

**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- and long-term corneal donation and transplantation trends in the UK.

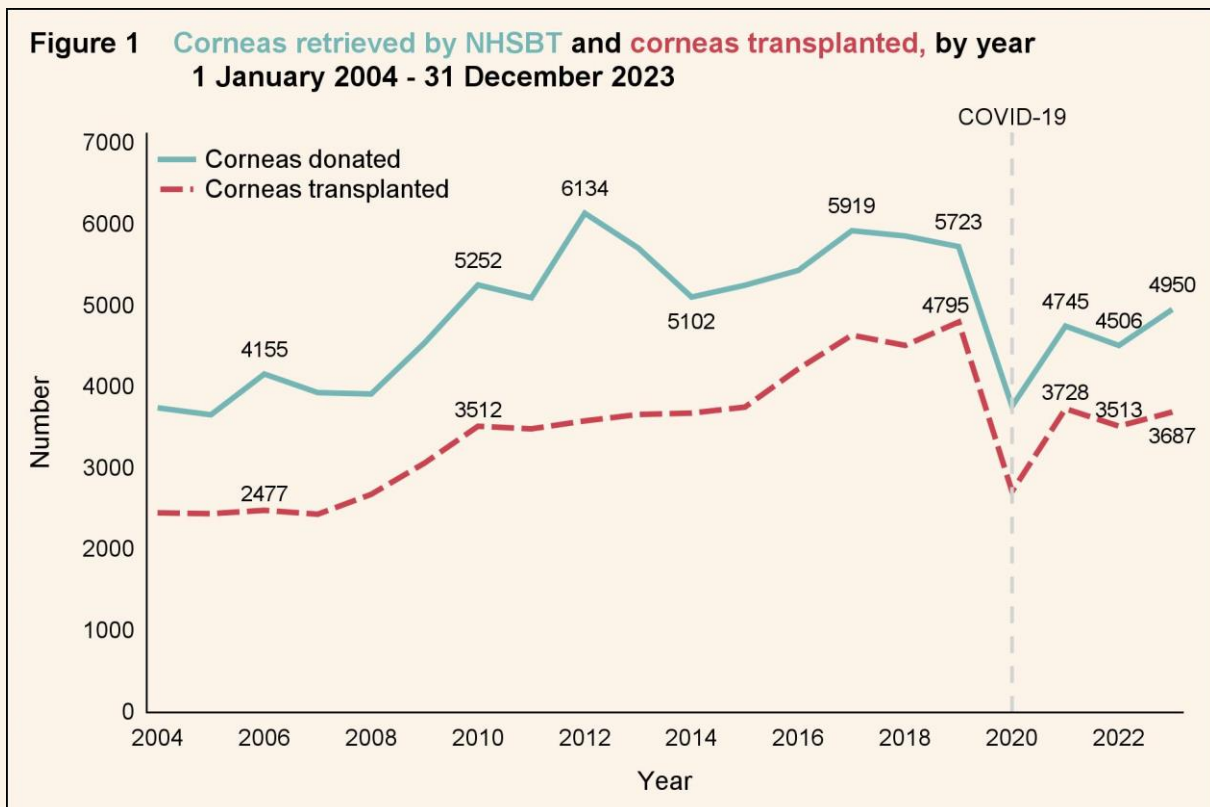
DATA AND METHODS

2 Long term outcomes are analysed over the last 20 years for corneas retrieved to NHSBT and corneas transplanted in the UK. Short-term outcomes 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 16 February 2024.

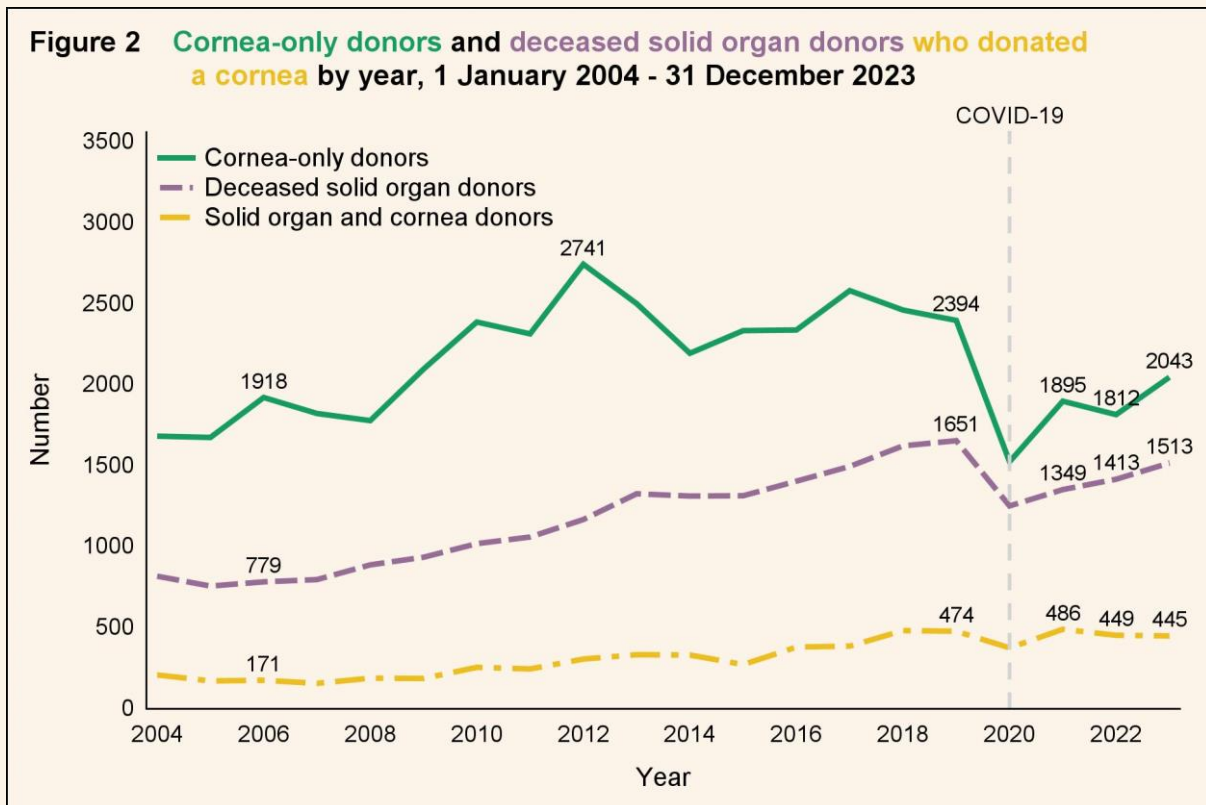
RESULTS

3 **Figure 1** shows corneas retrieved to NHSBT Eye Banks and corneas transplanted from 1 January 2004 to 31 December 2023. Corneas retrieved by NHSBT peaked at 6134 in 2012 and fluctuated to 5723 corneas prior to the pandemic. From 2006 to 2019, corneal transplantation has increased from 2477 to 4795.

4 Following COVID-19, corneal donation and transplantation activity has failed to return to pre-pandemic levels. Although, there was a 10% increase in donation activity in the last year. A decline for corneal transplantation is more exaggerated due to a lack of reporting the Tissue Outcome and Transplant record form.

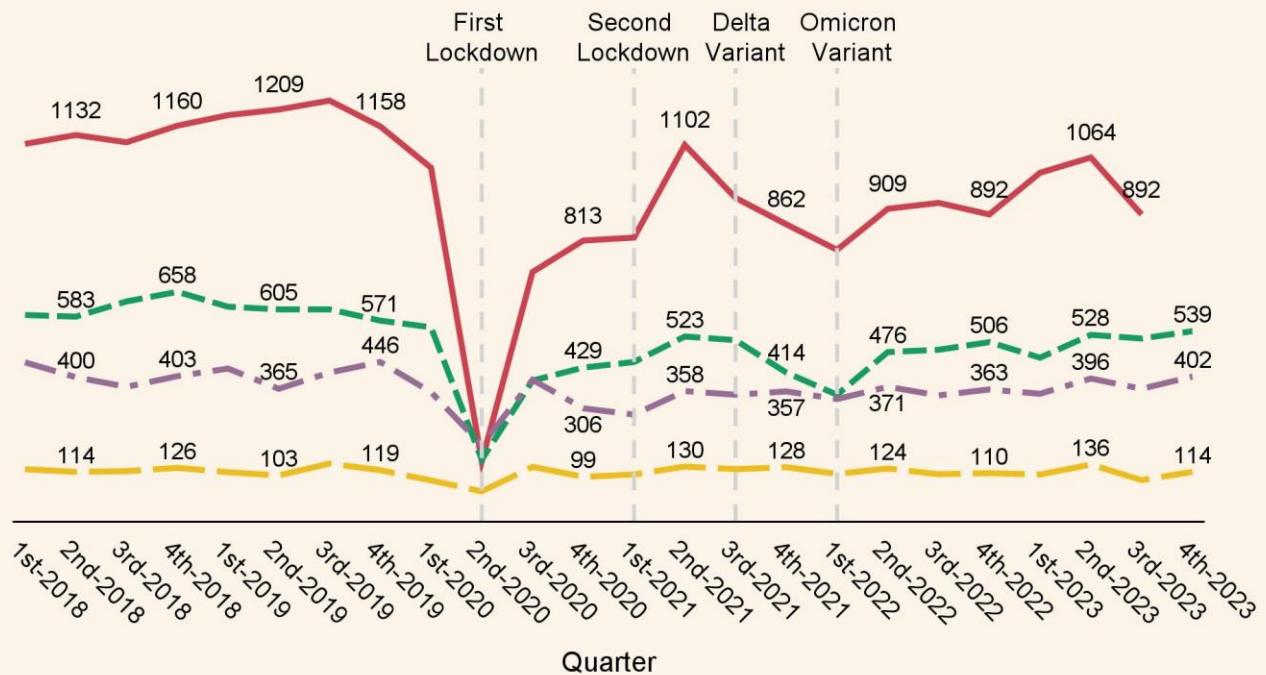


- 5 **Figure 2** shows deceased solid organ and cornea-only donor activity over the last 20 years. Cornea donors can be broken down into cornea-only donors (82%) and solid organ donors who donated a cornea (18%). Cornea-only donors have a very similar trend line compared to all corneas retrieved by NHSBT in **Figure 1**.
- 6 Deceased solid organ donors and cornea-only donors have been significantly impacted by Covid-19 but to a lesser extent. Following Covid-19, there has been a rise in both cornea-only donation and deceased solid organ donation. In the last few years, solid organ donors who donated a cornea has remained fairly stable. Of the total deceased solid organ donors in 2023 (N=1513), 445 (29%) also donated a cornea. There are initiatives to increase corneal donation from deceased solid organ donors.



- 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 in 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 was calculated over the last year and it shows that cornea-only donation activity is still the most affected donation pathway (**Table 1**). However, **Figure 3** shows there has been an increase in donation activity in the last 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	967	-19%
Cornea-only donors	599	511	-15%
Deceased solid organ donors	413	378	-8%
Solid organ and cornea donors	119	111	-7%

SUMMARY

10 The pandemic has significantly affected corneal donation and transplantation activity, with a decline seen in cornea-only donation due to the Omicron variant. Despite an overall increase in donation and transplantation activity over the last three years, the levels have not completely returned to those before the pandemic, suggesting the need for further progress. However, it is important to note in the last quarter, the highest number of cornea-only donations has been recorded since the onset of the pandemic. Unfortunately, it is difficult to determine accurate corneal transplantation activity due to a lack of reporting the Tissue Outcome and Transplant record form.

11 Deceased solid organ donation has also been impacted by the pandemic but to a lesser extent; donors tend to be younger and die in specific circumstances, such as in ICU.

Cathy Hopkinson & Anagha Narayanan
 Statistics and Clinical Research

February 2024