Conference Program

5th European Conference on Donor Health and Management

7 – 9 September 2023
Vienna, Austria

Organised by

eba
Safe blood for Europe

ÖSTERREICHISCHES ROTES KREUZ
Aus Liebe zum Menschen.

WU WIRTSCHAFTS UNIVERSITÄT WIEN VIENNA UNIVERSITY OF ECONOMICS AND BUSINESS

Table of Contents

Welcome to ECDHM Vienna

The European Conference on Donor Health and Management (ECDHM) is the primary platform to share knowledge and learn about the latest developments in science, policy, and experiences in the field of donor health & management. The program covers blood, organ, and stem cell donors, with emphasis on blood donors. It provides a unique opportunity to share knowledge in the fields of Donor Health and Management and to exchange ideas and strategies.

The 5th European Conference on Donor Health and Management is hosted by the European Blood Alliance (EBA), the Austrian Red Cross (ARC) and the Vienna University of Economics and Business (WU Vienna).

The organizers thank all members of the relevant committees as well as the reviewers for their excellent support of this conference.

We thank you all for joining the conference and we wish you a pleasant exchange of ideas and research insights!

Conference President

Christof Jungbauer
Austria Red Cross

Conference Chairs

Peter O'Leary
EBA

Christof Jungbauer
Austria Red Cross

Pascal Güntürkün
WU Vienna

Nils Wlömert
WU Vienna

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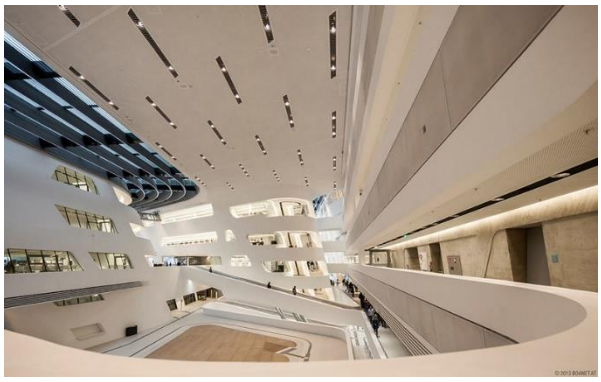
Hans van Remoortel	Belgian Red Cross Flandern, Belgium

Conference Venue – WU Campus

The conference venue is the new university campus of WU Vienna. Its architecture reflects WU's vision for a modern university – diversity, open-mindedness, social responsibility, and innovation. The resulting architecture is a stunning mix of styles that has gained the campus a place in most architectural and tourist guides within a mere year of its creation. Photographers and painters are a frequent sight on a campus that comprises 5 restaurants, a bakery, and a supermarket.

The main venue for the conference will be the iconic Library & Learning Center (LC) at the heart of the university campus, designed by renowned Iraqi-British architect Zaha Hadid. The building's cantilevered roof with its striking glass monitor facing the Prater Park is visible from afar.



Conference venue on Thursday, September 7:

On Thursday, the conference takes place in the AD building on Campus WU. Characteristic for this building is its yellow/orange coloring and the wooden sunshields. The building is a little tricky to oversee as it consists of multiple parts. Make sure to enter the building at either entry A or C to get to the conference venue (see building map).

To make it easier for you to find your way, use one of the two digital pathfinders below:

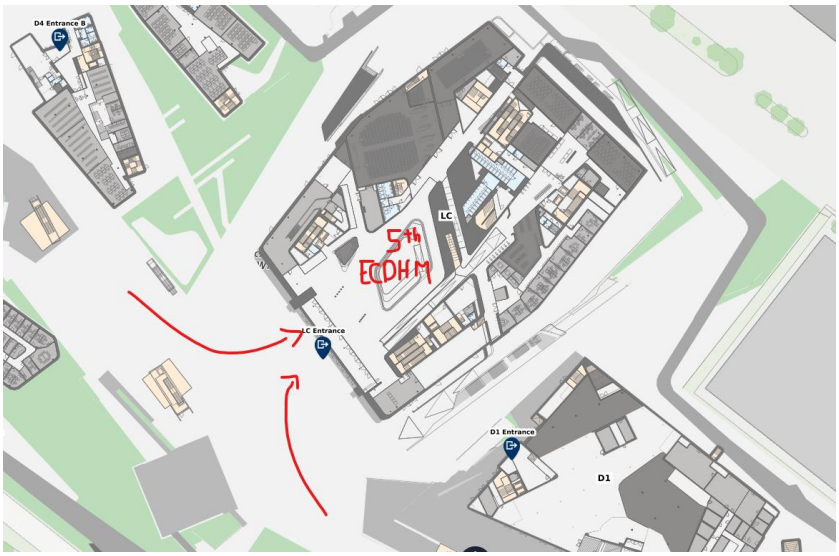
- Digital Campus map (including the option to show the route from the subway station)
- Google maps link

Conference venue on Friday and Saturday, September 8-9:

On Friday and Saturday, we are moving to the main conference venue, the LC building (aka the Spaceship) at the heart of Campus WU. This one, you cannot miss.

For your convenience, you can also use one of the two digital pathfinders below:

- Digital Campus map (including the option to show the route from the subway station)
- Google maps link



How to get to the conference venue

Address Campus WU:

The conference takes place at Campus WU, located in the second district of Vienna. The address is Welthandelsplatz 1, 1020 Vienna. Click the link to find it on Google maps.

How to get to Campus WU by…

…public transport: Campus WU is located between the two U2 subway stations Messe-Prater and Krieau. The Library & Learning Center (LC) is roughly the same distance from each of the two subway stations (5–10 minutes).

Bus line 82A (3 stops around the campus: Trabrennstraße, Südportalstraße, Welthandelsplatz) and streetcar line 1 (stop Prater Hauptallee) also stop close to Campus WU.

…bike/scooter: It is easy to spontaneously rent a bike in Vienna with the WienMobil bicycle rental that you can find across the city. The WienMobil bike sharing stations are located at the south entrance of Campus WU and at the subway stations Messe-Prater and Krieau. Of course, you can also rent a scooter from one of the many providers available in the city.

…car: The car is the slowest option to get around in Vienna. Anyways, if you are coming by car, you can park in the underground parking garage located under the main boulevard running through the campus (cost is 2,20€/hour). The entrance to the garage is on Trabrennstrasse.

For more detailed information check out the following website: https://www.wu.ac.at/en/the-university/campus/orientation-directions/

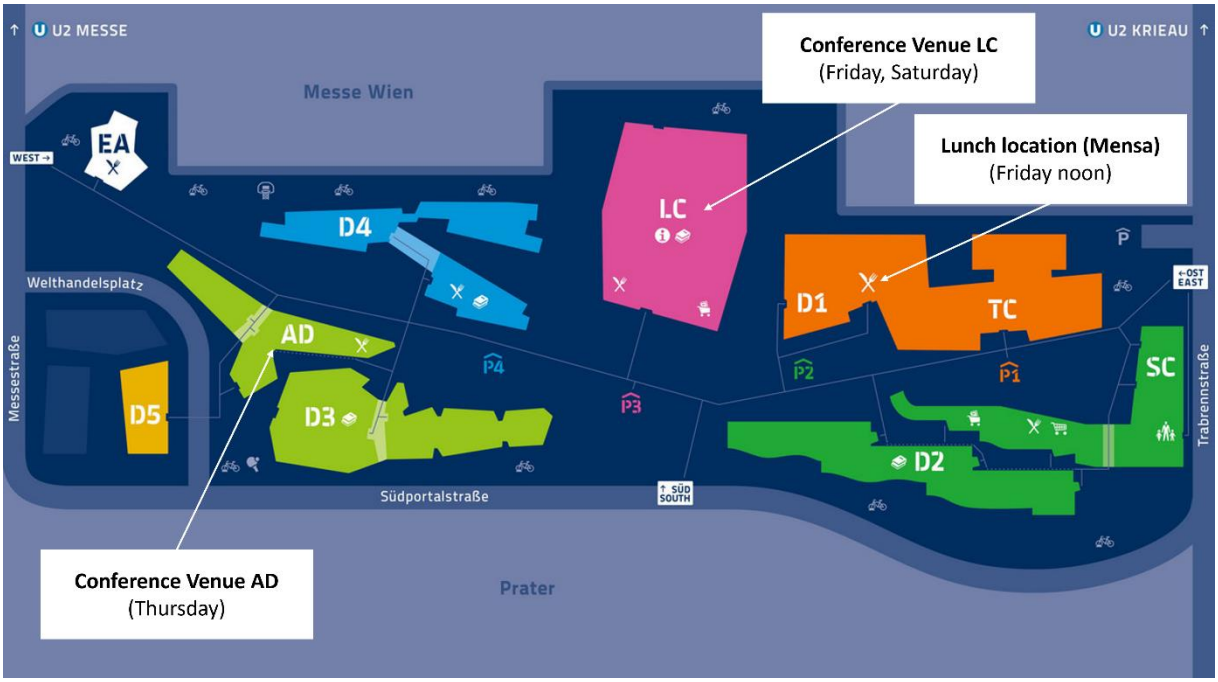
How to navigate to the conference venue once you are at Campus WU

Once you are at campus WU, the static map below and the interactive map, accessible via this link (https://campus.wu.ac.at/en/), will help you to navigate around on campus WU and find the conference venue. The conference takes place in the following buildings:

- **Thursday, Sept 07**: Conference kick-off with workshops and PhD courses in the **AD building**.
- **Friday and Saturday, Sept 08-09**: The conference venue is the **LC building**, which is the main building at the heart of campus WU. Some call it "the Spaceship". If you see it, you will know why. You cannot miss it.

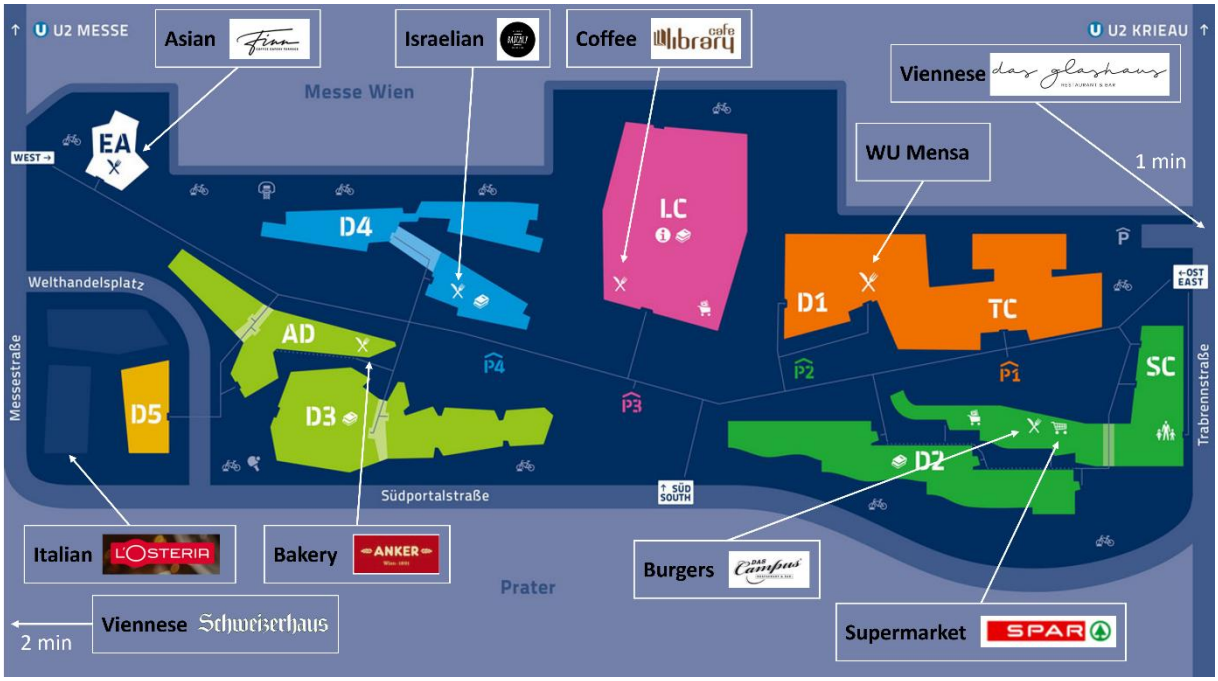
The **conference registration** (to get your badge if you are registered already or to buy a last-minute ticket) can be found in these buildings accordingly.

We have linked all conference rooms in the program using the interactive map.



Where to eat on Campus WU

There is nothing worse than being hangry at a conference. Don't worry, we will take care of your physiological needs during the conference. However, if you are looking for more before/ after the conference, there are also plenty of opportunities to eat on Campus WU. See the map below for an overview.



WIFI

WiFi name: 'wu-conference'.
Username: wu0028
Password: ECDHM23_Vienna
Valid from September 7, 08:00 AM – September 9, 06:00 PM

Useful things to know about the conference venue

Information desk

If you have any question about the conference or beyond, you can always contact the information desk. The information desk is also the registration desk and will be positioned in the AD building on Thursday and in the LC building on Friday and Saturday. At the information desk you can also store your luggage or hand in your jacket.

Meeting Spaces

We are at a big campus with (mostly) open door policies. There are chairs and tables nearly everywhere. Feel free to get yourselves comfortable wherever you like. For any specific needs ask at the information desk (TC).

Guests

Please inform us in advance if you are planning to bring guests to any events. We try to accommodate all wishes where possible but do face space restrictions.

Emergency Contact

EMERGENCY NUMBERS: +43 1 31336 4622 or +43 1 31336 5897

+43 1 40100 is always getting you a cab

Conference Dinner – location and transfer

The conference dinner will be held on Friday evening, September 8, at a historic venue – the old barley floor of the Ottakringer Brewery.

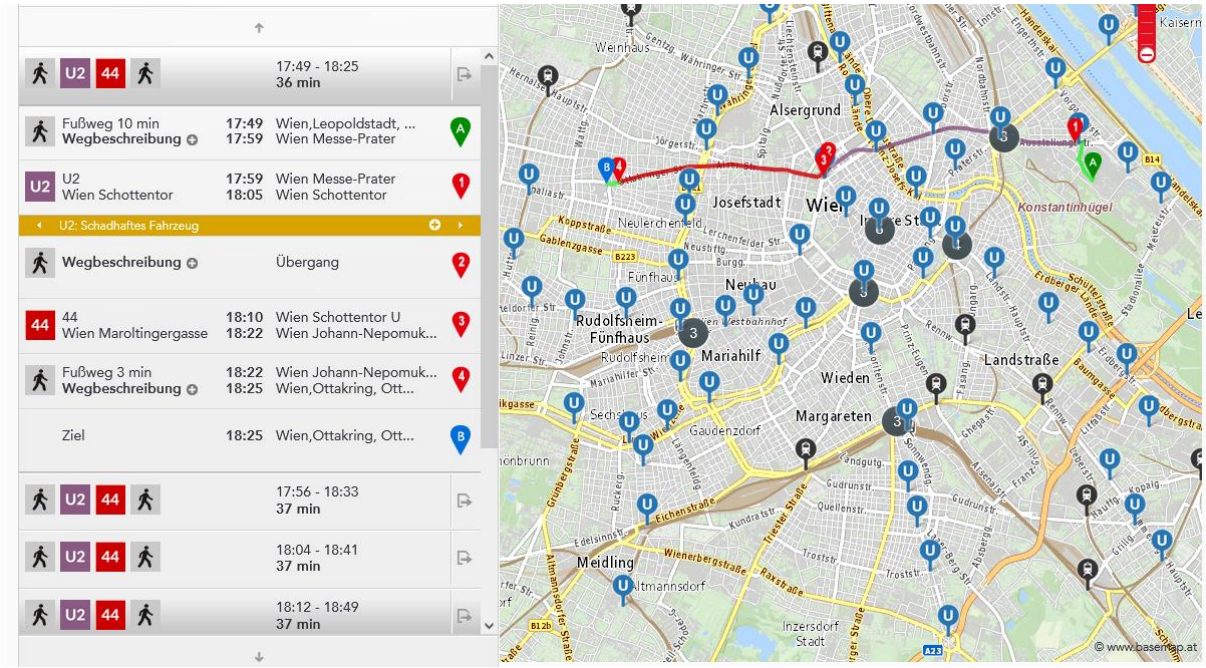
If you booked your ticket before September 1 and did not opt-out of the dinner during the registration, we have reserved a seat for you 😊 The ticket price includes all drinks and food for this event.

How to get to the Conference Dinner Location

The location is Ottakringer Platz 1 in 1160, Vienna and we recommend public transportation to get to the Ottakringer Brewery. The ride takes about 35-40 minutes door-to-door.

The easiest connection is to take the U2 subway line from the station “Wien Messe-Prater” in the direction of “Wien Schottentor”. Get out at Schottentor and switch to the 44 Tram in the direction of “Wien Maroltingergasse”. Get out at the station “Wien Johann-Nepomuk-Berger-Park” and you are almost there. You can see the trip in the screenshot below or online here.

If you travel to the dinner from another location, you can plan your public transport trip here.



What else to do in Vienna

History

Vienna's historic core enjoys the designation of a UNESCO World Heritage site. As such, landmarks like St. Stephen's Cathedral and the Imperial Palace join a select list of around 700 globally significant cultural and natural sites. Vienna offers a rich tapestry of experiences, from its grandiose Baroque architecture to the shimmering touches of Art Nouveau, all the way to modern architectural marvels. Follow these links for more information on Vienna's history and sights:

- Sights from A-Z: https://www.wien.info/en/sightseeing/sights/from-a-to-z
- Cultural Heritage: https://www.wien.info/en/sightseeing/sights/cultural-heritage-343850
- 10 Fascinating Facts About Vienna (You Probably Didn't Know): https://www.salutetovienna.com/post/10-fascinating-facts-about-vienna-you-probably-didn-t-know

Facts about Vienna

- The city is **safe** (except for pickpockets)! Going alone through streets at night – no problem.
- You can **drink** the **tap water** – it is of excellent quality.
- Waiters always expect a **tip** – we just **round things up** but 10% are a good benchmark. Don't expect too much kindness or service for that though. Viennese **waiters** (in particular at coffee houses) are famous for being grumpy.
- Most people will be able to understand and speak at least some **English**.
- Card payments are on the rise but not universally possible. **Prepare your wallet.**
- Austrians appreciate their work-live balance. Nearly all shops are **closed on Sundays**. They mostly close at 7 during the week and at 5 or 6 on Saturdays.

City Tours

Whether you prefer structured excursions or self-guided adventures, by foot or aboard a tour bus, Vienna offers various ways to discover its charms. To experience Vienna, either join one of the activities offered as part of our social program or explore the city on your own. Here are a few options to explore the city:

- Discover Vienna on your own: https://www.wien.info/en/see-do/discover-vienna/tours-guides/ivie-walks-guides-436368
- Vienna with a Guide – pay as you wish: https://www.absoluteviennatours.at/free-walking-tour-vienna/
- Sightseeing tour with the bus: https://www.wien.info/en/see-do/discover-vienna/tours-guides/bus-tours-342040
- Further recommendations: https://www.wien.info/en/recommendations

Museums & Exhibitions

Vienna boasts an impressive array of museums and exhibitions that serve as a testament to its rich cultural heritage and forward-thinking vision. From collections of classical art in historic buildings to contemporary installations in modern spaces, the city's art scene offers a diverse range of intellectual and aesthetic experiences. Whether you're interested in history, art, or science, Vienna's curated spaces provide valuable insights and inspiration.

- Museumsquartier: https://www.mqw.at/en/
  One of the largest cultural quarters in the world with an area covering 60,000 m².
- Albertina: https://www.albertina.at/en/exhibitions/monet-to-picasso/
  The Albertina houses one of Europe's most important compilations of Modernist art in the form of the Batliner Collection.
- The Natural History Museum Vienna: https://www.nhm-wien.ac.at/en
  The Natural History Museum Vienna is a multidisciplinary space where extensive collections meet scientific research and public dialogue, all housed in an architectural masterpiece.
- Art History Museum - https://www.khm.at/en/
  The Kunsthistorisches Museum, located near the Imperial Palace, is renowned for its world-class collections, including the largest assembly of Bruegel works.

More information: https://www.wien.info/en/sightseeing/museums-exhibitions

Theater & Music

Vienna stands as a vibrant hub for theater and music, deeply rooted in a tradition that spans from classical opera to modern performances.

- Vienna State Opera: https://www.wiener-staatsoper.at/en/season-tickets/events-tickets/
- Konzerthaus Wien: https://konzerthaus.at/concert/eventid/60583
- Musikverein Wien: https://www.musikverein.at/spielplan/

These sample will get you tuned into the Vienna vibe:

- New Year‘s Concert 2023: https://open.spotify.com/intl-de/album/748QKJBfuFQehlw3CJ7TvW
- Vienna Waltz: https://open.spotify.com/intl-de/album/0i5T87wEjypMSsfROpbrCL
- Wien: https://open.spotify.com/playlist/7dRwu1rSF2JXzE4HxhqgN9

Dine & Drink

Viennese Cuisine is the only cuisine in the world to be named after a city. From local taverns known as "Beisls" to high-end culinary establishments, the city's dining options span a wide range of local and global flavors. Fancy some wine? Vienna is unique among major cities for its noteworthy wine production within city boundaries, a tradition rooted deeply in its local culture.

- The Viennese bistro or beisl: https://www.wien.info/en/dine-drink/viennese-cuisine/beisl-340946
- Viennese wine & Heurige: https://www.wien.info/en/dine-drink/wine
- Heurige in Neustift: https://www.wien.info/en/dine-drink/wine/neustift-etc-353878
- Restaurants in Vienna: https://www.wien.info/en/dine-drink/restaurants
- Seven unique outdoor dining areas in Vienna: https://www.wien.info/en/dine-drink/top-picks-outdoordining-361630
- Hot Dog Stands: https://www.wien.info/en/dine-drink/viennese-cuisine/hot-dog-stands-348128

Around the conference dates, the “Restaurant Week” will be held in Vienna, where dozens of Vienna's top restaurants offer great menus at a reduced fixed price from September 4 to 10.

- https://www.wien.info/en/dine-drink/restaurants/restaurant-week-356560;
- https://dierestaurantwoche.at/

Viennese Coffee Houses

Famed worldwide, the Viennese café serves as a haven of cozy comfort and relaxed charm. With offerings like Sachertorte and Gugelhupf, these venues entice visitors with the allure of sugary delights.

- Coffee houses https://www.wien.info/en/dine-drink/coffeehouses
- 10 amusing facts about the Viennese coffee house https://www.wien.info/en/dine-drink/coffeehouses/wiener-kaffeehaus-fun-facts-433242
- The Top 6 traditional coffee houses in Vienna: https://www.wien.info/en/dine-drink/coffeehouses/top-traditional-coffee-houses-in-vienna-361666
- Six trendy cafés in Vienna: https://www.wien.info/en/dine-drink/coffeehouses/top-picks-trendy-cafes-vienna-361652

Around the conference dates, the "Vienna Coffee Festival" will be held in Vienna: https://www.viennacoffeefestival.cc/.

Vienna with Children

Vienna is a playground for young adventurers and curious minds, offering a mix of cultural and recreational experiences that the whole family can enjoy. From miniature train rides through the Green Prater and awe-inspiring views atop the iconic Ferris wheel, to animal encounters at the world's oldest zoo in the historical setting of Schönbrunn, the city is rich with child-friendly attractions that combine learning, fun, and a touch of imperial charm.

- Schönbrunn Zoo: https://www.zoovienna.at/en/
- Prater: https://www.praterwien.com/en/home
- Liliputbahn: https://www.praterwien.com/en/attractions/details/midget-railroad
- Schönbrunn Castle Park with maze: https://www.wien.info/en/see-do/families/sightseeing/irrgarten-337892
- More informations https://www.wien.info/en/see-do/families

Program Overview

Thursday, September 7: Pre-Conference PhD Courses and Workshops

<table>
<tr><th>Time</th><th>AD.0.114 (Sitzungssaal 1)</th><th>AD.0.122 (Sitzungssaal 2)</th><th>AD.0.090 (Sitzungssaal 6)</th></tr>
<tr><td>08:30 – 9:00</td><td colspan="3">Registration, Welcome Coffee & light breakfast</td></tr>
<tr><td>09:00 – 09:45</td><td rowspan="2">Marketing Workshop on Health and Sustainability (Martin Oesterer)</td><td colspan="2">PhD courses welcome & introduction (Christof Jungbauer, Hans van Remoortel, Pascal Güntürkün, Eva-Maria Merz, Michel Clement, Nils Wlömert)</td></tr>
<tr><td>09:45 – 10:30</td><td>PhD course “donor health” (Christof Jungbauer, Hans van Remoortel)</td><td>PhD course “donor management” (Nils Wlömert, Eva-Maria Merz, Michel Clement, Pascal Güntürkün)</td></tr>
<tr><td>10:30 – 10:45</td><td colspan="3">Coffee break</td></tr>
<tr><td>10:45 – 11:45</td><td>Marketing Workshop on Health and Sustainability (Martin Oesterer)</td><td>PhD course “donor health” (Christof Jungbauer, Hans van Remoortel)</td><td>PhD course “donor management” (Nils Wlömert, Eva-Maria Merz, Michel Clement)</td></tr>
<tr><td>11:45 – 13:00</td><td colspan="3">Lunch break</td></tr>
<tr><td>13:00 – 14:30</td><td>Management Workshop “Bridging Research and Practice” (Graf, Ciausescu, Schröder)</td><td></td><td></td></tr>
<tr><td>16:00 –</td><td colspan="3">Social Program</td></tr>
</table>

Friday, September 08: Main Conference Day

Time	LC.0.100 (Festsaal 1):	LC.2.400 (Clubraum):	LC.0.004 (Galerie):
08:00 – 09:00	Registration, Welcome Coffee & light breakfast		
09:00 – 09:15	Welcome to ECDHM 2023 (Pierre Tiberghien, Christof Jungbauer, Nils Wlömert, Pascal Güntürkün)		
09:15 – 10:00	Keynote: Donor health (Katja van den Hurk) “Healthy giving: efforts to study and improve donor health”		
10:00 – 10:30	Coffee break		
10:30 – 11:45	Management Session 1: Donor retention	Health Session 1: Infections & Ethics	Management Session 2: Prosocial behavior & donor motivation
11:45 – 13:00	Lunch break		
13:00 – 14:30	Meet the Editors: Transfusion / Vox Sanguinis	Management Session 3: New tools and insights to donor management practice	Health Session 2: Plasma
14:30 – 15:00	Coffee break & Poster session		
15:00 – 15:45	Keynote: Donor management (Lorenz Götte) “The promise and pitfalls of social influence for blood donations.“		
15:45 – 16:15	Coffee break & Poster session		
16:15 – 17:45	Health Session 3: Haemovigilance	Management Session 4: Incentives & recruitment	Health Session 4: Iron deficiency
19:00 –	Conference Dinner & Party!		

Saturday, September 09: Special Sessions

Time	LC.0.100 (Festsaal 1):	LC.0.200 (Festsaal 2):
09:00 – 09:30	Morning Coffee & light breakfast	
09:30 – 11:00	Special Session I (health & management) "Strengthening voluntary non-remunerated plasma collection capacity in Europe: First results from the EU-funded project SUPPLY"	Management Session 5: Donor diversity
11:00 – 11:30	Coffee break	
11:30 – 13:00	Special Session III (health) "Time for a new blood donor iron management paradigm?"	Special Session II (management) "Innovation in Plasma donation"

Keynote Speakers

Keynote on Donor Health

Healthy giving: efforts to study and improve donor health

Katja van den Hurk

Sanquin Netherlands, Head of Donor Studies, PI Donor Health, Epidemiologist

Katja van den Hurk, PhD, is an Epidemiologist and Health Scientist specialised in the methodology and (bio)statistics of population-based (longitudinal) studies on donor health. She is Head of Donor Studies and Principal Investigator of the Donor Health research line at Sanquin Research, Amsterdam, The Netherlands. Katja is also an editorial Board member of Vox Sanguinis.

Katja's research focuses primarily on studying the health effects of donation and improving policies to protect the health of donors and recipients, thereby applying epidemiological, (bio-)statistical and data science methodology. This research includes studies on iron metabolism and on the stratification, prediction, and mitigation of whole blood donation-induced risks of iron depletion and anemia. In addition, she studies donor eligibility criteria through literature reviews, epidemiological studies and donor surveys, as well as health effects of plasma donations on e.g. iron and plasma protein levels. Katja and her group are increasingly conducting epidemiological research for preventive health care through Sanquin Future Health, a donor biobank in preparation with residual material and questionnaires from blood and plasma donations.

Keynote on Donor Management

The promise and pitfalls of social influence for blood donations

Lorenz Götte

Professor and Provost's Chair, Department of Economics, National University of Singapore

Lorenz Götte is a professor of economics at the National University of Singapore. He completed his undergraduate and graduate studies at the University of Zurich, and a post-doc at the University of California, Berkeley. Previously, Götte was a senior economist at the Federal Reserve Bank of Boston and a professor at the University of Geneva, the University of Lausanne, and the University of Bonn.

His research interests are in the field of "economics and psychology", a field that examines systematic departures from the assumptions of the standard economic model. Besides his research on applications in labor economics, Lorenz is interested in studying how incentives and social influence shape prosocial motivation in the context of blood donations. In his recent work in this domain, he studies the limits of social recognition and how group membership affects prosocial behavior.

Lorenz Götte has published in the American Economic Review, the Review of Economic Studies, the Proceedings of the National Academy of Sciences, and Science.

Program Thursday, September 7

PhD Courses

PhD Course 1: **Donor Health**

Thursday, 09:00-11:45, AD.0.122 (Sitzungssaal 2)

Organizers:
Christof Jungbauer, Hans van Remoortel

Topic:
PhD students can take part in a one-day doctoral class before the conference starts. The PhD course involves relevant issues and topics in donor health & management, which will be discussed and reviewed. Each PhD student can present a research project she or he is currently working on. PhD students will receive extensive feedback from their peers and renowned scholars in the field that lead the workshops.

Target group:
PhD students working in a topic related to donor health.

PhD Course 2: **Donor Management**

Thursday, 09:00-11:45, AD.0.090 (Sitzungssaal 6)

Organizers:
Nils Wlömert, Eva-Maria Merz, Michel Clement, Pascal Güntürkün

Topic:
PhD students can take part in a one-day doctoral class before the conference starts. The PhD course involves relevant issues and topics in donor health & management, which will be discussed and reviewed. Each PhD student can present a research project she or he is currently working on. PhD students will receive extensive feedback from their peers and renowned scholars in the field that lead the workshops.

Target group:
PhD students working in a topic related to donor management.

Workshops

Workshop 1: **Marketing Workshop on Health and Sustainability: Drivers in Donor Communication?**

Thursday, 09:00-11:45, AD.0.114 (Sitzungssaal 1)

Organizer:
Martin Oesterer, German Red Cross, Blood Donor Service (Baden-Württemberg, Hessen, North-East)

Topic:
Few topics shape the current zeitgeist as much as the buzzwords "health" and "sustainability". Most marketing organizations in the field of blood donation also use these topics to a greater or lesser extent to acquire first-time donors, retain existing donors and underline their image as a responsible organization. For example, health checks are offered, or the digitalization of processes is managed from the perspective of sustainable communication (e.g., email instead of letter). In this workshop, the respective approaches of the European participating countries will be presented, discussed, and subsequently documented for the participants.

Target group:
Practitioners responsible for marketing and management in blood transfusion services.

Workshop 2: **Bridging research and practice: Promoting communication and collaboration**

Thursday, 13:00-14:30, AD.0.114 (Sitzungssaal 1)

Organizers:
Caroline Graf and Joris M. Schröder (Department of Sociology, VU Amsterdam), Alexandra Ciausescu (Department of Donor Medicine Research, VU Amsterdam)

Topic:
The motivation for having a workshop on "Bridging research and practice" at ECDHM is to facilitate greater collaboration and knowledge-sharing between practitioners and academic researchers. Although researchers and practitioners in blood donor management share the same central goal -- ensuring a sufficient supply of blood -- collaboration can be challenging. Academic research often remains isolated in academic circles, while practitioners may feel disconnected from scientific theories and research. ECDHM offers a unique opportunity to discuss about perceived obstacles and respective needs of practitioners and researchers, as well as sharing experiences and exchanging ideas. Ultimately, the workshop aims to explore how to break down barriers and find ways to collaborate better to create practical solutions in donor management that are informed by the latest research.

Presenters:

- Alexandra Ciausescu (VU Amsterdam): “Where do we stand? What do practitioners need?”
- Michel Clement (University of Hamburg) and Martin Oesterer (German Red Cross): “Collaborations in Germany”
- Pascal Güntürkün (WU Vienna) and Elisabeth Zechmeister (Austrian Red Cross): “Research Collaborations in Austria

Target group:
Practitioners responsible for marketing and management in blood transfusion services. Academics collaborating with blood transfusion services.

Social Program Activities

Social activity 1: **Art tour – Belvedere Museum (Gustav Klimt and his Time)**

Date:

- Thursday, September 7 (2023), 4.30–5.30pm

Info:
This kiss to the whole world! Already celebrated as the best-known Art Nouveau artist shortly after 1900, Gustav Klimt still ranks as one of the most influential painters in art history around the globe today. The painting *The Kiss* (1908) became a universal symbol of love and peace. Klimt's enigmatic portraits of women and his distinctive gold leaf ornamentation have shaped art through the present day. But how did the son of a gold engraver succeed in his meteoric rise, which made him a leading personality of the Viennese modern age? This tour will familiarize you with the works of Gustav Klimt and his contemporaries, such as Auguste Rodin and Elena Luksch-Makowsky.

Meeting point:
Ticket Counter Upper Belvedere (Prinz-Eugen-Straße 27, 1040 Wien), please be there 15 minutes earlier to make sure that the tour can start on time.

Costs:
~23-25€ (including exhibition pass and tour fee)

Participants:
Max. 19 (first come, first served). You need to be registered to participate in this activity.

Social activity 2: **Guided City Tour through the historic heart of Vienna**

Dates:

- Thursday, September 7 (2023), 4–5.30pm
- Saturday, September 7 (2023), 4–5.30pm

Info:
This route, which gives visitors a first overall impression of the heart of the old city, reveals the traces of foregone power, as you pass through the Hofburg, the former Imperial winter residence. You continue along the chic Kohlmark with its elegant boutiques and luxury shops, past the Plague Column on the Graben and end the walk at St. Stephen"s Cathedral, the largest gothic construction in Austria.

Meeting point:
Albertinaplatz at the Memorial against War and Fascism - behind the Opera (Augustinerstraße 8, 1010 Wien), please be there 15 minutes earlier to make sure that the tour can start on time.

Costs:
~11-15€ (tour fee)

Participants:
Max. 19 per tour (first come, first served). You need to be registered to participate in this activity.

Social activity 3: **Guided tour of the Red Cross Blood Donation Center**

Dates:

- Thursday, September 7 (2023), 4–5pm
- Thursday, September 7 (2023), 5–6pm

Info:
This tour takes you through the blood donation center of the Red Cross, regional association Vienna, Lower Austria, Burgenland, the largest regional association in Austria. Learn more about the organization and further processing of blood donations at this location.

Meeting point:
Foyer of the Blood Donation Center (Wiedner Hauptstraße 32, 1040 Wien), please be there at least 10 minutes earlier to make sure that the tour can start on time.

Costs:
Free service

Participants:
max. 15 per tour (first come, first served). You need to be registered to participate in this activity.

Program Friday, September 8

How to read the program:

- **M** marks the sessions with a stronger focus on **Donor Management**.
- **H** marks the sessions with a stronger focus on **Donor Health**.
- The respective **Presenters** of a contribution are highlighted in bold.

M 1 Donor retention

Friday, 10:30-11:45, LC.0.100 (Festsaal 1)
Chair: Joris Melchior Schröder

10:30 – 10:50	**1. This is MY donation: Psychological ownership in blood donation.** ***Abigail Edwards***, Rachel Thorpe, Barbara Masser, Fiona Barlow
10:50 – 11:10	**2. The impact of competition on the donation activity of new, novice and experienced plasma donors.** ***Kathleen Chell***, Jack Bryant, Torres Woolley, Tarun Sen Gupta
11:10 – 11:25	**3. Investigating motivations to donate blood in a team.** ***Kathleen Chell***, Kristen Baker, Margaret Minero, Batya Atlas
11:25 – 11:45	**4. How group membership affects blood donation behaviour: results from a nation-wide group-donation programme in Australia.** ***Joris M. Schröder***, Kathleen Chell, Lorenz Goette

Times include presentation and discussion. At least one quarter of the time should be dedicated to the discussion.

H 1 Infections & Ethics

Friday, 10:30-11:45, LC.2.400 (Clubraum)
Chair: Jean-Baptiste Thibert, Veerle Compernolle

10:30 – 10:50	**1. Three years of SARS-CoV-2: re-infection in Dutch blood donors.** **Franke A. Quee**, Boris Hogema, Edith Slot, Katja van den Hurk, Hans L. Zaaijer
10:50 – 11:10	**2. Protecting donors and patients through the prism of human fundamental rights. The contribution of law, ethics, and Europe.** **Jean-Baptiste Thibert**
11:10 – 11:20	**3. Use of face masks by healthcare workers during the COVID-19 pandemic: Impact on hemoglobin and hematocrit concentration.** **Elisa Sambruna**, Maddalena Loredana Zighetti, Denise Pizzotti, Roberta Trotti, Cristiana Bianco, Daniele Prati
11:20 – 11:35	**4.Blood, Breakthroughs and Bioethics: Navigating the Nuances of Responsible Implementation of Advanced Therapy for Hereditary Anemias.** **Louisanne van Hooff**, Eva-Maria Merz, Jeantine Lunshof

11:35 – 11:45	**5. Cytomegalovirus Seroprevalence in Irish Blood Donors.** **Dearbhla Butler**, Dermot Coyne, Padraig Williams, Allison Waters, Tor Hervig, Niamh O'Flaherty

Times include presentation and discussion. At least one quarter of the time should be dedicated to the discussion.

M 2 Prosocial behavior & donor motivation

Friday, 10:30-11:45, LC.0.004 (Galerie)
Chair: Richard Mills

10:30 – 10:50	**1. The Prosocial Phenotype and Cooperation: Insights from the COVID-19 Pandemic.** **Richard Mills**, Emanuele Di Angelantonio, Rory O'Connor, Karen Wetherall, Seonaid Cleare, Barbara Masser, Heather Clelland, Jack Melson, Claire Niedzwiedz, Daryl O'Connor, Ronan O'Carroll, Stephen Platt, Katherine Robb, Elizabeth Scowcroft, Billy Watson, Angela Wood, Tiago Zortea, Eamonn Ferguson
10:50 – 11:10	**2. Blood donors' engagement in other prosocial activities.** **Antonia Leiße**, Michel Clement
11:10 – 11:25	**3. Play to learn: Increasing knowledge about plasma donation through a video game.** **Alexandra Ciaușescu**, prof. dr. Eva-Maria Merz, prof. dr. René Bekkers, dr. Arjen de Wit
11:25 – 11:45	**4. The efficacy of the AINAR game in reducing the donor's fear and vasovagal reactions.** **Elisabeth Huis in 't Veld**, Judita Rudokaite

Times include presentation and discussion. At least one quarter of the time should be dedicated to the discussion.

M 3 New tools and insights to donor management practice

Friday, 13:00-14:30, LC.2.400 (Clubraum)
Chair: Kaatje le Poole

13:00 – 13:25	**1. The U.S. Blood Supply transfer of knowledge.** **Theresa Pina**, Carla Peterson
13:25 – 13:45	**2. Impact of WhatsApp on donor invitations.** Sara Vallés**, Pilar Córdoba**
13:45 – 14:00	**3. The results of a survey among donors and non-donors in the Netherlands: donor recruitment and engagement could be increased with a health check offered by the blood bank.** **Kaatje le Poole**, Marja J. van Wijk, Çarcia Stegen, Marloes L.C. Spekman, Franke A. Quee, Vera Novotny
14:00 – 14:15	**4. Offering donors an additional health check at donation. Are they interested and can it potentially lead to better donor health?** **Çarcia Stegen**, Marja J. van Wijk, Kaatje le Poole, Marloes L.C. Spekman, Franke A. Quee, Vera Novotny

14:15 – 14:30	**5. The attitude of whole blood donors towards iron supplementation as a blood bank policy: results from the Donor Perception Survey.** **Jan H M Karregat**, Franke A Quee, Katja van den Hurk

Times include presentation and discussion. At least one quarter of the time should be dedicated to the discussion.

H 2 Plasma Donation

Friday, 13:00-14:30, LC.0.004 (Galerie)
Chairs: Hans van Remoortel, Pierre Tiberghien

13:00 – 13:10	**Introduction to session topic** **Hans van Remoortel**
13:10 – 13:30	**1. Frequent US Source Plasma Donors are Not at Risk of Iron Depletion.** George B Schreiber, **Roger Brinser**, Marilyn Rosa-Bray, Zi-Fan Yu, Toby Simon
13:30 – 13:50	**2. A comparison of adverse event rates in NHSBT plasmapheresis donors: old vs modern technology.** Ruth Turner, Alexandra Griffiths (presented by **Shruthi Narayan**)
13:50 – 14:10	**3. Review and assessment of the donor safety among plasma donors.** Mitali Purohit, Mel Berger, Rachpal Malhotra, **Toby Simon**
14:10 – 14:20	**4. Iron Management in Plasma donors?** **Femmeke Prinsze**, Franke Quee, Shahryar Ghasemi Nezjad, Katja van den Hurk
14:20 – 14:30	**5. Adverse reactions in plasma donation – insufficient registration or a neglected problem?** Christina Mikkelsen, Mie Topholm Bruun, Betina Sørensen, Rune Larsen, Sys Hasslund, **Bitten Aagaard**

Times include presentation and discussion. At least one quarter of the time should be dedicated to the discussion.

H 3 Haemovigilance

Friday, 16:15-17:45, LC.0.100 (Festsaal 1)
Chair: Johanna Castrén

16:15 – 16:35	**1. Donor adverse events – definitions, recording and reporting, an overview.** **Ramona Darabant**
16:35 – 16:55	**2. Making Haemovigilance Resources Available for Everyone: A Report from the International Haemovigilance Tools Collaborative Project.** Paul Ashford, Yuyun Siti Maryuningsih, **Shruthi Narayan**, Mary Townsend, Barbee Whitaker, Erica Wood
16:55 – 17:05	**3. Adverse reactions in elderly blood donors.** **Niubel Díaz Padilla**, Yared Paalvast, Sanne Bruins, Ties Molenaar

17:05 – 17:20	**4. Oops, we hit the artery! A review of arterial punctures reported at NHSBT Jan 2019-March 2023.** **Shruthi Narayan**, Alexandra Griffiths
17:20 – 17:35	**5. Regular blood donation and the risk of mortality: minimizing the impact of healthy donor effect.** **Md Morshadur Rahman**, Surendra Karki, Andrew Hayen
17:35 – 17:45	**6. Frequent apheresis donation does not increase the risk of bone fractures in donors.** Surendra Karki, **Md Morshadur Rahman**, Andrew Hayen, David O Irving

Times include presentation and discussion. At least one quarter of the time should be dedicated to the discussion.

M 4 Incentives & recruitment

Friday, 16:15-17:45, LC.2.400 (Clubraum)
Chair: Caroline Graf

16:15 – 16:40	**1. The Effect of Personalized Impact Feedback on Social Media Sharing and New Donor Acquisition: A Field Experiment at the Red Cross.** **Pascal Güntürkün**, Nils Wlömert, Lars Eberhart, Martin Schreier
16:40 – 17:00	**2.Blood Donor Incentives across 63 Countries.** **Caroline Graf**, Eamonn Ferguson, Eva-Maria Merz
17:00 – 17:25	**3.Ending the Blood Feud? Evidence that Paid Plasma Collections in the U.S. and Canada Have Not Decreased Unpaid Blood Donations.** **William English, Peter Jaworski**
17:25 – 17:45	**4.Breaking the pattern: Emphasizing the negative trend in blood donations positively affects non-donors.** **Stephan Fally**, Pascal Güntürkün

Times include presentation and discussion. At least one quarter of the time should be dedicated to the discussion.

H 4 Iron deficiency

Friday, 16:15-17:45, LC.0.004 (Galerie)
Chair: Mikko Arvas, David Roberts

16:15 – 16:30	**1. Menstrual blood loss is an important determinant of Hb and ferritin in premenopausal blood donors.** **Sofie Ekroos**, Jan Karregat, Elena Toffol, Johanna Castrén, Mikko Arvas, Katja van den Hurk
16:30 – 16:45	**2. Derivation of a maximum donation frequency for maintaining a healthy donor population.** **Mart Janssen**, Katja van den Hurk
16:45 – 17:05	**3. Can we build better hemoglobin deferral models by using data from several countries?**

	Jarkko Toivonen, Amber Meulenbeld, Tinus Brits, Dorien de Clippel, Veerle Compernolle, Surendra Karki, Marijke Welvaert, Joost van Rosmalen, Emmanuel Lesaffre, Katja van den Hurk, Mikko Arvas, Mart Janssen
17:05 – 17:25	**4. SIMULATED EFFECTS OF FERRITIN SCREENING ON HS-CRP IN RECRUITED DONORS** **Esa Turkulainen**, Jarkko Ihalainen, Mikko Arvas
17:25 – 17:35	**5. Implementation of a nationwide policy regarding the prevention of iron depletion in whole blood donors: assessing donor perception and follow-up.** Carole Leclerc, Cécile Delanoe-Lacroix, Jean-Pierre Lebaudy, Chantal Jacquot, Hervé Meinrad, Sophie Le Cam, Cathy Bliem, Pascal Morel, Pierre Tiberghien, **Pascale Richard**
17:35 – 17:45	**6. Associations between change in hemoglobin from baseline and ferritin in whole blood donors.** **Amber Meulenbeld**, Esa Turkulainen, Chen-Yang Su, Hanke Matlung, Dorine Swinkels, Katja van den Hurk, W. Alton Russell, Mikko Arvas, Mart Janssen

Times include presentation and discussion. At least one quarter of the time should be dedicated to the discussion.

PS	**Poster Session**
	Friday, 14:30-15:00 & 15:45-16:15, LC.0.000 (LC Forum)
H	**Characterization of donors with repeat donations of lipemic plasma at the South Danish Transfusion Service 2021-2022.** Line Strand Andersen, Ulrik Sprogøe, Kjell Titlestad (Presented by **Hege Anett Storhaug**)
H	**A comparative policy analysis of blood donor eligibility criteria across hospitals: The case of Lebanon.** **Samira Chatila**
H	**Plasmavigilance – Adverse Events Among US Source Plasma Donors.** George B Schreiber, Mark Becker, **Michelle Fransen**, Janet Hershman, James Lenart, and Toby Simon
H	**Investigating Donor and Donation Characteristics Influencing Prediction Error of Hemoglobin and Ferritin Trajectories for Blood Donors.** **Amber Meulenbeld**, Yared Paalvast, Katja van den Hurk, Mart P. Janssen
H	**Infection control/hygiene action model as support to the blood donation at Finnish Red Cross Blood Service.** **Saila Vasama**
H	**Cytomegalovirus Seroprevalence in Irish Blood Donors.** **D. Butler**, D. Coyne, P. Williams, A. Waters, T. Hervig, N. O'Flaherty
M	**Blood Donor – am I, am I not? Exploring Perceptions, Understanding, and Self-Identification among Individuals Deferred during Their Initial Blood Donation Attempt.** **Klara Greffin**, Barbara Masser
M	**Blood Donors´ Sense of Safety Before and During the COVID 19 Epidemic.**

	Anu Keisala, Linda Oljemark, Pekka Kukko
M	**Donor-centric Interoperability for Resilience, Promotion and Research.** **F Latorre**, CE Hawks, E Bahillo, M Gil, B Colmenares, D Verma, N Sala
M	**The Impact of easing of COVID 19 precautions to blood donors' appointment making behavior.** **Paula Korhonen**, Metsola Päivi
M	**Development and implementation of a simple and effective webbooking system for new blood donors.** Elisabeth Lauvbakk, Hanne Linaae, Ivy Lotarev, **Lise Sofie H. Nissen-Meyer**
M	**How to Ensure a Memorable Donation Experience.** **Iria Rodriguez**, Pilar Córdoba, Jaume Vilanova
M	**Connecting with donors: empathy maps.** Pilar Córdoba, **Iria Rodriguez**, Marc Satorras, Berta Font
M	**How do we optimise blood donation in Australia?** **Yasmin Mowat**, Bridget Haire, Barbara Masser, John Kaldor, Veronica Hoad, Rachel Thorpe, Hamish McManus, Anita Heywood, Skye McGregor
M	**We have reaped more than we have sowed.** **Polonca Mali**, Natalija Lampreht, Suzana Đorđević
M	**Plasma self-sufficiency: insights for the success of the action plan.** Pilar Córdoba, **Iria Rodriguez**, Marc Satorras, Berta Font
M	**Donation drivers and brakes: a qualitative approach to the human condition.** Pilar Córdoba, **Iria Rodríguez**, Jaume Vilanova

Program Saturday, September 9

M 5 Donor diversity

Friday, 9:30-11:00, LC.0.200 (Festsaal 2):
Chair: Kathleen Chell

09:30 – 09:55	**1. Breaking down barriers: recruiting donors of african acestory in Ireland.** **Allison Waters**, Niamh O'Flaherty, Ellen McSweeney, Safa Eltom, Auxi Martinez, Tina Selby, Fiona McDonagh, Barry Egan, Tor Hervig
09:55 – 10:20	**2. Exploring motivators, barriers, and current practice of talking about blood donation among culturally diverse donors.** **Kathleen Chell**, Faiza El-Higzi, Barbara Masser, Michael Polonsky, David Irving
10:20 – 10:45	**3. The Power of Science, Art, and Co-Design to Encourage Black Blood Donors: Co-Designing and Evaluation Message Free Dramas.** **Eamonn Ferguson**, Richard Mills, Erin Dawe-Lane, Angela Wood, Emanuele Di Angelantonio, Barbara Masser, Abiola Okumbanjo
10:45 – 11:00	**4. Religion-Based Collaboration to Increase Blood Donation Rates in Underrepresented Minority Population: The Experience of the Dutch National Blood Bank.** **Thomas Blom**, Niubel Díaz Padilla, Fernando Gonzalez Garcia, Ties Molenaar

Times include presentation and discussion. At least one quarter of the time should be dedicated to the discussion.

Special Session 1: Strengthening voluntary non-remunerated plasma collection capacity in Europe: First results from the EU-funded project SUPPLY

This special session includes both contributions with a donor health and management perspective.
Saturday, 09:30-11:00, LC.0.100 (Festsaal 1)

Panel discussion
Panelists: Katja van den Hurk (Sanquin Research), Eva-Maria Merz (Sanquin Research), Christian Erikstrup (Aarhus University Hospital), Michel Clement (University of Hamburg)

1. Overview of incentives for plasma donation in Europe.
Elena Koch, Antonia Leiße, Besarta Veseli, Marloes Spekman, Eva-Maria Merz, Edlira Shehu, Jean-Baptiste Thiebert, Antoine Beurel-Trehan, Michel Clement (on behalf of WP2)

2. Adverse events and health effects in plasmapheresis donors: A scoping review and gap analysis.
Natalie Schroyens, Hans Van Remoortel, Tine D'aes, Emmy De Buck, Susan Mikkelsen, Pierre Tiberghien, Veerle Compernolle, Katja van den Hurk, Christian Erikstrup,

3. The impact of frequent plasmapheresis on plasma donor safety or health: a systematic review of controlled experimental and observational studies.
Hans Van Remoortel, Tine D'aes, Natalie Schroyens, Emmy De Buck, Susan

Mikkelsen, Pierre Tiberghien, Veerle Compernolle, Katja van den Hurk, Christian Erikstrup, on behalf of SUPPLY Work Package 5

4. Practices to protect plasma donors: An inventory of practices to protect the health of plasma donors in Europe and beyond.
Marloes Spekman, Susan Mikkelsen, Christian Erikstrup, and Katja van den Hurk on behalf of SUPPLY Work Package 5

Special Session 2: Time for a new blood donor iron management paradigm?

Saturday, 11:30-13:00, LC.0.200 (Festsaal 2):

General discussion
Panelists: Mart Janssen (Sanquin Research), Katja van den Hurk (Sanquin Research), Mikko Arvas (FRCBS)

The chairs will present thought-provoking scientific evidence that point to potential changes in donor management/deferral policies. The implications of the presented findings will provide the basis for a discussion among academics and representatives from blood banks involved in donor management and donor health. The aims of this session are:

- To highlight and discuss the impact of measurement and biological variability on current on-site donor deferral rates.
- To discuss the proposed zero drop in Hb for donors as a target for repeat donor management.
- To obtain insight in potential hurdles that would prevent policy changes within blood banks and at a regulatory level, and to discuss what actions would be required to facilitate such changes.
- Acquire direction and support from the blood bank community for adopting the proposed donor deferral paradigm.

Special Session 3: Innovation in Plasma donation

Saturday, 09:30-11:00, LC.0.200 (Festsaal 2):

General discussion
Chair: Marloes Spekman (Sanquin Research)

1. Innovation in a plasma donation center: Experiences at the Dutch Powerbank.
Ellen Kloos

2. Starting a plasma collection program.
Lee Wright

3. Making connections: exploring strategies to recruit and retain new plasma donors.
Kelly Holloway

4. 'I would still donate if it wasn't there, but I like that you get something in return': Plasma donors' perceptions about and effects of a new loyalty program.
Marloes Spekman

Abstracts Session M1: Donor retention

M 1	Donor retention
	Friday, 10:30-11:45, LC.0.100 (Festsaal 1) Chair: Joris Melchior Schröder
10:30 – 10:50	**1. This is MY donation: Psychological ownership in blood donation.** ***Abigail Edwards***, Rachel Thorpe, Barbara Masser, Fiona Barlow
10:50 – 11:10	**2. The impact of competition on the donation activity of new, novice and experienced plasma donors.** ***Kathleen Chell***, Jack Bryant, Torres Woolley, Tarun Sen Gupta
11:10 – 11:25	**3. Investigating motivations to donate blood in a team.** ***Kathleen Chell***, Kristen Baker, Margaret Minero, Batya Atlas
11:25 – 11:45	**4. How group membership affects blood donation behaviour: results from a nation-wide group-donation programme in Australia.** ***Joris M. Schröder***, Kathleen Chell, Lorenz Goette

This is MY donation: Psychological ownership in blood donation.

Abigail Edwards, Rachel Thorpe, Barbara Masser, Fiona Barlow

BACKGROUND: In Australia, an estimated 26.5% of first-time blood donors will not return to donate again. As demand for blood products is predicted to increase, retaining existing donors provides a key opportunity to increase the current donor panel. Based in Identity Theory, having blood donation be part of a donor's self-identity is considered a core motivational mechanism for sustaining donation behaviour. In the absence of effective interventions to build identity, psychological ownership provides a potential avenue for fostering a donor identity and subsequent blood donation behaviour. Psychological ownership stems from the organizational behaviour literature and is the sense of ownership one feels over both material (e.g., blood collection agency) and abstract immaterial (e.g., blood donation behaviour) possessions. Psychological ownership has also recently been proposed to predict sustained volunteering behaviour. Our previous research offered preliminary evidence that donors' psychological ownership towards a blood collection agency increases with their level of past donation experience, and is positively correlated with both their blood donor self-identity and their intentions to donate blood in the future. However, as we are the only researchers who have explored psychological ownership in a blood donation context, we lack foundational knowledge in both how blood donors construct ownership and what factors they see as critical to developing psychological ownership.

AIMS: We aimed to explore whether and how blood donors construct psychological ownership. Specifically, we explored how donors personalise their blood donation (routines and habits), and whether this personalization reflected core elements of psychological ownership (knowledge and control).

METHODS: We conducted 20 semi-structured interviews with Australian blood donors. Participants self-reported to have successfully completed between 2 and 443 blood donations (whole blood,

plasma, and platelets). The primary focus of our interviews was if participants experience ownership over their blood donation experience through their donation routines and habits.

RESULTS: The majority of participants' routines and habits were created around enhanced donation preparation. Specifically, donors used a combination of knowledge gained from their blood collection agency and their own personal experience to personalize how they prepare for donation. Through this personalized preparation donors exerted control over their desired donation outcome. We propose that through donors' perceived effectance of their donation outcome, donors gain control over their blood donation experience. In this way, participants express ownership over their blood donation process and experience. In our previous quantitative research, donation behaviour was positively associated with psychological ownership towards a blood collection agency. However, participants in interviews expressed limited to no perceived ownership over their blood collection agency. Instead, participants saw their blood collection agency as a facilitator of their donation.

CONCLUSION: Our study provides evidence for how donors incorporate control and knowledge into their donation routines to gain ownership over their donation experience. This enhanced understanding of psychological ownership within a blood donation context will be used in subsequent studies to develop interventions to enhance ownership within blood donation and subsequently increase blood donation retention behaviour.

The impact of competition on the donation activity of new, novice and experienced plasma donors.

Kathleen Chell, Jack Bryant, Torres Woolley, Tarun Sen Gupta

BACKGROUND: In Australia, plasma can be donated as often as every 2 weeks, yet fewer than 50% of new plasma donors return to donate. Those who return give on average 4.1 plasma donations per year, with 50% of donors giving less than three plasma donations per year. One strategy available to improve blood donor recruitment and retention are blood donation competitions. In a competition setting, social identity theory asserts that people are motivated to enhance the status of their ingroup relative to an outgroup on a salient dimension for social comparison (Shipley, 2008), such as number of blood donations. In fact, research has shown the use of competition or 'rivalry campaigns' can be a more effective method of increasing voluntary organ donor registrations than ingroup targeting strategies (Hitt et al., 2014; Smith et al., 2016). Further, motivation to donate is said to shift from external to internal sources as the donor career develops (France et al., 2014). Thus, while the desire to help others (intrinsic motivation) underpins blood donation throughout a donor's career, competition (extrinsic motivation) may be particularly important for new and novice donors. However, the impact of using competition as a means for blood donor recruitment and retention remains under-explored.

AIMS: To investigate the impact of competition on the recruitment and retention of blood donors.

METHODS: A prospective cohort analysis of blood donation activity compared two groups of donors who attended a donation appointment at the plasma-only Townsville Donor Centre during the 2021 Vampire Cup: an 8-week inter-university blood donation competition in Australia. One group included n=288 competition donors (i.e., donating as part of the Vampire Cup) and the second group included n=880 public donors (i.e., who were not donating as part of the competition). T-tests were used to compare donation activity during and after the 2021 Vampire Cup, with results split by donor status (new = no prior donations; novice = 1-5 prior donations; experienced = 6+ prior donations).

RESULTS: The competition donors were significantly younger (mean age=24.9 years; p<.001) and less experienced (mean prior donations = 6.2, p<.001) with a higher proportion of females (60.8%; p<.001), than the public donors (mean age=46.2 years; mean prior donations = 46.1; 45.8% female). The 2021 Vampire Cup not only attracted a higher proportion of new donors (twice as many as the public donor group), but these new competition donors also donated significantly more often during and after the competition. The competition also motivated increased donation activity among novice and experienced donors, however this was not sustained following the competition (see Table 1).

CONCLUSION: This research provides preliminary evidence to support the use of competition for blood donor recruitment, retention, and intermittent boosts to donation frequency.

Table 1. Donation Activity by Donor Status

		2021 Vampire Cup		10-month Follow-Up		2022 Vampire Cup	
	n	*Collections Mean (SD)*	*Repeat Attend*	*Collections Mean (SD)*	*Return Rate*	*Collections Mean (SD)*	*Return Rate*
New Donors							
Competition	113	1.4 (0.9)	38.9%	2.2 (3.3)	61.1%	0.6 (1.0)	31.9%
Public	59	0.7 (0.8)	22.0%	1.2 (2.5)	55.9%	0.3 (0.7)	28.8%
p (t-Test)		<.001***	.019*	.039*	.518 ns	.019*	.684 ns
Novice Donors							
Competition	80	1.5 (0.9)	38.8%	2.2 (3.0)	65%	0.5 (0.9)	27.5%
Public	142	1.2 (0.7)	22.5%	2.4 (3.3)	67.6%	0.4 (0.8)	27.5%
p (t-Test)		.021*	.014*	.605 ns	.694 ns	.645 ns	.996 ns
Experienced Donors							
Competition	95	2.0 (1.1)	65.3%	5.5 (5.5)	87.4%	1.1 (1.4)	50.5%
Public	667	1.8 (1.1)	47.8%	7.0 (5.9)	88.9%	1.1 (1.4)	52.2%
p (t-Test)		.034*	.001**	.023*	.658 ns	.966 ns	.764 ns

Note: New donors = 0 prior donations; Novice donors = 1-5 prior donations, Experienced donors = 6+ prior donations; Repeat Attend = % who attended >1 donation appointment; Return Rate = % who returned to donate; SD = Standard deviation; * *p*<.05; **p<.01; ***p<.001; ns = non-significant.

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Shipley A. Social comparison and prosocial behavior: An applied study of social identity theory in community food drives. Psychol Rep. 2008; 102:425-434.

Smith SW, Hitt R, Park HS, Walther J, Liang Y, Hsieh G. An effort to increase organ donor registration through intergroup competition and electronic word of mouth. J Health Commun. 2016; 21:376-86.

Investigating motivations to donate blood in a team.

***Kathleen Chell**, Kristen Baker, Margaret Minero, Batya Atlas*

BACKGROUND: Australian Red Cross Lifeblood (Lifeblood) have developed a world-first group donation program, called Lifeblood Teams, that leverages social connections by allowing donors to join and donate with others in a team. This novel program has resulted in more than 13,000 teams across Australia contributing 36% of all donations for 2021-22. Research on blood donor motivations has primarily considered blood donation as an individual activity. Although social influences (e.g., family, friends, work colleagues) are often reported as important in the decision to donate blood (Suemnig et al., 2017; Yuan et al., 2011), the factors that motivate blood donation as a social activity (i.e., join a team and donate with others in a group) remain relatively unexplored.

AIMS: To investigate what motivates blood donors to donate as part of a team and what would motivate increased team participation.

METHODS: Donors who were registered as a member of an active Lifeblood Team (n = 646) completed a 10-minute online survey which investigated self-reported motivations that contribute to team participation.

RESULTS: Participants largely credited their workplace for influencing their decision to join a team, through both work colleagues (37.8%) or as an official work initiative (22.4%), followed by Lifeblood staff (13.5%) and friends (10.3%). Convenience (i.e., it is easy and free to donate in a team), being a role model to others, and an extra warm glow were the key motivating factors to being part of a team. Further, blood donation as a social activity appears to provide donors with additional benefits that add to their blood donation experience (e.g., it's good to do something with others), and benefit Lifeblood through greater advocacy. Most donors considered more opportunities to donate as a group (e.g., set donation days and/or vans to allow team donations to be more accessible) and improved visibility and recognition of team achievements in the workplace, Lifeblood's website and local community would motivate greater team participation (see Table 1).

CONCLUSION: This study revealed that workplaces, convenience, and social aspects are key themes influencing blood donors' team participation. Workplace support and recognition are critical for the recruitment of donors to teams. Further, ensuring team donation activity is convenient, emphasizing the social aspects of donating in a team, and appropriately recognizing team accomplishments will encourage greater team participation and action (i.e., recruitment and retention of blood donors).

Table 1. Survey results

Question	Top 4 Responses	Response *(% = yes)*
Which of the following influenced your decision to	Work colleagues	37.8%
	Official work initiative	22.4%

join your current Lifeblood Team?	Lifeblood staff	13.5%
	Friends	10.3%
Which of these reasons motivate you to be part of a Lifeblood Team?	It's easy to donate	42.0%
	It's free to participate in and donate	32.3%
	I like to set an example/ be a role model for others	24.3%
	It makes me feel good to be in a team	15.8%
Which of the following benefits, if any, have you experienced being part of Lifeblood Team?	Encouraging others to donate	43.3%
	It's good to do something important with others	30.8%
	Raising awareness through team activity	19.3%
	I enjoy the social aspect of being part of a team	7.0%
How motivating would each of the below be in getting people like you to join and be involved in a Lifeblood Team?	Set donation days and/or vans to allow team donations to be more accessible	55.4%^
	Your overall team being recognised through your place of work	52.2%^
	Team achievements published on Lifeblood website	47.2%^
	Your overall team being recognized in your local community	42.1%^

Note: ^ % who reported the item would be somewhat or very motivating.

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How group membership affects blood donation behaviour: results from a nation-wide group-donation programme in Australia.

Joris M. Schröder, Kathleen Chell, Lorenz Goette

BACKGROUND: Blood donations enable transfusions, many routine medical treatments, and the production of life-saving drugs. For blood collection, most countries rely on the prosocial behaviour of their citizens, but almost all of them struggle to meet their demand. Past research suggests that group formation among donors might be a promising mechanism to increase and sustain contributions over time (Chapman, 2019; Chaudhuri, 2011; Guido, 2019). Yet, it is unclear to what extent results from these laboratory experiments will translate to the field.
In this paper, we will analyse a large-scale group-donation programme implemented in Australia. Nationally responsible for the collection of blood donations is the Australian Red Cross Lifeblood (ARCL). Since the 1990s, the ARCL has gradually introduced a group-donation programme. Through the programme, donors are encouraged to form groups with other donors, and to donate together with these groups. As of 2015, a consistent implementation of this programme has been in place. The

programme now involves groups from just two to thousands of members, and groups among family, friends, colleagues, or neighbours. In 2022, about 36% of all donations were made by members of a such a group.

AIMS: To test the hypotheses that joining a blood donor group increases donation frequency, and that joining a more active group in terms of their donations more strongly increases an individual's donation frequency than joining a less active group.

METHODS: We draw on data covering the complete Australian blood donor population over the period from 2014 to 2019. We use a preregistered quasi-experimental differences-in-differences design that uses the differences in timing when donors join a group to identify the effect of joining a group on donation behaviour.

RESULTS: As of yet, results are not available. The project is currently at the stage of preregistration, and data will only be accessed after preregistration. However, we are confident that we will be able to present results in September.

CONCLUSION: While results are not yet available, we expect to make a strong contribution to the literature on blood donor retention, and the broader field of institutional design for motivating prosocial behaviour (Ferguson, 2022). Our results will show to what extent group-formation can increase real-world prosocial behaviour in the form of blood donations, and whether some groups are more effective than others in doing so. The evidence provided in this paper, regardless of results, will therefore be instrumental to informing the practice of blood banks, and potentially other organizations that are dependent on the repeated contributions of individuals, such as organizations in the field of charitable giving or volunteering.

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Abstracts Session M2: Prosocial behavior & donor motivation

M 2	Prosocial behavior & donor motivation
	Friday, 10:30-11:45, LC.0.004 (Galerie) Chair: Richard Mills
10:30 – 10:50	**1. The Prosocial Phenotype and Cooperation: Insights from the COVID-19 Pandemic.** **Richard Mills**, Emanuele Di Angelantonio, Rory O'Connor, Karen Wetherall, Seonaid Cleare, Barbara Masser, Heather Clelland, Jack Melson, Claire Niedzwiedz, Daryl O'Connor, Ronan O'Carroll, Stephen Platt, Katherine Robb, Elizabeth Scowcroft, Billy Watson, Angela Wood, Tiago Zortea, Eamonn Ferguson
10:50 – 11:10	**2. Blood donors' engagement in other prosocial activities.** **Antonia Leiße**, Michel Clement
11:10 – 11:25	**3. Play to learn: Increasing knowledge about plasma donation through a video game.** **Alexandra Ciaușescu**, prof. dr. Eva-Maria Merz, prof. dr. René Bekkers, dr. Arjen de Wit
11:25 – 11:45	**4. The efficacy of the AINAR game in reducing the donor's fear and vasovagal reactions.** **Elisabeth Huis in 't Veld**, Judita Rudokaite

The Prosocial Phenotype and Cooperation: Insights from the COVID-19 Pandemic.

Richard Mills, Emanuele Di Angelantonio, Rory O'Connor, Karen Wetherall, Seonaid Cleare, Barbara Masser, Heather Clelland, Jack Melson, Claire Niedzwiedz, Daryl O'Connor, Ronan O'Carroll, Stephen Platt, Katherine Robb, Elizabeth Scowcroft, Billy Watson, Angela Wood, Tiago Zortea, Eamonn Ferguson

BACKGROUND: Research into the differences between health-related donations (blood, organs) and other philanthropic acts (money, time) is limited. The COVID-19 pandemic highlighted the crucial need for mass cooperation to control the virus, which might be influenced by individuals' prosociality – their willingness to act in ways that mainly serve others, at their own expense. Prior research has shown evidence suggesting that prosocial preferences are linked to various forms of cooperation, such as pro-environmental behaviour, labour market outcomes, redistributive voting, and cooperative behaviour during COVID-19 [1-4]. However, many of these studies are cross-sectional, not exploring how different types of prosocial behaviour affect collective action over time. The cooperative 'phenotype' literature suggests that many forms of prosociality are domain-general and temporally stable [5]. We explore the veracity of this position by asking if blood and organ donors are more likely than those non-health-based philanthropic preferences (time, money) to act pro-socially by complying with lockdown rules to reduce the spread of the virus.

AIMS: Using a unique panel survey dataset from the UK, we study how health (blood, organ donations) and non-health (money, time) prosocial measures preferences predict cooperation during the UK pandemic. We also explore variations across lockdown stages, acknowledging shifts in government guidelines and corresponding social social norms.

METHODS: We used quota survey data for a national sample, spanning six waves from March to November 2020, coinciding with UK lockdowns. Using panel estimation (Stata 18) techniques, we investigated how prosociality measures of cooperative behaviour during the pandemic (e.g., social distancing, hand hygiene) vary by health-related (blood donation, organ donor registry) and non-health (charitable donations, volunteering) helping preference across the pandemic.

RESULTS: The results show that both health and non-health related measures of prosociality are significantly correlated with cooperation during the pandemic. A surprising finding is that there are no differences between health- and non-health based philanthropy This point towards a domain-general level of prosociality. However, there are some importat temporal dynamics. For example, during the first lockdown higher levels of prosociality (health and non-health) are associated with higher levels of following guidelines. Yet, when lockdown restrictions ease, behaviour converged such that people with and without prosocial preferences acted in the same way. These results are surprising, as one might expect behaviour across all levels of prosociality to converge in situations when the social norm is strong (i.e., in lockdown).

CONCLUSION: This paper shows that during the pandemic, those with a preference for health philanthropy (blood donors, organ registry) were more compliant than those who had no prior history of prosocial behaviour. However, over time, they exhibited similar patterns of cooperation with COVID-19 measures as those who engaged in other types of prior prosociality. We see that prosociality is in fact more important when lockdown restrictions are in place than when not. This provides new and novel insights into how blood donation is linked to other aspects of prosociality and how donors responded the pandemic. This allows us to better understand our donors and how to reach out to them in times of crisis. We discuss the policy implications.

FIGURE:

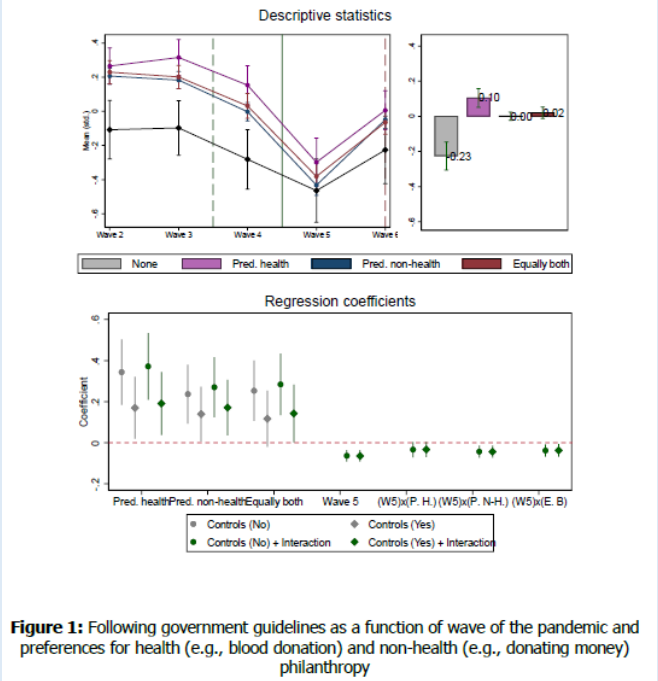

Figure 1: Following government guidelines as a function of wave of the pandemic and preferences for health (e.g., blood donation) and non-health (e.g., donating money) philanthropy

Note: 95% confidence intervals. Key measures include: (1) 'Government guidelines' – a standardised measure made up of leaving house, stated social distancing behaviour, washing hands behaviour and meeting people externally (i.e., guidelines = leave-house + social-distance

+ wash-hands + meet-external); and (2) the various types of philanthropic behaviour are related to blood donation, organ registration, monetary donation, and volunteering time to charity. The following categories: (i) 'None' for participants who stated that they have not engaged in any of these donation behaviours; (ii) 'Pred. health' for participants who stated that they predominantly engaged in blood or organ (health) donation behaviours; (iii) 'Pred. non-health' for participants who stated that they predominantly engaged in money or volunteering donation behaviours; and (iv) 'Equally both' for participants who stated that they engaged equally in health (blood and/or organ) and non-health (money and/or time) donation behaviours. The top-left figure represents the averages of the government guidelines over six waves of the pandemic from Wave 1 (March/April 2020), Wave 2 (April 2020), Wave 3 (April/May 2020), Wave 4 (May/June 2020), Wave 5 (July/August 2020), and Wave 6 (October/November 2020) for the different types of health and non-health-based behaviours. The dashed green line represents leaving lockdown in the UK (a soft policy change, May 2020). The solid green line represents leaving lockdown (a hard policy change, July 2020). The dashed maroon line represents entering lockdown (a soft policy change, October 2020). The top-right figure represents the averages across all six waves. The bottom figure shows coefficients estimates for several generalised estimating equations (GEEs) suitable for longitudinal panel data. Regression coefficients controls (no, yes) as well as interactions terms for wave 5, after a hard policy change of leaving lockdown in the UK (no, yes). Additional controls include age, gender, ethnicity, education, region living in the UK, high risk grouping and key worker status.

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Blood donors' engagement in other prosocial activities.

Antonia Leiße, Michel Clement

BACKGROUND: To meet the challenges induced by the demographic transition, a sufficient blood supply must be ensured by having dedicated donors (Wevers et al., 2014). Blood donors are characterized by a motivation to help others (Stock & Möckel, 2021), which is considered a core element of the definition of prosocial behavior (Batson & Powell, 2003). Besides donating blood, people can also engage in other forms of prosocial activities, including volunteer work and taking care of others. This is important as individuals are not always eligible to donate blood due to certain life events (e.g., pregnancy) and to retain them in the pool of potential future donors of blood, money, or for other volunteering tasks.

AIMS: Our aim is to analyze blood donors' engagement in other prosocial activities, namely money donation, taking care of persons in need of care, and voluntary work.

METHODS: The analyses rely on data of the Socio-Economic Panel which is considered a representative household survey for the German population with more than 20,000 respondents annually. We used data of the survey waves 2015 and 2020 to investigate individuals' changes in blood donation behavior over time by classifying donors into six groups: (1) active donors, (2) non-donors, (3) still-active donors, (4) former-active donors, (5) newly active donors, and (6) never-donors. We analyze pairwise group differences between the types of blood donors regarding the outcome variables money donation, taking care of persons in need of care and volunteer work using chi2-tests. Moreover, we control for potential selection effects using propensity score matching techniques.

RESULTS: There are significant differences between active blood donors and non-donors regarding money donation and voluntary work with active blood donors being significantly more engaged in both prosocial activities. Regarding the comparison of (3) still-active donors and (4) former-active donors, as well as (5) newly active donors and (6) never-donors, we only observe significant differences in terms of money donation. Therefore, still-active donors and newly active donors are more engaged in money donation compared to their respective counterparts.
The results remain stable even after controlling for background characteristics by using propensity score matching, including sociodemographic and socioeconomic (e.g., age, hours of job, net earnings last month), psychographic (e.g., satisfaction with life, risk affinity) as well as health-related factors (smoking status, hours of sleep).

CONCLUSION: Blood banks can offer individuals other possibilities for social engagement besides donating blood, as not everyone is eligible to donate blood, e.g., because of temporary or long-term deferrals. Based on the assumption that individuals donate blood for prosocial motives, e.g., to help others (Stock & Möckel, 2021), providing other forms of social engagement is a promising strategy to strengthen prosocial behavior in a population and to retain donors to an organization.

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Play to learn: Increasing knowledge about plasma donation through a video game.

Alexandra Ciaușescu, prof. dr. Eva-Maria Merz, prof. dr. René Bekkers, dr. Arjen de Wit

BACKGROUND: Many European countries are facing plasma shortages, imports from countries such as the US being needed in order to ensure a sufficient supply. In the Netherlands only 55% of the national plasma demand is met by the Dutch blood bank, Sanquin. This shortage of plasma donors is of growing concern, as there is a 7% yearly increase in the need for plasma. Lack of awareness among people regarding plasma donation is a potential explanation for the low number of donors. This lack might stem from limited learning opportunities for individuals to understand the importance of plasma donation; as only 2.5% of the Dutch adult population is part of the donor pool it is unlikely for most people to know a donor and talk about the subject. Also, plasma donation is not

taught in Dutch schools. One approach to increasing awareness about plasma donation is using informal educational methods.

AIMS: We developed and intend to test a serious game about plasma donation. Serious games are a type of special video game in which education rather than entertainment is the primary focus. We want to explore whether the serious game about plasma donation that we developed increases knowledge about plasma donation among children and adolescents in the Netherlands.

METHODS: This research is a collaboration with the Science Live program, an initiative of the NEMO Science Museum in Amsterdam that allows researchers to invite museum visitors to volunteer as participants for different projects. In the period 22 July- 2 August 2023, we will invite children aged 8-17 that are visiting the museum to play the game. First, we will ask them to fill in a pen-and-paper questionnaire containing open questions about plasma donation and demographic questions. Then we will ask the participants to play the game. Afterwards, through another pen-and-paper questionnaire, we will ask the same open questions about plasma donation as in the beginning and additionally questions about the game experience. We will compare the answers before and after playing the game while controlling for the age, gender, educational level and game experience of the players.

RESULTS: We intend to present the preliminary results of the intervention at the conference.

CONCLUSION: We hope that the results of our research will support blood banks in developing efficient strategies aimed at ensuring a sufficient future plasma donor pool.

The efficacy of the AINAR game in reducing the donor's fear and vasovagal reactions.
Elisabeth Huis in 't Veld, Judita Rudokaite

BACKGROUND: In the FAINT study, multiple artificial intelligence algorithms have been developed to assess whether it is possible to predict the occurrence of vasovagal reactions based on automated video analyses of a donor's face in the waiting room. These were implemented in an AI driven serious biofeedback game called AINAR (Artificial Intelligence for Needle Anxiety Reduction). The goal of the AINAR smartphone game is to help donors prevent and conquer their needle fear and vasovagal reactions, ensuring a pleasant donation experience. The game monitors the donors' well-being through analysis of the smartphones' front facing video stream and continuously controls the in0-game weather based on the outcome. If the algorithm picks up impending signals of fear or VVR, it starts to rain or even snow, and the donor has to try to find out how they can control the weather. If the donor finds a strategy that decreases the risk of VVR, the weather will respond, which teaches the player what works for them.

AIMS: The aim of this study is to assess the efficacy of the AINAR game in reducing emotional and physical emotional reactions and the evaluation of the donors.

METHODS: Donors will be recruited through a banner and flyers at three BCC. Through a survey, data on the prevalence of needle fear and blood draws (using the Blood Donation Fear Inventory [1]), and history of adverse emotions and vasovagal reactions will be collected. Furthermore, it includes a post-donation screening of how the donor rated their emotions and vasovagal reactions during the donation, using the Blood Donation Reaction Inventory [2], and the Blood Donor Anxiety Scale [3], and whether the weather in the game reacted or changed. In addition, intention and self-

efficacy to return for a subsequent donation is assessed using items from the Theory of Planned Behavior. Questions on whether, when (before donation or after donation) and how long the donors played the game will be included, and for donors who did play the game ratings of to what extend the donors appreciate the game is assessed using the GUESS [4] and Net Promotor Scores. Using this data, we will assess who is more likely to play and like the game, and whether playing the game prior to donation reduces the post-donation levels of adverse emotional and physical reactions, and whether this results in a higher intention to return.

RESULTS: The study will run in the spring and summer of 2023, at three blood collection centers in the Netherlands. The results will be discussed during the presentation.

CONCLUSION: Even though we have established that the algorithms are able to monitor the donor wellbeing well, especially picking up signals of fear or fainting before they escalate, we have yet to establish whether the game is accepted and received by donors, and whether playing the game is able to help them prevent adverse emotional and physical reactions.

FIGURE 1: AINAR game and changing weather conditions.

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Abstracts Session M3: New tools and insights to donor management practice

M 3	New tools and insights to donor management practice
	Friday, 13:00-14:30, LC.2.400 (Clubraum) Chair: Katja le Poole
13:00 – 13:25	**1. The U.S. Blood Supply transfer of knowledge.** **Theresa Pina**, Carla Peterson
13:25 – 13:45	**2. Impact of WhatsApp on donor invitations.** Sara Vallés**, Pilar Córdoba**
13:45 – 14:00	**3. The results of a survey among donors and non-donors in the Netherlands: donor recruitment and engagement could be increased with a health check offered by the blood bank.** **Kaatje le Poole**, Marja J. van Wijk, Çarcia Stegen, Marloes L.C. Spekman, Franke A. Quee, Vera Novotny
14:00 – 14:15	**4. Offering donors an additional health check at donation. Are they interested and can it potentially lead to better donor health?** **Çarcia Stegen**, Marja J. van Wijk, Kaatje le Poole, Marloes L.C. Spekman, Franke A. Quee, Vera Novotny
14:15 – 14:30	**5. The attitude of whole blood donors towards iron supplementation as a blood bank policy: results from the Donor Perception Survey.** **Jan H M Karregat**, Franke A Quee, Katja van den Hurk

The U.S. Blood Supply transfer of knowledge.

Theresa Pina, Carla Peterson

BACKGROUND: We are an association of blood-banking professionals that provides educational and networking opportunities and influences public awareness about the need for blood donors. ADRP brings together professionals in donor recruitment, donor collections, donor experience, and marketing/communications for blood and tissue donation organizations.
In the United States, a national blood program does not exist; instead, over 50 independent blood centers are owned and operated independently of a government agency and government funding. Although blood operators are independent of each other and a government agency, centers receive policy and guidance from the U.S. Food and Drug Administration and quality standards from the AABB to maintain accreditation. Hence their operational standards can vary from center to center. U.S. centers are not-for-profit, often competitive in certain regions, and have no guidance on price. ADRP conducted its second annual survey of member centers to understand U.S. blood centers' operational challenges and trends. With participating centers, we will share how efficiently and effectively they operate their blood collections and donor recruitment efforts. In addition, how collaboration and/or competition can impact different regions.

There is no shortage of demographic changes, social shifts, and disruptions impacting the sustainability of the blood supply. One of the most significant U.S. donor eligibility changes was initiated this year. We will share what those changes are, the challenges centers face, and the public messaging issues since centers will implement the changes on their individual timelines.
The U.S. blood supply is labeled as "volunteer" as donors in the U.S. are non-renumerated. With somewhat loose guidelines for products to hold a "volunteer" label, centers are left to determine donor incentives. And due to national blood shortages, blood center operators have become more liberal in donor giveaways. With limited social science research, U.S. centers and ADRP are working to understand better donor motivations and what ultimately drives the behavior of giving. We will share those current trends and the challenges we see ahead.

AIMS: Share findings and transfer of knowledge from a U.S. perspective for audience to compare to their programs.
We would share the following:

- The U.S. blood supply
- Operational trends
- New FDA donor eligibility changes
- Trends in donor incentives

METHODS: Annual survey of member centers, and collection of industry findings.

RESULTS: Survey shows U.S. center results vary by size categories and from international center comparisons.

CONCLUSION: There are notable differences, and centers independently operate to meet the needs of the collective U.S. blood supply.

REFERENCES: -

Impact of WhatsApp on donor invitations.

Sara Vallés**, Pilar Córdoba**

BACKGROUND: Instant messaging channels have impacted on how we relate with our environment. As a society, we expect the information we receive to be up-to-date, brief, concise and, most importantly, two-way.
In the era of over-information, and given the need to obtain donations every day, it is essential to develop a communication strategy that puts the donor at the centre and studies which communication channels have the greatest conversion rate.
The Banc de Sang i Teixits (Blood and Tissue Bank, BST) must guarantee the supply and proper use of blood components, interacting with more than 300,000 active donors. To date, the main messaging channels have been email and SMS. Now WhatsApp enters the scene, as 9 out of 10 people use this channel to interact on a daily basis.

AIMS: Analyse the behaviour of donors to WhatsApps from BST. Until now, we had only used this social messaging network as a one-way communication channel, between donor and BST, but not from BST to donor.

The main objective is to notify donors that they can now donate again through WhatsApp, using a more personal, friendlier tone and channel.

METHODS: The first step before incorporating this communication channel as another option in inviting donors to donate, is to analyse whether receiving WhatsApp and not SMS or mail causes a change in the donor's behaviour.
That is why we have based our work on an A/B TEST, taking two representative samples of donors in Barcelona. Some have been invited by WhatsApp and others by SMS. In addition, to compare with each other, we have made variables of these tests, changing times, communication tone and content wording. Also, in some cases we have sent an opt-in, a message giving consent to send via WhatsApp, and depending on their replies, we have been able to analyse their willingness to donate.

RESULTS: The A/B TEST has allowed us to compare donor responses according to the invitation channel used. We have detected that although the invitation made through WhatsApp, in an initial phase, does not bring more donations, it does create favourable conditions for a conversational environment that SMS or email does not have.
In addition, people who answered YES to the opt-in have a profile that is more favourable to donation, since the conversion rates were higher compared to those who answered NO or did not answer at all.

CONCLUSION: With this new use of the application, we can adopt a more personal approach in our contacts with the donor, creating favourable conditions for a conversational environment that enables doubts to be answered before the donation. This is an advantage over mail and SMS.

REFERENCES: -

The results of a survey among donors and non-donors in the Netherlands: donor recruitment and engagement could be increased with a health check offered by the blood bank.

Kaatje le Poole, Marja J. van Wijk, Çarcia Stegen, Marloes L.C. Spekman, Franke A. Quee, Vera Novotny

BACKGROUND: Recruiting and retaining donors is a challenge for blood banks. A donor must meet a wide range of criteria to be suitable for blood donation. A blood bank is already equipped with the necessary infrastructure to provide these screenings, which could be expanded to be able to offer an additional health check (HC) next to the standard screening. We hypothesized that offering a HC to blood donors can have a positive effect on donor recruitment and donor retention, while also providing the opportunity to improve donor health.

AIMS: To investigate how Dutch donors (D) and non-donors (ND) would perceive a health check (HC) offered by the bloodbank and whether they would make use of it.

METHODS: Sanquin, the organization responsible for the blood supply in the Netherlands, has hired an external research organization to conduct a survey among current D and ND. The HC would encompass measurement of multiple parameters concerning risk factors for the early detection of lifestyle diseases, such as cardiovascular disease or diabetes mellitus. The HC would be done at the time of blood donation. In the period between 3-22 December 2022, an online survey, consisting of 29 questions regarding donorship and the potential effects of offering a health check (HC) on donorship,

was sent out to both current Sanquin blood donors (D) and non-donors (ND). Obtained data were analyzed using Microsoft Excel.

RESULTS: Of the 8,992 invited current blood donors 3,705 (41.5%) responded. 3,531 ND were invited from a panel representative for the Dutch population and were weighed according to sex, age and education with the D. Both groups have a positive opinion about the intention of the blood bank to offer a HC (D 90%, ND 75%), and 89% of the D and 60% of the ND would like to participate in a HC. Most D (90%) have the intention to remain donor and 60% of them confirm that offering a HC could positively contribute to their motivation to do so. Before receiving more information about a HC, 25% of the ND indicated that they are open to becoming a donor and this percentage increased to 42% if they would be offered a HC at donation. 83% of the D and 73% of the ND felt that a HC was an appropriate task for the blood bank. The most popular items to be checked for were cardiovascular diseases (D:77%, ND:69%), diabetes mellitus (D:41%, ND:39%) and
disturbances in mineral and vitamin levels (D:35%, ND:29%).

CONCLUSION: The survey showed that donors as well as non-donors are positive towards the proposition of blood banks offering a HC at donation. The HC could be used both as an incentive to recruit donors, as well as provide a positive contribution to retention of donors.

REFERENCES: -

Offering donors an additional health check at donation. Are they interested and can it potentially lead to better donor health?

Çarcia Stegen, Marja J. van Wijk, Kaatje le Poole, Marloes L.C. Spekman, Franke A. Quee, Vera Novotny

BACKGROUND: Blood banks worldwide are looking for new incentives for donors to start and keep donating blood or plasma. A possible incentive for donor recruitment and retention is offering a health check (HC) at donation. A HC in blood donors could be beneficial for both donors, by contributing to donor health, and blood banks, by improving donor availability.

AIMS: To investigate whether blood donors in the Netherlands are interested in an additional HC at donation and whether results of the HC can be used to improve donor health.

METHODS: Between March 13th and 31st 2023, plasma and whole blood donors at the donation center in 's-Hertogenbosch were offered an additional HC via email. The HC was performed by a specialized provider, &niped, and consisted of a questionnaire on health and lifestyle, biometry measurements (blood pressure, pulse, height, weight, and waist circumference), and blood analysis (lipid profile (total cholesterol, LDL, HDL and triglycerides) and hemoglobin A1c). The results of the HC were communicated directly to the donor via &niped's online platform. Data from the questionnaire, biometry and laboratory measurements were combined into risk profiles. There were risk profiles for lifestyle (stress, exercise, smoking, alcohol and nutrition), organ systems (lungs) and profiles in which questions were combined with measurements (cardiovascular disease, cholesterol, blood sugar, weight and blood pressure). Profiles could be scored as green (healthy), orange (lifestyle intervention advised) or red (professional help advised).

RESULTS: A total of 1,468 donors (620 plasma (42%) and 848 whole blood donors (58%))

received an invitation for the HC. 629 donors (51%) opened the invitation email, the majority of whom (586, 93%) signed up for the HC. Of the donors who signed up 47% were women and 57% was older than 50 years. A total of 547 donors received the results of their HC (questionnaire and height and weight completed at least).
16% of the donors received an overall red health profile (at least one red profile). The red profiles in these donors were smoking (3%), alcohol (1%), cardiovascular disease (13%), cholesterol (13%) and weight (1%). 61% of the donors received an orange overall profile (at least 3 orange profiles).

CONCLUSION: In this prospective cohort study 547 donors underwent a HC at their blood or plasma donation. The fact that 93% of the donors who opened the invitation email also signed up shows the great interest of donors for this type of health information.
In total 76% of donors were advised to improve their overall health either by visiting a health professional (16%) or changing their lifestyle (61%). This indicates that offering a HC to blood donors provides the donors with a great potential for health gain.

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The attitude of whole blood donors towards iron supplementation as a blood bank policy: results from the Donor Perception Survey.

Jan H M Karregat, Franke A Quee, Katja van den Hurk

BACKGROUND: Whole blood donors have an increased risk of developing iron deficiency. Iron deficiency can have detrimental health effects. Therefore, donor iron management policies are of great importance to blood services. Yet, while post-donation iron supplementation is an effective strategy to enhance iron store recovery, research on the perception and willingness of whole blood donors regarding iron supplementation as a blood service policy is lacking.

AIMS: We aim to determine the willingness of whole blood donors to use iron supplements when provided by the blood service. In addition, we assess if the donors' willingness towards iron supplementation is affected by their knowledge level regarding current iron management policies, iron metabolism, and iron supplements.

METHODS: 2500 frequent and 500 new whole blood donors were invited to complete the Donor Perception Survey, a questionnaire designed to assess the perception, knowledge, and attitude of donors regarding iron supplementation. Donors' attitude towards iron supplementation as a blood service policy was assessed through nine five-point Likert scale statements. Furthermore, a scaled sum score (1 – 10) for knowledge level was formed based on a variety of multiple-choice questions regarding current iron management policies, iron metabolism, and iron supplements. A multiple linear regression model was used to assess the association between knowledge level and donor attitude towards iron supplementation as a blood service policy.

RESULTS: 423 male and 670 female donors with a mean age of 55.0±8.6 and 50.6±8.7, respectively, were included in the analysis. 78 donors (7.4%) indicated that they would not be willing to use iron supplements under any circumstances. Iron supplementation as a policy was positively perceived by donors (3.51±1.21 on a scale from 1 to 5, 607 donors scoring ≥4). Donors perceived health maintenance (4.1±0.9) and scientific evidence (3.9±1.1) as the most important reasons for iron supplementation as a blood service policy. Trust in the expertise of blood service staff (0.20, CI: 0.11 – 0.31),

prior iron supplementation use (1.26, CI: 0.84 – 1.68), being a female donor (-1.11, CI: -1.52 – -0.67), donor experience (-1.37, CI: -2.53 – -0.22), age (-0.06,CI: -0.09 – -0.04) and knowledge of iron metabolism (-0.14,CI: -0.28 – -0.02) were all associated with willingness to take iron supplements.

CONCLUSION: Whole blood donors have a positive perception of iron supplementation as a blood service policy. The positive attitude of donors towards iron supplementation is associated with donor experience, knowledge, age, sex, prior use of iron supplements, and trust in the medical expertise of the blood bank staff. Adoption of iron supplementation policies may be strengthened by taking these factors into account.

Table 1. Linear regression analysis results for positive attitude towards iron supplementation as a blood service policy.

Variable	Coefficient	95% CI	p-value
Knowledge (*policy*)	-0,13	-0,26 – 0,01	0,06
Knowledge (*iron metabolism*)	**-0,15**	**-0,28 – -0,02**	**0,02**
Knowledge (*iron supplements*)	-0,06	-0,17 – 0,06	0,32
Sex (*women*)	**-1,10**	**-1,52 – -0,67**	**0,00**
Age (*years*)	**-0,06**	**-0,09 – -0,04**	**0,00**
Education (*middle*)	-0,43	-1,17 – 0,30	0,25
Education (*high*)	-0,56	-1,27 – 0,15	0,12
Deferral (*once*)	-0,02	-0,49 – 0,45	0,94
Deferral (*more than once*)	-0,08	-0,60 – 0,44	0,77
Trust (*15-point sum score*)	**0,21**	**0,11 – 0,31**	**0,00**
Health (*good*)	0,48	-0,95 – 1,91	0,51
Health (*very good*)	0,44	-0,99 – 1,86	0,55
Health (*excellent*)	0,39	-1,08 – 1,87	0,60
Donor career (*beginner*)	-0,72	-1,92 – 0,49	0,24
Donor career (*experienced*)	**-1,38**	**-2,53 – -0,22**	**0,02**
Prior iron supplement use (*yes*)	**1,26**	**0,84 – 1,68**	**0,00**

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Abstracts Session M4: Incentives & recruitment

M 4	Incentives & recruitment
	Friday, 16:15-17:45, LC.2.400 (Clubraum) Chair: Caroline Graf
16:15 – 16:40	**1. The Effect of Personalized Impact Feedback on Social Media Sharing and New Donor Acquisition: A Field Experiment at the Red Cross.** **Pascal Güntürkün**, Nils Wlömert, Lars Eberhart, Martin Schreier
16:40 – 17:00	**2.Blood Donor Incentives across 63 Countries.** **Caroline Graf**, Eamonn Ferguson, Eva-Maria Merz
17:00 – 17:25	**3.Ending the Blood Feud? Evidence that Paid Plasma Collections in the U.S. and Canada Have Not Decreased Unpaid Blood Donations.** **William English, Peter Jaworski**
17:25 – 17:45	**4.Breaking the pattern: Emphasizing the negative trend in blood donations positively affects non-donors.** **Stephan Fally**, Pascal Güntürkün

The Effect of Personalized Impact Feedback on Social Media Sharing and New Donor Acquisition: A Field Experiment at the Red Cross.

Pascal Güntürkün, Nils Wlömert, Lars Eberhart, Martin Schreier

BACKGROUND: Blood services and other charitable organizations are constantly on the lookout for new donors (Lacetera, Macis, and Slonim 2014). While they might be acquired out of the blue, e.g., by a mailing campaign (Falk 2007), charity organizations can also work with their existing donors by tapping into their social networks (e.g., by a "bring a friend" campaign) (Sun, Gao, and Jin 2019). One promising channel in that regard is social media (cf. Silver and Small, forthcoming); in particular, charities can feed their donors with content they could share with their peers, which ultimately can bring new traffic to the charities' websites. However, while social media is a promising channel in this regard, there is little knowledge on how charities can motivate their donors to share a donation call on social media to attracts new donors.

AIMS: In this research, we present the results of a 6-months field experiment conducted with the Austrian Red Cross in which we test whether and how charities can leverage 'thank-you' messages to ask donors to share the message in order to raise awareness for the cause and thereby acquire new donors. Specifically, we aim to explore a) which contents charities can feed their donors to motivate social media sharing behavior and b) which contents are best suited to attract interest in the charity among recipients.

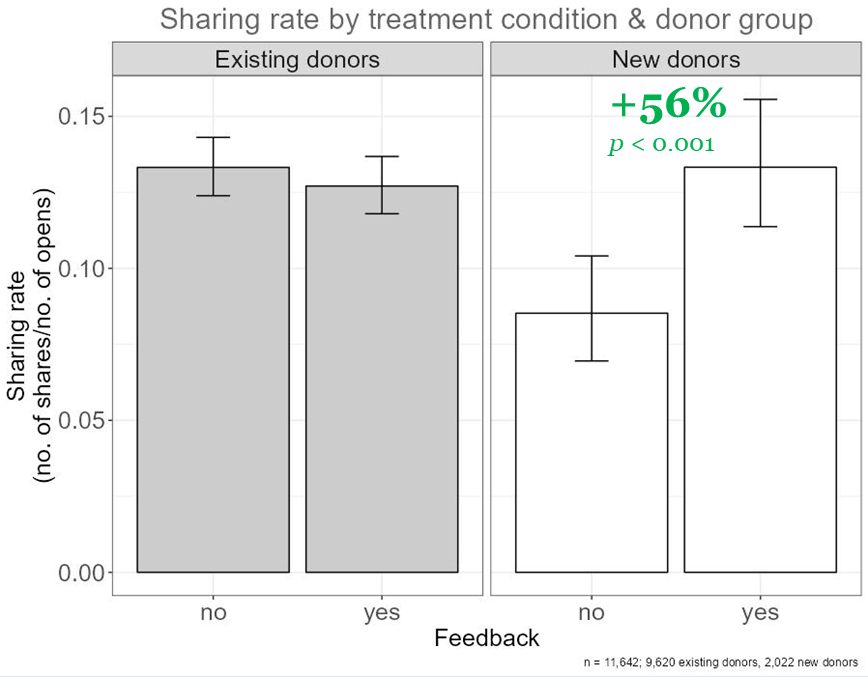
METHODS: We asked more than 20,000 donors to share a thank-you message for their recent blood donation, which was manipulated along two experimental factors: (1) whether it contained individual impact feedback (i.e., indicating on what day and in which hospital their blood donation was used) and (2) whether it was personalized (i.e., including the donor's first name). Consistent with our

theorizing, we analyzed the effectiveness of the messages at two stages: the sharing stage (donors sharing their thank-you message on social media) and the acquisition stage (prospective donors visiting the website of the Red Cross).

RESULTS: At the first stage, we find that individual impact feedback more strongly affects sharing behavior than personalization, and that the effect is particularly pronounced among new (vs. existing) donors. Interestingly, we find that the focal treatment helps new donors to catch up with existing donors' overall high sharing intensity (see Figure 1). At the second stage, in contrast, we find that personalization has a stronger effect in attracting prospective donors. Thus, both factors work but their relative effectiveness differs across the two stages.

CONCLUSION: The study provides novel insights on the psychology of sharing and the motivation to donate. From a practical perspective, our findings show that providing individual impact feedback on the use of one's donation might not only be beneficiary for donor retention but also for new donor acquisition. Simple and inexpensive personalization tools can help amplify the focal social media effects. In sum, our study delineates how charities can more fully leverage the potential of their thank-you messages.

FIGURE 1: Effect of impact feedback on sharing behavior (stage 1) among existing and new donors



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Blood Donor Incentives across 63 Countries.

Caroline Graf, Eamonn Ferguson, Eva-Maria Merz

BACKGROUND: Incentives for blood donors are a much-debated strategy intended to ensure a sufficient supply of blood. Yet, there is a fundamental lack of knowledge about which incentives are offered by different blood collectors in the first place.

AIMS: We aim to provide a comprehensive description of incentive policies for whole blood donors across 63 countries. We present descriptive analyses of five datasets illustrating the type and value of incentives and their geographical distribution.

METHODS: We collected data on incentive policies by conducting two surveys among representatives of blood collecting institutions. Additionally, we integrated incentive data from an existing study and the World Health Organization. Lastly, we performed a document analysis of blood bank websites to extend incentive data for the United States (U.S.) as well as underrepresented regions.

RESULTS: Approximately half of the countries in our sample employ financial incentives, which include cash and tax benefits, but also less conventional incentives, such as healthcare supplements or raffles. Time off work is also commonly offered to blood donors, and varies across blood collectors in duration and whether it is granted to all donors or only to those whose employer allows it. There is a geographical clustering of incentives, such that neighboring countries or U.S. states are more likely to employ similar incentives.

CONCLUSION: This study highlights the global diversity of incentive policies for whole blood donors. In stark contrast to WHO guidelines, half of the countries surveyed in the present study employ some kind of high-value incentive for blood donors. Our findings provide insights into the different strategies used for incentivizing blood donation and can thereby offer useful guidance to blood collectors.

REFERENCES: -

Ending the Blood Feud? Evidence that Paid Plasma Collections in the U.S. and Canada Have Not Decreased Unpaid Blood Donations.

William English, Peter Jaworski

AIMS: Most countries prohibit payment for plasma donations, largely because of concerns rooted in economic theory that paying for plasma will "crowd out" unpaid blood donations, thus jeopardizing domestic blood supplies. As the demand for plasma derived therapies grows, the economic costs of this assumption may be large if it is wrong. We test this widely cited theoretical prediction by examining how the entry and growth of paid plasma has affected unpaid blood donations in the U.S. and Canada.

METHODS & RESULTS: Using differences-in-difference models with plasma collections as a continuous treatment variable to evaluate the effects of the entry of paid plasma in 6 treated cities compared to six matched control cities, we find no evidence of crowding out, but rather evidence of a small, but significant, complementarity between paid plasma and unpaid blood donations. This result is robust to placebo tests, the inclusion of economic control variables, cross section time series regressions, and zip code level analysis, and is further confirmed by synthetic control analysis. Second, we examine blood collections in 14 cities for which data is available from 2008-2017, 7 of which had paid plasma collections in their catchment areas, and in 33 cities for which data is available from 20014-2017, 15 of which had paid plasma collections. Using cross section time series regressions to examine the effects of the long-term growth of paid plasma donations on unpaid blood donations, we again find no evidence of crowding out, but rather a small but significant complementarity. These results are also robust to zip code level analysis and the inclusion of economic controls. Moreover, using an exogenous shock to plasma collections caused by a coagulant shortage in 6 cities as an instrument further confirms these findings. Finally, we test whether paid plasma ``competition'' raised the costs or lowered the quality of blood collections. We find that blood collection costs slightly decreased, and there was no significant effect on the amount of blood discarded because of quality concerns.

CONCLUSION: Drawing on analysis of survey data from blood and plasma donors, behavioral economics theory, and marketing literature, we argue that paid plasma and unpaid blood donor pools are largely distinct in the US and Canada and that the complementarity witnessed between blood and plasma donations may be due to marketing spillover effects. In conclusion, we find that concerns about crowding out that have been widely expressed by health officials and policy makers are unsupported by blood and plasma donation data in the U.S. and Canada, and we discuss the implications for both policy and theory.

REFERENCES: -

Breaking the pattern: Emphasizing the negative trend in blood donations positively affects non-donors.

Stephan Fally, Pascal Güntürkün

BACKGROUND: Due to a multitude of factors (Satyavarapu & Wagle, 2020), society faces a decreasing trend in blood donations. This leads to increased pressure on the medical sector. Social norms are important facilitators for decreasing non-compliance and thus are a promising tool to positively affect the negative dynamics associated with blood donations. There is evidence that emphasizing dynamic rather than static social norms might be better when dealing with increasing minority behaviors (e.g., Sparkman & Walton, 2019). Negative trends might have different effects since the positive effect of dynamic social norms hinges on their continuation (Sparkman & Walton, 2017).

AIMS: In this study we investigate whether negative dynamic or minority static social norms affect the effectiveness of communication with (potential) blood donors. We also aim to test whether a "working together"-framing can mitigate possible drawbacks (e.g., social pressure (Sparkman et al., 2021)) or amplify the effect of social norms (e.g., due to a change in the flexibility of the donor's mindset). This has already been shown to work well for majority static (Howe, Carr & Walton, 2021), but not dynamic norms. Finally, we investigate the moderating effect of donor status (i.e., donors vs. non-donors).

METHODS: We conducted a 3x2 survey experiment (n=617), where we manipulated a simple information about blood donations with including either negative dynamic norms (i.e., "Fewer and fewer […] people in Germany between the age of 18 and 65 donate blood."), minority static norms (i.e., "Few […] people in Germany between the age of 18 and 65 donate blood.") or no norm at all. Each condition is framed as prompting participants with either "working alone" or "together with other participants in this study towards breaking the negative pattern". Our main dependent variables is whether participants click on a date finder link for blood donations with the German Red Cross provided to them in the end of the experiment.

RESULTS: There are no main effects of either the norm ($F = 2.534$, $p = 0.080$) or the framing ($F = 1.122$, $p = 0.290$) on click rates. However, we find a significant two-way interaction between social norms and whether participants are existing or non-donors ($F = 4.629$, $p = 0.011$). For non-donors, the click rate is lower by 15 percentage points when faced with the static compared to the dynamic norm (adj. $p < 0.001$) (see figure 1). There are no significant differences for existing donors.
There is weak evidence for the "working together"-framing improving the effectiveness of static norm, although the effect is not significant . However, irrespective of the norm the framing seems to be more effective in increasing click rates for existing donors (adj. $p = 0.036$, $F = 4.434$).

CONCLUSION: We show that social norms are also effective tools, when faced with decreasing and low compliance rates. However, it is crucial for blood collection agencies to adjust their communication to their target donor group . Either way, emphasizing that only a few people donate blood might be the worst option. Our findings also contribute to the literature of social norms, by providing first evidence that also negative dynamic social norms work better in decreasing non-compliance compared to minority static social norms.

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Abstracts Session M5: Donor Diversity

M 5	Donor diversity
	Friday, 9:30-11:00, LC.2.400 (Clubraum) Chair: Kathleen Chell
09:30 – 09:55	**1. Breaking down barriers: recruiting donors of african acestory in Ireland.** **Allison Waters**, Niamh O'Flaherty, Ellen McSweeney, Safa Eltom, Auxi Martinez, Tina Selby, Fiona McDonagh, Barry Egan, Tor Hervig
09:55 – 10:20	**2. Exploring motivators, barriers, and current practice of talking about blood donation among culturally diverse donors.** **Kathleen Chell**, Faiza El-Higzi, Barbara Masser, Michael Polonsky, David Irving
10:20 – 10:45	**3. The Power of Science, Art, and Co-Design to Encourage Black Blood Donors: Co-Designing and Evaluation Message Free Dramas.** **Eamonn Ferguson**, Richard Mills, Erin Dawe-Lane, Angela Wood, Emanuele Di Angelantonio, Barbara Masser, Abiola Okumbanjo
10:45 – 11:00	**4. Religion-Based Collaboration to Increase Blood Donation Rates in Underrepresented Minority Population: The Experience of the Dutch National Blood Bank.** **Thomas Blom**, Niubel Díaz Padilla, Fernando Gonzalez Garcia, Ties Molenaar

Breaking down barriers: recruiting donors of african acestory in Ireland.

Allison Waters, Niamh O'Flaherty, Ellen McSweeney, Safa Eltom, Auxi Martinez, Tina Selby, Fiona McDonagh, Barry Egan, Tor Hervig

BACKGROUND: In Ireland, the blood donor population is predominantly Caucasian, which has a direct impact on blood provision for inherited blood disorders, such as sickle cell anaemia. At present, only 1.4% of the donor population, compared to over 50% of the African population, are estimated to have appropriately matched blood to treat this patient group. Upcoming changes to donor recruitment, which include the introduction of donor malaria screening will enable greater diversity within the Irish blood donor panel.

AIMS: The aims of the present study were to
(i) Understand the barriers to and motivations of people of African ancestry donating blood.
(ii) Explore the views of those who are currently excluded from blood donation but would be eligible following the introduction of malaria testing.

METHODS: A total 6 online focus groups with people of African ancestry were conducted. Recruitment of participants was carried out:
(i) Through partnership with Africa Centre Ireland and Sickle Cell & Thalassemia Ireland
(ii) At the Ghanaian Independence Day Celebration.
(iii) Through active recruitment at a Dublin Retail Centre
(iv) Through ppen recruitment of the African community

All focus groups were carried out by Accuracy (https://accuracy.ie). Factors Considered in designing the profile of the focus groups were age, length of time spent in Ireland, gender, social class, ethnicity, country of origin and cultural background. Black ethnicity was defined at least one parent is of African origin

RESULTS: A lack of basic information regarding blood donation and the process was cited as key barrier. In addition, a general distrust of the healthcare system, originating for a variety of complex issues, was also a reason not to engage with the Irish Blood Transfusion Service. Specifically, a number of older respondents (40 -65 ages) who sought to donate previously but were refused held a strong sense of disappointment and the view that the previous policy was prejudiced against ethnic minorities. Other barriers that also emerged included: A limited sense of urgency, fear of needles and/or blood and, for a minority, religious/spiritual beliefs regarding the giving and accepting blood. Despite the notable list of barriers, the majority of participant were not against donating blood, but in the absence of information and encouragement, many lacked a clear reason as to why they should donate. It was noted that helping a family member or friend would be a powerful motivator for donation.

CONCLUSION: The provision of blood donation information, and engagement with the African communities, was a crucial and consistent finding, and would support all individuals with the tools to make an informed choice. Furthermore, building trust with the blood service is essential, and participants pointed to the value of a mobile clinic that visited African communities. Lastly, specific information on Sickle Cell Disease, and the difficulties with providing appropriately match blood, created a desire to help their fellow Africans.

REFERENCES: -

Exploring motivators, barriers, and current practice of talking about blood donation among culturally diverse donors.

Kathleen Chell, Faiza El-Higzi, Barbara Masser, Michael Polonsky, David Irving

BACKGROUND: Increasing donor acquisition and diversity within the donor panel is important to continue to meet blood product demand and enable appropriately matched blood for all patients. Talking about blood donation with in-group community members either in-person or online has the potential to increase awareness, trust, and positive feelings toward donating blood (Boenigk et al.,2015; Martin et al., 2019). Positive word-of-mouth accounts from active donors who are trusted as reliable sources are needed to encourage others to donate, given the intangible, complex and high-risk nature of blood donation.

AIMS: To explore motivators, barriers, and current practice of talking about blood donation, and recruiting others to donate in Australian donors of British/Irish, Chinese, and Indian ancestry.

METHODS: Nine online focus groups were conducted with 52 blood donors (British/Irish [n=17], Chinese [n=20], or Indian [n=15] ancestry, born in Australia or overseas). Questions were posed on three topics centred on talking about blood donation (i.e., word-of-mouth, in-person and online) – (1) current practice (what they've talked about, with whom and responses received), (2) perceived motivators and barriers, and (3) how we can support blood donors to make conversations more frequent and effective.

RESULTS: Most donors recognised the benefit of talking about blood donation - the more people who donate, the more lives saved – and donors were willing and generally confident to talk about their own experiences if asked. However, several risks in talking about blood donation were identified and these varied slightly by cultural group. Most common concerns were the fear of being seen negatively for bragging about donating blood, being seen as too pushy in advocating for blood donation when donation is considered a personal choice, or putting others in a position where they would need to disclose personal information (e.g., health issue). The acceptability of discussing blood donation (e.g., personal health topic vs philanthropy) varied across cultural groups and affected how and when it is talked about. Donors of Indian and Chinese heritage also noted the risk of advocating for blood donation if donating may not be a culturally safe experience. All donors noted limited opportunities or triggers to initiate a conversation about blood donation, with most conversations prompted by posting about their donation online, schedule questions, or visual prompts (e.g., bandage). It was evident that donors' word-of-mouth activity varied in agency (i.e., who initiates the conversation) and goal (i.e., what they were willing to talk about), with donors acting as advocates, supporters, sharers, or responders dependent on their donation experience, the context, and their relationship with their audience. For all, there was a universal desire to have easily understood and accessible materials available for sharing.

CONCLUSION: Blood donation is difficult to talk about, but there are currently limited prompts to start conversations and risks involved in talking about blood donation. Donors are looking for a license (i.e., justifiable reason not perceived as bragging) to talk about blood donation and encourage others in their community to donate, and require engaging, easy to understand and culturally relevant on-demand resources to support word-of-mouth activities.

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The Power of Science, Art, and Co-Design to Encourage Black Blood Donors: Co-Designing and Evaluation Message Free Dramas.

Eamonn Ferguson, Richard Mills, Erin Dawe-Lane, Angela Wood, Emanuele Di Angelantonio, Barbara Masser, Abiola Okumbanjo

BACKGROUND: Blood and blood products are essential medicines for treating multiple conditions. To meet the needs of a demographically diverse society, blood services need to encourage volunteer donors that demographically represent healthcare users. Increased diversity of donor panels fosters psychological well-being, social-integration and improves treatment efficacy through donor-recipient matching. This is exemplified by the improved treatment of Sickle Cell by well-matched blood from Black people. However, traditional slogans and message-based recruitment have not resulted in a sustained increase in donors from ethnic minority communities. Arts-based behaviour change has been shown to be a novel alternative to engage people in health-based behaviour change via activating an emotional connection with the behaviour. 1-2 Such an arts-based approach has not been applied to health-based prosocial behaviours like blood donation.

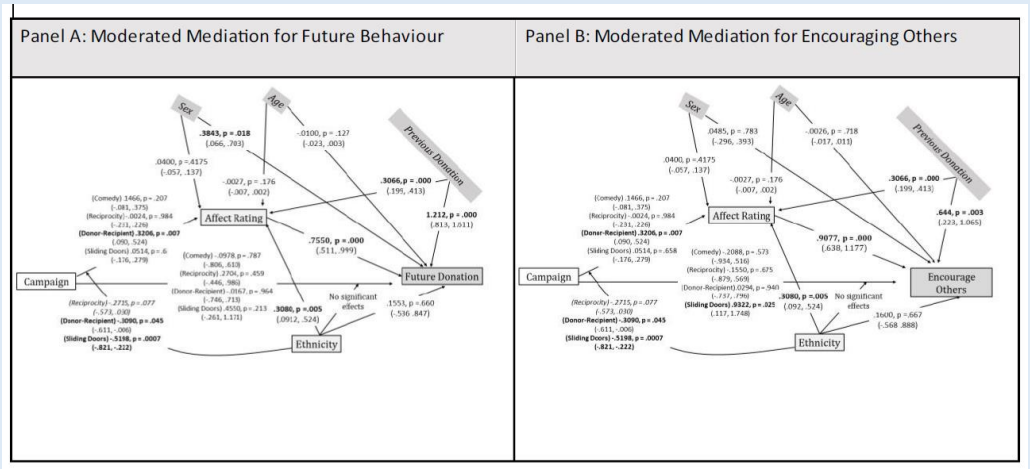
AIMS: We undertook a, co-designed, co-produced arts-based approach to develop and evaluate message-free narrative scripts and films to encourage Black people in the UK to donate blood.

METHODS: This programme of research progressed through two phases. Phase 1 comprised a four-stage (needs-analysis, n = 42 Black people; workshops, n = 12 Black people, actors, and musicians; refinement interviews; online experimental evaluation of co-designed narrative scripts vs a standard slogan (Give Blood, Save a Life), n=826: 345 Black people, 481 White people). Phase 2 comprised developing and -co-producing four films and evaluating these in an online experiment relative to an NHSBT-Disney Black Panther collaboration n=1,237: 638 Black people, 599 White people). In both online experiments, we assessed affective responses to the narrative-script and films as a mediator and propensity-to-donate as the outcome. We also assessed free-responses comments. Data were analysed using Stata 18, MPlus 8.7, SPSS-28, LIWC-22 &CHATGPT.

RESULTS: Phase 1 resulted in four co-developed narratives (i) Comedy - challenging misconceptions; (ii) Reciprocity - donating for mutual benefit; (iii) Donor-Recipient - linking donors and recipients; and (iv) Sliding Doors - reversing a narrative timeline to provide a positive outcome. All four narrative scripts were evaluated positively by all communities. The slogan (give blood, save a life) enhanced propensity-to-donate via positive affect for White people. For Black people, the Donor-Recipient narrative script increased propensity-to-donate via enhanced affect (see Fig 1 for moderated mediation models). The Donor-Recipient narrative script generated more emotionally positive free-responses with the 'Sliding-Doors' generating more text focusing on family and friends in Black people. Phase 2 showed that all four films were evaluated equally positively and significantly enhanced propensity-to-donate in Black compared to White People.

CONCLUSION: A co-designed arts-based narrative-drama approach offers a novel and viable alternative way to engage Black people to donate blood. We encourage blood services to adopt art-based approaches based on a clear, definable, and inclusive co-design and co-production process supported with rigorous evaluation.

Figure 1: Moderated Mediation Models



Note: Ethnicity:(0=Black,1=White),sex:(0=Male,1=Female),previousdonation:(0=Non-Donor,1=Donor)

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Religion-Based Collaboration to Increase Blood Donation Rates in Underrepresented Minority Population: The Experience of the Dutch National Blood Bank.

Thomas Blom, Niubel Díaz Padilla, Fernando Gonzalez Garcia, Ties Molenaar

BACKGROUND: Including minority populations as blood donors helps to increase the diversity of the donor pool, improve genetic compatibility, address health disparities, and promote representation in the community. Community-based interventions, including partnerships with community organizations, have been implemented to improve minority representation.1,2 This study describes the experience of the Dutch national blood bank, Sanquin, with such an intervention.

AIMS: Evaluate the effectiveness of a community-based initiative aimed at increasing blood donation rates among a religious minority group.

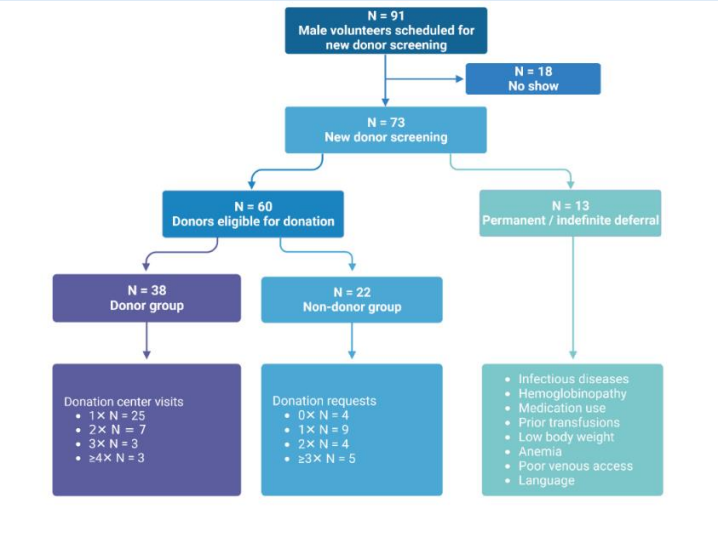
METHODS: The Ahmadiyya Muslim Youth organization partnered with Sanquin to implement a joint initiative aimed at encouraging blood donation among its members. This was promoted through social media channels, local newspapers, and promotional materials placed inside mosques. Male volunteers were targeted, and were encouraged to register as prospective donors on the Sanquin website.
In August 2021, a one-day mobile blood drive was stationed at a mosque located in a large city in the Netherlands. Registered prospective donors were invited to undergo new donor screening. Eligible donors were then invited to donate apheresis plasma at one of four different donation centers throughout the year, in collaboration with members of the religious group. The goal of the initiative was to achieve 400 donations per year.
To evaluate the effectiveness of this community-based intervention, demographic, health, and donation data were retrospectively collected 18 months after the screening from the blood bank's information system (eProgesa, MAK-system). This data was compared to that of a control group consisting of 73 consecutive, prospective donors who underwent new donor screening in a plasma-only center.

RESULTS: Ninety-one male volunteers were scheduled for a new donor screening appointment, out of which eighteen individuals did not attend, resulting in seventy-three male volunteers. The median age at the time of screening was 29 years (range 17-48 years) and was identical to the control group (range 18 -67 years). Thirteen (18%) potential donors were identified during screening as having conditions or risk factors that could compromise the safety of donated blood or their own safety and were consequently permanently deferred. Out of 60 (82%) healthy donors who were eligible to donate based on the screening results, 22 (30%) did not end up donating. The remaining 38 (52%) eligible donors made a total of 64 visits to blood donation centers (median 1; range 1-6). This led to 5 temporary deferrals, 2 whole blood donations, and 57 apheresis plasma donations. Fourteen (25%) of the apheresis plasma donations were incomplete (<400 ml) due to mild adverse events. The

number of donation center visits per eligible donor per month was 0.058. In comparison, this number was 0.31 for our control group who underwent screening in a plasma-only center.

CONCLUSION: Collaboration with a religion-based organization resulted in 2 whole blood and 57 apheresis plasma donations from 38 eligible donors out of 73 screened male volunteers, indicating limited success. More research is needed to identify effective strategies to increase minority group donor participation.

FIGURE:



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1. Van Dongen, Anne, et al. "Missing Minorities–A survey based description of the current state of minority blood donor recruitment across 23 countries." Diversity and Equality in Health and Care 13.1 (2016).

2. Makin, Jennifer K., et al. "Interventions to increase blood donation among ethnic/racial minorities: a systematic review." Journal of environmental and public health 2019 (2019).

Abstracts Session H1: Infections & Ethics

H 1	Infections & Ethics
	Friday, 10:30-11:45, LC.2.400 (Clubraum) Chair: Jean-Baptiste Thibert, Veerle Compernolle
10:30 – 10:50	**1. Three years of SARS-CoV-2: re-infection in Dutch blood donors.** **Franke A. Quee**, Boris Hogema, Edith Slot, Katja van den Hurk, Hans L. Zaaijer
10:50 – 11:10	**2. Protecting donors and patients through the prism of human fundamental rights. The contribution of law, ethics, and Europe.** **Jean-Baptiste Thibert**
11:10 – 11:20	**3. Use of face masks by healthcare workers during the COVID-19 pandemic: Impact on hemoglobin and hematocrit concentration.** **Elisa Sambruna**, Maddalena Loredana Zighetti, Denise Pizzotti, Roberta Trotti, Cristiana Bianco, Daniele Prati
11:20 – 11:35	**4.Blood, Breakthroughs and Bioethics: Navigating the Nuances of Responsible Implementation of Advanced Therapy for Hereditary Anemias.** **Louisanne van Hooff**, Eva-Maria Merz, Jeantine Lunshof
11:35 – 11:45	**5. Cytomegalovirus Seroprevalence in Irish Blood Donors.** **Dearbhla Butler**, Dermot Coyne, Padraig Williams, Allison Waters, Tor Hervig, Niamh O'Flaherty

Three years of SARS-CoV-2: re-infection in Dutch blood donors.

Franke A. Quee, Boris Hogema, Edith Slot, Katja van den Hurk, Hans L. Zaaijer

BACKGROUND: As of December 2021, the SARS-CoV-2 Omicron variant caused a significant increase in SARS-CoV-2 infections in the Netherlands. This variant evaded previously established immunity and caused vaccine-breakthrough and re-infections. The number of Omicron infections is hard to quantify, due to asymptomatic infections, and because in the Netherlands, as of April 2022 PCR testing is no longer is required for symptomatic persons. Therefore, knowledge on the recent course and magnitude of SARS-CoV-2 circulation in the Netherlands is limited. Longitudinal serological surveillance could give more insight in the post-PCR era.

AIMS: To quantify the number of re-infections in a cohort of Dutch blood donors.

METHODS: 14,515 plasma donations, collected between April 1-15th and May 9-18th 2020, were tested for presence of SARS-CoV-2 receptor binding domain (RBD) and nucleocapsid (NC) antibodies. When positive for anti-RBD antibodies, archived samples of these donors were tested to check for true seroconversion. Positive donors were followed over time, up to 1066 days, by testing selected subsequent donations. To detect reinfections, only donors with more than 4 samples and a positive NC test result at baseline were included in the analysis. Re-infection was defined as a 3-fold increase in the NC antibody titer.

RESULTS: At baseline, 522 donors were positive for anti-RBD antibodies. Of these, 397 (76%) donors, with a median follow-up time of 982 days, were suitable for analysis. 182 (46%) showed no substantial increase in NC antibody titers. 215 (54%) donors showed a 3-fold increase in NC antibody titer, suggesting re-infection. Eleven (5.1%) re-infections occurred in the period when the Delta variant was circulating, and 204 re-infections (94.9%) occurred when Omicron was the dominant variant. More than 60% of re-infections occurred after April 2022, after the cessation of PCR-monitoring.

CONCLUSION: This study quantifies the magnitude of re-infection among Dutch blood donors. Re-infections became common after emergence of the Omicron variant and thus far occurred in more than half of the studied donors in the Netherlands. Serological follow-up of donors provides insight into the prevalence of re-infection when other monitoring is not in place in the public domain.

REFERENCES: -

Protecting donors and patients through the prism of human fundamental rights. The contribution of law, ethics, and Europe.

Jean-Baptiste Thibert

BACKGROUND: Transfusion therapy involves two often conflicting aspects of human health protection: patient access to treatment and protection of donor health.

AIMS: Draw on the legal and ethical concepts of fundamental human rights to defend an approach that protects both the patient and the donor.

METHODS: Study of the ethical and legal concepts involved. Attempt to identify universally applicable approaches based on the limits of law and ethics. Analyse the relevance of the European level from this perspective.

RESULTS: The therapeutic use of blood puts the law under pressure, by questioning how to reconcile the protection of a personified body with a disjunctive market reality. The ethical approach is often mobilised, but it has its own intrinsic limits, notably linked to variations in interpretation, which are experienced above all at an individual level. There is no truth to the ethical answer, but the questions raised in the transfusion chain are universal. The legal responses in each country also vary according to the legal traditions specific to each country (Romano-Germanic, Common-law). Blood is sometimes theoretically personified (France), sometimes reified, but the facts are in favour of the commercial circulation of blood and its derivatives, particularly for PDMP. The issue of self-sufficiency is then shifted to that of access to care, and the dimension of donor protection then appears secondary. It is difficult to identify universal fundamental rights. Sometimes they are constitutionally defined, sometimes assumed. However, we believe that blood brings together the notions of dignity and health protection, and that reconciling the two could make it possible to achieve an overall objective of health protection that is not seen solely in terms of access to healthcare. Europe presents a relevant and functional scale for achieving such an objective of protecting human health in its entirety, even if it has endorsed a structural ambivalence between market fulfilment and the protection of human rights. We will analyse European ambitions on a geographical scale (Council of Europe and European Union), its strengths and the subsidiarity of Member States, which is sometimes thwarted in this area.

CONCLUSION: Law and ethics are intimately linked to the transfusion chain from donor to recipient. They make it possible to envisage a conceptual framework capable of protecting both the patient and the donor, in a holistic approach to health protection, where the search for a common Good could allow certain market rules to be waived. Europe offers a unique functional framework in this respect

REFERENCES: -

Use of face masks by healthcare workers during the COVID-19 pandemic: Impact on hemoglobin and hematocrit concentration.

Elisa Sambruna, Maddalena Loredana Zighetti, Denise Pizzotti, Roberta Trotti, Cristiana Bianco, Daniele Prati

BACKGROUND: The World Health Organization on March 11 2020 declared the COVID-19 outbreak a global pandemic. In early April 2020, the Italian government made it compulsory for people to wear face masks on every occasion of social contact. The rules were particularly stringent among healthcare workers. Mask-wearing over the mouth and nose creates a hard-to-ventilate space which might accumulate CO2 and induce a relative hypoxia. We hypothesized that this may increase the red cell mass, even in healthy individuals.

AIMS: We retrospectively evaluated the modifications of haemoglobin concentration and hematocrit among healthcare workers who donated blood at our blood center before and after the introduction of mandatory mask rules in Italy.

METHODS: We retrospectively analyzed donors' data from January 2019 to April 2022. We selected donors who completed a blood donation before the 11th of March 2020 (before the COVID-19 pandemic and before wearing face masks become mandatory) and a further blood donation before the 1st of May 2022 (during the COVID-19 pandemic and after implementation of mandatory face masks). We then compared the values of hemoglobin and hematocrit of the same donor registered before the beginning of the pandemic and during the pandemic. Statistical analysis was conducted for paired data, P values <0.05 were considered statistically significant.

RESULTS: We finally included in the analysis 429 blood donors who were actively employed in the healthcare system (241 doctors, 156 nurses and 32 biologists), they were predominantly female (52%), mean age was 42 ± 14 yrs. The mean Hb of blood donors during the pandemic was higher than before the beginning of the pandemic (14,05 ±1,19 vs. 13,98 ± 1,21 g/dl, p = 3,10*10-02), also mean Ht was higher during the pandemic than before (41,21 ±3,21 vs. 40,54 ± 3,16%, p = 3,38*10-11).

CONCLUSION: These data indicate that the prolonged use of face masks is associated to an increase of hemoglobin concentration and hematocrit values among healthy individuals. These modifications are likely due to intermittent hypoxia and rise of EPO levels.

REFERENCES: -

Blood, Breakthroughs and Bioethics: Navigating the Nuances of Responsible Implementation of Advanced Therapy for Hereditary Anemias.

Louisanne van Hooff, Eva-Maria Merz, Jeantine Lunshof

BACKGROUND: With the aim of bringing huge improvements to the lives of patients and families affected with sickle cell anemia and Diamond-Blackfan anemia syndrome, this consortium project develops innovative cell therapies with curative potential. Developing such cell therapies depends on the donation of suitable material from healthy donors and affected patients. One therapy in development depends on large-scale production of induced Pluripotent Stem Cell (iPSC)-based universal red blood cells for transfusion, another therapy involves exploring the options surrounding genetic engineering of patients' iPSCs for bone marrow transplantation.

AIMS: Implementing such therapies comes with great responsibility towards individual donors of cell(line)s and patients. In line with the requirements of Responsible Research & Innovation (RR&I), we introduce a normative framework of four criteria to guide the work of our Consortium: Availability, Acceptability, Accessibility, and Affordability (the 4A framework).
Our RR&I work package establishes the connection with all relevant stakeholders: the consortium partners who first must make the therapies Available; patients, families and their organizations, and the cell donors for whom the options must be Acceptable, clinicians and healthcare organizations for whom the therapies must be Accessible, and the parties involved in decision making in health care policy for whom they must be
ffordable.

METHODS: In our work package, we conduct recurring semi-structured interviews and focus groups with all beforementioned stakeholders. Nevertheless, our main focus lies with the
cceptability of the patients that will be receiving the donated material. We also conduct systematic literature reviews and automated text analysis of scientific, traditional and (social) media. This is done to obtain information on values, opinions, and normative dimensions of donating, culturing, processing, and editing iPSCs for stakeholders' personal lives or work.

CONCLUSION: The outcomes of the research will be used to develop different scenarios about the application of iPSC-derived products in treating hereditary anemias. These scenarios of the novel therapies will be evaluated with the consortium and all stakeholders in an open and ongoing dialogue, to ensure healthy, safe and accepted future therapies, based on informed and voluntary donations.

REFERENCES: -

Cytomegalovirus Seroprevalence in Irish Blood Donors.

Dearbhla Butler, Dermot Coyne, Padraig Williams, Allison Waters, Tor Hervig, Niamh O'Flaherty

BACKGROUND: Cytomegalovirus (CMV) is a betaherpesvirus which has a reported global seroprevalence of 60-90%. CMV infection in immunocompetent individuals is typically asymptomatic; however it can cause severe congenital infections and is associated with complications in

immunocompromised patients. Some transfusion recipients are at increased risk of morbidity and mortality due to transfusion transmitted cytomegalovirus (TT-CMV) including neonates, the foteus requiring exchange transfusion, and certain immunocompromised patients. To mitigate this risk, in conjunction with universal leucodepletion, donations from previously CMV seronegative donors and first-time donors are screened for CMV IgG. This allows the IBTS to have an inventory of 'CMV antibody negative' blood components available for at-risk Irish patients. Continual monitoring of the epidemiology of CMV in the local donor population is required for the development of evidence based CMV screening policies and practices.

AIMS: To determine, for the first time, the seroprevalence of CMV in Irish Blood donors.

METHODS: The age, sex, donation history, country of birth and CMV serostatus of all blood donors that successfully donated in 2020 was collated and analysed. All donations from previously CMV seronegative donors and first-time donors were screened for CMV antibodies with the Abbott Alinity s anti-CMV IgG assay. CMV seropositive donors, tested prior to 2020, were not retested, but were included in the overall analysis. CMV seroprevalence was defined as the number of donors with a positive serostatus at the end of 2020.

RESULTS: 74,821 blood donors were included in the study (55.49% male, 44.51% female). The overall seroprevalence of CMV was 26.00% (95% CI; 25.69-26.31). Seroprevalence was 28.88% (95% CI; 28.39-29.37) in females and 23.69% (95% CI; 23.28-24.10) in males. Seroprevalence varied by age group, with the highest rate of 31.47% (95% CI; 30.46-32.48) in the oldest age category of ≥60 years, and the lowest rate of 18.10% (95% CI; 17.45-18.75) in the youngest age group of 18-29 years. The country of birth of blood donors was also reviewed where available. The CMV seroprevalence in blood donors born outside of Ireland and the UK was significantly higher at 58.35% (95% CI; 56.65-60.05), compared to 24.48% (95% CI; 24.16-24.80) in donors born in Ireland and the UK.

CONCLUSION: T here is substantial variation in CMV seroprevalence rates globally, we report a relatively low CMV seroprevalence rate of 26.00% in this study of Irish blood donors. The low CMV seroprevalence in the Irish cohort may increase the risk of CMV associated morbidity and mortality in individuals who acquire primary infection while immunosuppressed.

REFERENCES:

1. Adane T, Getawa S. Cytomegalovirus seroprevalence among blood donors: a systematic review and meta-analysis. J Int Med Res. 2021 Aug;49(8):300605211034656. doi: 10.1177/03000605211034656. PMID: 34382466; PMCID: PMC8366145.
2. Kowalzik F, Hitzler W, Runkel S, Marron M. Seroprevalence and Seroconversion of Cytomegalovirus in a Large Group of Healthy, German Blood Donors: Potential Contribution to Transfusion Transmitted Infections. Clin Lab. 2020 Apr 1;66(4). doi: 10.7754/Clin.Lab.2019.190901. PMID: 32255281.
3. Fulkerson HL, Nogalski MT, Collins-McMillen D, Yurochko AD. Overview of Human Cytomegalovirus Pathogenesis. Methods Mol Biol. 2021;2244:1-18. doi: 10.1007/978-1-0716-1111-1_1. PMID: 33555579.

Abstracts Session H2: Plasma Donation

H 2	Plasma Donation
	Friday, 13:00-14:30, LC.0.004 (Galerie)
	Chairs: Hans van Remoortel, Pierre Tiberghien
13:00 – 13:10	**Introduction to session topic** **Hans van Remoortel**
13:10 – 13:30	**1. Frequent US Source Plasma Donors are Not at Risk of Iron Depletion.** George B Schreiber, **Roger Brinser**, Marilyn Rosa-Bray, Zi-Fan Yu, Toby Simon
13:30 – 13:50	**2. A comparison of adverse event rates in NHSBT plasmapheresis donors: old vs modern technology.** Ruth Turner, Alexandra Griffiths (presented by **Shruthi Narayan**)
13:50 – 14:10	**3. Review and assessment of the donor safety among plasma donors.** Mitali Purohit, Mel Berger, Rachpal Malhotra, **Toby Simon**
14:10 – 14:20	**4. Iron Management in Plasma donors?** **Femmeke Prinsze**, Franke Quee, Shahryar Ghasemi Nezjad, Katja van den Hurk
14:20 – 14:30	**5. Adverse reactions in plasma donation – insufficient registration or a neglected problem?** Christina Mikkelsen, Mie Topholm Bruun, Betina Sørensen, Rune Larsen, Sys Hasslund, **Bitten Aagaard**

Times include presentation and discussion. At least one quarter of the time should be dedicated to the discussion.

Frequent US Source Plasma Donors are Not at Risk of Iron Depletion.

George B Schreiber, **Roger Brinser**, Marilyn Rosa-Bray, Zi-Fan Yu, Toby Simon

BACKGROUND: Whole blood and red cell donors are at risk of iron deficiency. Since Source Plasma (SP) donors have red blood cells returned during apheresis, risk of iron depletion appears low. However, SP donors can donate frequently and assessment of frequent donor iron status is needed.

AIMS: Assess iron status of SP donors at different donation frequencies and determine whether there was evidence that more frequent donation reduced iron stores.

METHODS: 1254 US SP donors were enrolled in four frequency groups determined by donations in the prior 12 months: no donations (New Donors); 1-24 (Low), 25-69 (High), and >70 (Very High) donations. Ferritin was determined for each donor. Donors with ferritin levels <12 ng/ml were classified as having Absent Iron Stores (AIS).

RESULTS: Compared to new donors, ferritin for females was higher in each successive frequency group. For >70 donations, ferritin was 13 ng/ml higher than in new donors (p=0.02). For males, 1-24

donations had the highest ferritin levels. Compared to new donors, highest frequency donors had lower ferritin levels, 114 vs.100 ng/ml (p=0.14). Age for females and males increased with each successive frequency group. Age adjustment resulted in smaller ferritin differences for females and larger differences for males in the high frequency groups, AIS for females was highest in new donors (7%) and lowest in the highest frequency group (1%). In aggregate, AIS occurred in <1% of all male donors. Male new and highest frequency donors had 1% AIS with none in the other groups.

CONCLUSION: Few US SP donors have iron depletion, and it is not higher in frequent donors. Frequent US SP donation does not adversely impact iron stores. Thus, monitoring donor iron status or iron supplementation is not necessary.

Mean Ferritin Level (ng/ml) and Unadjusted and Age Adjusted Differences Between Frequency Groups and New Donors, by Gender and Donation Frequency

Donor Group	N	Ferritin Mean ± SD	Low/High -New Differences (95% CI)	Within non-inferiority margin *	P-Value (2-sided)	Low/High -New Differences (95% CI)	Within non-inferiority margin *	P-Value (2-sided)
			Unadjusted			Adjusted†		
FEMALES								
New Donors	164	51.1 ± 41.2	0	-	-	0	-	-
Low	168	53.3 ± 49.8	2.2 (-7.7, 12.1)	Yes	0.66	0.6 (-10.0, 11.2)	Yes	0.91
High	181	57.5 ± 52.9	6.4 (-3.7, 16.5)	Yes	0.22	3.2 (-7.2, 13.7)	Yes	0.54
Very High	156	64.0 ± 57.3	13.0 (2.0, 23.9)	Yes	0.02	3.5 (-7.7, 14.6)	Yes	0.54
MALES								
New Donors	145	114 ± 73.4	0	-	-	0	-	-
Low	138	120 ± 75.8	5.7 (-11.8, 23)	Yes	0.52	3.2 (-15.0, 21.3)	Yes	0.73
High	161	111 ± 77.9	-3.7 (-20.8, 13)	Yes	0.67	-8.1 (-25.8, -9.5)	No	0.37
Very High	141	100 ± 85.5	-13.9 (-32.4, 4.6)	No	0.14	-21.3 (-39.9, -2.7)	No	0.03

***** no worse than new donors (within non-inferiority margin) [i]

† Estimates, confidence intervals and p-values are based on the coefficients from a regression model with donation frequency group and age group (<50 and ≥ 50 years) as categorical covariates.

-- A donor group is considered within the margin compared to the no prior donation (new donor) group if the lower bound of the confidence interval lies above -11ng/ml for females and -23ng/ml for males.

REFERENCES:

Schreiber GB, Brinser R, Rosa-Bray M, et al. Frequent source plasma donors are not at risk of iron depletion: The ferritin levels in plasma donor (FLIPD) study. Transfusion. 2018; 58(4): 951-959.

A comparison of adverse event rates in NHSBT plasmapheresis donors: old vs modern technology.

Ruth Turner, Alexandra Griffiths (presented by **Shruthi Narayan**)

BACKGROUND: In April 2021 NHSE gave NHSBT the green light to pivot from collecting Convalescent Plasma (CVP) to Plasma for the manufacture of Medicine (PFM). For the past 20+ years these medicines have been imported. Now, with a worldwide shortage of IVIG, the goal is for England to be able to provide Plasma to a NHSE appointed fractionator for the manufacture of medicines to treat UK patients. A brand-new directorate has been established for this purpose. In September 2021, using the some of the temporary infrastructure set up during the Covid-19 pandemic response, NHSBT entered a phase of validation of modern plasmapheresis machines to collect PFM. By August 2022 three permanent PFM sites were established and had changed to the exclusive use of modern technology for the collection of PFM.

AIMS: To identify any detrimental impact on plasma donors since the implementation of new plasmapheresis technology, by comparing rates of common donor adverse events (DAE) in PFM donation on old vs modern machines.

METHODS: Data on adverse events in PFM donors was extracted from NHSBT's PULSE database, with any duplicate reports removed. The "old" cohort consisted of donation attendances (with venepuncture attempted) using the Trima machine between April 2021 and July 2022; the "new" cohort covered the period from August 2022 to March 2023 and included the same criteria using the Fresenius machine. Information on donor sex, age, previous donation history and site location came from the same database. The percentages of attendances resulting in
1) bruising around the venepuncture site
2) feeling faint (vasovagal event without loss of consciousness)
were calculated overall and for each individual site. Chi-squared tests were conducted in R (version 4.2.2) to compare "old" and "modern" technologies.
As the donor population had changed over time in ways that were likely to influence adverse event rates, we chose to focus here on comparing event rates among first-time male donors, who accounted for the largest proportion of all PFM donors during both periods. Further analysis on female donors, regular donors, and less common adverse events may be conducted at a later date, as more data becomes available.

RESULTS: Overall, the three sites have seen a small reduction in the risk of bruising in first-time male donors since the change. However, in contrast to the other two sites, one site saw an increase in bruising rates.
Vasovagal events occurred at similar rates before and after the change in technology at every site although they are uncommon.

CONCLUSION: Donor adverse event rates in PFM are low. Reassuringly, our data shows no evidence of a detrimental impact since the switch over to the modern technology. The risk of bruising has decreased slightly (except at one site, where it is believed to be attributable to an unusually high influx of inexperienced staff) and the vasovagal event rate is largely unchanged.

REFERENCES: -

Review and assessment of the donor safety among plasma donors.

Mitali Purohit, Mel Berger, Rachpal Malhotra, **Toby Simon**

BACKGROUND: Human plasma-derived medicinal products (PDMPs) are unique biological therapies derived from human plasma used to treat patients with rare and acute indications. 70% of the world's plasma comes from the US which allows paid plasma donations at greater frequency than permitted elsewhere.

AIMS: The purpose of the review is to show that frequent plasmapheresis from paid donors as allowed in the US does not adversely affect donors' overall functional health and well-being.

METHODS: A literature search of the EMBASE and MEDLINE data bases was performed looking for relevant publications. The full articles identified were reviewed along with other articles identified by the authors.

RESULTS: Plasma protein and immunoglobulin levels were reduced in many studies with greater frequency of donation. In many cases changes were minimal. Statistically significant decreases found in total protein, albumin, and gamma globulins while donors were actively donating were likely not of clinical significance and recover quickly when donation is stopped. Lymphocyte phenotypes were also altered temporarily, but clinical significance was not found. Iron levels were well maintained as determined in a cross-sectional study of source plasma donors donating at different frequencies. Thus, donation did not contribute to anemia. Cholesterol levels and blood pressure were favorably impacted while donating. Adverse event rates reported by three US companies involving over 12 million donations in over one million donors over a four-month period were comparable to those seen with whole blood donation and indicated that source plasma donation in the US following FDA regulations is a safe procedure. Retrospective studies of both active donors and lapsed donors supported that reduced levels of protein and immune globulin returned to normal quickly and that donors who stopped donating did not stop for health-related reasons.

CONCLUSION: The data suggest that there are no major health related issues with this donor population.

REFERENCES:

Purohit M, Berger M, Malhotra R. Simon T. Review and Assessment of the donor safety among plasma donors. Transfusion. 2023 Https://doi.org/10.1111/trf.17369

Iron Management in Plasma donors?

Femmeke Prinsze, Franke Quee, Shahryar Ghasemi Nezjad, Katja van den Hurk

BACKGROUND: There is conflicting evidence on whether plasma donations impact donor iron stores and hemoglobin levels. To prevent iron deficiency and/or anemia, hemoglobin and ferritin levels are routinely monitored in whole blood donors at Sanquin. For plasma donors, hemoglobin cutoffs used to be identical to whole blood donors (7.8 mmol/L for women and 8.4 mmol/L for men) but as from 30-03-2020, the cutoffs were lowered to 7.5 mmol/L for women and 8.1 mmol/L mmol/L for men. Furthermore, in Sanquin's plasma only center hemoglobin is now measured post-donation on a

hematology analyzer (Advia, venous sampling) rather than pre-donation point-of-care test (HemoCue, capillary sampling). Ferritin is not measured routinely in plasma donors.

AIMS: The aim of this study was to evaluate the policy changes for hemoglobin and to evaluate whether repeated plasma donations are associated with lower ferritin levels.

METHODS: Ferritin levels were analyzed in archived samples of plasma donors who donated between 25 and 29 February 2019 who donated only plasma in the preceding two years. Archived samples are only available for those donors that made a successful donation, thus excluding donors that are deferred for e.g., low hemoglobin. The numbers of donations and all donors' characteristics were extracted from eProgesa. Per category of donation history (1-5, 6-10, 11-15, 16-20 and more than 21 plasma donations) mean± SD ferritin levels were calculated. Ferritin was also grouped according to the deferral cutoffs for whole blood donors (<15, 15≤30 or >30 ng/ml). Associations between numbers of plasma donations and ferritin levels were analyzed using linear regression, adjusted for age and numbers of whole blood donations. Associations between ferritin level and deferral for low hemoglobin were analyzed using logistic regression. All analyses were stratified by sex and menopausal status (≤44 or ≥45 years).

RESULTS: Hemoglobin levels that are measured on the Advia are more often (almost 1%) just below the cutoff level than HemoCue measurements, probably due to repeated HemoCue measurements by protocol in these cases with levels just below the cutoff. On average hemoglobin level was 0.1 mmol/L lower when measured on the Advia than with the HemoCue. Thus, the deferral rate is higher in plasma only center (1.7%) than other centers (0.7%).
Ferritin levels were measured in 953 donors (578 men, 102 premenstrual and 273 postmenstrual women). Low ferritin levels were associated with (higher) age, sex including menstrual status and the number of plasma donations. Donors that donated more than 20 times in the past two years have almost 50% lower ferritin levels compared to donors that donated only 1-5 times. For men the odds for hemoglobin deferral at the next donation was significantly higher (6.2; 95%CI 1.1-35.8) with lower (grouped) ferritin levels.

CONCLUSION: Measurement variabilities and the cessation of repeated measuring may underlie the increased hemoglobin deferral rates at the plasma only center. Repeated plasma donations with whole blood sampling and no rinse-back procedures may deplete iron stores at high frequencies. Thus, it may be warranted to manage donors with high frequency plasma donations with ferritin-guided donation intervals.

REFERENCES: -

Adverse reactions in plasma donation – insufficient registration or a neglected problem?

Christina Mikkelsen, Mie Topholm Bruun, Betina Sørensen, Rune Larsen, Sys Hasslund, **Bitten Aagaard**

BACKGROUND: At January 1st 2020 a national Danish donor vigilance registration was implemented in all blood banks. Donor vigilance registration parameters are available in "National guidelines" (1). All donors are voluntary and non-remunerated.

In 2015 a plasmapheresis program was initiated in Denmark for the purpose of reach self-sufficiency for intravenous immune globulin (IVIG). This meant that collection of source plasma was initiated as a routine nationally. The number of plasmapheresis donations increased from 55,000 in 2016 to 89,000 in 2021. Though national recommendation mainly two plasma centers (in two of five regions) had a great increase in plasmapheresis procedures.
From 2020 to 2021 the collection of source plasma increased by 8% with regional changes ranging from – 7 to 30%.

AIMS: to monitor adverse reactions and events (ARE) in plasmapheresis in general and assess the effect on ARE rates when upscaling the plasmapheresis donations of source plasma.

METHODS: Standardized data from all (5) regions were collected and ARE rates were compared. As severity of ARE is running up to six months, only data from 2020 and 2021 were included in the analysis.

RESULTS: The overall ARE rate increased independently of ARE type and donor gender, most distinctively for infiltration (Table 1). The three most frequent ARE are hematoma, VVR onsite w/o LOC and infiltration (2,3). In total, ARE rate for plasmapheresis increased 55%, despite only an 8% increase in the national number of plasmapheresis donations. When assessing the rates on a regional level, ARE rates changed from a small decrease of 3% up to an increase of 130% in the region, who also had the highest increase in plasma collection. In regions with stable collection numbers (+/- 10% changes in collection) an average increase in ARE rates of 29% was found.

CONCLUSION: Increasing numbers of plasmapheresis procedures may have impact on the awareness among the staff members of ARE for plasmapheresis donors. During 2021, a change in procedure for most blood banks allowed donors to donate plasma at their first regular donation, which may explain some of the increase.
During 2021 the standards for correct registration of ARE types were further specified for the donation staff: this included how to distinguish hematoma from delayed bleeding and/or infiltration. This may explain why hematoma is represented as one of the most frequent ARE in table 1.
As plasmapheresis donation procedure incl. equipment has not changed, the most plausible reason is a raised awareness and a more adequate registration of ARE among staff members. The fact, that even regions with stable plasmapheresis donation numbers, had a notable increase in ARE support the assumption.
The Danish Haemovigilance Committee will continue to monitor this closely.

Table 1: Adverse reactions to plasma donation

	Total			Rate per 100,000 plasma donations		
Year	Female	Male	Total	Female rate	Male rate	total
2020	1004	1150	2154	2987	2015	2375
2021	1618	2006	3624	4370	3271	3685
Percentage increase	61	74	68	46	62	55
	Hematoma	VVR onsite w/o LOC	Infiltration	Hematoma	VVR onsite w/o LOC	Infiltration
2020	941	741	43	1038	817	47
2021	1464	1150	318	1489	1169	323
Percentage increase	56	55	640	43	43	580

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1) Guideline registration of adverse reactions and events
2) Blood donation adverse reactions and events Annual report 2021
3) The new donor vigilance system in Denmark reveals regional differences in adverse reactions supposedly caused by variation in the registration

Frequent apheresis donation does not increase the risk of bone fractures in donors.

Md Morshadur Rahman, Surendra Karki, Andrew Hayen

BACKGROUND: Sodium citrate is used as an anticoagulant during plasma and platelet donation by apheresis. Citrate works by binding to calcium ions in the blood and blocking the calcium-dependent coagulation mechanism. While apheresis has been shown to be a very safe procedure, with very low risk of serious adverse events, it has been shown to be associated with some acute metabolic effects that include hypocalcaemia, hypercalciuria, secondary hyperparathyroidism, hypomagnesemia, and metabolic alkalosis, all of which are attributed to ionized calcium-citrate complexes.[1] The association of apheresis with such acute metabolic effects on ionised calcium and bone minerals warrants more studies on long-term bone health in frequent plasma and platelet donors.[2]

AIMS: To compare the risk of bone fractures in high frequency apheresis (plasma and platelet) donors compared to low frequency donors after adjusting for the effect of sociodemographic, health and medical factors.

METHODS: We used data from the Sax Institute's 45 and Up study, which is a population-based cohort of 267,357 adults aged 45 years and above and living in NSW when they joined the study between 2006 and 2009.
We used the qualification period method followed by regression-based analysis to test the statistical association between apheresis donation at different frequencies and the risk of bone fractures over time. To be qualified to be included in the analysis, a donor must have made any type of blood donation in the first and last year of a '5-year exposure window' and at least one plasma or platelet donation by apheresis during the exposure window. This qualification period method ensures that all donors included in the analysis were active/eligible (healthy) blood donors throughout the exposure period.
Then, we followed up these donors for the occurrence of bone fractures in the years after the end of the exposure period (average follow up period- 5.7 years, max 8 years). The results are adjusted for age, sex, education level, income categories, body mass index, self-reported general health status, smoking history, alcohol intake, physical activity, prior history of apheresis donations, and total whole blood donations made in the exposure period.

RESULTS: A total of 1921 apheresis donors met the qualification criteria. Average age at the start of follow-up was 55.0 years (standard deviation (s.d)- 5.4). The adjusted relative risk of bone fractures did not differ significantly between the three categories (1-19, 20-39, and 40+ donations) of apheresis donors (range from 3.1-3.5%). The relative risk ratio was 1.08 (95% confidence interval (CI), 0.54-2.21) in donors donating 20-39 times and 0.83 (95% CI, 0.34-2.02) in those donating more than 40+ times compared to the donors donating 1-19 times. These risk ratios between groups of apheresis donors are not statistically significant. We also did not find any risk difference in the above categories of donors when the outcome was limited only to osteoporotic bone fractures.

CONCLUSION: We found that high frequency apheresis donors do not have an increased risk of bone fractures when compared to low frequency apheresis donors.
Key words: apheresis donors, fracture, health, risk
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2. Bialkowski W, Bruhn R, Edgren G, et al. Citrate anticoagulation: Are blood donors donating bone? J Clin Apher 2016;31: 459-63.

Abstracts Session H3: Haemovigilance

H 3	Haemovigilance
	Friday, 16:15-17:45, LC.0.100 (Festsaal 1) Chair: Johanna Castrén
16:15 – 16:35	**1. Donor adverse events – definitions, recording and reporting, an overview.** **Ramona Darabant**
16:35 – 16:55	**2. Making Haemovigilance Resources Available for Everyone: A Report from the International Haemovigilance Tools Collaborative Project.** Paul Ashford, Yuyun Siti Maryuningsih, **Shruthi Narayan**, Mary Townsend, Barbee Whitaker, Erica Wood
16:55 – 17:05	**3. Adverse reactions in elderly blood donors.** **Niubel Díaz Padilla**, Yared Paalvast, Sanne Bruins, Ties Molenaar
17:05 – 17:20	**4. Oops, we hit the artery! A review of arterial punctures reported at NHSBT Jan 2019-March 2023.** **Shruthi Narayan**, Alexandra Griffiths
17:20 – 17:35	**5. Regular blood donation and the risk of mortality: minimizing the impact of healthy donor effect.** **Md Morshadur Rahman**, Surendra Karki, Andrew Hayen
17:35 – 17:45	**6. Frequent apheresis donation does not increase the risk of bone fractures in donors.** Surendra Karki, **Md Morshadur Rahman**, Andrew Hayen, David O Irving

Times include presentation and discussion. At least one quarter of the time should be dedicated to the discussion.

Donor adverse events – definitions, recording and reporting, an overview.

Ramona Darabant

BACKGROUND: For plasma-derived medicinal products and therapies depend on unreplaceable plasma donations. It is important to emphasize that the process is a safe procedure. Adverse reactions are infrequent, mild and temporary. They can be effectively managed by skilled professionals, physicians and medical staff, who closely monitor the plasma donation process. The Plasma Protein Therapeutics Association's (PPTA's) International Quality Plasma Program (IQPP) voluntary standards program provides global leadership for the plasma protein industry's goal of continuous improvement with a focus on safety and quality from the donor to the patient. The IQPP Donor Adverse Events Recording Standard is in place to monitor, manage and document donor adverse events (AEs) and provides common language to classify AEs across the plasma industry.
The plasma industry is commitment to assure the health and safety of plasma donors in the US and Europe. We will showcase the scientific research and the quality agreement on recording and reporting to the authorities concerning adverse events and reactions.

AIMS: Plasma donation is a safe procedure and the plasma donation associated reactions are a rare occurrence.

METHODS: Donation data from 2018-2022 was analyzed in a retrospectively from BioLife Plasma Donation Centers in Austria, as well as data taken from public reports (Hemovigilance report for Austria and the EU Commission).

RESULTS: donor adverse events are a rare occurrence.

CONCLUSION: Plasmapheresis is as safe as the donation of whole blood with similar ratios of adverse events shown in the data from 2019 throughout Europe. Twenty-four countries reported voluntarily about their serious adverse reactions with donors of blood and blood components. For Austria, the hemovigilance reports from 2019 to 2021, speak the same language.

REFERENCES:

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Cho JH, Hiskey M. Plasmavigilance: Source plasma joins the call to arms. Transfusion. 2021 Oct;61(10):2803-2805. doi: 10.1111/trf.16668. PMID: 34605562.
Schreiber GB, Becker M, Fransen M, et al. Plasmavigilance – Adverse events among US Source plasma donors. Transfusion. 2021; 61: 2941-2957.

Making Haemovigilance Resources Available for Everyone: A Report from the International Haemovigilance Tools Collaborative Project.

Paul Ashford, Yuyun Siti Maryuningsih, **Shruthi Narayan**, Mary Townsend, Barbee Whitaker, Erica Wood

BACKGROUND: Haemovigilance systems (HS) are intended to collect and analyse data, and report findings, relating to complications such as adverse reactions in donors. Different definitions of haemovigilance(HV) exist, but they all share a common data-driven approach to describe and understand current practice, and to recommend improvements to systems and practice, ultimately leading to reduced risk of harm. In many countries, HS are now well established and highly functional. However, half the countries responding to the World Health Organization Blood Safety and Availability survey do not have a HS, and where HS are present they are often of limited scope and capacity, inadequately resourced and without the ability to drive practice change.

AIMS: We describe a recent international collaboration to improve access to available HV resources, for the purpose of supporting development of HS worldwide.

METHODS: A working group (WG) was formed from international HV experts representing HV-focused organizations. A voluntary survey was distributed by WHO regional coordinators and the ISBT Working Party on HV to determine needs for development/enhancement of HS. The survey results indicated many countries throughout the world need tools and resources (TR) to develop or further enhance their HS. The WG embarked on a compilation of TR to fill this need. TR were obtained in English, French, and Spanish and organized in a WHO document the "User guide for navigating resources on stepwise implementation of haemovigilance systems".

The WG, recognizing that access to critical TR would best be accomplished by housing the TR on a centralized website, selected the ISBT to host the website, assuring access to be independent of ISBT membership. A new sub-committee to the ISBT Working Party (WP) of HV will ensure that materials are kept current and relevant.

RESULTS: The collected TR were uploaded to the ISBT website and arranged following the structure of the WHO aide-memoire. Access to documents housed on the TR site is expedited using user-friendly graphics and drop-down menus for ease of access. This is a dynamic set of resources reviewed and updated regularly and intended to be expanded over time with contributions from transfusion and haemovigilance experts all around the world. The COVID-19 pandemic responses have speeded the adoption of digital technologies globally and this facilitates easier access to resources and supports better utilization of available TR for effective implementation of hv across the world.

CONCLUSION: Haemovigilance contributes to the safety and quality of blood donations and transfusions; a successful haemovigilance system is complex and takes time to develop. The WHO Action Framework to Advance Universal Access to Safe, Effective and Quality-Assured Blood Products 2020–2023 reaffirms the importance of haemovigilance as one of the strategic objectives of global efforts to improve capacity to monitor, investigate and assess adverse events in blood donors and transfusion recipients. The 'living' compendium of resources described here has been collated with valuable contributions from haemovigilance experts around the world and supports the 'WHO User guide for navigating resources on stepwise implementation of haemovigilance systems'. The user guide and the collated resources are easily accessible and available to all via the ISBT website. These facilitate a stepwise implementation of haemovigilance and the tools support development at country, regional or individual facility level.

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- WHO Aide-mémoire for ministries of health: national haemovigilance system published January 2015 https://www.who.int/publications/i/item/WHO-HIS-SDS-2015.10
- WHO Action framework to advance universal access to safe, effective and qualityassured blood products 2020-2023, published February 2020 https://www.who.int/publications/i/item/9789240000384

Adverse reactions in elderly blood donors.

Niubel Díaz Padilla, Yared Paalvast, Sanne Bruins, Ties Molenaar

BACKGROUND: The upper age limit to donate blood varies between different countries. In the Netherlands, the upper age limit for first-time donation is 65 years, but recurring donors are allowed to donate up to 80 years of age. Although blood donation is considered safe, there is still a paucity of data on adverse reaction rates in donors over 65 years, especially for inexperienced donors in this age group, complicating decision-making in relaxing the age limit.

AIMS: To assess the risks of elderly donors compared to other age groups.

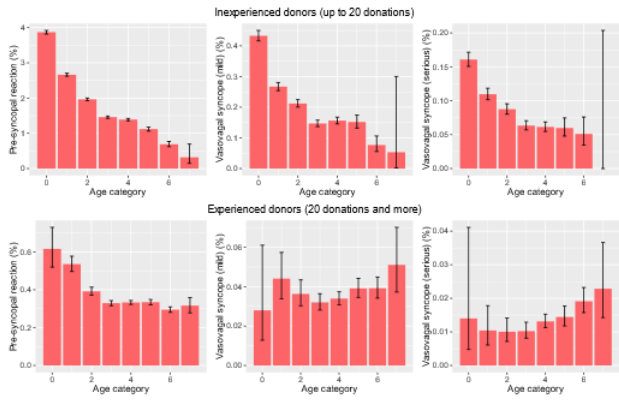
METHODS: We performed a retrospective analysis of whole blood and plasma donations at Sanquin (Netherlands) registered period between 2013 and 2022. Donor (sex, age-at-donation) and donation

data (donation type, donation succession number, adverse reactions) were extracted from the blood bank information system (eProgesa, MAK-system) for further analysis in statistical software (R, R Core Team). Adverse reactions that are registered as part of routine donor vigilance include vasovagal reactions (pre-syncopal and syncopal), mispuncture, hematoma, painful arm, delayed bleeding and arterial puncture. Donors were divided over eight age groups (years): <23, 23-30, 31-40, 41-50, 51-60, 61-65, 66-70 and >70 years. Donors were considered to be inexperienced for the1st to 19th donations, or experienced from the 20th donations and up. 95% confidence intervals for adverse events were calculated using Wilson's method.

RESULTS: Overall adverse reaction rate was 1.5 % for whole blood (4,276,227 attempts) and 1.7 % for plasma donations (3,065,305 attempts). Vasovagal reaction rates (pre-syncopal and syncopal) declined with increased age in both plasma and whole blood donations. This decline, however, was most notable for inexperienced donors, while for experienced donors this was only present in the younger age groups (Figure 1). In experienced donors there was a trend for more serious syncopal reactions with increasing age. However, serious syncopal reactions were less frequent in experienced donors than in inexperienced donors regardless of age group. Interestingly, we found that the chance of mispuncture declined with age in inexperienced donors, however increased with age in experienced donors. In experienced donors rates of hematoma formation were U-shaped with respect to age, while in inexperienced donors no clear pattern could be discerned. Complaints of pain after venipuncture decreased with age irrespective of donor experience.

CONCLUSION: In inexperienced donors adverse reactions either occur less frequent (vasovagal reaction, pain), or do not occur more frequent (mispuncture, hematoma) in older age groups.In experienced donors, only the chance of mispuncture increases with age, while the chance of hematoma follows a U-curve, and vasovagal reactions and pain decrease with age. All in all, relaxing of age-limits is not likely to result in a major increase in adverse events.

FIGURE 1:



Rate of vasovagal reactions with whole blood and plasma donations in inexperienced and experienced donors respectively. Group sizes for inexperienced (n=2,896,795) and experienced donors (n=4,526,294) across the age categories are as follows: Error bars are 95% confidence intervals.

	Inexperienced (n)	Experienced (n)
0:<23 years	562,854	21,469
1:23-30 years	581,872	126,209
2:31-40 years	568,042	342,546
3:41-50 years	525,422	788,996
4:51-60 years	479,383	1,515,724
5:61-65 years	130,385	851,014
6:66-70 years	46,955	748,628
7: >70 years	1,882	131,708

REFERENCES: -

Oops, we hit the artery! A review of arterial punctures reported at NHSBT Jan 2019-March 2023.

Shruthi Narayan, Alexandra Griffiths

BACKGROUND: NHS Blood and Transplant (NHSBT) collects around 1.5 million blood donations annually, saving and transforming thousands of lives. Donor safety is of paramount importance and is ensured by stringent donor selection and health screening, standard policies and procedures, and adequately trained staff optimally supported by necessary resources. Despite these measures, complications occur during and after blood donation, some of which could have long term impact. Arterial puncture is a serious complication with potentially long term, debilitating effects on the donor. Organisational reputation and donor return rates may also be impacted negatively.

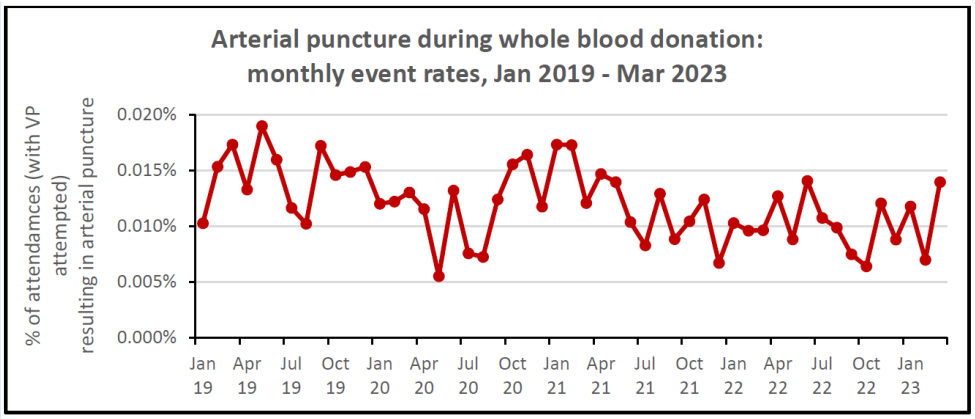
AIMS: This retrospective review was undertaken to identify key themes from donor adverse events data relating to arterial punctures reported to NHSBT and recognise areas for improvement.

METHODS: Blood donor adverse events from January 2019 to March 2023 were reviewed and all events categorised as 'arterial punctures' were collated and analysed. At NHSBT, events are categorized as arterial punctures and managed accordingly in any of the following scenarios: rapid filling of pouch/bag; bright red blood; pulsating blood flow; needle falls out without an obvious reason; or the donor develops an atypical large haematoma post donation.

RESULTS: There were 6,610,574 attendances at blood donation sessions during this period; "attendances" here includes all session attendances where venepuncture was attempted (whole blood, apheresis including convalescent COVID-19 plasma and plasma for medicines) but not those where the donor was deferred prior to venepuncture. A total of 764 arterial punctures were reported, equating to 1 in 8653 or 0.012% of attendances. Among whole blood donors, arterial punctures were twice as likely to occur in male donors as in female donors. The risk was also higher in new/returning donors compared with regular donors but reduced with donor age. Arterial punctures are very rare in apheresis platelet donors (three reports out of 284,506 attendances, 0.001%) and in plasma for medicine donors (one report out of 50,657 attendances, 0.002%). However, COVID-19 convalescent plasma donors experienced an unusually high rate of arterial punctures (12 reports out of 57,291 attendances, 0.021%) compared with other apheresis donors and with whole blood donors (748 reports out of 6,218,120 attendances, 0.012%) which could be due to external factors relating to the pandemic (newly trained staff, challenging environments, higher proportion of new donors, etc.). There were no reports of compartment syndrome or arteriovenous fistula during this period but there was one report of suspected brachial artery pseudoaneurysm reported six months after it occurred.

CONCLUSION: Arterial punctures are rare but can occur with whole blood or apheresis donations and rates reported at NHSBT are higher than reported in literature, most likely due to a high index of suspicion and a lower threshold of categorising such events. Staff must be trained to identify any suspected arterial puncture promptly and manage them appropriately. Donors with known arterial punctures should be alerted to seek immediate medical attention for symptoms such as rapid swelling and/or numbness of arm, thrill, dilated veins or a pulsating mass. Previous NHSBT audits recognised that nearly 30% of donors who experienced arterial puncture had not returned to donate. Appropriate management not only promotes donor safety but also positively impacts donor return rates and organisational reputation.

FIGURE: Arterial puncture during whole blood donation – monthly event rates January 2019-March 2023



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Regular blood donation and the risk of mortality: minimizing the impact of healthy donor effect.

Md Morshadur Rahman, Surendra Karki, Andrew Hayen

BACKGROUND: The healthy donor effect (HDE) is a bias that is evident when comparing the effect of blood donation on health, often leading to conclusions showing donors with high frequency of donation have better health outcomes compared to non-donors or donors with lower frequency of donation. Most of the previous donor health studies suffered from this bias and may have misinterpreted the beneficial effect of blood donation when in reality, it is due to the healthier characteristics of blood donors.

AIMS: In this study, we mitigated the effect of HDE by using both target trial technique and 5-years exposure window method while investigating the relationship between blood donation and mortality in blood donors aged over 45 years in Australia.

METHODS: To assess how the initiation of whole blood donation impacts mortality, we emulated 60 target trials from July 2006 to June 2011 using the Sax Institute's 45 and Up Study data, which was linked to other electronic health databases, including blood donation data in NSW, Australia. We conducted observational analogues of intention-to-treat (ITT) analyses comparing donors with non-donors, adjusting our analyses for variables that impact mortality. Hazard ratios were approximated by the pooled logistic regression model. For assessing the regular whole blood donation impact on mortality, we also used 5-year 'exposure window' where donors were categorised as either high frequency donors if they donated at least two whole blood in each year of the exposure window or as low frequency donors if they donated less than two whole blood in each year of exposure window. We then estimated 7-years mortality risk, risk difference and risk ratio by inverse probability weighting (IPW), Targeted minimum loss-based estimation (TMLE) and Sequentially doubly robust (SDR) estimation while adjusting for potential confounding factors.

RESULTS: The 60 trials generated 263300 person-trials with 121967 unique participants included in the analysis. The unadjusted ITT mortality hazard ratio (95% Confidence Interval (CI)) between donors and non-donors was 0.57 (95% CI 0.42, 0.77). The HR was 0.70 (95% CI 0.52, 0.95) and 1.0 (95% CI 0.73, 1.35) after adjustment for age and sex, and then all the baseline covariates, respectively. In exposure window method, the risk ratio's from IPW, TMLE and SDR estimates were 1.06 (95% CI 0.74, 1.73), 1.04 (95% CI 0.85, 1.26), and 1.08 (95% CI 0.89, 1.31), respectively.

CONCLUSION: Both from target trial and exposure window method, we did not find any statistically significant association between mortality and blood donation. Thus, either initiating blood donation or donating blood at higher frequency does not change mortality risk.

REFERENCES: -

Abstracts Session H4: Iron deficiency

H 4	Iron deficiency
	Friday, 16:15-17:45, LC.0.004 (Galerie) Chair: Mikko Arvas, David Roberts
16:15 – 16:30	**1. Menstrual blood loss is an important determinant of Hb and ferritin in premenopausal blood donors.** **Sofie Ekroos**, Jan Karregat, Elena Toffol, Johanna Castrén, Mikko Arvas, Katja van den Hurk
16:30 – 16:45	**2. Derivation of a maximum donation frequency for maintaining a healthy donor population.** **Mart Janssen**, Katja van den Hurk
16:45 – 17:05	**3. Can we build better hemoglobin deferral models by using data from several countries?** **Jarkko Toivonen**, Amber Meulenbeld, Tinus Brits, Dorien de Clippel, Veerle Compernolle, Surendra Karki, Marijke Welvaert, Joost van Rosmalen, Emmanuel Lesaffre, Katja van den Hurk, Mikko Arvas, Mart Janssen
17:05 – 17:25	**4. SIMULATED EFFECTS OF FERRITIN SCREENING ON HS-CRP IN RECRUITED DONORS** **Esa Turkulainen**, Jarkko Ihalainen, Mikko Arvas
17:25 – 17:35	**5. Implementation of a nationwide policy regarding the prevention of iron depletion in whole blood donors: assessing donor perception and follow-up.** Carole Leclerc, Cécile Delanoe-Lacroix, Jean-Pierre Lebaudy, Chantal Jacquot, Hervé Meinrad, Sophie Le Cam, Cathy Bliem, Pascal Morel, Pierre Tiberghien, **Pascale Richard**
17:35 – 17:45	**6. Associations between change in hemoglobin from baseline and ferritin in whole blood donors.** **Amber Meulenbeld**, Esa Turkulainen, Chen-Yang Su, Hanke Matlung, Dorine Swinkels, Katja van den Hurk, W. Alton Russell, Mikko Arvas, Mart Janssen

Times include presentation and discussion. At least one quarter of the time should be dedicated to the discussion.

Menstrual blood loss is an important determinant of Hb and ferritin in premenopausal blood donors.

Sofie Ekroos, Jan Karregat, Elena Toffol, Johanna Castrén, Mikko Arvas, Katja van den Hurk

BACKGROUND: To prevent blood donors from developing iron deficiency (ID, ferritin <15 µg/L) and subsequent iron deficiency anaemia (IDA, haemoglobin (Hb) <120 g/L), blood services rely on information provided by the donor, including age and sex. Although a known risk factor for ID/IDA, the effect of menstruation on blood donors has been scarcely studied and is not considered in blood donation interval recommendations. Menstrual blood loss (MBL) can be measured using a pictorial blood assessment chart (PBAC), a semiobjective method that allows the individual to evaluate the

number of used menstrual pads and tampons and the degree of staining. While disadvantages include underestimation of blood loss, the method is easy to include into clinical practice.

AIMS: We aimed to investigate whether the effect of MBL explains variation in ferritin/Hb levels, to quantify its effect size and explore if other female reproductive health-related variables are associated with ID/IDA.

METHODS: Donor InSight III (2015-2016) is a cohort study of Dutch whole blood donors. The cohort includes data on ferritin and Hb levels and questionnaire data on health and lifestyle. Female donors were asked to supply a PBAC. To deduce the effect of MBL as explained in aims, we stratified female donors by menopausal status and used three separate analysis methods. First, we studied the association of variables related to log(ferritin) and Hb using Bayesian linear regression models. Secondly, we quantified the average variance explained of log(ferritin) and Hb by each of the variables used in the linear analysis. Thirdly, we measured association of variables to risk of ID and IDA in the participants who reported menstruation using Bayesian logistic regression models. Exclusion criteria was pregnancy, BMI ≥50, ferritin ≥200, PBAC score ≥400 and age <18 or ≥70 years.

RESULTS: 482 premenopausal and 499 postmenopausal women were included in analyses. Premenopausal women had lower ferritin (mean 28.81 µg/L) and Hb (mean 133.80 g/L) compared to postmenopausal women (mean ferritin 40.86 µg/L, mean Hb 136.72 g/L) and there was a negative association between PBAC score and ferritin/Hb. Based on variable importance analysis, PBAC accounted for the majority of variance explained for Hb and second only to the number of days since last blood donation for ferritin (Figure 1). Heavy menstrual bleeding (PBAC ≥150, a validated proxy for MBL of ≥80 ml) was associated with increased risk of IDA but not ID, while use of a levonorgestrel-releasing intrauterine device (LNG-IUD) was associated with decreased risk of ID. Age was not found to be associated with ferritin/Hb levels, but number of years since menarche was associated with decreased risk of IDA.

CONCLUSION: Blood donation and MBL were the most important determinants of iron status in premenopausal blood donors and the difference in average Hb between the pre- and postmenopausal groups likely stems from menstruation. Thus, results suggest blood donors could benefit from donation interval guidelines based at least in part on information of MBL, heavy menstrual bleeding and use of hormonal contraception, specifically LNG-IUDs. Further study on ways to implement questions regarding menstruation into the donor selection process is needed.

FIGURE 1

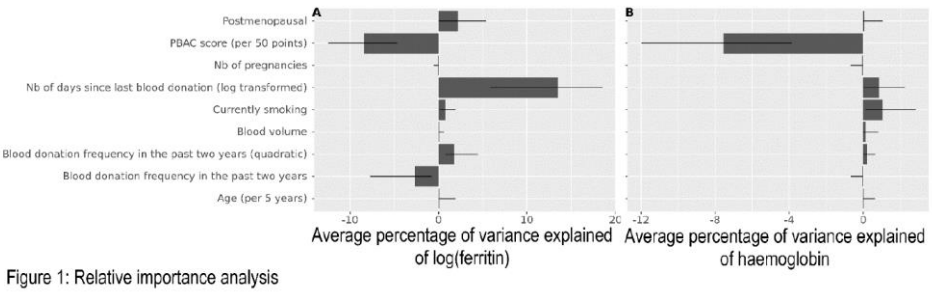

Figure 1: Relative importance analysis

REFERENCES: -

Derivation of a maximum donation frequency for maintaining a healthy donor population.

Mart Janssen, Katja van den Hurk

BACKGROUND: There is a long tradition of research studying (potential) negative impact of blood donation on donor health and mitigation strategies. In 2017, in addition to the legally binding hemoglobin deferral threshold, in the Netherlands ferritin deferral thresholds at 15 and 30 ng/mL were introduced with an associated deferral of subsequent donations for donors with low ferritin levels. This post donation test resulted in a substantial number of deferred donors and an increase in new donor recruitment to compensate the associated loss of donations. The introduction of the ferritin deferral policy did however result in a reduction of on-site donor deferrals. However, the question whether the current ferritin deferral strategy is sufficient hitherto remains open.

AIMS: To demonstrate a more intuitive target for blood donor recovery after donation, its association with iron deficiency in blood donors, and its implications for the size of the donor base.

METHODS: Recently we have been able to show that in repeat donors ferritin levels below 30 ng/mL are associated with a (linear) reduction in Hb relative to the donor's baseline Hb level (the hemostatic Hb level at donor entry) and without an association above this level. This means that for donors with full Hb recovery ferritin levels are expected to remain above the 30 ng/mL threshold. The average time required for Hb levels to fully recover after donation can be derived from historical repeat donations. These recovery times also allow calculating the size of the donor base required for a policy that aims for a full Hb recovery in repeat donors before subsequent donations.
As Hb recovery after donation is exponential, a plot of the change in Hb level as a function of the logarithm of the time between donations is almost perfectly linear. This allows estimating the average full recovery interval, defined as the time to return to the Hb level at the time of donation. The time to full recovery after first donation in donors between 01/01/2012 and 17/09/2017 (the introduction of ferritin screening in the Netherlands) was analyzed for male and female donors.

RESULTS: The dataset consisted of 123,784 male and 153,514 female donations. The estimated average time to full recovery is 192 days for males and for 332 days for females. This implies a maximum (average) donation frequency of 1.9 per annum for males and 1.1 for females. This means that a repeat donor population increase of 30% would be required to fulfill the red blood cell demand.

CONCLUSION: By reducing donation frequencies such that donors are able to fully restore their Hb level before a subsequent donation we minimize the impact on donors' Hb levels whilst at the same time ensuring that ferritin levels will remain sufficient. However, this strategy would require a substantial increase of the size of the repeat donor pool. The proposed policy may be further improved by adapting donation intervals to individual donor characteristics and lifestyle behaviors.

REFERENCES: -

Can we build better hemoglobin deferral models by using data from several countries?

Jarkko Toivonen, Amber Meulenbeld, Tinus Brits, Dorien de Clippel, Veerle Compernolle, Surendra Karki, Marijke Welvaert, Joost van Rosmalen, Emmanuel Lesaffre, Katja van den Hurk, Mikko Arvas, Mart Janssen

BACKGROUND: Blood banks manage the iron balance of blood donors mainly by monitoring hemoglobin (Hb) levels and setting donation intervals. Hb prediction models that suggest personalized donation intervals could reduce Hb deferrals and hence reduce costs of donation and improve commitment of donors. We have previously compared the performance of various Hb prediction model architectures in Australia, Belgium, Finland, the Netherlands and South Africa. We found that the performance of a country-specific Hb prediction model is mostly determined by the Hb deferral rate of the country, with higher deferral rate leading to better performance.

AIMS: In this work we continue our efforts to develop better Hb prediction models by investigating whether models trained in countries with high deferral rates could improve Hb prediction in other countries.

METHODS: Donation data from the past five years from random samples of 5000 donors from Australia, Belgium, Finland, the Netherlands and South Africa were used to fit different random forest models for Hb deferral prediction using the software container developed by Toivonen et al. and Vinkenoog et al. In each country the model was trained and extracted for distribution to the other participating countries. Each country subsequently evaluated the performance of models from all other countries on their own data. Analyses were performed separately for men and women, and outcomes were compared by the training and prediction countries.

RESULTS: Surprisingly, we find that within countries of model employment there is virtually no difference in the model performance regardless of the country where the model is trained. Instead, the performance of the model is determined by the deferral rate of the country of model employment. In the country with the highest deferral rate, even a model trained in a country with the lowest deferral rate performs as well as a model trained with that country's own data.

CONCLUSION: Our results suggest that although donation practices and populations vary, in each country a fundamentally similar model is learned. The differences in model performances would then solely depend on how easy the outcome is to predict. For developing Hb prediction models for practical use this is a crucial finding, as it suggests that a good prediction model developed in one country can be applied in many other countries.

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SIMULATED EFFECTS OF FERRITIN SCREENING ON HS-CRP IN RECRUITED DONORS

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BACKGROUND: Too frequent blood donation can deplete body iron stores, causing adverse health effects. To address this, some blood services have adopted ferritin screening as part of their donor management policies. While ferritin is a commonly used marker for iron stores, ferritin levels can also be elevated by inflammation, positively correlating with C-reactive protein (a serum marker of acute phase response to infection/inflammation).

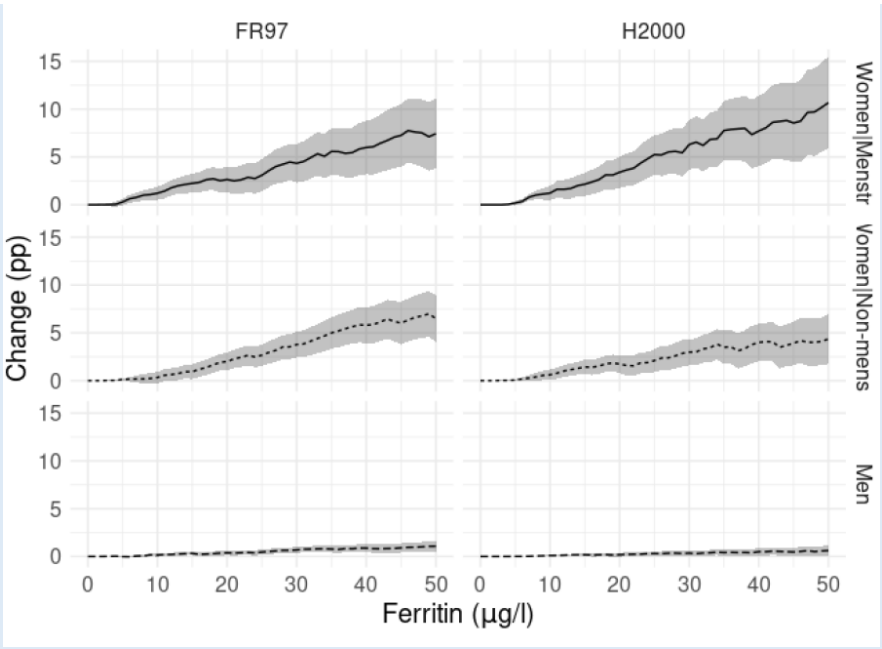
AIMS: We hypothesize that a ferritin-based blood donor selection policy might increase the average level of inflammation in a blood donor population. Using Finnish general population cohorts, we aim to quantify this effect by measuring CRP levels as a surrogate for inflammation. The study's goal is to estimate the impact of implementing a ferritin cut-off on the proportion of donors with hs-CRP over 3 mg/l.

METHODS: We analyzed ferritin and hs-CRP measurements in two Finnish national health survey cohorts, FINRISK 1997 and Health 2000, including only potential blood donors who met eligibility criteria, to simulate selection of new blood donors from general population.
Participants were divided into subgroups based on sex and menstruation status. To determine the impact of ferritin filtering on the proportion of potentially inflamed donors, we examined hs-CRP levels over the commonly used threshold of 3 mg/l for low-grade inflammation in subpopulations filtered by ferritin lower bounds ranging from 0 to 50 µg/l, with a step size of 1 µg/l. We estimated 95% confidence intervals using bootstrapped normal approximation (sample size 10,000) and evaluated if the proportion of inflamed potential donors differed significantly between no ferritin filtering and 15, 30, and 50 µg/l ferritin filtering.

RESULTS: Our results show statistically significant differences in the proportion of potentially inflamed potential donors at various ferritin screening levels (Figure 1). For instance, a ferritin cut-off of 30 µg/l for menstruating women would result in a 2.3-6.3 percentage point increase in the proportion of individuals over the threshold for low-grade inflammation based on the FINRISK 1997 cohort. Similar increases were observed at ferritin screening levels of 15 and 50 µg/L, and for non-menstruating women. The increases for men were smaller but still significant.

CONCLUSION: Our simulation suggests that using a ferritin cut-off to screen blood donors from the general population will result in an increase in the proportion of individuals with low-grade inflammation. These donors may not be able to tolerate the physiological stress of blood donation and maintain long donation careers. Additionally, research suggests that high iron status may also be associated with higher disease risks, further exacerbating the issue. Countries that have implemented ferritin measurement policies are in a perfect position to study this hypothesis and determine if a hs-CRP measurement should be used alongside ferritin measurement to address these concerns.

FIGURE 1: Line plots of the change in the proportion of people over 3 mg/l CRP at different ferritin filtering levels, with 95% confidence intervals. Change is presented in percentage points (pp).



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Implementation of a nationwide policy regarding the prevention of iron depletion in whole blood donors: assessing donor perception and follow-up.

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BACKGROUND: A nationwide ferritin testing policy was implemented in France in Nov 2021 for blood donors at high-risk of iron depletion (Fillet et al, Vox Sanguinis, 2021). Simultaneously, dietary information regarding iron intake was implemented for all blood donors, upon appointment on the dedicated website, by information flyers as well as during the pre-donation interview (PDI). Donors with a ferritin <15ng/ml are deferred for 6 months for whole-blood donation (WBD) (plasma donation remains allowed). An information letter invite these donors to refer to their GP for follow-up and initiation of an iron supplementation, with an accompanying letter for their GP with the donor Hb and ferritin results. For donors with 15-25 ng/ml ferritin levels, invitations to donate are postponed: 3 months for men and 4 for women, instead of the usual 2 months. Pre-donation Hb (finger test) and ferritin levels are measured upon return for a subsequent donation.

AIMS: To evaluate donor perception and follow-up early after implementation of this new policy regarding the prevention of iron depletion in blood donors.

METHODS: Electronic surveys were performed in 2 distinct cohorts of donors having given blood at least once since November 2021 and randomly selected from the national donor database: panel 1 = donors candidate for WBD from 28/04 to 21/05/22 with ferritin ≥15ng/ml (n=9983); panel 2 = donors with ferritin <15ng/ml (n=9678) (donation between 23/11/21 to 23/04/22).

RESULTS: Panel 1 (2244 respondents, 22,5% response rate) : 40 % reported being aware of the recommendation to increase their iron intake, while 42% reported not being aware, and 17% thought

this recommendation was untrue. Among donors who had read the flyer and received explanations at the PDI, 92% reported knowing the recommendation (77% after PDI only, 63% with flyer only, 25% with neither). 18% of responders changed their diet after donation: 8% of those who had not read the flyer and had not received explanations at the PDI vs 59% with combined flyer and PDI information. Feeling healthy after donation was the main reason for not changing their habits (57%). Panel 2 (2231 respondents, 23 % response rate): 98% found the information letter regarding their iron depletion easy to understand. 43% felt concerned by the letter. 81% referred to their GP. 95% intended to return to donation after the deferral period, a rate similar to the general donor population on the annual nationwide survey, and even higher among deferred first-time female donors (91% vs 73%; $p<0.05$). 33% responded that they intended to donate plasma during the deferral period, but only 2% did so.

CONCLUSION: Among donors without iron depletion, awareness and implementation of the recommendation to increase dietary iron intake was only partly successful. Among donors with iron depletion, most referred to their GP and expressed willingness to pursue blood donations upon resolution of iron depletion. The conversion from WB to plasma donation for iron-depleted donors needs to be further encouraged.

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Associations between change in hemoglobin from baseline and ferritin in whole blood donors.

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BACKGROUND: Repeat whole blood donors are at risk of iron deficiency and anemia. Blood establishments use a capillary hemoglobin (Hb) test to examine donors' eligibility. In the Netherlands, ferritin is measured after every fifth donation to monitor iron stores. Donation intervals of donors with ferritin levels below 30 ng/mL and 15 ng/mL are extended to six and twelve months, respectively. Ferritin is measured again upon return after deferral. The decision limits for ferritin in the Netherlands were based on definitions of iron deficiency in literature, but functional decision limits of our ferritin assay are yet to be defined.

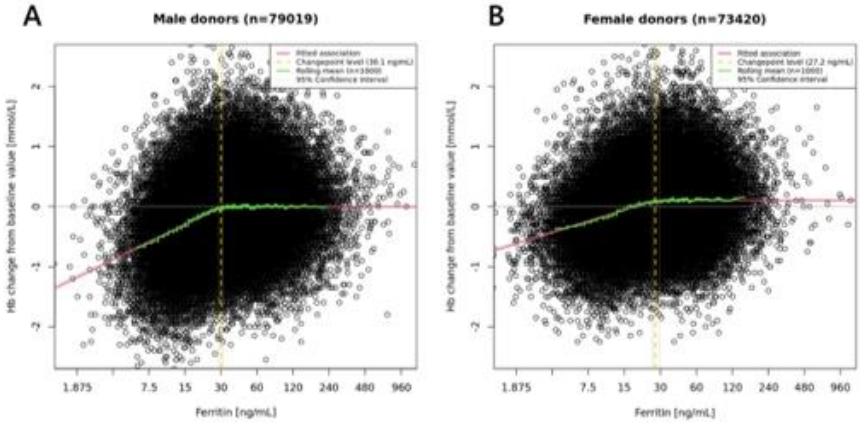
AIMS: To define functional decision limits for ferritin based on a quantitative estimation of the association between change in Hb from baseline and ferritin levels in whole blood donors.

METHODS: We included repeat whole blood donors that made at least two donations between January 2012 and September 2022 for whom Hb level at first donation (baseline) was available. We included donations at which both serum ferritin and capillary Hb were measured and selected only donations with routine ferritin measurements, by excluding ferritin measurements performed based on deferral. We analysed the association between log base 10 ferritin (logFer) level and change in capillary Hb from baseline (dHb). As we observed a clear change in the association between the dHb and log10 ferritin levels, we used maximum likelihood estimation to determine the change point of ferritin. To determine the change point, we defined a two-segmented line where we assume the left-hand segment represents a linear association with a slope that differs from 0. After the chagne point, we assume the right-hand segment has a constant value with slope 0. We generated confidence intervals calculating various statistics on 1000 bootstrap samples for both the male and female data subsets. To provide an intuitive confirmation of the association, we plotted a rolling mean with a window of n=1000 observations.

RESULTS: Our subset contained 64,730 male and 69,290 female donors, making 79,019 and 73,420 donations respectively. On average, male donors were 49 years of age and female donors were 43 years of age. Low ferritin (<30 ng/mL) was present in 44% and 53%, of male and female donations, respectively. We found a linear association between dHb and logFer for ferritin levels below the change point for males (slope 0.98 mmol/mg [95% CI 0.94-1.02]), and for females (slope 0.62 mmol/mg [95% CI 0.58-0.66]). The change point of the association between dHb and logFer is 30.1 ng/mL for males (95% CI 28.6-31.1) and 27.2 ng/mL for females (95% CI 25.6-29.4).

CONCLUSION: Our analysis of a large cohort of repeat whole blood donors shows that, only below a serum ferritin of 30.2 ng/mL in males and 27.2 ng/mL in females, lower logFer was significantly associated with more Hb decline. Interestingly, however, these observations suggest that using our serum ferritin assay the current ferritin cutoff of 30 ng/mL is remarkably appropriate as a decision limit for donor iron management indicative of iron-deficient erythropoiesis.

FIGURE:



Scatterplot of ferritin (plotted on log scale) vs. Hemoglobin change from baseline
Rolling mean (Green) and fitted two-segmented line (red) plotted. 95% confidence intervals around the fitted line and changepoint (yellow) estimated using bootstrap resampling.

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