UK Health Security Agency

NHS Blood and Transplant

Safe supplies 2021:FAIRer donor selection

Joint working between NHS Blood and Transplant and UK Health Security Agency

Foreword

It gives me great pleasure to introduce the NHS Blood and Transplant (NHSBT) and UK Health Security Agency (UKHSA) Epidemiology Unit's annual review 'Safe supplies 2021; FAIRer donor selection.' This report was produced through the joint working of NHSBT and UKHSA and provides surveillance of infections in blood, plasma, tissue, cell and organ donors across the UK and transfusion-transmitted infections. The surveillance programme started in the mid-1990s, initially looking at the safety of blood donations but has expanded to include other donor groups, transmission events and horizon scanning for potential infectious threats to the blood supply.

In this year's review, there are eight infographics summarising several streams of the Epidemiology Unit's work programme including the FAIR (for the assessment of individualised risk) project, blood donor demographics, monitoring of infections in blood donations including HEV, transfusion transmitted infections including infections identified post transfusions and those identified by lookback, tissue and cord donations, and horizon scanning.

FAIR, resulted in a major change in donor selection policy being introduced across the UK from June 2021. FAIR allows gay and bisexual men in established relationships and people with partners from HIV endemic areas to donate if no other donor selection criteria apply, increasing the diversity of the donor base and helping to build resilience in supply. These landmark changes were the outcome of work based on epidemiology (the unit) and behaviour and psychosocial evidence collected and analysed by Professor Eamonn Ferguson at the University of Nottingham. The FAIR project was led by NHSBT in collaboration with the UK blood services, the University of Nottingham, LGBT+ charities and other stakeholder groups, including donors and patients. A six-month review has showed no impact on the safety of the supply, close monitoring remains in place and a further review will take place at 12 months.

Despite the ongoing challenges of COVID-19 in 2021 donations increased to meet demand, following a drop in 2020, with an improvement in the ethnic diversity of donors with some 1.7 million donations made across the UK. The numbers of donors with markers of infection remained low across blood, tissue and cord blood donors. Human T-cell Lymphotropic Virus (HTLV) blood donation screening has now been in place for 20 years. Rates have remained low and seroconversions have been rare, but blood donors from a variety of backgrounds have been identified with HTLV positivity. While the transmission risk is likely to be negligible because of leucodepletion, screening has clear public health benefits. No reported transfusion-transmitted infections were confirmed during 2021 although one possible transmission of occult hepatitis B was identified. During 2022 the UK blood services will introduce hepatitis B anti-core screening to reduce the risk of non-detection of occult hepatitis B infections.

In collaboration with UKHSA we continue to monitor the risk of emerging infections to the blood supply with 2021 seeing some changes to travel-related donor selection criteria.

As always, we are grateful to the thousands of donors and donor families who make transfusion and transplantation possible and help to save and improve more lives every year.

I hope you will find this year's report interesting and please do not hesitate to contact us (epidemiology@nhsbt.nhs.uk) if you require further information.

Su Brailsford

Consultant in Epidemiology and Health Protection
Honorary Professor, University of Nottingham School of Psychology

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For the Assessment of Individualised Risk (FAIR), UK 2021

Working collaboratively towards the FAIR policy for blood donors

The work towards the FAIR policy for blood donation began in 2019, when the steering group set out a work plan to gather evidence for a more individualised approach to donor selection. The steering group included representation from the four UK blood services, the UK Health Security Agency, University of Nottingham, charities, and campaign groups representing people affected by this policy change including lesbian, gay, bisexual, transgender plus (LGBT+) groups, people affected by HIV, donors and recipients of blood components. The evidence identified reliable and acceptable questions to ask donors to identify higher risk sexual activities and allow those at low risk to donate. This was considered a more equitable approach than asking everyone with sexual partners from increased risk groups including men who have sex with men (MSM) not to donate for 3-months, which was the policy at the time.

In 2020, the government accepted the recommendation to change to FAIR and the policy was implemented from June 2021, with monitoring in place to assess the impact. Stakeholders were involved in the communication of the policy to donors and staff, which focused on the safety for recipients rather than the risk the donors may pose. Early in 2022, a six-month review showed no impact on safety of the blood supply as the number of recently acquired infections detected in donors remained extremely low.

The new FAIR questions are to all donors

All donors are asked if in the last three months they have had gonorrhoea, used drugs during sex (chemsex), or had anal sex with a new or multiple partners. If they answer no, and no other donor selection criteria apply, they can donate.

The new questions were included on the pre-donation questionnaires from 14 June 2021 in England, Scotland and Wales, and from 14 August for Northern Ireland, and the MSM questions were removed. The HIV endemic area question was removed by the end of 2021 across the UK.

Viral safety of the supply is maintained

The residual risk is the chance a very recently acquired infection made in the window period may not be picked up on screening and enters the supply and can be used to benchmark safety. Residual risk is estimated each year for hepatitis B virus (HBV), hepatitis C virus (HCV) and HIV for a rolling 3-year period.

The latest estimates for 2019 to 2021 include 6-months post FAIR and are lower than the previous estimates at 0.4 per million donations tested compared to 1 per million donations tested for 2018 to 2020. The residual risk is highest for HBV, which here includes the non-detection of acute HBV infections only and not the risk of non-detection of an occult HBV infection.

In 2021 there were no viral transmissions reported to the Serious Hazards of Transfusion (SHOT).

Sources: Data supplied to NHSBT UKHSA Epidemiology unit by NHSBT, NIBTS, SNBTS and WBS

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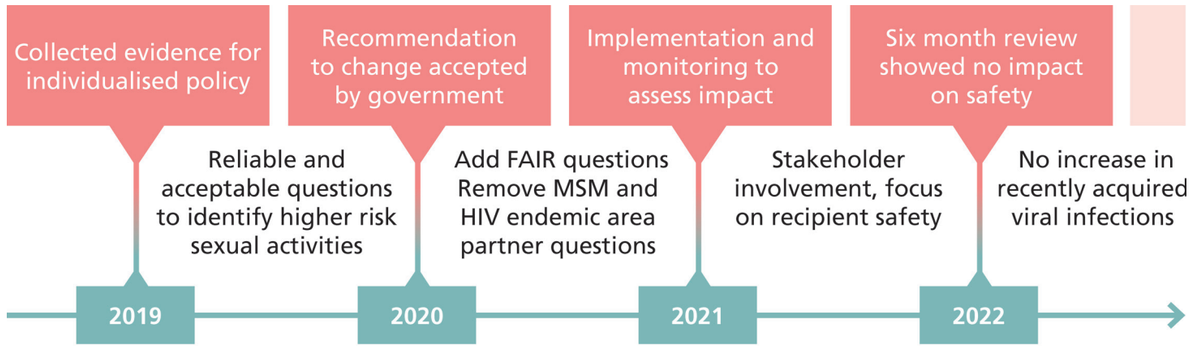
For the Assessment of Individualised Risk (FAIR), UK 2021

Working collaboratively towards the FAIR policy for blood donation



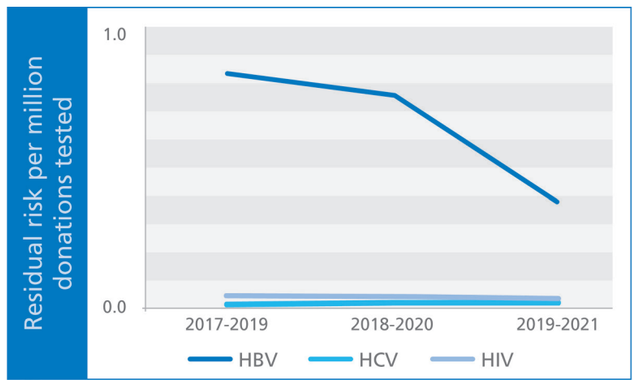
New FAIR questions are to all donors

In the last 3 months, have you:
had gonorrhoea?
used drugs during sex?
had anal sex with a new or multiple partners?
If no - you can donate

MSM questions were removed from 14 June for England, Scotland and Wales and 14 August for Northern Ireland

The HIV endemic area partner question was removed by the end of 2021 across the UK

Viral safety of the supply is maintained



Residual risk is the chance a very recently acquired infection may not be picked up on screening and enters the supply

The latest UK estimates for 2019 to 2021 include 6 months post-FAIR are lower than the previous estimates for 2018 to 2020 and 2017 to 2019 suggesting no impact on viral safety

In 2021 there were no viral transmissions reported to SHOT

Sources: Data supplied to NHSBT UKHSA Epidemiology unit by NHSBT, NIBTS, SNBTS and WBS

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Whole blood donor demographics, UK 2021

Donations in the UK increased in 2021 to meet demand

Donations in the UK increased in 2021 to meet demand after a drop in 2020 when fewer transfusions were scheduled during the pandemic. Repeat donors were prioritised due to shorter session times resulting from reduced capacity to accommodate donors during social distancing measures. The introduction of the FAIR policy in June 2021 led to a significant increase in donor registrations. The number of donations is driven by demand. At times there is a lag between registration and donation depending on blood stock levels and the need for different blood types.

In 2021 963,145 donors made 1,719,630 whole blood donations in the UK. In England (NHS Blood and Transplant, NHSBT) 802,105 donors made 1,457,115 donations; 91% of donations came from repeat donors. In Scotland (Scottish National Blood Transfusion Service, SNBTS) 86,964 donors made 143,175 donations; 94% of donations came from repeat donors. In Wales (Welsh Blood Service, WBS) 48,660 donors made 77,995 donations; 93% of donations came from repeat donors. In Northern Ireland (Northern Ireland Blood Transfusion Service, NIBTS) 25,416 donors made 41,345 donations; 93% of donations came from repeat donors. Approximately 90% of blood donations in the UK came from repeat donors in 2021, while 30% of all donors were aged under 35 years. An increase in donors was seen in the UK compared with 2020.

In England, 21, 890 convalescent plasma (CVP) donations were provided in 2021; 53% of all CVP donations in 2020 and 2021 were made by new donors, 90% were provided by males and 7% were from Black and Asian donors. Donations from Black and Asian donors were encouraged due to the greater likelihood that people from these ethnic groups had high COVID-19 antibody levels. There were 14,656 plasma-for-medicine (PFM) donors in England, making 31,484 donations in 2021. Of these, 18% were new donors and 94% were male donors. Current plasmapheresis machines have donor body mass limits that exclude the majority of women. New machines are being introduced in 2022 which should allow more women to donate PFM products. 5% of all PFM donations came from Black and Asian donors.

New donors in England

In 2021, 11% of all new whole blood donations in England were provided by Black and Asian donors compared with 7.5% in 2020. Over half (55%) of new donors were aged 35 years or under and 44% of new donors were male. As part of NHSBT's new Blood Strategy up to 1 million new donors are needed in the next 5 years.

Ethnic diversity improved in England

Ethnic diversity was maintained in England during the COVID-19 pandemic restrictions. Donations from Black and Asian donors increased in 2021 compared with 2019 and 2020. Black and Asian donors made up 1.4% and 3.4% of donors overall. More of the rarest blood type transfusion components are needed for multi-transfused patients. These blood types are far more prevalent in donors of Black African, Black Caribbean and Asian ethnicities. Research and marketing continue to target and encourage these communities to become donors.

Sources: Data supplied to NHSBT UKHSA Epidemiology unit by NHSBT, NIBTS, SNBTS and WBS

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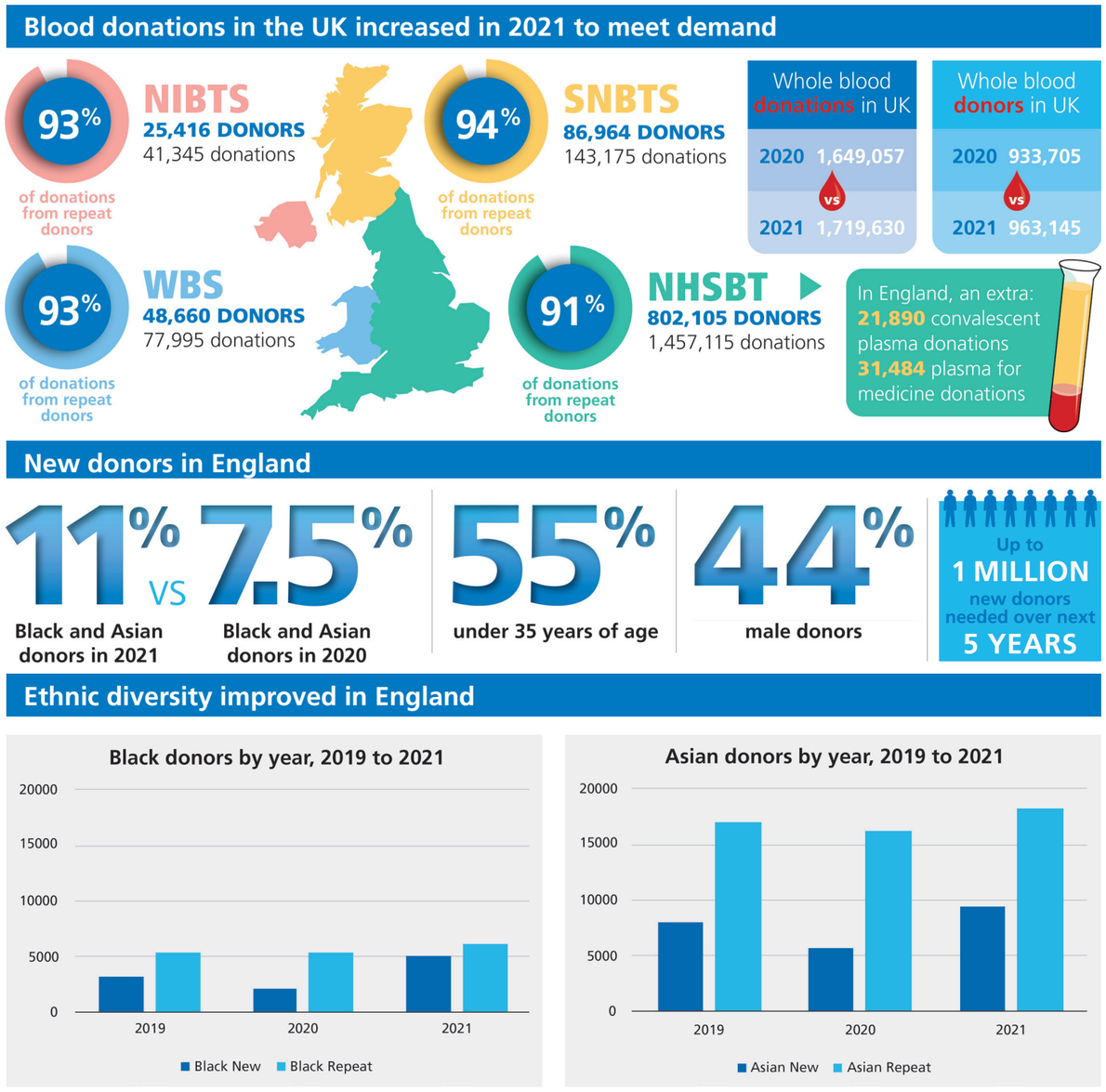
Whole blood donor demographics, UK 2021



The number of Black and Asian donors continues to increase with research and marketing continuing to target and encourage these communities to become donors.

Sources: Data supplied to NHSBT UKHSA Epidemiology unit by NHSBT, NIBTS, SNBTS and WBS

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Infection in blood donors, UK 2021

(Hepatitis E virus (HEV) shown separately, excludes plasma donations)

Low number of positive donations due to donor selection

In 2021 approximately 1 million donors made 1.7 million blood donations in the UK. 280 donations were confirmed to be positive for one or more infection and discarded or 1 in 6,000 donations. This is an increase from 1 in 10,000 in 2020 but still low. There were 78 HBV, 37 HCV, 9 HIV, 12 human T-cell lymphotropic virus (HTLV) and 146 syphilis positive donations in 2021 (2 dual infections) compared to 49 HBV, 33 HCV, 9 HIV, 11 HTLV and 74 syphilis positive donations in 2020.

There was an increase in chronic HBV and past syphilis in new donors seen prior to the FAIR donor selection policy introduction from 14th June. Chronic HBV was mainly identified in new donors born in countries where HBV is more common than in the UK (for example 10 born in Romania, 5 born in India, 5 born in Nigeria, 5 born in Pakistan) reflecting the diversity of new donors. The number and rate of syphilis cases doubled, mainly due to past infection in new male donors reaching 2020 numbers before June. All the confirmed positive donors were deferred from donating and referred for follow up care. The pre-donation selection questions reduce the chance of donors having very recent infections that screening might not detect.

Recent viral infections remain very low

The number of recent viral infections we identify and remove from the supply is used to estimate the number of very recent infections that screening might not detect. In 2021 there were three recent viral infections identified and removed compared with 5 in 2020. These three were from:

1) a female donor with acute HBV identified by NAT (nucleic acid testing) screening in February 2021. She donated for a test during COVID-19 restrictions and was therefore non-compliant with donor selection policy,
2) a female donor identified with HIV in March. She was unaware her long-term partner was positive and therefore compliant with donor selection policy,
3) a male donor identified with acute HBV in November. He had recent new male partner(s) and was non-compliant with donor selection policy. He had made donations before FAIR was implemented.

Recent syphilis remains low; good compliance with partner rule

Syphilis screening provides reassurance that recent syphilis rates remain low at 42 cases in 2021 compared to 39 in 2020. In 2021 14 (33%) donors with recent syphilis were men who reported sex with men (MSM) with three non-compliant with the selection policy compared to 11 (28%) MSM in 2020 with 6 non-compliant. Screening removes those who may be unaware of their risk of infection while information reported from positive donors shows no evidence of any increase in higher risk sexual activities. Of the three non-compliant MSM in 2021, only two reported new male partners, while the other was treated. Eight MSM were newly able to donate after the introduction of FAIR questions. Transfusion transmitted syphilis has not been identified in the UK setting since surveillance began. 71% (104) of the syphilis cases had past infections and 33% (34) were treated. People with a previous diagnosis of syphilis are not eligible to donate.

Sources: Data supplied to NHSBT UKHSA Epidemiology unit by NHSBT, NIBTS, SNBTS and WBS

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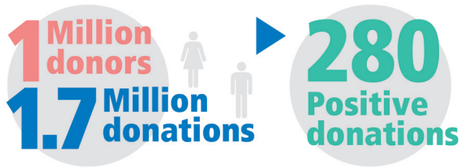
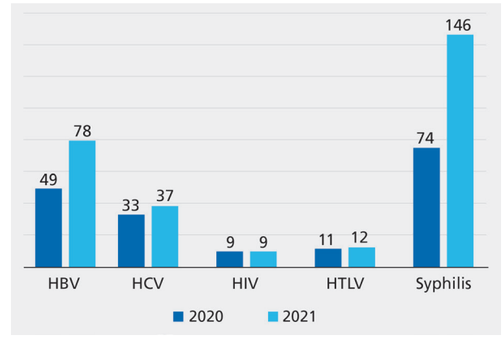
Infection in blood donors, UK 2021

(HEV shown separately, excludes plasma donations)

Low number of positive donations due to donor selection

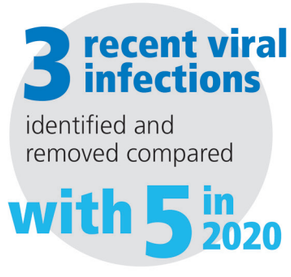


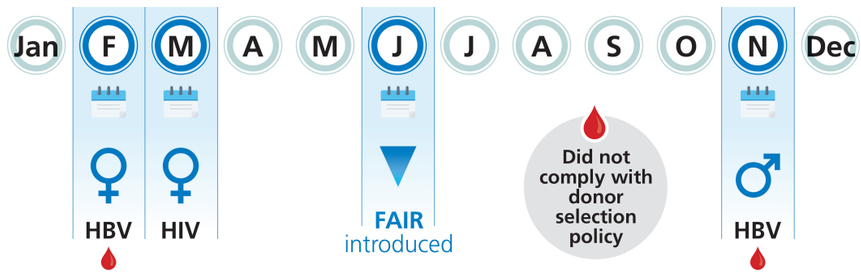
The **pre-donation** selection questions **reduce** the chance of **donors** having very recent **infections** that screening might not detect.



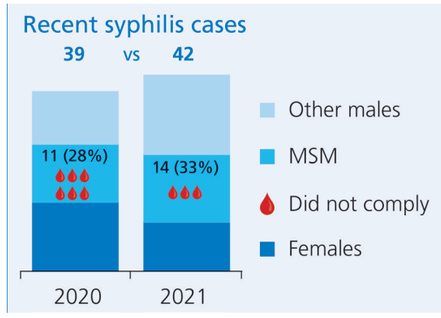
Increase in chronic HBV and past syphilis in new donors seen prior to FAIR introduction

Recent viral infections remain very low





Recent syphilis remains low; good compliance with partner rule



No evidence of increase in higher risk sexual activities

8 MSM with recent syphilis were newly eligible to donate due to FAIR

Transfusion transmitted syphilis has not been identified in the UK setting since surveillance began

33%

of donors with past syphilis were treated and were not eligible to donate

Sources: Data supplied to NHSBT UKHSA Epidemiology unit by NHSBT, NIBTS, SNBTS and WBS

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Hepatitis E virus (HEV) in blood donors, UK 2021

Mainly food source in UK, no specific donor selection

In the UK general population, the main source of infection is food, for example, pork products. There is also a small transfusion and transplantation risk. Some cases are associated with travel.

There is no specific donor selection question for HEV. Donors asked not to donate if they think they had an infection within 2 weeks and to report post-donation infection.
However, HEV can be asymptomatic and when identified as HEV positive only 28% of donors reported possible symptoms, mainly fatigue.

Positive donations are discarded but donors can return to donate after 6 months in whole blood donors or sooner if they are an apheresis donor.

Screening for HEV may not detect very low level of virus

Screening for HEV was introduced for some donations in 2016 to supply specific patient groups but after review this was changed to screening all donations from April 2017. Hundreds of HEV RNA positive donations are identified and removed from the supply each year (334 in 2017, 422 in 2018, 552 in 2019, 458 in 2020 and 398 in 2021). The rates rose from 21 per 100,000 donations in 2017 to a peak of 30 per 100,000 donations in 2019 and have declined since to 23 per 100,000 donations in 2021. There have been three reported proven or probable HEV transfusion transmissions in screened donations, one confirmed in 2018 and two in 2019, one confirmed and one probable. The two confirmed incidents were identified via lookback investigations in repeat donors. The Advisory Committee on the Safety of Blood, Tissues and Organs (SaBTO) have set up a working group to re-examine the effectiveness of current HEV screening of blood and platelet (apheresis) donors and to advise on whether it is sufficient to minimise transmission risk.

HEV rates are higher in male donors than in females. In England in 2017 the male to female rate ratio was 2.2:1 and declined to 1.5:1 in 2021.

In England, rates in male and female donors peaked in 2019 and have been declining in male donors since.

Sources: Data supplied to NHSBT UKHSA Epidemiology unit by NHSBT, NIBTS, SNBTS and WBS

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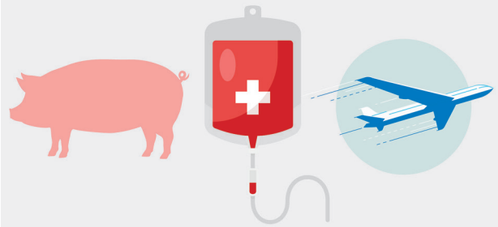
HEV in blood donors, UK 2021

Mainly food source in UK, no specific donor selection

General population

Mainly food source e.g. pork products
Small transfusion and transplantation risk
Some travel associated cases



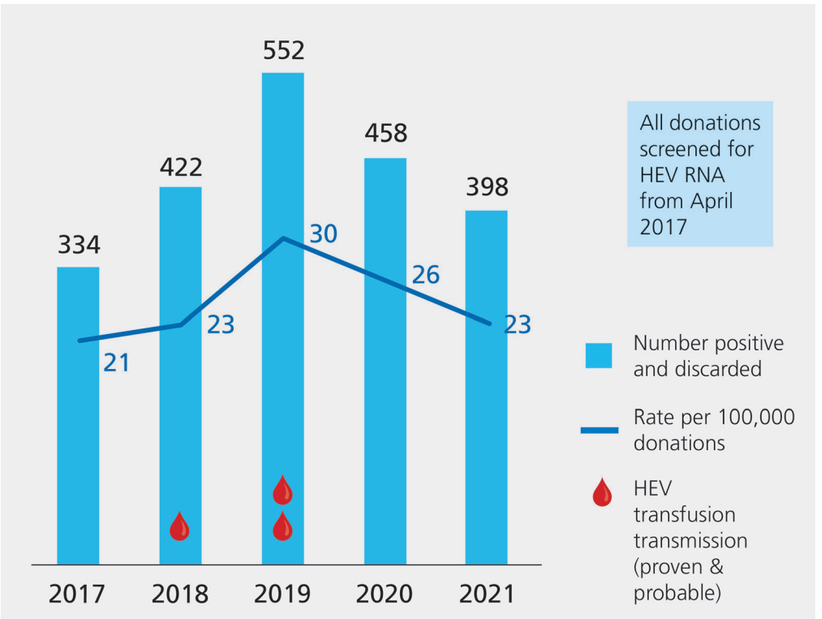
Donors asked

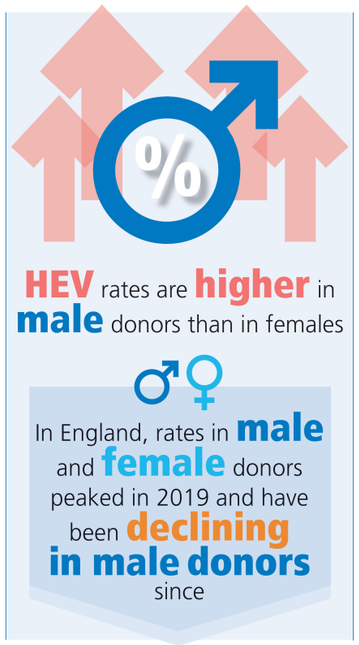
- not to donate if they think they had an infection within 2 weeks
- to report post-donation infection

However, when identified as **HEV positive** only **28%** **of donors** reported possible symptoms, **mainly fatigue**

Positive donations discarded but donors can return to donate

Screening for HEV may not detect very low level of virus





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20 Years of HTLV screening of UK blood donations

UK-wide HTLV testing has evolved since beginning in 2002

2021 marked 20 years of HTLV screening of UK blood donations. Testing began in 2002 following a successful pilot in Scotland in 2000. This decision was made due to concerns around transfusion transmitted HTLV infections following two transmissions in the 1990s. Serological HTLV-screening was performed in pooled samples from 2002 to 2013 before England moved to individual testing. Scotland, Wales and Northern Ireland moved to single testing kits in 2015. Following a review in 2015, England began testing all new donors and only non-leucodepleted donations in repeat donors. In 2021, Wales and Northern Ireland continued to test all new and repeat donors for HTLV. Scotland also moved to testing all new donors and only non-leucodepleted donations in repeat donors in April 2022. Leucodepletion is the removal of white blood cells to reduce febrile reactions in blood recipients and it also reduces the transmission of viruses infecting leucocytes.

HTLV rates are low in blood donations across the UK

In 2021, the prevalence rate of HTLV in donations from new blood donors was low at 8 per 100,000 donations tested. Only a small number of donations from repeat donors were tested, and none were confirmed positive for anti-HTLV. Throughout the surveillance period (2002 to 2021), 286 donations tested positive for anti-HTLV, 5 (1.7%) were in donations from repeat donors with evidence of seroconversion within 12 months. The prevalence in new donations has fluctuated across the twenty years of testing at around an average of 6.5 per 100,000 donations. The prevalence among all donations tested is 0.8 per 100,000.

HTLV affects donors from a variety of backgrounds

Of 286 positive donors, 203 were female (71%), and of these 119 (59%) were considered to be of child-bearing age (18-40 years old). The mean age of all HTLV-positive donors was 43 years. 146 were UK-born (51%), and 143 had infections associated with endemic countries. Endemic areas included West Africa, Iran, India, and the Caribbean (49%). Most of these infections were thought to be transmitted vertically via breastfeeding or through a heterosexual partner. In 27% of donors, sex between men and women was identified as the likely infection exposure. 42% of infections were identified in Black donors. Interestingly, five HTLV type 1 positive donors were likely infected through religious self-cutting rituals, known as Matam. Instances where Matam was the probable exposure have increased in recent years compared with the early surveillance period. 88% of HTLV-infected donors over the 20-year surveillance period were compliant with the UK Blood Donor Selection Policy.

HTLV screening of blood donations has clear public health benefits, even though low numbers of positive donations are identified each year.

Sources: Data supplied to NHSBT UKHSA Epidemiology unit by NHSBT, NIBTS, SNBTS and WBS

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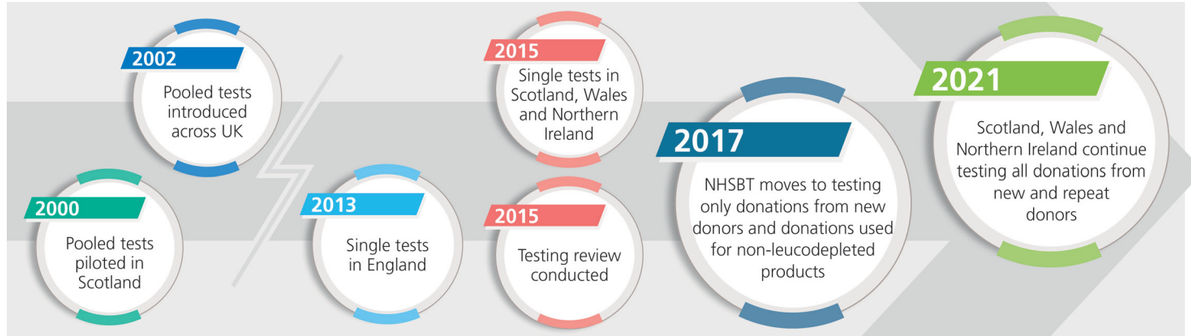
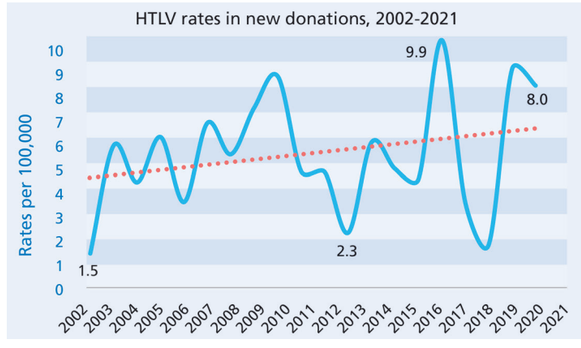
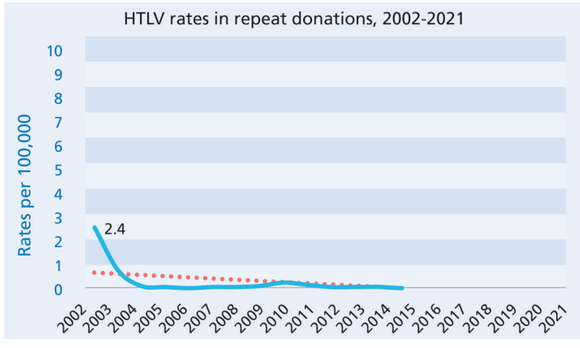
20 Years of HTLV screening of UK blood donations

UK-wide HTLV testing has evolved since beginning in 2002



HTLV rates are low in blood donations across the UK





HTLV affects donors from a variety of backgrounds

27% of HTLV-positive donors were associated with sex between men and women (SBMW)

49% associated with endemic areas

15% risk not known

9% associated with other risks. This included 5 infections associated with religious self-cutting practices (Matam)

88% of HTLV-positive donors were compliant with donor selection policy

71% 71% of the HTLV-positive donors were female, and 59% of them were of childbearing age

51% of 286 positive donations were donated by UK-born donors

42% were Black donors

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Transfusion transmitted infections (TTI) and lookback investigations, UK 2021

TTI investigations

TTI investigations are initiated in blood components when transfusion recipients have shown to be positive for a blood-borne infection and no other more likely risks have been identified, or in the case of bacterial transmission following a significant transfusion reaction. The risk of a TTI in the UK remains extremely low. During 2021, 125 cases were investigated including 115 suspected bacterial incidents and 10 suspected viral incidents. The viral incidents included three cytomegalovirus (CMV), three HBV, two HCV and two HEV. Based on our investigations, none of these infections were acquired via blood transfusion and hence no bacterial or viral transmissions were reported in 2021.

Lookback investigations

Lookback investigations are considered when markers of infection are identified in a donation from a repeat blood donor, which initiates an investigation into their previous donations. Lookback investigations may also be used when a new screening test is introduced. Archive samples of previous donations are identified and tested for evidence of infection. For NHSBT, where donors are identified with occult HBV infection, donations given during the last three years are considered in lookback investigations due to archive availability. Investigations may be extended depending on the outcome of lookback regardless of the screening results. For HEV and syphilis, only donations retrospectively shown to contain HEV ribonucleic acid (RNA) or syphilis antibodies are considered. Any recipients identified as part of lookback are offered information about lookback, asked for consent for testing and followed-up depending on the outcome of tests. In 2021, NHSBT and SNBTS identified 10 donors that required lookback investigation of previous donations. This included one donor with occult HBV, two with HEV and seven with syphilis infections. A total of 26 components were transfused from the 10 donors, 13 of the recipients were alive and tested for markers of infection, the remaining recipients were deceased and no further action taken. One recipient was found to be positive for markers of HBV infection, this was identified as a possible occult HBV transmission as the recipient had markers of past HBV infection which could have been due to another source. Lookback investigations are ongoing.

All investigations and outcomes are reported to SHOT. The reports are available on the SHOT website - https://www.shotuk.org/

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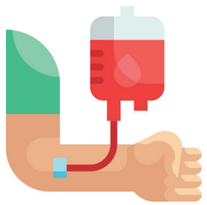
TTI and lookback investigations, UK 2021

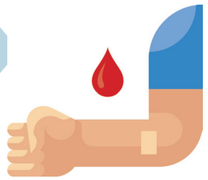
Surveillance of infections in donors and recipients maintains the safety of the blood supply



Recipient

Infection or reaction in transfusion recipients initiates investigation into blood components they received

Infection in repeat blood donors initiates investigation into previous donations



Donor

Suspected transmission investigations

125 cases investigated

115 suspected bacterial incidents

No transmissions identified

10 suspected viral incidents (3 CMV, 3 HBV, 2 HCV, 2 HEV)

No transmissions identified

Lookback investigations into previous donations

10 donors identified requiring lookback of previous donations (1 occult HBV, 2 HEV and 7 syphilis)

26 components transfused

13 recipients tested (11 recipients not tested as deceased)

1 possible occult HBV transmission identified, lookback investigation is ongoing

All investigations and outcomes reported to SHOT, reports available on the SHOT website (https://www.shotuk.org/)

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Tissue and cord blood donors, England 2021

Living surgical bone donors are low in numbers and rarely have infections

There were 356 living surgical bone donors in England, 58% were female, which is a similar proportion to blood donors. The age distribution was different, however, with 91% over 55 years compared to 9% of new blood donors. The donors are donating a femoral head when undergoing elective primary hip replacement and generally have only one opportunity to give. Testing for markers of infection was the same protocol as blood donors with the addition of anti-HBc and NAT in individual samples rather than pools, this is also the case for deceased tissue donors and cord blood donors. No living surgical bone donor was found positive for markers of viral or syphilis infections in 2021, however, two donors were positive for malaria. Over the previous five years from 2016 to 2020 there were two HCV and two syphilis infections identified. This approximated to a rate of 150 per 100,000 donors and was 1.4 times the rate in new blood donors. There was no evidence of recently acquired infections.

Cord blood collection targets ethnically diverse populations

There were 92 cord blood donors in England, 30% were of Asian, Black African, and Black Caribbean ethnicities. Collection targets ethnically diverse populations in the London area to ensure a diverse supply of donations. All cord blood donors self-identified as female and were aged between 19 and 43 years. Donations were made immediately post-partum. Cord blood donors are expected to have been routinely screened for markers of HBV, HIV and syphilis, and sometimes HCV, as part of antenatal testing, and are then repeat tested on the day of donation. No cord blood donor was found positive for markers of viral or syphilis infections in 2021, however, four donors were positive for malaria. Over the previous five years from 2016 to 2020 there were three HBV and 5 syphilis infections identified. This approximated to a rate of 143 per 100,000 donors and was 1.3 times the rate in new blood donors. There was no evidence of recently acquired infections, and the syphilis antibodies detected likely reflected past infections and gave low reactivity on testing likely below the cut-off for antenatal screening.

Deceased tissue donors have 3-fold rates of infections than new blood donors

There were 1834 deceased tissue donors, 60% were male compared to 45% of new blood donors. The deceased tissue donors were older than new blood donors with 80% over 55 years, compared to 9% of new blood donors. Donors are donating bone, skin, heart valves, corneas, and tendons. In 2021, two donors were identified with HBV, two HEV and one HCV. Over the previous five years from 2016 to 2020 there were 27 HBV, eight HCV, two HTLV and 19 syphilis infections identified. This approximated to a rate of 360 per 100,000 donors and was 3.3 times the rate in new blood donors but recently acquired infections were not detected. The higher rate is mostly due to the older age of deceased tissue donors. However, some donors with increased risk behaviours that exclude an individual from donation, might be unknown to their family members.

Sources: Data supplied to NHSBT UKHSA Epidemiology unit by NHSBT

UK Health Security Agency

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Safe supplies 2021:FAIRer donor selection

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Tissue and cord blood donors, England 2021

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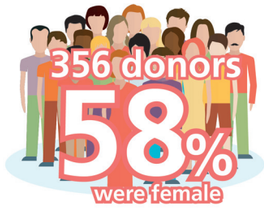
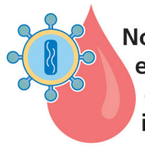
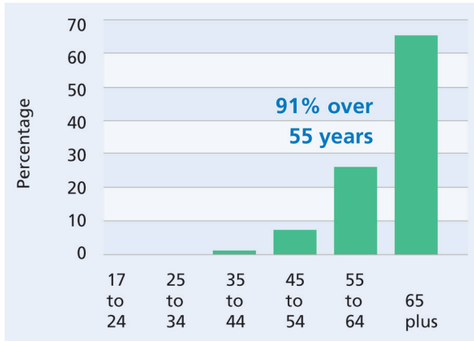




No evidence of recent infections

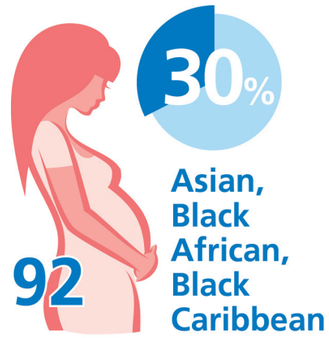


Testing of living and deceased tissue and cord blood donors is the same protocol as blood donors, with the addition of anti-HBc and individual NAT

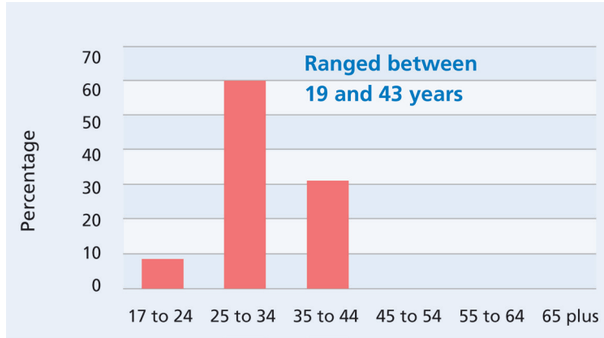
2021
no viral or syphilis infections

2016 to 2020
2 HCV and 2 syphilis
150 per 100,000
1.4 x rate in new blood donors

Cord blood collection targets ethnically diverse populations



Asian, Black African, Black Caribbean

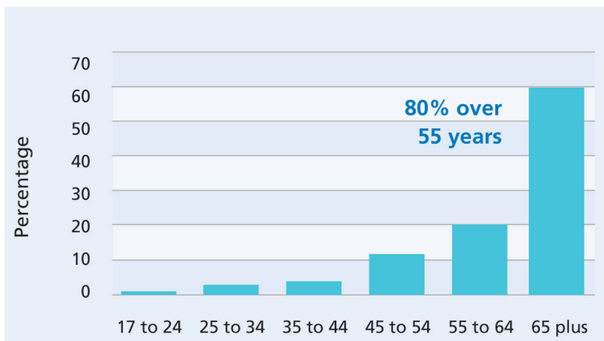


2021
no viral or syphilis infections

2016 to 2020
3 HBV and 5 syphilis
143 per 100,000
1.3 x rate in new blood donors

Deceased tissue donors have 3-fold rates infections than new blood donors

Includes bone, skin, heart valves, corneas and tendons



2021
2 HBV, 2 HEV and 1 HCV

2016 to 2020
27 HBV, 8 HCV, 2 HTLV and 19 syphilis
360 per 100,000
3.3 x rate in new blood donors

Sources: Data supplied to NHSBT UKHSA Epidemiology unit by NHSBT

UK Health Security Agency

NHS Blood and Transplant

Safe supplies 2021:FAIRer donor selection

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Horizon scanning of emerging infections, UK 2021

Scanning for emerging infections on a daily basis

The Epidemiology unit produces the Emerging Infectious Agents Report (EIAR), a monthly horizon scanning list of emerging infections with potential to affect the UK blood and tissue supply. A range of national and international evidence sources are used. Sources are reviewed annually.
Surveillance of COVID-19 risk to blood supply is ongoing. No evidence for COVID-19 transmission through blood transfusion has been identified to date.

Selected items included in the EIAR in 2021

From North America items included dengue acquired in Florida; Powassan virus likely acquired through blood transfusion and a tuberculosis outbreak linked to a contaminated bone graft. From South America items included evidence of West Nile virus (WNV) in Brazil; malaria transmission in Costa Rica while El Salvador was declared malaria-free. In Europe items included WNV in humans and horses, malaria, and Crimean-Congo Haemorrhagic Fever (CCHF), all reported in Spain while a Dengue case was acquired in Var, France. A family cluster of three cases of monkeypox in the UK associated with travel from Nigeria. No further spread was identified, all 38 contacts traced and careworkers remained negative aided by Covid-19 control measures in place. At this point, human-to-human transmission was thought less common with the main source of transmission presumed to be direct or indirect contact with live or dead animals. Outside of Africa, cases of human monkeypox infections had only been documented in four countries, including four cases in the UK in 2018/2019. A larger outbreak in the US in 2003 of 47 cases had been linked to imported pet rodents but more recent cases had all been associated with travel from Nigeria (Hobson et al, 2021). Monkeypox continues to be monitored closely in 2022. In Asia there were reports of new viruses, Manych virus in Russia and Tamdy virus in China with a Yellow Fever risk analysis published for Asia.

Clear process for risk assessment and action

The monthly EIAR is passed to the Standing Advisory Committee on Transfusion Transmitted Infection (SACTTI) for risk-assessment. Items may be sent directly if urgent. SACTTI highlight whether further action is required by the Joint UKBTS Professional Advisory Committee (JPAC) and its Standing Advisory Committees.
During 2021 SACTTI action included: monitoring arboviruses in Europe, risk assessment for Yellow Fever in Asia, discussion of babesia risk to UK and review of CCHF risk assessment. No change to policy was required.
Changes made to travel deferrals in 2021 included: updates to tropical virus risk in Africa, malaria risk areas amended for India and South Africa, removal of malaria deferral for various countries including El Salvador. See JPAC website for the full list of change notifications: https://www.transfusionguidelines.org/document-library/change-notifications

In 2021 the horizon scanning for emerging infections was audited by the Government Internal Audit Agency, who found with substantial assurance that the framework of governance, risk management and control was adequate and effective.

Reference: Hobson G, Adamson J, Adler H, Firth R, Gould S, Houlihan C, Johnson C, Porter D, Rampling T, Ratcliffe L, Russell K, Shankar A G, Wingfield T. Family cluster of three cases of monkeypox imported from Nigeria to the United Kingdom, May 2021. Euro Surveill. 2021;26(32):pii=2100745.https://doi.org/10.2807/1560-7917.ES.2021.26.32.2100745

Sources: EIAR Sources include: UKHSA daily emerging infections horizon scanning results and monthly summaries; European Centre for Disease Prevention and Control (ECDC) communicable disease threat reports, Program for Monitoring Emerging Diseases (ProMED) outbreak and news alerts, peer-reviewed literature

UK Health Security Agency

NHS Blood and Transplant

Safe supplies 2021:FAIRer donor selection

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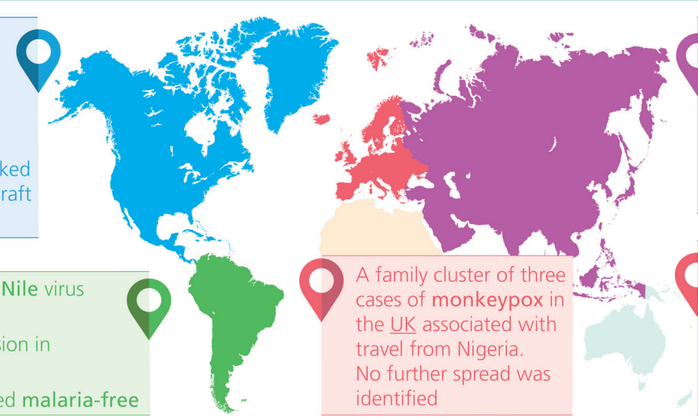
Surveillance of COVID-19 risk to blood supply ongoing: RNAaemia appears rare in blood donors with no Covid-19 transmissions through blood transfusion identified

Selected items reported in 2021



Dengue acquired in Florida

Powassan virus likely acquired through blood transfusion

Tuberculosis outbreak linked to a contaminated bone graft in the USA

Media report of new **Manych virus**, Russia

Report of new **Tamdy virus**, China

Yellow Fever risk analysis for Asia

Evidence of **West Nile** virus in Brazil

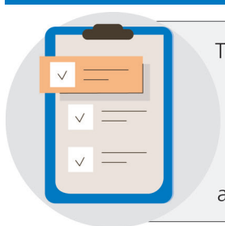
Malaria transmission in Costa Rica

El Salvador declared **malaria-free**

A family cluster of three cases of **monkeypox** in the UK associated with travel from Nigeria. No further spread was identified

WNV in humans and horses, **Malaria**, and **Crimean-Congo Haemorrhagic Fever (CCHF)**, all reported in Spain

Clear process for risk assessment and action



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Changes made to travel deferrals in 2021 included: Updates to tropical virus risk in Africa, malaria risk areas amended for India and South Africa, removal of malaria deferral for various countries including El Salvador. See JPAC website: Change Notifications issued in 2021 (transfusionguidelines.org)

Sources: EIAR Sources include: UKHSA daily emerging infections horizon scanning results and monthly summaries; European Centre for Disease Prevention and Control (ECDC) communicable disease threat reports, Program for Monitoring Emerging Diseases (ProMED) outbreak and news alerts, peer-reviewed literature

UK Health Security Agency

NHS Blood and Transplant

Publications

Peer review publications from the NHSBT/UKHSA Epidemiology Unit, 2021

Davison KL, Reynolds CA, Andrews N, **Brailsford SR;** UK Blood Donor Survey Steering Group. Blood donation by men who have sex with men: using evidence to change policy. Vox Sang. 2021 Mar;116(3):260-272. doi: 10.1111/vox.13033. Epub 2021 Jan 5. PMID: 33400285. https://pubmed.ncbi.nlm.nih.gov/33400285/ ***Winner of the Vox Sang Best paper 2021***

Davison KL, Chandrasekar A, **Brailsford SR.** Re-assessing the risk of undetected HBV, HCV and HIV in deceased tissue and living surgical bone donors in England. Cell Tissue Bank. 2021 Jun 14. doi: 10.1007/s10561-021-09927-7. https://pubmed.ncbi.nlm.nih.gov/34125360/

Aubé E, Lewin A, O'Brien SF, Grégoire Y, Pillonel J, Steele WR, Custer B, **Davison KL,** Germain M, Seed CR, Camirand Lemyre F; Surveillance, Risk Assessment and Policy Subgroup of the ISBT Transfusion Transmitted Infectious Diseases Working Party. HIV residual risk in Canada for apheresis source plasma donation without deferral for men who have sex with men. Vox Sang. 2021 Jul 15. doi: 10.1111/vox.13176. Epub ahead of print. PMID: 34268781. https://pubmed.ncbi.nlm.nih.gov/34268781/

Harvala H, **Reynolds C, Gibney Z,** Derrick J, Ijaz S, **Davison KL, Brailsford S.** Hepatitis B infections among blood donors in England between 2009 and 2018: Is an occult hepatitis B infection a risk for blood safety? Transfusion. 2021 Aug;61(8):2402-2413. doi: 10.1111/trf.16543. Epub 2021 Jun 11. PMID: 34114670. https://pubmed.ncbi.nlm.nih.gov/34114670/

Harvala H, **Reynolds C,** Fabiana A, Tossell J, Bulloch G, **Brailsford S,** Blackmore S, Pomeroy L. Lessons learnt from syphilis-infected blood donors: a timely reminder of missed opportunities. Sex Transm Infect. 2021 Aug 11:sextrans-2021-055034. doi: 10.1136/sextrans-2021-055034. Epub ahead of print. PMID: 34380778. https://pubmed.ncbi.nlm.nih.gov/34380778/

Harvala H, **Reynolds C,** Ijaz S, Maddox V, Penchala SD, Amara A, Else L, **Brailsford S,** Khoo S. Evidence of HIV pre-exposure or post-exposure prophylaxis (PrEP/PEP) among blood donors: a pilot study, England June 2018 to July 2019. Sex Transm Infect. 2021 Mar 29:sextrans-2021-054981. doi: 10.1136/sextrans-2021-054981. Epub ahead of print. PMID: 33782147. https://pubmed.ncbi.nlm.nih.gov/33782147/

Smith I, Said B, Vaughan A, Haywood B, Ijaz S, **Reynolds C, Brailsford S,** Russell K, Morgan D. Case-Control Study of Risk Factors for Acquired Hepatitis E Virus Infections in Blood Donors, United Kingdom, 2018-2019. Emerg Infect Dis. 2021 Apr;27(6):1654-1661.