

NHS BLOOD AND TRANSPLANT
OCULAR TISSUE ADVISORY GROUP
CORNEAL DONATION AND TRANSPLANTATION ACTIVITY

BACKGROUND

- 1 Corneal transplantation is the most common form of transplantation worldwide. The purpose of the procedure is to restore the eyesight of patients with hereditary conditions, infections, or trauma related accidents. The aim of this paper is to review short-term and long-term corneal donation and transplantation trends in the UK.

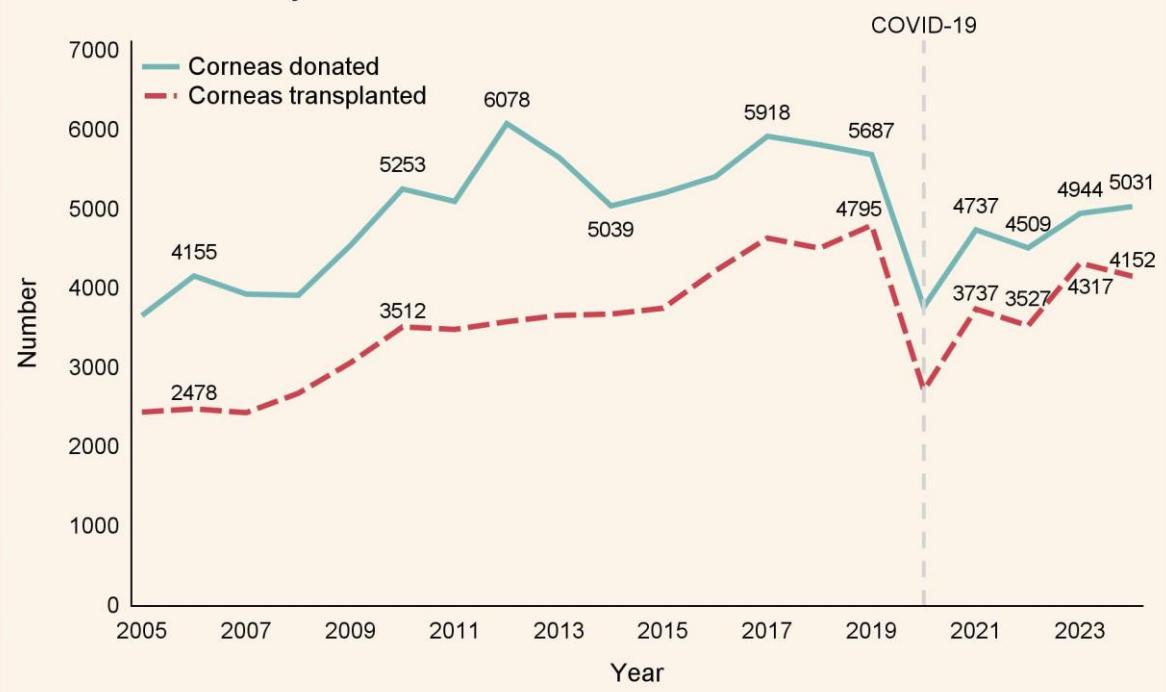
DATA AND METHODS

- 2 Long term trends are analysed over the last 20 years for corneas retrieved to NHSBT and corneas transplanted in the UK. Short-term trends are broken down by quarter over the last five and half years. Summary statistics were used to compare activity over time. Data were extracted on 19 February 2025.

RESULTS

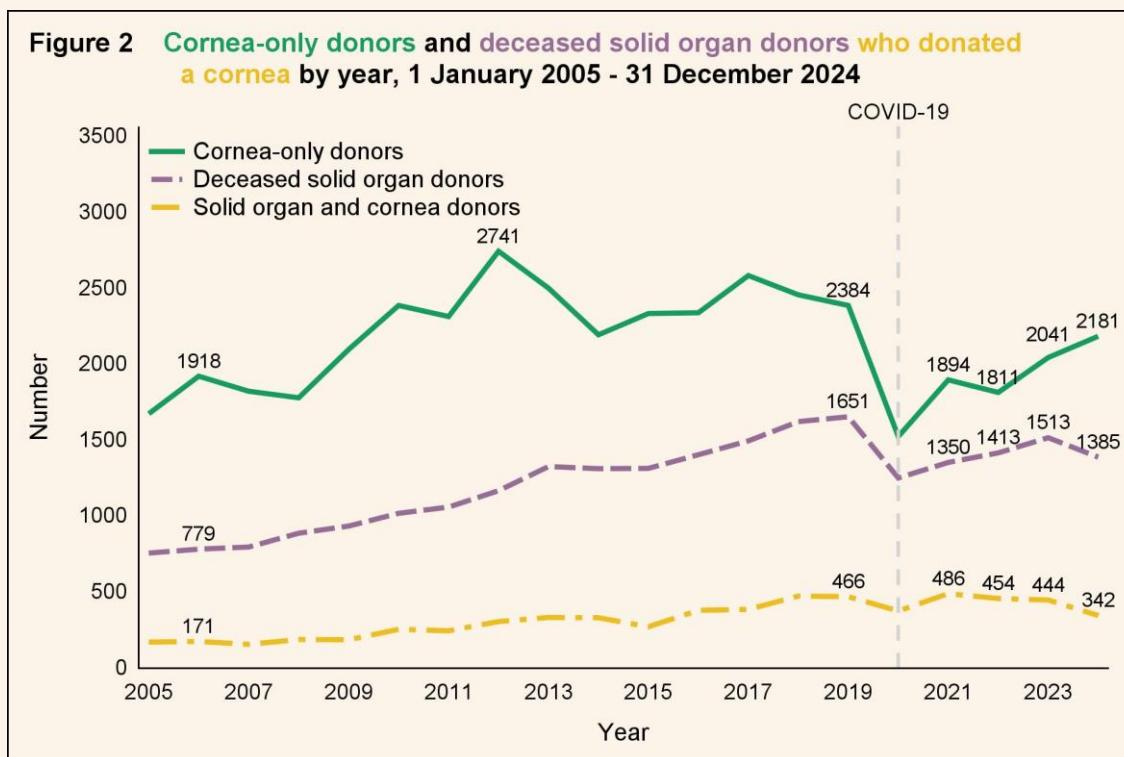
- 3 **Figure 1** shows corneas retrieved to NHSBT Eye Banks and corneas transplanted from 1 January 2005 to 31 December 2024. Corneas retrieved by NHSBT peaked at 6078 in 2012 and fluctuated to 5687 corneas prior to the pandemic. From 2006 to 2019, corneal transplantation increased from 2478 to 4795.
- 4 Following COVID-19, corneal donation activity has failed to return to pre-pandemic levels. Although, there has been a 6% increase in donation activity since 2021. In the last year, 4,152 transplants were reported to NHSBT, a decrease from 4,317 the year before. Although, this is likely inaccurate due to delays in reporting the Tissue Outcome and Transplant record form.

Figure 1 Corneas retrieved by NHSBT and corneas transplanted, by year
1 January 2005 - 31 December 2024



5 **Figure 2** shows deceased solid organ and cornea-only donor activity over the last 20 years. Cornea donors can be broken down into cornea-only donors (86%) and solid organ donors who donated a cornea (14%). Cornea-only donors have a very similar trend line compared to all corneas retrieved by NHSBT in **Figure 1**.

6 Cornea-only donation was significantly more impacted by COVID-19 than deceased solid organ donation. Although in the last four years it has increased by 15%, reaching 2,181 cornea-only donors in the last year. Deceased solid organ donation increased by 12% from 2021 to 2023 and the number of solid organ donors who donated a cornea remained fairly stable over this period. However, deceased solid organ donation has fallen in the last year by 8% to 1,385 donors. As a result, the number of solid organ donors who donated a cornea has also declined by 23%.

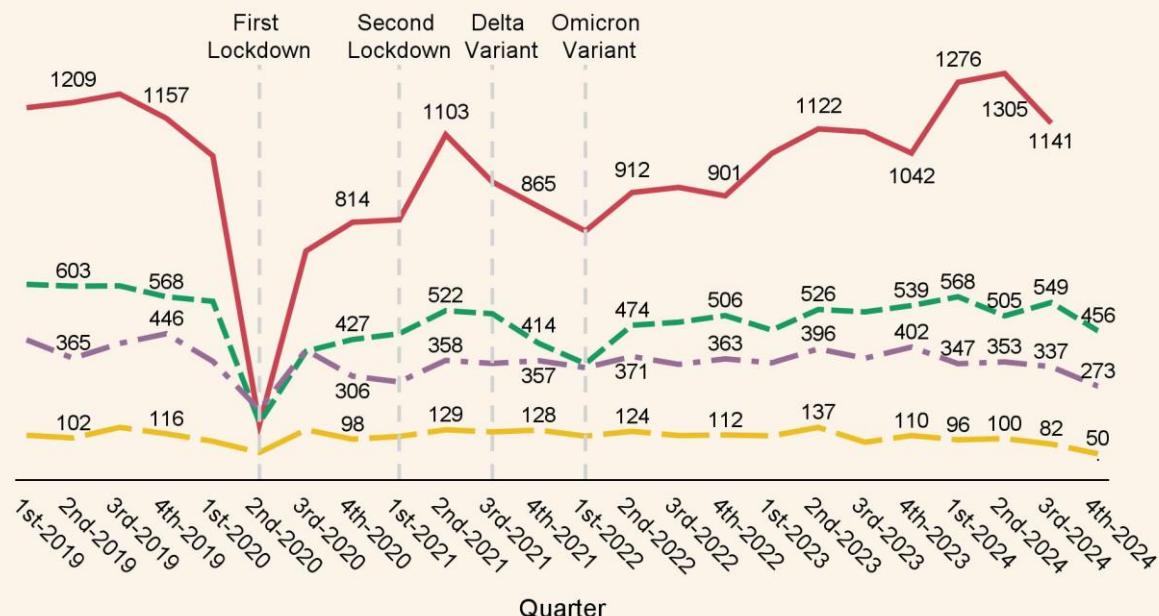


7 **Figure 3** and **Table 1** demonstrate the impact of the Covid-19 pandemic on corneal donation and transplantation activity by showing quarterly activity and the average quarterly activity before and after the pandemic, respectively. Please note that corneal transplantation figures are an underestimate due to delays or a lack of reporting over the last few years.

8 Activity for corneal donation and transplantation was primarily impacted by the political decisions to lockdown and cease routine operations, but as the easing of restrictions was announced, activity increased. Following the lockdowns, the further Covid-19 waves, delta and omicron variants largely impacted corneal only donation where donors tend to be older and die in different circumstances to solid organ donors.

9 The average quarterly activity after Covid-19, calculated over the last year, shows that cornea-only donations are beginning to recover, though not sufficiently to meet demand. Cornea-only donations have fluctuated in the last few quarters, while corneal donations from solid organ donors have shown a decline due to a fall in deceased solid organ donation. In the last quarter, there were 50 deceased solid organ donors who donated a cornea, compared with 82 in the previous quarter.

Figure 3 Corneal transplants, cornea-only donors and deceased solid organ donors who donated a cornea over the last 5 and a half years



Please note that the data labels shown are activity for every 2nd and 4th quarter, annually

Table 1 Average quarterly activity

	Before covid-19	In the last 4 quarters	% Change
Corneal transplantation	1199	1038	-13%
Cornea-only donors	596	520	-13%
Deceased solid organ donors	413	328	-21%
Solid organ and cornea donors	117	82	-30%

SUMMARY

- 10 The pandemic has significantly affected corneal donation and transplantation activity. In the last year, the number of corneal transplants reported to NHSBT was 4,152. This is likely to be an underestimate of the number of transplants as they are self-reported by centres. A quarter (N=1,594) of all corneal transplants came from overseas sources or from an unknown origin. Unfortunately, it is difficult to determine accurate corneal transplantation activity due to a lack of reporting the Tissue Outcome and Transplant record form.
- 11 Corneas donated to NHSBT have yet to recover from the pandemic. However, this was the highest number of corneas donated to NHSBT since the pandemic with an additional 200 corneas needed to reach pre-pandemic levels. This increase occurred despite a fall in deceased solid organ donation and those donating a cornea.