

SECTION 10

Eye and Tissue Donation

SUMMARY

Summarising data on eye and tissue donation and transplant outcomes in 2019. The data presented here is provided by eye and tissue banks across Australia, in conjunction with data collected within the solid organ donation sector.

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Eye and Tissue Reporting

The collaboration between the Australian Organ and Tissue Authority (OTA), jurisdictional eye and tissue 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

Eye and tissue Banks

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

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 tissue donation can restore sight, prevent blindness, and dramatically change the quality of an individual's life. Donor tissue is also crucial to advancing research and developing surgical techniques. Eye banks in Australia provide data for eye donation including corneal and sclera tissue donations.

Tissue Donors

Table 10.1 summarises the number of tissue donors by donation pathway and jurisdiction from 2015 to 2019.

Table 10.1 Number of Tissue Donors by Donation Pathway and Jurisdiction 2015-2019

Donation Type	Jurisdiction	2015	2016	2017	2018	2019
	QLD	794 (20.2%)	731 (18.9%)	741 (17.8%)	419 (11%)	230 (6.5%)
	NSW	1490 (37.9%)	1737 (44.9%)	2139 (51.5%)	2303 (60.4%)	2054 (57.9%)
	ACT	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Living Daner	VIC	620 (15.8%)	407 (10.5%)	309 (7.4%)	323 (8.5%)	336 (9.5%)
Living Donor	TAS	49 (1.2%)	33 (.9%)	67 (1.6%)	32 (.8%)	7 (.2%)
	SA	396 (10.1%)	376 (9.7%)	292 (7%)	155 (4.1%)	213 (6%)
	NT	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	WA	579 (14.7%)	583 (15.1%)	608 (14.6%)	578 (15.2%)	705 (19.9%)
Total Living Donor	AUS	3928 (100%)	3867 (100%)	4156 (100%)	3810 (100%)	3545 (100%)
	QLD	135 (37.7%)	167 (39.3%)	127 (34.8%)	100 (29.5%)	108 (34.6%)
	NSW	93 (26%)	118 (27.8%)	109 (29.9%)	120 (35.4%)	86 (27.6%)
	ACT	1 (.3%)	4 (.9%)	6 (1.6%)	5 (1.5%)	5 (1.6%)
Deceased Donor	VIC	99 (27.7%)	114 (26.8%)	94 (25.8%)	79 (23.3%)	86 (27.6%)
Deceased Bollor	TAS	3 (.8%)	2 (.5%)	3 (.8%)	4 (1.2%)	3 (1%)
	SA	11 (3.1%)	7 (1.6%)	10 (2.7%)	11 (3.2%)	10 (3.2%)
	NT	0 (0%)	0 (0%)	1 (.3%)	1 (.3%)	0 (0%)

	WA	16 (4.5%)	13 (3.1%)	15 (4.1%)	19 (5.6%)	14 (4.5%)
Total Deceased Donor	AUS	358 (100%)	425 (100%)	365 (100%)	339 (100%)	312 (100%)
	QLD	929 (21.7%)	898 (20.9%)	868 (19.2%)	519 (12.5%)	338 (8.8%)
	NSW	1583 (36.9%)	1855 (43.2%)	2248 (49.7%)	2423 (58.4%)	2140 (55.5%)
	ACT	1 (0%)	4 (.1%)	6 (.1%)	5 (.1%)	5 (.1%)
	VIC	719 (16.8%)	521 (12.1%)	403 (8.9%)	402 (9.7%)	422 (10.9%)
	TAS	52 (1.2%)	35 (.8%)	70 (1.5%)	36 (.9%)	10 (.3%)
	SA	407 (9.5%)	383 (8.9%)	302 (6.7%)	166 (4%)	223 (5.8%)
	NT	0 (0%)	0 (0%)	1 (0%)	1 (0%)	0 (0%)
	WA	595 (13.9%)	596 (13.9%)	623 (13.8%)	597 (14.4%)	719 (18.6%)
Total Donors	AUS	4286 (100%)	4292 (100%)	4521 (100%)	4149 (100%)	3857 (100%)

Figure 10.1 shows the tissue donors per million population (pmp) across each donation pathway from 2015 to 2019. Figure 10.2 shows the tissue donors (pmp) across each jurisdiction from 2015 to 2019.

Figure 10.1 - Tissue Donors (pmp) by Donation Pathway, 2015-2019

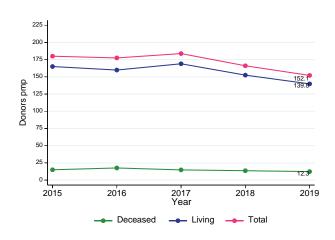
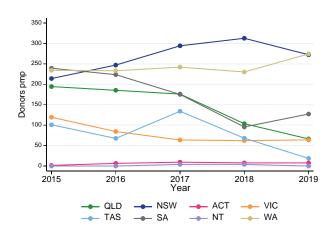


Figure 10.2 - Tissue Donors (pmp) by Jurisdiction, 2015-2019



Tissue Donor Characteristics

Tissue donor characteristics are described in Table 10.2.

Table 10.2 Donor Characteristics Profile. 2015-2019

Table 10.2 Donor Characteristics Profile, 2015-2019									
Donor Profile	2015	2016	2017	2018	2019				
Gender									
Female	2097 (48.9%)	2164 (50.4%)	2302 (50.9%)	2100 (50.6%)	2012 (52.2%)				
Male	2189 (51.1%)	2128 (49.6%)	2219 (49.1%)	2049 (49.4%)	1845 (47.8%)				
Age									
<50y	421 (9.8%)	447 (10.4%)	463 (10.2%)	486 (11.7%)	433 (11.2%)				
50-59y	825 (19.2%)	828 (19.3%)	892 (19.7%)	868 (20.9%)	841 (21.8%)				
60-69y	1463 (34.1%)	1506 (35.1%)	1492 (33%)	1374 (33.1%)	1308 (33.9%)				
70-79y	1202 (28%)	1156 (26.9%)	1299 (28.7%)	1089 (26.2%)	964 (25%)				

Figure 10.3 shows the tissue donors (pmp), across age ranges from 2015 to 2019.

Figure 10.3 - Tissue Donors (pmp) by Age Range, 2015-2019

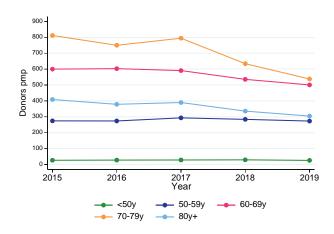
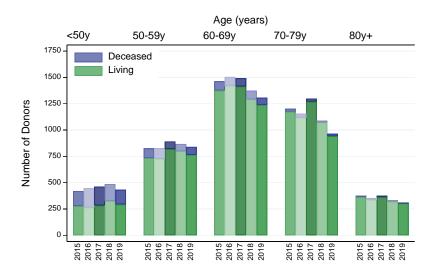


Figure 10.4 shows the number of tissue donors, by age range and donation type from 2015 to 2019.

Figure 10.4 - Number of Donors by Age Range and Donor Pathway, 2015-2019



Tissue Donation

Figure 10.5 - Donations by Donation Pathway: Overall Australia, 2015-2019

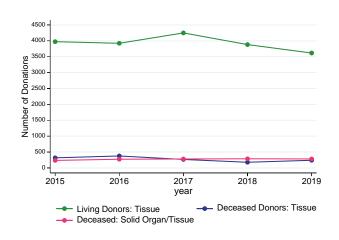


Figure 10.6 - Total Tissue Donations (pmp) by Jurisdiction, 2015-2019

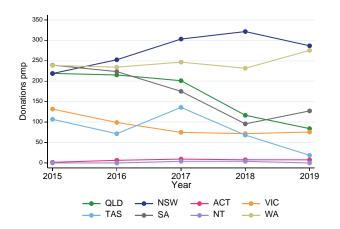


Table 10.3 shows the total number and percentage of tissue donations, by donation pathway and jurisdiction from 2015 to 2019.

Table 10.3 Number of Tissue Donations by Donor Type and Jurisdiction 2015-2019

Donation Type	Jurisdiction	2015	2016	2017	2018	2019
	QLD	808 (20.3%)	746 (19%)	763 (18%)	431 (11.1%)	241 (6.7%)
	NSW	1509 (38%)	1771 (45.2%)	2197 (51.7%)	2357 (60.7%)	2111 (58.4%)
	ACT	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Living Dency Denctions	VIC	620 (15.6%)	408 (10.4%)	309 (7.3%)	324 (8.3%)	336 (9.3%)
Living Donor Donations	TAS	51 (1.3%)	35 (.9%)	68 (1.6%)	32 (.8%)	7 (.2%)
	SA	396 (10%)	376 (9.6%)	292 (6.9%)	155 (4%)	213 (5.9%)
	NT	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	WA	589 (14.8%)	586 (14.9%)	619 (14.6%)	582 (15%)	708 (19.6%)
Living Donor Donations	AUS	3973 (100%)	3922 (100%)	4248 (100%)	3881 (100%)	3616 (100%)
	QLD	239 (43.1%)	297 (45.6%)	229 (41.7%)	153 (32.8%)	187 (35.7%)
	NSW	109 (19.6%)	125 (19.2%)	120 (21.9%)	135 (28.9%)	142 (27.1%)
	ACT	1 (.2%)	4 (.6%)	6 (1.1%)	5 (1.1%)	5 (1%)
Deceased Donor Donations	VIC	174 (31.4%)	203 (31.2%)	164 (29.9%)	139 (29.8%)	163 (31.1%)
Deceased Donor Donations	TAS	4 (.7%)	2 (.3%)	3 (.5%)	4 (.9%)	3 (.6%)
	SA	11 (2%)	7 (1.1%)	10 (1.8%)	11 (2.4%)	10 (1.9%)
	NT	0 (0%)	0 (0%)	1 (.2%)	1 (.2%)	0 (0%)
	WA	17 (3.1%)	13 (2%)	16 (2.9%)	19 (4.1%)	14 (2.7%)
Deceased Donor Donations	AUS	555 (100%)	651 (100%)	549 (100%)	467 (100%)	524 (100%)
	QLD	1047 (23.1%)	1043 (22.8%)	992 (20.7%)	584 (13.4%)	428 (10.3%)
	NSW	1618 (35.7%)	1896 (41.5%)	2317 (48.3%)	2492 (57.3%)	2253 (54.4%)
	ACT	1 (0%)	4 (.1%)	6 (.1%)	5 (.1%)	5 (.1%)
	VIC	794 (17.5%)	611 (13.4%)	473 (9.9%)	463 (10.6%)	499 (12.1%)
	TAS	55 (1.2%)	37 (.8%)	71 (1.5%)	36 (.8%)	10 (.2%)
	SA	407 (9%)	383 (8.4%)	302 (6.3%)	166 (3.8%)	223 (5.4%)
	NT	0 (0%)	0 (0%)	1 (0%)	1 (0%)	0 (0%)
	WA	606 (13.4%)	599 (13.1%)	635 (13.2%)	601 (13.8%)	722 (17.4%)
Total Donations	AUS	4528 (100%)	4573 (100%)	4797 (100%)	4348 (100%)	4140 (100%)

Figure 10.7 - Tissue Donations (pmp) from Living Donors by Jurisdiction, 2015-2019

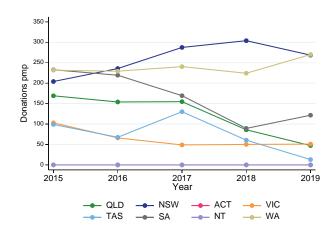


Table 10.4 shows the breakdown of donation from living donors by tissue type and jurisdiction.

Table 10.4 Tissue Donations from Living Donors by Tissue Type and Jurisdiction, 2019

Jurisdiction	Musculoskeletal	Cardiovascular	Amnion	Total
QLD	241	0	0	241
NSW	2058	12	41	2111
ACT	0	0	0	0
VIC	335	1	0	336
TAS	7	0	0	7
SA	213	0	0	213
NT	0	0	0	0
WA	708	0	0	708
AUS	3562	13	41	3616

Figures 10.8 and 10.9 show the breakdown of deceased tissue only and solid organ and tissue donation, by jurisdiction, for the period 2015 to 2019.

Figure 10.8 - Tissue Donations from Deceased Donors by Jurisdiction, 2015-2019

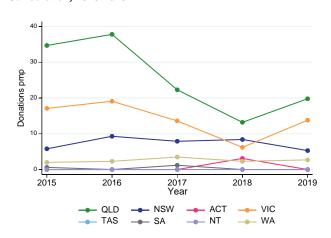


Figure 10.9 - Solid Organ and Tissue Donations (pmp) from Deceased Donors by Jurisdiction, 2015-2019

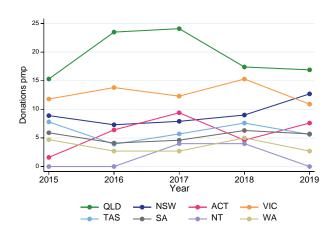


Table 10.5 shows the breakdown of donation from deceased donors by tissue type, donation sector and jurisdiction.

Table 10.5 Tissue Donations (pmp) from Deceased Donors by Jurisdiction and Donation Sector, 2019

	т	issue On	ly Sector		Solid Organ/Tissue Sector				Tissue Total			
State	ms	cv	skin	pi	ms	cv	skin	pi	ms	cv	skin	pi
QLD	51	1	49	0	32	23	30	1	83	24	79	1
NSW	31	1	10	0	32	36	25	7	63	37	35	7
ACT	0	0	0	0	2	3	0	0	2	3	0	0
VIC	34	21	36	0	25	18	24	5	59	39	60	5
TAS	0	0	0	0	0	2	0	1	0	2	0	1
SA	0	0	0	0	0	8	0	2	0	8	0	2
NT	0	0	0	0	0	0	0	0	0	0	0	0
WA	7	0	0	0	7	0	0	0	14	0	0	0
AUS	123	23	95	0	98	90	79	16	221	113	174	16

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

Type of Tissue Donation

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

Musculoskeletal Donation

Figures 10.10 and 10.11 show the number of musculoskeletal tissue donations by jurisdiction (2015 to 2019) from living and deceased donors.

Figure 10.10 - Musculoskeletal Tissue Donations (pmp) from Living Donors by Jurisdiction, 2015-2019

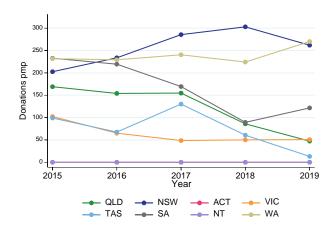
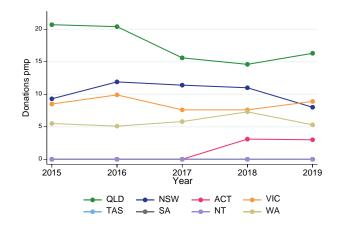


Figure 10.11 - Musculoskeletal Tissue Donations (pmp) from Deceased Donors by Jurisdiction, 2015-2019



Cardiovascular Donation

Figures 10.12 and 10.13 show the breakdown cardiovascular tissue donation by jurisdiction (2015 to 2019) from living and deceased donors.

Figure 10.12 - Cardiovascular Tissue Donations (pmp) from Living Donors by Jurisdiction, 2015-2019

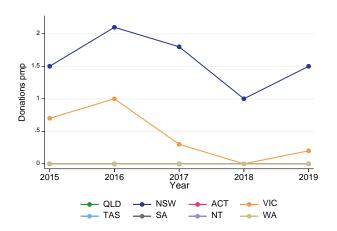
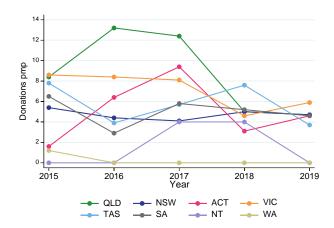


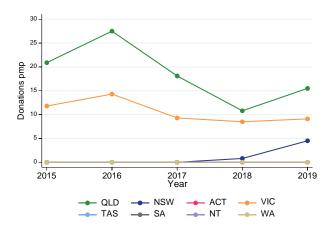
Figure 10.13 - Cardiovascular Tissue Donations (pmp) from Deceased Donors by Jurisdiction, 2015-2019



Skin Donation

Figure 10.14 shows the breakdown of skin donations by jurisdiction from 2015 to 2019.

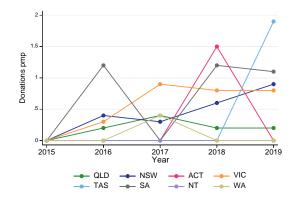
Figure 10.14 - Skin Tissue Donations (pmp) from Deceased Donors by Jurisdiction, 2015-2019



Pancreas Islet Donation

Figure 10.15 shows the breakdown of pancreas islet donations by jurisdiction from 2015 to 2019.

Figure 10.15 - Pancreas Islet Donations (pmp) from Deceased Donors by Jurisdiction, 2015-2019



Outcome of Tissue Donation

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.

Table 10.6 shows the overall number of notified^{1,2} tissue transplants (grafts) and recipients for 2015-2019.

Table 10.6 Notified Tissue Transplants and Recipients, 2015-2019

	2015	2016	2017	2018	2019
Transplants	10582	11338	10973	11969	15895
Recipients	6408	7468	7474	8258	10086

Figure 10.16 shows the number of notified^{1,2} tissue transplants (grafts) and recipients per million population for 2015-2019.

Figure 10.16 - Notified Tissue Transplants and Recipients (pmp), 2015-2019

Outcome of Tissue Donation 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 10.17 to Figure 10.20)

Figure 10.17 shows the number of notified^{1,2} musculoskeletal tissue transplants and recipients by jurisdiction for 2019.

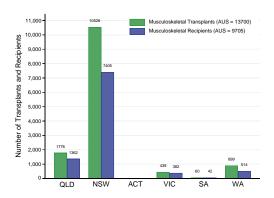


Figure 10.17 - Number of Notified Musculoskeletal Transplants and Recipients by Jurisdiction, 2019

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

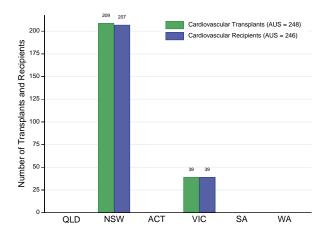
² Notified tissue recipient is defined as the 'Number of recipients notified to the bank, who receive one or more graft implants during a single transplant event'.

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'.

Figure 10.18 shows the number of notified 1.2 cardiovascular tissue transplants and recipients by jurisdiction for 2019.

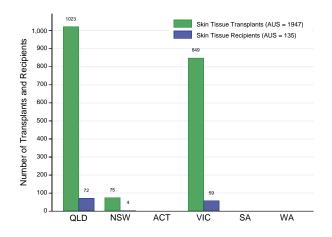
Figure 10.18 - Number of Notified Cardiovascular Transplants and Recipients by Jurisdiction, 2019



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

Figure 10.19 shows the number of notified^{1,2} skin tissue transplants and recipients by jurisdiction for 2019.

Figure 10.19 - Number of Notified Skin Tissue Transplants and Recipients by Jurisdiction, 2019



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

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 10.20 shows the number of notified^{1,2} pancreas islet transplants and recipients by jurisdiction for 2019.

Figure 10.20 - Number of Pancreas Islet Tissue Transplants and Recipients by Jurisdiction, 2019



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'.

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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.

Table 10.7 shows the total number of eye donors by jurisdiction from 2015 to 2019.

Table 10.7 Number of Eye Donors by Jurisdiction 2015-2019

Jurisdiction	2015	2016	2017	2018	2019
QLD	390	343	415	418	454
NSW	388	420	380	417	406
ACT	41	33	46	32	21
VIC	243	278	279	282	334
TAS	11	6	13	5	20
SA	99	93	99	111	135
NT	0	0	0	0	0
WA	94	107	137	129	138
AUS	1266	1280	1369	1394	1508

Figure 10.21 represents the number of eye donors from each Australian jurisdiction for the reporting period 2015 to 2019. Figure 10.22 represents the number of eye donors by donation pathway from 2015 to 2019

Figure 10.21 - Eye Donors (pmp) by Jurisdiction, 2015-2019

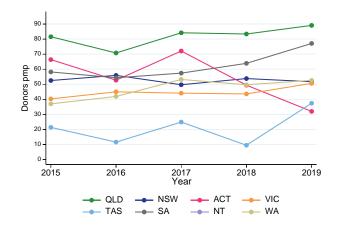
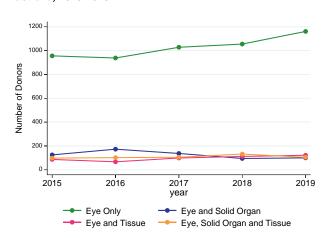


Figure 10.22 - Number of Eye Donors by Donation Pathway, Australia, 2015-2019



Figures 10.23 to Figure 10.26 represent the number of donors by donor type and jurisdiction, for 2019.

Figure 10.23 - Eye Donors only (pmp) by Jurisdiction, 2015-2019

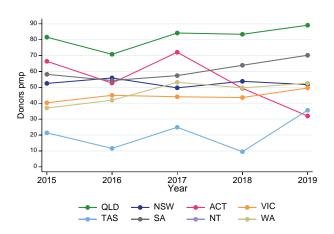


Figure 10.25 - Eye and Solid Organ Donors (pmp) by Jurisdiction, 2015-2019

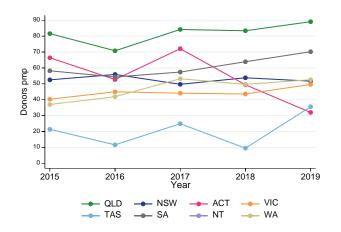


Figure 10.24 - Eye and Tissue Donors (pmp) by Jurisdiction, 2015-2019

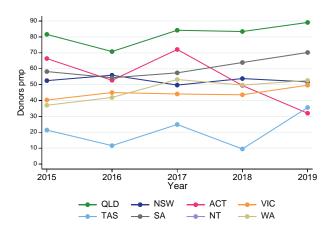
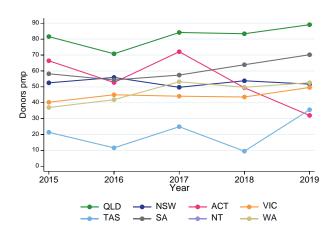


Figure 10.26 - Eye, Tissue and Solid Organ Donors (pmp) by Jurisdiction, 2015-2019



Eye Donor Characteristics

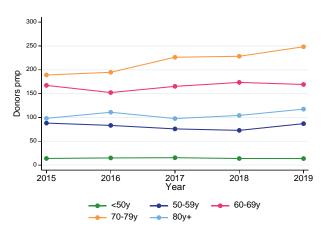
Eye donor characteristics are described in Table 10.8.

Table 10.8 Donor Characteristics Profile, 2015-2019

Donor Profile	2015	2016	2017	2018	2019
Gender					
Female	505 (39.9%)	492 (38.4%)	536 (39.2%)	568 (40.7%)	585 (38.8%)
Male	761 (60.1%)	788 (61.6%)	833 (60.8%)	826 (59.3%)	923 (61.2%)
Age					
<50y	223 (17.6%)	244 (19.1%)	257 (18.8%)	231 (16.6%)	233 (15.5%)
50-59y	265 (20.9%)	252 (19.7%)	231 (16.9%)	223 (16%)	268 (17.8%)
60-69y	408 (32.2%)	380 (29.7%)	417 (30.5%)	445 (31.9%)	442 (29.3%)
70-79y	280 (22.1%)	300 (23.4%)	370 (27%)	392 (28.1%)	445 (29.5%)
80y+	90 (7.1%)	104 (8.1%)	94 (6.9%)	103 (7.4%)	120 (8%)

Figure 10.27 shows the eye donors (pmp), across age ranges from 2015 to 2019.

Figure 10.27 - Eye Donors (pmp) by Age Range, 2015-2019



Eye Donation Outcome

Figures 10.28 and Figure 10.29 show the number of notified corneal transplants and sclera units transplanted by jurisdiction for 2015-2019.

Table 10.9 shows the total number of corneas and sclera units transplanted by jurisdiction from 2015 to 2019.

Table 10.9 Number of Corneas and Sclera Units transplanted by Jurisdiction 2015-2019

Eye Tissue Type	Jurisdiction	2015	2016	2017	2018	2019
	QLD	670	603	654	707	730
	NSW	668	696	655	692	727
	ACT	20	19	21	14	18
Company Transplanted	VIC	389	379	411	429	455
Corneas Transplanted	TAS	23	26	32	21	38
	SA	158	137	151	144	192
	NT	5	3	2	7	1
	WA	191	222	249	223	253
Total Corneas Transplanted	AUS	2124	2085	2175	2237	2414
	QLD	130	106	107	118	173
	NSW	251	243	297	272	273
	ACT	7	11	13	9	8
Colore Unite Transmission	VIC	177	192	204	205	244
Sclera Units Transplanted	TAS	14	17	24	14	22
	SA	30	40	44	40	75
	NT	0	0	0	0	3
	WA	145	107	123	161	137
Total Sclera Units Transplanted	AUS	754	716	812	819	935

Figure 10.28 - Corneas Transplanted (pmp) by Jurisdiction, 2015-2019

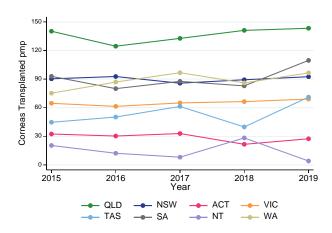


Figure 10.29 - Sclera Units Transplanted (pmp) by Jurisdiction, 2015-2019

