



SECTION 11

Eye and Tissue Donation and Outcome Data

SUMMARY

This chapter summarises the data on tissue and eye donation and transplant outcome. The data presented here is provided by Tissue and Eye Banks across Australia, in conjunction with data collected within the solid organ donation sector, DonateLife.

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Eye and Tissue Reporting

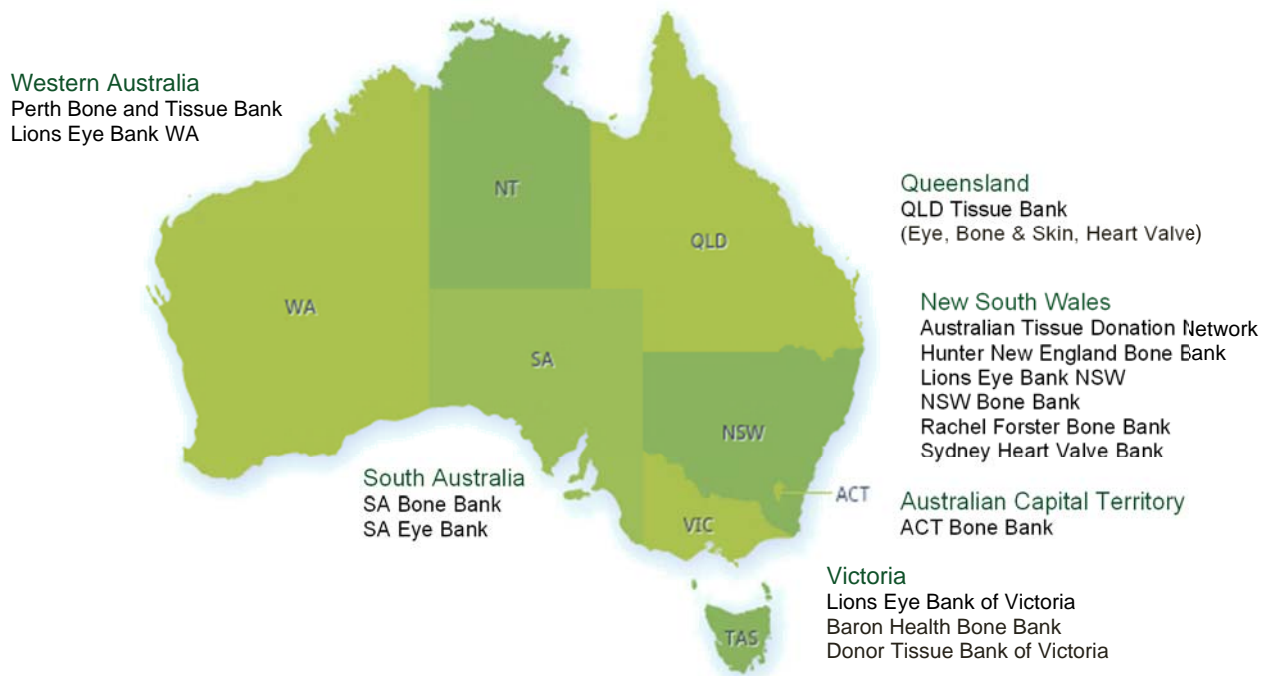
The collaboration between the Australian Organ and Tissue Authority (OTA), jurisdictional tissue and eye banks and the ANZOD Registry continues to strengthen the national reporting of tissue data. Reported datasets and analyses produced by the Registry inform the discussions held by health care professionals, policy makers, consumers and individual agencies to optimise every potential donation opportunity and to increase access to life-transforming transplantation for Australians - See more at:

<http://www.donatelife.gov.au/organ-and-tissue-authority-ota>

Tissue and Eye Banks

Tissue and Eye banks across Australia provide data for cardiovascular, musculoskeletal and skin tissue donations.

Figure 11.1 Eye and Tissue Bank Location across Australia



Musculoskeletal donations can be in the form of bone, tendon and ligaments and are utilised for knee and hip replacements, reconstructive orthopaedic surgery following trauma or disease and spinal deformities and can aid in prevention of limb loss following tumour removal. Just one musculoskeletal donation can aid many recipients and greatly improve their quality of life.

Cardiovascular tissue incorporates donations of heart valves, pericardium and thoracic aorta. Heart valves are necessary to regulate the flow of blood to and from the heart, whereas pericardium can be used during neurosurgery or, like the thoracic aorta, can also be used for vascular repair of defects or injury.

Donated skin contributes to saving lives and improving long term outcomes for patients who suffer severe burns. Donated skin is essential when a patient's own skin cannot be used for grafting. Using donated skin as a wound "dressing" helps reduce infection, fluid loss and pain, promotes wound healing and minimises scarring. Often recipients will require more than one donated graft for their wounds to heal. Skin grafts are also used to treat wounds resulting from trauma and serious infection.

Eye banks in Australia provide data for eye donation including corneal and sclera tissue donations.

Tissue Donors

In 2016, there was 4,292 tissue donors in Australia. Of these donors, 3,868 (90%) living donors and 424 (10%) deceased donors, provided 4,573 tissue donations for transplantation. Each total number excludes duplicate counts of donors who were also multi-organ and tissue donors or multi-tissue donors.

Figure 11.2 shows the number of tissue donors across each jurisdiction from 2015 to 2016. Five tissue banks in NSW accounted for 45% (1,738) of living tissue donors.

Figure 11.2 Number of Tissue Donors by Jurisdiction, 2015-16

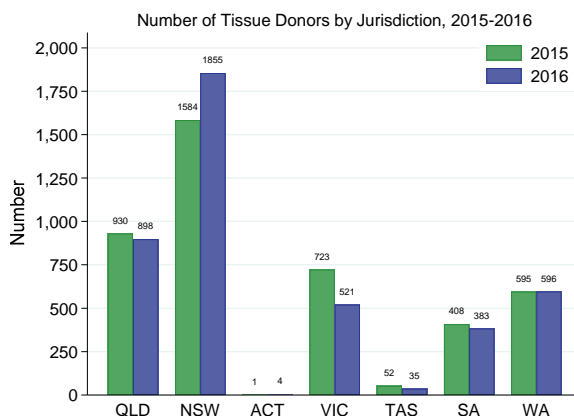


Table 11.1 summarises the number of tissue donors, by donation pathway, by jurisdiction and the percentage change in donor numbers from 2015 to 2016.

Table 11.1 Number of Tissue Donors by Donation Pathway by Jurisdiction 2015-2016

Donation Type	Jurisdiction	2015	2016	Percent change
Living Donor	QLD	794 (20.2%)	731 (18.9%)	-8%
	NSW	1490 (37.9%)	1738 (44.9%)	17%
	ACT	0 (0%)	0 (0%)	0%
	VIC	620 (15.8%)	407 (10.5%)	-34%
	TAS	49 (1.2%)	33 (.9%)	-33%
	SA	396 (10.1%)	376 (9.7%)	-5%
	NT	0 (0%)	0 (0%)	0%
	WA	579 (14.7%)	583 (15.1%)	1%
	AUS	3928 (100%)	3868 (100%)	-2%
Deceased Donor	QLD	136 (37.3%)	167 (39.4%)	23%
	NSW	94 (25.8%)	117 (27.6%)	24%
	ACT	1 (.3%)	4 (.9%)	300%
	VIC	103 (28.2%)	114 (26.9%)	11%
	TAS	3 (.8%)	2 (.5%)	-33%
	SA	12 (3.3%)	7 (1.7%)	-42%
	NT	0 (0%)	0 (0%)	0%
	WA	16 (4.4%)	13 (3.1%)	-19%
	AUS	365 (100%)	424 (100%)	16%
Total Donors	QLD	930 (21.7%)	898 (20.9%)	-3%
	NSW	1584 (36.9%)	1855 (43.2%)	17%
	ACT	1 (0%)	4 (.1%)	300%
	VIC	723 (16.8%)	521 (12.1%)	-28%
	TAS	52 (1.2%)	35 (.8%)	-33%
	SA	408 (9.5%)	383 (8.9%)	-6%
	NT	0 (0%)	0 (0%)	0%
	WA	595 (13.9%)	596 (13.9%)	0%
	AUS	4293 (100%)	4292 (100%)	0%

Figures 11.3 to 11.5 show the breakdown of Tissue Donors numbers donation pathway and jurisdiction for 2016 compared to 2015. Nationally there was a decrease in living tissue donor numbers by 2% in 2016 and increase 16% in the total number of deceased tissue donors.

Figure 11.3 Living Tissue Donors by Jurisdiction, 2015-2016

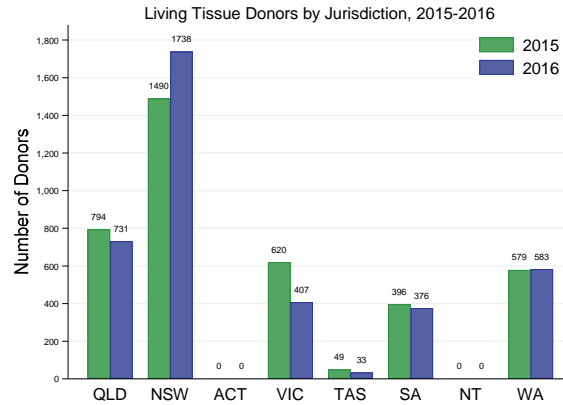
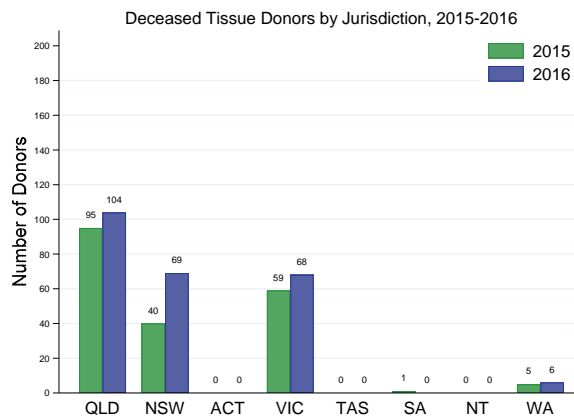
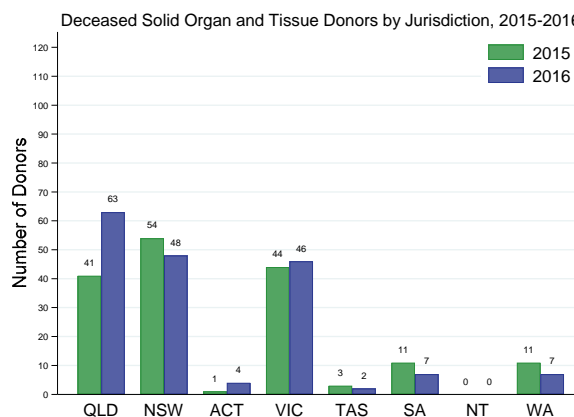


Figure 11.4 Deceased Tissue Donors by Jurisdiction, 2015-2016



In 2016, 177 (41.7%) deceased tissue donors were reported through the solid organ and tissue donation sector. These donors were referred by the DonateLife Network. Figure 11.5 provides the breakdown by jurisdiction in tissue donations from deceased solid organ and tissue donors for 2015 and 2016.

Figure 11.5 Deceased Solid Organ and Tissue Donors by Jurisdiction, 2015-2016



Tissue Donation

The 4,292 tissue donors in Australia during 2016, accounted for 4,573 tissue donations (Figure 11.6). There was an overall increase of 13.8% in 2016, in the total number (650) of tissue donations from deceased donors compared to 2015 (571). Of these 650 tissue donations, 376 (57.8%) came from tissue only donors.

Figure 11.6 Total Tissue Donation by Jurisdiction, 2015-2016

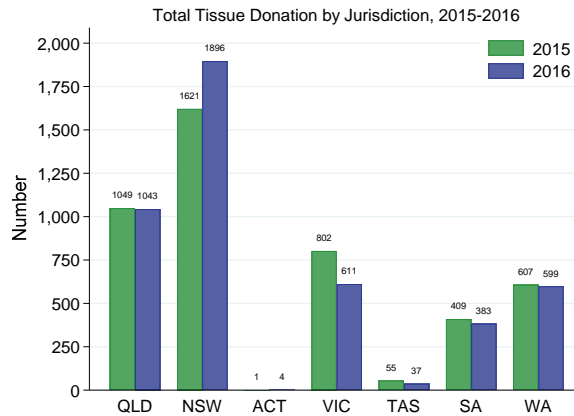


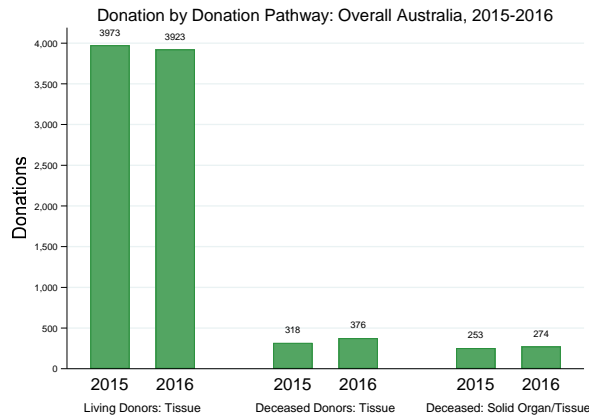
Table 11.2 shows the total number and proportion, by donation pathway, by jurisdiction and the percentage change in tissue donation from 2015 to 2016.

Table 11.2 Number of Tissue Donations by Donor Type by Jurisdiction 2015-2016

Donation Type	Jurisdiction	2015	2016	Percent Change
Living donor donations	QLD	808 (20.3%)	746 (19%)	-8%
	NSW	1509 (38%)	1772 (45.2%)	17%
	ACT	0 (0%)	0 (0%)	0%
	VIC	620 (15.6%)	408 (10.4%)	-34%
	TAS	51 (1.3%)	35 (.9%)	-31%
	SA	396 (10%)	376 (9.6%)	-5%
	WA	589 (14.8%)	586 (14.9%)	-1%
	AUS	3973 (100%)	3923 (100%)	-1%
Deceased donor donations	QLD	241 (42.2%)	297 (45.7%)	23%
	NSW	112 (19.6%)	124 (19.1%)	11%
	ACT	1 (.2%)	4 (.6%)	300%
	VIC	182 (31.9%)	203 (31.2%)	12%
	TAS	4 (.7%)	2 (.3%)	-50%
	SA	13 (2.3%)	7 (1.1%)	-46%
	WA	18 (3.2%)	13 (2%)	-28%
	AUS	571 (100%)	650 (100%)	14%
Total donations	QLD	1049 (23.1%)	1043 (22.8%)	-1%
	NSW	1621 (35.7%)	1896 (41.5%)	17%
	ACT	1 (0%)	4 (.1%)	300%
	VIC	802 (17.6%)	611 (13.4%)	-24%
	TAS	55 (1.2%)	37 (.8%)	-33%
	SA	409 (9%)	383 (8.4%)	-6%
	WA	607 (13.4%)	599 (13.1%)	-1%
	AUS	4544 (100%)	4573 (100%)	1%

Of these 4,573 donations of musculoskeletal, cardiovascular, skin and pancreas islet tissue, 3,923 (85.8%) were from live donors and 650 (14.2%) were tissue donations from deceased donors.

Figure 11.7 Donation by Donation Pathway: Overall Australia, 2015-2016



Among the 3,923 living tissue donations in Australia during 2016, NSW recorded an increase in donation numbers compared to 2015, reporting 45.2% (1,772) of living tissue donations (Figure 11.8).

Figure 11.8 Living Tissue Donation by Jurisdiction, 2015-2016

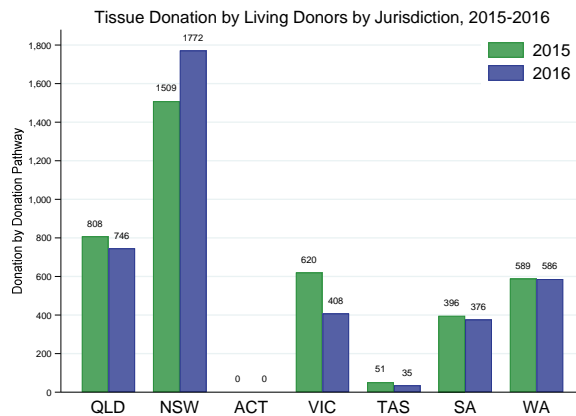


Table 11.3 Shows the breakdown of donation from living donors, by tissue type and donation.

Table 11.3 Tissue Donation from Living Donors in 2016 by State and Donation Sector			
State	Musculoskeletal	Cardiovascular	Total
QLD	746	0	746
NSW	1756	16	1772
ACT	0	0	0
VIC	402	6	408
TAS	35	0	35
SA	376	0	376
WA	586	0	586
AUS	3901	22	3923

Of the 650 tissue donations from deceased donors in 2016, 376 (57.8%) came from tissue only donor and 274 (42.2%) were reported through the solid organ and tissue donation sector. These donors were referred by the DonateLife Network. Table 11.3 shows the breakdown of donation from deceased donors, by tissue type and donation sector.

Table 11.4 Tissue Donation from Deceased Donors in 2016, by State and Donation Sector												
State	Tissue Only Sector				Solid Organ/Tissue Sector				Tissue Total			
	ms	cv	skin	pi	ms	cv	skin	pi	ms	cv	skin	pi
QLD	63	25	95	0	36	39	38	1	99	64	133	1
NSW	64	5	0	0	24	28	0	3	88	33	0	3
ACT	0	0	0	0	0	4	0	0	0	4	0	0
VIC	38	24	56	0	23	28	32	2	61	52	88	2
TAS	0	0	0	0	0	2	0	0	0	2	0	0
SA	0	0	0	0	0	5	0	2	0	5	0	2
WA	6	0	0	0	7	0	0	0	13	0	0	0
AUS	171	54	151	0	90	106	70	8	261	160	221	8

ms = musculoskeletal tissue | cv = cardiovascular tissue | pi = pancreas islets

Figures 11.9 to 11.10, show the breakdown deceased tissue only and solid organ and tissue donation, by Jurisdiction, for the period 2015 to 2016.

Figure 11.9 Tissue Donation by Deceased Donors by Jurisdiction, 2015-2016

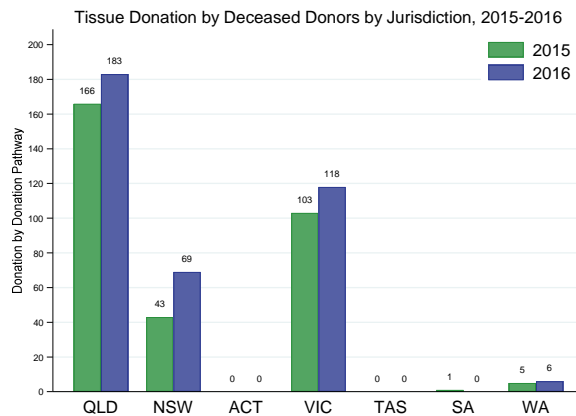
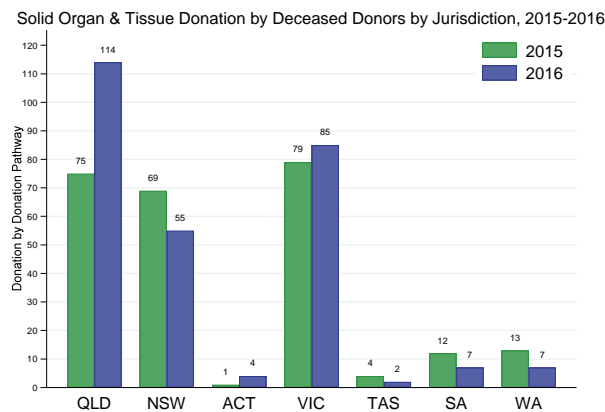


Figure 11.10 Solid Organ and Tissue Donation by Deceased Donors by Jurisdiction, 2015-2016



Type of Tissue Donation

Tissue Donations reported here are by donation pathway for musculoskeletal, cardiovascular, skin and pancreas islet tissue.

Musculoskeletal Donation

In Australia during 2016, there were 3,901 musculoskeletal tissue donations from living donors.

Figures 11.11 and 11.12 show the number of musculoskeletal tissue donations by jurisdiction for 2016 compared with 2015, from Living donors and Deceased donors. Forty five percent (1,756) of musculoskeletal of living donations were reported by the Bone Banks within New South Wales (NSW).

Figure 11.11 Musculoskeletal Donation by Living Donors, by Jurisdiction, 2015-2016

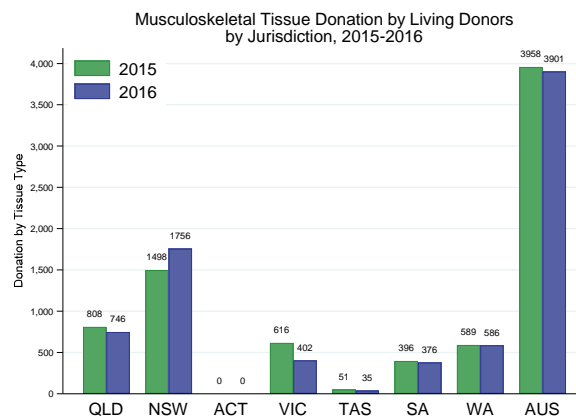
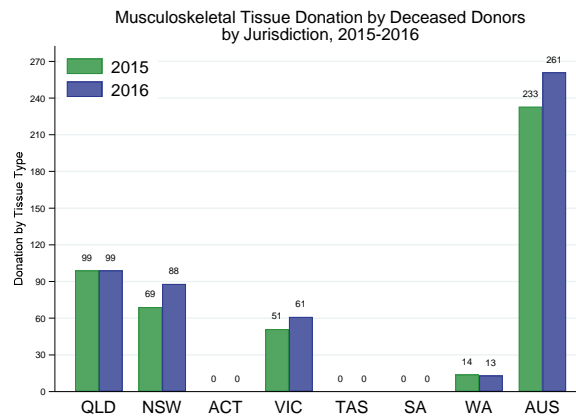


Figure 11.12 Musculoskeletal Tissue Donation from Deceased Donors by Jurisdiction, 2016



Cardiovascular Donation

Figures 11.13 and 11.14 show the breakdown by jurisdiction for cardiovascular tissue donation for the period 2016 compared to 2015. All cardiovascular tissue donations from living donors come from the eastern jurisdictions of Australia (NSW, VIC). Fifty eight percent (106) of cardiovascular donations in 2016 came from the solid organ and tissue deceased donation sector via DonateLife.

Figure 11.13 Cardiovascular Tissue Donation by Living Donors, by Jurisdiction, 2015-2016

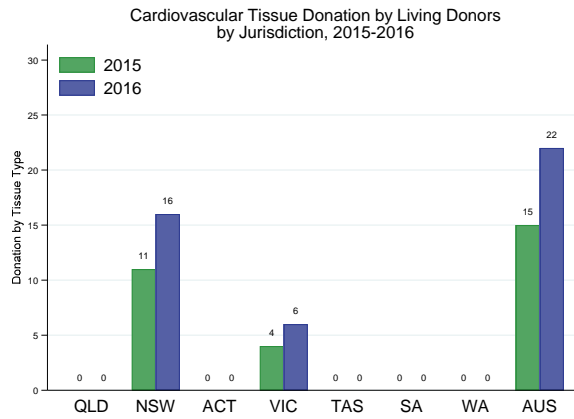
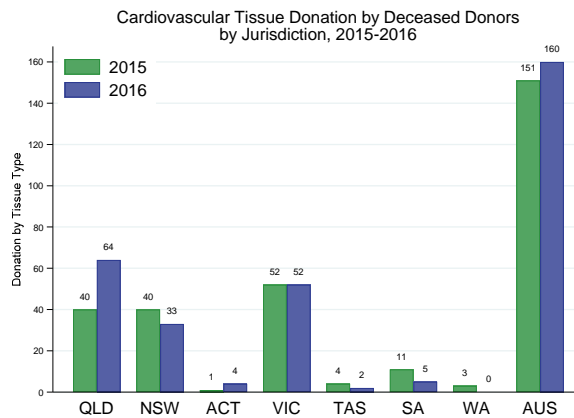


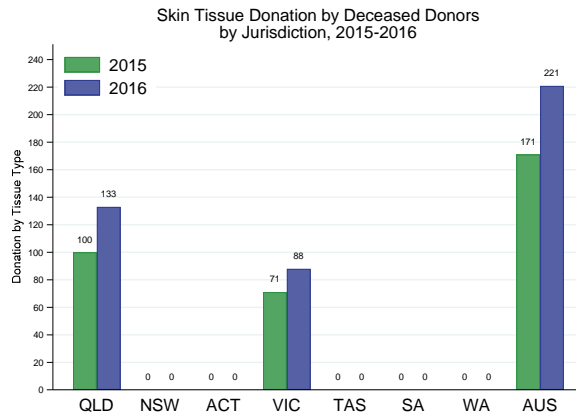
Figure 11.14 Cardiovascular Tissue Donation by Deceased Donors, by Jurisdiction, 2015-2016



Skin Donation

Queensland and Victoria are the only two jurisdictions with skin donation services in Australia. Figure 11.15 shows the breakdown of skin donations between the two jurisdictions for 2016 compared to 2015.

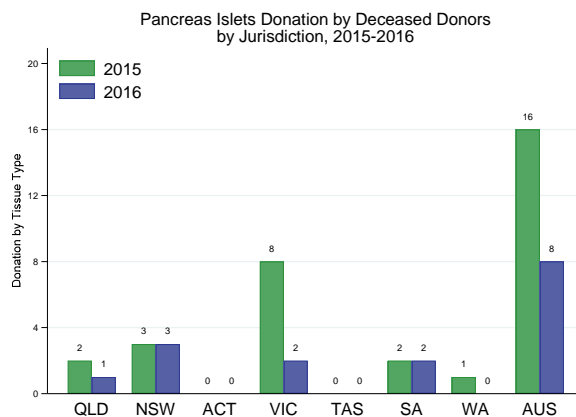
Figure 11.15 Skin Tissue Donation by Deceased Donors, by Jurisdiction, 2015-2016



Pancreas Islets Donation

Pancreas Islets are cells isolated from the pancreas of a single deceased donor from the solid organ and tissue deceased donation sector, DonateLife. There was a 50% decrease in the total number of Pancreas islet donations. Figure 11.15 shows the breakdown of pancreas islets donations for 2016 compared to 2015.

Figure 11.16 Pancreas Islets Donation by Deceased Donors, by Jurisdiction, 2015-2016



Tissue Donation Outcome

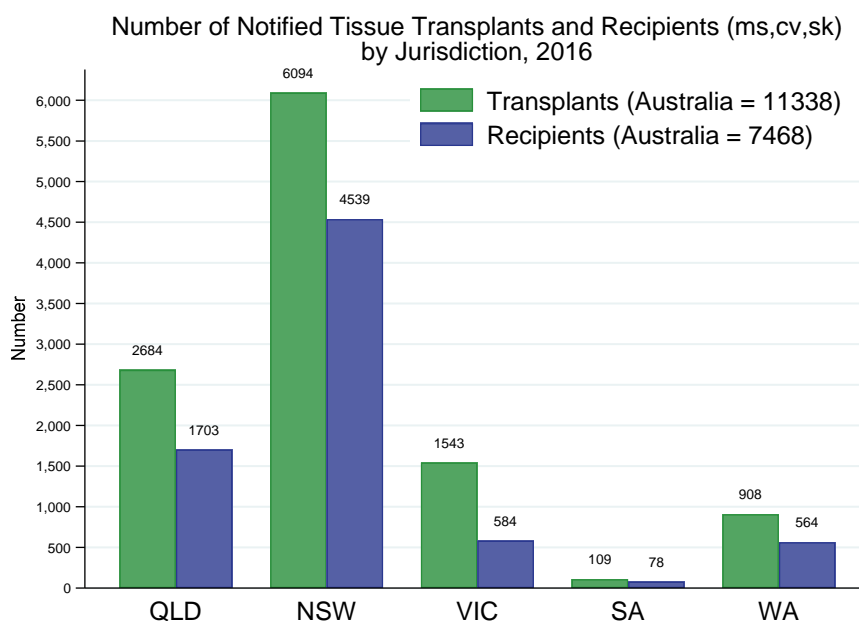
In 2016, national tissue donation outcome reporting continued to strengthen with Tissue banks providing the number of notified graft tissue transplants and the number of notified recipients of tissue transplantation.

Musculoskeletal, cardiovascular and skin tissue donated for the purpose of transplantation can be stored for a period of time before a transplant occurs. Therefore, the numbers reported for grafts and recipients of tissue, in this section, represent transplantation outcomes for the reporting period only, not the outcome of donations for the reporting period.

A tissue transplant recipient can receive one or more tissue grafts in one or more transplant events. Tissue transplantation counts are reported by tissue banks as the number of notified transplants and notified recipients from tissue retrieved by that tissue bank.

Figure 11.17 shows the number of notified ^(1,2) tissue transplants (grafts) and recipients by Jurisdiction for 2016.

Figure 11.17 Number of Notified Tissue Transplants and Recipients, by Jurisdiction, 2016



(1) Notified tissue transplant is defined as the "Number of grafts implanted into recipients, that banks have been notified of".

(2) Notified tissue recipient is defined as the "Number of recipients notified to the bank, who receive one or more graft implants during a single transplant event".

Tissue Donation Outcome by Tissue Type

The following graphs represent the outcome of tissue donation by tissue type and the number of recipients who received tissue graft transplant by tissue type. (Figures 11.18 to Figure 11.21)

Figure 11.18 shows the number of notified^(1,2) musculoskeletal tissue transplants and recipients, by Jurisdiction, for 2016. In Australia, there were 7,073 recipients who received 9,372 musculoskeletal transplants. Compared with the previous year, this is an increase of 15.8% on the total number of recipients (6,107 in 2015) and 6% on the total number of transplants (8,854 in 2015).

Figure 11.18 Number of Notified Musculoskeletal Transplants and Recipients, by Jurisdiction, 2016

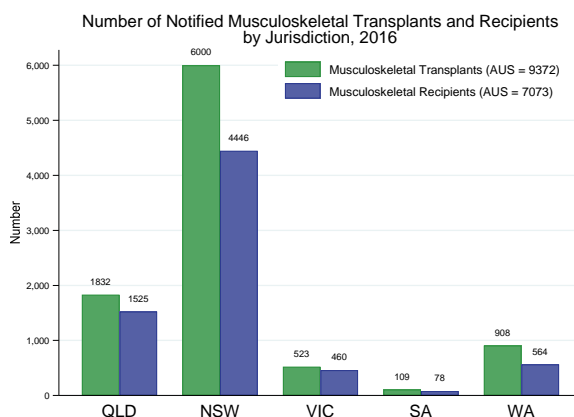


Figure 11.19 shows the number of notified^(1,2) cardiovascular tissue transplants and recipients by Australian Jurisdiction, for 2016. In Australia, there were 230 recipients who received 234 cardiovascular transplants.

Figure 11.19 Number of Notified Cardiovascular Transplants and Recipients, by Jurisdiction, 2016

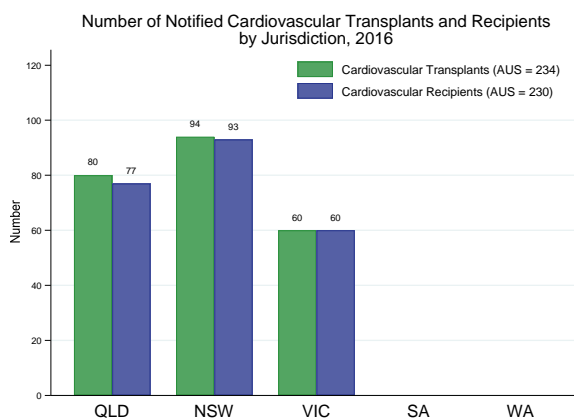
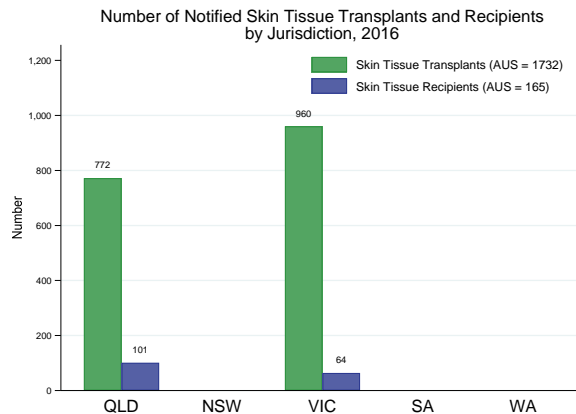


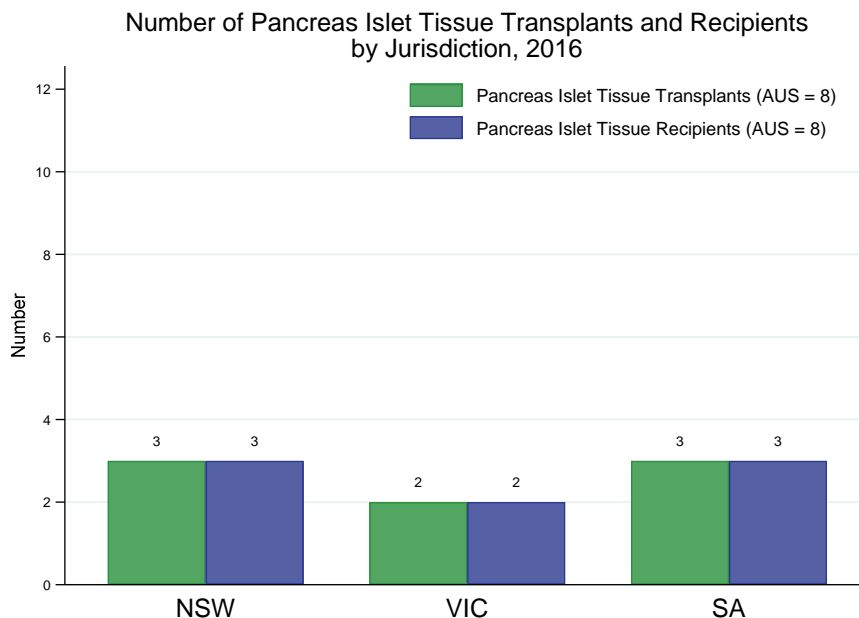
Figure 11.20 shows the number of notified ^(1,2) skin tissue transplants and recipients by Jurisdiction, for 2016. In Australia, there were 165 recipients who received 1,732 skin transplants, an increase of 85% of the total number of recipients compared with 2015 (89).

Figure 11.20 Number of Notified Skin Transplants and Recipients, by Jurisdiction, 2016



In Australia, there are three pancreas islets transplanting units (Westmead in New South Wales, Monash in Victoria and Royal Adelaide Hospital in South Australia). Figure 11.21 shows the number of notified pancreas islets transplants and recipients by Jurisdiction, for 2016. There were 8 recipients who received pancreas islets transplants.

Figure 11.21 Number of Notified Pancreas Islets Transplants and Recipients, by Jurisdiction, 2016



Eye Donors

The total numbers reported in this section may include duplicate counts of donors that are also multi-organ and tissue donors or multi-tissue donors, where the donor coordination was performed by another donation agency. Where there is no eye bank in a jurisdiction, eye donation is managed from a satellite Jurisdiction.

This data is sourced from Australian eye banks in conjunction with EBAANZ.

Figure 11.22 represents the number of eye donors from each Australian Jurisdiction for the reporting period 2015 to 2016. In 2016 there were 1,280 eye donors (Figure 11.23), compared with 1,266 in 2015.

Figure 11.22 Number of Eye Donors by Jurisdiction, 2015-2016

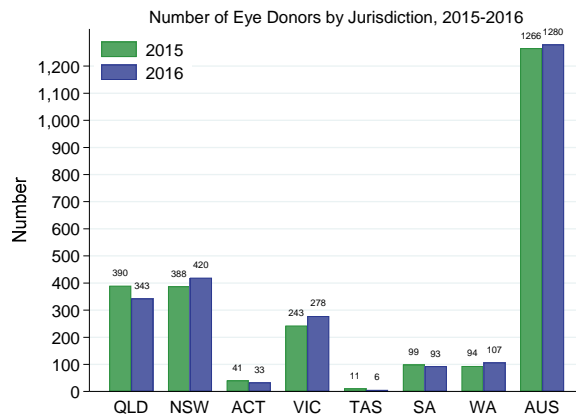
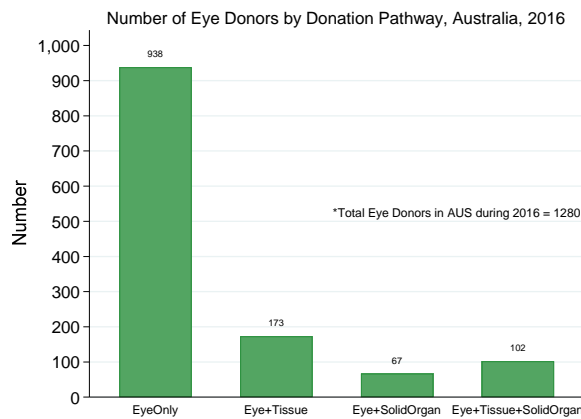


Figure 11.23 Number of Eye donors by Donation Pathway, Australia, 2016



Figures 11.24 to 11.27 represent the number of donors for jurisdictions, in 2016, by donor type. In 2016 there were 938 eye only donors (Figure 11.24), 173 donors who donated eye and tissue (Figure 11.25), 67 donors who donated eye and one or more solid organs (Figure 11.26) and 102 donors who donated eye, tissue and one or more solid organs (Figure 11.27).

Figure 11.24 Number of Eye Donors by Jurisdiction, 2016

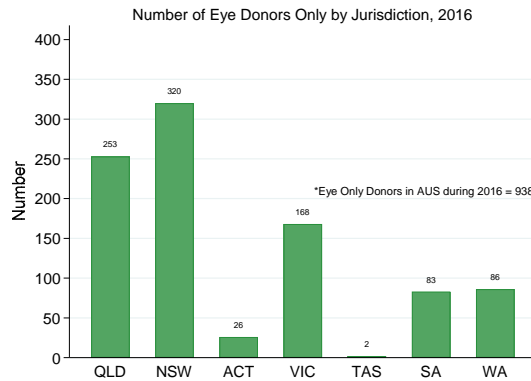


Figure 11.25 Number of Eye and Tissue Donors by Jurisdiction, 2016

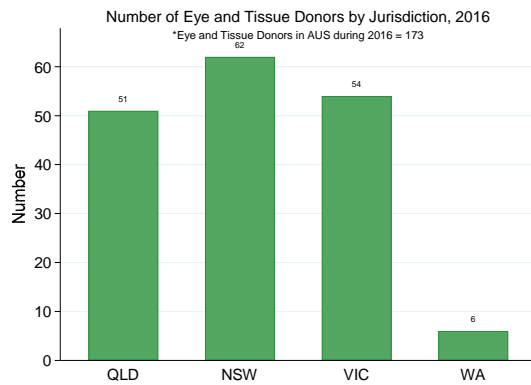


Figure 11.26 Number of Eye and Solid Organ Donors by Jurisdiction, 2016

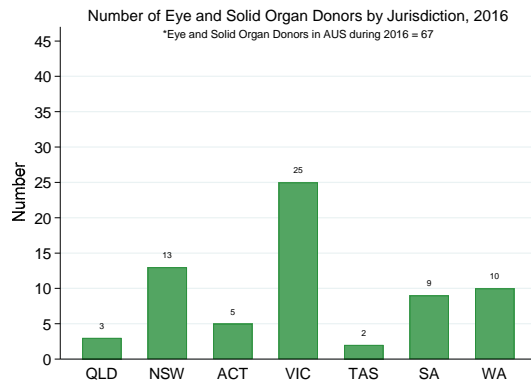
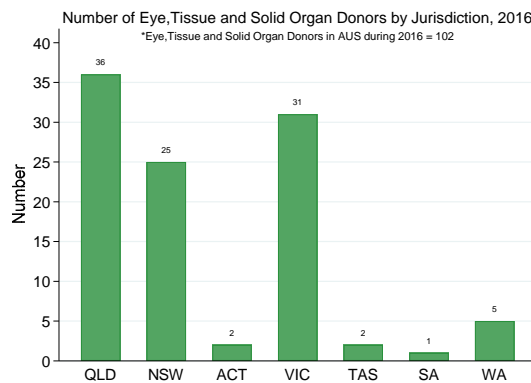


Figure 11.27 Number of Eye, Tissue and Solid Organ Donors by Jurisdiction, 2016



Eye Donation Outcome

Eye banks continued to contribute additional data elements to the national reporting in 2016 by reporting notified^(1,2) corneal graft and sclera transplantation numbers across Australia. This further strengthened the collection and reporting of eye donation and outcomes and supplements reporting by EBAANZ and the Corneal Graft Registry (ACGR) reporting. Data was sourced from eye banks in Australia.

For 2016, there were 2,085 corneal transplants and 716 sclera transplants. Other outcome data, such as, follow up data, corneal grafts survival, trends in corneal transplant practice and comparisons between corneal graft procedures is reported by the ACGR.

Considerable further information is available at

<https://www.flinders.edu.au/medicine/sites/ophthalmology/clinical/the-australian-corneal-graft-registry.cfm>.

Figure 11.28 and 11.29 show the number of notified corneal transplants and sclera units transplanted by jurisdiction for 2016.

Figure 11.28 Number of Notified Corneal Transplants by Jurisdiction for 2016

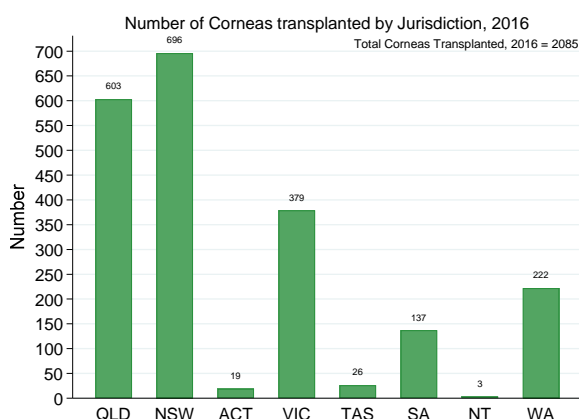
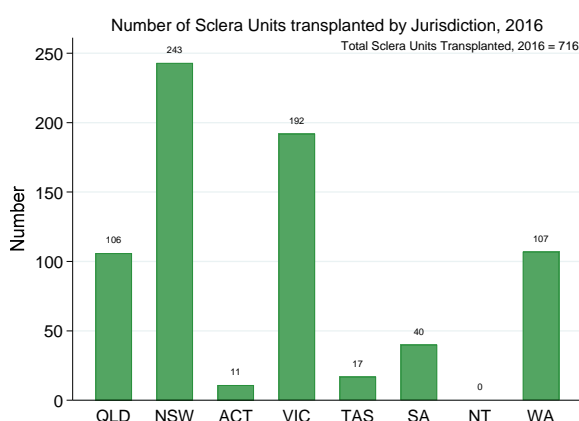


Figure 11.29 Number of Sclera Units Transplanted by Jurisdiction, 2016



(1) Notified tissue transplant is defined as the "Number of grafts implanted into recipients, that banks have been notified of".

(2) Notified tissue recipient is defined as the "Number of recipients notified to the bank, who receive one or more graft implants during a single transplant event".

Suggested Citation:

ANZOD Registry, 2017 Annual Report, Section 11: Eye and Tissue Donation Data. Australia and New Zealand Dialysis and Transplant Registry, Adelaide, Australia. 2017. Available at www.anzdata.org.au