

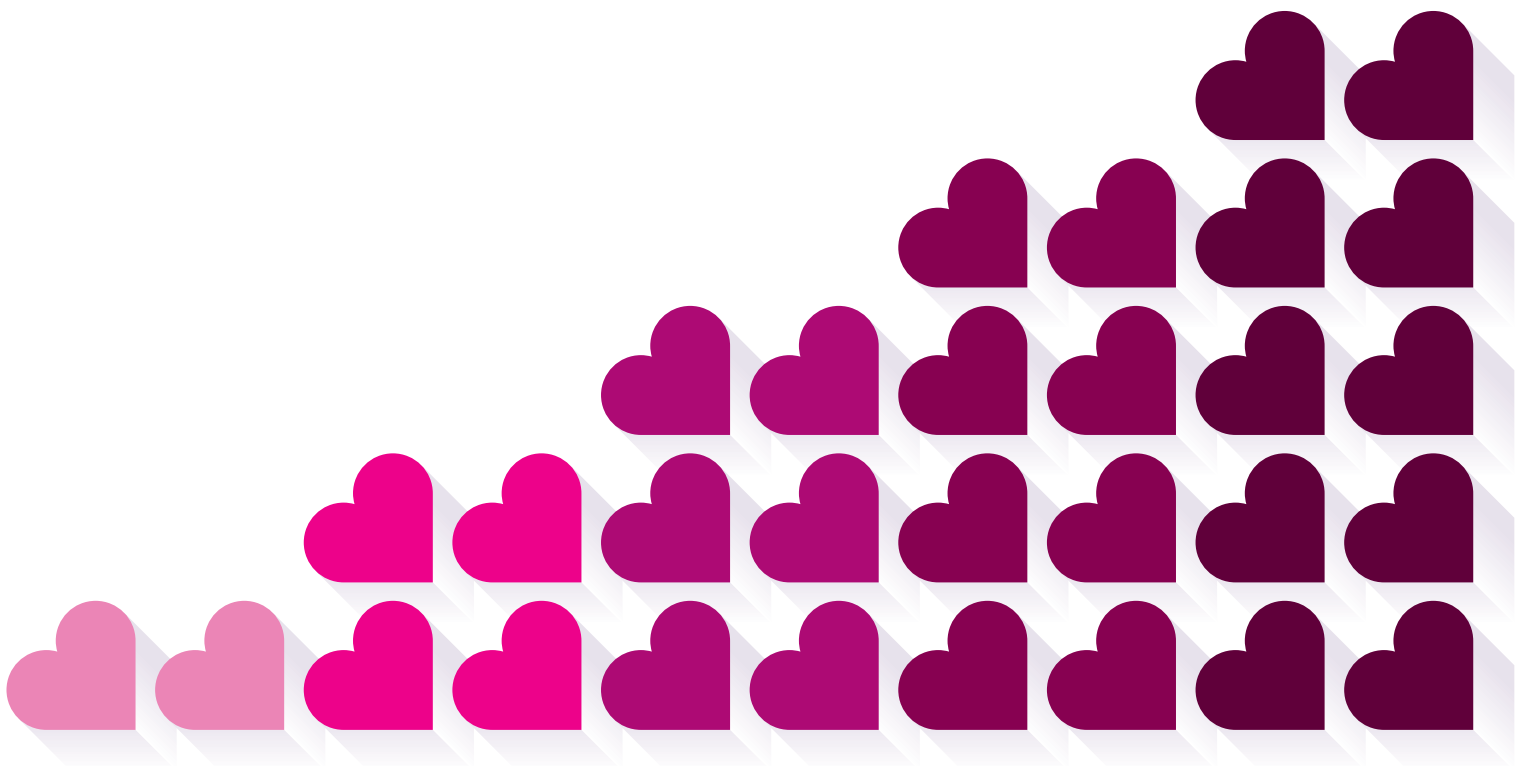


Australian Government  
Organ and Tissue Authority








2021 Australian Donation  
and Transplantation

# Activity Report



# Contents

	Page
 <b>Introduction</b>	<b>3</b>
Chief Executive Officer's year in review	<b>3</b>
National Medical Director's year in review	<b>4</b>
2021 data at a glance	<b>5</b>
 <b>Part 1: Deceased organ donation and transplantation</b>	<b>8</b>
Deceased organ donation and transplantation	<b>9</b>
Organ donation process	<b>11</b>
Consent rates	<b>15</b>
Registration rates	<b>16</b>
 <b>Part 2: Living organ donation and transplantation</b>	<b>18</b>
 <b>Part 3: Eye and tissue donation and transplantation</b>	<b>20</b>
Deceased organ, eye and tissue donors	<b>21</b>
Eye donation and transplantation	<b>23</b>
Tissue donation and transplantation	<b>24</b>
 <b>Acronyms</b>	<b>26</b>
<b>References</b>	<b>27</b>

# Chief Executive Officer's year in review

**On behalf of the Australian Government's Organ and Tissue Authority (OTA), I am pleased to present the OTA's annual Australian Donation and Transplantation Activity Report that provides the donation and transplantation outcomes for 2021.**



**We have a very important remit every year to increase organ and tissue donation for transplantation, and I'm exceptionally proud of the leadership and innovation shown by everyone throughout the pandemic – keeping donation and transplantation services running in 2021.**

Despite the pressure that COVID-19 put on the Australian health care system, the lives of 1,174 Australians were changed by receiving an organ transplant, due to the generosity of 421 deceased organ donors and their families.

There were 1,472 deceased eye donors, 313 deceased tissue donors, as well as 203 living organ donors and 2,994 living tissue donors who saved or transformed the lives of thousands of Australians this past year.

I'd like to acknowledge every donor and thank the families who said yes to donation, particularly in such a difficult year.

While our 2021 report outlines variable outcomes across states and territories – influenced by differing rates of COVID-19 infection – overall, compared with 2020, there has been a 9% decrease in the number of deceased donors and 7% decrease in the number of people receiving an organ transplant.

Donation rates across jurisdictions varied from 8.1 donors per million population (dpmp) to 28.2 dpmp, with South Australia the only jurisdiction to exceed the national target of 25 dpmp.

This is the second year of significantly reduced activity, resulting in an overall decrease of 25% compared to 2019. This follows 10 years of growth since the national program was first established in 2009.

This reduced donation and transplantation activity is consistent with the experience of other countries such as the UK and Canada. We continue to engage with our international counterparts to share experiences and local strategies to deal with and minimise the impact of COVID-19.

DonateLife staff worked with transplant teams throughout the year to navigate the challenges created by COVID-19 – including pressures on hospitals, restricted family visits in hospitals, and logistics impacting the national program such as flight reductions and border closures.

Against the backdrop of a very challenging year, we've seen Australians continue to publicly support donation in record numbers. We achieved our highest ever number of new registrations on the Australian Organ Donor Register in 2021, with around 350,000 people signing up, an increase of 87% on 2020.

This has been a remarkable achievement lead by a strong DonateLife digital engagement campaign in 2021 as well as increased numbers of people registering while accessing myGov and the Express Plus Medicare App to download their COVID-19 vaccination certificates.

This report is a collaboration to share a snapshot of key metrics on organ, eye and tissue donation and transplantation – both deceased and living – to inform ongoing sector improvements for the benefit of all Australians.

Going forward our national focus is to do all that we can to see donation and transplantation rates returning to pre-pandemic levels. We expect this recovery will span multiple years, while we continue to navigate existing and emerging challenges due to COVID-19.

**Lucinda Barry**  
**Chief Executive Officer**  
**Organ and Tissue Authority**

17 February 2022

# National Medical Director's year in review

**As the OTA's National Medical Director, I continue to be impressed by the dedication, collaboration and agility of Australia's donation and transplantation services.**



With around 260 donation specialists working across 96 hospitals, in addition to 46 transplant units operating across Australia, the commitment to donation and transplantation has been unwavering, despite the challenges imposed by the COVID-19 pandemic.

The impact of COVID-19 on hospitals and the disruption to other services has been immense. Staff redeployments and furloughing, suspension of surgical services, impacts on patient assessment pre- and post-transplantation, hospital visitor restrictions – it's all had an effect.

While overall there has been a 9% decrease in the number of deceased organ donors and 7% decrease in people who have received an organ transplant this past year, donation and transplantation doctors and nurses across Australia have gone above and beyond to keep programs going.

National and international collaboration has ensured a sharing of donation and transplantation best practices as well as strategies to mitigate the negative impacts of COVID-19.

All countries experience a shortage of donors to meet the need for transplantation, mostly due to few people having the chance to be an organ donor when they die. While around 80,000 people die in Australian hospitals each year, around 2% can be organs donors, which requires death to occur after a severe illness in an intensive care unit (ICU) or emergency department (ED).

In 2021 in Australia approximately 1,250 people died in a way where organ donation could be considered. Patients with active COVID-19 were unable to be considered for donation due to the risk of transmitting infection.

The families of 1,170 patients were approached about organ donation with 655 families saying "yes" – a consent rate of 56% (slightly down from 58% in 2020).

DonateLife nurses talk about donation with families in hospital – with some of these conversations taking place during hospital visitor restrictions. These conversations occurred in challenging circumstances – sometimes without extended family support, perhaps over the phone, or whilst wearing masks and with other social distancing measures.

Of the 655 consented donors, 234 did not proceed mainly due to medical suitability reasons, with 421 becoming organ donors. I would like to acknowledge all donors and their families for their generosity, especially during such a difficult year.

Encouragingly there has been increased uptake of a recent best practice initiative of routine notification to donation services for advice about donor suitability of all patients in ICUs or EDs approaching end of life. In 2021 this occurred in 81% of such patients, up from 77% in 2020, working toward a national target of 100%. Although many of these patients are not suitable to be organ donors, many can donate eye and other tissues. DonateLife is committed to ensuring that every potential organ and tissue donor and their family have the opportunity to consider donation and to help other Australians through transplantation.

The past two years have provided many challenges for those working in the sector, as well as patients and their families who we serve. The risk is higher for people with a transplant if they contract COVID-19, so transplant units have had to manage this risk on a case by case basis with their patients.

Currently there are 1,850 Australians on the organ transplant waitlist, and a further 13,000 people on dialysis, some of whom may benefit from a kidney transplant. We know this is a worrying time for anyone waiting for an organ transplant.

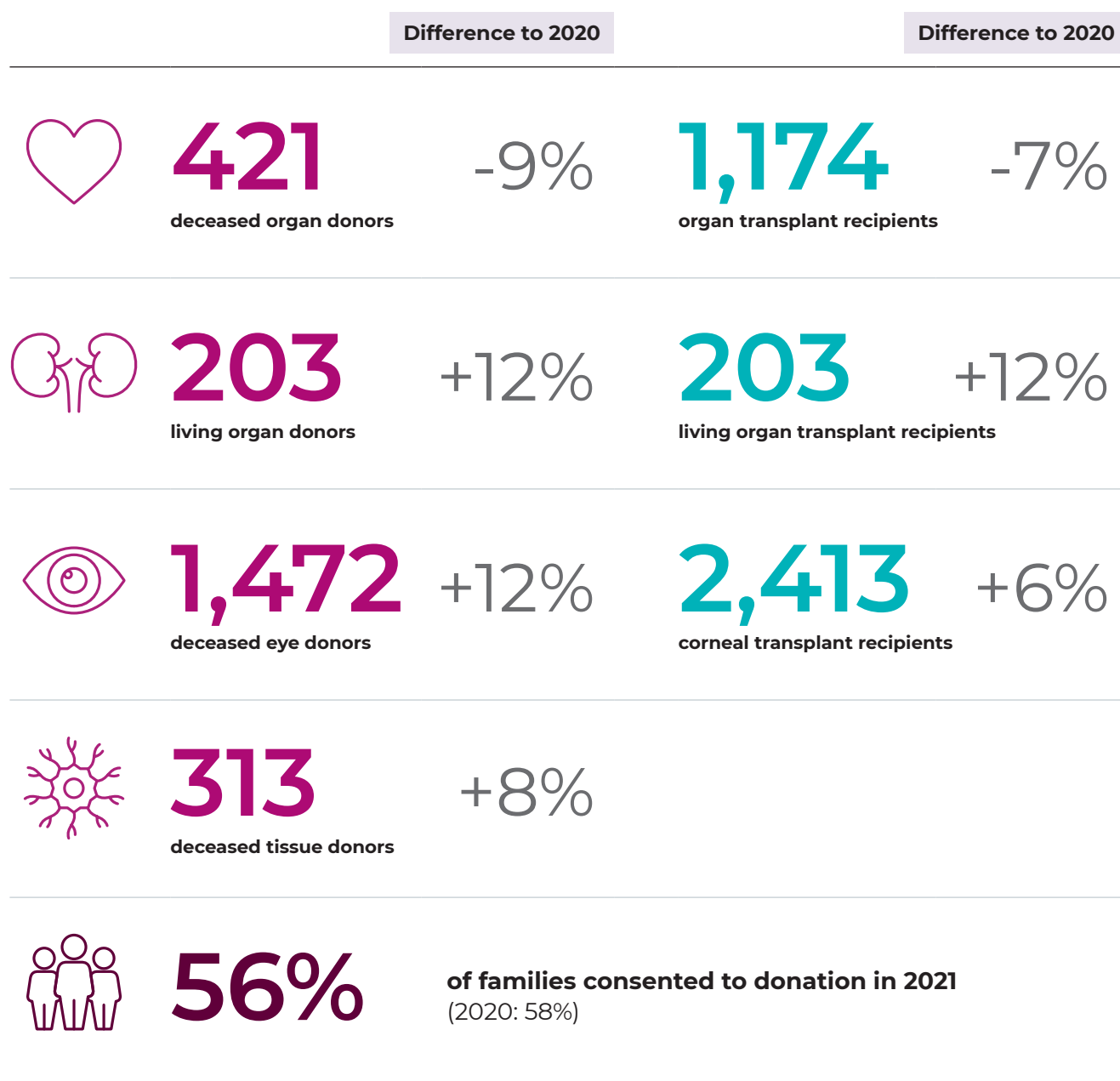
Donation and transplantation teams continue to do their utmost to ensure that as many people as possible have the chance to receive a life-changing organ, eye or tissue transplant.

A handwritten signature in black ink, reading 'Helen Opdam'.

**A/Professor Helen Opdam**  
**National Medical Director**  
**Organ and Tissue Authority**

17 February 2022










## 2021 data at a glance



We thank and acknowledge the generous Australians and their families who became organ and tissue donors and their families who said yes to donation.

We also acknowledge the dedication and commitment of our donation and transplantation doctors, nurses and support staff.

## Jurisdiction data at a glance

	Deceased organ donors	Organ transplants <sup>1</sup>	Consent rate	New registrations <sup>2</sup>
 National	421	1,174	56%	349,947
 Australian Capital Territory	8	24	48%	9,864
 New South Wales	109	320	51%	110,331
 Northern Territory	2	6	18%	2,616
 Queensland	91	275	61%	73,736
 South Australia	50	119	73%	31,244
 Tasmania	7	21	54%	7,516
 Victoria	110	296	55%	88,278
 Western Australia	44	113	58%	26,362

<sup>1</sup> Number of recipients from the donors in the relevant state.

<sup>2</sup> New registrations on the Australian Organ Donor Register (AODR)

## Trend data at a glance

### National program 2009–2021



**15,525**  
Organ transplant recipients from

**5,450**  
deceased organ donors



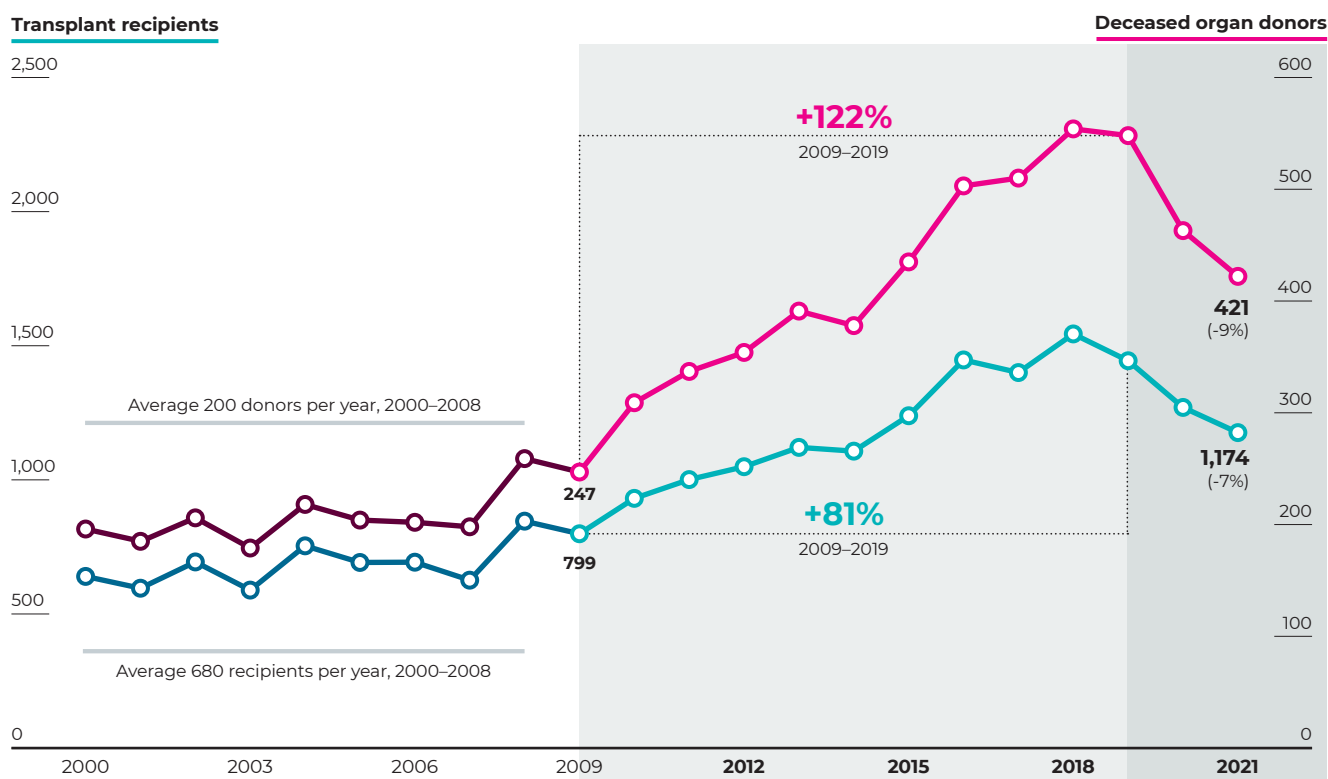
**16,045**  
Deceased eye donors



**35,402**  
Deceased and living tissue donors since 2013

**Figure 1 / Deceased organ donation and transplant recipients 2000–2021**

- ▶ Since the beginning of the national program in 2009, donation rates increased from 247 to a peak of 554 in 2018. The number of transplant recipients increased across the same time period from 799 to 1,544.
- ▶ COVID-19 has impacted the program through 2020 and 2021. In 2021 there were 421 donors and 1,174 transplant recipients.



**Note:** The Australian Government's national program to improve opportunities for transplantation through increased organ and tissue donation began in 2009.

## **Part 1**

# **Deceased organ donation and transplantation**

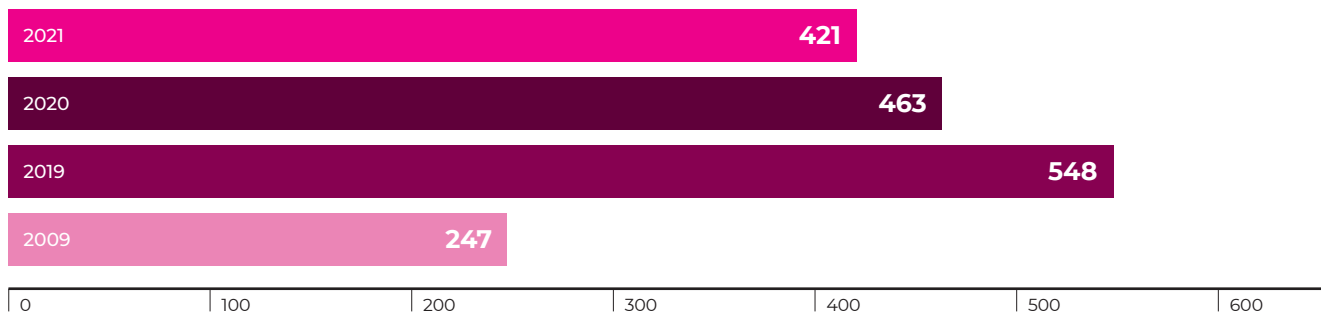
## Deceased organ donation and transplantation

	2021	2020	Difference	National program 2009–2021
Organ transplant recipients	1,174	1,269	-7%	15,525
from				
Deceased organ donors	421	463	-9%	5,450

- ▶ There was a 7% decrease in the number of people receiving a transplant and a 9% decrease in the number of organ donors compared to 2020.
- ▶ The 2021 outcomes represent a 19% decrease in organ transplants from the pre-COVID-19 environment of 2019.
- ▶ In 2021 there was a decrease in consent and a higher proportion of cases where donation did not proceed after consent.
- ▶ Despite the impacts of COVID-19 on the Australian health care system, 1,174 Australians still received a transplant from 421 deceased organ donors in 2021.

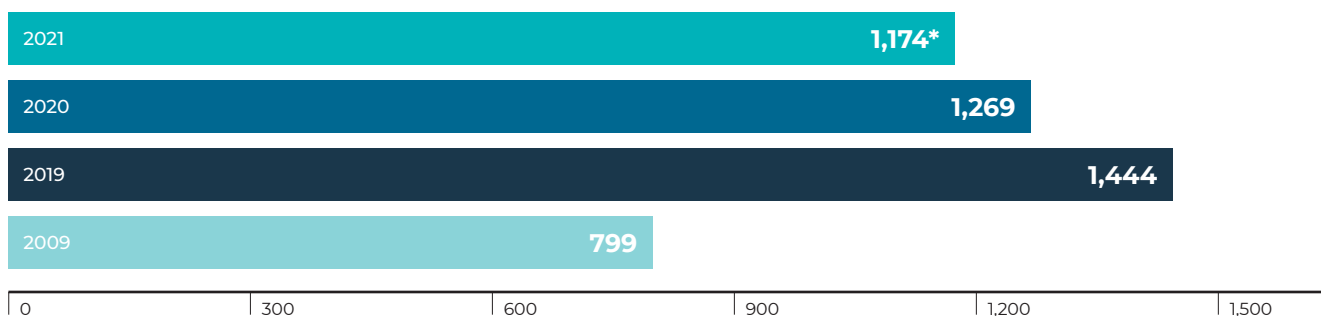
**Figure 2 / Deceased organ donors**

● 2021 | ● 2020 | ● 2019 | ● 2009



**Figure 3 / Transplant recipients from deceased donors**

● 2021 | ● 2020 | ● 2019 | ● 2009

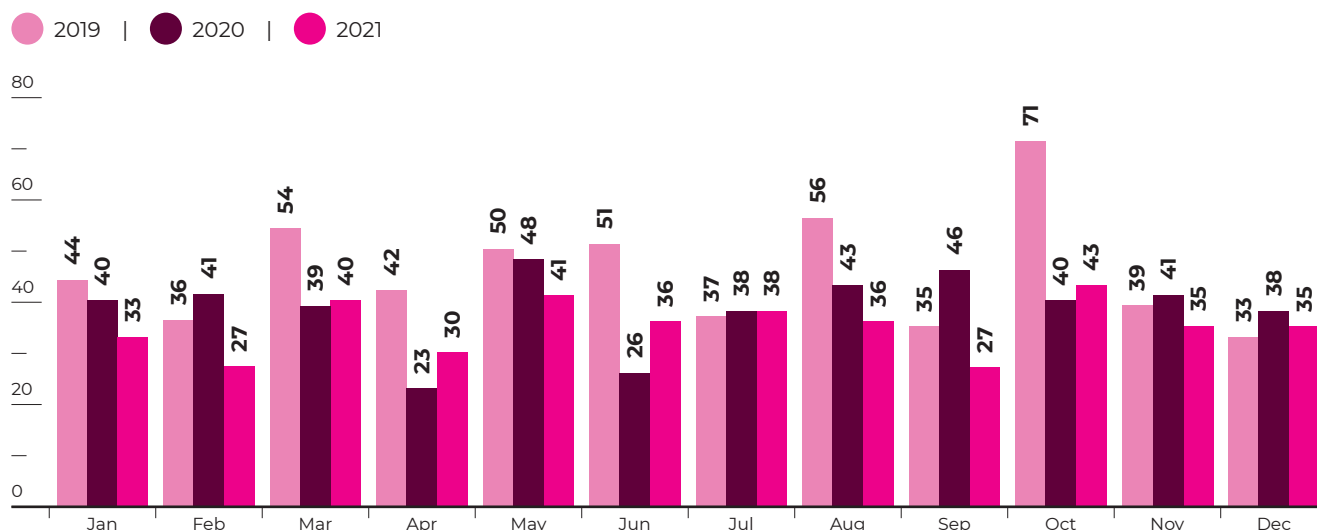


\*The number of transplant recipients from a deceased donor in Australia includes a small number of recipients from New Zealand who were in urgent need of a life-saving transplant.

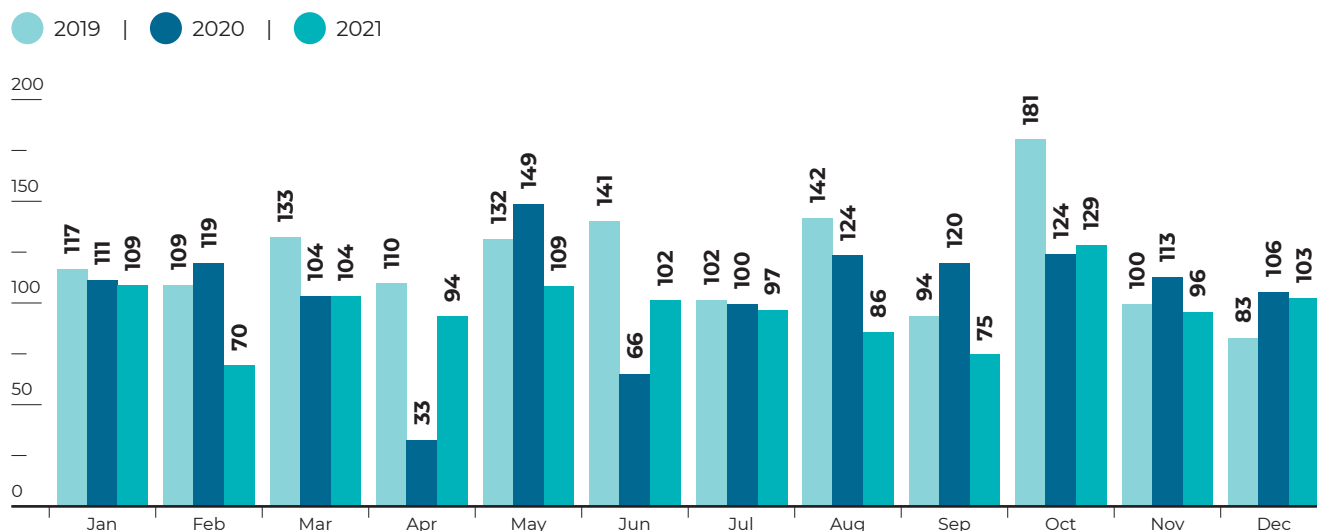
## Deceased organ donation and transplant recipients from 2019–2021

- ▶ 2019 was one of the highest years for both organ donors and transplant recipients.
- ▶ 2020 and 2021 have seen decreases in both organ donation and transplant recipients, as a direct result of the pandemic.
- ▶ The monthly comparison of these three consecutive years, show a decline in activity between April, May and June 2020, which correlates the beginning of the pandemic and the precautions taken by sector, including a short suspension of the kidney transplant program.

**Figure 4 / Deceased organ donors 2019, 2020 and 2021**



**Figure 5 / Transplant recipients 2019, 2020 and 2021**



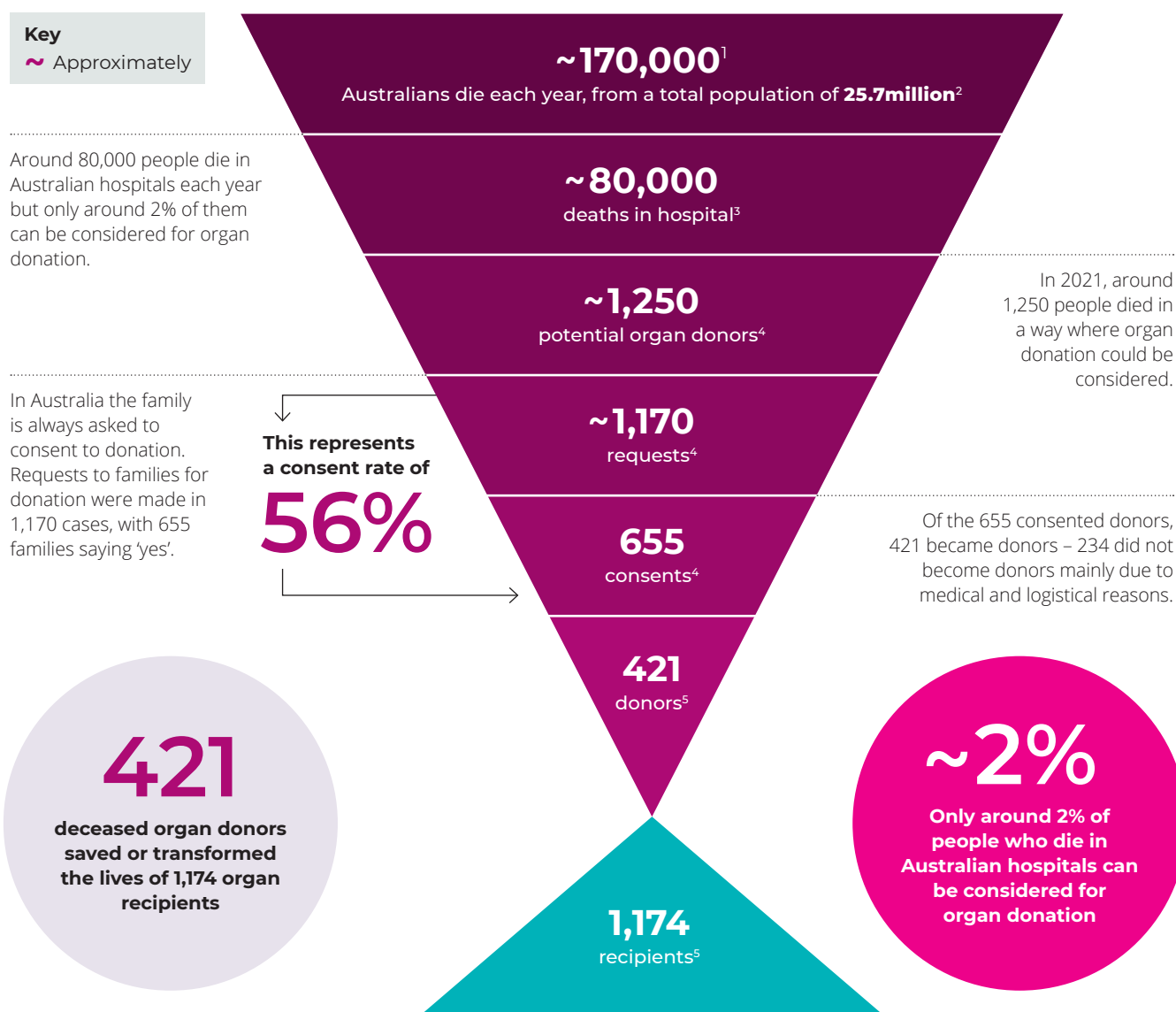
## Organ donation process

**Organ donation is a rare event. Few people can become an organ donor when they die. To be an organ donor, a person must die in a hospital's intensive care unit (ICU) or emergency department (ED) and be medically suitable to donate organs for transplantation.**

- ▶ Organ donation can only occur when someone dies in a hospital as organs need to be functioning well to be considered for transplantation.

- ▶ The final decision on medical suitability is made by the medical team at the time of donation and is influenced by the need of the potential transplant recipients. If a recipient is in need of an urgent organ then they may accept any organ on offer.
- ▶ There are currently around 1,850 Australians waitlisted for a transplant and more than 13,000 additional people are on dialysis – some of whom may need a kidney transplant.







**Figure 6 / Australia's potential deceased organ donor population and transplantation outcomes**



### Sources

- 1 Australian Bureau of Statistics. Causes of death, Australia, 2020 (Released 29/09/2021).
- 2 Australian Bureau of Statistics. National, state and territory Population, 30 June 2021 (Released 16/12/2021).
- 3 Australian Institute of Health and Welfare 2020. Admitted patient care 2019–20 (Released 03/06/2021).
- 4 DonateLife Audit, February 2022.
- 5 Deceased organ donation in Australia, Australia and New Zealand Organ Donation Registry, 15 February 2022.

**Figure 7 / Organ transplants from deceased donors**

Organ type		2021	2020	Difference
Kidney		656	704	-48
Liver		253	277	-24
Lung		171	158	+13
Heart		112	148	-36
Pancreas		38	47	-9
Intestine		2	1	+1

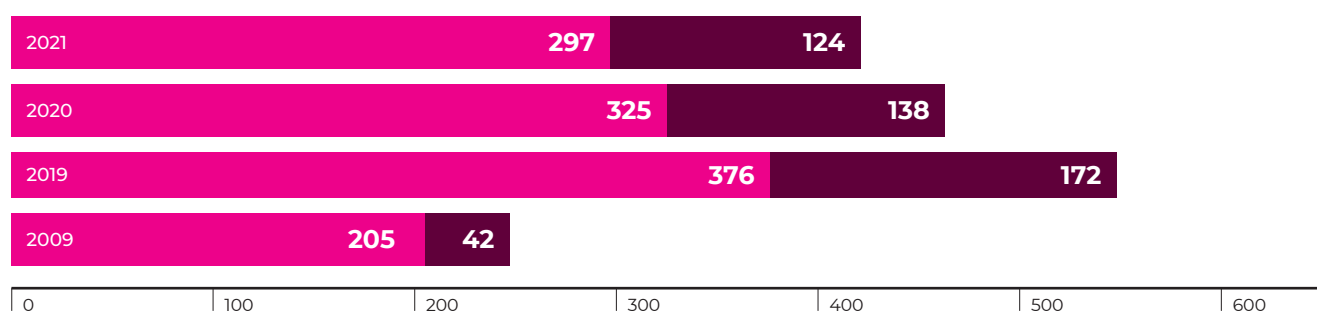
► Kidneys make up more than half of organs transplanted, followed by liver, lungs and heart. There were 48 fewer kidney transplants in 2021 (7% down on 2020).

► There were also 24 fewer liver transplants (9% down), 36 fewer heart transplants (24% down on 2020), and 9 fewer pancreas transplants (19% down on 2020).

► The number of lung transplants increased compared with 2020. There were 13 more lung transplants in 2021 (8% up on 2020).

**Figure 8 / Deceased organ donors by donation pathway**

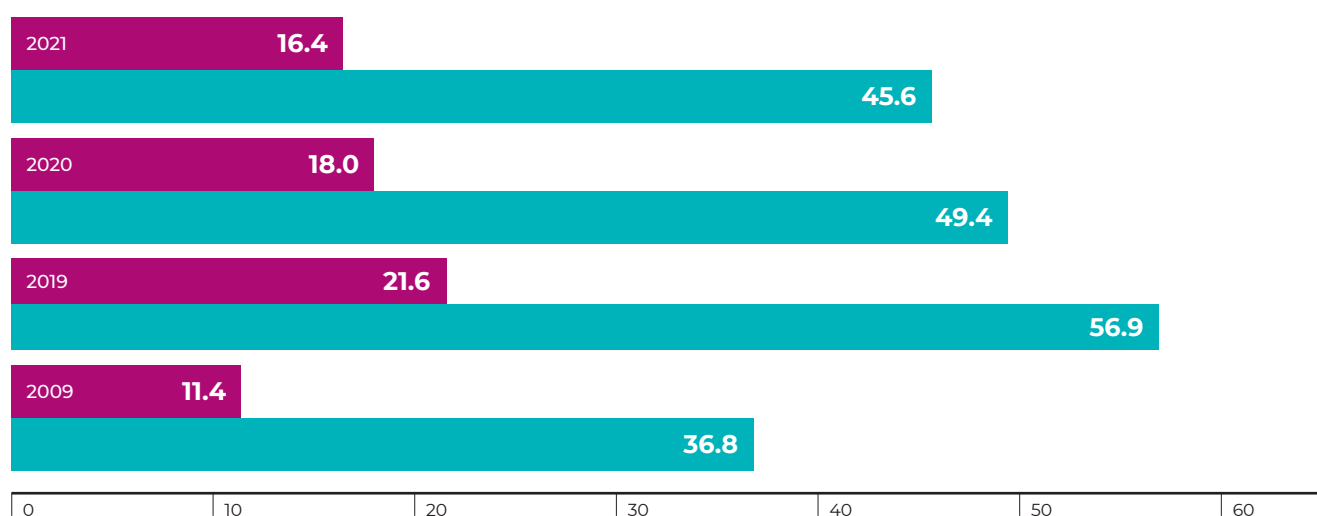
DBD | DCD



- ▶ There are two pathways to deceased donation: donation after brain death (DBD) and donation after circulatory death (DCD).
- ▶ Most donors are from the DBD pathway. In 2021, 297 deceased organ donors (71%) came from the DBD pathway, with 124 (29%) from the DCD pathway.
- ▶ There was a 9% decrease in the number of donors from the DBD pathway and a 10% decrease in the number of donors from the DCD pathway. Typically, DCD results in a lower number of organs suitable for transplantation compared with DBD.

**Figure 9 / Deceased organ donation and transplantation rates**

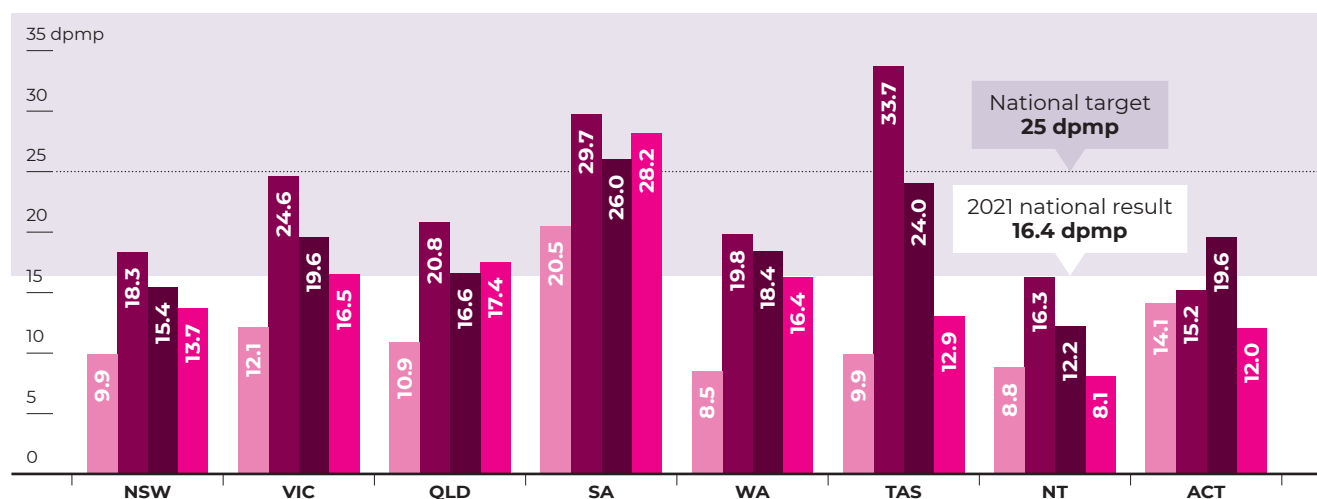
dpmp | trmpmp



- ▶ The national donation target for deceased donation is 25.0 donors per million population (dpmp).
- ▶ The 421 deceased organ donors in 2021 resulted in a national donation rate of 16.4 dpmp, a decrease from the rate in 2020 (18.0 dpmp).
- ▶ COVID-19 has had a significant impact on Australia's dpmp, as it has in many other countries.
- ▶ The transplantation rate was 45.6 transplant recipients per million population (trmpmp); lower than 2020 (49.4 trmpmp).

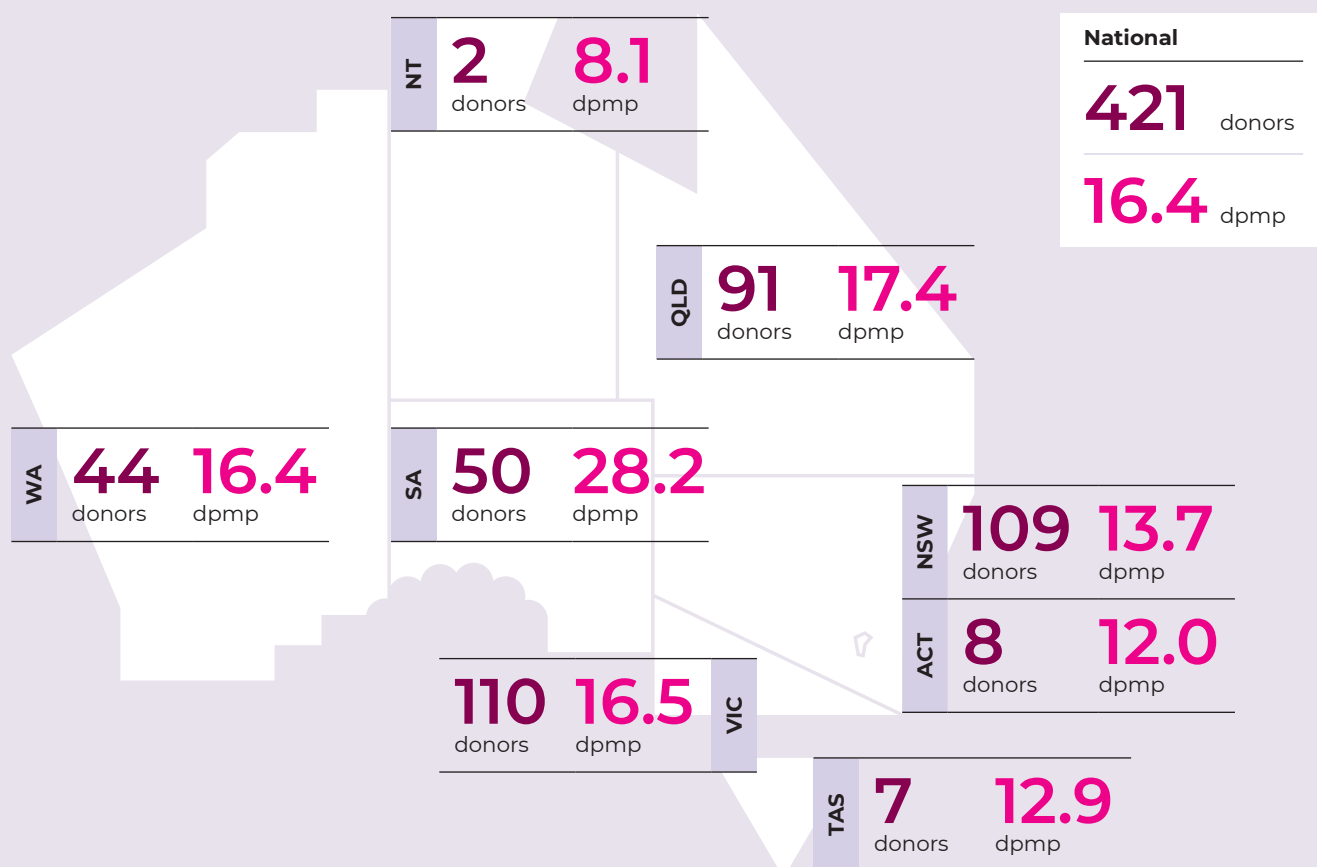
**Figure 10 / Deceased organ donation rates by jurisdiction**

2009 | 2019 | 2020 | 2021



**Note:** The relatively small populations of the Northern Territory, the Australian Capital Territory and Tasmania can result in substantial fluctuations in outcomes and donation rates from year to year.

- ▶ State and territory outcomes in 2021 continued to demonstrate variation, with donation rates ranging from 8.1 dpmp to 28.2 dpmp.
- ▶ South Australia exceeded the national target with a donation rate of 28.2 dpmp.
- ▶ One critical component of the donation/ transplantation process is the transportation of organs between states and territories. The reduction in commercial flights, border restrictions and increased demand on courier services, has impacted on the ability to transport organs between states and territories in the timeframes required for organs to remain viable for transplant.

**Figure 11 / Deceased organ donors and donation rates by jurisdiction**

## Consent rates

- ▶ In Australia, families of potential donors are always asked to consent to their family member becoming a donor in hospital.
- ▶ Our national consent rate dropped to 56% in 2021 meaning fewer families said 'yes' to donation.
- ▶ There is no doubt that the COVID-19 restrictions in hospitals contributed to this decrease. Even in such challenging circumstances, many families were still motivated to donate and help others through donation.
- ▶ Increasing the consent rate in this limited pool of potential donors is critical to further growth in donation.
- ▶ In 2021, of the 655 consented donors, 421 proceeded to donation. Mainly due to medical and logistical reasons, 234 did not proceed to donation.



# 56%

of families consented to donation  
when asked in 2021

Figure 12 / Consented donors

● Proceeded to donation | ● Did not proceed to donation

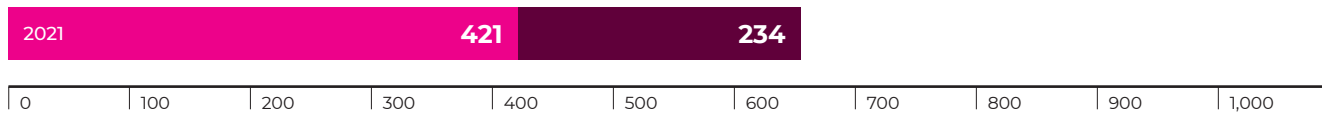



Figure 13 / Consent rates by jurisdiction



## Registration rates

- ▶ In 2021, 87% of families agreed to donation when their family member was registered to donate on the Australian Organ Donor Register (AODR).
- ▶ Consent for donation was given in 63% of cases when the family had prior knowledge of the wishes of their loved one.
- ▶ This dropped to only 44% of families agreeing to donation when the family member was not registered, and the family was unaware of their wishes.
- ▶ While the majority of Australians support organ and tissue donation, approximately one in three (36%) are registered to be a donor on the AODR.
- ▶ South Australia has the highest registration rate (73%).
- ▶ South Australia is the only state where individuals can register to be a donor on their driver's licence.
- ▶ Consideration of organ and tissue donation comes at an intensely emotional time for families, usually associated with the unexpected death of their loved one.
- ▶ When donation is a possibility, it helps when families know what their loved one wanted.

 **9/10**  
families gave consent for donation  
when their family member was a  
registered donor

 **6/10**  
families gave consent for donation  
when they knew their family  
member's wishes

 **4/10**  
families gave consent for donation  
when their family member was  
not registered and had not them  
they wanted to be a donor

Figure 14 / Australian Organ Donor Register (AODR) registration rates by jurisdiction



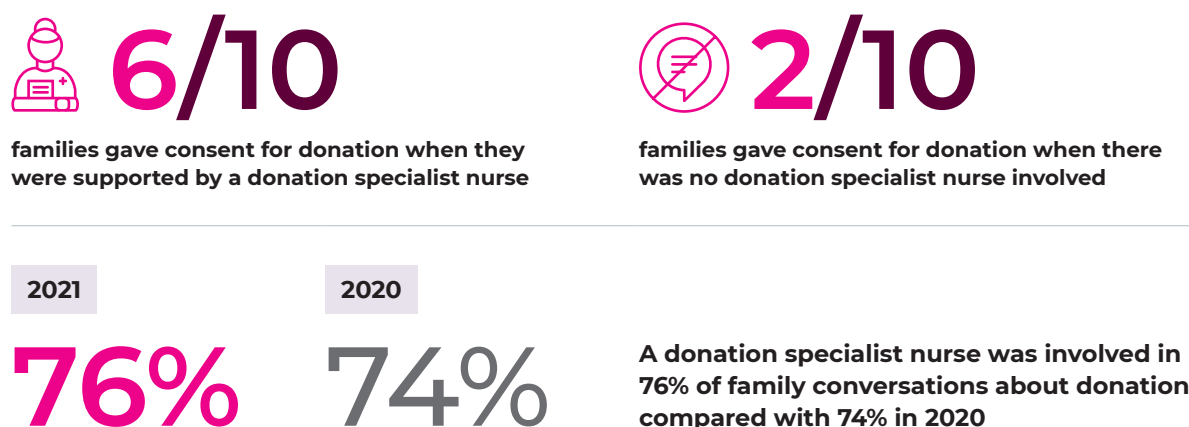
Figure 15 / New registrations by jurisdiction

	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total
2021	110,331	88,278	73,736	31,244	26,362	7,516	2,616	9,864	349,947
2020	45,683	47,274	39,814	27,857	16,474	3,602	1,352	4,600	186,656



- ▶ In 2021, there were 349,947 new registrations on the AODR, 87% more than 2020 (186,656).
- ▶ Despite the challenges of COVID-19 a record number of people registered to be a donor and showed their support for donation.
- ▶ There are over 7 million people registered on the AODR. This is 36% of the eligible Australian population (i.e. aged 16 or over).
- ▶ There was a significant increase of registrations through the myGov/Medicare from July 2021. It is surmised that the increase is due to people registering when they were accessing the myGov/Medicare webpages to access their COVID-19 vaccination certificates.

Figure 16 / The importance of involving a donation specialist in discussions with families



- ▶ There are around 260 donation specialist nurses, doctors and support staff covering 96 hospitals across Australia.
- ▶ The donation specialists work with hospital critical care teams to ensure that, when appropriate, the opportunity for organ donation is offered to families.
- ▶ A key factor to increasing consent is having donation raised by a donation specialist nurse and providing families with high-quality information and care during the donation process.
- ▶ In 2021, 59% Australian families agreed to donate when they were supported by a donation specialist nurse. This dropped to 19% when there was no donation specialist nurse involved.

## Part 2

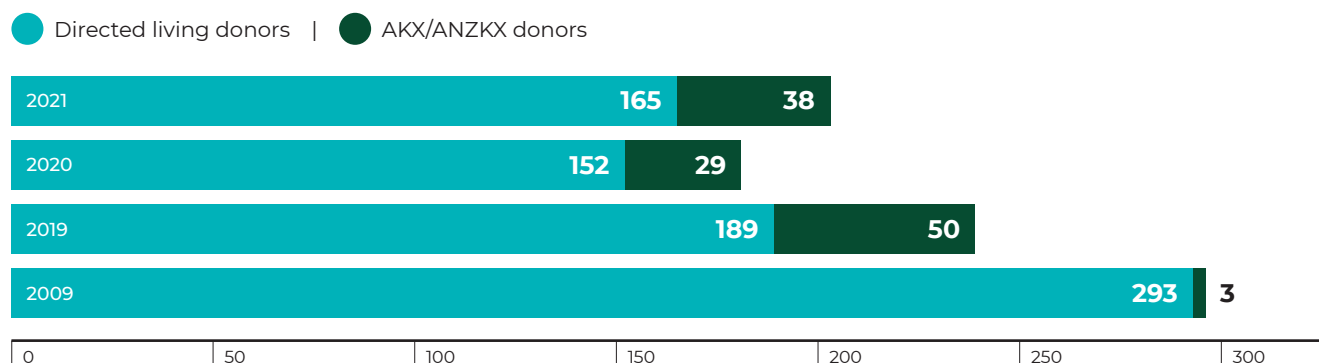
# Living organ donation and transplantation

## Living organ donation and transplantation



- ▶ A living organ donor is someone who donates a kidney, or on rare occasions a partial liver, to another person. Receiving an organ from a living donor offers an alternative to waiting on the national transplant waitlist for an organ from a deceased donor.
- ▶ There were 203 living donors in 2021 – 202 kidney donors and one partial liver donor. This result is 12% higher than the 2020 outcome of 182.
- ▶ Living kidney donation and transplantation is most often directly from a relative or close friend (directed donation).
- ▶ For some patients who are eligible for a kidney transplant and have a living donor who is willing but unable to donate directly because of an incompatible blood or tissue type, donation and transplantation is facilitated through the Australian and New Zealand Paired Kidney Exchange (ANZKX) program.
- ▶ The 2021 living kidney donors in 2021 included 38 through the ANZKX program, an increase over 2020 (29) even with trans-tasman exchanges not possible due to border closures between Australia and New Zealand due to the COVID-19 pandemic.

**Figure 17 / Living donors**



**Figure 18 / Living donation by jurisdiction**



## **Part 3**

# **Eye and tissue donation and transplantation**

## Deceased organ, eye and tissue donors

- ▶ Each year the lives of thousands of Australians are saved and transformed through the transplantation of donated tissues, including eye tissue.
- ▶ The tissues that can be transplanted include heart valves and other heart tissue, bone, tendons, ligaments, skin and parts of the eye such as the cornea and sclera.
- ▶ Unlike organs, many more people can become eye and tissue donors as these can be donated following death outside of hospital, and tissue can be stored for longer periods of time.
- ▶ Tissue banks across Australia collect tissue from deceased and living donors, process and store these tissues and then distribute them to clinicians for transplantation and other surgical uses.
- ▶ Eye and tissue donation activity increased in 2021 despite the ongoing challenges posed by the COVID-19 pandemic.
- ▶ Of the 421 deceased organ donors in 2021, 244 also donated eye and/or other tissue.
- ▶ People can be any combination of organ, eye and tissue donors.

**Figure 19 / Overlap of deceased organ, eye and tissue donors**

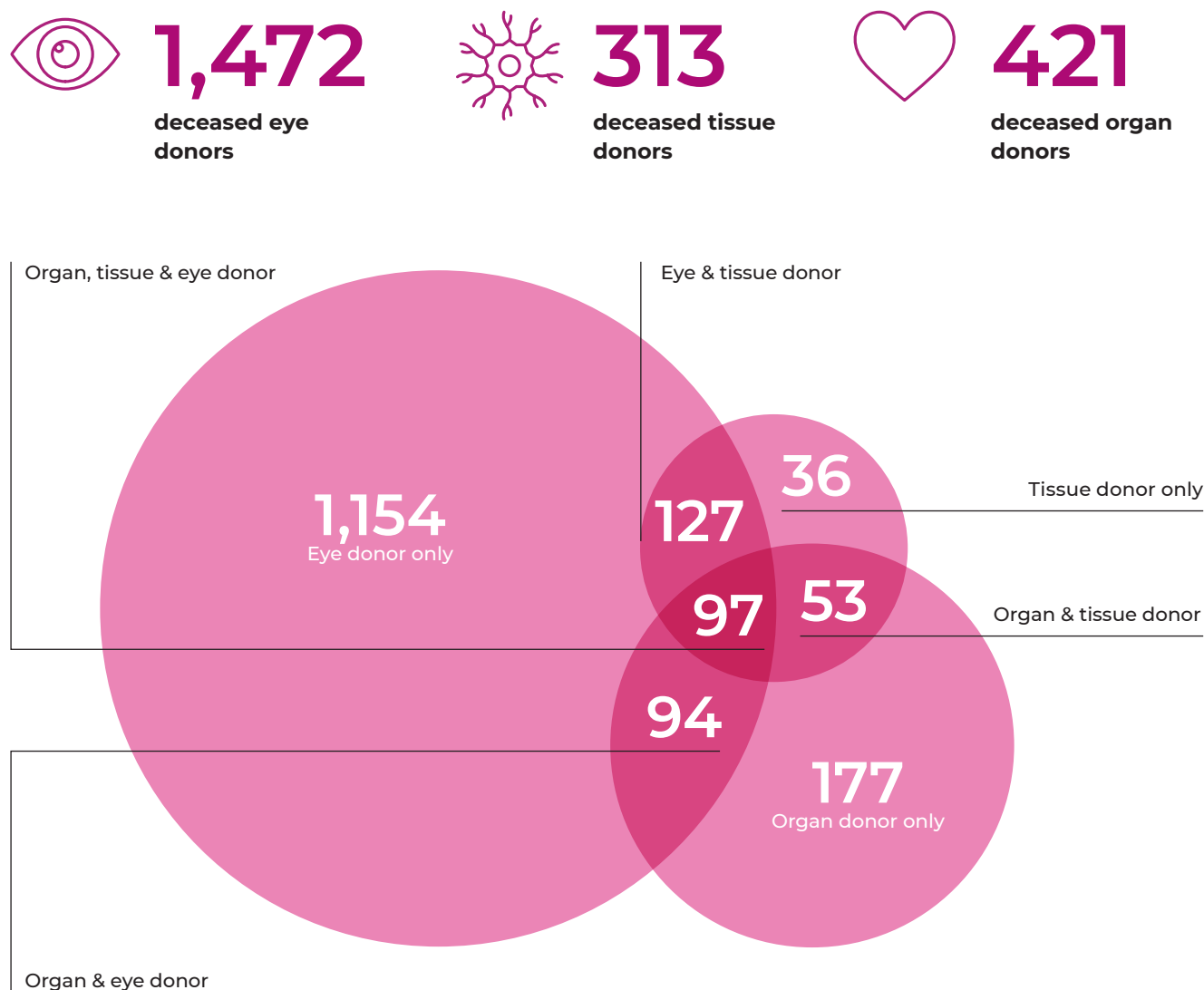
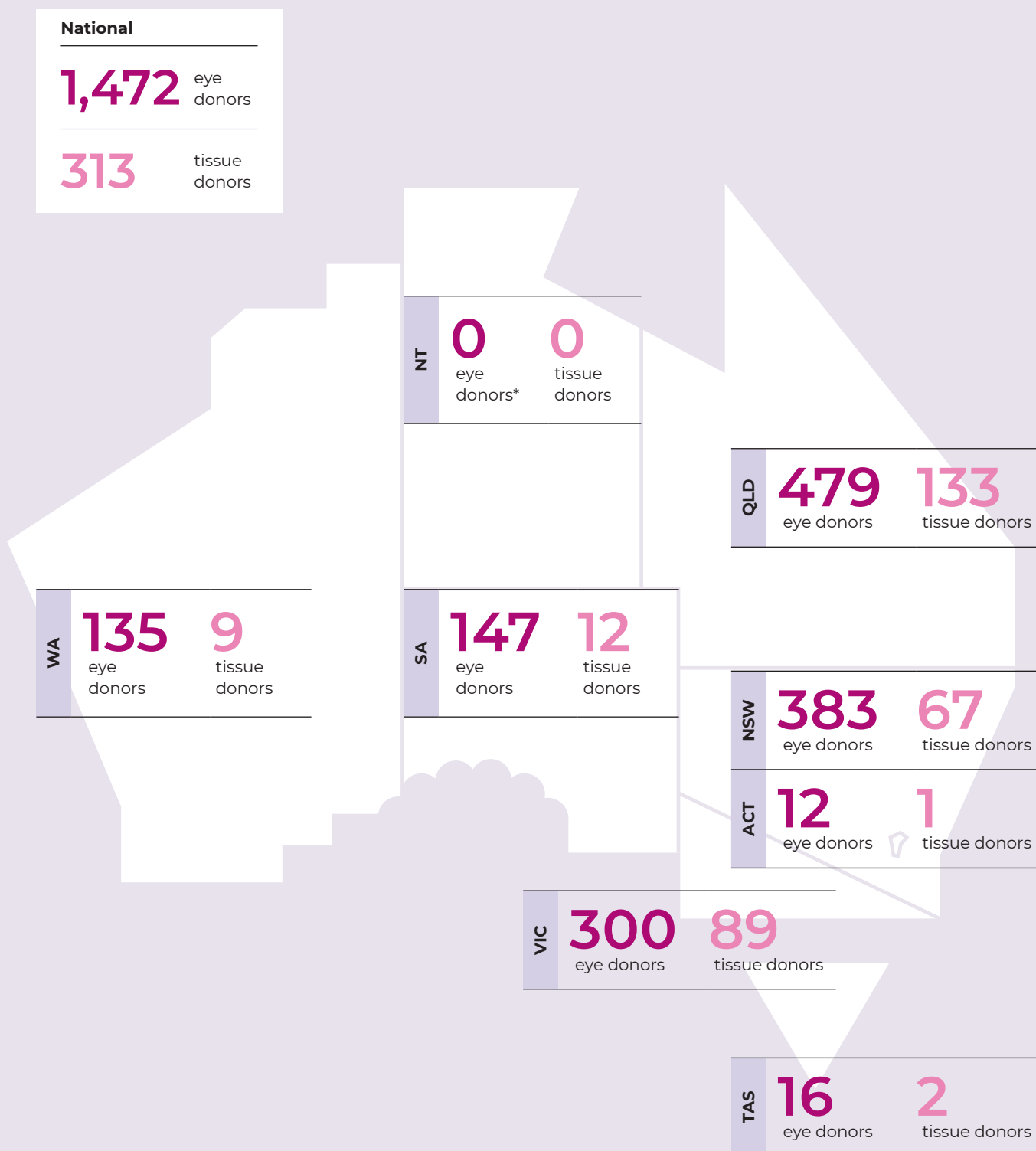


Figure 20 / Deceased eye and tissue donors by jurisdiction



\*Eye donation is not undertaken in the Northern Territory.

## Eye donation and transplantation

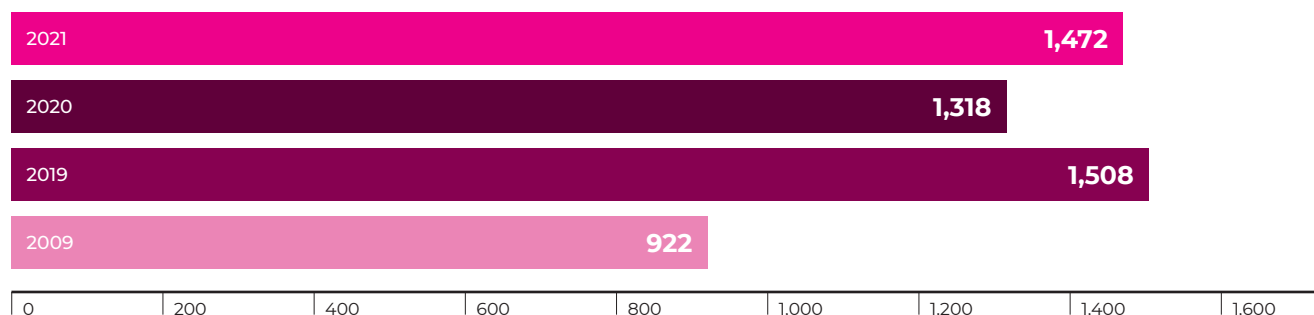
	2021	2020	Difference
Deceased eye donors	1,472	1,318	+12%
Corneal transplants	2,413	2,277	+6%

► In 2021 there were 1,472 deceased eye donors. This is a 12% increase in the number of eye donors compared with 2020 (1,318).

► There were 2,413 corneal transplants in 2021, a 6% increase compared with 2020 (2,277).  
 ► Since 2009, more than 26,000 Australians have received a corneal transplant.

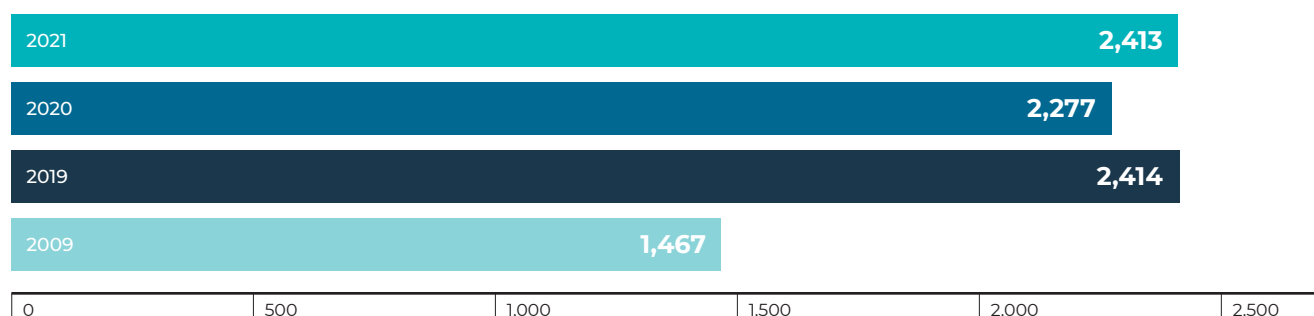
**Figure 21 / Deceased eye donors**

2021 | 2020 | 2019 | 2009



**Figure 22 / Corneal transplants**

2021 | 2020 | 2019 | 2009



Tissue donation and transplantation

2021

3,307

tissue donors comprised

=

2,994

living tissue donors  
(90%)

+

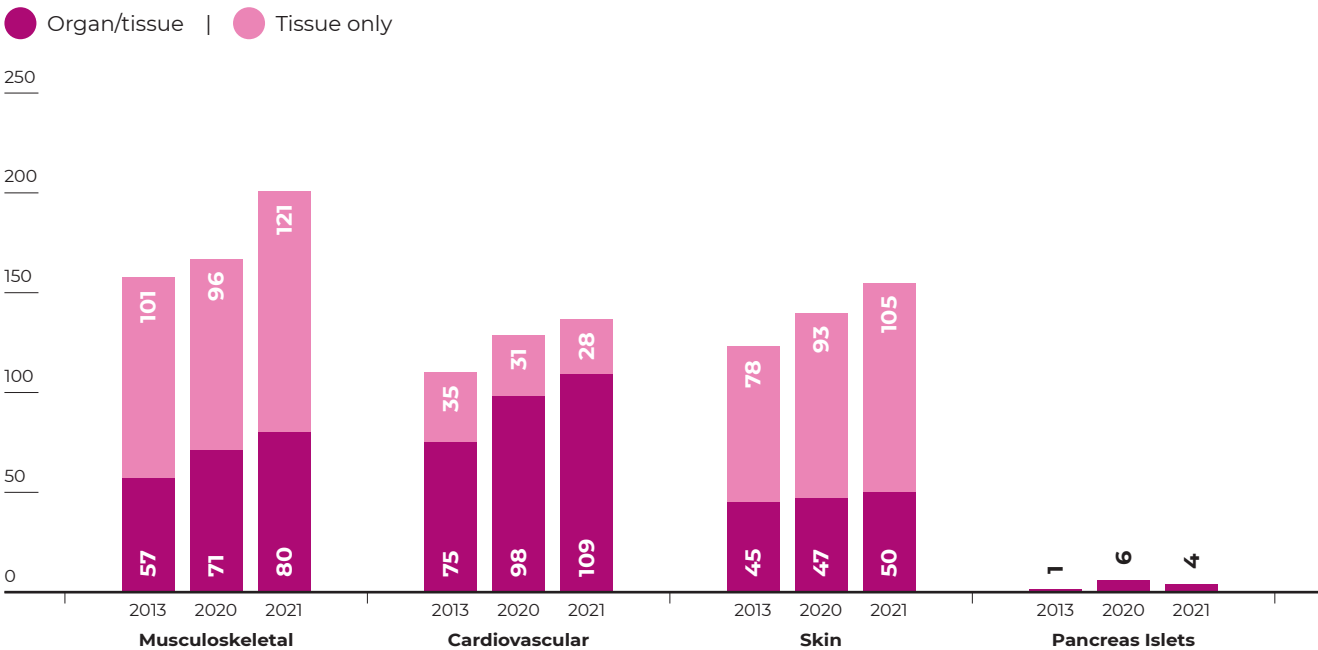
313

deceased tissue donors  
(10%)

- This is an 10% increase compared with 2020 (3,018).

► The 313 deceased tissue donors is 8% more than 2020 (290).
- National tissue donation and transplantation data was first reported in 2013.

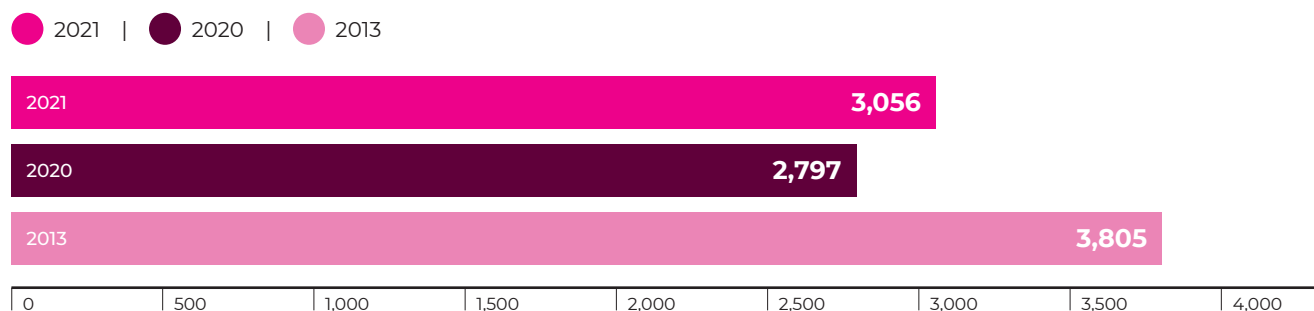
Figure 23 / Deceased tissue donations



- The 313 deceased tissue donors in 2021 resulted in 497 tissue donations (some donate multiple tissue). This represents a 12% increase in tissue donations compared with 2020 (442).

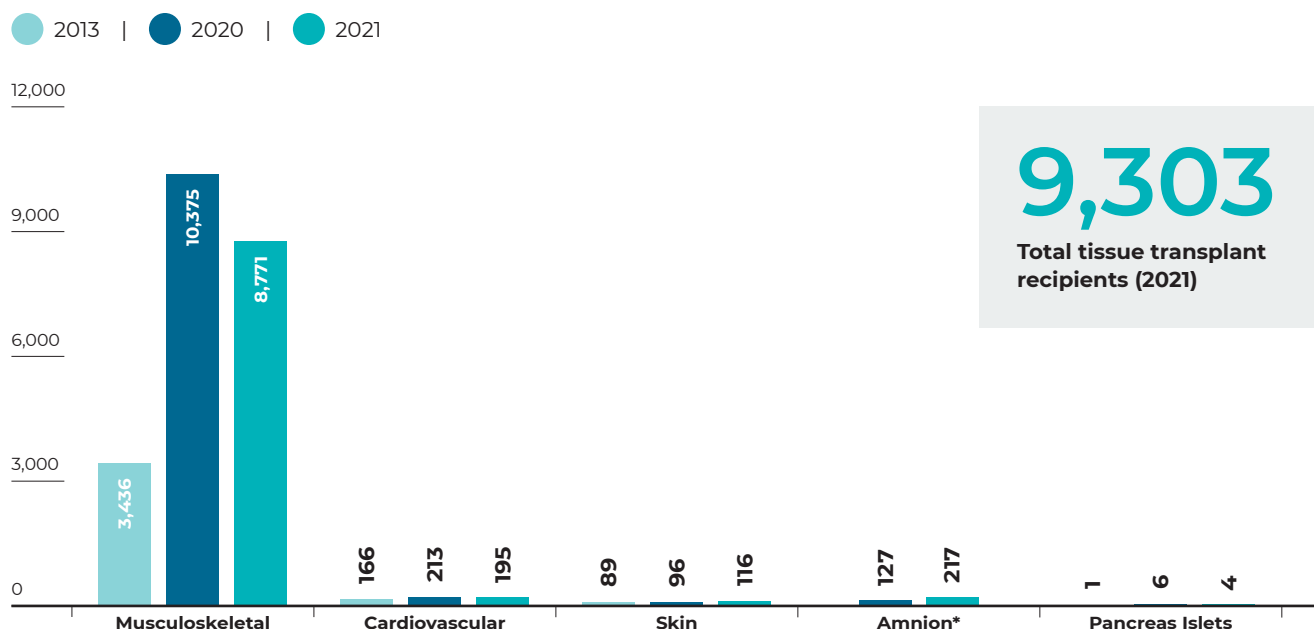
► There were 201 musculoskeletal, 137 cardiovascular and 155 skin deceased tissue donations and 4 pancreas islets donations in 2021.

**Figure 24 / Living tissue donations**



- ▶ The 2,994 living tissue donors in 2021 resulted in 3,056 living tissue donations, predominantly from patients undergoing joint replacement surgery who donate their femoral head. The number of living tissue donations is 9% higher than 2020 (2,797).

**Figure 25 / Tissue transplant recipients**



\*Amnion transplants commenced in 2019.

- ▶ In 2021 there were 9,303 reported tissue transplant recipients from both living and deceased donors. This is a 14% decrease on 2020 (10,817).
- ▶ The tissue transplant recipients included 8,771 recipients of musculoskeletal tissue, 195 recipients of cardiovascular tissue, 217 recipients of amnion tissue and 116 recipients of skin tissue and 4 pancreas islets recipients in 2021.
- ▶ While there was a drop in musculoskeletal recipients, there was a significant increase in amnion recipients as the NSW program is maturing.
- ▶ While the number of tissue donations increased in 2021, the overall number of tissue transplant recipients decreased.

## Acronyms

<b>ANZDATA</b>	Australia and New Zealand Dialysis and Transplant Registry
<b>ANZKX</b>	Australian and New Zealand Paired Kidney Exchange program
<b>ANZLITR</b>	Australia and New Zealand Liver and Intestinal Transplant Registry
<b>ANZOD</b>	Australia and New Zealand Organ Donation Registry
<b>AODR</b>	Australian Organ Donor Register
<b>DBD</b>	Donation after brain death
<b>DCD</b>	Donation after circulatory death
<b>dpmp</b>	Donors per million population
<b>ED</b>	Emergency Department
<b>ICU</b>	Intensive Care Unit
<b>trpmp</b>	Transplant recipients per million population

# References

## Deceased organ donation and transplantation

Australia and New Zealand Organ Donation (ANZOD) Registry (January 2022)

Australian Bureau of Statistics. Causes of death, Australia, 2020 (Released 29/09/2021).

Australian Bureau of Statistics. National, state and territory Population, 30 June 2021 (Released 16/12/2021).

Australian Institute of Health and Welfare 2020. Admitted patient care 2019–20 (Released 03/06/2021).

DonateLife Audit, February 2022.

Deceased organ donation in Australia, Australia and New Zealand Organ Donation Registry, January 2022.

## Living kidney donation

Australia and New Zealand Dialysis and Transplant (ANZDATA) Registry (January 2022)

## Living liver donation

Australia and New Zealand Liver and Intestinal Transplant (ANZLITR) Registry (January 2022)

## Australian Organ Donor Register

Services Australia (January 2022)

## Consent data

Australian Organ and Tissue Donation and Transplantation Authority DonateLife Audit (February 2022)

## Need help?

We aim to provide documents in an accessible format. If you're having problems using this report with your accessibility tools, or you need help understanding the data, please contact us for assistance.