

**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.

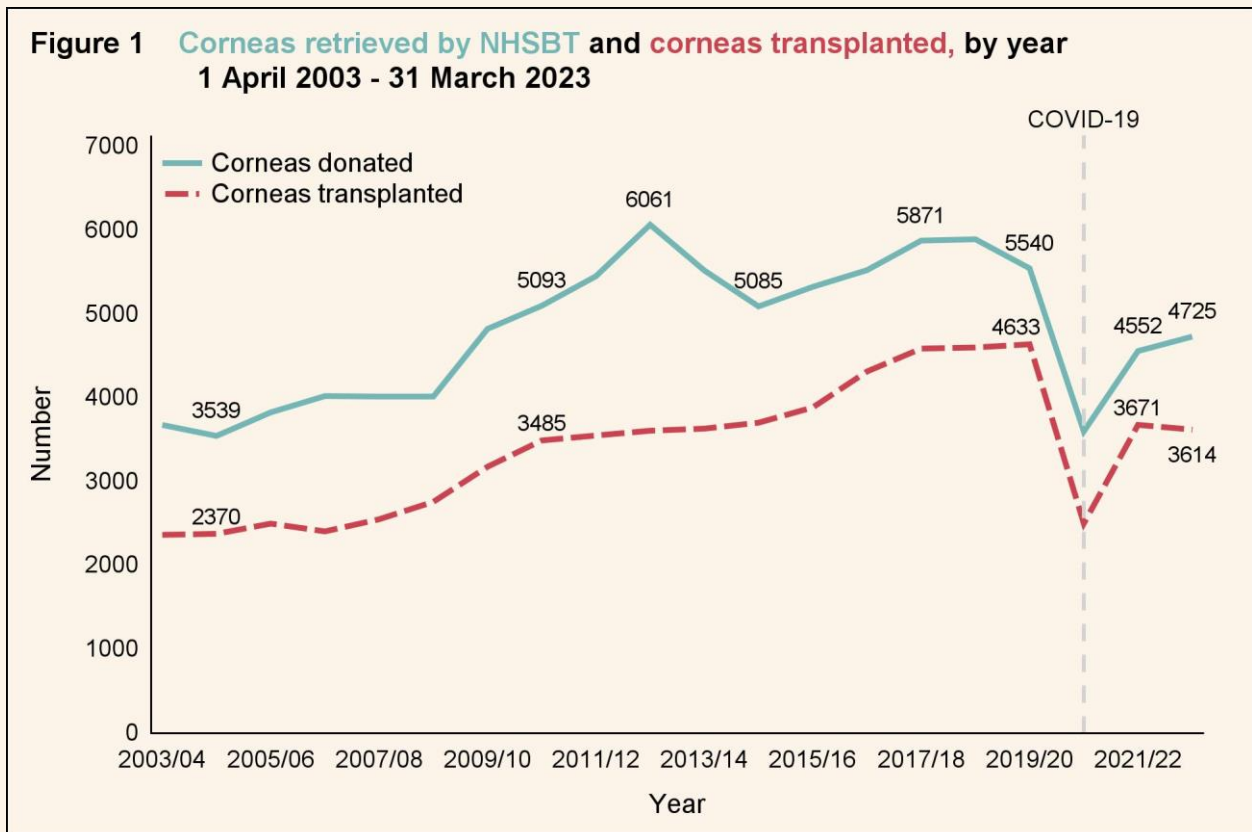
**DATA AND METHODS**

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 30 August 2023.

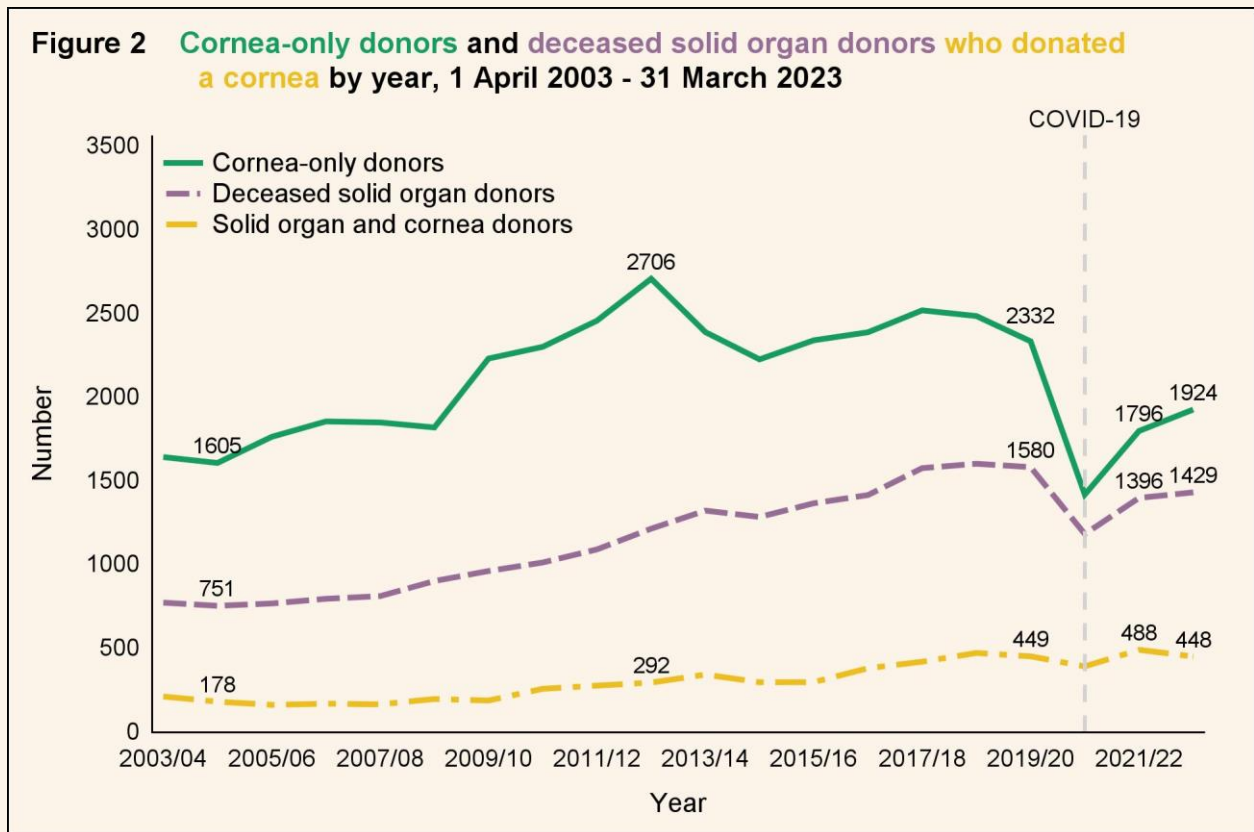
**RESULTS**

3 **Figure 1** shows corneas retrieved to NHSBT Eye Banks and corneas transplanted from 1 April 2003 to 31 March 2023. Corneas retrieved by NHSBT peaked at 6061 in 2012/13 and fluctuated to 5540 corneas prior to the pandemic. Over the last 20 years, corneal transplantation has increased from 2370 to 4633 corneal transplants in 2019/20.

4 Following COVID-19, corneal donation and transplantation activity has failed to return to pre-pandemic levels. Although, there was a 4% 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 (81%) and solid organ donors who donated a cornea (19%). Cornea-only donors have a very similar trend line compared to all corneas retrieved by NHSBT in **Figure 1**.
- 6 Over the last 20 years, deceased solid organ donors and those also donating a cornea have doubled to 1580 and 449 donors in 2019/20, respectively. Deceased solid organ donors and cornea-only donors have been significantly impacted by COVID-19 but to a lesser extent. Whereas solid organ donors who donated a cornea has steadily increased over time. Of the total deceased solid organ donors in 2022/23 (N=1429), 448 (31%) 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.

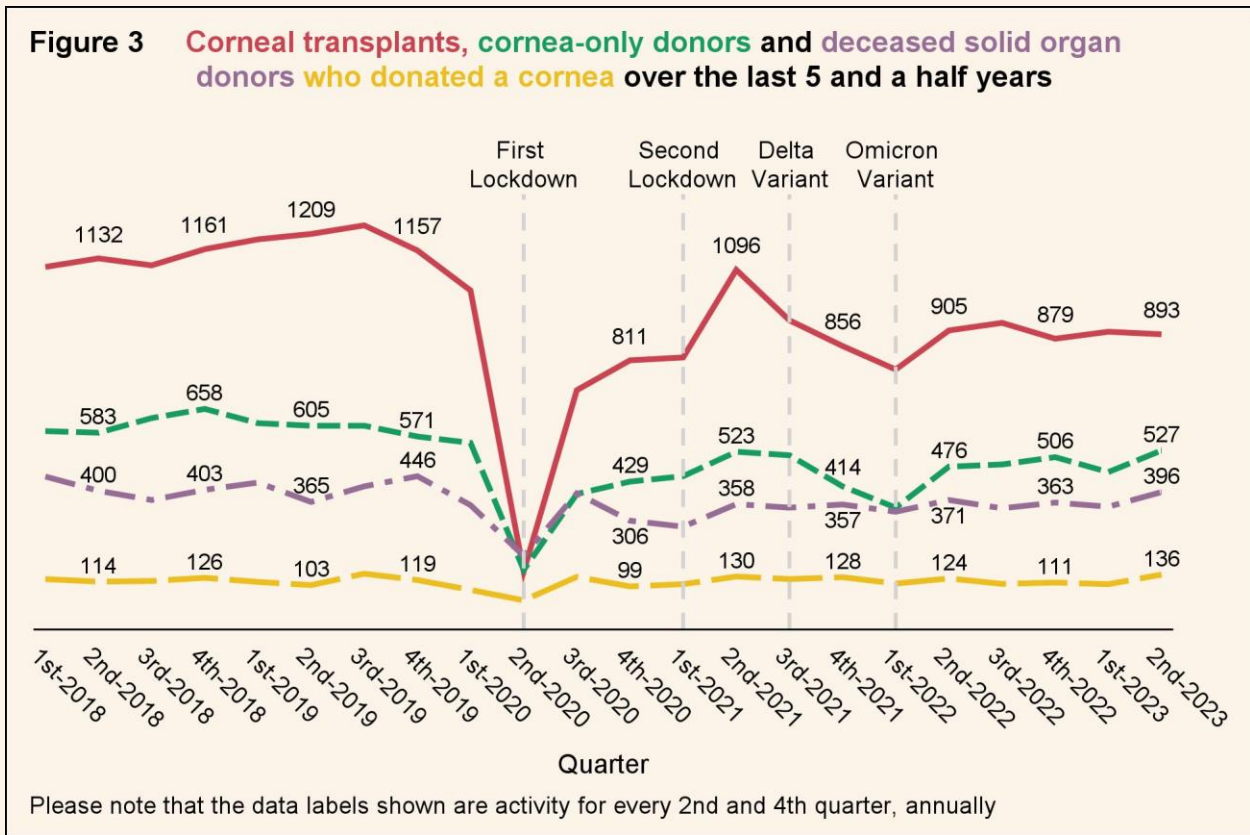


Table 1 Average quarterly activity			
	Before covid-19	In the last year	% Change
Corneal transplants	1168	901	-23%
Cornea-only donors	626	494	-21%
Deceased solid organ donors	391	364	-7%
Solid organ and cornea donors	115	115	0%

**SUMMARY**

10 Corneal donation and transplantation activity has been significantly impacted by the pandemic. Cornea-only donation was particularly affected by the omicron variant and since then, activity has not returned to pre-pandemic levels. Compared with pre-pandemic levels, there are approx. 1000 less corneas donated, annually. Although, there has been an increase in donation activity in the last year and quarter. 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.

11 Unfortunately, it is difficult to determine accurate corneal transplantation activity due to a lack of reporting the Tissue Outcome and Transplant record form.