UNIVERSITY OF CAMBRIDGE

NHS Blood and Transplant

A study of

haemoglobin testing methods and to create a bioresource for future research into donor and public health

INFORMATION LEAFLET

The COMPARE Study
University of Cambridge, Department of Public Health and Primary Care
Wort's Causeway, Cambridge CB1 8RN

A study of

haemoglobin testing methods and to create a bioresource for future research into donor and public health

We would like to invite you to join the COMPARE study which is led by doctors and scientists at the University of Cambridge, NHS Blood and Transplant (NHSBT) and National Institute for Health Research (NIHR).

To help protect the health of blood donors, it's a requirement to find out whether a donor's blood haemoglobin levels are adequate. However, it's not clear what the best method is for rapidly measuring haemoglobin levels. So, this study of 31,000 blood donors aims to provide a clear answer.

The study is comparing the method of haemoglobin testing used by NHSBT with three promising and newer approaches used by blood services in Europe and the USA. The results should help safeguard the well-being of future blood donors and define best practice for England's blood service. A further objective is to create a bioresource of healthy volunteers using samples and data collected during the study to be used in future approved research projects looking at donor and public health.

Before you decide whether to participate, it's important for you to understand why the study is being done and what is involved. Please take the time to read the following information carefully, and discuss it with others if you wish.

If anything is not clear, or if you would like more information, please call the freephone number on **0800 021 7182** (Monday to Friday: 0900h – 1700h) to talk to a member of our study team or email **helpdesk@comparestudy.org.uk**.

Many thanks for taking the time to consider taking part in the COMPARE study.

Dr Emanuele Di Angelantonio
NHSBT & University of Cambridge

Dr Gail Miflin
NHSBT

Prof John Danesh
University of Cambridge

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Department of Public Health and Primary Care,
Wort's Causeway,
Cambridge CB1 8RN

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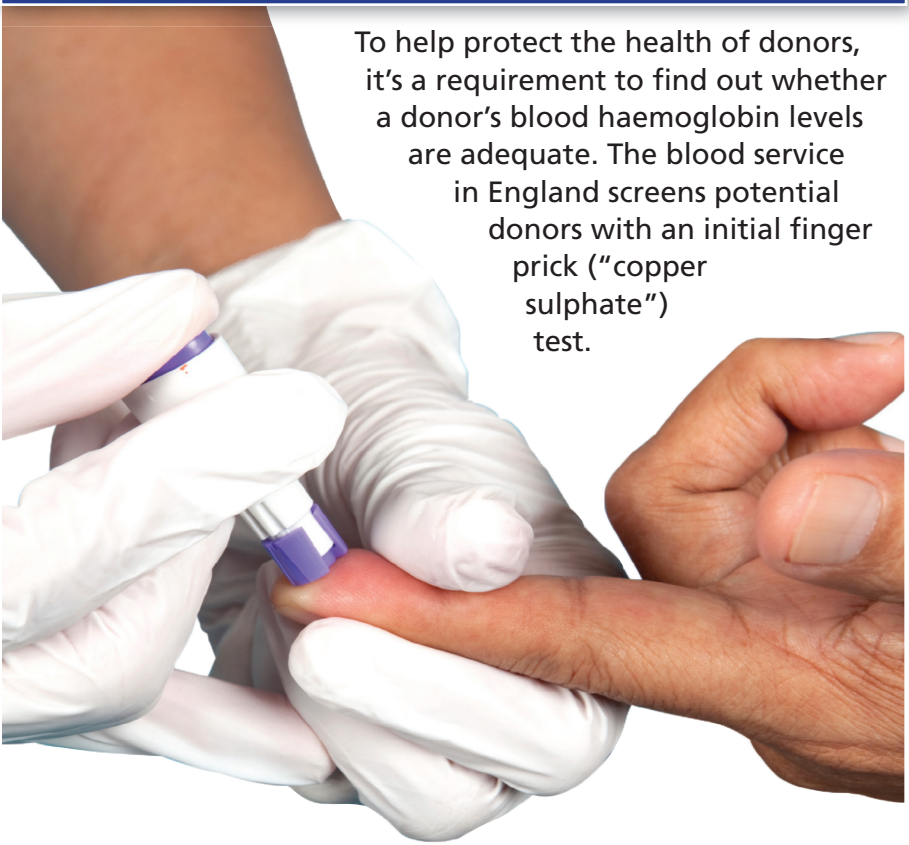
Freephone: 0800 021 7182
Website: www.comparestudy.org.uk

Why is the study needed?



To help protect the health of donors, it's a requirement to find out whether a donor's blood haemoglobin levels are adequate. The blood service in England screens potential donors with an initial finger prick ("copper sulphate") test.

For people suspected of having inadequate haemoglobin levels, a more precise ("HemoCue") test is then immediately done using a venous blood sample. However, blood services in different countries use different screening approaches. We are leading a study of 31,000 donors to compare different methods. The goal is to help safeguard the well-being of future blood donors and define best practice for NHSBT.

What haemoglobin tests are being compared?

This study is comparing the method used by NHSBT with three promising and newer approaches:

- a version of the "HemoCue" test that requires only a blood drop from a finger prick
- a non-invasive light-shining device ("spectrometer") placed over a finger for about one minute, which avoids taking a blood sample altogether
- a method that involves predicting current haemoglobin levels from venous blood tested at the previous donation visit, using a "gold standard haematology analyser".

What will I be asked to do if I participate?

You will be asked to do the following **today**:

- complete a consent form agreeing to participate in this study
- provide a sample of your blood (about 20 ml, equivalent to about 4 teaspoons) for research. This sample will be obtained from the same venepuncture used in your routine donation.
- book a further donation appointment, at the same mobile session, to attend in about 12 weeks if you are a man, or in about 16 weeks if you are a woman. However, if today you are deferred from giving blood for a prolonged duration (>12 weeks for men; >16 weeks for women), then we will not ask you to book a further donation.

About one week from today, you will receive an email message asking you to complete a brief (15 minute) online questionnaire about your personal details, health, and lifestyle. We will also ask about your individual characteristics that are associated with skin tone (e.g. eye and hair colour) to evaluate variability in the performance of the non-invasive devices according to skin tone.

At your next appointment, you will need to do the following:

- provide an extra drop of blood for research from the same finger prick used in routine donation
- provide about 16 ml of your blood for research from the venepuncture used in your routine donation
- wear a clip device around your finger for about one minute for a non-invasive haemoglobin test
- complete a brief (5 minute) questionnaire on your haemoglobin testing experience that day.

Who is eligible for the study?

We are inviting all blood donors who usually give blood at one of about 10 selected mobile donation sessions. You **are eligible** to take part in the study if you are:

- aged 18 years or older.
- willing to return in about 12 weeks if you are a man, or in about 16 weeks if you are a woman.
- willing to undergo additional haemoglobin measurements.
- willing to provide a small sample of blood for research, even if your haemoglobin levels are slightly below the threshold for donating blood.
- willing to complete an online questionnaire at home (and, thus, provide your email address).

Do I have to take part?

No, it is completely up to you. If you decide to take part you will be asked to sign a consent form (see the end of this leaflet for a sample copy). You are free to withdraw at any time, without giving a reason. Your decision will have no influence on your blood donation now or in the future.

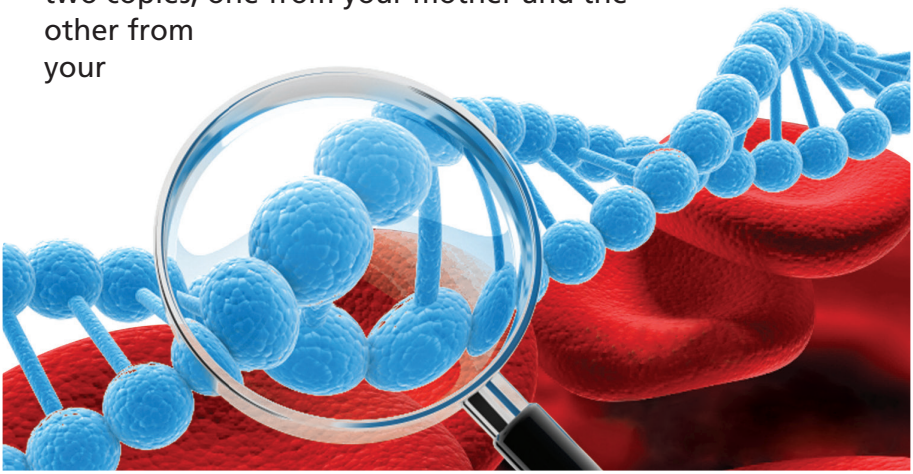
What should I do if I want to take part?

If you would like to join the study, then all you need to do is let your donor carer know. Your carer will take you through the consent form and answer any questions you might have.

How will my blood sample be used?

Research samples will be measured within one day of collection for a "gold standard" full blood count and then frozen. Stored samples of separate blood components (e.g., plasma, serum, DNA) will be:

- kept securely at a central laboratory, labelled only with a unique study number
- used for medical and health-related studies that have relevant scientific and ethics approval
- used to measure blood substances ("biomarkers") that reflect health status (e.g., iron levels)
- used to study your DNA and related substances to find out, for example, how genes regulate blood cells and haemoglobin levels. Genes are made up of DNA and you have two copies, one from your mother and the other from your



father. Researchers can now read a large fraction or the entire genetic code within days to really understand the role of genes in health and disease. We will test for many genes and determine the sequence of part of or your entire genetic code.

- in addition to this initial study, your samples and data on your full DNA (genetic) code will be used in a number of future approved research projects investigating donor and public health. The results may not be known for several years. As they are not performed in the same way or to the same laboratory standard as clinical tests you will not be informed of any incidental findings. Researchers using your sample will only be provided with anonymised data which ensures they cannot link the sample or data to you by name.

How will my study information be used?

Your study information will be used to compare different haemoglobin testing methods, and serve as a resource to help answer wider health questions in approved studies. We are asking for your permission to access your medical and other health-related records, and for the long-term confidential storage and use of this data for future health-related research purposes with relevant approvals. We are asking for your permission to invite you to further studies, which you will be able to accept or decline on a case-by-case basis.

Are there any benefits for me in joining the study?

You will not receive an immediate benefit. However, the study's findings should help safeguard the well-being of future blood donors and define best practice for England's blood service.

Are there any additional risks for me in joining the study?

No. Your safety will be looked after by NHSBT in the **usual** way. That is, you will receive the **usual** screening test for haemoglobin levels and you will need to be within the safe range to be eligible to donate. If your haemoglobin levels are not adequate, you will not be allowed to donate blood. However, you will be asked to give a small research blood sample (about 20 ml) because it's important to compare the different screening methods in people with lower haemoglobin levels.

How will information about me be kept confidential?

We will protect your privacy and ensure confidentiality through several measures:

- At the donation session, your consent to take part in the study will be recorded on a form that will contain your name. The form will be stored in a secure location, separately from the study data.
- Limited personal information will be accessed and retrieved from the national NHSBT database (PULSE). This will include your email address and telephone number for study communication only. In addition we will retrieve your Donor Number and NHS number. These personal data will be stored in a secure location, separately to the study database.
- Your samples will **not** include any personal identifying details and will be stored using a unique, anonymous study identification number.

- A single table linking your study identification number to your NHSBT Donor Number and your NHS number will be stored on a separate password-protected location which may be accessed only by scientists given the specific approval of the senior study investigators.
- The link table will be used to retrieve relevant health information from your medical and other health-related records. Personal identifying details will have been removed and replaced by the unique anonymous study identification number.
- Study data will be stored in a restricted-access database not connected to the NHSBT database containing your personal details. The study data will be linked to your study identification number. Access to the study database will be password-protected and will be used only by named researchers working on this study under the direct supervision of the senior investigators.
- Your study data will include results from laboratory measurements using your blood sample; this will include data on the sequence of your entire genetic code. Because this code is unique to you, it is, in principle, possible for someone to identify you from these data. However, the risk of this happening in practice is small. This is because such an occurrence would require that a researcher not only has your anonymised genetic sequence data from the COMPARE study but also has a) comparable data on your genetic sequence from another source which identifies you and b) the computing systems to match the two sequences. While this is technically possible, the risk of identification is remote due to the safeguards described above.
- Your personal details provided during the study will be stored in a secure location, separately from the study database and used for the purpose of study communication. Personal information will only be linked to the study database with the permission of the senior investigators.

What will be stored on the study database?

Confidential information that will be stored on the database (i.e., information that can be linked to your personal identifiers only with the permission of the senior investigators) will include:

- Relevant information from your NHSBT donor record, such as sex, month and year of birth, details of your donation history and blood group
- Data from the study's online questionnaire
- Results from laboratory measurements using your blood sample, including DNA
- Information on health outcomes collected from routine medical and other health-related records.

How do I withdraw if I want to do so?

You can withdraw from the study at any time and without giving a reason. However, the benefits of the study will be increased if few people withdraw from it, so please discuss any concerns with us in advance. To discuss withdrawing from the study, please call freephone 0800 021 7182 (Monday to Friday 0900h – 1700h) or write to helpdesk@comparestudy.org.uk or our postal address. In the unlikely event of you losing capacity (including death) to decide on continued participation in the study, the blood samples and personal data collected will continue to be used confidentially in connection with the purposes for which consent has been granted.

Who will be able to use my information and samples?

Your information and samples will be available only to researchers who have relevant approvals for their planned research. This could include researchers who are working in other countries (including outside the EEC) and in commercial companies who are looking for new treatments or laboratory tests. Insurance companies and employers will not be given any individual's information, samples or test results, and we will not allow access to the police, security services, relatives or lawyers, unless forced to do so by the courts.

There will be a requirement to publish the results of any research arising out of the samples and data collected during the study to ensure others can benefit from it. Our website will include a list of reports arising from the study. The website will not contain any personal information.

We generally do not plan to provide feedback of results. However, we would communicate results to you that would have an immediate impact on your healthcare (such as finding cells in your blood that may suggest a significant health problem e.g. leukaemia). In this case, we will inform an NHSBT medical professional about the nature of the problem, and about who you are. An NHSBT medical professional would then use the routine procedures applicable in the NHS to get in touch with you and offer advice, which may involve contacting your GP.

Who is organising and funding the study?

The University of Cambridge, NHS Blood and Transplant and National Institute for Health Research.

NHS
Blood and Transplant

NHS
National Institute for
Health Research

Who has approved the study?

Research in the NHS is reviewed by independent groups of people ("Research Ethics Committee") to protect your safety, rights, wellbeing and dignity. This project has been reviewed and was given a favourable review by the Cambridge East Research Ethics Committee.

What will happen if an invention is made using my sample?

You are giving your sample as an absolute gift, i.e., without receiving a payment and without attaching conditions. This study is operating on a non-commercial basis, meaning it does not sell your sample to make a profit and will not allow anyone else who is working with the sample to do so either. However, if samples are made available to other research institutions or to private-sector research partners, a fee may be charged to cover the operational costs.

In the future, your sample may help researchers in the public and private sector to make an invention, e.g., to develop a new product to diagnose, prevent or treat disease. If an invention results from the research undertaken with your sample you will not receive any compensation or payment. The study investigators may work together with commercial companies to develop inventions for the benefit of patient and donor care; and we hope that such products are brought into use by the NHS to improve health care in the future.

What happens if something goes wrong?

The risk of participants suffering harm as a result of taking part is minimal. Nevertheless, insurance is in place to provide compensation for any negligent harm caused by participation.

Who do I contact if I have any concerns?

If you have any concerns or complaints about anything to do with the COMPARE study then you can telephone the freephone number on:

0800 021 7182 (Monday to Friday 0900h – 1700h) to speak to a member of the study team or

email us at helpdesk@comparestudy.org.uk.

Alternatively, if you would like to write to us, please send your letter to the COMPARE study coordinator, University of Cambridge, Department of Public Health and Primary Care, Wort's Causeway, Cambridge CB18RN.

COMPARE STUDY CONSENT FORM ('DONOR COPY')

Chief Investigators: Dr Emanuele Di Angelantonio and Professor John Danesh
University of Cambridge and NHS Blood and Transplant

Blood Donor ID number:

You need to tick (✔) all boxes from 1 to 10 to be eligible to take part in the study

1	I confirm that I have read and understood the COMPARE participant information leaflet (Stage 1) dated 06.01.2016 (version 6) for the above study. I have had the opportunity to ask questions, and these have been answered fully.	☐
2	I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason.	☐
3	I understand and grant permission for relevant sections of my blood donation records to be retrieved and used by the study team.	☐
4	I give permission for long-term, anonymised storage of my blood samples (including DNA) for health-related research purposes (even after my incapacity or death), and relinquish all rights to these samples which I am donating to the study.	☐
5	I understand that information held by the NHS and records maintained by the NHS Information Centre and the NHS Central Register may be used to provide information about my health status and I give permission for long-term anonymised storage and use of this and other information about me, for health-related research purposes (even after my incapacity or death).	☐
6	I agree to provide an email address and for my contact phone details to be given to members of the study team, to send me communications about the study. I will maintain the email address provided or, if necessary, supply a new one in the future.	☐
7	I understand that none of my results (other than those which have an immediate impact on my health care) will be given to me and that I will not benefit financially from taking part (e.g. if research leads to commercial development of a new treatment or blood test).	☐
8	I understand I may be contacted by the COMPARE study team about further studies, which I will be able to accept or decline on a case-by-case basis.	☐
9	I confirm that I am 18 years or over.	☐
10	I agree to take part in the above study.	☐

Participant name:	Signature:	Date:
.....	.....	.....

For further information about the COMPARE study, please call the freephone number on: **0800 021 7182** or email **helpdesk@comparestudy.org.uk** or look at the project website **www.comparestudy.org.uk.**

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NHS Blood and Transplant

The **COMPARE** Study

Your second visit is DATE: ___ /___ /_____

TIME: _____ : _____

To cancel or rearrange:
go to **blood.co.uk** or call **0300 123 23 23**

COMPARE

Please add **donotreply@comparestudy.org.uk** to your email contacts to prevent study emails going to your junk folder.

The **COMPARE** Study
A Quick Summary for donors

AFTER 1st VISIT

Complete online questionnaire → Return for 2nd visit:
- in 12 weeks for men
- in 16 weeks for women

2nd VISIT

Follow usual donation procedures +
- Provide a capillary sample from your finger
- Have a clip placed over your finger/ thumb for 30-90 seconds for a haemoglobin measurement
- Provide a small venous blood sample

AFTER 2nd VISIT

Complete online questionnaire

Email: helpdesk@comparestudy.org.uk
Website: www.comparestudy.org.uk
Freephone: 0800 021 7182
Mon to Fri: 9:00 – 17:00