Position Statement

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Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)

Background

Severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) was initially described in December 2019 and is the causative agent of coronavirus disease 2019 (COVID-19). The World Health Organization (WHO) declared the start of the COVID-19 pandemic in March 2020, with the public health emergency status ending in May 2023, marking its transition from a pandemic to an endemic respiratory virus. This means SARS-CoV-2, in this post-pandemic era, is like other common respiratory viruses, circulating consistently within the general population and causing regular, year-round infections.

SARS-CoV-2 is transmitted via the respiratory route, primarily through exposure to infected secretions.

Although coronaviruses are usually found in the upper and lower respiratory tract, at some point during infection virus may be found in the bloodstream. SARS-CoV-2 genetic material (RNA) has been detected at varying rates (15%-100%, depending on the study) of patients being cared for in intensive care units (ICU) for severe COVID-19; the level of virus RNA detected correlated with disease severity, and in those cases, organs and tissues outside the respiratory tract could have been affected as part of a systemic illness. Initially, there were concerns over the significance of these findings when considering donations from asymptomatic donors with incidental positive results at screening. To date, there is no documented evidence of presence of viable virus in blood, bodily fluids and various tissues and organs.

Epidemiology, pathogenesis, infection dynamics and clinical characteristics relevant to the safety of substances of human origin (SoHO)

Virus can initially be detected in upper respiratory samples 1 to 2 days prior to symptom onset, demonstrating the potential for respiratory transmission from infected individuals who are not displaying any symptoms, or in whom the symptoms are so mild and non-specific as to be unnoticed. The viral load profile of SARS-CoV-2 in respiratory specimens appears to be similar to that of influenza, peaking around the time of symptom onset. Testing of upper respiratory tract swabs for SARS-CoV-2 RNA using molecular techniques (reverse transcription polymerase chain reaction; RT-PCR) has found persistence of viral RNA for 28 days post symptom clearance in moderate cases, and for longer periods in a small number of more severe cases or in immunocompromised individuals. However, infectivity through the respiratory route decreases after 7 days and the detection of non-infectious virus genomes for several months post-recovery has been widely documented.

Laboratory investigations for viral detection are based on viral RNA or antigen detection in upper or lower respiratory tract specimens. As well as the respiratory tract, viral RNA has been found in whole blood, serum, plasma, saliva, urine, semen and faeces; however, the presence of viral RNA does not necessarily equate with infectivity, and to date only viral nucleic acid, not infectious virus, has been found in non-respiratory sites.

SARS-CoV-2/COVID-19 disease

Symptoms of SARS-CoV-2 infection are most commonly cough, fever, loss or reduced sense of smell and taste, dyspnoea and tiredness, but other symptoms may occur, and include sputum production, headache, haemoptysis and diarrhoea. Clinical features of complicated disease include pneumonia, acute respiratory distress syndrome, acute cardiac and renal injury.

Most infected individuals experience no apparent or only mild symptoms with recovery within 7 days. In general, more severe symptoms and outcomes are associated with a range of pre-existing chronic conditions. Increasing age, male gender and ethnicity also appear to be associated with more severe outcomes.

Symptoms are likely to be less severe in individuals that have been vaccinated or had SARS-CoV-2 infection previously. Changes to the immune system (e.g. pregnancy or a new medication or illness) can result in symptoms that may be more severe than experienced in previous infections.

Blood phase and potential for transmission through blood, tissues and stem cells

To date, and with the exception of lung transplantation (3 cases), there have not been any other reports of the transmission of SARS CoV-2 via SoHO and plasma-derived medicinal products worldwide (Kothadia et al, 2025). There are reported cases of organs (including lungs) and stem cells being transplanted from donors known to have tested positive for SARS-CoV-2 at the time of or just prior to donation without reported transmissions. In the US, many thousands of donations were screened for SARS CoV-2 RNA with very few showing any evidence of RNAaemia, and no recovery of infectious virus (Bakkour et al, 2021).

In summary:

No infectious virus in blood – Studies attempting to isolate the live virus from blood, serum, or plasma samples of COVID-19 patients have consistently failed to show significant results, even in cases where RNA was detected.

Low risk of transmission – Analysis of blood donations from the height of the pandemic showed no evidence of transfusion-transmitted SARS-CoV-2.

RNA detection versus infectivity – While viral RNA can be found in a small percentage of patients (often linked to critical illness), infectivity in blood has not been demonstrated.

Consistency across studies – Multiple reviews and studies confirm this, and the risk to blood supply is considered negligible.

Risk mitigation (as applicable. e.g. measures adopted by UK blood, haematopoietic stem cells and tissue establishments, if any)

As per various other establishments worldwide, there were no UK recommendations for SoHO donor screening (expect organs). Precautionary measures were taken during the pandemic, and these measures were gradually relaxed based on evidence and experience accrued as the pandemic progressed. Such specific downgraded measures currently include the deferral of confirmed SARS-CoV-2 infected donors for 7 days post recovery if asymptomatic and 14 days if symptomatic (the latter is aligned with the generic deferral for post-acute infections).

Other relevant information

Between 2020 and 2025, it is estimated that over 950,000 solid organ transplants were performed, with the UK ranking tenth. (Global Observatory on Donation and Transplantation, GODT; available at https://www.transplant-observatory.org). Although earlier in the pandemic, organs were not being transplanted from donors who had screened positive for SARS-CoV-2 RNA in respiratory samples, practice changed and no published series provided evidence of transmission to recipients of solid organs, except lungs. In the UK, between 2020 and 2023, 6090 deceased organ donors had respiratory samples screened for SARS-CoV-2 RNA: 236 recipients received organs from donors who tested positive, with no documented transmission and no difference in graft outcome and recipient mortality at 1 year post-transplantation. 3600 of those donors also had NAT applied to plasma samples and none tested positive (NHSBT Organ and Tissue Donation and Transplantation data). Screening of all potential organ donors is due to cease shortly.

Conclusion and recommendations

Quality and safety recommendations to mitigate possible risks from an emerging pathogen were initially broadly precautionary, due to uncertainties. Three years post declaration of the end of the pandemic, SARS-CoV-2 is an established endemic respiratory virus and SoHO donor selection should be based on available current evidence.

Testing for the virus based on presence of symptoms has been the general clinical practice in the UK for some years now, hence positive test results will be from symptomatic individuals. These individuals are not eligible to donate and the existing well-established acute illness deferral criteria for living donors (of all SoHOs) should apply.

It is therefore recommended that SARS-CoV-2 is managed in the same way as other endemic respiratory virus infections (https://www.transfusionguidelines.org/dsg/wb/guidelines/in003-infection-acute).

References

Kothadia SM, Wolfe CR, Baker AW, et al (2025). Outcomes of lung transplantation from SARS-CoV-2 positive donors during the Omicron wave. JHLT Open, 8:100249. https://doi.org/10.1016/j.jhlto.2025.100249

Bakkour S, Saá P, Groves JA, et al (2021). Minipool testing for SARS-CoV-2 RNA in United States blood donors . Transfusion, 61(8):2384–2391. https://doi.org/10.1111/trf.16511

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