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Annual review of infections in UK blood, tissue and organ donors: 2016

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PHE has published the joint NHS Blood and Transplant/PHE Epidemiology Unit's annual review, *Safe supplies: a baseline for change*, comprising a series of infographics to describe infections among blood, tissue, and organ donors and transfusion recipients during 2016 [1]. Each infographic summarises key findings from the blood, tissue and organ surveillance programmes, and emphasises the safety of the supplies. The title refers to the changes in the blood, tissue and cell donor selection criteria following the review of behaviours which may increase the risk of infection being acquired by the Advisory Committee on the Safety of Blood, Tissues and Organs (SaBTO) which advises UK ministers and health departments [2]. These changes will be implemented very soon. The data the unit present will be used as a baseline to monitor any impact of the change. A set of data tables are published separately [1].

Among two million whole blood and platelet donations made by around one million donors in the UK in 2016, only 200 were positive for the mandatory markers of infection and thus removed from the supply. This represents a very low rate of positivity – one in 10,000 donations – with markers of hepatitis B and syphilis the most common. Generally, positive donors had previously undiagnosed chronic infections, only five viral infections (two HIV and three HBV) were likely to have been acquired within 12 months, suggesting donor selection is very effective at identifying low risk individuals. The risk that testing could miss a positive donor remains extremely low, with undetected HBV, HCV and HIV infections estimated at less than one in a million donations. Bacterial screening is in place across all UK blood services with detection rates remaining relatively constant year-on-year. Among all UK apheresis and pooled platelets screened in 2016, the confirmed positive rate was less than 0.1%. Most bacteria identified on screening originated from the skin, with *Propionibacteria* being the most frequently identified. This species would not usually cause a clinical reaction, however, some species with potential to harm donors and recipients have been detected and removed from the supply. Bacterial safety measures do not completely remove the risk of a positive unit being released so vigilance remains important.

Transfusion-transmitted infections continue to be extremely rare. In 10 years (2007-2016), only 10 bacterial and 10 viral incidents have been confirmed. Most of these viral infections were due to hepatitis E virus (HEV) transmitted prior to the introduction of routine screening.

The HEV infographic documents the joint surveillance and research activities of PHE and NHSBT which contributed to the SaBTO recommendation to screen components for specific patient groups who may be at risk of developing persistent HEV infection. In spring 2016, UK blood services began testing some blood and all apheresis platelet donations for HEV RNA to meet requirements. The positivity rate varied throughout the year, ranging from 0.09% in May to 0.01% in November; since HEV is most likely acquired through food and there is no specific donor selection, fluctuation among the donor population is directly linked to changes in the epidemiology within the general population.

Since 2012, there has been a planned four- fold decrease in living surgical bone donors with a two-three fold increase in the rate of positive donors over the same period; although each year the number of donors – and those positive – is very small. In 2016 among 708 tested for donation, one donor with active HCV infection and one with past syphilis infection were identified, informed and referred for treatment. Some deceased organ donors who have tested negative can also donate tissues such as corneas, skin and heart valves. In 2016, six deceased tissue donors were positive for markers of HBV infection, three for HCV, and six for syphilis - the majority of these were probably past infections.

Collection of cord blood by NHSBT is targeted at Black, Asian and minority ethnic populations in the London area to ensure a diverse supply of donations. In 2016, two cord blood donors were positive for syphilis; one had not declared her infection, and one had very low antibody that had not been detected at antenatal screening.

NHSBT is also responsible for deceased organ donation across the UK. Some deaths in the UK are in circumstances where organ donation is possible, but donors or families must agree. Among almost 2000 deceased donors consented and tested in 2016, 1399 proceeded to offering an organ and 95% of these went on to actually donate. Organ donation has the ability to save and transform lives, and markers of infection are not necessarily barriers for transplantation. Among those who donated, 21 were screen reactive for markers of HBV, HCV, HTLV or syphilis.

There is a robust process in place for the review of current and future infectious risks for blood safety. This is mainly in the context of blood donation but may have implications for tissue and organ donation too. Each year the unit works closely with colleagues in PHE to monitor emerging infections such as Zika and the impact of PHE advice on donor selection. The donor travel survey carried out by the unit in 2016 has enabled NHSBT to gain a better understanding of where donors travel and the activities that they engage in whilst overseas.

For further information about the data held by the Epidemiology Unit, please email:
epidemiology@nhsbt.nhs.uk.

Feedback on the annual review is welcomed; please go to the short survey at:
<https://surveys.phe.org.uk/TakeSurvey.aspx?SurveyID=EPIAR2016>

References

1. PHE website (September 2017). [Safe supplies: a baseline for change](#).
2. PHE website (July 2017). [Donor Selection Criteria Report \(2017\)](#).

About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. We do this through world-class science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. We are an executive agency of the Department of Health, and are a distinct delivery organisation with operational autonomy to advise and support government, local authorities and the NHS in a professionally independent manner.

About *Health Protection Report*

Health Protection Report is a national public health bulletin for England and Wales, published by Public Health England. It is PHE's principal channel for the dissemination of laboratory data relating to pathogens and infections/communicable diseases of public health significance and of reports on outbreaks, incidents and ongoing investigations.

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