



ANZLITR Report for:
Victorian Legislative Assembly’s Legal and Social Issues Committee
Inquiry into increasing the number of registered organ and tissue donors.

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1 Liver Transplant Data (2002 – 2022)

1.1 Liver overview

1,191 recipients had their first liver transplant in Victoria between 01/01/2002 and 31/12/2022.

1,296 liver grafts were transplanted in Victoria between 01/01/2002 and 31/12/2022.

Note:

- recipients can be retransplanted if grafts fail so more grafts than recipients.
- recipients with their first transplant prior to 2002 but were retransplanted between 01/01/2002 and 31/12/2022 are not included in the Patient data but are included in the Graft data.

1.2 Recipients' first liver transplant (1,191 recipients)

1.2.1 Liver recipient demographic data

Recipient data is based on recipients who had their **first** liver transplant in Victoria between 01/01/2002 and 31/12/2022.

Table 1. Liver transplant recipients by gender

| Gender | Paediatric <16y | Adult >=16y | Total recipients |
|-----------------------|-----------------|--------------|------------------|
| Female | 97 | 337 | 434 |
| Male | 90 | 667 | 757 |
| All recipients | 187 | 1,004 | 1,191 |

Table 2. Liver transplant recipients by gender (percentage of age group)

| Gender | Paediatric <16y | Adult >=16y | Total recipients |
|--------|-----------------|-------------|------------------|
| Female | 51.9% | 33.6% | 36.4% |
| Male | 48.1% | 66.4% | 63.6% |

Table 3. Liver transplant recipients age statistics

| Age Group at Transplant | Number | Mean (years) | Standard Deviation | Minimum (years) | Maximum (years) |
|-------------------------|--------------|--------------|--------------------|-----------------|-----------------|
| Paediatric <16y | 187 | 4.8 | 4.5 | 0.4 | 15.9 |
| Adult >=16y | 1,004 | 52.3 | 11.8 | 16.1 | 72.7 |
| All recipients | 1,191 | 44.9 | 20.5 | 0.4 | 72.7 |

Table 4. Liver transplant recipients by age strata

| Age Strata at Transplant | Number |
|--------------------------|--------|
| <1y | 36 |
| 1-2y | 63 |
| 3-9y | 58 |
| 10-15y | 30 |
| 16-29y | 61 |
| 30-39y | 83 |
| 40-49y | 208 |
| 50-59y | 363 |
| 60-69y | 279 |
| 70 years or older | 10 |

Table 5. Liver transplant recipients by race

| Race | Paediatric <16y | Adult ≥16y | Total recipients |
|--------------------------|--------------------|---------------|---------------------|
| Aboriginal | 1 | 4 | 5 |
| Arab | 11 | 37 | 48 |
| Caucasian | 102 | 592 | 694 |
| Chinese | 4 | 26 | 30 |
| Cook Islander | 1 | | 1 |
| Filipino | 1 | 3 | 4 |
| Indian | 7 | 15 | 22 |
| Indonesian | | 4 | 4 |
| Japanese | 1 | 1 | 2 |
| Malay | 1 | 3 | 4 |
| Maori | | 3 | 3 |
| Other | 9 | 109 | 118 |
| Pacific Islander - other | | 5 | 5 |
| Samoan | | 6 | 6 |
| Tongan | | 2 | 2 |
| Vietnamese | 5 | 52 | 57 |
| Not recorded | 44 | 142 | 186 |
| Total | 187 | 1,004 | 1,191 |

1.2.2 Liver patient survival

Kaplan Meier patient survival analysis was undertaken using IBM SPSS Statistics (version 29).

Patients are classified as either alive (censored at date of last contact (DLC) or 31/12/2022 if DLC after that date) or dead. Patients may have undergone retransplantation in the time period. Retransplantation is not considered an event and the patient is not censored at retransplantation for patient survival analysis.

Figure 1. Patient survival curve - liver

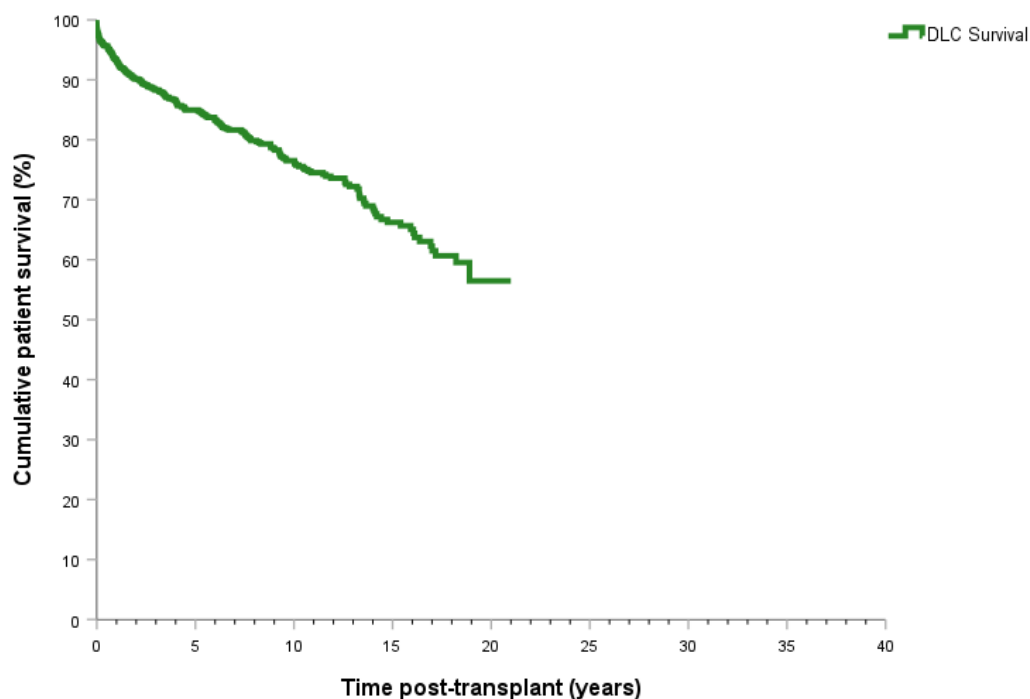


Table 6. Patient survival data for liver transplant recipients

| Patient Survival | Time post-transplant (years) | | | | | | | | |
|------------------|------------------------------|-------|-----|-----|-----|-----|-----|----|----|
| | 0 | 1 | 3 | 5 | 10 | 15 | 20 | 25 | 30 |
| No. at risk | 1,191 | 1,005 | 826 | 643 | 323 | 128 | 13 | 0 | |
| Survival (%) | | 93% | 88% | 85% | 77% | 66% | 57% | | |

1.3 Liver graft data (1,296 grafts)

Graft data includes all liver transplant grafts in Victoria between 01/01/2002 and 31/12/2022.

1.3.1 Liver graft Information

Table 7. Number of liver grafts by year

| Year of Transplant | Grafts |
|--------------------|--------------|
| 2002 | 36 |
| 2003 | 30 |
| 2004 | 40 |
| 2005 | 36 |
| 2006 | 40 |
| 2007 | 41 |
| 2008 | 48 |
| 2009 | 52 |
| 2010 | 57 |
| 2011 | 55 |
| 2012 | 62 |
| 2013 | 66 |
| 2014 | 74 |
| 2015 | 72 |
| 2016 | 81 |
| 2017 | 78 |
| 2018 | 107 |
| 2019 | 85 |
| 2020 | 85 |
| 2021 | 74 |
| 2022 | 77 |
| Total | 1,296 |

Table 8. Number of liver grafts by year by type of donor

| Transplant Year | Grafts transplanted | DCD (cardiac death) | HBD (heart beating) | Living Donor |
|-----------------|---------------------|---------------------|---------------------|--------------|
| 2002 | 36 | | 36 | |
| 2003 | 30 | | 30 | |
| 2004 | 40 | | 40 | |
| 2005 | 36 | | 36 | |
| 2006 | 40 | | 40 | |
| 2007 | 41 | 1 | 39 | 1 |
| 2008 | 48 | 2 | 46 | |
| 2009 | 52 | | 52 | |
| 2010 | 57 | 2 | 55 | |
| 2011 | 55 | 2 | 53 | |
| 2012 | 62 | 9 | 53 | |
| 2013 | 66 | 5 | 61 | |
| 2014 | 74 | 7 | 67 | |
| 2015 | 72 | 3 | 68 | 1 |
| 2016 | 81 | 9 | 72 | |
| 2017 | 78 | | 77 | 1 |
| 2018 | 107 | 3 | 104 | |
| 2019 | 85 | 5 | 79 | 1 |
| 2020 | 85 | 6 | 79 | |
| 2021 | 74 | 6 | 67 | 1 |
| 2022 | 77 | 8 | 69 | |
| Total | 1,296 | 68 | 1,223 | 5 |

1.3.2 Liver graft survival

Kaplan Meier graft survival analysis was undertaken using IBM SPSS Statistics (version 29).

Grafts are classified as either functioning (censored at date of last contact) or failed (due to death or re-transplantation).

Figure 2. Graft survival curve - liver

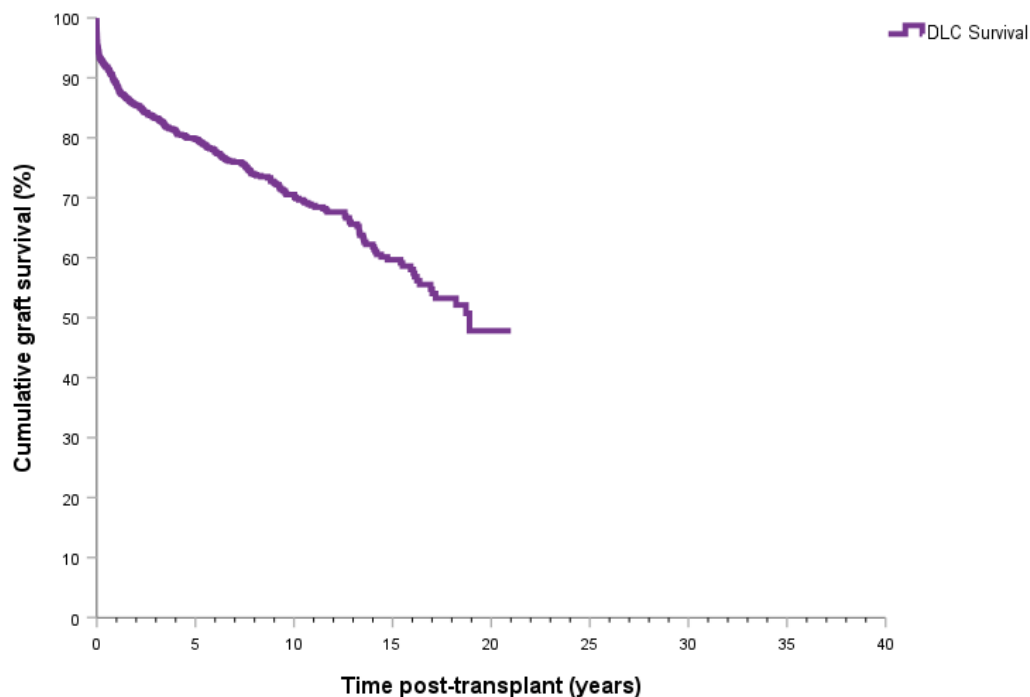


Table 9. Graft survival data for liver transplant recipients

| Graft Survival | Time post-transplant (years) | | | | | | | | |
|----------------|------------------------------|-------|-----|-----|-----|-----|-----|----|----|
| | 0 | 1 | 3 | 5 | 10 | 15 | 20 | 25 | 30 |
| No. at risk | 1,296 | 1,045 | 845 | 650 | 324 | 125 | 12 | 0 | |
| Survival (%) | | 89% | 83% | 80% | 71% | 60% | 48% | | |

1.4 Liver transplant waitlist

1.4.1 Liver waitlist outcomes by year

Figure 3. Liver waitlist outcomes by year

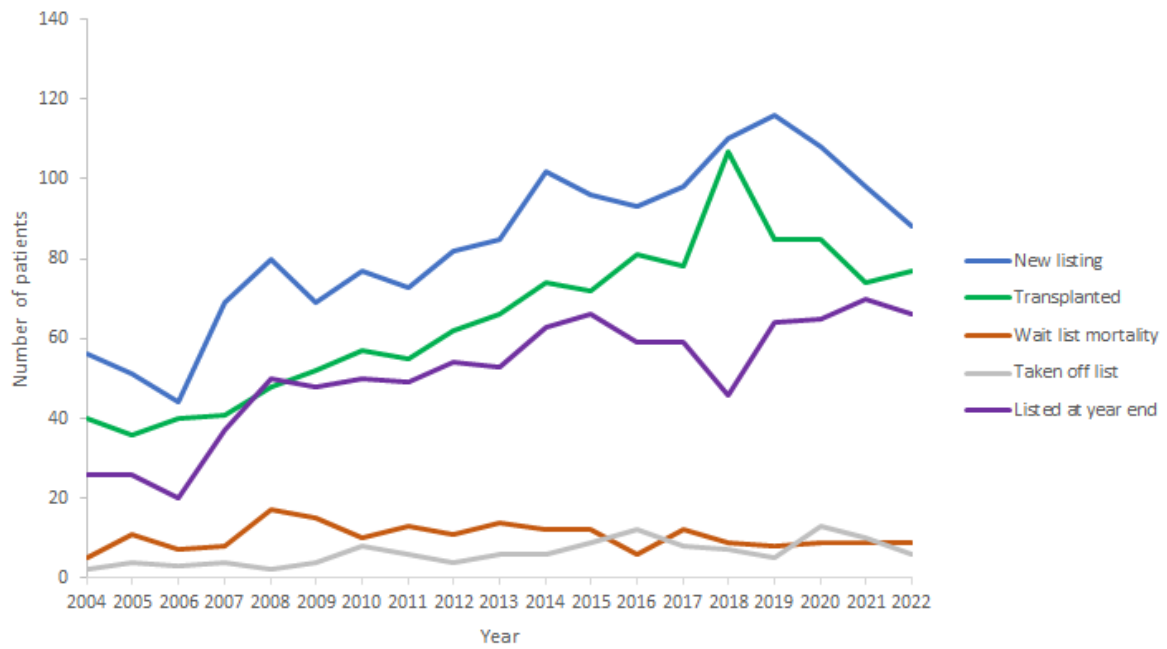


Table 10. Liver waitlist outcomes by year

| Victoria | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| New listing | 56 | 51 | 44 | 69 | 80 | 69 | 77 | 73 | 82 | 85 | 102 | 96 | 93 | 98 | 110 | 116 | 108 | 98 | 88 |
| Transplanted | 40 | 36 | 40 | 41 | 48 | 52 | 57 | 55 | 62 | 66 | 74 | 72 | 81 | 78 | 107 | 85 | 85 | 74 | 77 |
| Wait list mortality | 5 | 11 | 7 | 8 | 17 | 15 | 10 | 13 | 11 | 14 | 12 | 12 | 6 | 12 | 9 | 8 | 9 | 9 | 9 |
| Taken off list | 2 | 4 | 3 | 4 | 2 | 4 | 8 | 6 | 4 | 6 | 6 | 9 | 12 | 8 | 7 | 5 | 13 | 10 | 6 |
| Listed at year end | 26 | 26 | 20 | 37 | 50 | 48 | 50 | 49 | 54 | 53 | 63 | 66 | 59 | 59 | 46 | 64 | 65 | 70 | 66 |
| Waitlist mortality % | 6.8% | 14.3% | 10.0% | 8.9% | 14.5% | 12.6% | 8.0% | 10.6% | 8.4% | 10.1% | 7.7% | 7.5% | 3.8% | 7.6% | 5.3% | 4.9% | 5.2% | 5.5% | 5.7% |

1.4.2 Liver time on waitlist by year of delisting

Figure 4. Time on waiting list by year of delisting by outcome - Liver

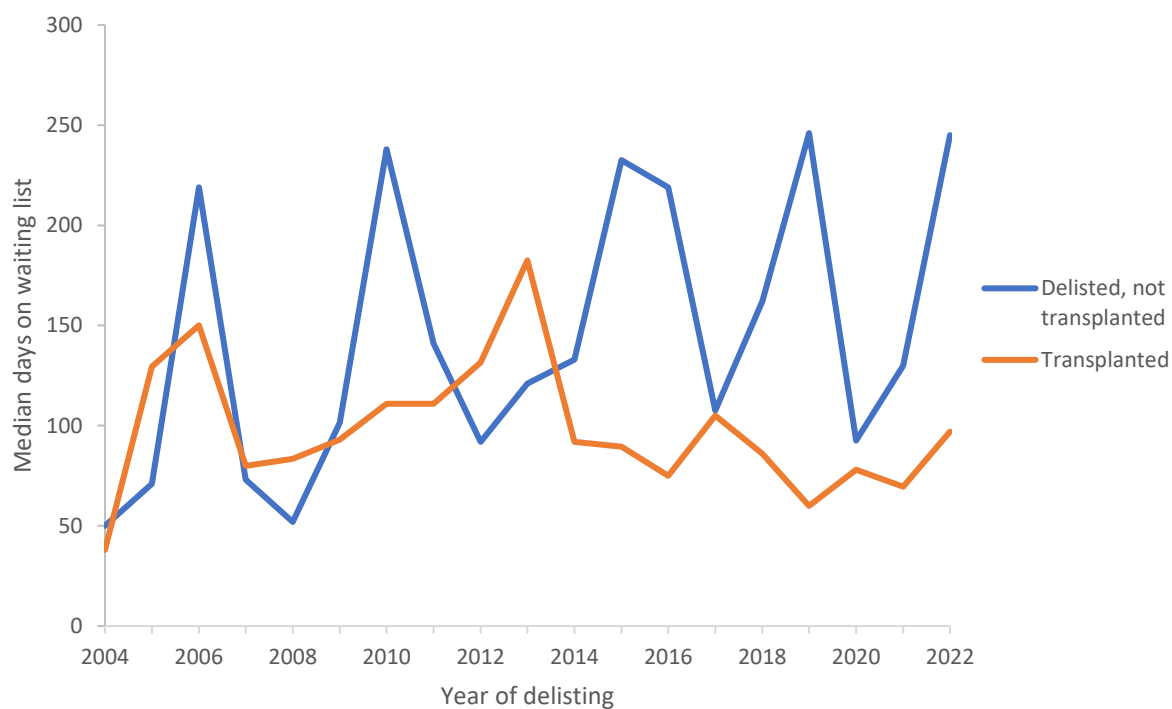


Table 11. Time on waitlist by year of delisting - Liver

| Year Delisting | Median (days) | |
|----------------|----------------------------|--------------|
| | Delisted, not transplanted | Transplanted |
| 2004 | 50 | 38 |
| 2005 | 71 | 130 |
| 2006 | 219 | 150 |
| 2007 | 73 | 80 |
| 2008 | 52 | 84 |
| 2009 | 1012 | 93 |
| 2010 | 238 | 111 |
| 2011 | 141 | 111 |
| 2012 | 92 | 132 |
| 2013 | 121 | 183 |
| 2014 | 133 | 92 |
| 2015 | 233 | 90 |
| 2016 | 219 | 75 |
| 2017 | 108 | 105 |
| 2018 | 162 | 86 |
| 2019 | 24 | 60 |
| 2020 | 93 | 78 |
| 2021 | 130 | 70 |
| 2022 | 245 | 97 |

1.5 Liver deceased donors

1,291 liver grafts were sourced from deceased donors.

Table 12. Deceased donor gender - liver

| Donor Gender | Number of donor grafts |
|--------------|------------------------|
| Female | 569 |
| Male | 722 |
| Total | 1,291 |

Table 13. Deceased donor ethnicity - liver

| Donor Ethnic Origin | Number of donor grafts |
|---------------------------------------------------|------------------------|
| Caucasoid | 506 |
| Central American (Specify) | 1 |
| Cook Islander | 1 |
| Fijian | 1 |
| North - East Asian - Chinese | 16 |
| North - East Asian (Specify) | 6 |
| North African and Middle Eastern - Arab (Specify) | 6 |
| North African and Middle Eastern - Turkish | 1 |
| North African and Middle Eastern (Specify) | 8 |
| North American (Specify) | 2 |
| North-West European (Specify) | 25 |
| Oceanian - Australian | 546 |
| Oceanian - Australian Aboriginal | 13 |
| Oceanian - Melanesian And Papuan (Specify) | 3 |
| Oceanian - New Zealand European | 12 |
| Oceanian - New Zealand Māori | 7 |
| Oceanian - Polynesian (Specify) | 4 |
| Oceanian - Torres Strait Islander | 1 |
| Other (Specify) | 5 |
| South American (Specify) | 7 |
| South East Asian - Malay | 13 |
| South-East Asian - Filipino | 6 |
| South-East Asian - Indonesian | 3 |
| South-East Asian - Vietnamese | 12 |
| South-East Asian (Specify) | 7 |
| Southern and Central Asian - Indian | 20 |
| Southern and Central Asian (Specify) | 14 |
| Southern and Eastern European - Greek | 11 |
| Southern and Eastern European - Italian | 12 |
| Southern and Eastern European (Specify) | 14 |
| Sub-Saharan African (Specify) | 5 |
| Missing | 3 |
| Total | 1,291 |

2 Intestinal transplant data (2010 – 2022)

2.1 Intestinal overview

12 recipients had an intestinal transplant in Victoria between 01/01/2010 and 31/12/2022. One patient had their intestinal graft fail and were not retransplanted, so they are require total parenteral nutrition (TPN) for survival.

2.2 Intestinal transplants (12 recipients)

2.2.1 Intestinal recipient demographic data

Recipient data is based on recipients who had their **first** intestinal transplant in Victoria between 01/01/2010 and 31/12/2022.

Table 14. Intestinal transplant recipients by gender

| Gender | Paediatric <16y | Adult >=16y | Total recipients |
|-----------------------|-----------------|-------------|------------------|
| Female | 2 | 2 | 4 |
| Male | 3 | 5 | 8 |
| All recipients | 5 | 7 | 12 |

Table 15. Intestinal transplant recipients by gender (percentage of age group)

| Gender | Paediatric <16y | Adult >=16y | Total recipients |
|--------|-----------------|-------------|------------------|
| Female | 40.0% | 28.6% | 33.3% |
| Male | 60.0% | 71.4% | 66.7% |

Table 16. Intestinal transplant recipients age statistics

| Age Group at Transplant | Number | Mean (years) | Standard Deviation | Minimum (years) | Maximum (years) |
|-------------------------|-----------|--------------|--------------------|-----------------|-----------------|
| Paediatric <16y | 7 | 37.6 | 11.1 | 24.9 | 54.2 |
| Adult >=16y | 5 | 10.6 | 3.1 | 5.8 | 13.6 |
| All recipients | 12 | | | 5.8 | 54.2 |

Table 17. Intestinal transplant recipients by age strata

| Age Strata at Transplant | Number |
|--------------------------|--------|
| <1y | 0 |
| 1-2y | 0 |
| 3-9y | 2 |
| 10-15y | 3 |
| 16-29y | 4 |
| 30-39y | 0 |
| 40-49y | 2 |
| 50-59y | 1 |
| 60-69y | 0 |
| 70 years or older | 0 |

Table 18. Intestinal transplant recipients by race

| Race | Paediatric <16y | Adult ≥16y | Total recipients |
|--------------|--------------------|---------------|---------------------|
| Caucasian | 3 | 6 | 9 |
| Other | 2 | 1 | 3 |
| Total | 5 | 7 | 12 |

2.2.2 Intestinal patient survival

Kaplan Meier patient survival analysis was undertaken using IBM SPSS Statistics (version 29).

Patients are classified as either alive (censored at date of last contact (DLC) or 31/12/2022 if DLC after that date) or dead. Patients may have undergone retransplantation in the time period. Retransplantation is not considered an event and the patient is not censored at retransplantation for patient survival analysis.

Figure 5. Patient survival curve - intestinal

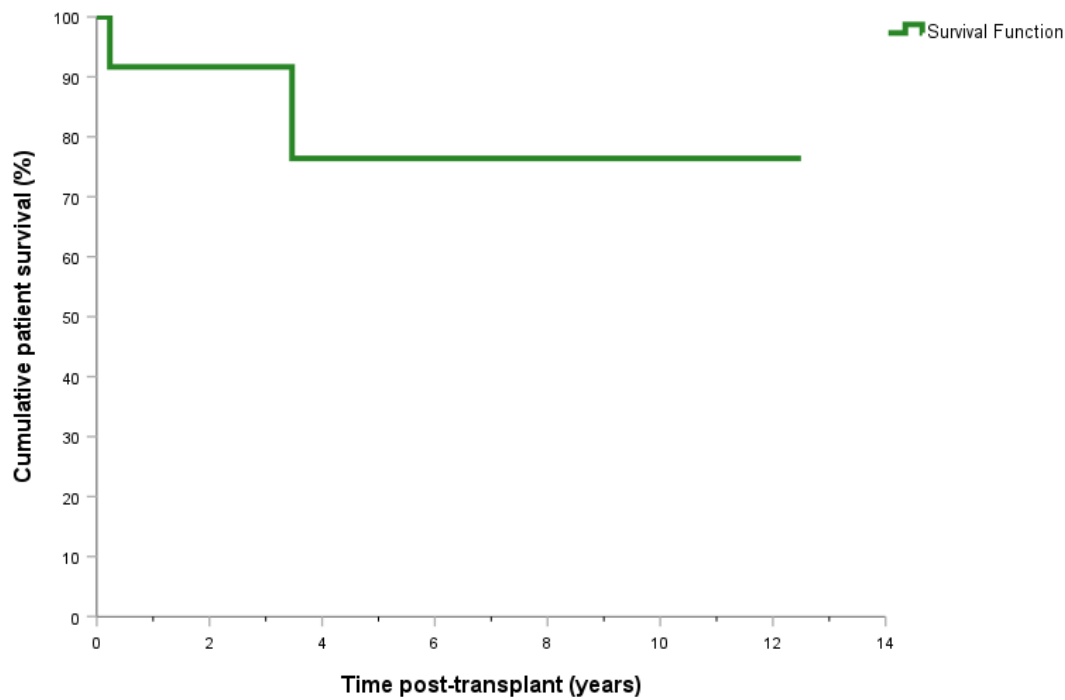


Table 19. Patient survival data for Intestinal transplant recipients

| Patient Survival | Time post-transplant (years) | | | | | |
|------------------|------------------------------|-----|-----|-----|----|----|
| | 0 | 1 | 5 | 10 | 20 | 30 |
| No. at risk | 12 | 9 | 4 | 2 | 0 | |
| Survival (%) | | 92% | 76% | 76% | | |

2.3 Intestinal graft data (1,296 grafts)

Graft data includes all Intestinal transplant grafts in Victoria between 01/01/2002 and 31/12/2022.

2.3.1 Intestinal graft Information

Table 20. Number of intestinal grafts by year

| Year of Transplant | Grafts |
|--------------------|-----------|
| 2010 | 1 |
| 2011 | 0 |
| 2012 | 1 |
| 2013 | 0 |
| 2014 | 1 |
| 2015 | 1 |
| 2016 | 1 |
| 2017 | 1 |
| 2018 | 1 |
| 2019 | 0 |
| 2020 | 1 |
| 2021 | 2 |
| 2022 | 2 |
| Total | 12 |

Table 21. Number of intestinal grafts by year by type of donor

| Transplant Year | Grafts transplanted | DCD (cardiac death) | HBD (heart beating) | Living Donor |
|-----------------|---------------------|---------------------|---------------------|--------------|
| 2010 | 1 | | 1 | |
| 2011 | 0 | | 0 | |
| 2012 | 1 | | 1 | |
| 2013 | 0 | | 0 | |
| 2014 | 1 | | 1 | |
| 2015 | 1 | | 1 | |
| 2016 | 1 | | 1 | |
| 2017 | 1 | | 1 | |
| 2018 | 1 | | 1 | |
| 2019 | 0 | | 0 | |
| 2020 | 1 | | 1 | |
| 2021 | 2 | | 2 | |
| 2022 | 2 | | 2 | |
| Total | 12 | | 12 | |

2.3.2 Intestinal graft survival

Kaplan Meier graft survival analysis was undertaken using IBM SPSS Statistics (version 29).

Grafts are classified as either functioning (censored at date of last contact) or failed (due to death, re-transplantation or removal of intestinal graft and managed by TPN).

Figure 6. Graft survival curve - intestinal

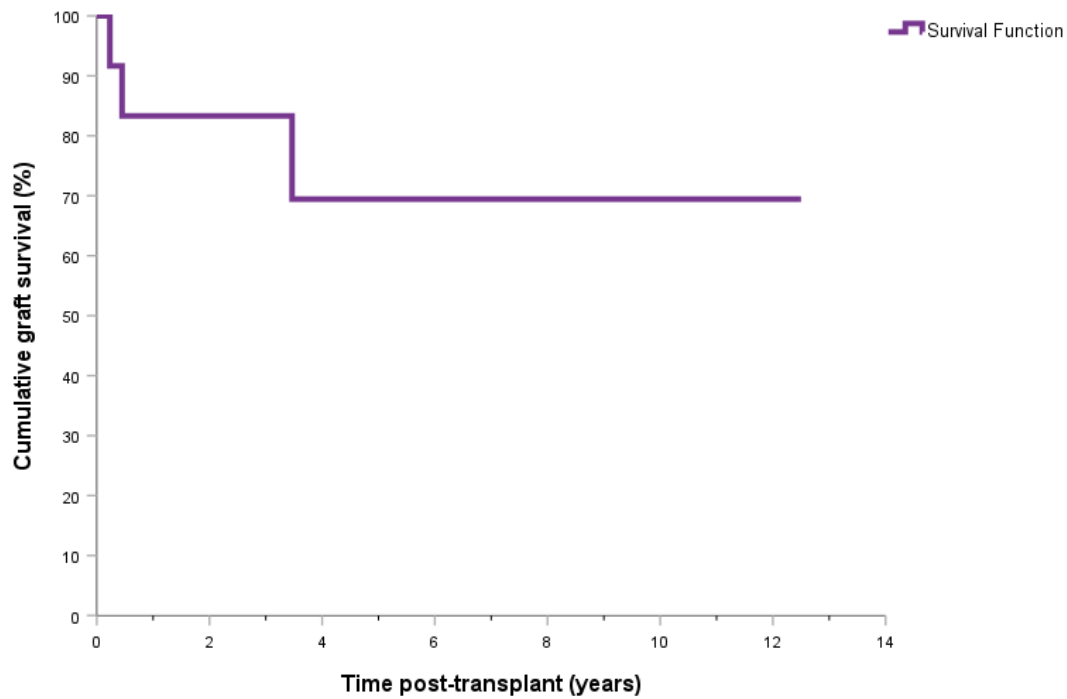


Table 22. Graft survival data for intestinal transplant recipients

| Graft Survival | Time post-transplant (years) | | | | | |
|----------------|------------------------------|-----|-----|-----|----|----|
| | 0 | 1 | 5 | 10 | 20 | 30 |
| No. at risk | 12 | 9 | 4 | 2 | 0 | |
| Survival (%) | | 83% | 69% | 69% | | |

2.4 Intestinal transplant waitlist

2.4.1 Intestinal waitlist outcomes by year

Figure 7. Intestinal waitlist outcomes by year

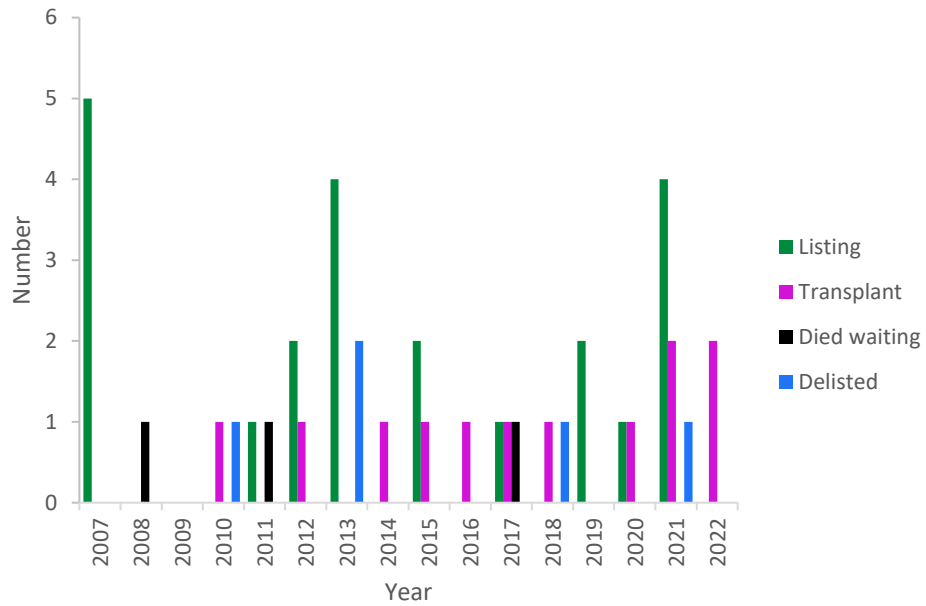


Table 23. Intestinal waitlist outcomes by year

| Victoria | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|----------------------|------|-------|------|------|-------|------|------|------|------|------|-------|------|------|------|-------|------|
| New listing | 5 | 0 | 0 | 0 | 1 | 2 | 4 | 0 | 2 | 0 | 1 | 0 | 2 | 5 | 0 | 0 |
| Transplanted | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| Wait list mortality | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| Taken off list | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Listed at year end | 5 | 4 | 4 | 2 | 2 | 3 | 5 | 4 | 5 | 4 | 3 | 1 | 3 | 5 | 4 | 4 |
| Waitlist mortality % | 0.0% | 20.0% | 0.0% | 0.0% | 33.3% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 20.0% | 0.0% | 0.0% | 0.0% | 20.0% | 0.0% |

2.4.2 Intestinal time on waitlist by year of delisting

Figure 8. Time on waiting list by year of delisting by outcome - intestinal

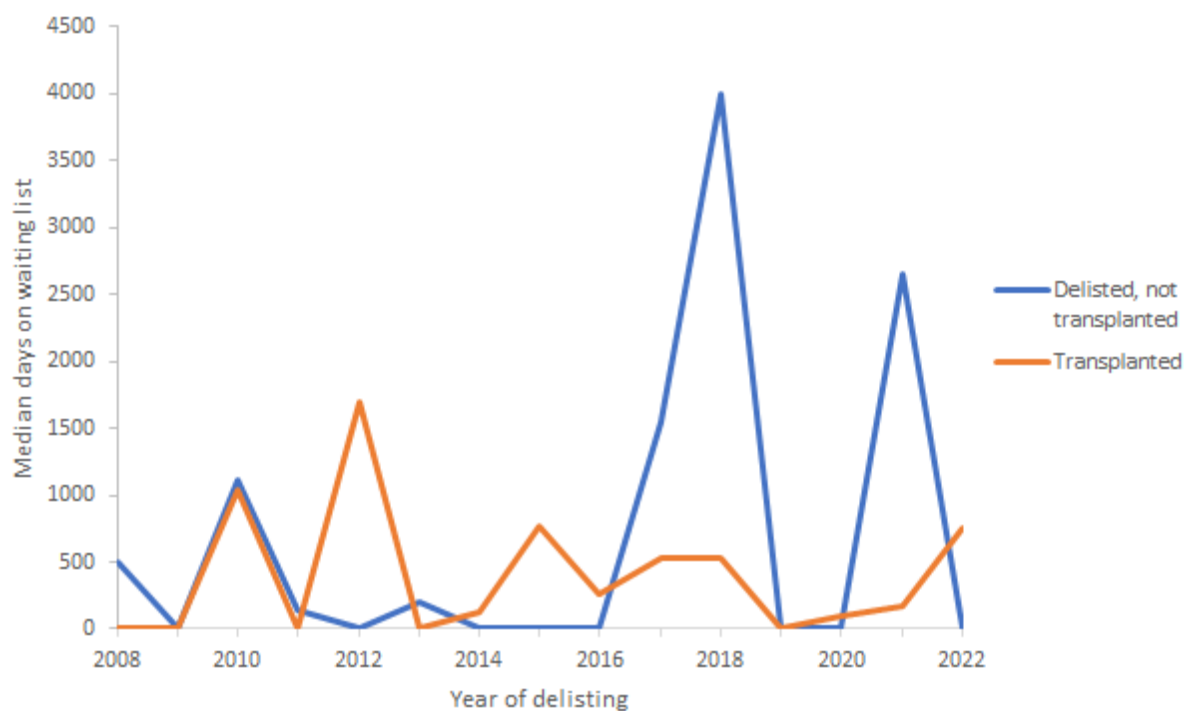


Table 24. Time on waitlist by year of delisting - intestinal

| Year Delisting | Median (days) | |
|----------------|----------------------------|--------------|
| | Delisted, not transplanted | Transplanted |
| 2008 | 498 | 0 |
| 2009 | 0 | 0 |
| 2010 | 1119 | 1045 |
| 2011 | 141 | 0 |
| 2012 | 0 | 1691 |
| 2013 | 195 | 0 |
| 2014 | 0 | 125 |
| 2015 | 0 | 770 |
| 2016 | 0 | 262 |
| 2017 | 1551 | 534 |
| 2018 | 4002 | 531 |
| 2019 | 0 | 0 |
| 2020 | 0 | 100 |
| 2021 | 2659 | 173 |
| 2022 | 0 | 757 |

2.5 Intestinal deceased donors

12 intestinal grafts were sourced from deceased donors.

Table 25. Deceased donor gender - intestinal

| Donor Gender | Number of donor grafts |
|--------------|------------------------|
| Female | 4 |
| Male | 8 |
| Total | 12 |

Table 26. Deceased donor ethnicity - intestinal

| Donor Ethnic Origin | Number of donor grafts |
|--------------------------------------|------------------------|
| Caucasoid | 2 |
| Oceanian - Australian | 5 |
| Oceanian - Australian Aboriginal | 1 |
| Oceanian - New Zealand Māori | 1 |
| South-East Asian - Malay | 1 |
| South-East Asian - Filipino | 1 |
| Southern and Central Asian (Specify) | 1 |
| Total | 12 |