of the donor selection criteria, are well with no tissue damage (due to iron overload) and are not taking any medication for their condition.

GH donors can only donate once they have completed the intensive 'depletion' phase, and are in the 'maintenance'

phase.

Until now, accepting a new GH donor has been a long process that relied heavily on clinical support and work with their hospital specialist. But we are making progress towards a seamless recruitment process by working with large specialist clinics to recruit GH donors to our donor centres, where we

can better handle their more frequent donations. ●



GAROPHAN/SCIENCE PHOTO LIBRARY

Tests will confirm when GH patients can give blood

"It's so much easier to manage"

Adrian Gill from Huddersfield was diagnosed with GH when he was 33, and in 2013 he started donating blood to manage his condition.

He says, "I went to my GP because I was feeling run down, lethargic and was suffering from anxiety. Blood tests revealed that I had genetic haemochromatosis, and initially I attended the haematology outpatients at my local hospital for phlebotomy treatment.

"It seemed wasteful that my blood was simply being thrown away, so I enquired about donating my blood. Not only can my blood be put to good use, but I find donating it much easier too. With the hospital appointments, I was restricted to weekdays in work hours. Now, I can pick and choose dates and times, and book as many appointments as I can in advance.

"Because of my condition, I can donate every six weeks and this allows me to manage my iron levels well." ●

Not as simple as ABO

Some patients need specially matched blood and that's where rare donors come in

Matching blood to patient is always based on blood group, and the groups that play the biggest part are the ABO (A, B, O and AB) and Rh systems (the D antigen being the most important - making the blood +ve or -ve). Most of the population can be safely transfused with blood matched for these groups.

But some patients need specially matched blood because they have a rare blood group.

Looking at blood groups

Before looking at what makes it rare, let's look at the basis of blood groups. A blood group is determined by antigens and antibodies present or absent in the blood.

Antigens are protein molecules (markers) found on the surface of red blood cells



Laboratory test for Rhesus (Rh) blood group

DONCASTER AND BASSETLAW HOSPITALS SCIENCE PHOTO LIBRARY

and antibodies are located in the blood plasma. Individuals have different types and combinations of these molecules, and they make up your blood group – A, B, AB or O, as well as your Rh factor (click here to find out more about your blood group).

Our bodies produce antibodies against the antigens we lack on our red cells, so if a patient were to receive blood that contained 'rogue' antigens, the pre-existing antibodies in the patient's plasma would bind to these antigens – with life-threatening consequences. This is why it is important that patients receive blood that has been matched correctly.

Individuals who have antigens that are not commonly found in the general donor population are classed as 'rare'.

Matching rare types

When a request for rare blood is received, we search the donor database for donors with matching blood types. We also search for blood in the national frozen blood bank, but thawing and preparing this blood for use is expensive and, once

Saving a baby's life

Babies can occasionally need blood transfusions whilst still in the womb (intra-uterine transfusions, IUTs), and last year we were asked to provide a series of IUTs to prevent potentially fatal anaemia in the baby. The mother had a complex combination of red cell antibodies and we needed donors that lacked the same combination of corresponding antigens.

Thanks to blood donor Nicholas, the patient delivered a healthy baby boy. Nicholas says, "As an O-negative donor, I knew that my donations were more in demand than others. However, this was the first time that I'd been personally called and asked to donate on a particular date – it all had to be carefully co-ordinated for the patient needing my blood.

"Obviously, as a blood donor you know you're saving lives with each donation, but knowing that my blood was needed for this specific patient made me feel particularly proud to have been able to help – especially as it went to save a new life. That really is something." ●

thawed, it has a shelf life of only 24 hours. So, when time allows, the doctors and nurses from our clinical support teams will contact donors and ask them to attend the next convenient donation session.

The number of donors available depends on the rarity of the blood as well as many other factors.

Some donors won't be able to donate for travel and medical reasons, and some may have already given blood recently, ruling out a further donation. Our available 'pool' of donors can sometimes shrink quite rapidly to only a handful of individuals.

Diversity helps matching

To try and maximise this pool, we are trying to recruit more donors from Black, Asian and Minority Ethnic (BAME) communities, who are currently under-represented in the donor population.

The presence or absence of certain antigens and antibodies is linked to a

person's ethnic background, so if we can make the diversity of our donor pool match that of the general population, then we have a much better chance of finding suitable blood types.

For people who need repeated or large volume transfusions, it is best if the

"if we can make the diversity of our donor pool match that of the general population, then we have a much better chance of finding suitable blood types"

blood has the closest match of antigens and antibodies because it carries less risk of triggering an immune response in the patient (alloimmunisation). The best matches will come from donors of similar ethnic background.

We are grateful to all of our blood donors but especially those with rare blood types who regularly respond to our calls to give blood, often at very short notice. ●

How Nykolette's donation made a difference

Last year our doctors received a request for a pregnant patient whose blood contained an antibody to the 'U' antigen, which is found in at least 99 per cent of the population.

If pre-existing antibodies in a patient's plasma (the liquid part of the blood) are exposed to the corresponding antigens on the red blood cells of the donor blood via transfusion, the patient's antibodies bind to the antigens. This can cause a potentially fatal transfusion reaction.

Luckily, we had a donor who lacked the 'U'



antigen. Nykolette Wallace responded to our call and gave blood. She says, "I've been a blood donor for about 14 years now – ever since my science teacher at college told us about the lack of black blood donors in this country.

"Knowing that my blood is rare is really amazing, and makes me want to donate more. Like other donors, I don't get to find out who receives

my blood but knowing that I'm one of very few that can help these patients makes me feel really special." ●

If you're a rare donor, please encourage your family to start donating by calling 0300 123 23 23.

Donating more frequently

New research shows that some blood donors could safely give blood more often

We hope the results of this research could, in the future, lead to a more personalised donor experience, by tailoring donation intervals to suit the individual.

At the moment in the UK men can give blood every 12 weeks, women every 16 weeks. This new research demonstrates that, for some individuals, a shorter interval between donations is possible, without any detrimental effect on their health.

The INTERVAL study was carried out with Cambridge and Oxford Universities, and involved 45,000 blood donors. The men were randomly assigned to groups giving blood at 8, 10 and 12-week intervals, the women to groups giving blood at 12, 14 or 16-week intervals. INTERVAL donors then donated at their assigned interval for two years, with the aim of determining the impact, if any, on donor health.

No major impact

The results showed that more units were collected over the 2-year period from the groups of donors on the shorter donation intervals and that, for many, giving more frequently didn't have a major impact on their quality of life, mental function or physical activity.

However, some of those who gave blood

more frequently did report minor symptoms including tiredness and restless legs, and the research suggests this may have been due to giving blood. The study also showed that donors who weighed above average and those with higher initial stores of iron were able to give blood more often.

The INTERVAL study is part of a larger



ILLUSTRATION: DESSY BAEVA

body of work that we are doing to support research in the UK. In collaboration with the National Institute for Health Research (NIHR) Bioresearch we are recruiting volunteers from around the UK who are willing to participate in research studies and trials. To find out more, visit <https://bioresearch.nihr.ac.uk/>.

Thank you

Dr Nicholas Watkins from our Medical and Research team says, "We are extremely grateful to the many blood donors that took part in the trial - their participation has been invaluable in allowing us to make important developments in the world of blood donation." ●

To find out more about the INTERVAL study, visit www.intervalstudy.org.uk

John donates in style

Chelsea Pensioner John Wiseman marked his 90th donation by donning his scarlet uniform before rolling up his sleeve at Chelsea Old Town Hall

After a career in the military, John joined the Chelsea Pensioners earlier this year. These retired soldiers of the British Army live at the Royal Hospital Chelsea in central London.

John said, "I first gave blood aged 17, during my training for the Royal Military Police. We marched down to the gymnasium en masse, and were told, 'Don't ask questions, lads - just get your sleeves rolled up and get in there!'"

John gave blood throughout his military career. "As a young lance corporal I was posted to Berlin just in time for the border to be closed off, and then came the Cuban Missile Crisis when the world held its breath on the brink of nuclear war."

John added, "Meeting a beautiful young



John is proud to still be giving blood

Berliner called Gisela changed my life and we married. Moves to Malta, Germany, Northern Ireland, London and Cyprus and then back to Germany ensued, with two sons in tow. All this time I continued to be a blood donor - this time of my own free will, as it just felt the right thing to do."

Sadly Gisela was diagnosed with ovarian cancer in 2014 and died in February this year. John saw first hand the importance of blood donation as Gisela needed several transfusions during her treatment. He said, "Blood is the stuff of life. We all have it and it takes so little effort to give this precious gift of life to people you will never know or meet. I thank the anonymous people who donated their blood for my darling wife and I am proud to do the same for others." ●

Do you have a relative that donated during WWII?

John Beales, a post-graduate at the University of Bristol, is researching the recruitment of blood donors by the Army Blood Transfusion Service based in Bristol during the Second World War.

The service recruited civilian donors in Berkshire, Cornwall, Devon, Dorset, Gloucestershire, Hampshire, Oxfordshire, Somerset and Wiltshire. Do you have a relative who collected or volunteered to donate blood in these areas during this time? If so, please share any information and/or artefacts with John by emailing jb16951.2015@mybristol.ac.uk. Thank you! ●

New steps towards lab-produced platelets

How scientists are getting closer to artificially producing these all important blood cells



DENNIS KUNDEL/MICROSCOPY/SCIENCE PHOTO LIBRARY

marrow from cells called megakaryocytes. The four-year project, based at Cambridge University and led by the University of Pavia, is called SilkFUSION.

It aims to produce platelets on a large scale for human transfusion from human pluripotent stem cells (hPSCs). These stem cells are derived from human skin or blood cells but are self-replicating, which means that they can divide and proliferate but also can be induced to form new cell types such as megakaryocytes.

Bone marrow model

Scientists at Cambridge will use silk-based biomaterial to create a 3D bone marrow

Platelets are tiny cells in the blood that help it to clot. They are widely used for treatments ranging from caring for sick babies (see below) to treating trauma victims and cancer patients. Now a €2 million EU grant means that we can do research with a view to producing

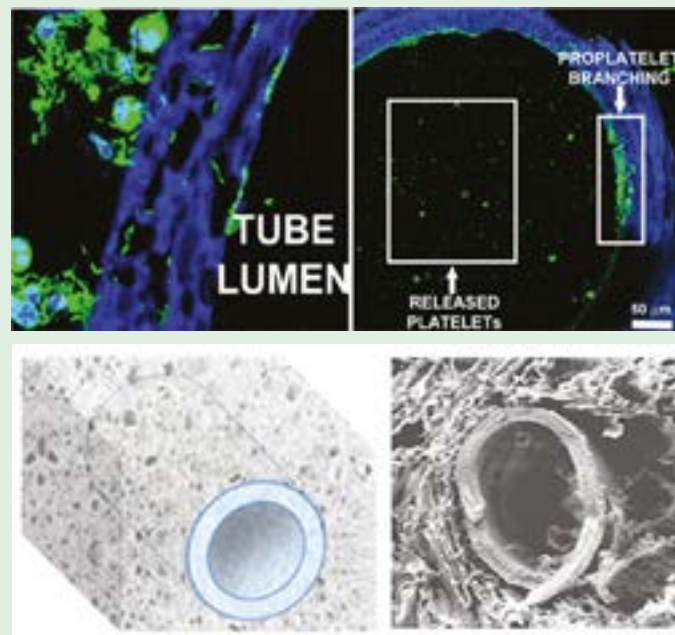
Red blood cells collect in the entangled fibrin and platelet mass, forming a blood clot at the injury site

A big benefit of this would be that platelets could be 'bespoke' and more easily matched with patients

platelets in the lab. A big benefit of this would be that platelets could be 'bespoke' and more easily matched with patients.

How platelets are made

Normally platelets are made in bone



Scientists at Cambridge will use silk based biomaterial to create a 3D bone marrow model. This will enhance platelet release from lab grown cells called megakaryocytes. The artificial tubes shown in the images mimic the environment in bone marrow in which platelets naturally form in the body

model. This will enhance platelet release from lab-grown megakaryocytes. You can read more online at www.blood.co.uk/news-and-campaigns.

Opportunity

Our principal investigator at the University of Cambridge, Dr Cedric Ghevaert, said, "This grant provides us with a real opportunity to translate the technology we developed last year to produce megakaryocytes from human pluripotent stem cells into the production of platelets for transfusion to patients."

Working alongside is Professor Alessandra Balduini (from the University of Pavia, Italy) and Professor Hana Raslova (from the French Institute of Health and Medical Research, Paris).

Professors Balduini and Raslova are leading experts in the research of stem cell and megakaryocyte biology as well as the clinical aspects of platelet disorders. ●

Platelet study to help premature babies



BURGER/PHAN/SCIENCE PHOTO LIBRARY

Some premature babies require platelet transfusions to help their blood clot normally and stop or prevent internal bleeding. But it's not always clear which babies will benefit from the treatment and/or when to give it. So we joined forces with the Netherlands blood service and set up a study involving 660 babies in more than 40 hospitals across the UK and Europe to get some answers.

The PlaNet-2 (Platelets for Neonatal Transfusion) study was launched in partnership with Sanquin Blood Supply Foundation. It looked at platelet transfusions for premature, sick babies to find out the platelet levels at which doctors should transfuse babies with low platelets and no evidence of bleeding. All 660 babies have now taken part in the first stage of the trial, and we are now gathering the data ready for analysis.

Blood services around the world are eagerly anticipating the results of this trial, which is the first of its kind and one of the largest ever studies into transfusions in infants. The analysis for the primary paper will be completed next year with publication in one of the major scientific journals. ●

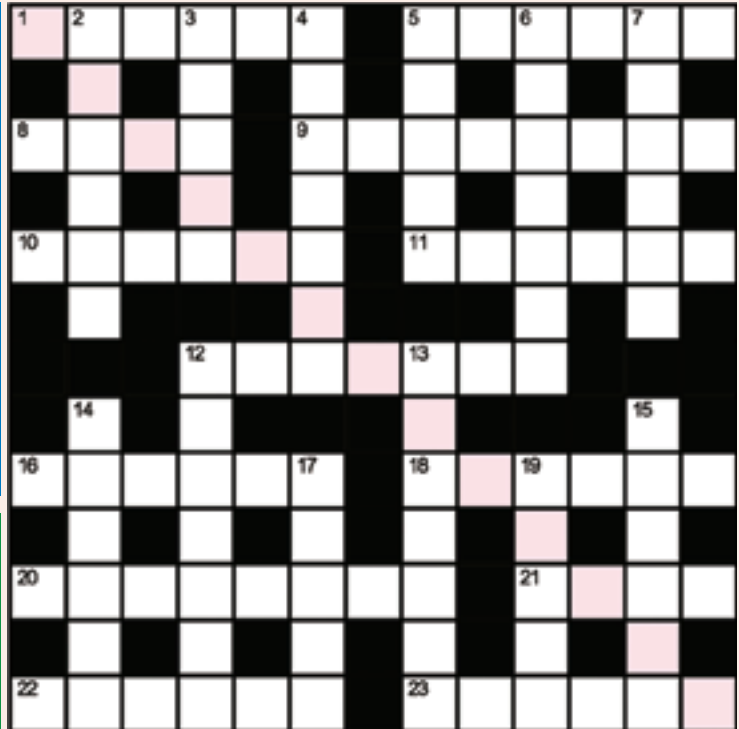
Complete the crossword. The tinted squares running at a diagonal spell out a name. Send this name on a postcard or in a letter together with your name, address and daytime phone number to: Crossword Competition, The Editor, The Donor, NHS Blood and Transplant, 14 Estuary Banks, The Estuary Commerce Park, 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 January 31st 2018.

ACROSS

- 1 Puts pen to paper? (6)
- 5 Sailors (6)
- 8 Aura of holiness (4)
- 9 Stringed instrument (8)
- 10 Soviet dictator (6)
- 11 Cleric (6)
- 12 Sweet wine (7)
- 16 Prestige (6)
- 18 Beam supporting roof (6)
- 20 Store (8)
- 21 Cooker (4)
- 22 European capital (6)
- 23 Various (6)

DOWN

- 2 District of Venice (6)
- 3 Scandinavian dwarf (5)
- 4 Generative (7)
- 5 Ecclesiastical council (5)
- 6 Something unusual (7)
- 7 Worker in publishing (6)
- 12 Chinese board game (7)
- 13 Crustaceans (7)
- 14 Tool for striking (6)
- 15 Coating (6)
- 17 Clan (5)
- 19 Expression of worry or displeasure (5)



LAST ISSUE'S SOLUTION & WINNER

WE HAVE A WINNER!

Congratulations to Mr BB Dixon from Blackpool who successfully solved last issue's crossword.

The solution was: BLOOD AND TRANSPLANT

