Joint UKBTS Professional Advisory Committee ([1])
Summary Sheet

Position Statement

Monkeypox virus (MPXV)

May 2022

Approved by: *Standing Advisory Committee on Transfusion Transmitted Infections*

May 2022- The contents of this document are believed to be current. Please continue to refer to the website for in-date versions.

Summary

In May 2022, clusters of monkeypox (MPX) infections in adults, acquired in several countries that do not normally report locally acquired cases, have been reported. Currently it is unclear how individuals in these clusters have become exposed to monkeypox virus (MPXV) although at the time of producing this Position Statement the leading theory is transmission at mass events held in Spain and Belgium. Infection clusters include heterosexual men and women, and gay and bisexual men who have sex with men. The current risk for individuals with multiple sexual partners is moderate, and low for the general population. The risk for recipients of substances of human origin (SoHO), including blood, tissues and cells is currently considered low.

- Existing donor education and selection criteria should significantly minimise the risk of donation from pre-symptomatic donors and symptomatic donors.
- Post-donation reporting of illnesses enables the discard of donations from potentially infected donors.
- UK Blood and Tissue Establishments have a mechanism in place (through the Standing Advisory Committee on Transfusion Transmitted Infections (SACTTI) on behalf of Joint United Kingdom (UK) Blood Transfusion and Tissue Transplantation Services Professional Advisory Committee (JPAC) to identify infectious outbreaks/cases and new and emerging pathogens which may threaten the safety of donated products, and to ensure that appropriate actions are taken to mitigate any risk identified.

In addition, the following measure has been taken:

- Specific donor selection guidance for MPX has been added to the UK Donor Selection Guidelines (DSG) for blood, tissue and cells.

([1]) **J**oint United Kingdom Blood Transfusion and Tissue Transplantation Services **P**rofessional **A**dvisory **C**ommittee (**JPAC**)

- The post-donation information list will be updated to include specific information for the teams who manage donors who report (or if deceased have a history of) MPX symptoms and/or diagnosis after donation.
- UK Blood and Tissue Establishments for the four nations will work closely with their respective Public Health Agencies to ensure their involvement with Incident Management Teams.

Several unknowns still exist regarding this outbreak and the UK Blood and Tissue Establishments will continue to monitor developments closely and update the position statement as new data and information become available.

Background

MPXV is a double-stranded DNA virus of the *Orthopoxvirus* genus of the family *Poxviridae*. There are several animal pox viruses and 4 that are pathogenic for humans: MPXV, variola major virus (VARV), vaccinia virus and cowpox virus (CPXV). VARV is the causative agent for smallpox, which is now eradicated, and vaccinia virus is used in the smallpox vaccine. MPXV infects a wide range of mammalian species, but its natural host reservoir remains unknown (African rodents are the suspected reservoir). Two genetic clades of MPXV exist: West African, present in Nigeria and Liberia and Congo Basin (Central African), present in Gabon, Cameroon, Democratic Republic of Congo and the Congo Basin. Viruses within the West African clade are less virulent than those in the Congo Basin clade. Sequence data indicates that the virus associated with the current outbreak is from this less virulent West African clade. Reported case fatality cases range from 1% to 10% for Congo Basin outbreaks and less than 3% for Western African outbreaks[1]. In recent years and prior to this recent outbreak, isolated cases of MPX, related to travel of infected individuals, have been imported into the UK, most recently in 2021 (7 MPX cases treated in UK between August 2018 and September 2021).

Symptoms

MPX begins with fever, headache, muscle aches, chills, swollen lymph nodes and exhaustion. The incubation period is usually 7−14 days but can range from 5−21 days. Generally, within 1-3 days after the appearance of fever, the patient develops a rash, often beginning on the face then spreading to other parts of the body. Lesions progress through macules, papules, vesicles and pustules before the scabs fall off 2-4 weeks later. Although most cases in the current outbreak have presented with mild disease symptoms, MPX can result in severe disease and even death in certain groups (young children, pregnant women, immunosuppressed individuals).

[1] *Alder et al., Clinical features and management of human monkeypox: a retrospective observational study in the UK, The Lancet Infectious Diseases (2022) Published online May 24, 2022. doi.org/10.1016/S1473-3099(22)00228-6*

Infection and viraemia

Unlike respiratory viruses (e.g. SARS-CoV-2), MPXV does not spread easily between individuals. Human-to-human transmission occurs through close contact with infectious material from skin lesions of an infected person, through respiratory droplets in prolonged face-to-face contact, and through virus-contaminated fomites such as bedding or clothing. A secondary attack rate of approximately 8% (range 0-11%) for unvaccinated household contacts has been estimated[1]. In this current multi-country outbreak, the presentation of the lesions in certain cases indicate that transmission is occurring during sexual contact.

In infected individuals MPXV DNA has been detected in blood. A retrospective review of MPX symptomatic cases treated in UK between August 2018 and September 2021 demonstrated MPXV DNA in the bloodstream in 6 of 7 individuals, with viraemia fluctuating for 27-29 days in 2 of the cases. Furthermore, virus was detected in blood after the clearance of rash in 2 cases[1]. MPXV DNA was detected in upper respiratory tract swabs in all 7 cases and for at least 3 weeks in 3 patients[1]. In a MPX outbreak in the US, 14 blood samples collected 21 days after the appearance of rash were negative for MPXV DNA. There are no good data on viraemia in asymptomatic (most, if not all, cases are thought to develop symptoms) or pre-symptomatic individuals. However, virus can be detected in the blood, tissues and organs of MPXV-infected animals.

Risk of MPXV transmission through substances of human origin (SoHO)

The survival of MPXV in blood components, tissues and cells is unknown although the virus is known to be robust. No cases of MPXV transmission through SoHO have been documented, although transmission from mother to baby during pregnancy has been documented. Transmission of MPXV through SoHO is considered likely, although currently the overall likelihood of MPXV being present in a donation and onward transmission to recipients is low due to the low case numbers in the population and the risk mitigation processes that are already in place in UK Blood and Tissue Establishments.

Precautionary measures adopted by UK Blood and Tissue Establishments

The Donor Selection Guidelines of the Joint UK Blood Transfusion and Tissue Transplantation Services Professional Advisory Committee ensure safe and consistent donor selection processes. These guidelines already include information on the identification and deferral of donors with acute infections. These are sufficient to deal with donors who provide information which would suggest symptomatic MPX infection. It is unlikely that symptomatic donors would attend to donate, but there is the potential for a live donor who is symptom free but with virus circulating in the bloodstream, or a deceased donor who had mild unidentified symptoms ante-mortem, to donate. However, this is considered to be an unlikely event and the existing measures currently in place in UK Blood and

Tissue Establishments are currently thought sufficient to the point at which any risk of donations from MPX infected individuals is negligible.

Questions, asked to all UK donors at each donation, regarding illness, infection or fever in the preceding 2 weeks should potentially screen out symptomatic individuals and the question regarding contact with anyone with an infectious disease in the last 4 weeks will potentially screen out known contacts. The ECDC Rapid Risk Assessment: Monkeypox multi-country outbreak recommends that contacts of a MPX case should be deferred from blood, organ or bone marrow donations for a minimum of 21 days from the last day of exposure.

Public health management of known contacts of MPX infected individuals for 21 days (which includes isolation for contacts) will also prevent this group of individuals from presenting as donors. UK Public Health Agencies are working closely with colleagues across the wider health service to spread awareness and ensure clinicians are available to identify possible cases and associated contacts. All donors are asked to think about any recent behaviours such as travel or new sexual partners that might affect their eligibility to donate blood.

Another important safety measure, which has been used for many years by the UK Blood and Tissue Establishments and other organisations that recover/collect/handle SoHO, is to ensure that any live donor with symptoms appearing post-donation immediately contacts the appropriate service and reports the symptoms. For blood donation this is 14 days, and all donors are reminded to report any illness arising in this period after donation. This reminder is given at the point of donation, and for blood donors, at every donation. Full details of the symptoms and accurate timings are required. This requirement applies to blood donors, living tissue donors and stem cell/cord blood donors. If the components/donations have been administered/transplanted, the clinician responsible for the recipient would be informed.

Travel deferrals for imported cases of MPX are mitigated in blood and tissue donation by a 4-month malaria deferral for visitors to countries where MPX is endemic. This does not apply to hematopoietic stem cell transplantation. As the main event in the current outbreak relates to UK acquired infection and not to importation from endemic countries, this is unlikely to substantially increase risk. This will continue to be monitored.

SACTTI performs regular horizon scanning on behalf of JPAC to identify infectious outbreaks, new and emerging pathogens which may threaten the safety of donated products, and to ensure that appropriate actions are taken to mitigate any risk identified. Monthly Emerging Infections Report (EIR) compiled by the NHSBT/UKHSA Epidemiology Unit includes information provided by a range

of national and international evidence sources such as the UKHSA EpiIntel reports, the European Centre for Disease Control (ECDC) and the European Infectious Diseases (EID) Monitor group of the European Blood Alliance (EBA). Rapid alerts are also channelled through the same route to ensure immediate and appropriate action, if required.

Additional measures adopted by UK Blood Services

A new MPX entry has been created for all DSGs. Changes to the A-Z index will signpost donation staff to the correct page for information on donor and donor contact deferral. Donors can be accepted after recovery from confirmed or suspected MPX infection if:

- It is at least 28 days since the diagnosis of MPX was made, and
- It is at least 14 days since recovery and the donor remains well, and
- It is at least 14 days since all skin lesions have healed, and
- It is more than seven days since completing any antiviral or antibiotic therapy, and
- The donor has been discharged from all follow up (including public health surveillance)
- The donor is not subject to deferral for sexual behaviour, travel history or other risk factors

The same conditions apply for deceased and live tissue donors.

Individuals who have been identified by public health teams as a close contact of an individual with MPX can be accepted to donate if:

- If it is more than 21 days since last contact,
- The donor has no symptoms of MPX
- The donor has completed any isolation period, and
- The donor has been discharged from all follow-up (including surveillance by public health)

Furthermore, post-donation information will be updated to include specific information for the teams who manage donors who report (or if deceased have a history of) MPX symptoms and/or diagnosis after donation. All components/donations from donors who are infected with MPXV (classified as proven or probable according to case definition criteria set by UKHSA) within 21 days of donation/procurement, will be removed from inventory. Local processes for public health notification will be followed if any component has been transfused. If the donor has retrospectively reported contact with MPX in the 21 days before their donation, the donation will be placed on hold and UK Blood and Tissue Establishments will seek public health advice to determine the risk for the recipient. National pathways for clinical diagnosis of MPX must be followed.

Donor care staff will be advised to be alert for donors who have rash and illnesses (or if deceased have a history of) consistent with MPX regardless of sexual behaviour, travel history or other risk factors but case definition criteria must be used for consistency.

UK Blood and Tissue Establishments for the four nations will work closely with their respective Public Health Agencies to ensure their involvement with Incident Management Teams. An example of previous incident management is available here, and describes the actions taken for the Hepatitis A virus outbreak in Lanarkshire in 2019.

Several unknowns still exist regarding this outbreak and UK Blood and Tissue Establishments will continue to monitor developments closely and update the position statement as new data and information become available.

Treatment and vaccination

Information on treatment; anti-virals, prevention of secondary bacterial infections and post-exposure prophylaxis of close contacts is detailed in the ECDC Rapid Risk Assessment: Monkeypox multi-country outbreak and UK MPX vaccination advice (pre and post exposure) is available from UKHSA.

UK Health Security Agency (UKHSA) and devolved public health agencies have purchased supplies of a smallpox vaccine (Imvanex) which is being offered to those identified as close contacts of individuals diagnosed with MPX. Individuals receiving vaccine will have been assessed as high-risk exposure and will be under isolation. These donors should not present for donation, or if they do, donor selection guidelines would capture these individuals. Generic Donor Selection Guidance is that recent vaccination may require deferral depending on the vaccine administered and the particular vaccination programme. Vaccines are defined on the basis of the nature of the vaccine, i.e. vaccines containing live or attenuated virus (8 weeks for smallpox vaccination) and those not containing live agents (no deferral required if donor is well and not undergoing any isolation). The limited stock of vaccine means that only close contacts will receive this. At this time, the 21-day deferral for contacts will take precedence.