



ABMTRR

AUSTRALASIAN BONE MARROW TRANSPLANT RECIPIENT REGISTRY

Annual Data Summary 2017

Australasian Bone Marrow Transplant Recipient Registry
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Presented on behalf of

The Bone Marrow Transplant Society of Australia and New Zealand

The ABMTRR gratefully acknowledges the support of

The Haematology Society of Australia and New Zealand

The Arrow Bone Marrow Transplant Foundation

The Australian Bone Marrow Donor Registry

St Vincent's Hospital Sydney

Australian Federal and State Governments

Australasian Bone Marrow Transplant Recipient Registry

Annual Data Summary 2017

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Prior approval must be sought from ABMTRR before releasing any data from this document publicly, and the ABMTRR must be acknowledged as the data source.

This document has been produced using a database containing information on haematopoietic cell transplants provided voluntarily by patients at participating hospitals in Australia and New Zealand. The data and this analysis are the property of the ABMTRR and the Bone Marrow Transplant Society of Australia and New Zealand. ABMTRR staff are employees of St Vincent's Hospital Sydney. This document is a clinical management resource and is intended for use by suitably qualified clinicians and health administrators in participating clinical and research centres. The information in this report should be used in conjunction with the explanatory notes in the Introduction and throughout the text. Some columns of percentages may not add exactly to 100% due to rounding. While all care has been taken in the compilation of this document, no responsibility can be taken for misuse of the data or for data errors which have been unintentionally included.

Australasian Bone Marrow Transplant Recipient Registry

Annual Data Summary 2017

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Introduction

The Australasian Bone Marrow Transplant Recipient Registry (ABMTRR) was established in 1992 and records details of bone marrow, peripheral blood and cord blood stem cell transplants across Australia and New Zealand, operating under the auspices of the Bone Marrow Transplant Society of Australia and New Zealand (BMTSANZ). In this time the registry has collected data on more than 35,000 transplants. Data are collated and analysed for the benefit of patients, clinicians, hospitals, researchers and governments, and are used as a basis for more detailed studies. The ABMTRR has a pivotal role in quality and safety monitoring and benchmarking analyses to assist with accreditation requirements for transplant services at contributing hospitals.

Recent trends in donor selection have shown an increased use of related haplo-identical donors. The ABMTRR database is being used to manage two prospective studies looking at various aspects of these transplants, including quality of life and economic impacts as well as the clinical outcomes.

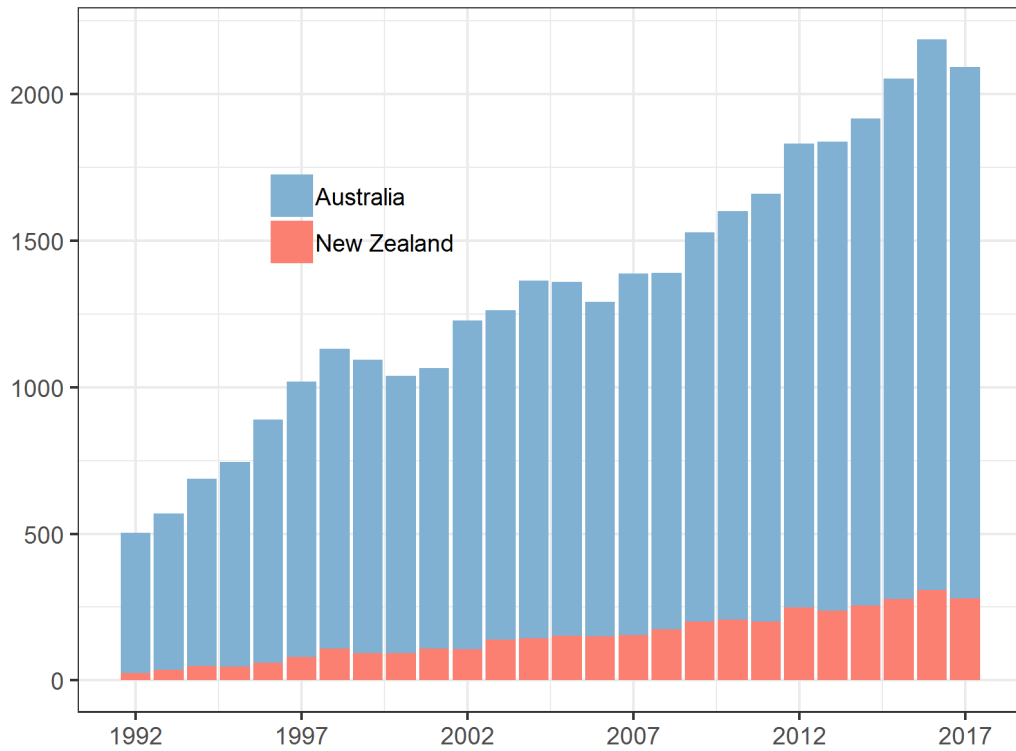
With the BMT Network NSW, itself a part of the Agency for Clinical Innovation, the ABMTRR managed a pilot study of long term follow up data collection. Several health issues were identified as late effects of previous therapies and transplantation, and it is hoped that the registry can contribute to improved patient outcomes by supporting ongoing care and monitoring of long term transplant survivors in Australia and New Zealand.

The activity and outcome data for this report are based on information received by the ABMTRR as of September 2018. There were 2,093 transplants performed in 2017, however patient consent was not obtained for 53 of these (18 allogeneic and 35 autologous). Thus most of the tables and graphs for 2017 will show data for 2,040 transplants. Survival curves are shown for first transplants in larger diagnostic groups, in both the adult and paediatric settings. The survival time is calculated from the date of first transplant until the date of death or latest contact date, including contact after any subsequent transplant. For survival analysis in this report we have used only patients who were first transplanted from 2001 to 2016.

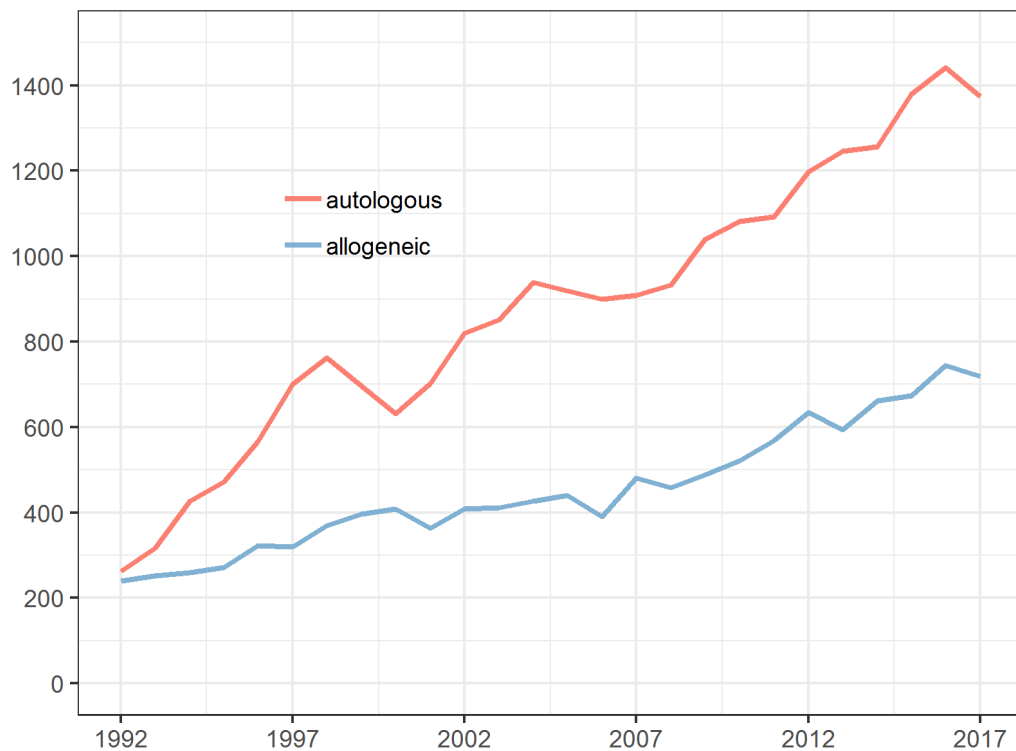
The ABMTRR would like to acknowledge the invaluable support of staff at our contributing centres: clinicians, data managers, nurses, laboratory staff, quality officers and others involved with these transplant services.

Registry data 1992-2017

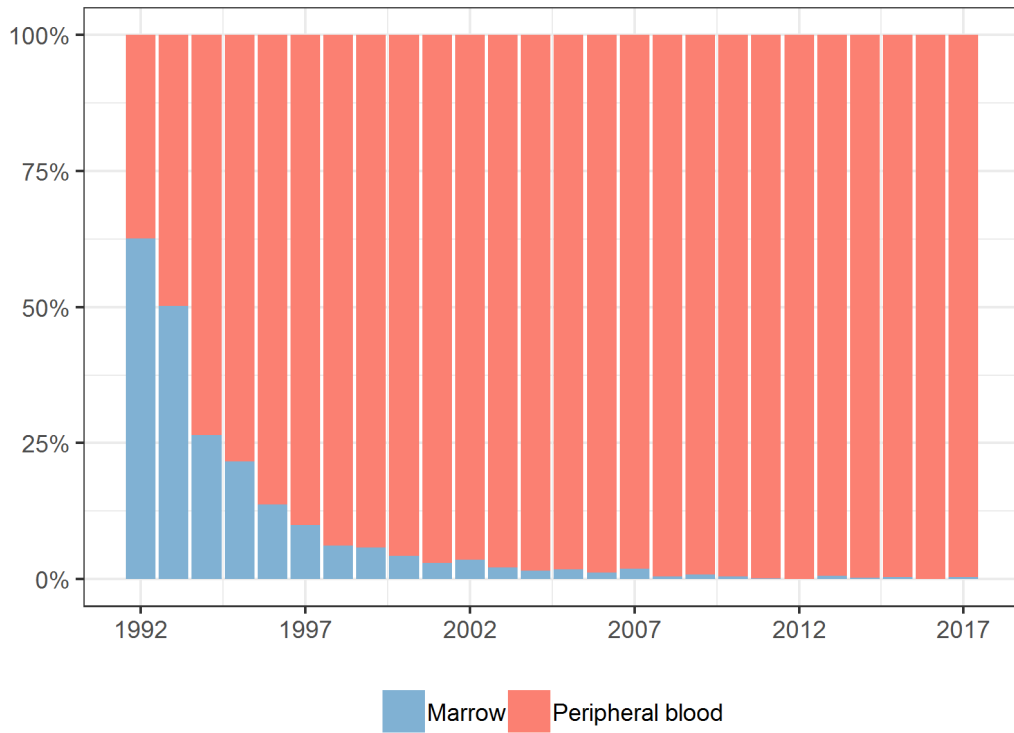
Transplant activity



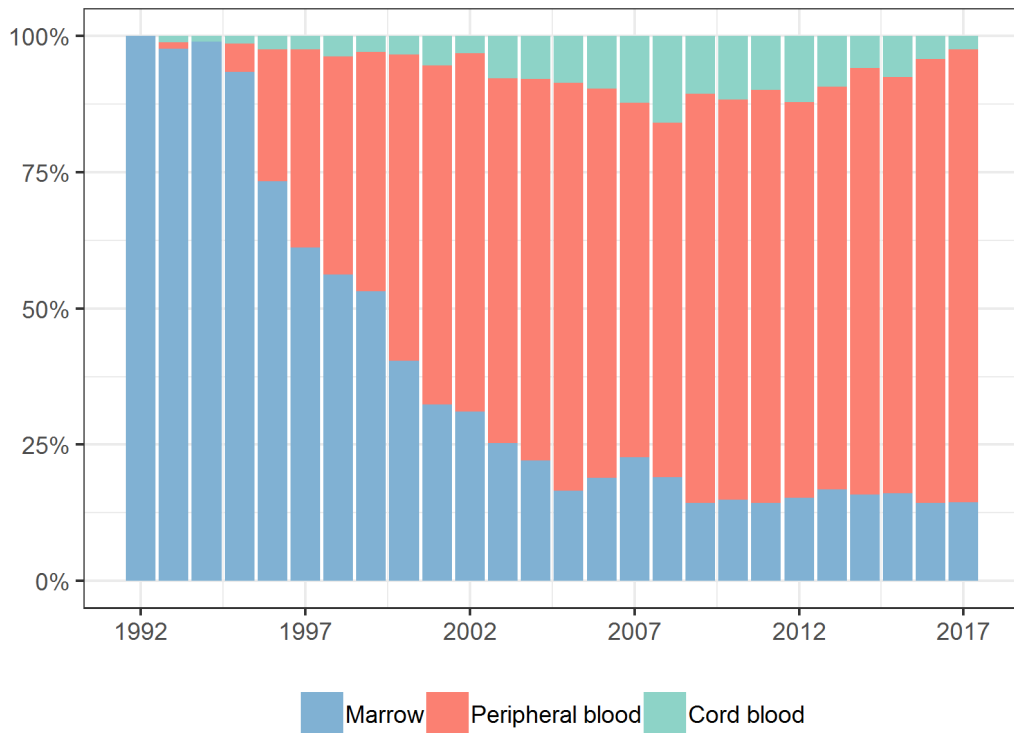
Autologous and allogeneic transplants



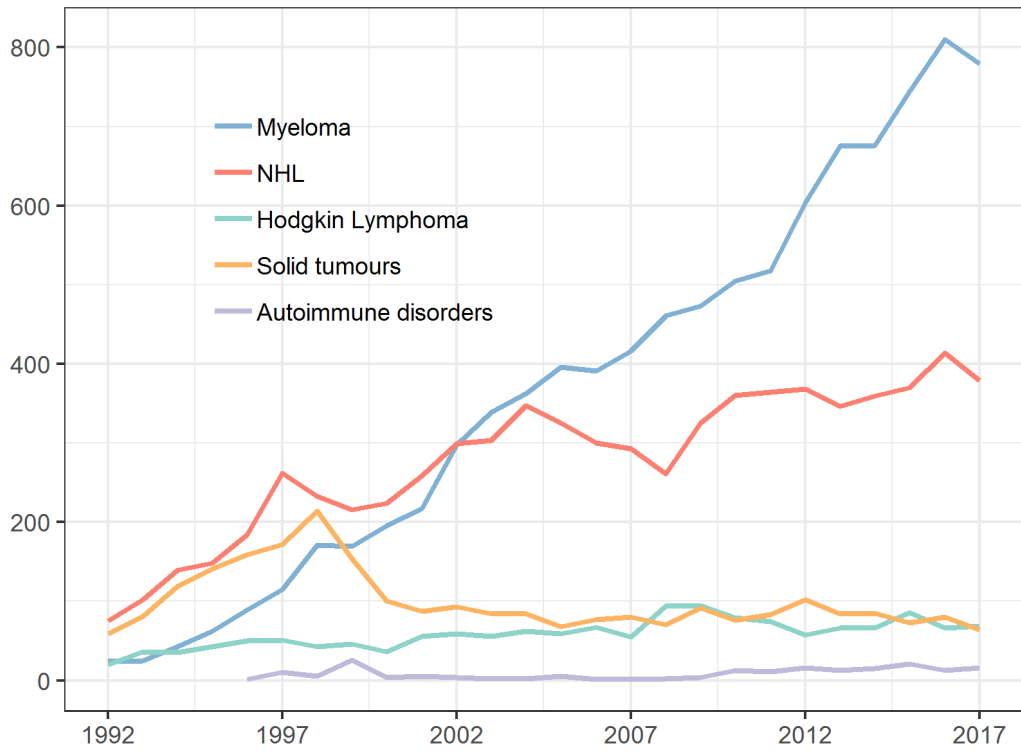
Stem cell source for autologous transplants



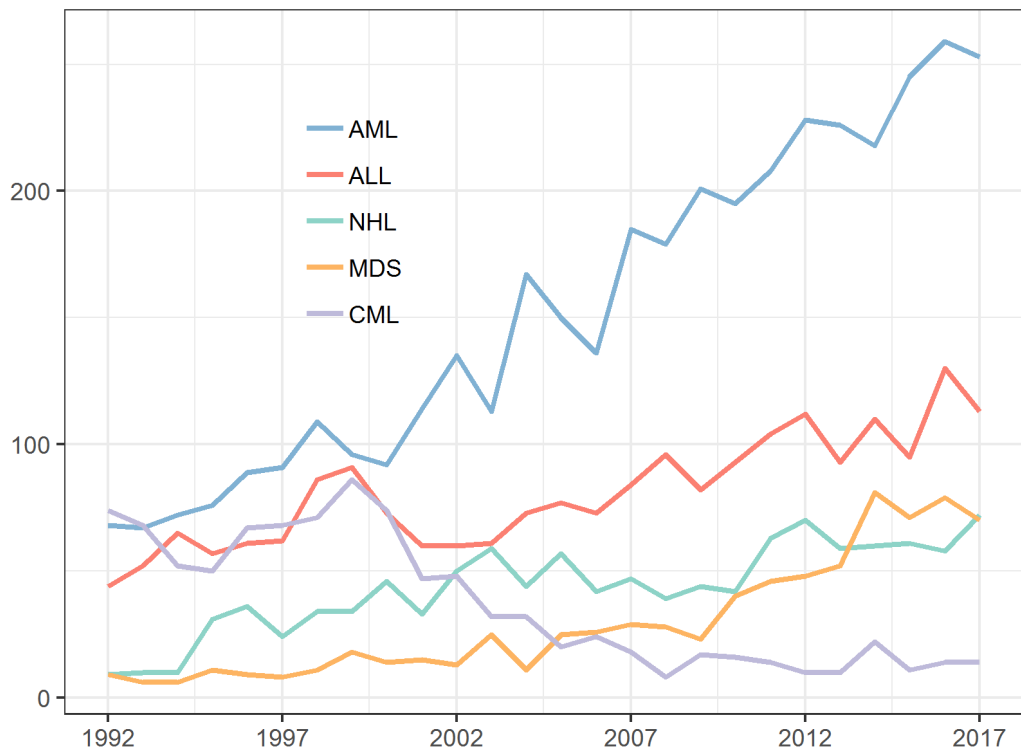
Stem cell source for allogeneic transplants



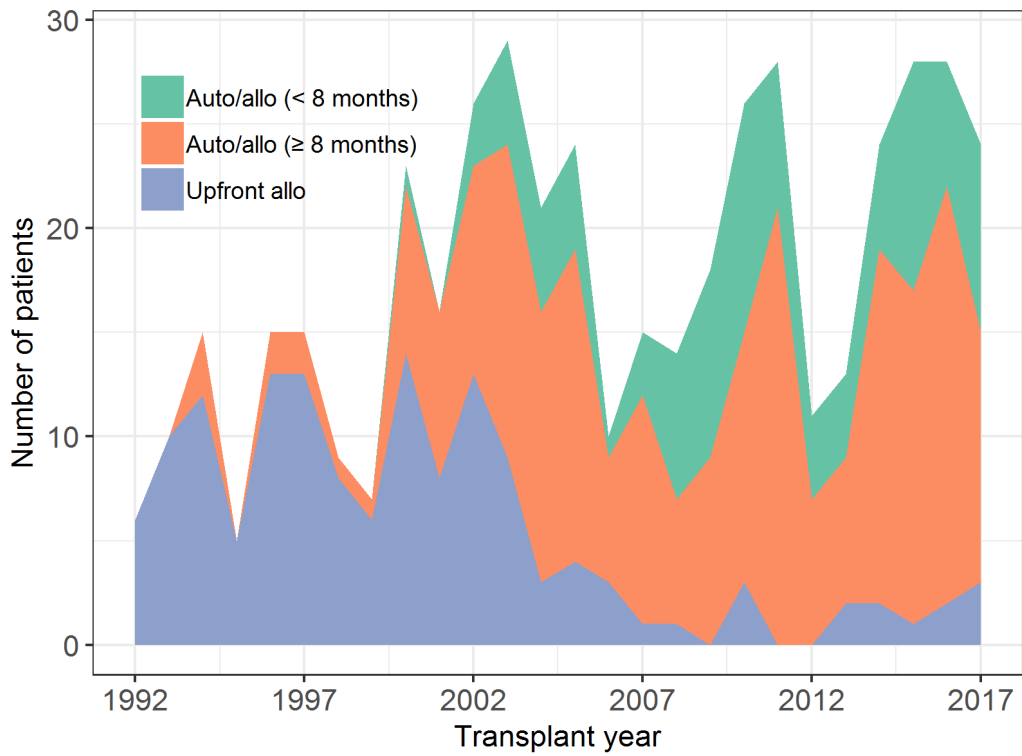
Indications for autologous transplant



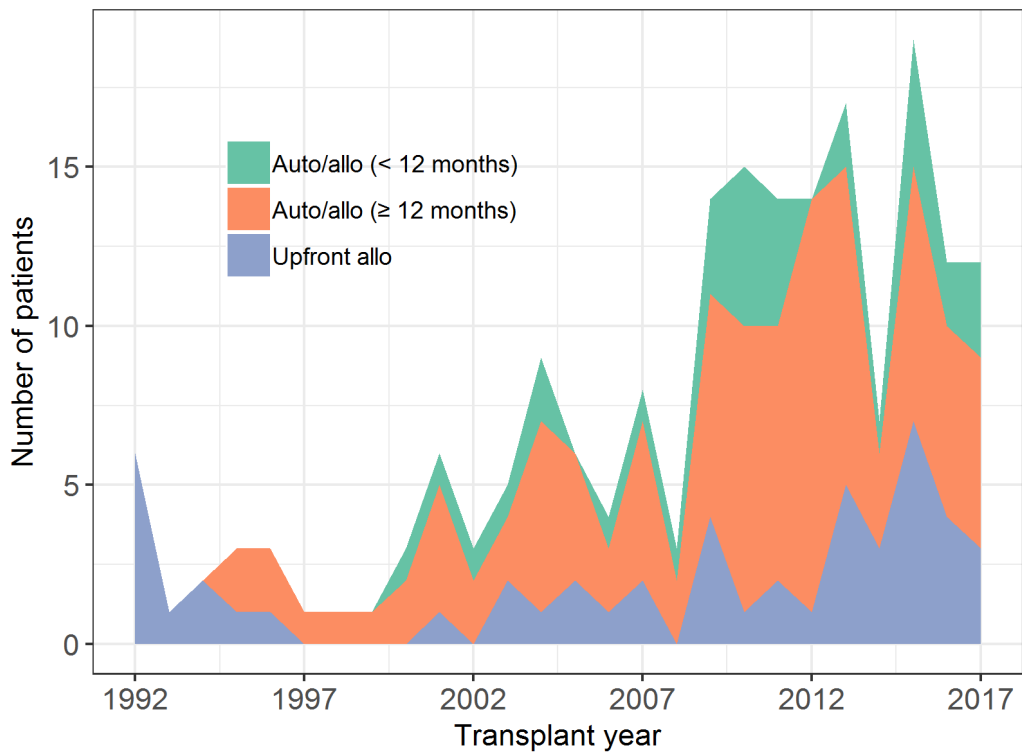
Indications for allogeneic transplant



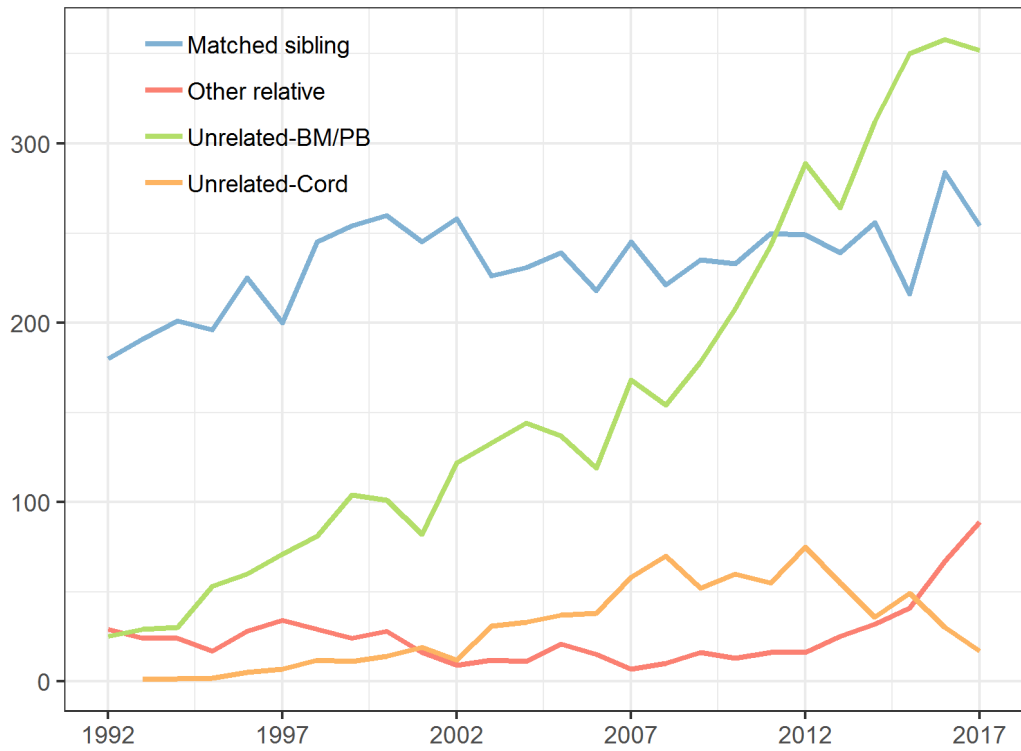
Allogeneic transplants for myeloma



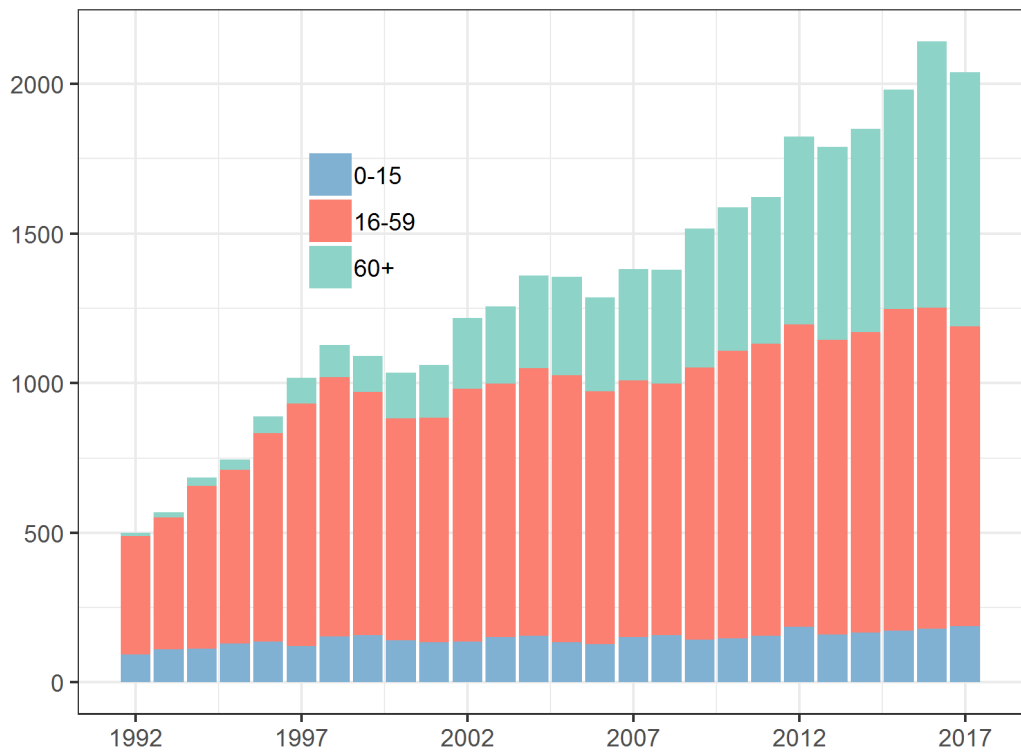
Allogeneic transplants for Hodgkin lymphoma



Donor source for allogeneic transplants



Transplant activity by age group



Transplant activity 2017

Haematopoietic cell transplant activity summary

| | 2016 | | 2017 | |
|--|--------------|-------------|--------------|-------------|
| | Australia | New Zealand | Australia | New Zealand |
| Contributing hospitals | 42 | 6 | 42 | 6 |
| Total number of transplants | 1,879 | 308 | 1,813 | 280 |
| Consented | 1,837 | 305 | 1,760 | 280 |
| Non-consented | 42 | 3 | 53 | 0 |
| First or subsequent transplants | | | | |
| First | 1,615 | 289 | 1,550 | 254 |
| Subsequent | 215 | 16 | 194 | 26 |
| Not reported | 7 | 0 | 16 | 0 |
| Transplant type | | | | |
| Allogeneic - matched sibling donor | 235 | 38 | 197 | 44 |
| - syngeneic | 6 | 0 | 2 | 1 |
| - other related donor | 50 | 20 | 79 | 17 |
| - unrelated donor | 330 | 49 | 319 | 42 |
| - non-consented | 15 | 2 | 18 | 0 |
| Total allogeneic | 636 | 109 | 615 | 104 |
| Autologous - single | 1,177 | 191 | 1,137 | 172 |
| - staged ¹ | 39 | 7 | 26 | 4 |
| - non-consented | 27 | 1 | 35 | 0 |
| Total autologous | 1,243 | 199 | 1,198 | 176 |
| Recipient sex | | | | |
| Male : Female | 1,149:688 | 189:116 | 1,086:674 | 180:100 |
| % Male | 62% | 62% | 62% | 64% |
| Recipient age range | | | | |
| 0-15 years | 150 | 29 | 168 | 20 |
| 16-29 years | 137 | 17 | 93 | 23 |
| 30-39 years | 109 | 15 | 90 | 16 |
| 40-49 years | 206 | 37 | 221 | 25 |
| 50-59 years | 457 | 96 | 446 | 88 |
| 60-69 years | 673 | 105 | 622 | 101 |
| 70 years and over | 105 | 6 | 120 | 7 |
| % 60 years and over | 42% | 36% | 42% | 39% |

1: Two or more planned autologous infusions - counted as one transplant

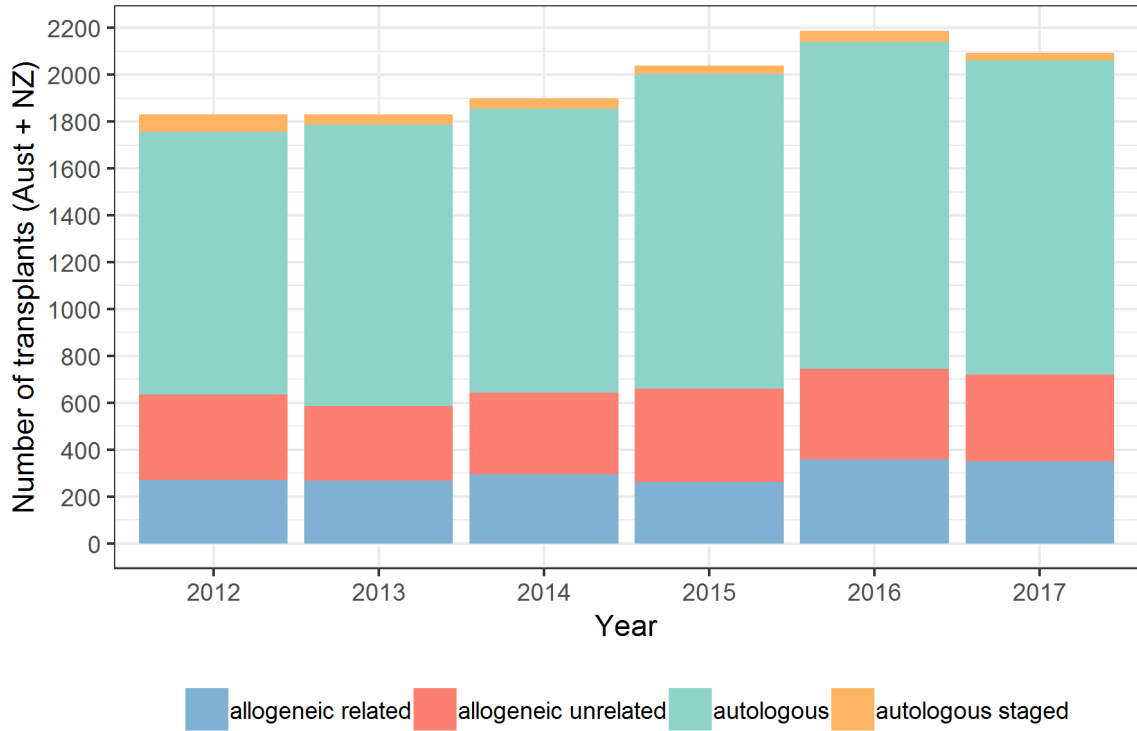
Transplant activity by state and country

| | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|--------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| A.C.T. | | | | | | |
| Single autologous | 19 | 27 | 28 | 28 | 26 | 36 |
| Staged autologous | 1 | 0 | 1 | 0 | 2 | 0 |
| Total A.C.T. | 20 | 27 | 29 | 28 | 28 | 36 |
| New South Wales | | | | | | |
| Allogeneic related | 96 | 82 | 83 | 101 | 113 | 101 |
| Allogeneic unrelated | 120 | 101 | 117 | 128 | 109 | 113 |
| Single autologous | 272 | 329 | 320 | 343 | 357 | 342 |
| Staged autologous | 16 | 15 | 19 | 11 | 12 | 15 |
| Non-consented | 0 | 0 | 0 | 2 | 1 | 2 |
| Total New South Wales | 504 | 527 | 539 | 585 | 592 | 573 |
| Queensland | | | | | | |
| Allogeneic related | 48 | 60 | 59 | 42 | 54 | 62 |
| Allogeneic unrelated | 70 | 68 | 75 | 81 | 62 | 74 |
| Single autologous | 222 | 219 | 212 | 249 | 252 | 223 |
| Staged autologous | 11 | 6 | 5 | 4 | 5 | 5 |
| Non-consented | 5 | 5 | 8 | 13 | 11 | 20 |
| Total Queensland | 356 | 358 | 359 | 389 | 384 | 384 |
| South Australia | | | | | | |
| Allogeneic related | 12 | 5 | 24 | 13 | 20 | 13 |
| Allogeneic unrelated | 26 | 11 | 22 | 19 | 21 | 19 |
| Single autologous | 85 | 102 | 101 | 96 | 108 | 88 |
| Staged autologous | 20 | 3 | 1 | 7 | 8 | 2 |
| Non-consented | 0 | 0 | 0 | 0 | 0 | 1 |
| Total South Australia | 143 | 121 | 148 | 135 | 157 | 123 |
| Tasmania | | | | | | |
| Single autologous | 23 | 23 | 19 | 31 | 27 | 34 |
| Staged autologous | 1 | 2 | 2 | 0 | 1 | 0 |
| Total Tasmania | 24 | 25 | 21 | 31 | 28 | 34 |
| Victoria | | | | | | |
| Allogeneic related | 63 | 62 | 67 | 52 | 83 | 89 |
| Allogeneic unrelated | 79 | 66 | 73 | 91 | 108 | 92 |
| Single autologous | 230 | 252 | 239 | 261 | 293 | 308 |
| Staged autologous | 14 | 7 | 7 | 8 | 11 | 3 |
| Non-consented | 2 | 44 | 33 | 39 | 29 | 30 |
| Total Victoria | 388 | 431 | 419 | 451 | 524 | 522 |
| Western Australia | | | | | | |
| Allogeneic related | 16 | 14 | 27 | 14 | 21 | 13 |
| Allogeneic unrelated | 23 | 22 | 21 | 34 | 30 | 21 |
| Single autologous | 104 | 77 | 99 | 107 | 114 | 106 |
| Staged autologous | 5 | 0 | 0 | 1 | 0 | 1 |
| Non-consented | 0 | 0 | 0 | 0 | 1 | 0 |
| Total Western Australia | 148 | 113 | 147 | 156 | 166 | 141 |
| Total Australia | 1,583 | 1,602 | 1,662 | 1,775 | 1,879 | 1,813 |
| New Zealand | | | | | | |
| Allogeneic related | 34 | 40 | 30 | 39 | 58 | 62 |
| Allogeneic unrelated | 46 | 48 | 39 | 46 | 49 | 42 |
| Single autologous | 162 | 140 | 154 | 174 | 191 | 172 |
| Staged autologous | 5 | 9 | 5 | 2 | 7 | 4 |
| Non-consented | 1 | 0 | 28 | 17 | 3 | 0 |
| Total New Zealand | 248 | 237 | 256 | 278 | 308 | 280 |
| Australia + New Zealand | 1,831 | 1,839 | 1,918 | 2,053 | 2,187 | 2,093 |

Transplant activity 2017 by state / country and hospital type

| | Paediatric | Adult | Total |
|--------------------------------------|------------|--------------|--------------|
| Australian Capital Territory | | | |
| Autologous | 0 | 36 | 36 |
| Total A.C.T. | 0 | 36 | 36 |
| New South Wales | | | |
| Allogeneic | 53 | 162 | 215 |
| Autologous | 21 | 337 | 358 |
| Total New South Wales | 74 | 499 | 573 |
| Queensland | | | |
| Allogeneic | 33 | 103 | 136 |
| Autologous | 6 | 242 | 248 |
| Total Queensland | 39 | 345 | 384 |
| South Australia | | | |
| Allogeneic | 0 | 32 | 32 |
| Autologous | 2 | 89 | 91 |
| Total South Australia | 2 | 121 | 123 |
| Tasmania | | | |
| Autologous | 0 | 34 | 34 |
| Total Tasmania | 0 | 34 | 34 |
| Victoria | | | |
| Allogeneic | 40 | 158 | 198 |
| Autologous | 10 | 314 | 324 |
| Total Victoria | 50 | 472 | 522 |
| Western Australia | | | |
| Allogeneic | 4 | 30 | 34 |
| Autologous | 10 | 97 | 107 |
| Total Western Australia | 14 | 127 | 141 |
| Total Australia | 179 | 1,634 | 1,813 |
| New Zealand | | | |
| Allogeneic | 16 | 88 | 104 |
| Autologous | 3 | 173 | 176 |
| Total New Zealand | 19 | 261 | 280 |
| Total Australia + New Zealand | 198 | 1,895 | 2,093 |

Haematopoietic cell transplants by type



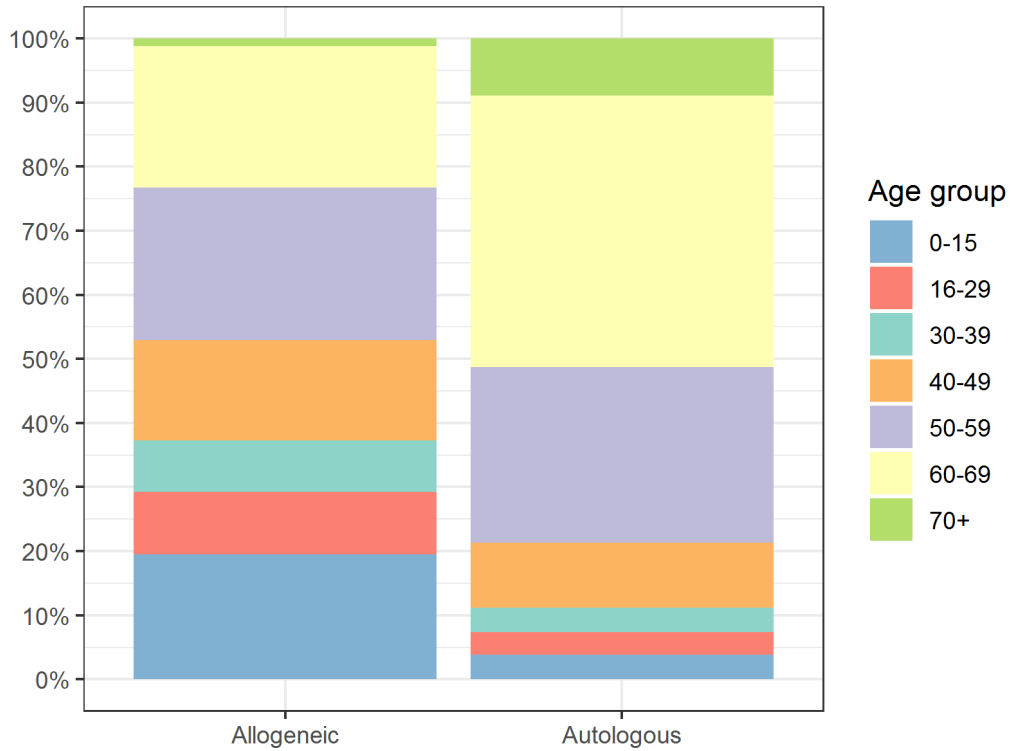
Outpatient procedures

| Component of transplant | Recipient 0-15 | Recipient 16+ |
|--|----------------|---------------|
| Autologous | | |
| Conditioning | 1.9% | 21.0% |
| Infusion | 5.8% | 18.6% |
| Acute post-transplant care | 11.5% | 10.9% |
| Allo - reduced intensity conditioning | | |
| Conditioning | 0 | 33.4% |
| Infusion | 0 | 6.4% |
| Acute post-transplant care | 7.1% | 6.1% |
| Allo - myeloablative conditioning | | |
| Conditioning | 0 | 2.9% |
| Infusion | 0 | 2.5% |
| Acute post-transplant care | 0 | 1.0% |

Data show the percentage of transplants where more than half of the time for each transplant component was spent as an outpatient.

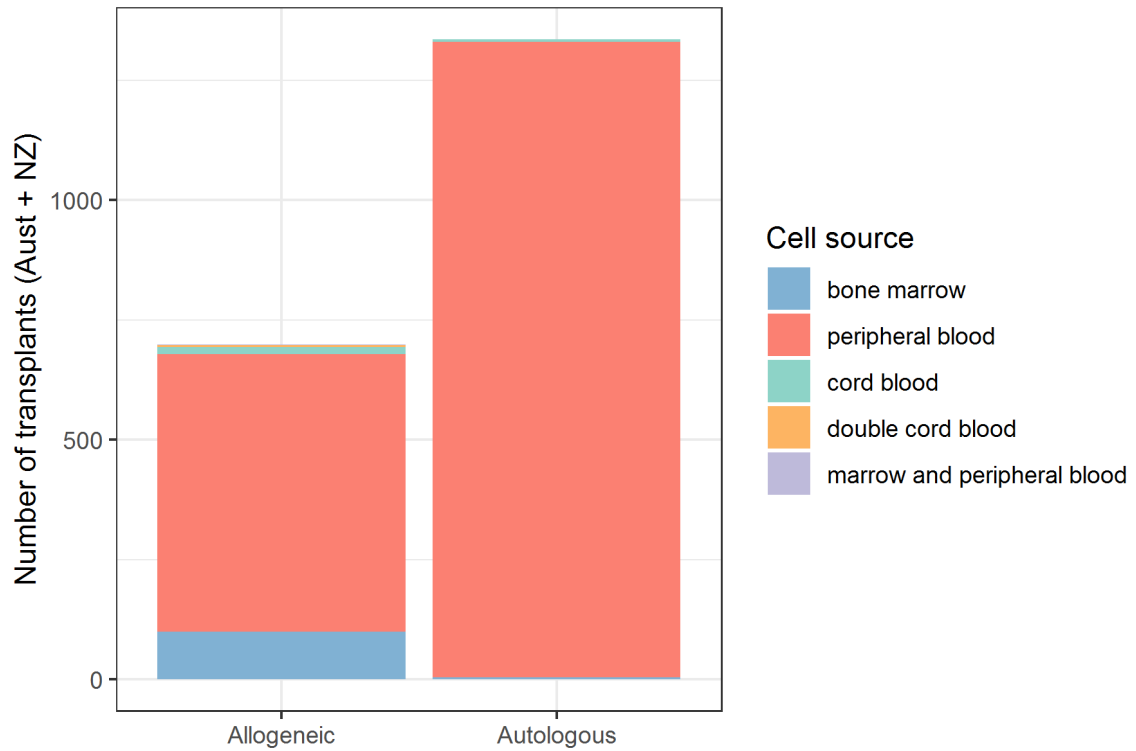
Transplant and recipient characteristics

Transplant recipients by age group



| | 2016 | | 2017 | |
|-------------------------|--------------|-------------|--------------|-------------|
| | Australia | New Zealand | Australia | New Zealand |
| Allogeneic | | | | |
| 0 - 15 | 103 | 22 | 122 | 15 |
| 16 - 29 | 91 | 12 | 50 | 18 |
| 30 - 39 | 58 | 7 | 47 | 9 |
| 40 - 49 | 96 | 21 | 98 | 12 |
| 50 - 59 | 149 | 22 | 145 | 22 |
| 60 - 69 | 120 | 20 | 128 | 27 |
| 70 and over | 4 | 3 | 7 | 1 |
| Total allogeneic | 621 | 107 | 597 | 104 |
| Autologous | | | | |
| 0 - 15 | 47 | 7 | 46 | 5 |
| 16 - 29 | 46 | 5 | 43 | 5 |
| 30 - 39 | 51 | 8 | 43 | 7 |
| 40 - 49 | 110 | 16 | 123 | 13 |
| 50 - 59 | 308 | 74 | 301 | 66 |
| 60 - 69 | 553 | 85 | 494 | 74 |
| 70 and over | 101 | 3 | 113 | 6 |
| Total autologous | 1,216 | 198 | 1,163 | 176 |
| Total | 1,837 | 305 | 1,760 | 280 |

Stem cell source for haematopoietic cell transplants



Stem cell source by donor type

| | Autologous | | Matched sibling | | Other relative | | Unrelated | |
|---------------------------|--------------|-------------|-----------------|-------------|----------------|-------------|------------|-------------|
| Recipients 0-15 | | | | | | | | |
| Bone marrow | 0 | 0% | 41 | 87% | 6 | 17% | 22 | 40% |
| Peripheral blood | 46 | 90% | 3 | 6% | 29 | 83% | 20 | 36% |
| Cord blood | 4 | 8% | 1 | 2% | 0 | 0% | 13 | 24% |
| Marrow + cord blood | 0 | 0% | 2 | 4% | 0 | 0% | 0 | 0% |
| Not reported | 1 | 2% | 0 | 0% | 0 | 0% | 0 | 0% |
| Total | 51 | 100% | 47 | 100% | 35 | 100% | 55 | 100% |
| Recipients 16+ | | | | | | | | |
| Bone marrow | 5 | 0% | 12 | 6% | 1 | 2% | 17 | 6% |
| Peripheral blood | 1,280 | 99% | 184 | 93% | 60 | 98% | 284 | 93% |
| Cord blood | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% |
| Double cord | 0 | 0% | 0 | 0% | 0 | 0% | 4 | 1% |
| Marrow + peripheral blood | 0 | 0% | 1 | 1% | 0 | 0% | 1 | 0% |
| Not reported | 3 | 0% | 0 | 0% | 0 | 0% | 0 | 0% |
| Total | 1,288 | 100% | 197 | 100% | 61 | 100% | 306 | 100% |

HLA compatibility for allogeneic transplants

| | 2016 | | 2017 | |
|------------------------------|------------|-------------|------------|-------------|
| | Australia | New Zealand | Australia | New Zealand |
| Sibling | | | | |
| Syngeneic | 6 | 0 | 2 | 1 |
| HLA-identical | 235 | 38 | 197 | 44 |
| 1 HLA mismatch | 0 | 0 | 2 | 0 |
| 2 or more HLA mismatch | 10 | 2 | 15 | 7 |
| Total sibling | 251 | 40 | 216 | 52 |
| Other relative | | | | |
| HLA-identical | 4 | 0 | 8 | 0 |
| 1 HLA mismatch | 1 | 3 | 1 | 2 |
| 2 or more HLA mismatch | 35 | 15 | 53 | 8 |
| Total other relative | 40 | 18 | 62 | 10 |
| Unrelated PB/BM | | | | |
| HLA-identical | 275 | 46 | 277 | 38 |
| 1 HLA mismatch | 21 | 0 | 21 | 2 |
| 2 or more HLA mismatch | 1 | 0 | 1 | 0 |
| Not reported | 6 | 0 | 5 | 0 |
| Total unrelated PB/BM | 303 | 46 | 304 | 40 |
| Unrelated cord | | | | |
| HLA-identical | 5 | 0 | 5 | 2 |
| 1 HLA mismatch | 7 | 3 | 2 | 0 |
| 2 or more HLA mismatch | 15 | 0 | 7 | 0 |
| Not reported | 0 | 0 | 1 | 0 |
| Total unrelated cord | 27 | 3 | 15 | 2 |
| Total allogeneic | 621 | 107 | 597 | 104 |

Number of infusions for staged autologous transplants

| Number of infusions | Australia | New Zealand | Total |
|---------------------|-----------|-------------|-----------|
| Two | 12 | 2 | 14 |
| Three | 11 | 1 | 12 |
| Four or more | 1 | 0 | 1 |
| Not reported | 2 | 1 | 3 |
| Total | 26 | 4 | 30 |

Conditioning agents for autologous transplants

| Conditioning regimen | Recipient 0-15 | Recipient 16+ |
|---|----------------|---------------|
| Melphalan | 4 | 819 |
| Carmustine+Cytarabine+Etoposide+Melphalan | 4 | 322 |
| Carmustine+Cyclophosphamide+Etoposide | 0 | 51 |
| Cyclophosphamide+Cytarabine+Etoposide+Lomustine | 0 | 24 |
| Carboplatin+Etoposide | 7 | 19 |
| Busulphan+Melphalan | 16 | 17 |
| Cisplatin+Cyclophosphamide+Vincristine | 0 | 1 |
| None | 8 | 1 |
| Other | 12 | 34 |
| Total | 51 | 1,288 |

Conditioning intensity for allogeneic transplants

| Age group | Reduced intensity | Myeloablative | Total | % RIC |
|--------------------|-------------------|---------------|------------|------------|
| Australia | | | | |
| 0 - 15 | 10 | 111 | 121 | 8% |
| 16 - 29 | 20 | 30 | 50 | 40% |
| 30 - 39 | 13 | 34 | 47 | 28% |
| 40 - 49 | 48 | 49 | 97 | 50% |
| 50 - 59 | 113 | 32 | 145 | 78% |
| 60 - 69 | 116 | 12 | 128 | 91% |
| 70+ | 7 | 0 | 7 | 100% |
| Total | 327 | 268 | 595 | 55% |
| New Zealand | | | | |
| 0 - 15 | 4 | 10 | 14 | 29% |
| 16 - 29 | 5 | 13 | 18 | 28% |
| 30 - 39 | 3 | 6 | 9 | 33% |
| 40 - 49 | 6 | 6 | 12 | 50% |
| 50 - 59 | 11 | 10 | 21 | 52% |
| 60 - 69 | 24 | 3 | 27 | 89% |
| 70+ | 1 | 0 | 1 | 100% |
| Total | 54 | 48 | 102 | 53% |

Conditioning intensity not reported for 2 Australian and 2 New Zealand allogeneic transplants

Conditioning agents for allogeneic transplants

Recipients aged 0-15

| Conditioning regimen | Myeloablative | Reduced intensity |
|--|---------------|-------------------|
| Busulphan+Fludarabine+Thiotepa | 23 | 1 |
| Cyclophosphamide+TBI+Thiotepa | 19 | 0 |
| Busulphan+Cyclophosphamide | 14 | 0 |
| Busulphan+Fludarabine | 14 | 1 |
| Fludarabine+Thiotepa+Treosulfan | 12 | 0 |
| Busulphan+Fludarabine+Melphalan | 10 | 0 |
| Busulphan+Cyclophosphamide+Fludarabine | 6 | 0 |
| Fludarabine+Treosulfan | 6 | 0 |
| Cyclophosphamide+Fludarabine | 5 | 3 |
| Etoposide+TBI | 4 | 1 |
| Cyclophosphamide+TBI | 2 | 0 |
| Cyclophosphamide+Fludarabine+TBI | 1 | 2 |
| Other | 5 | 3 |
| None | 0 | 3 |
| Total | 121 | 14 |

Recipients aged 16+

| Conditioning regimen | Myeloablative | Reduced intensity |
|----------------------------------|---------------|-------------------|
| Fludarabine+Melphalan | 2 | 226 |
| Busulphan+Cyclophosphamide | 64 | 1 |
| Busulphan+Fludarabine | 38 | 23 |
| Cyclophosphamide+TBI | 56 | 2 |
| Cyclophosphamide+Fludarabine | 3 | 38 |
| Fludarabine+TBI | 3 | 32 |
| Cyclophosphamide+Fludarabine+TBI | 3 | 26 |
| Etoposide+TBI | 12 | 0 |
| Cyclophosphamide+TBI+Thiotepa | 2 | 0 |
| Other | 12 | 14 |
| None | 0 | 5 |
| Total | 195 | 367 |

ATG and Campath by donor relation

| | Recipient aged 0-15 | | | Recipient aged 16+ | | |
|----------------------------|---------------------|-----------|-----------|--------------------|-----------|------------|
| | ATG | Campath | Neither | ATG | Campath | Neither |
| Sibling/syngeneic | | | | | | |
| HLA-identical | 10 | 7 | 30 | 12 | 6 | 179 |
| 1 HLA mismatch | 0 | 0 | 0 | 2 | 0 | 0 |
| 2 or more HLA mismatch | 1 | 0 | 1 | 1 | 0 | 19 |
| Total sibling | 11 | 7 | 31 | 15 | 6 | 198 |
| Other related | | | | | | |
| HLA-identical | 0 | 0 | 3 | 0 | 0 | 5 |
| 1 HLA mismatch | 0 | 0 | 0 | 1 | 0 | 2 |
| 2 or more HLA mismatch | 18 | 2 | 10 | 0 | 0 | 31 |
| Total other related | 18 | 2 | 13 | 1 | 0 | 38 |
| Unrelated | | | | | | |
| HLA-identical | 25 | 9 | 8 | 137 | 5 | 138 |
| 1 HLA mismatch | 2 | 2 | 0 | 10 | 1 | 10 |
| 2 or more HLA mismatch | 3 | 0 | 1 | 1 | 0 | 3 |
| Not reported | 2 | 1 | 2 | 1 | 0 | 0 |
| Total unrelated | 32 | 12 | 11 | 149 | 6 | 151 |
| Total allogeneic | 61 | 21 | 55 | 165 | 12 | 387 |

Graft vs host disease prophylaxis by donor relation

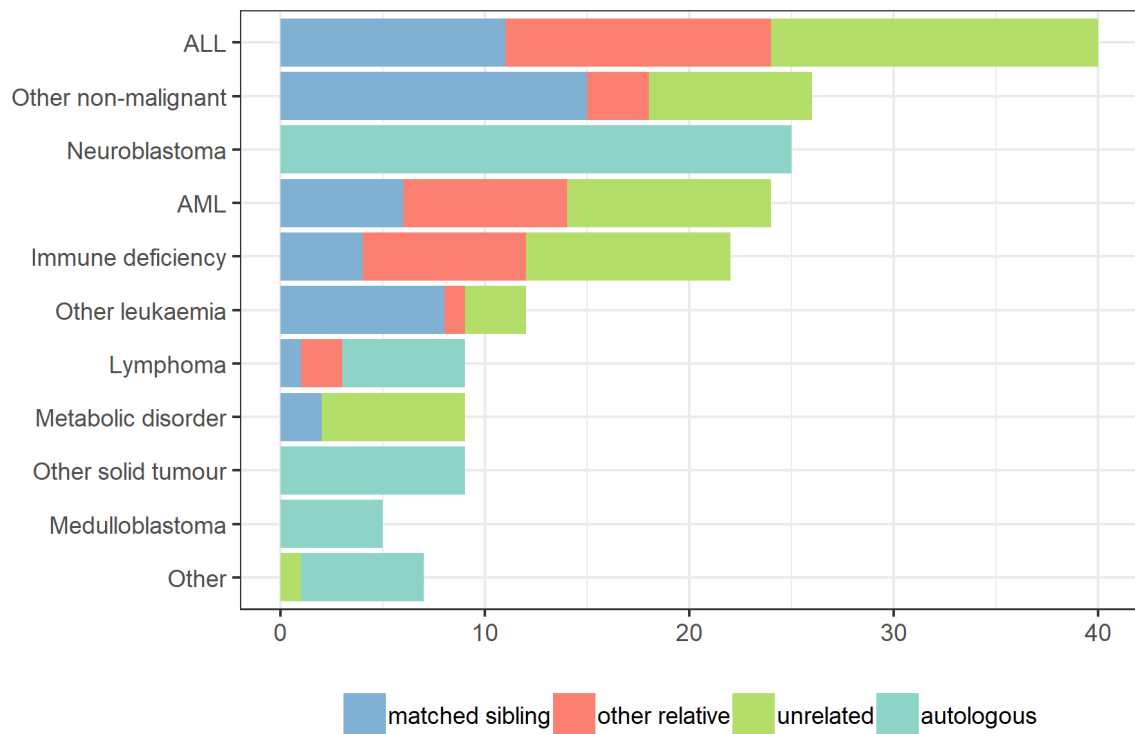
| Agents | Matched sib | | Other related | | Unrelated | | Total |
|--|-------------|------------|---------------|-----------|-----------|------------|------------|
| | 0-15 | 16+ | 0-15 | 16+ | 0-15 | 16+ | |
| Cyclosporin+Methotrexate | 20 | 133 | 0 | 6 | 10 | 238 | 407 |
| Cyclosporin only | 9 | 7 | 3 | 0 | 17 | 16 | 52 |
| Cyclosporin+Mycophenolate | 6 | 13 | 3 | 1 | 12 | 15 | 50 |
| Cyclophosphamide+Mycophenolate +Tacrolimus | 0 | 0 | 4 | 28 | 0 | 2 | 34 |
| Cyclosporin+Methotrexate+Steroids | 0 | 17 | 0 | 0 | 0 | 3 | 20 |
| Methotrexate+Tacrolimus | 1 | 1 | 1 | 0 | 1 | 16 | 20 |
| Cyclophosphamide+Cyclosporin | 0 | 7 | 0 | 4 | 0 | 5 | 16 |
| Cyclophosphamide+Cyclosporin +Mycophenolate | 0 | 0 | 3 | 12 | 0 | 0 | 15 |
| Mycophenolate only | 1 | 0 | 7 | 0 | 1 | 0 | 9 |
| Cyclophosphamide+Methotrexate | 1 | 6 | 0 | 0 | 1 | 0 | 8 |
| Cyclosporin+Steroids | 0 | 0 | 0 | 0 | 6 | 0 | 6 |
| Methotrexate+Other | 0 | 1 | 0 | 1 | 0 | 1 | 3 |
| Cyclosporin+Mycophenolate+Steroids | 0 | 1 | 0 | 1 | 0 | 0 | 2 |
| Other | 2 | 3 | 1 | 3 | 1 | 4 | 14 |
| None | 1 | 3 | 9 | 2 | 0 | 1 | 16 |
| Not reported | 6 | 5 | 4 | 3 | 6 | 5 | 29 |
| Total | 47 | 197 | 35 | 61 | 55 | 306 | 701 |

Indication for transplant

Recipients aged 0-15 by transplant type

| Diagnosis | Allogeneic related | | Allogeneic unrelated | | Autologous | |
|--|--------------------|----------|----------------------|----------|------------|----------|
| | Aust | NZ | Aust | NZ | Aust | NZ |
| Leukaemias | | | | | | |
| Acute lymphoblastic leukaemia | 20 | 4 | 14 | 2 | 0 | 0 |
| Acute myeloid leukaemia | 12 | 2 | 8 | 2 | 0 | 0 |
| Other acute leukaemia | 2 | 0 | 1 | 0 | 0 | 0 |
| Myelodysplasia | 3 | 0 | 0 | 1 | 0 | 0 |
| Combined MDS/MPN | 4 | 0 | 1 | 0 | 0 | 0 |
| Lymphomas | | | | | | |
| Hodgkin lymphoma | 0 | 0 | 0 | 0 | 4 | 0 |
| Non-Hodgkin lymphoma | 2 | 1 | 0 | 0 | 2 | 0 |
| Solid tumours | | | | | | |
| Central nervous system tumour | 0 | 0 | 0 | 0 | 1 | 0 |
| Medulloblastoma | 0 | 0 | 0 | 0 | 5 | 0 |
| Neuroblastoma | 0 | 0 | 0 | 0 | 21 | 4 |
| Pleuropulmonary blastoma | 0 | 0 | 0 | 0 | 2 | 0 |
| Wilm tumor | 0 | 0 | 0 | 0 | 2 | 0 |
| Other solid tumour | 0 | 0 | 0 | 0 | 3 | 1 |
| Inherited metabolic disorders | | | | | | |
| Adrenoleukodystrophy | 1 | 0 | 1 | 0 | 0 | 0 |
| Hurler syndrome | 0 | 0 | 2 | 0 | 0 | 0 |
| Mucopolysaccharidosis | 0 | 0 | 3 | 0 | 0 | 0 |
| Other metabolic disorder | 1 | 0 | 1 | 0 | 0 | 0 |
| Primary immune deficiencies | | | | | | |
| CD 40 ligand deficiency | 1 | 0 | 0 | 0 | 0 | 0 |
| Chronic granulomatous disease | 3 | 0 | 3 | 0 | 0 | 0 |
| Severe combined immune deficiency | 4 | 1 | 1 | 0 | 0 | 0 |
| Other immune deficiency | 3 | 0 | 6 | 0 | 0 | 0 |
| Other | | | | | | |
| Congenital dyserythropoietic anaemia | 1 | 0 | 0 | 0 | 0 | 0 |
| Histiocytic disorder | 6 | 0 | 1 | 0 | 0 | 0 |
| Platelet disorder | 0 | 0 | 1 | 0 | 0 | 0 |
| Severe aplastic anaemia | 7 | 1 | 5 | 1 | 0 | 0 |
| Shwachman-Diamond | 0 | 0 | 1 | 0 | 0 | 0 |
| Sickle cell | 1 | 0 | 0 | 0 | 0 | 0 |
| Thalassemia | 2 | 0 | 0 | 0 | 0 | 0 |
| Prevention of type 1 diabetes mellitus | 0 | 0 | 0 | 0 | 6 | 0 |
| Total | 73 | 9 | 49 | 6 | 46 | 5 |

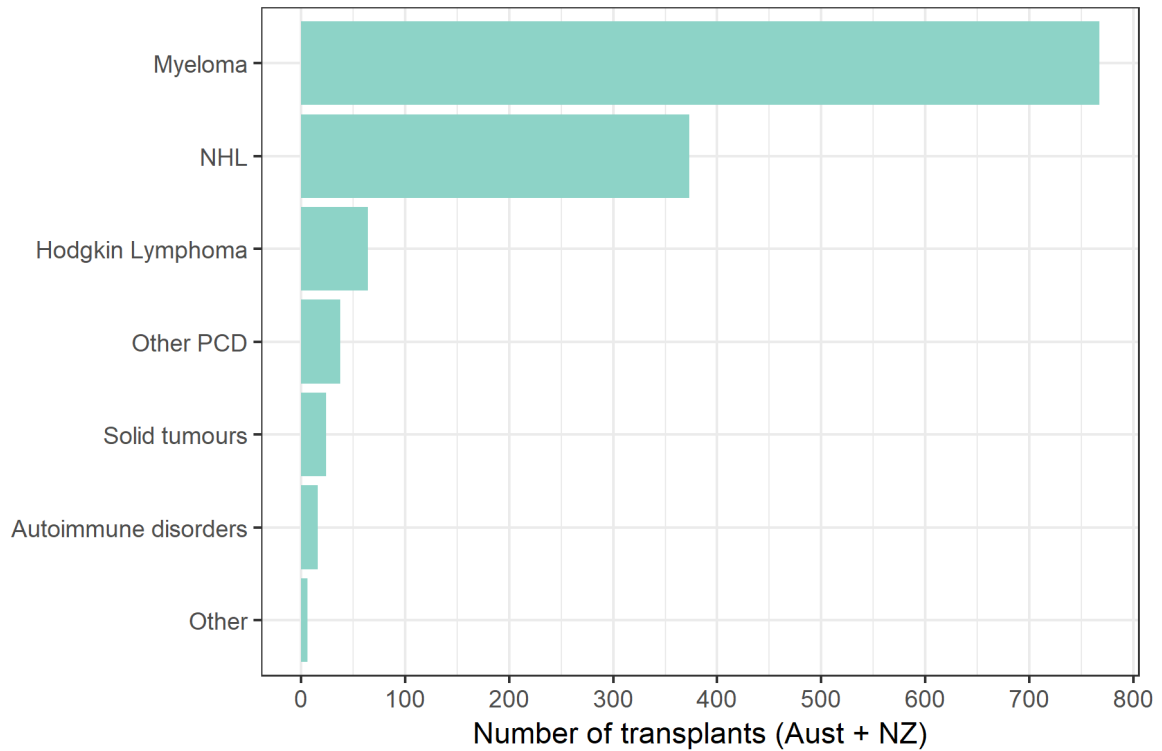
Recipients aged 0-15: transplant indications



Acute leukaemia by disease stage, all ages (allogeneic transplants)

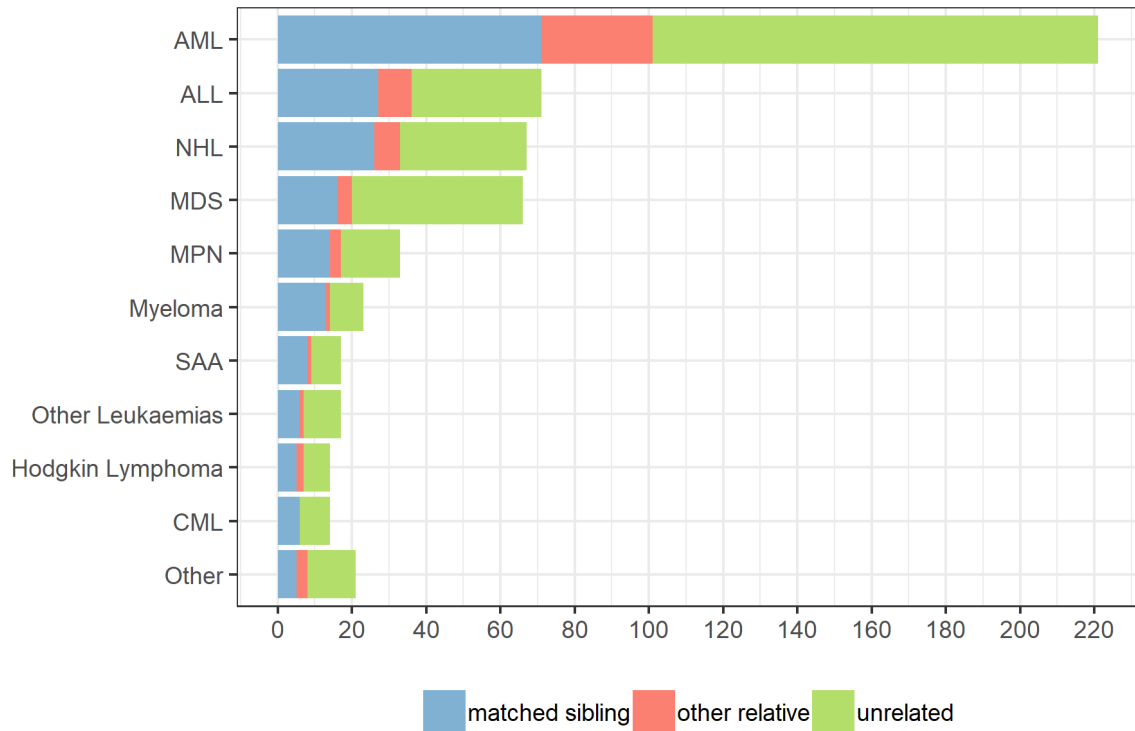
| Disease stage at transplant | Acute lymphoblastic leukaemia | | Acute myeloid leukaemia | |
|-----------------------------|-------------------------------|-------------|-------------------------|-------------|
| | Australia | New Zealand | Australia | New Zealand |
| Complete remission | | | | |
| 1 st | 56 | 10 | 125 | 34 |
| 2 nd | 28 | 5 | 39 | 8 |
| 3 rd or higher | 3 | 1 | 3 | 0 |
| Not specified | 2 | 1 | 1 | 0 |
| Relapse | | | | |
| 1 st | 1 | 0 | 8 | 3 |
| 2 nd | 0 | 0 | 1 | 0 |
| 3 rd or higher | 0 | 0 | 2 | 0 |
| Primary induction failure | 0 | 0 | 13 | 0 |
| Never treated | 0 | 0 | 0 | 1 |
| Not evaluable | 0 | 0 | 2 | 1 |
| Not reported | 4 | 0 | 3 | 1 |
| Total | 94 | 17 | 197 | 48 |

Recipients aged 16+: autologous transplants



| Diagnosis | Australia | New Zealand | Total |
|--------------------------------------|--------------|-------------|--------------|
| Plasma cell disorders | | | |
| Multiple myeloma | 654 | 113 | 767 |
| Primary amyloidosis | 16 | 0 | 16 |
| Plasma cell leukaemia | 2 | 1 | 3 |
| Other plasma cell disorder | 15 | 4 | 19 |
| Lymphomas | | | |
| Hodgkin lymphoma | 56 | 8 | 64 |
| Non-Hodgkin lymphoma (NHL) | | | |
| Diffuse large B cell | 131 | 14 | 145 |
| Follicular | 39 | 6 | 45 |
| Mantle cell | 63 | 13 | 76 |
| T cell and NK cell neoplasms | 48 | 4 | 52 |
| Other NHL | 49 | 6 | 55 |
| Solid tumours | | | |
| Germ cell tumour (extragonadal only) | 10 | 0 | 10 |
| Ewing sarcoma/PNET of bone | 5 | 0 | 5 |
| Testicular | 2 | 1 | 3 |
| Other solid tumour | 5 | 1 | 6 |
| Autoimmune disorders | | | |
| Multiple sclerosis | 7 | 0 | 7 |
| Systemic sclerosis (scleroderma) | 9 | 0 | 9 |
| Other disorders | | | |
| Leukaemia | 5 | 0 | 5 |
| Malignant histiocytosis | 1 | 0 | 1 |
| Total transplants | 1,117 | 171 | 1,288 |

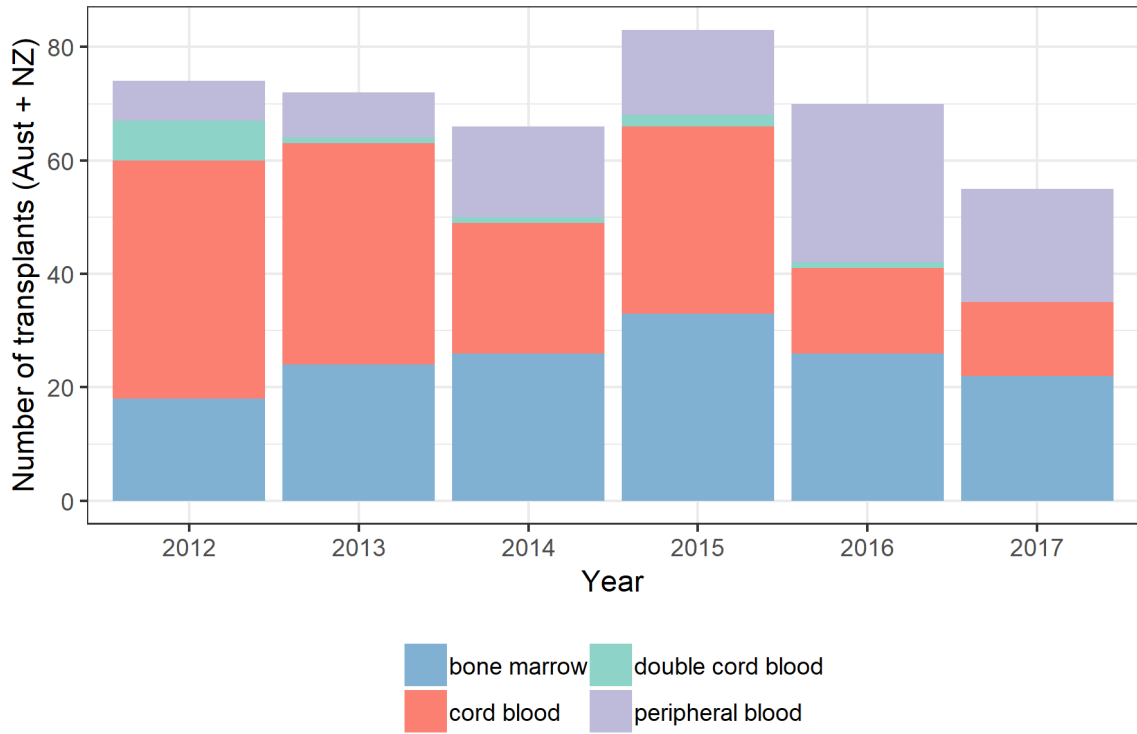
Recipients aged 16+: allogeneic transplants



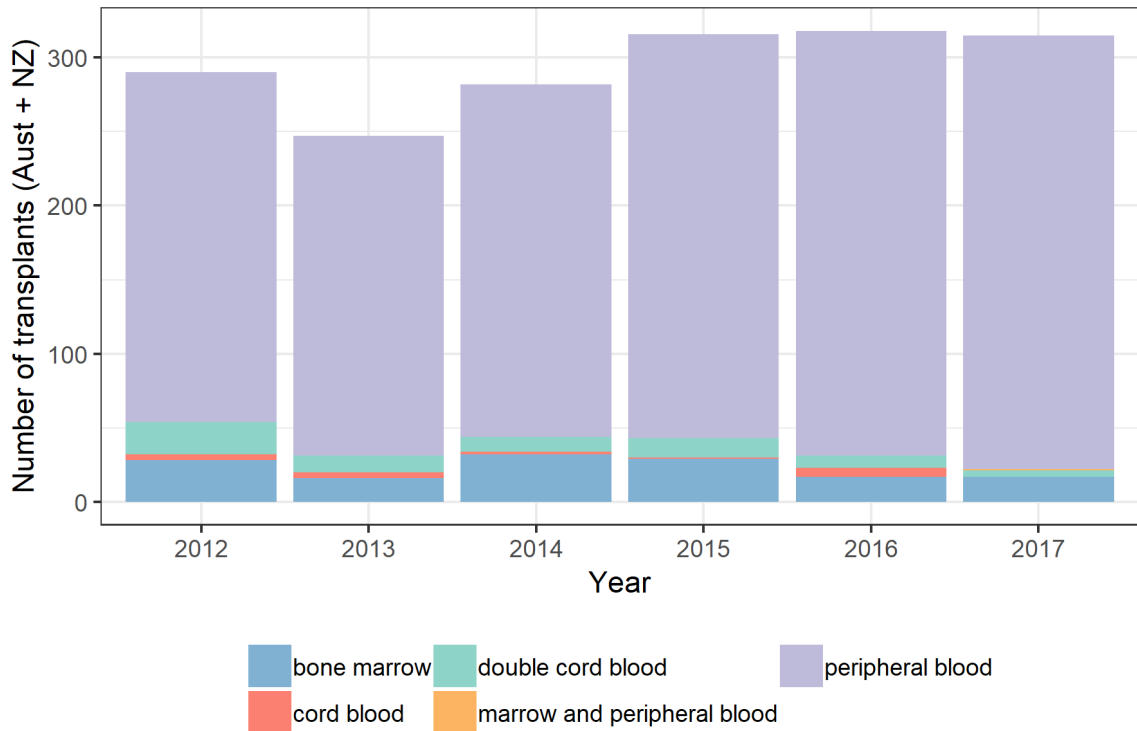
| Diagnosis | Australia | New Zealand | Total |
|-------------------------------------|------------|-------------|------------|
| Leukaemias | | | |
| Acute lymphoblastic leukaemia (ALL) | 60 | 11 | 71 |
| Acute myeloid leukaemia (AML) | 177 | 44 | 221 |
| Chronic myeloid leukaemia (CML) | 13 | 1 | 14 |
| Combined MDS / MPN | 13 | 3 | 16 |
| Myelodysplasia (MDS) | 62 | 4 | 66 |
| Myeloproliferative neoplasm (MPN) | 25 | 8 | 33 |
| Other leukaemia | 17 | 0 | 17 |
| Lymphomas | | | |
| Hodgkin lymphoma | 11 | 3 | 14 |
| Non-Hodgkin lymphoma (NHL) | | | |
| Diffuse large B cell | 15 | 2 | 17 |
| Follicular | 18 | 4 | 22 |
| Mantle cell | 7 | 1 | 8 |
| T cell and NK cell neoplasms | 10 | 1 | 11 |
| Other NHL | 9 | 0 | 9 |
| Plasma cell disorders | | | |
| Myeloma | 21 | 2 | 23 |
| Other PCD | 1 | 0 | 1 |
| Other disorders | | | |
| Severe aplastic anaemia (SAA) | 13 | 4 | 17 |
| Other | 3 | 1 | 4 |
| Total transplants | 475 | 89 | 564 |

Unrelated donor transplants

Stem cell source - recipients aged 0-15

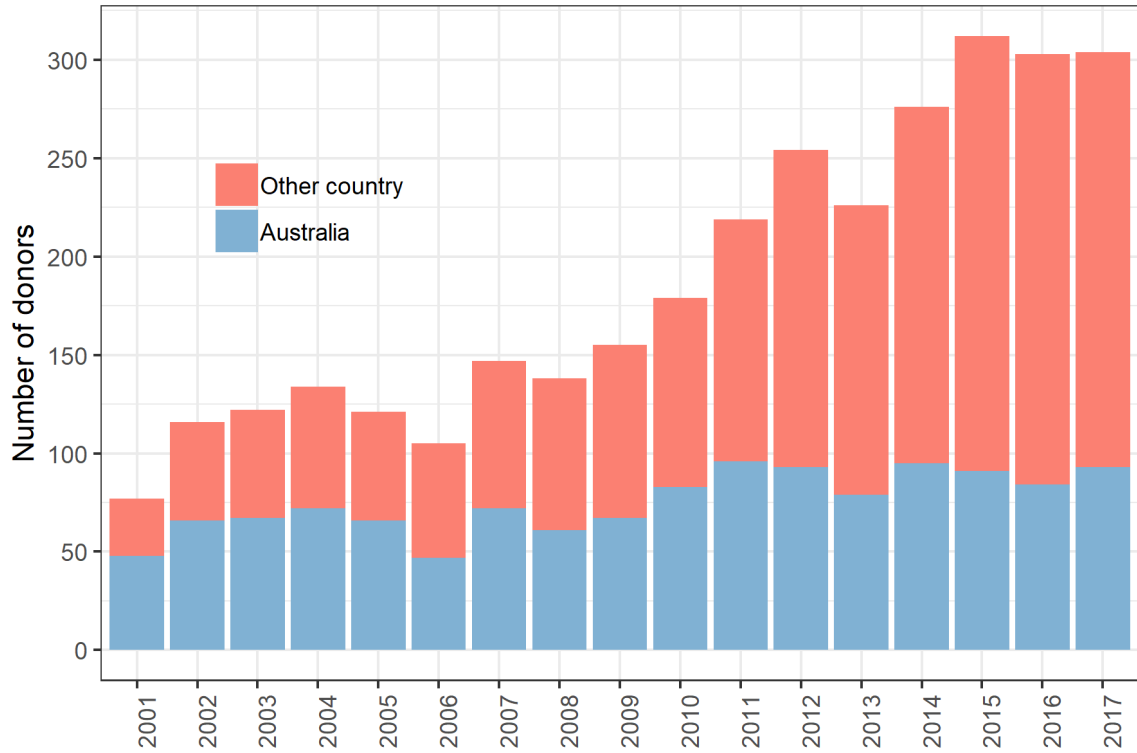


Stem cell source - recipients aged 16+

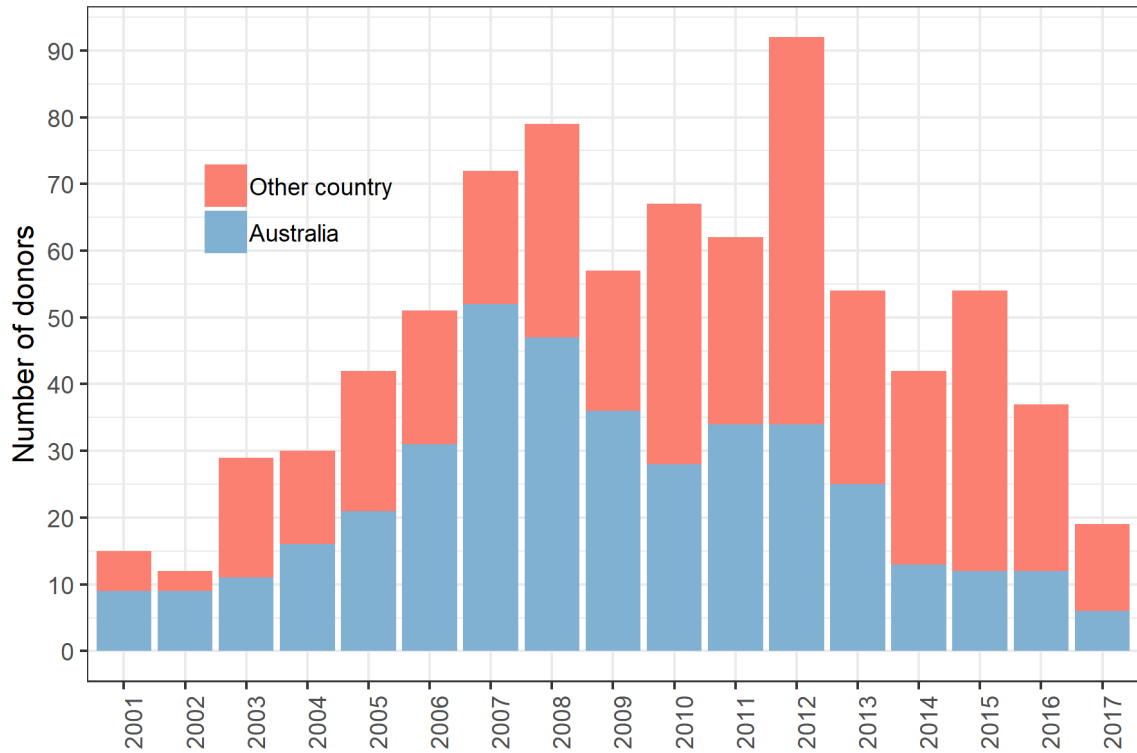


Donor country for Australian unrelated donor transplants

Australian peripheral blood and marrow transplants



Australian cord blood transplants



Note that double cord units have been counted separately.

Donor country - marrow and peripheral blood

| Donor registry country | 2016 | | 2017 | |
|------------------------|------------|-------------|------------|-------------|
| | Australia | New Zealand | Australia | New Zealand |
| Australia | 84 | 10 | 93 | 9 |
| Brazil | 4 | 0 | 0 | 0 |
| Canada | 3 | 0 | 3 | 0 |
| Denmark | 2 | 0 | 1 | 0 |
| France | 1 | 0 | 1 | 0 |
| Germany | 118 | 18 | 102 | 19 |
| India | 1 | 0 | 1 | 0 |
| Israel | 0 | 0 | 3 | 2 |
| Italy | 2 | 0 | 3 | 0 |
| Netherlands | 0 | 0 | 2 | 0 |
| New Zealand | 1 | 4 | 0 | 5 |
| Poland | 9 | 2 | 13 | 0 |
| Portugal | 0 | 0 | 1 | 0 |
| Slovenia | 0 | 0 | 1 | 0 |
| South Africa | 0 | 0 | 1 | 0 |
| Spain | 1 | 0 | 1 | 0 |
| Sweden | 1 | 0 | 0 | 0 |
| Switzerland | 1 | 0 | 5 | 0 |
| Taiwan | 0 | 0 | 1 | 1 |
| Thailand | 1 | 0 | 3 | 0 |
| United Kingdom | 24 | 0 | 21 | 1 |
| USA | 44 | 5 | 42 | 3 |
| Not recorded | 6 | 7 | 5 | 0 |
| Total | 303 | 46 | 303 | 40 |

Donor country - cord blood

| Donor registry country | 2016 | | 2017 | |
|------------------------|-----------|-------------|-----------|-------------|
| | Australia | New Zealand | Australia | New Zealand |
| Australia | 12 | 0 | 6 | 1 |
| Belgium | 0 | 0 | 1 | 0 |
| France | 0 | 0 | 1 | 0 |
| Germany | 1 | 0 | 0 | 1 |
| Israel | 1 | 0 | 0 | 0 |
| Russia | 1 | 0 | 0 | 0 |
| Singapore | 0 | 0 | 2 | 0 |
| Spain | 0 | 0 | 1 | 0 |
| Sweden | 2 | 0 | 0 | 0 |
| United Kingdom | 1 | 2 | 0 | 0 |
| USA | 19 | 1 | 6 | 0 |
| Not recorded | 0 | 0 | 2 | 0 |
| Total | 37 | 3 | 19 | 2 |

Note that the 4 double cord units have been counted separately.

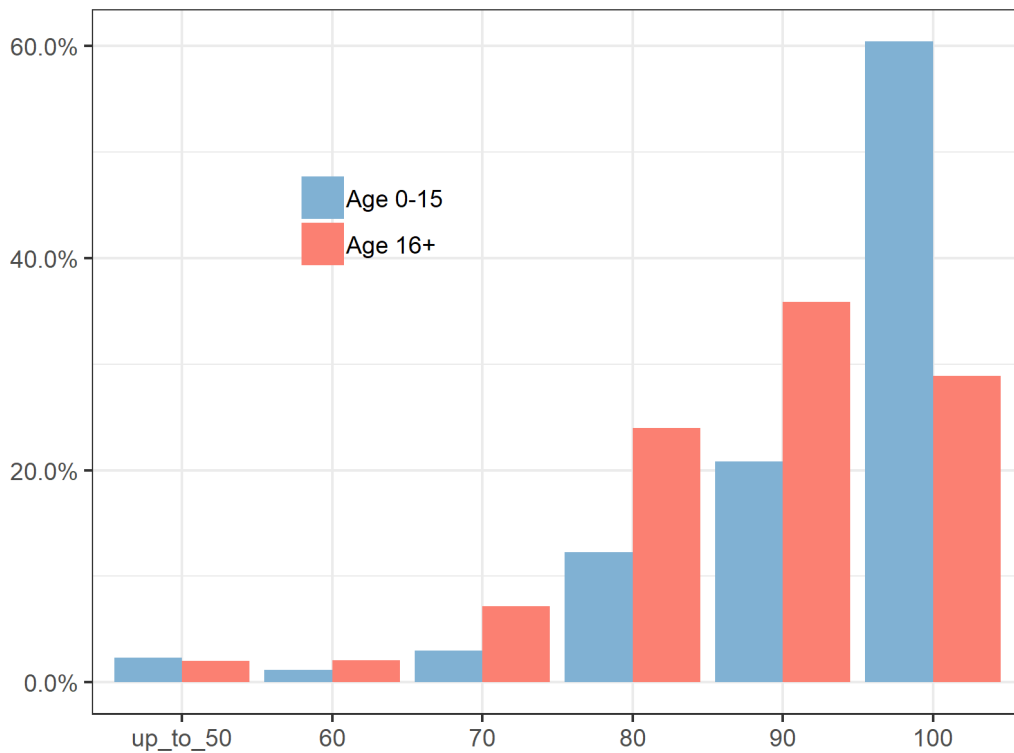
Unrelated donor transplant outcomes

Adverse events in the first 100 days

| Event | Australia | | | | New Zealand | | | |
|--------------------------|--------------------------|-----|--------------------------|-----|-------------------------|-----|-------------------------|-----|
| | Recipient 0-15 (n=49) | | Recipient 16+ (n=270) | | Recipient 0-15 (n=7) | | Recipient 16+ (n=37) | |
| VOD | 6 | 12% | 9 | 3% | 2 | 29% | 0 | 0% |
| Haemorrhagic cystitis | 2 | 4% | 11 | 4% | 1 | 14% | 2 | 5% |
| Interstitial pneumonitis | 2 | 4% | 3 | 1% | 0 | 0% | 0 | 0% |
| CMV disease | 3 | 6% | 15 | 6% | 2 | 29% | 1 | 3% |
| None | 32 | 65% | 169 | 63% | 2 | 29% | 20 | 54% |
| Not reported | 4 | 8% | 65 | 24% | 0 | 0% | 14 | 38% |

Patients may have experienced more than one of these adverse events

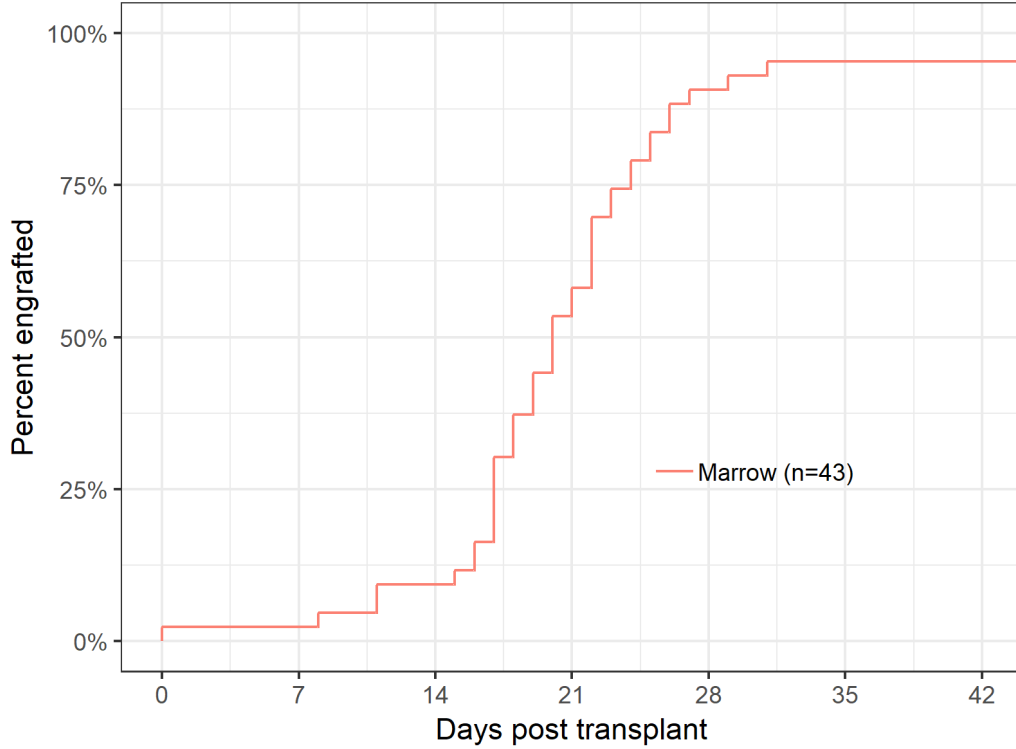
Performance status 1 year post transplant (Lansky/Karnofsky)



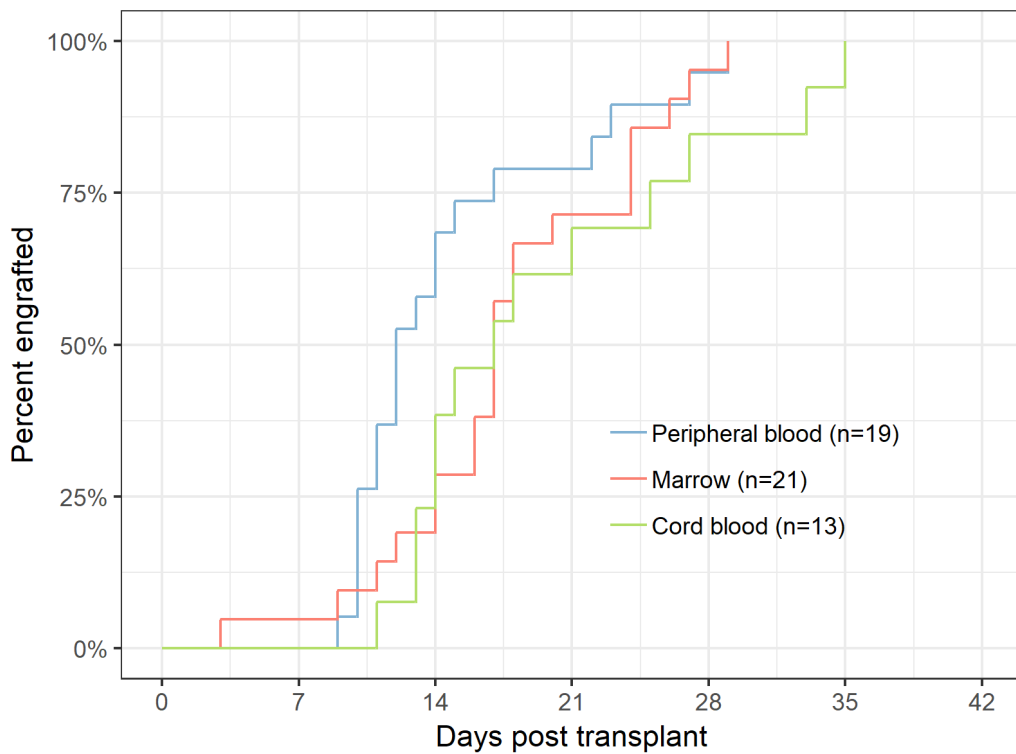
Outcomes in the first year post transplant

Recipients aged 0-15

Neutrophil engraftment 2017 – matched sibling donor

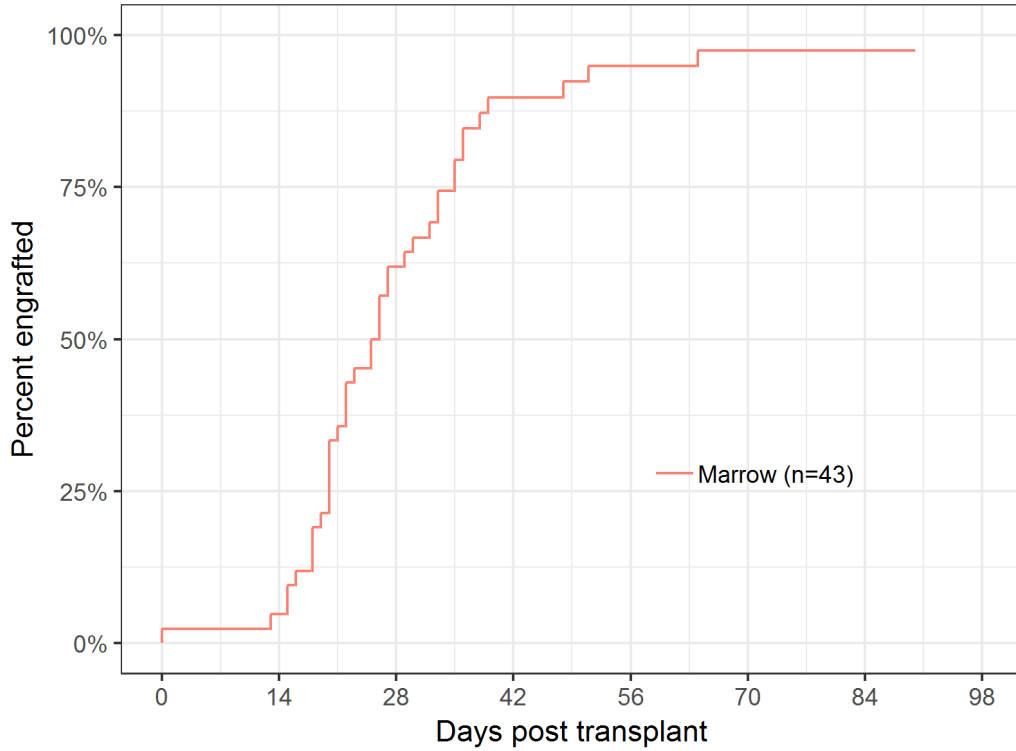


Neutrophil engraftment 2017 – unrelated donor

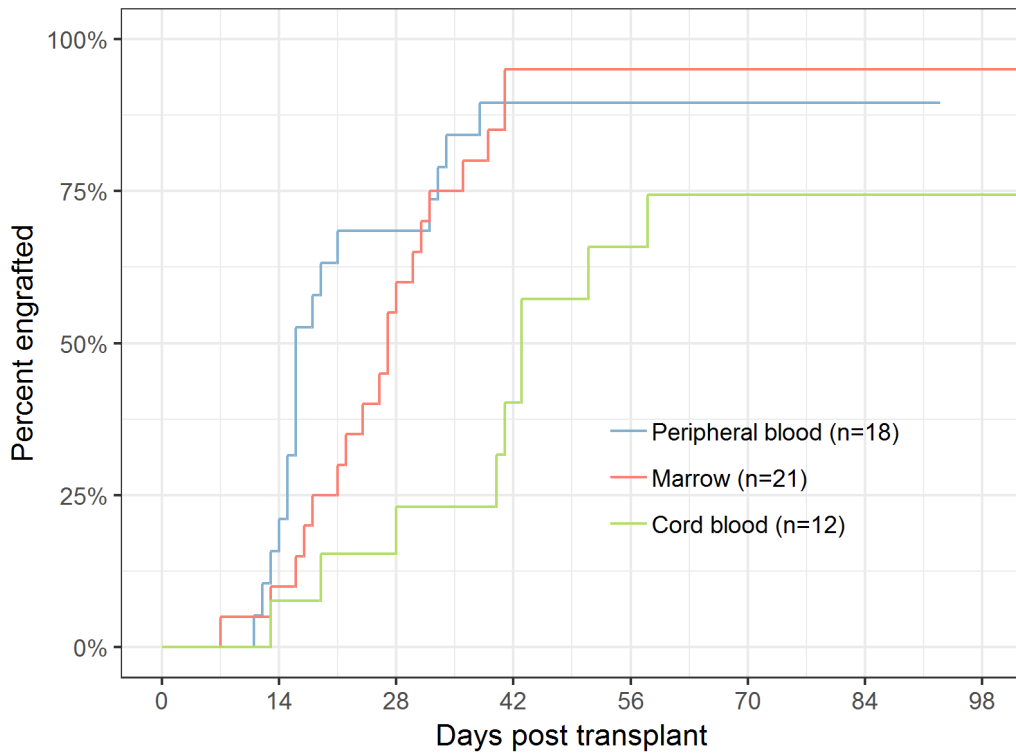


First year outcomes - recipients aged 0-15

Platelet engraftment 2017 – matched sibling donor

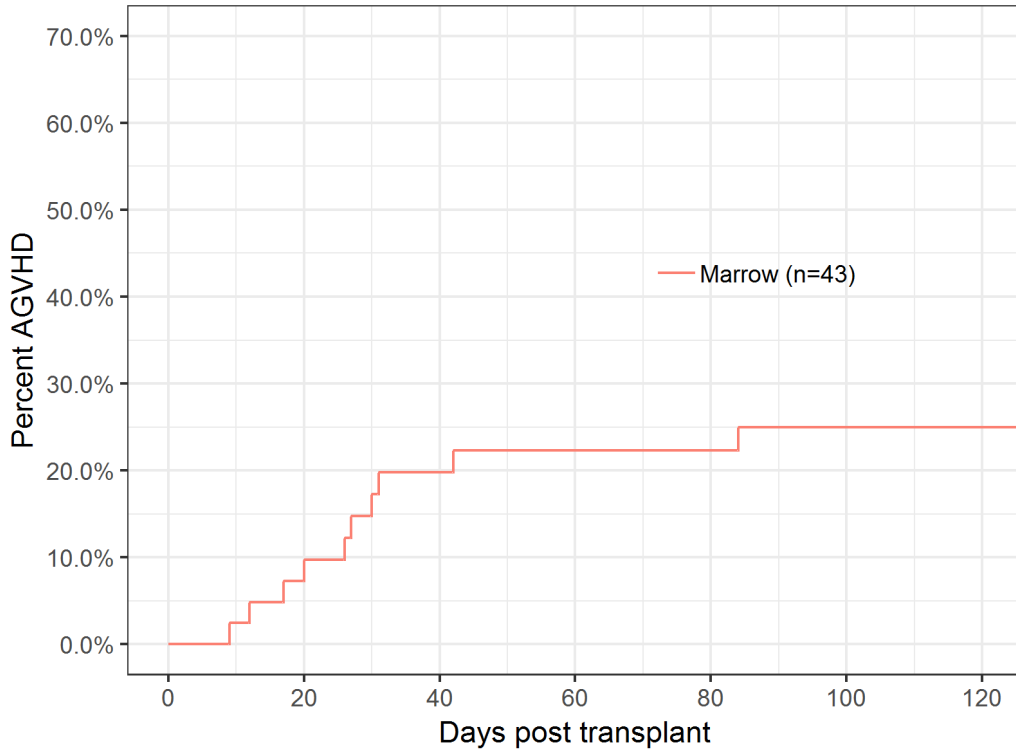


Platelet engraftment 2017 – unrelated donor

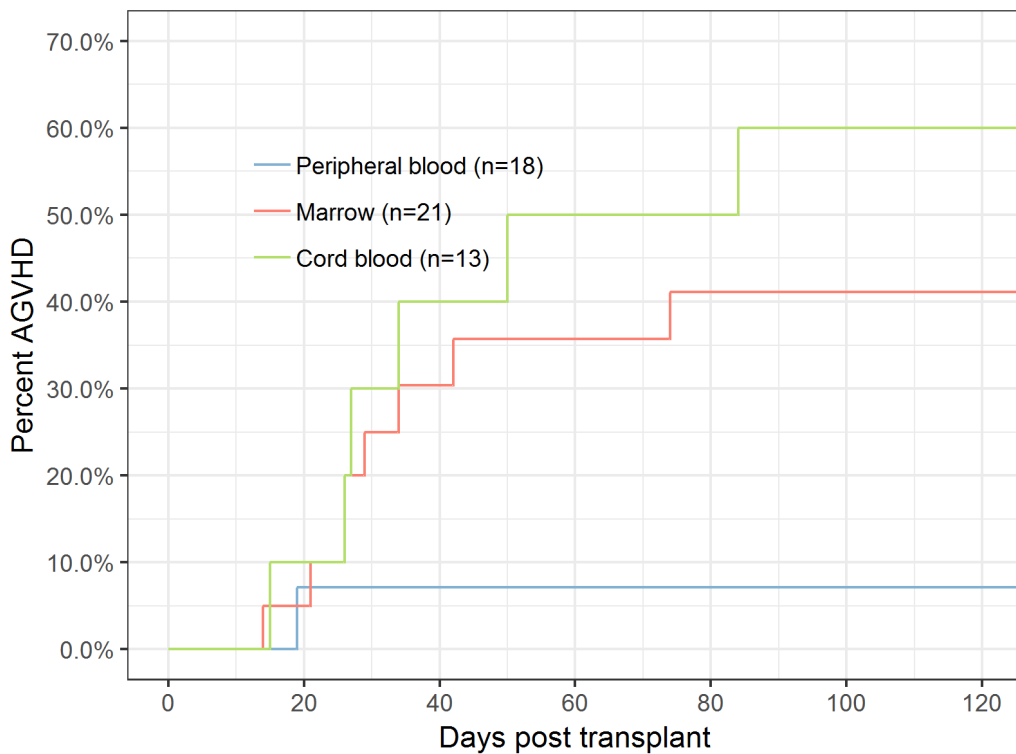


First year outcomes - recipients aged 0-15

Acute GVHD 2017 all grades – matched sibling donor

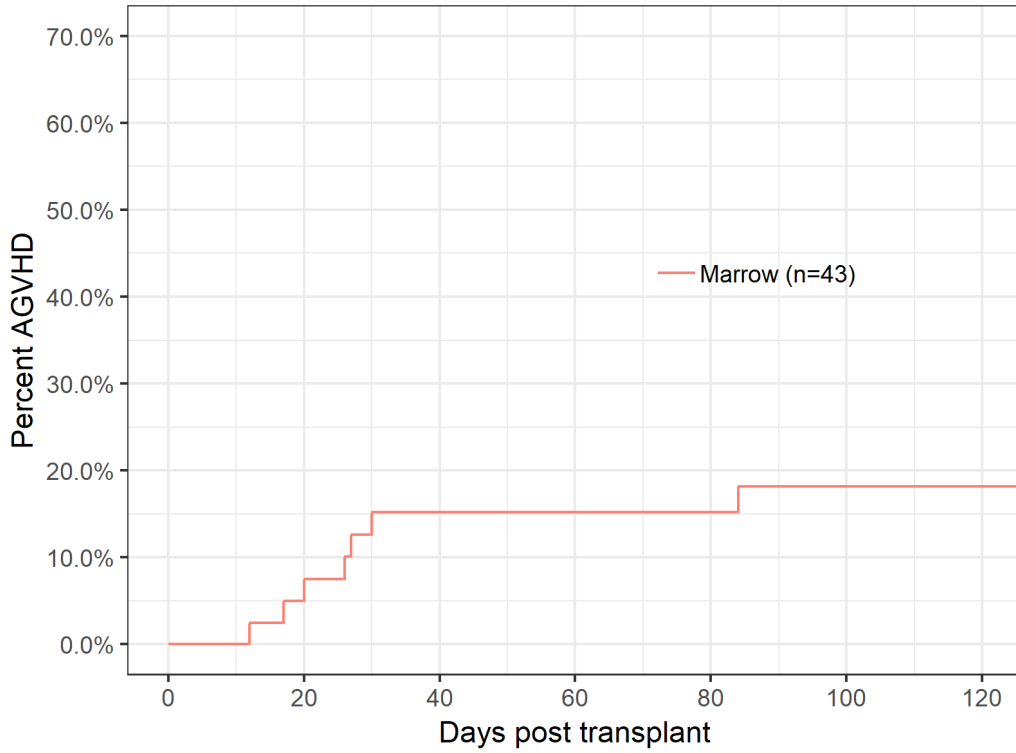


Acute GVHD 2017 all grades – unrelated donor

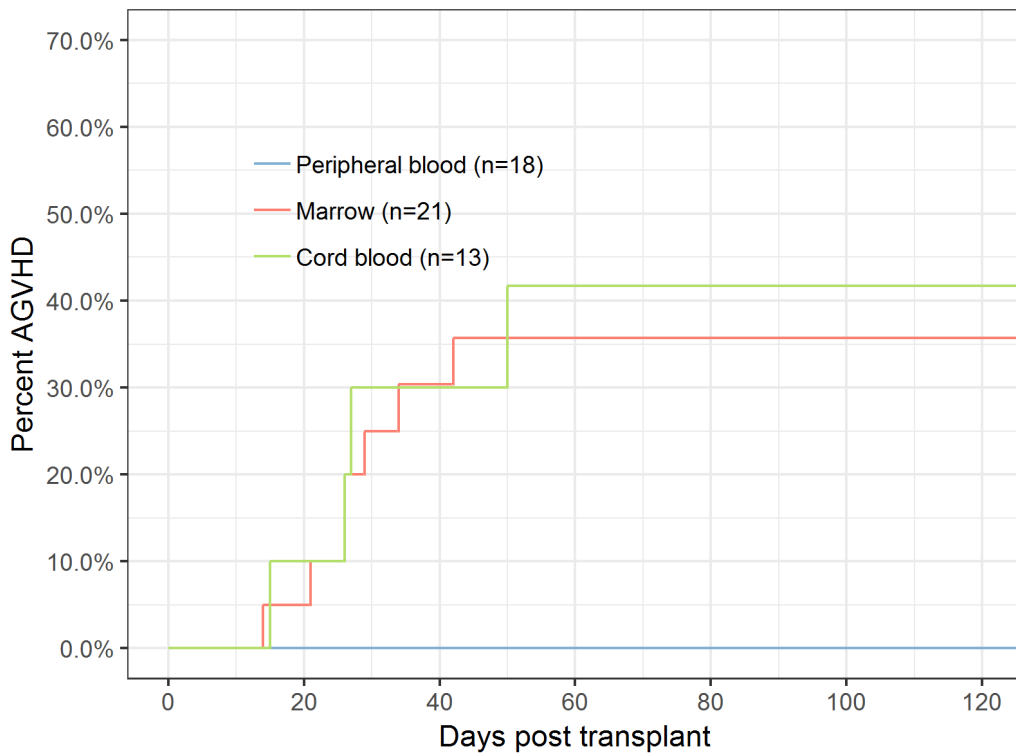


First year outcomes - recipients aged 0-15

Acute GVHD 2017 grade II and above – matched sibling donor

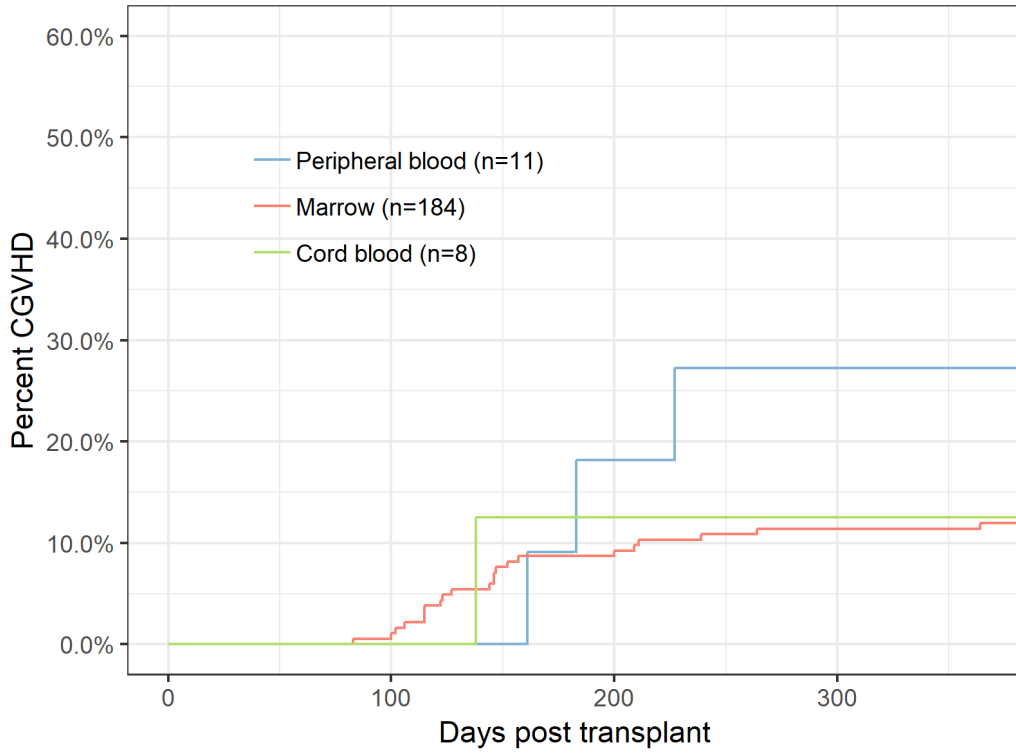


Acute GVHD 2017 grade II and above – unrelated donor

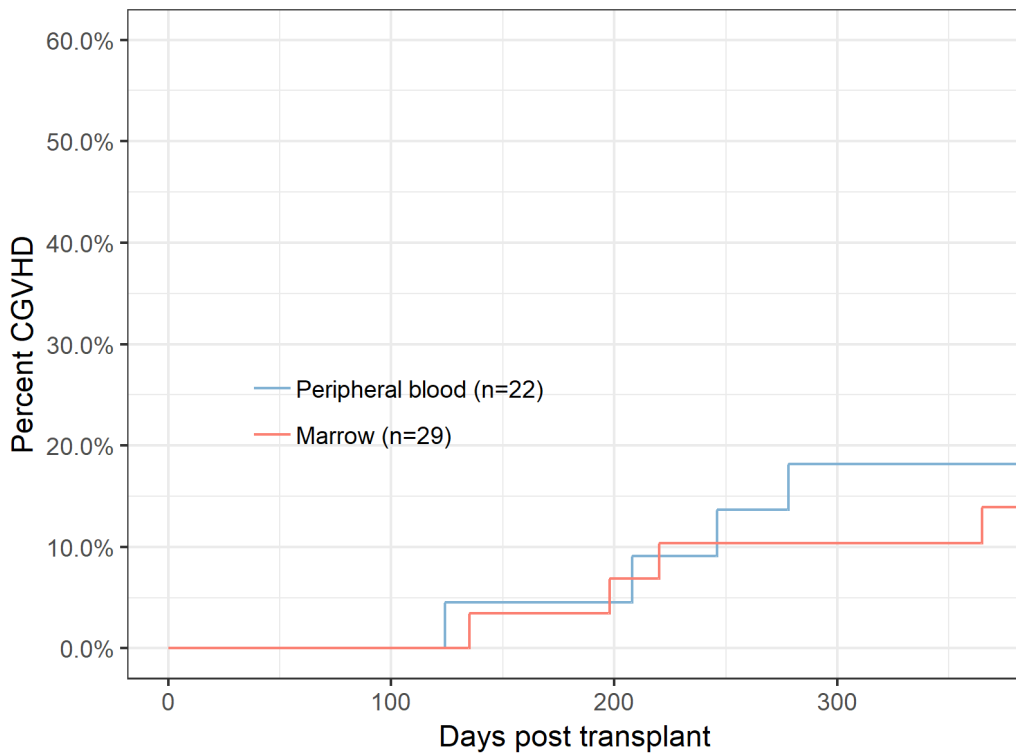


First year outcomes - recipients aged 0-15

Chronic GVHD 2001-16 – matched sibling donor

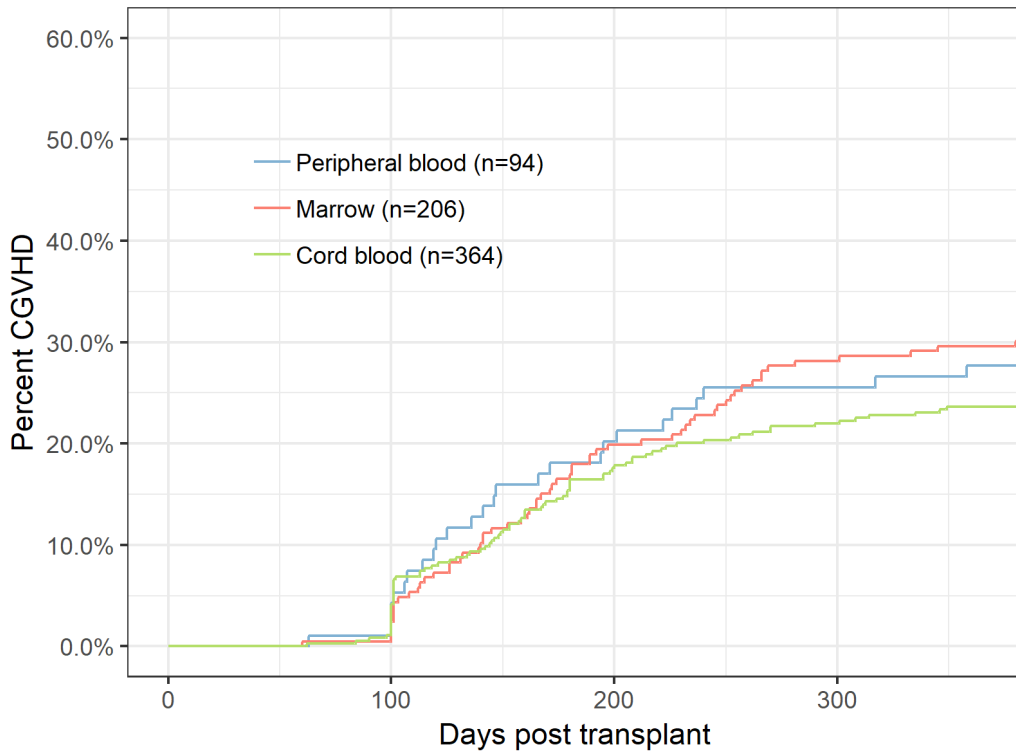


Chronic GVHD 2001-16 – other related donor

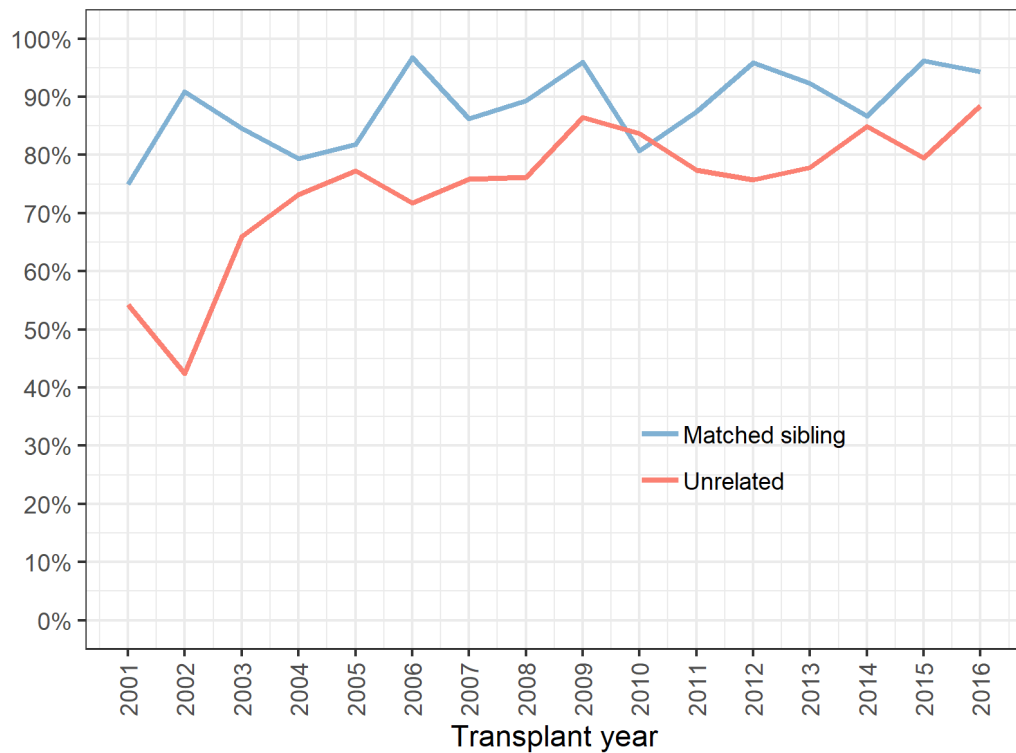


First year outcomes - recipients aged 0-15

Chronic GVHD 2001-16 – unrelated donor



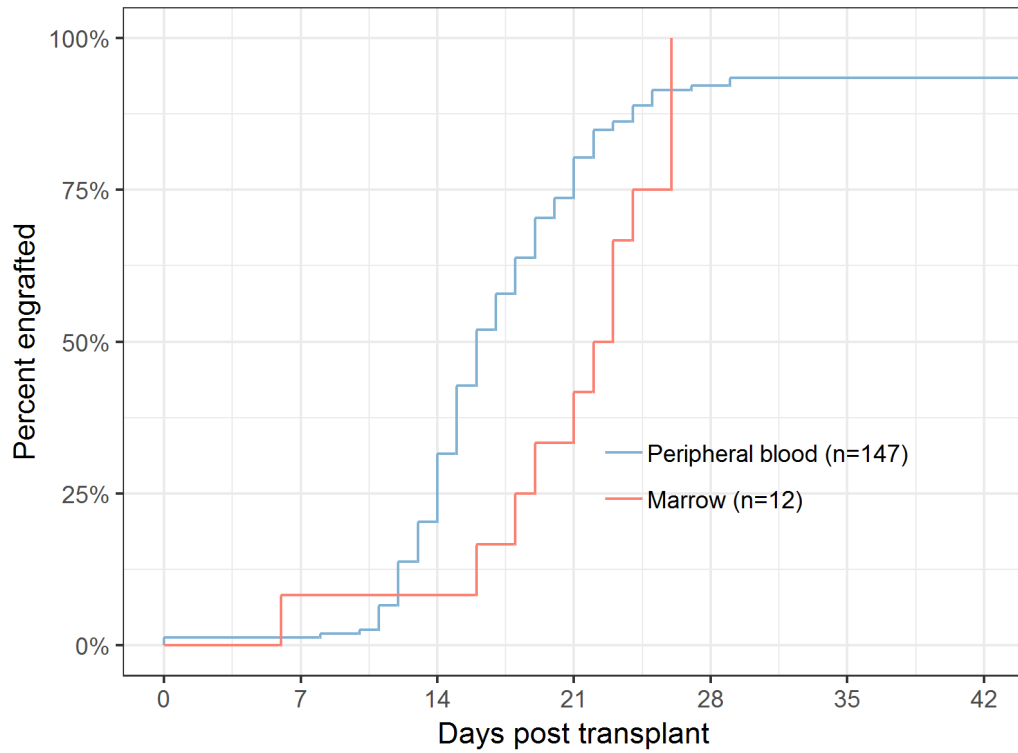
One year survival 2001-2016



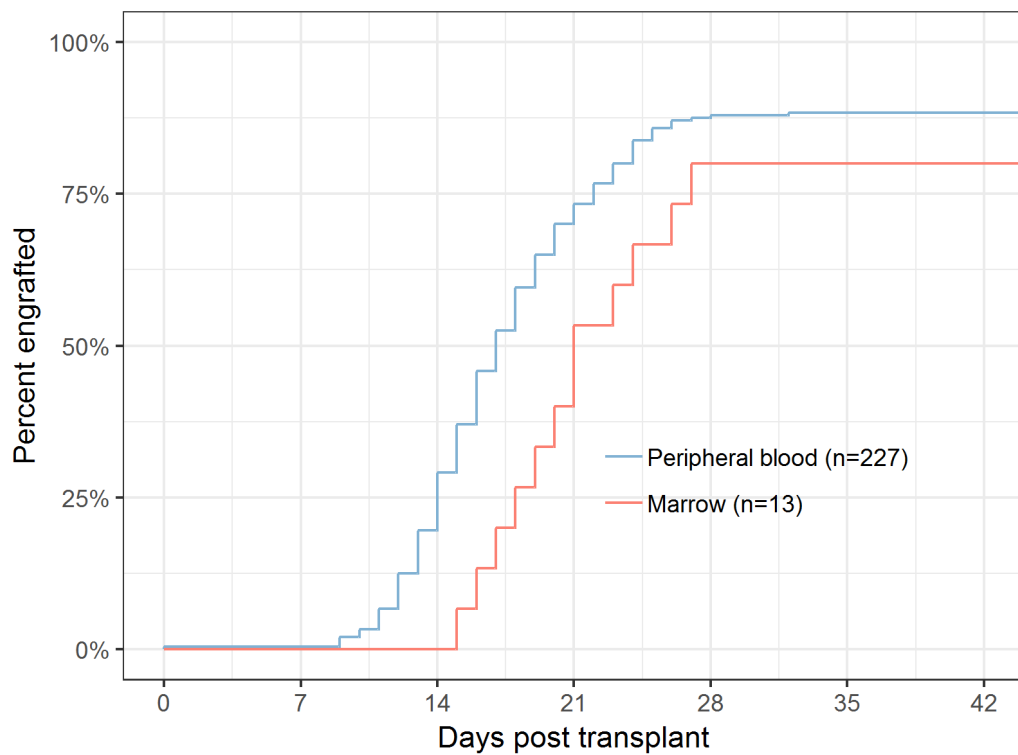
First year outcomes

Recipients aged 16+

Neutrophil engraftment 2017 – matched sibling donor

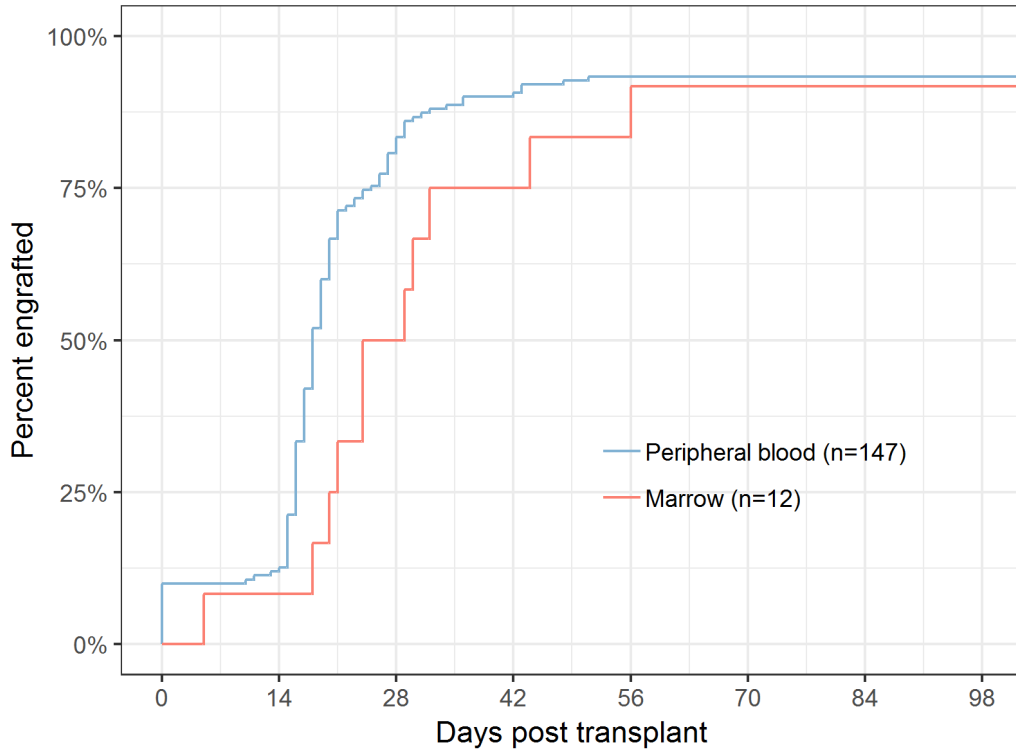


Neutrophil engraftment 2017 – unrelated donor

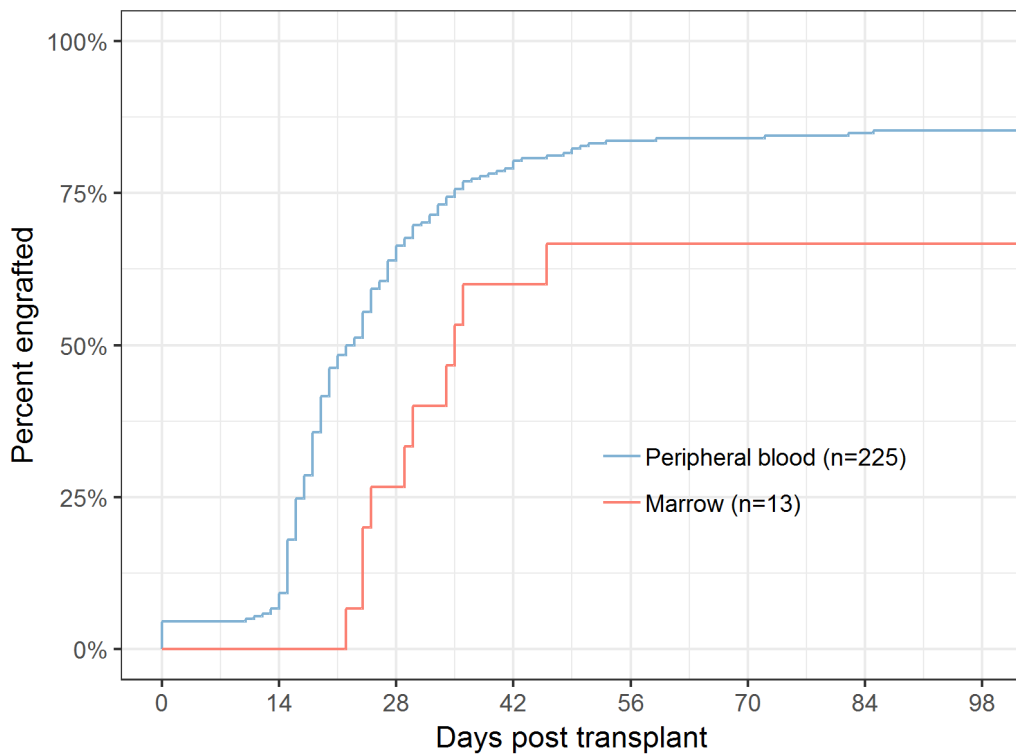


First year outcomes - recipients aged 16+

Platelet engraftment 2017 – matched sibling donor

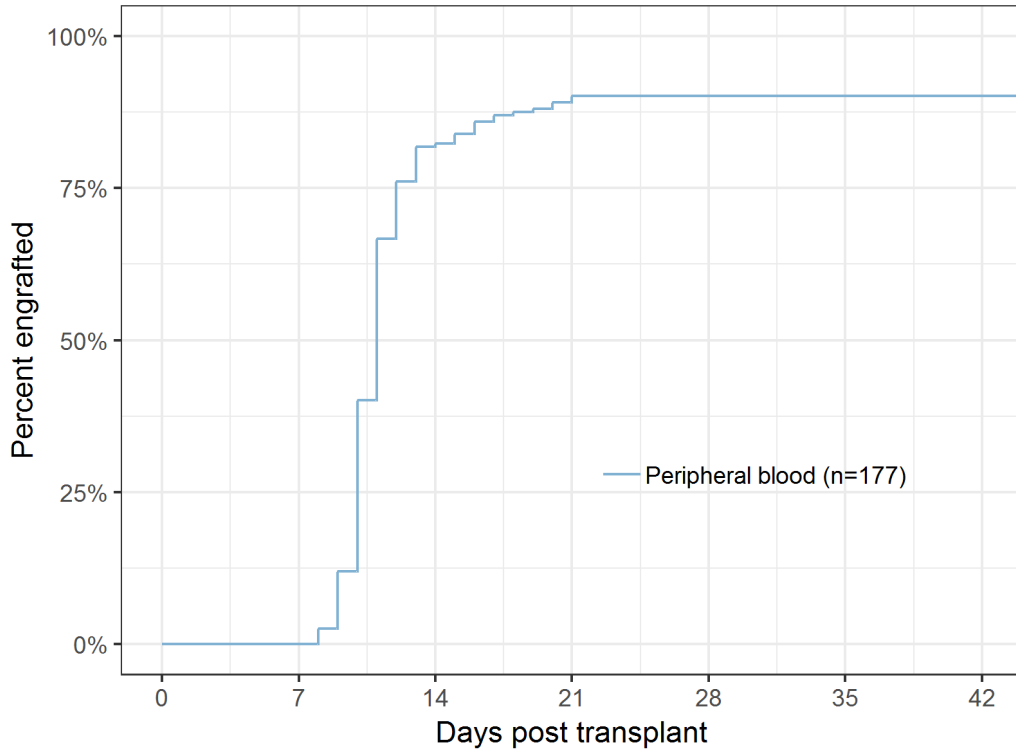


Platelet engraftment 2017 – unrelated donor

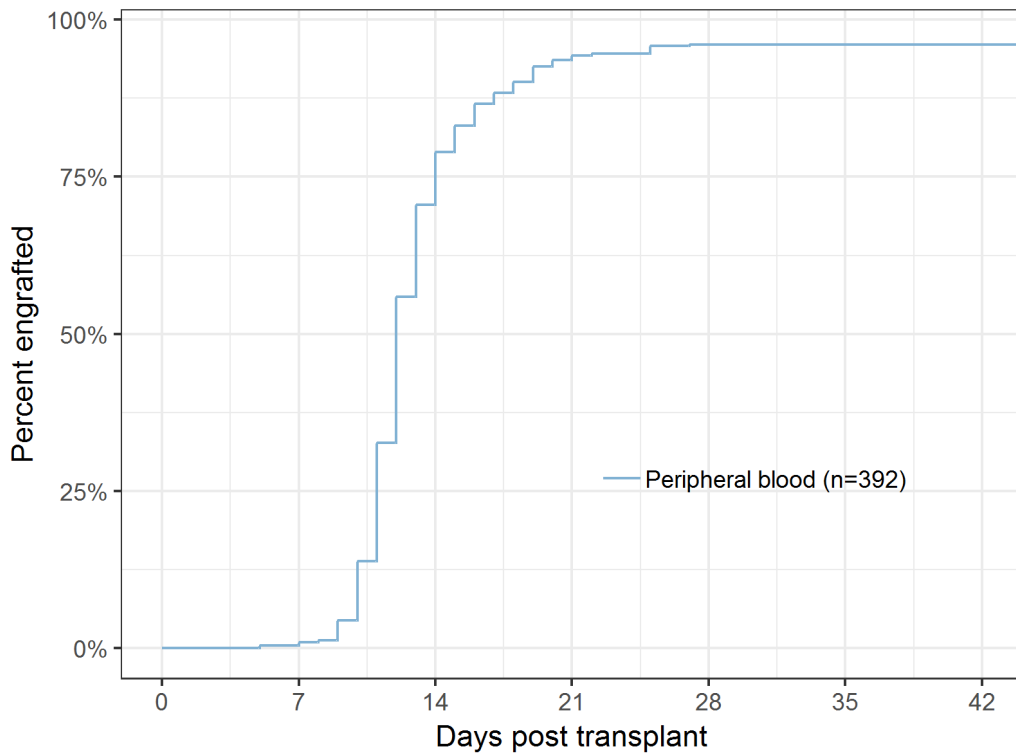


First year outcomes - recipients aged 16+

Neutrophil engraftment 2017 - autologous for lymphoma (BEAM conditioning)

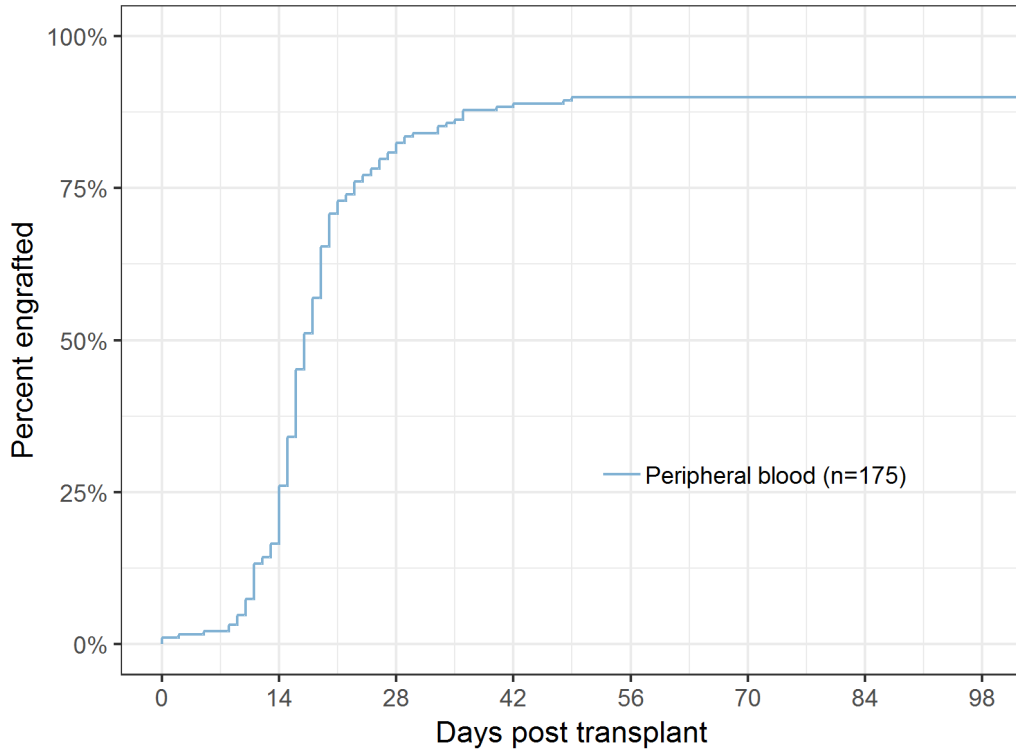


Neutrophil engraftment 2017 – autologous for myeloma (Melphalan conditioning)

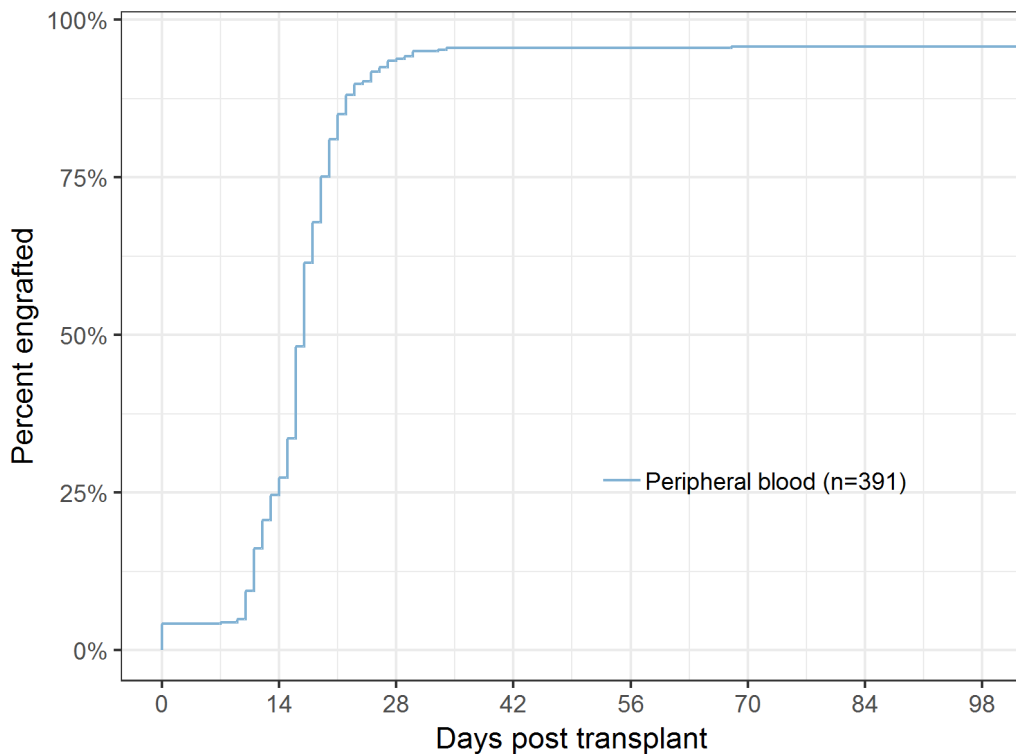


First year outcomes - recipients aged 16+

Platelet engraftment 2017 – autologous for lymphoma (BEAM conditioning)

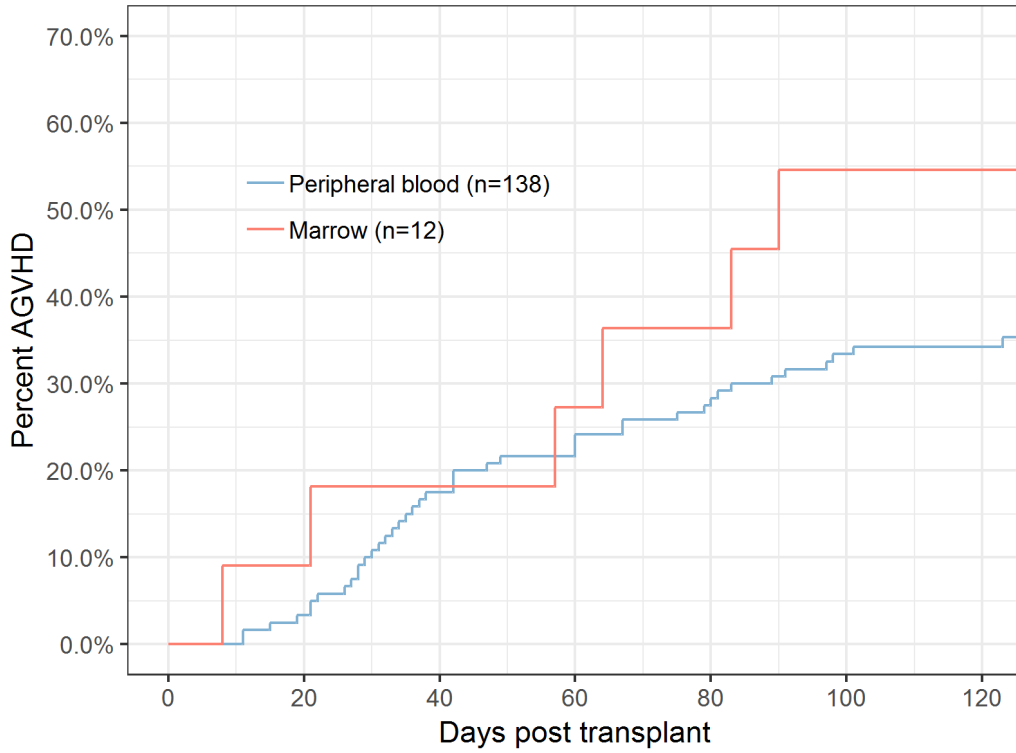


Platelet engraftment 2017 – autologous for myeloma (Melphalan conditioning)

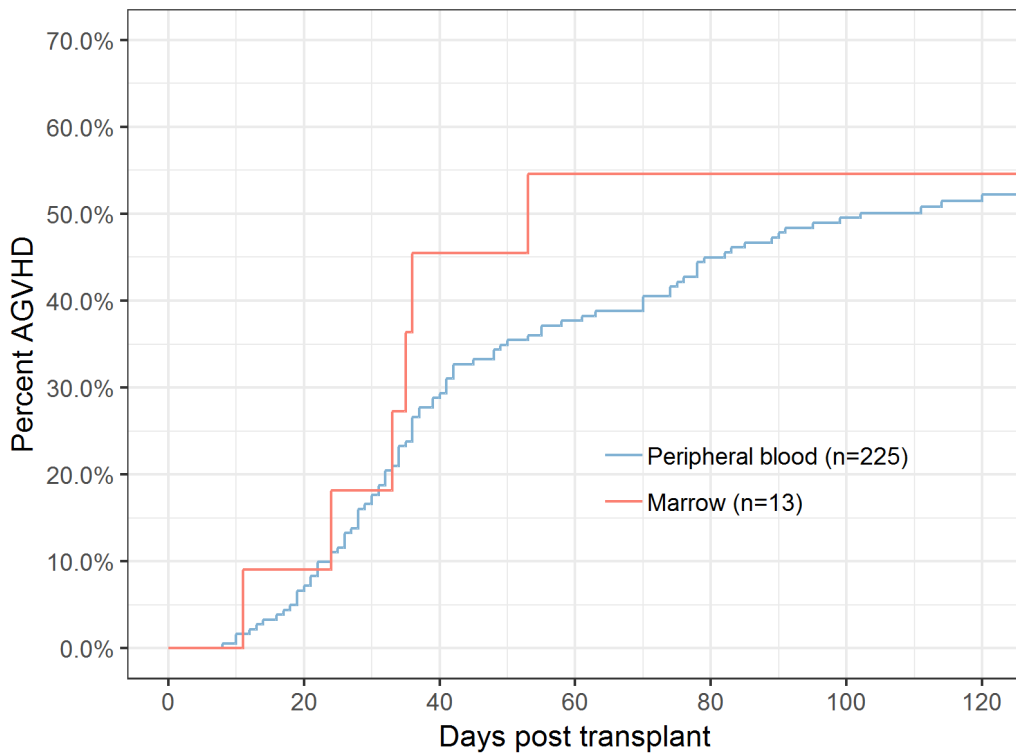


First year outcomes - recipients aged 16+

Acute GVHD 2017 all grades - matched sibling donor

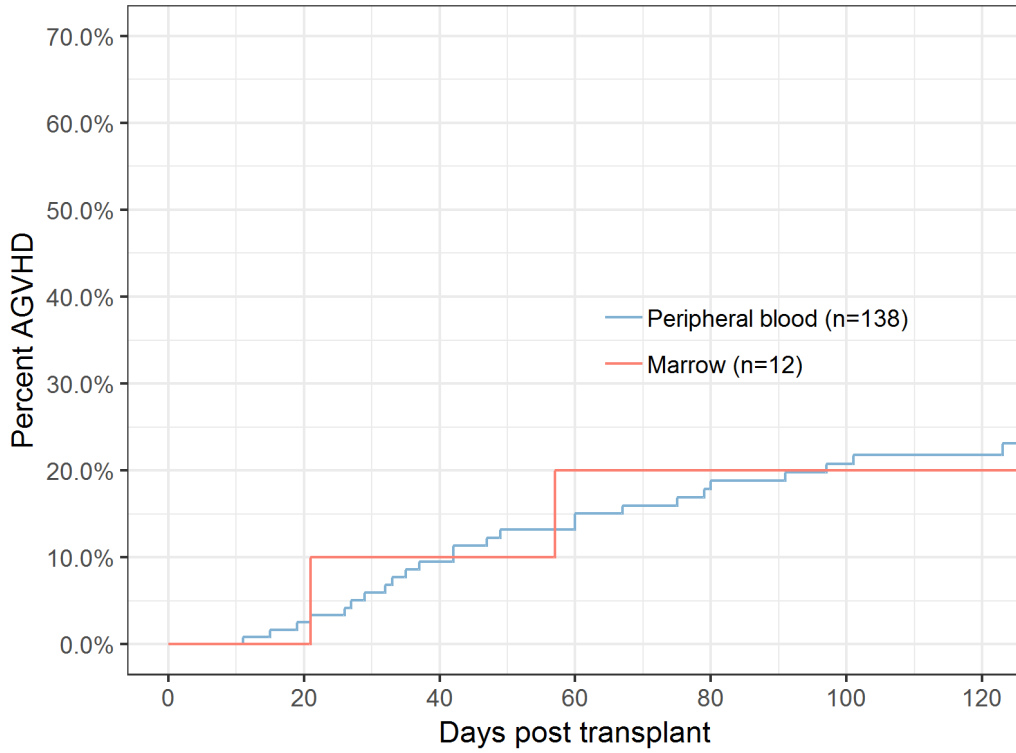


Acute GVHD 2017 all grades – unrelated donor

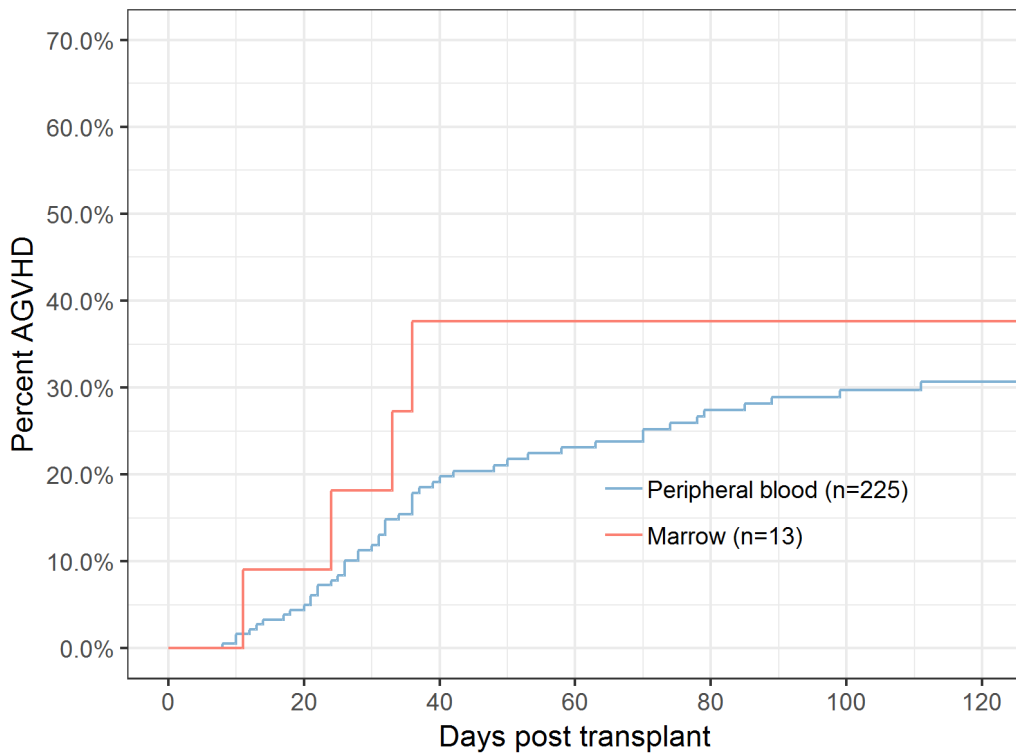


First year outcomes - recipients aged 16+

Acute GVHD 2017 grade II and above - matched sibling donor

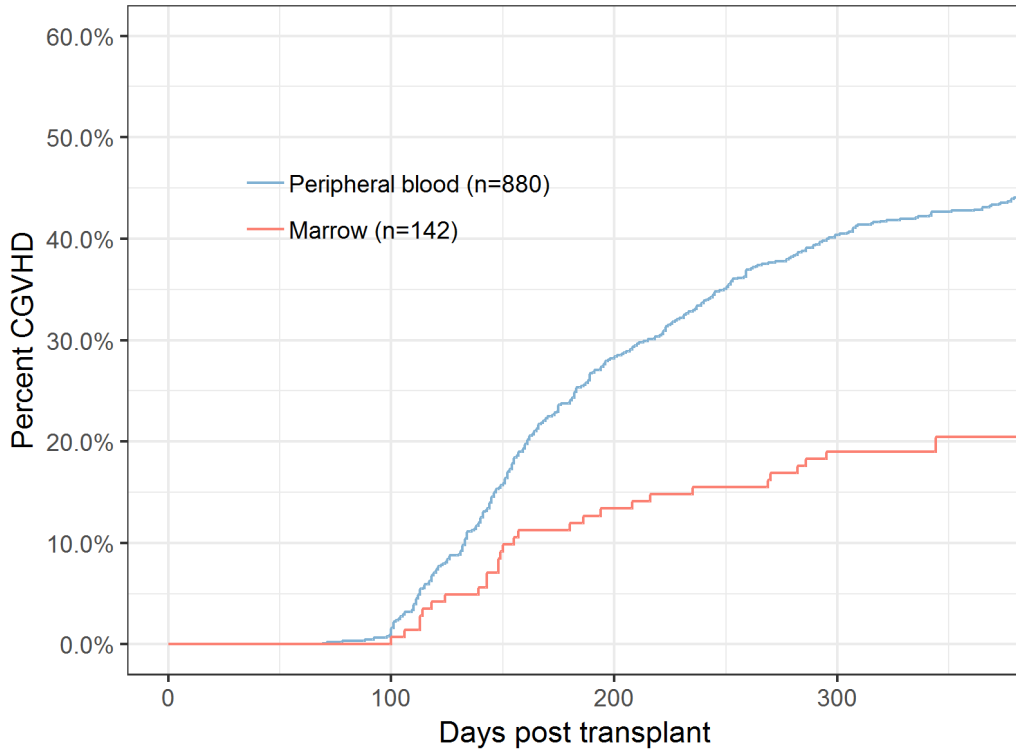


Acute GVHD 2017 grade II and above – unrelated donor

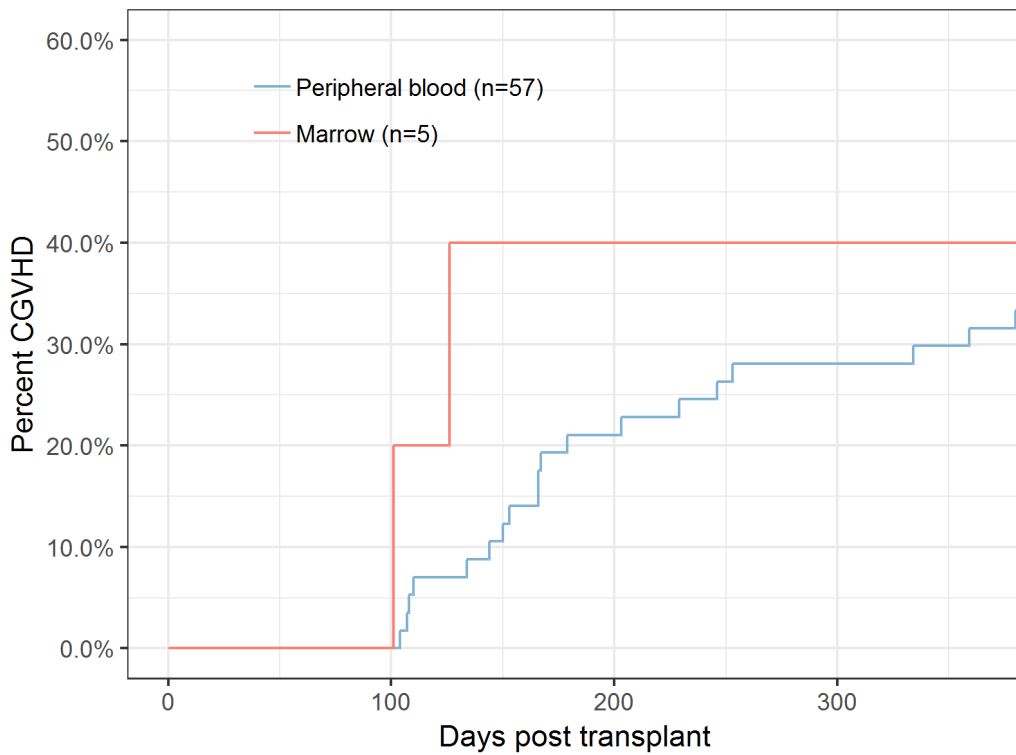


First year outcomes - recipients aged 16+

Chronic GVHD 2001-16 – matched sibling donor

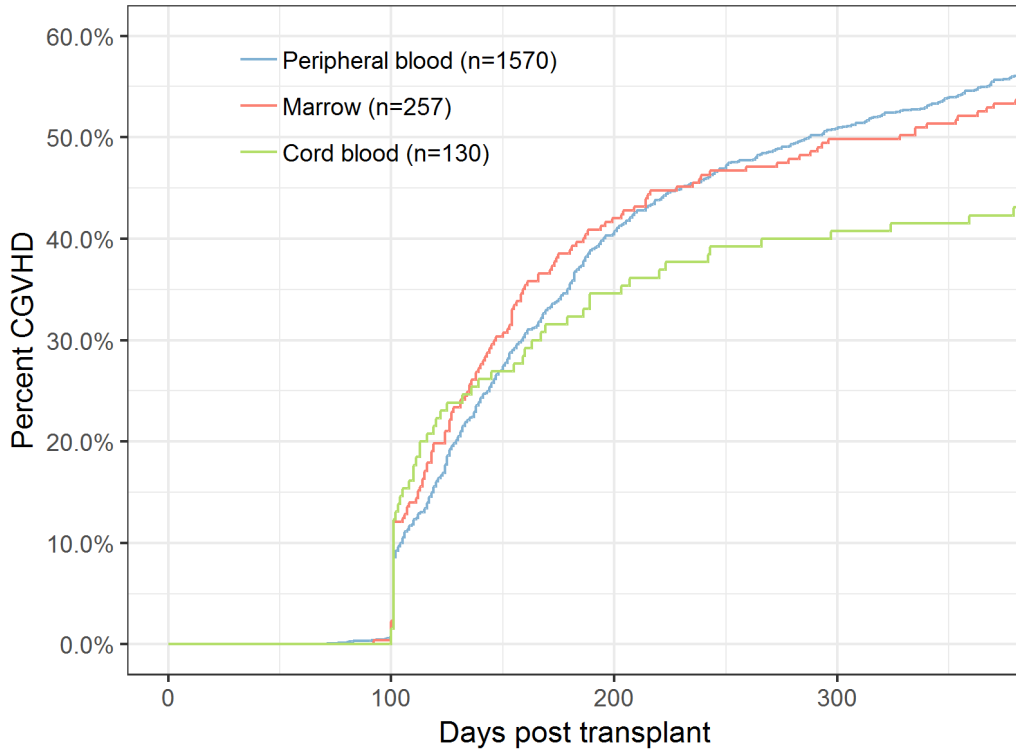


Chronic GVHD 2001-16 – other related donor

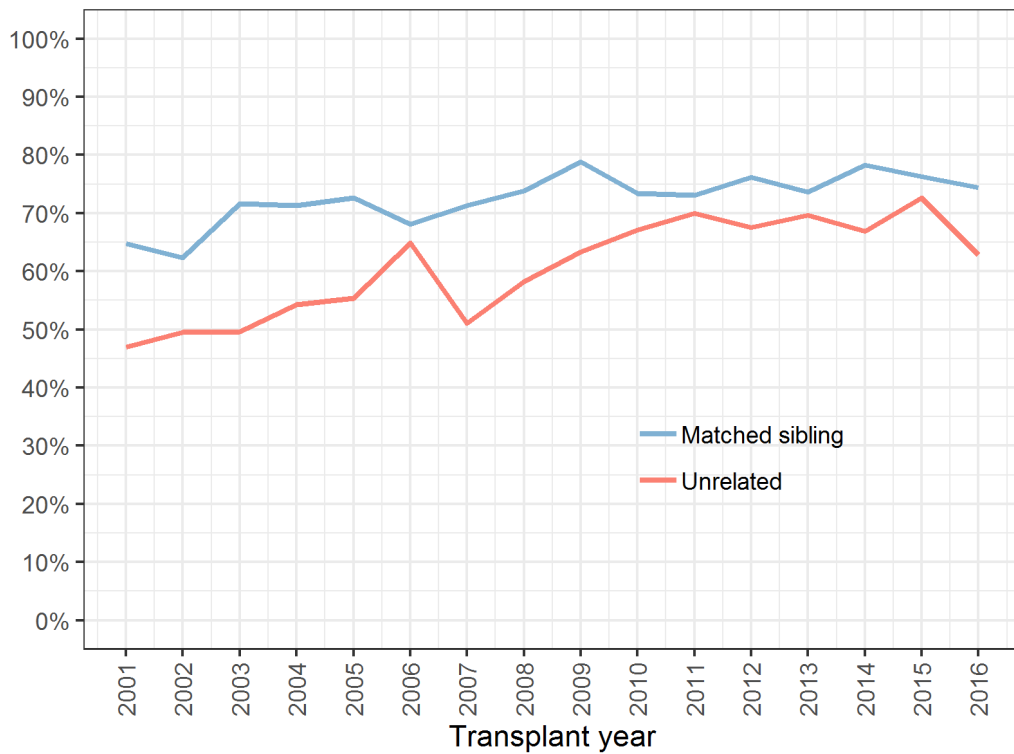


First year outcomes - recipients aged 16+

Chronic GVHD 2001-16 – unrelated donor



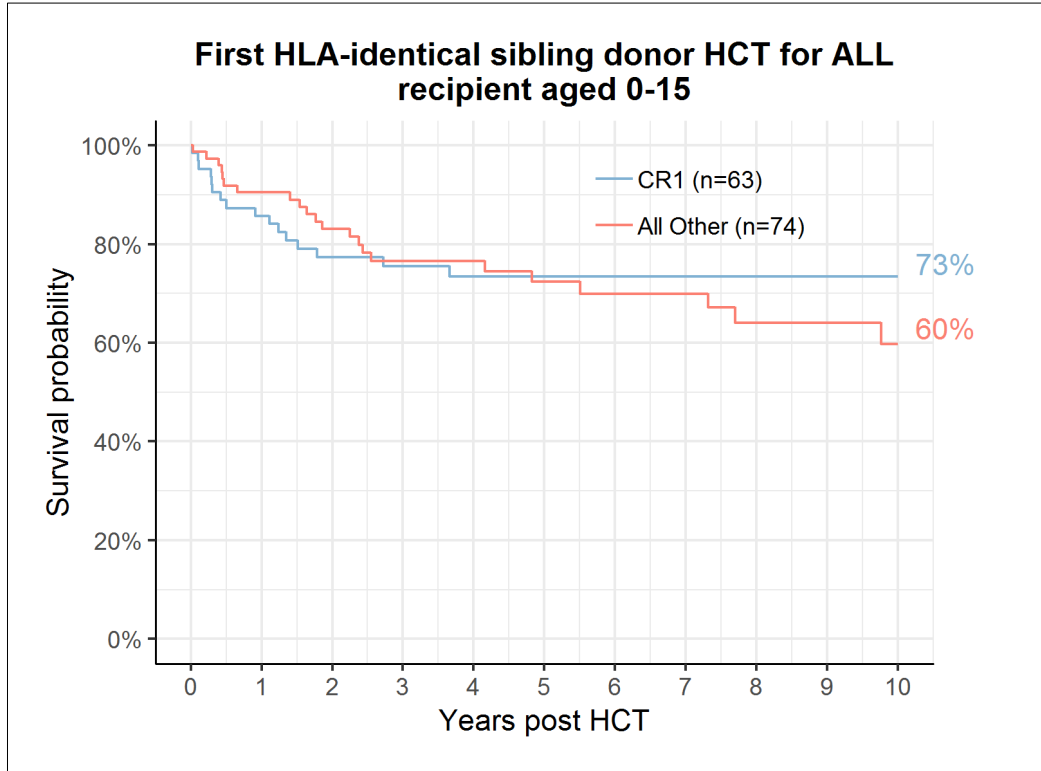
One year survival 2001-2016



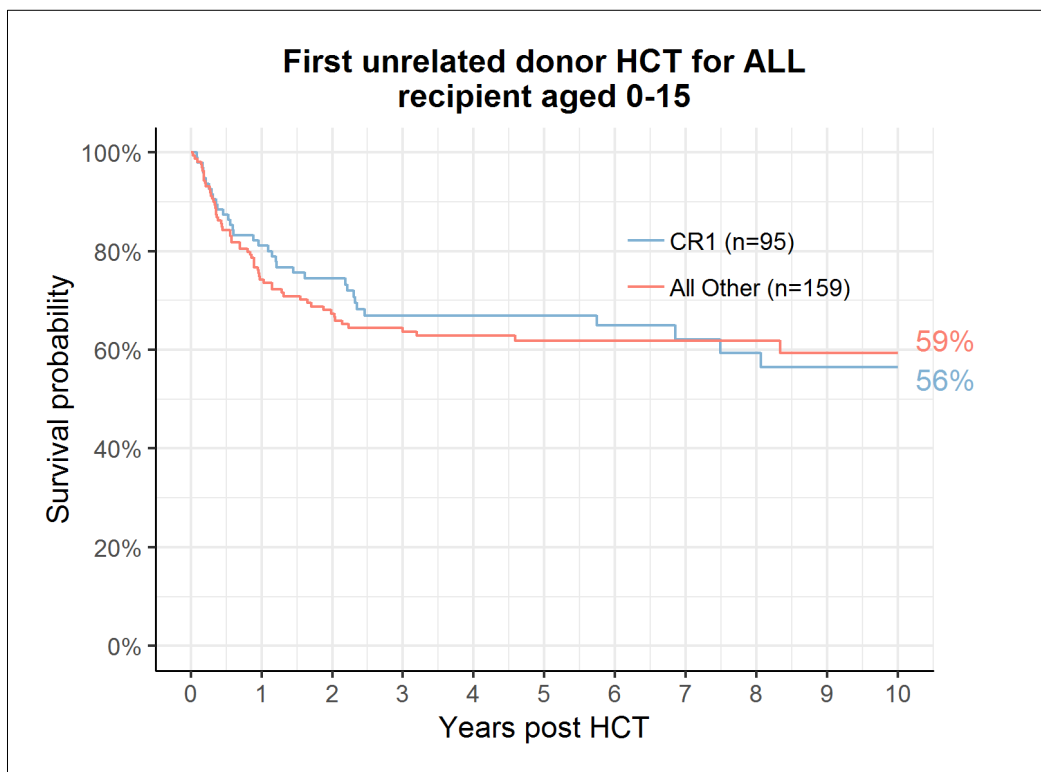
Ten-year survival - first transplants 2001-2016

Recipients aged 0-15

Acute lymphoblastic leukaemia - HLA identical sibling donor

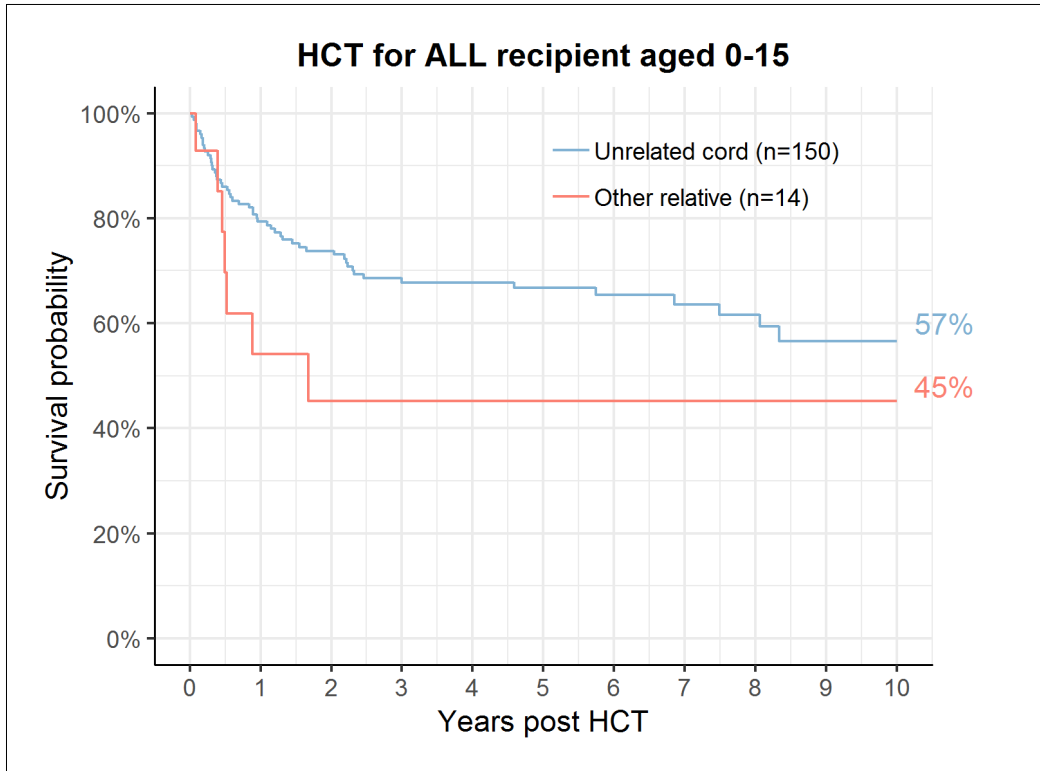


Acute lymphoblastic leukaemia - unrelated donor

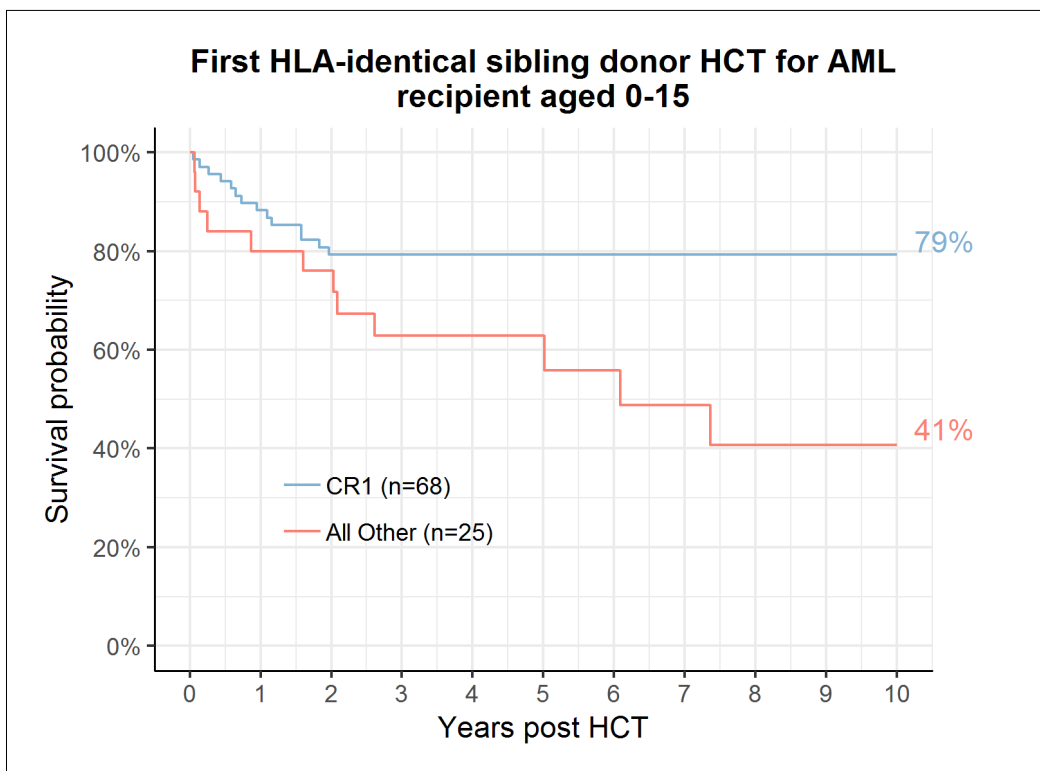


Ten-year survival - first transplants 2001-2016

Acute lymphoblastic leukaemia - unrelated cord vs other related donor

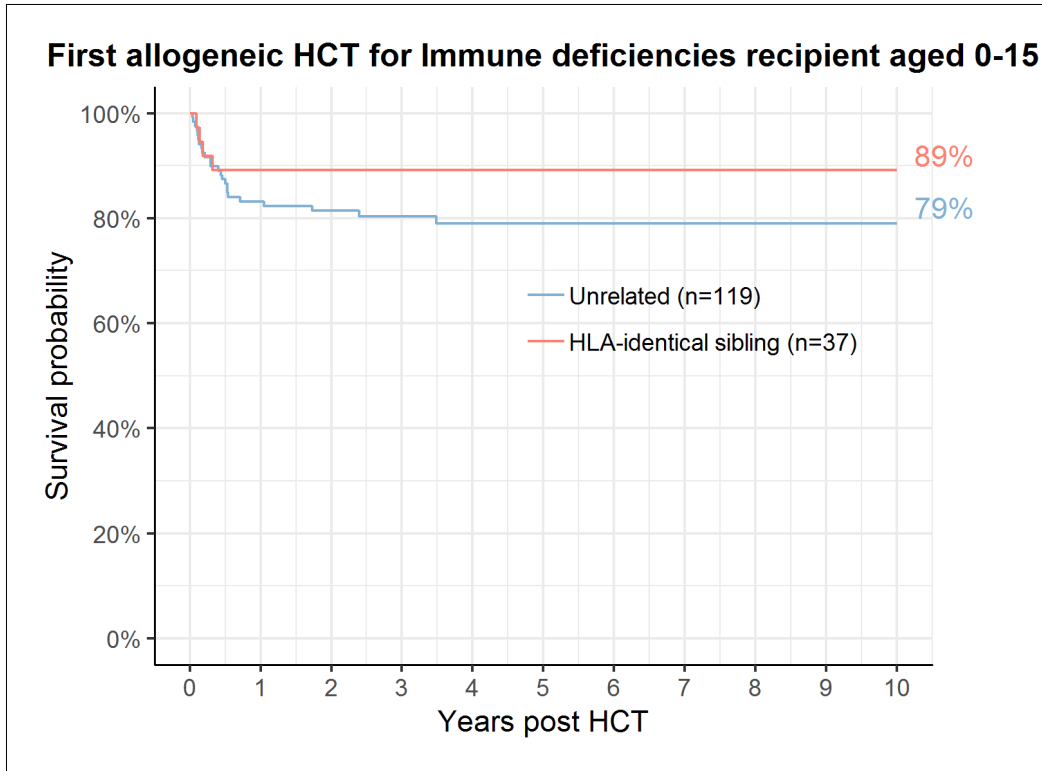


Acute myeloid leukaemia - HLA identical sibling donor

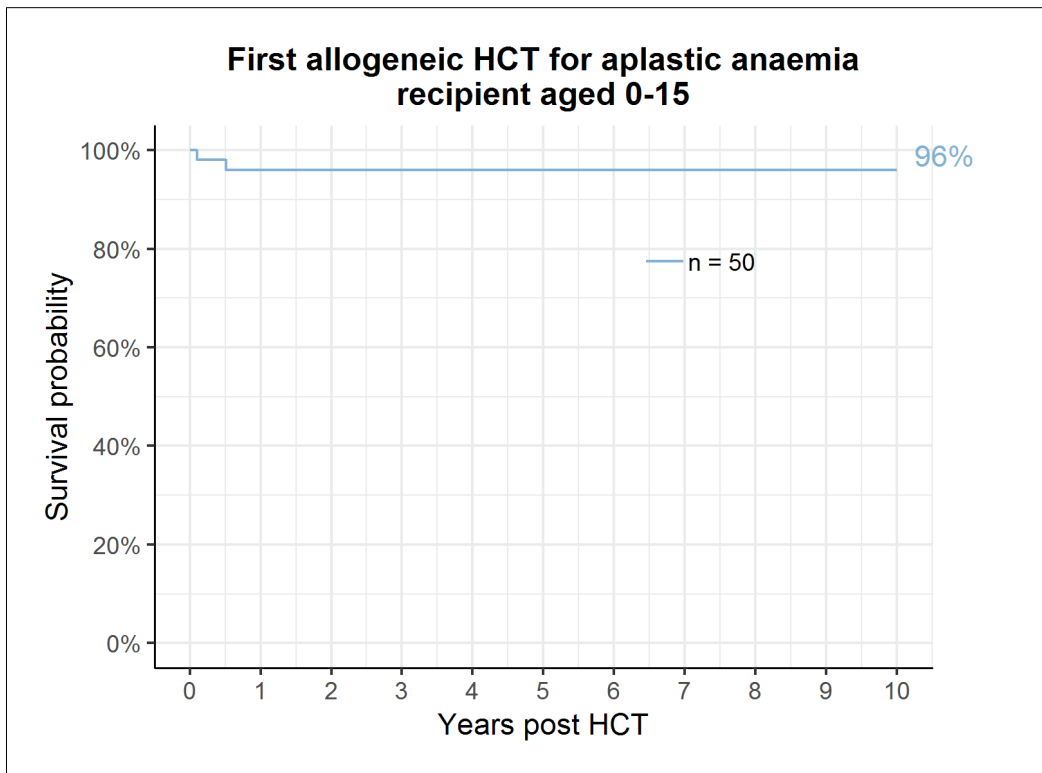


Ten-year survival - first transplants 2001-2016

Immune deficiencies

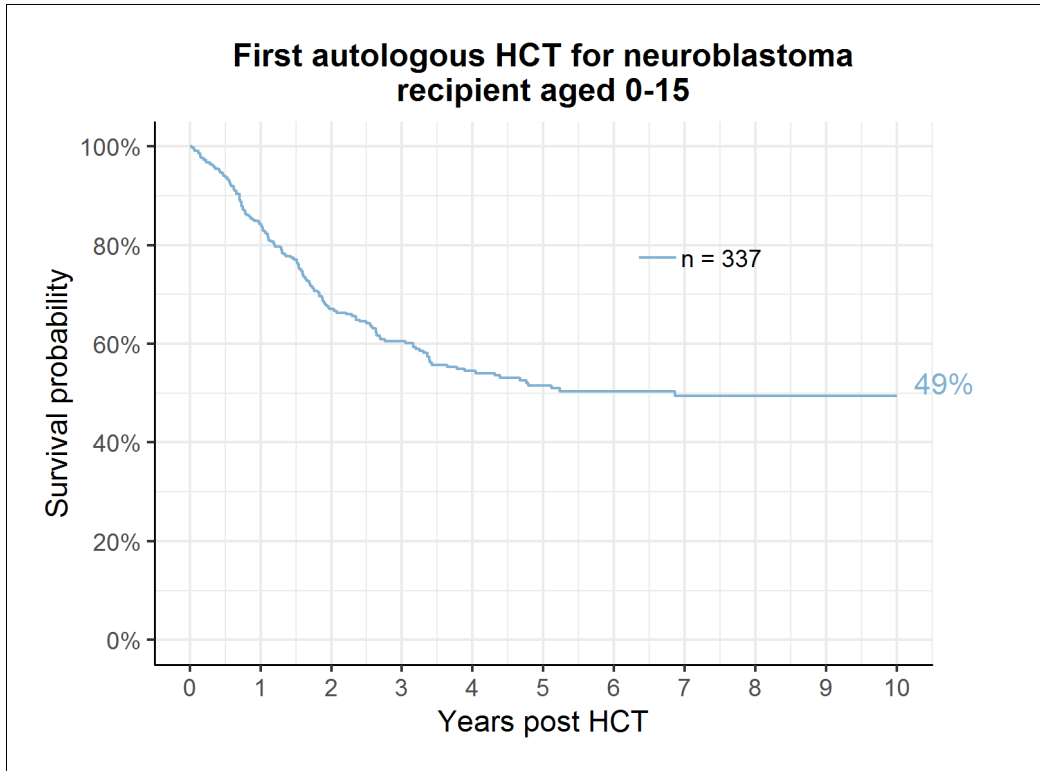


Aplastic anaemia

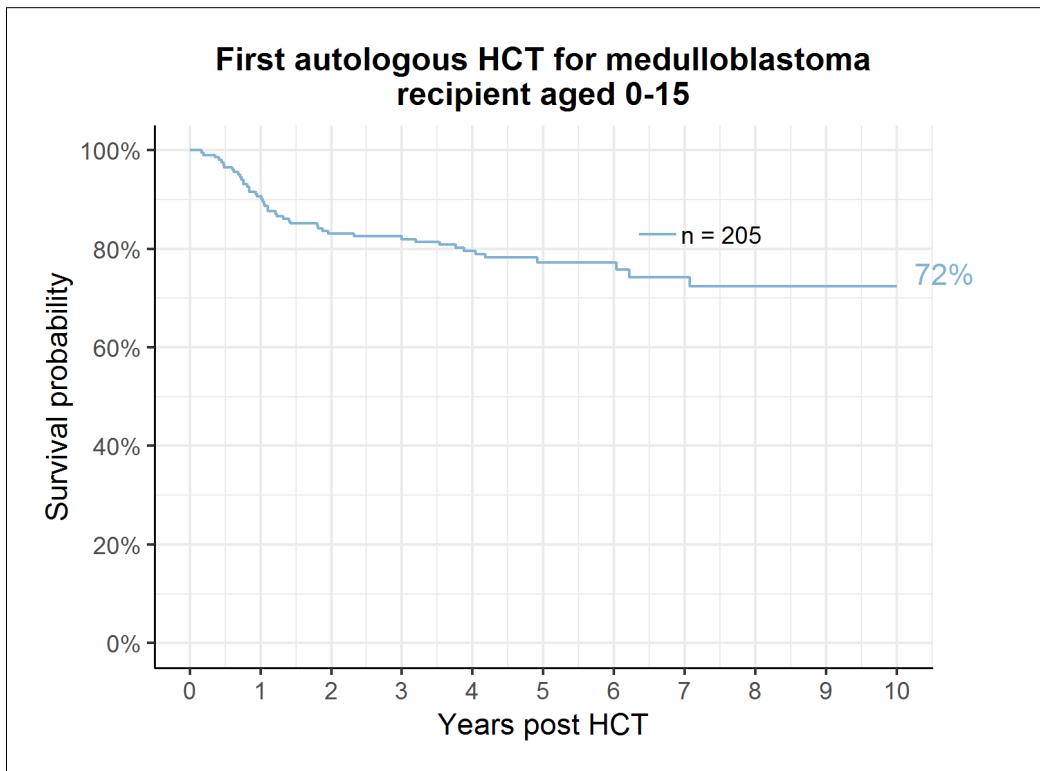


Ten-year survival - first transplants 2001-2016

Neuroblastoma



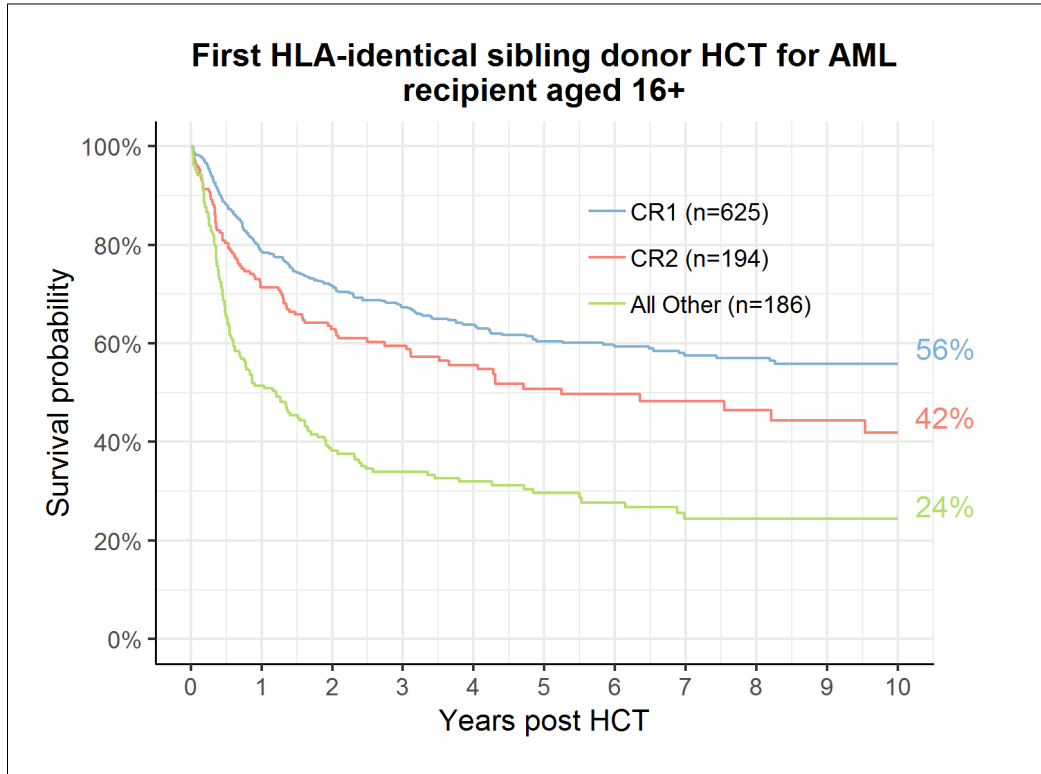
Medulloblastoma



Ten-year survival - first transplants 2001-2016

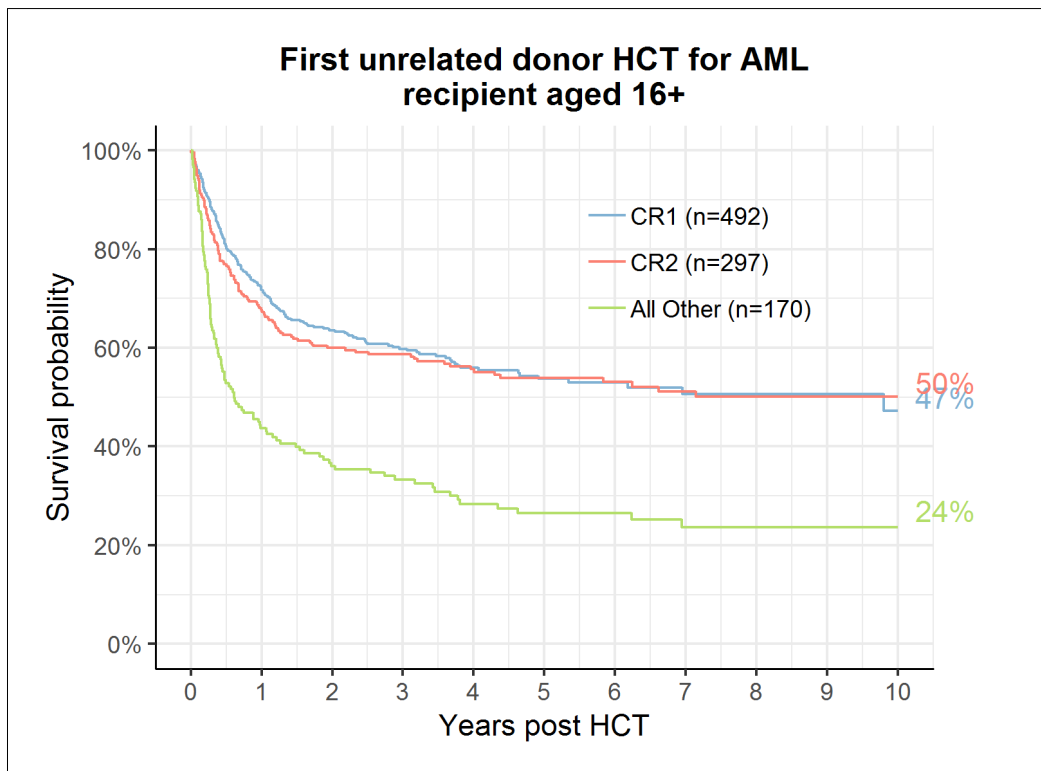
Recipients aged 16+

Acute myeloid leukaemia - HLA identical sibling donor



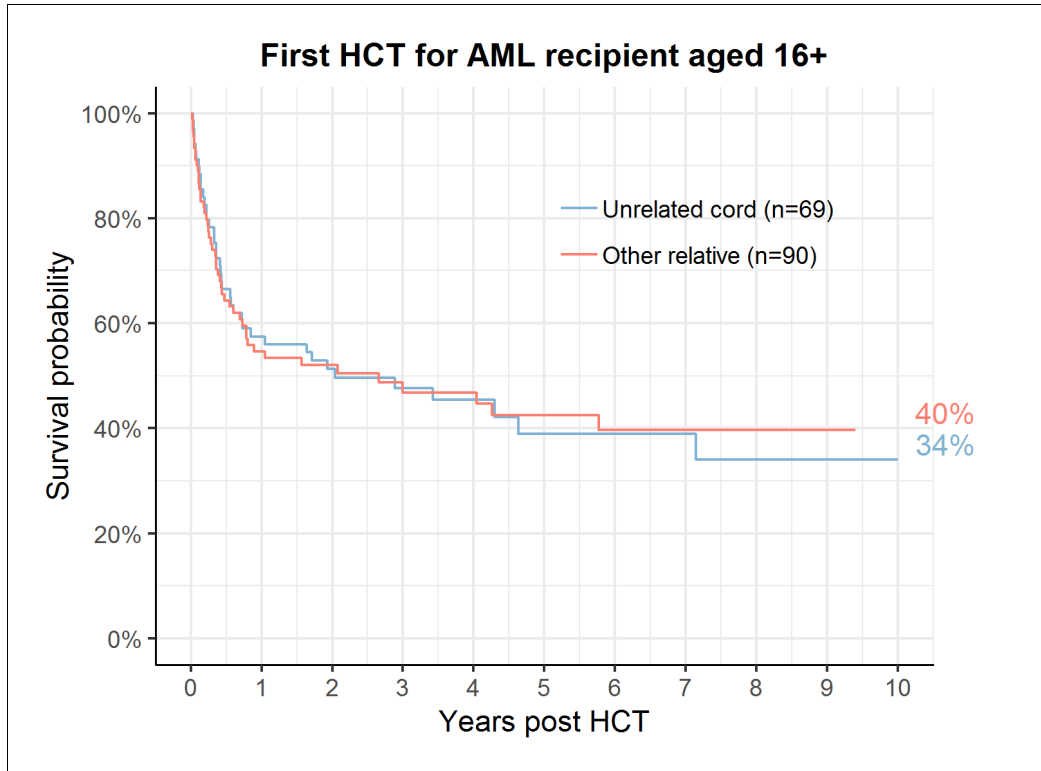
CR1: Transplanted in first complete remission, excluding secondary AML

Acute myeloid leukaemia - unrelated donor

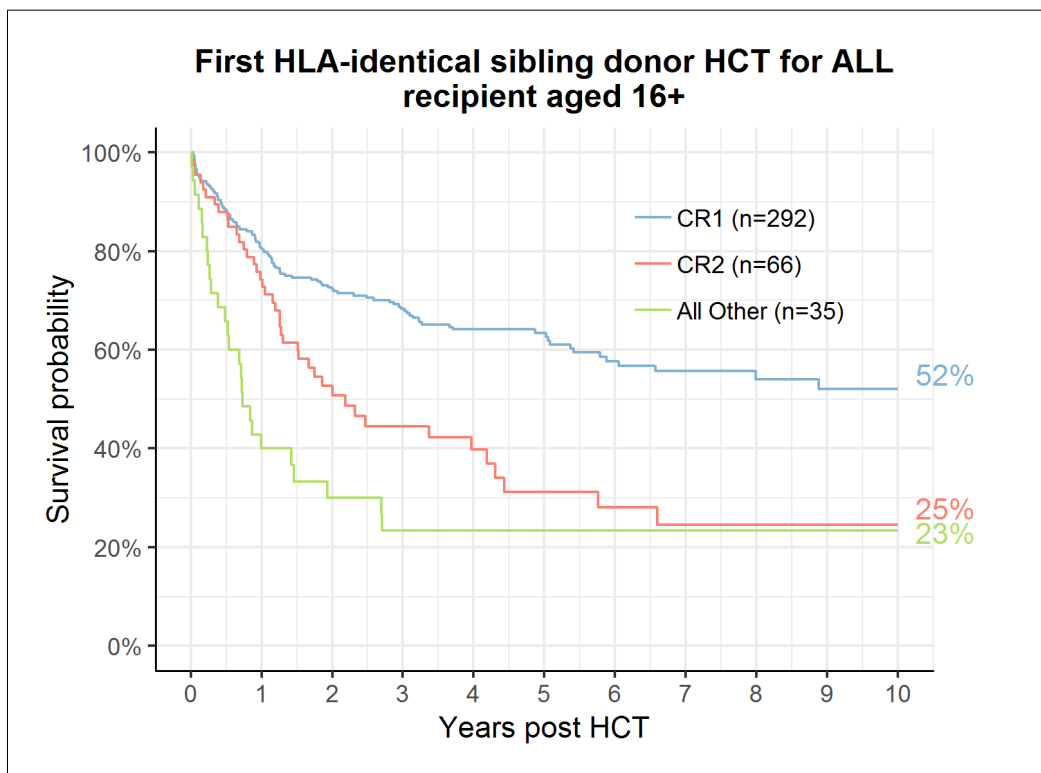


Ten-year survival - first transplants 2001-2016

Acute myeloid leukaemia - unrelated cord vs other related donor

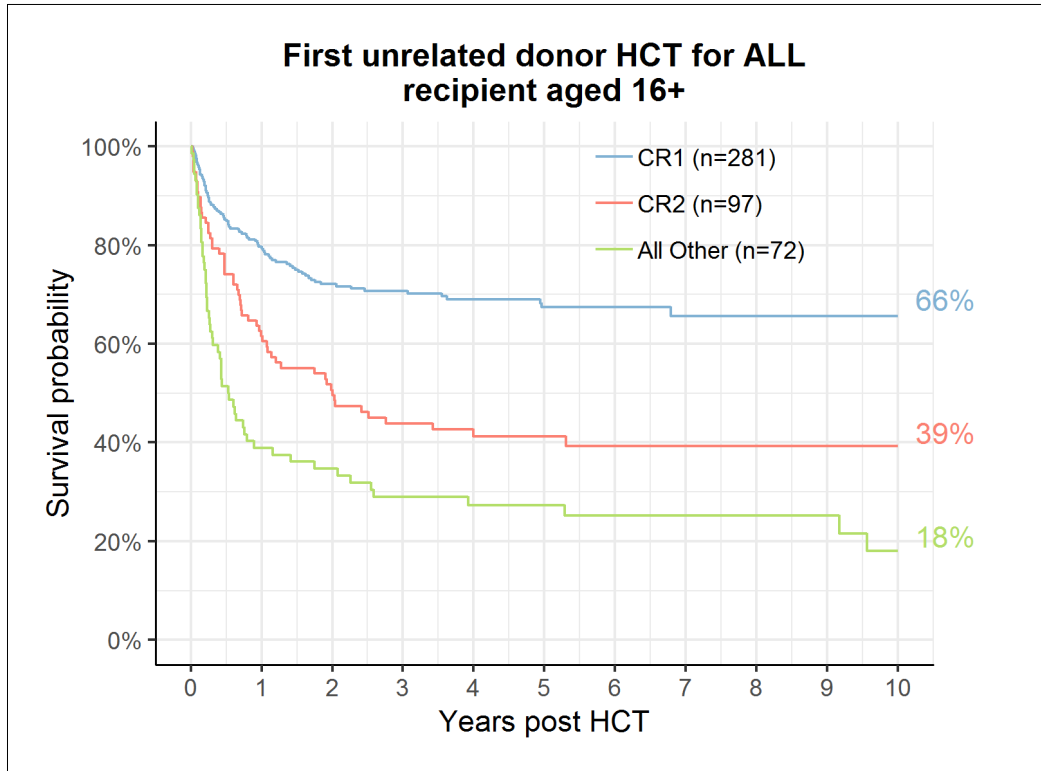


Acute lymphoblastic leukaemia - HLA identical sibling donor

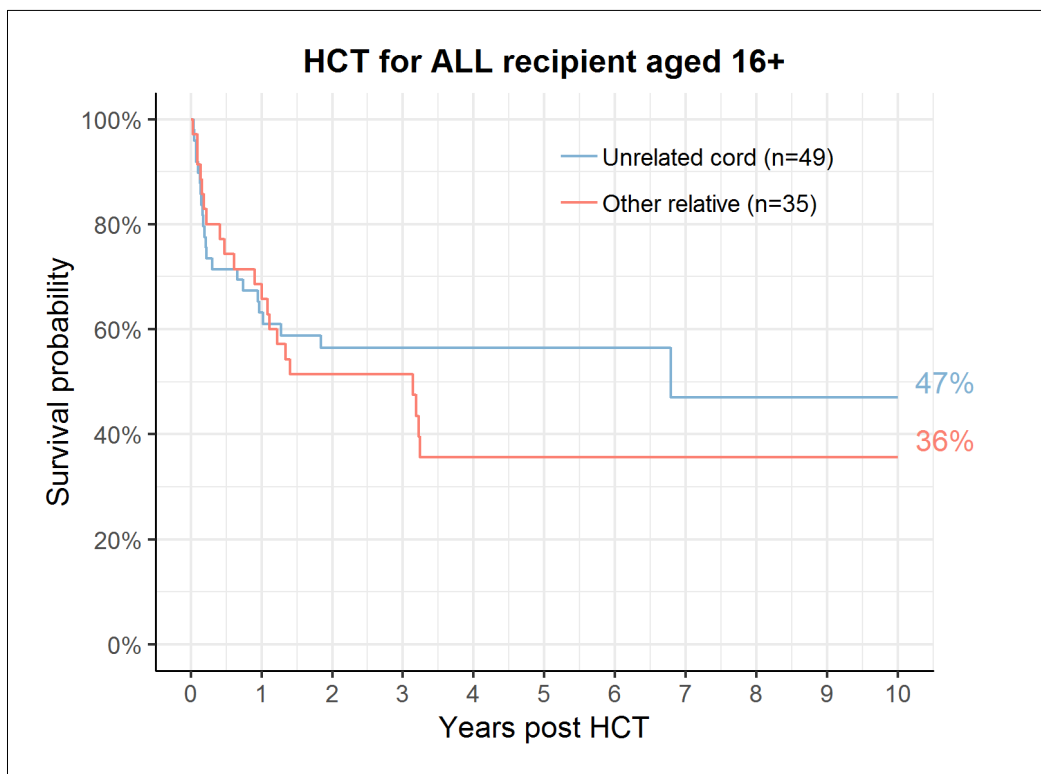


Ten-year survival - first transplants 2001-2016

Acute lymphoblastic leukaemia - unrelated donor

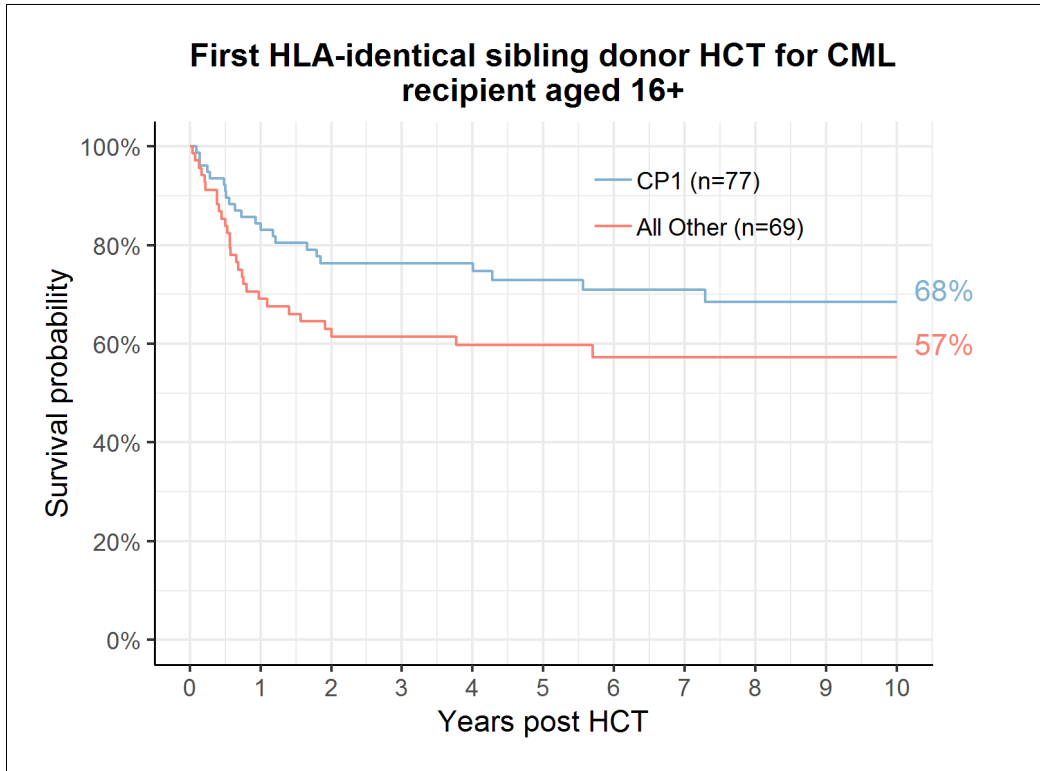


Acute lymphoblastic leukaemia - unrelated cord vs other related donor



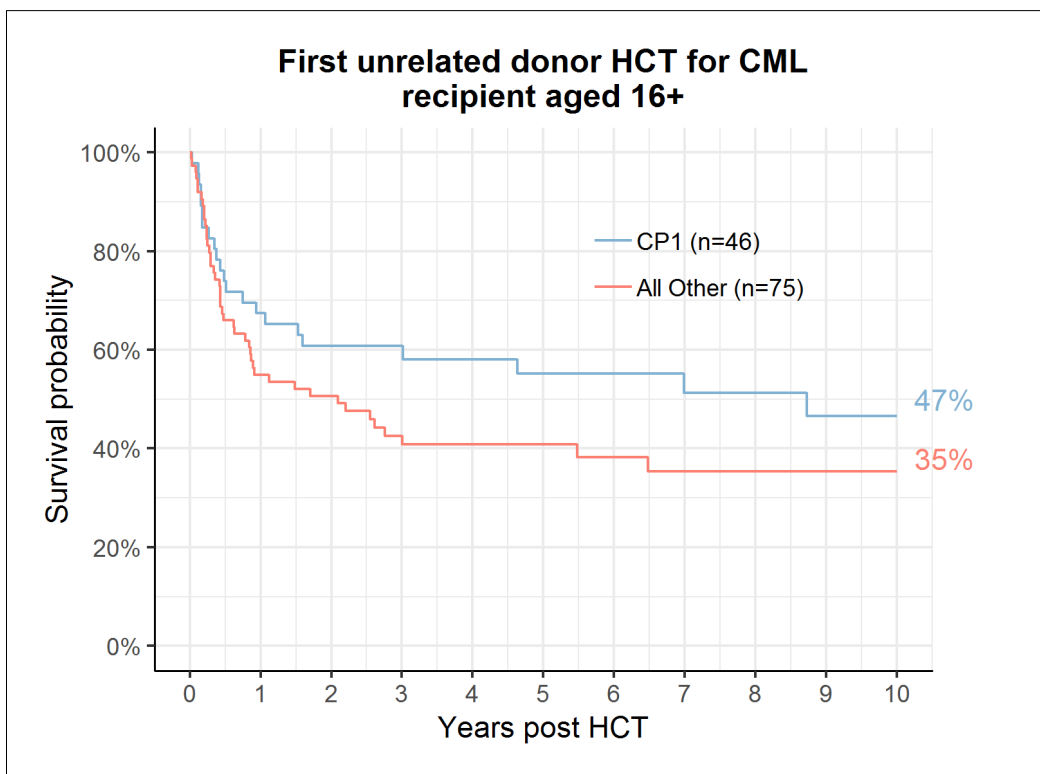
Ten-year survival - first transplants 2001-2016

Chronic myeloid leukaemia - HLA identical sibling donor



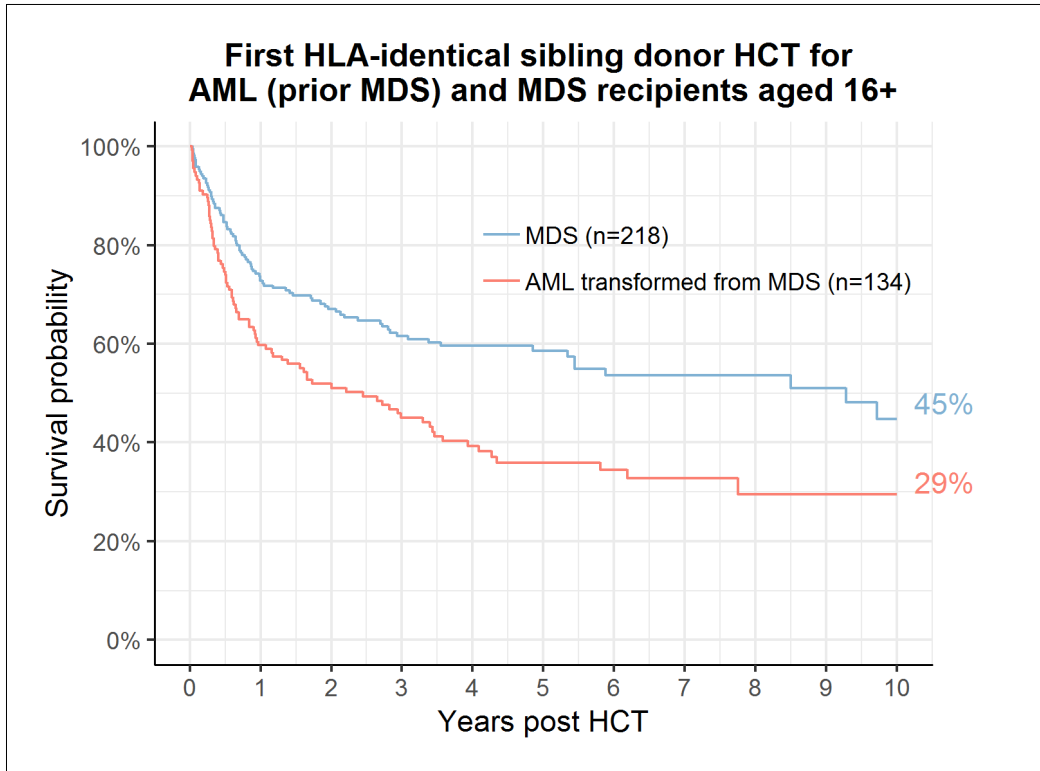
CP1: Transplanted in first chronic phase

Chronic myeloid leukaemia - unrelated donor

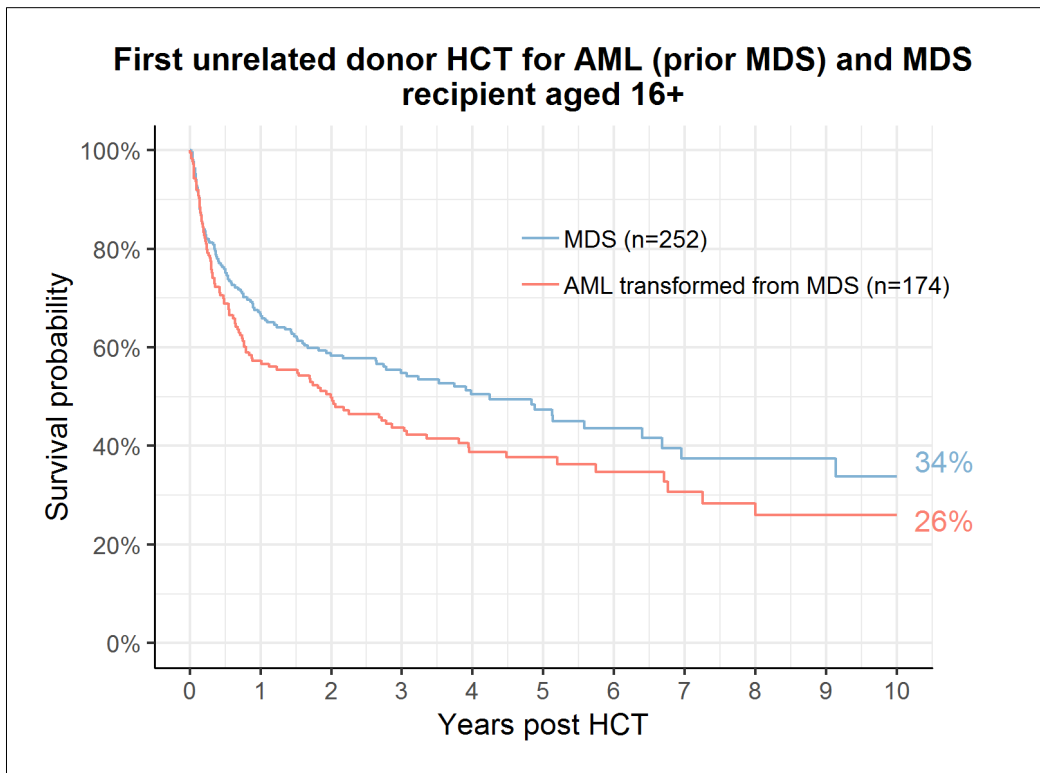


Ten-year survival - first transplants 2001-2016

Myelodysplasia - HLA-identical sibling donor

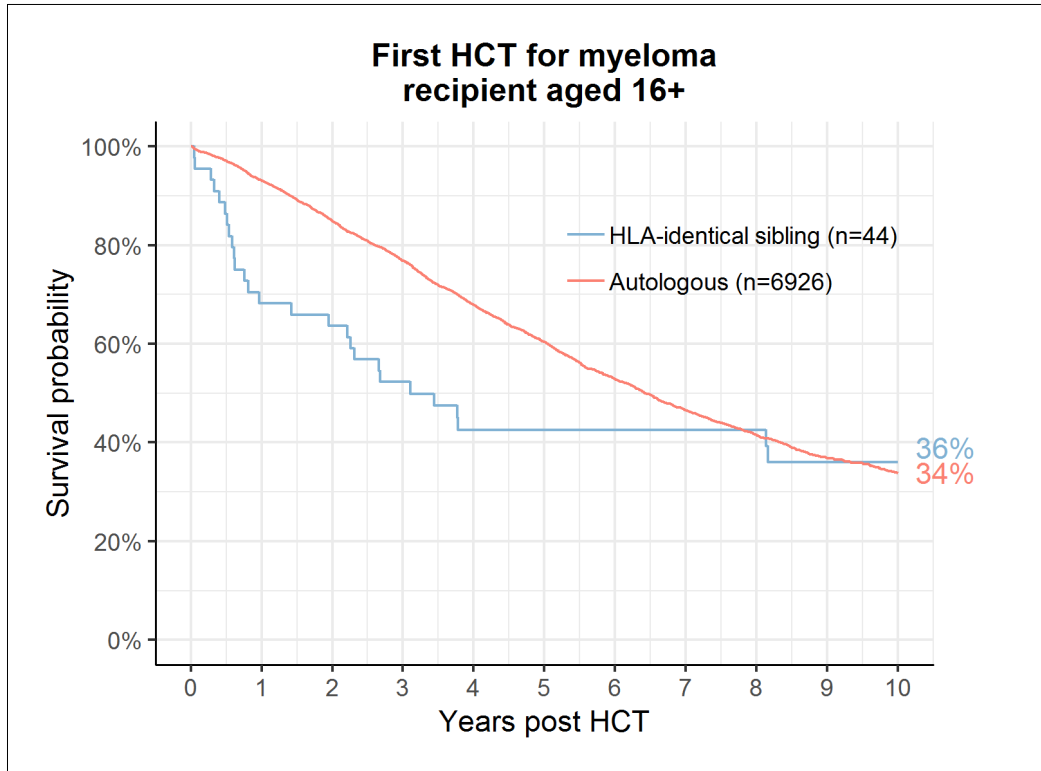


Myelodysplasia - unrelated donor

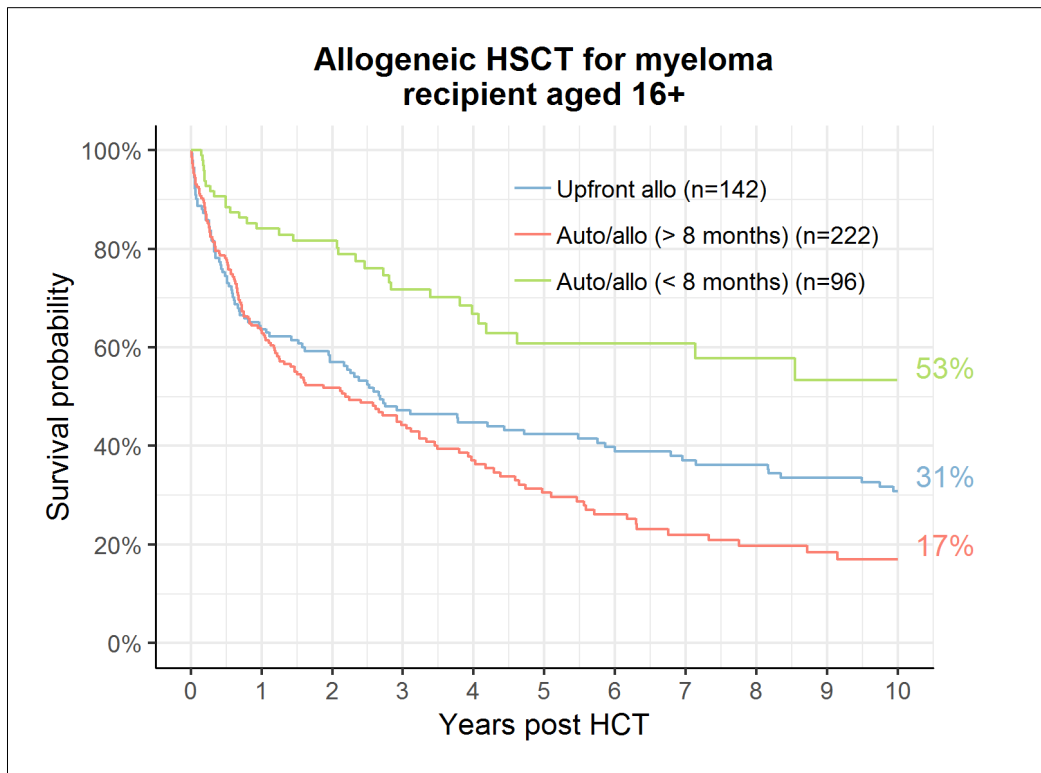


Ten-year survival - first transplants 2001-2016

Myeloma

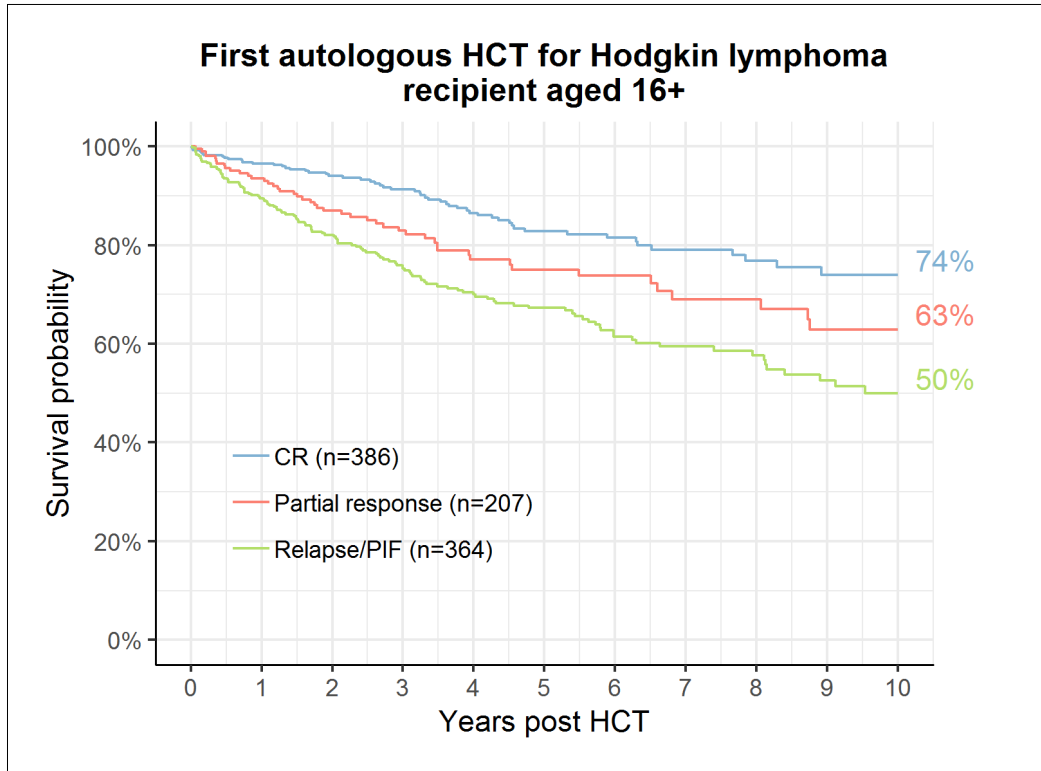


Myeloma - allogeneic

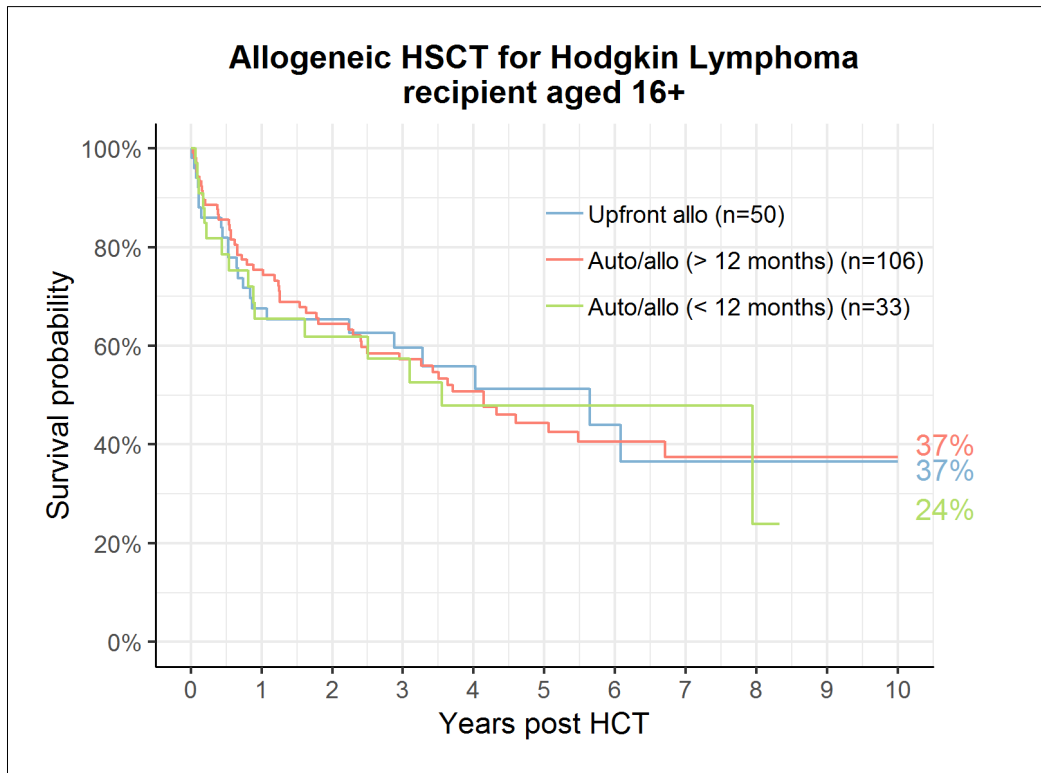


Ten-year survival - first transplants 2001-2016

Hodgkin lymphoma - autologous

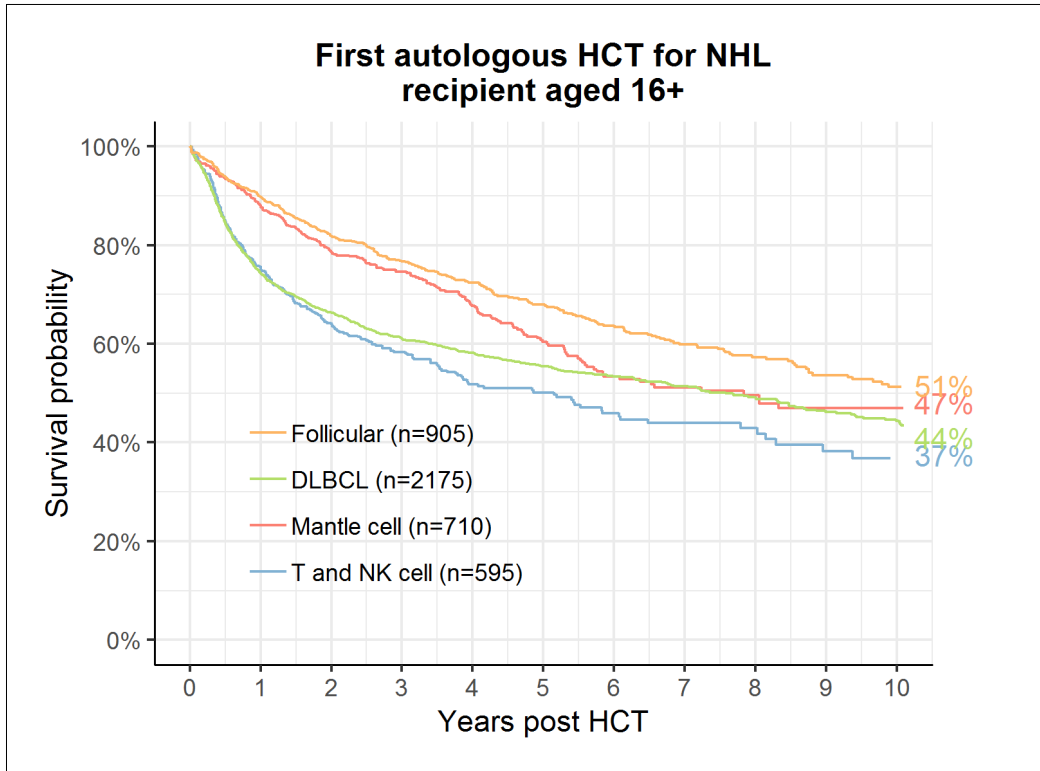


Hodgkin lymphoma – allogeneic

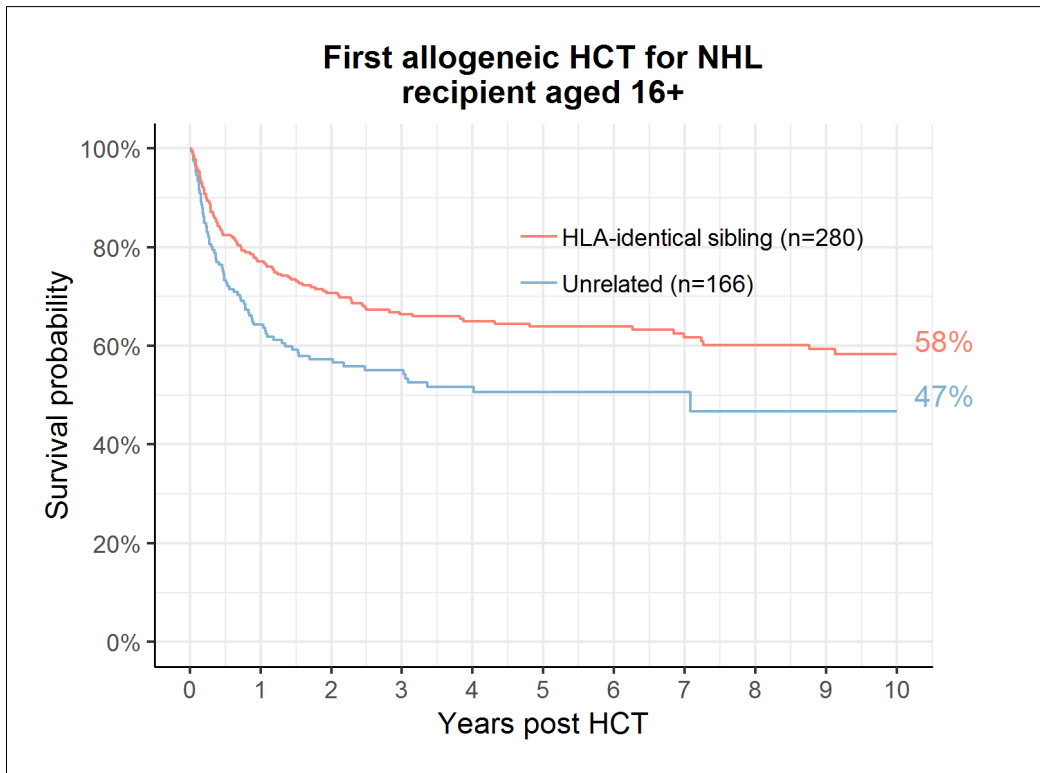


Ten-year survival - first transplants 2001-2016

Non-Hodgkin lymphoma - autologous

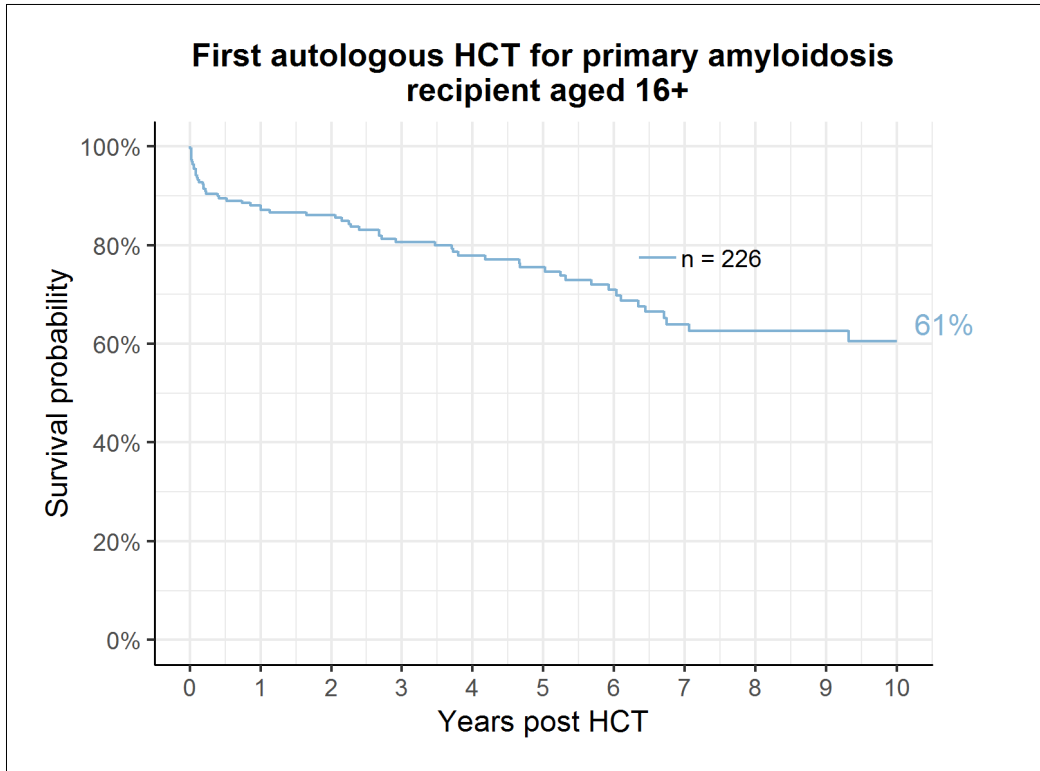


Non-Hodgkin lymphoma – allogeneic

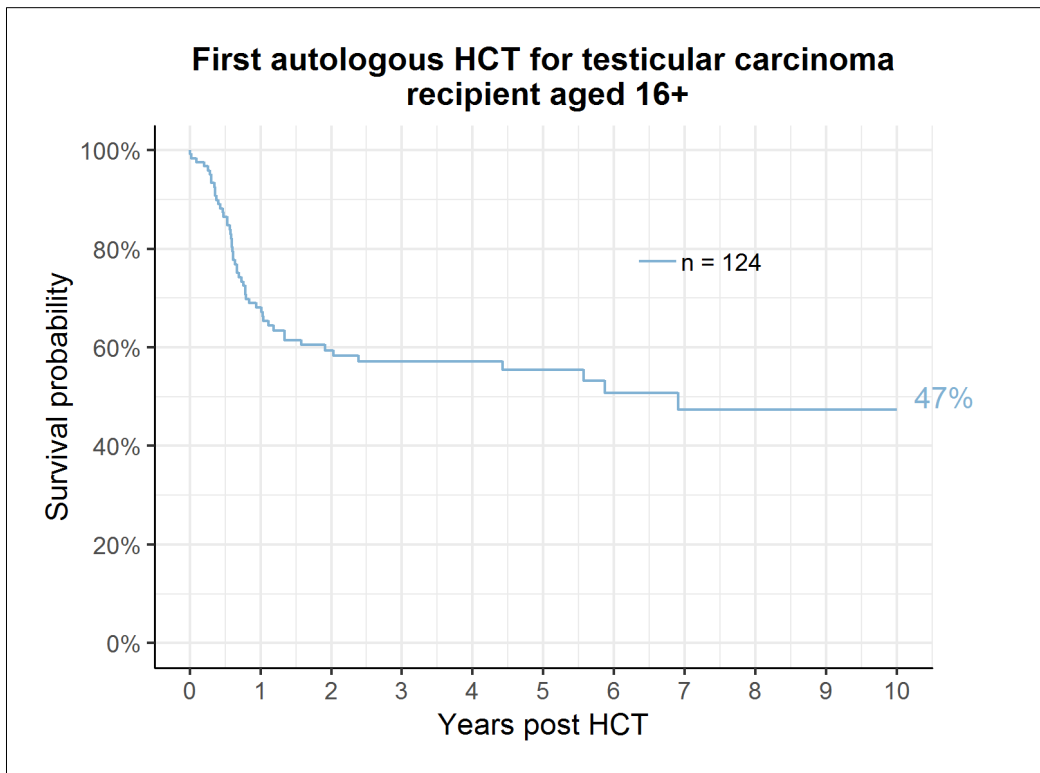


Ten-year survival - first transplants 2001-2016

Primary amyloidosis

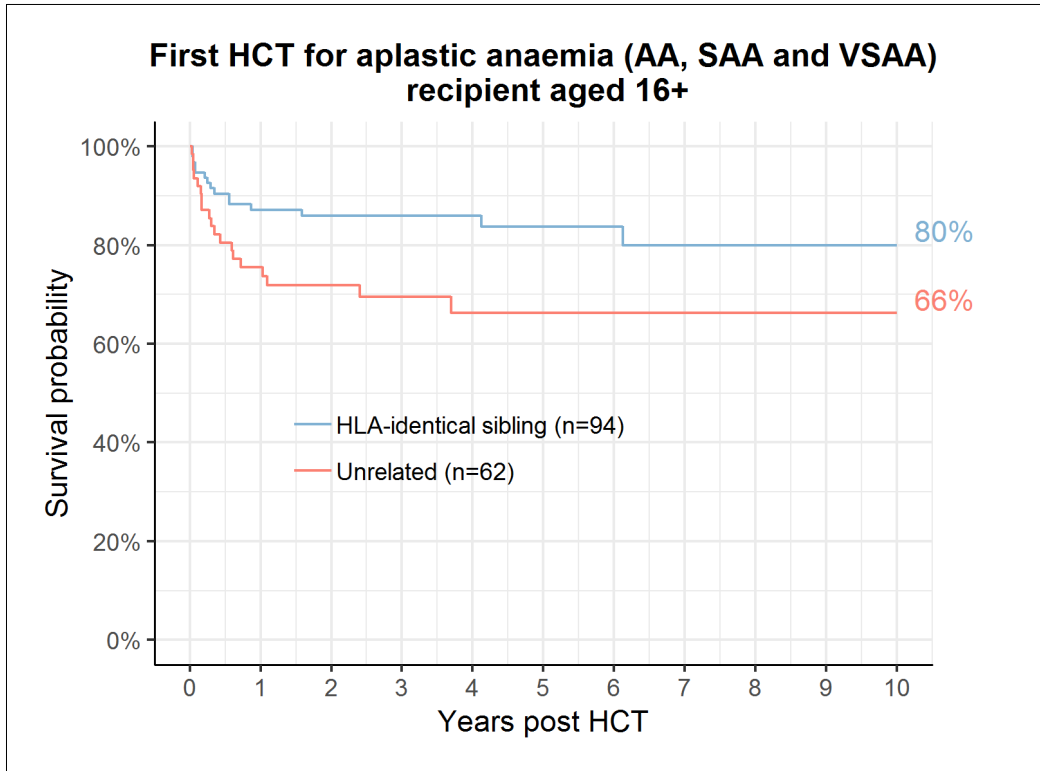


Testicular cancer

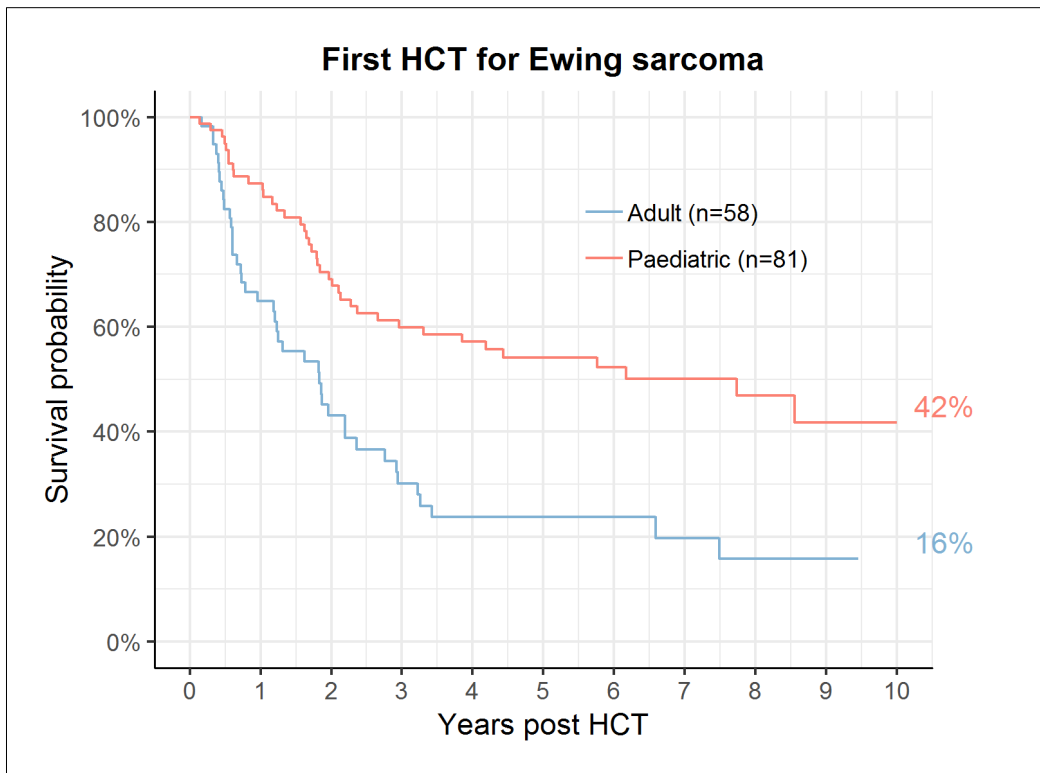


Ten-year survival - first transplants 2001-2016

Aplastic anaemia



Ewing sarcoma - adult and paediatric autologous



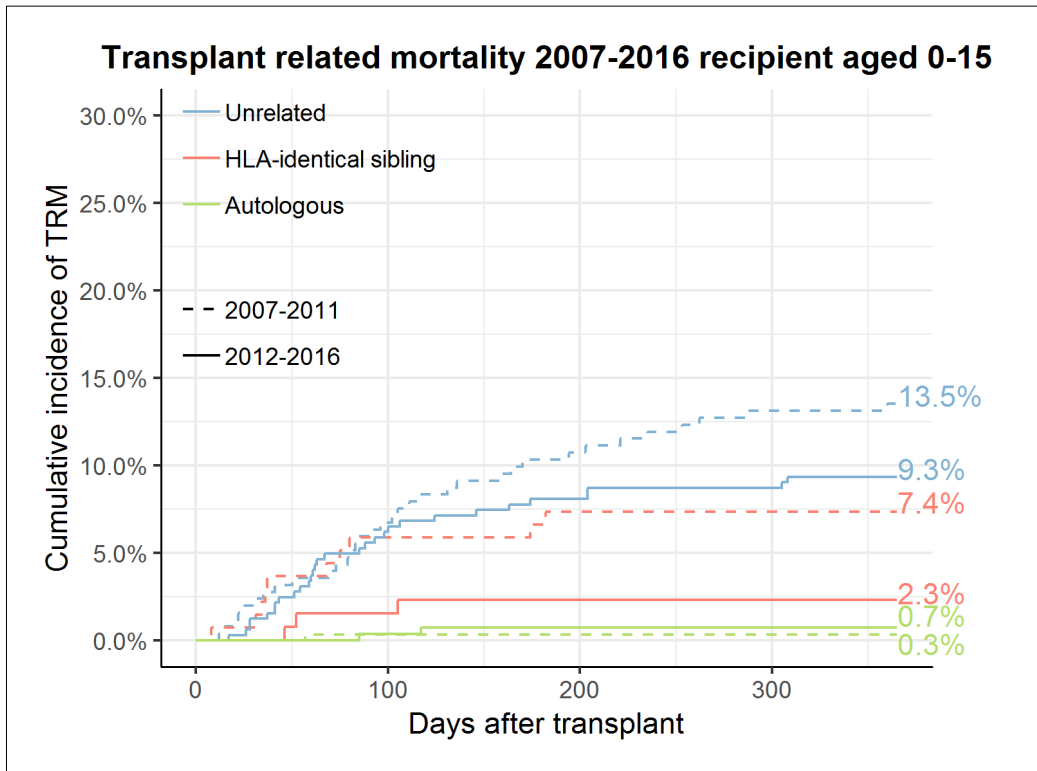
Transplant related mortality

Transplant related mortality (TRM) is defined here as death within the first year post transplant from a cause other than the indication for transplant, using death from the transplant indication as a competing risk. Only first transplants were used in this analysis.

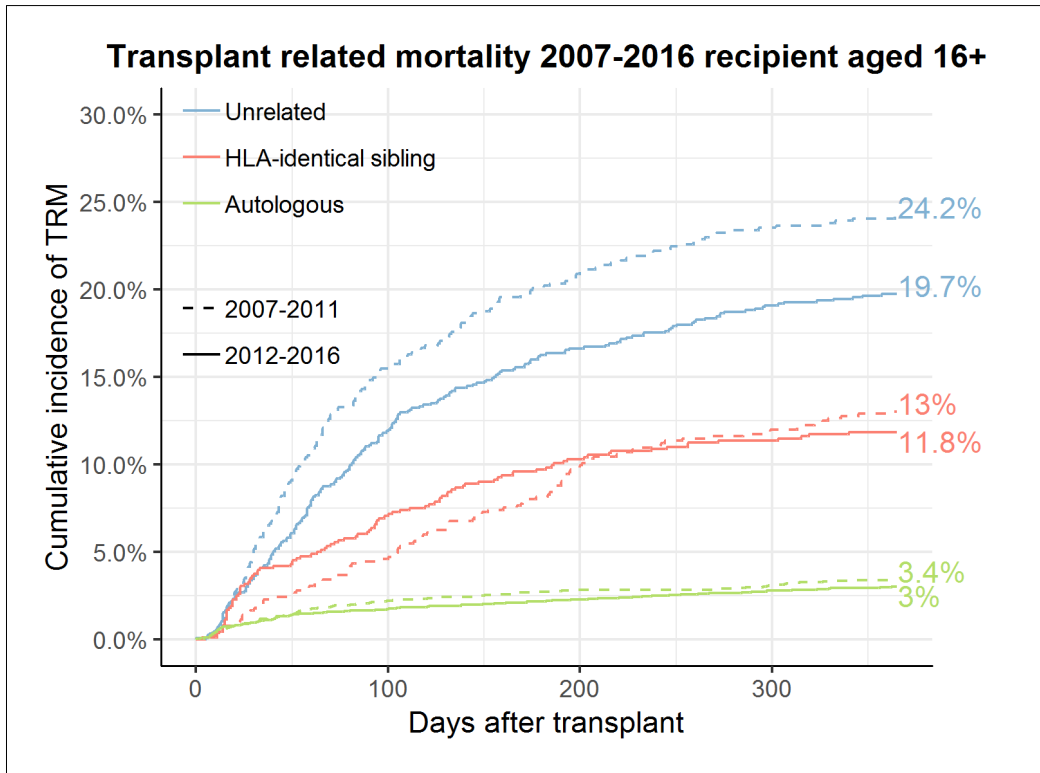
100 day and 1 year TRM 2012-2016

| | Autologous | Matched sibling | Unrelated |
|------------------------|------------|-----------------|-----------|
| Recipients 0-15 | | | |
| 100 day | 0.4% | 1.5% | 6.5% |
| 1 year | 0.7% | 2.3% | 9.3% |
| Recipients 16+ | | | |
| 100 day | 1.7% | 7.2% | 12.0% |
| 1 year | 3.0% | 11.8% | 19.7% |

TRM trends: recipients aged 0-15



TRM trends: recipients aged 16+

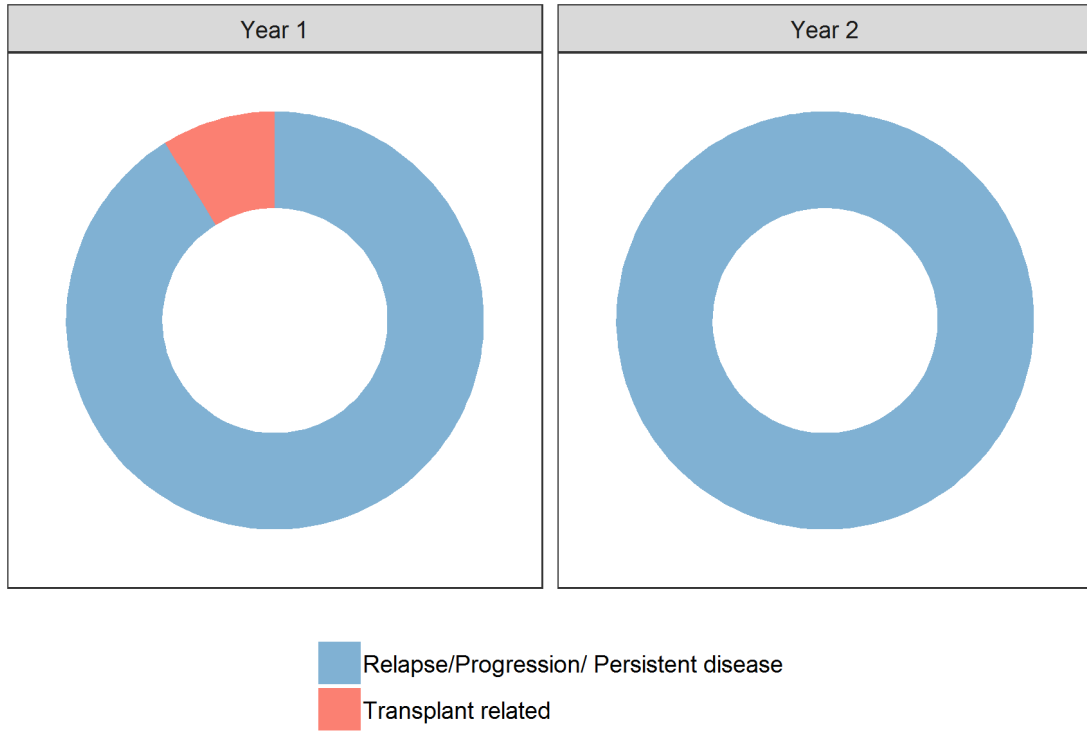


Cause of death post transplant

Death data are presented here for patients transplanted from 2012-2016. For those patients who received more than one transplant, cause of death is shown only for the latest transplant.

Primary cause of death post autologous transplant

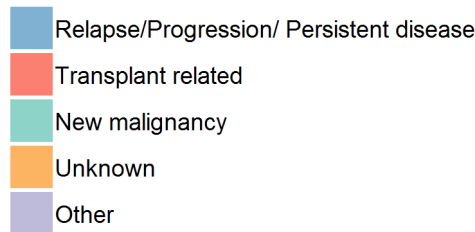
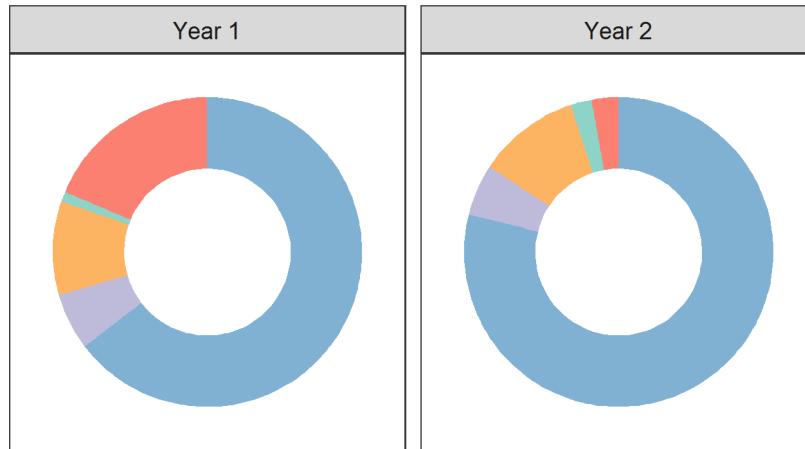
Recipients aged 0-15



| Cause of death | First year | | Second year | |
|--------------------------------|------------|-------------|-------------|-------------|
| Disease relapse or progression | 31 | 91% | 22 | 100% |
| Transplant related | 3 | 9% | 0 | 0% |
| Total deaths | 34 | 100% | 22 | 100% |

Primary cause of death post autologous transplant

Recipients aged 16+



| Cause of death | First year | | Second year | |
|--------------------------------|------------|-------------|-------------|-------------|
| Disease relapse or progression | 381 | 65% | 251 | 79% |
| Transplant related | 110 | 19% | 9 | 3% |
| New malignancy | 6 | 1% | 7 | 2% |
| Unknown / not yet reported | 58 | 10% | 34 | 11% |
| Other | 35 | 6% | 17 | 5% |
| Total deaths | 590 | 100% | 318 | 100% |

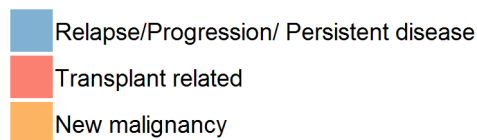
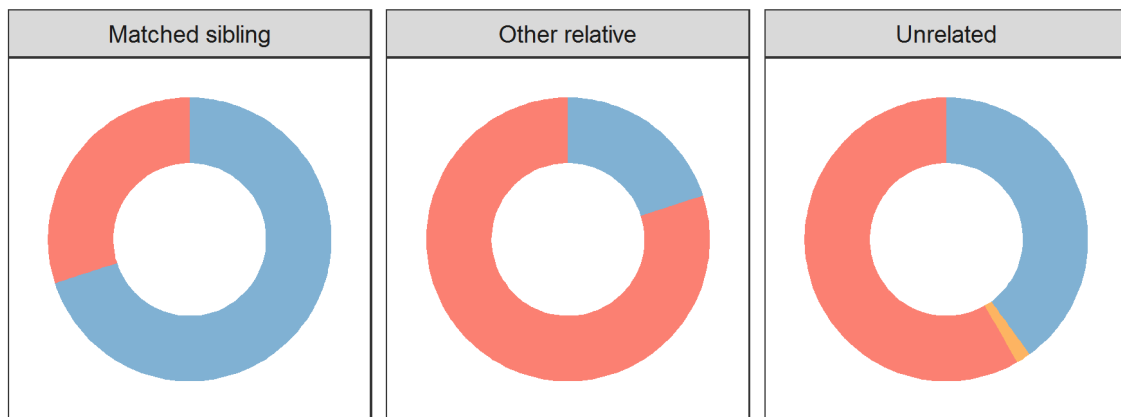
Contributing causes of TRM in the first year post autologous transplant

Patients may have had more than one contributing cause of TRM. The percentage column shows the number of each contributing cause as a percentage of all transplant related deaths in each age group.

| Contributing cause of TRM | Age 0-15 (3 deaths) | | Age 16+ (110 deaths) | |
|---------------------------|------------------------|-----|-------------------------|-----|
| Infection | 1 | 33% | 78 | 71% |
| Organ failure | 0 | 0% | 9 | 8% |
| Pulmonary toxicity | 1 | 33% | 17 | 15% |
| Cardiac toxicity | 0 | 0% | 6 | 5% |
| VOD | 0 | 0% | 1 | 1% |
| Haemorrhage | 0 | 0% | 2 | 2% |
| Other / not specified | 1 | 33% | 42 | 38% |

Primary cause of death post allogeneic transplant - first year

Recipients aged 0-15



| Cause of death | Matched sib | | Other relative | | Unrelated | | Total | |
|--------------------------------|-------------|-------------|----------------|-------------|-----------|-------------|-----------|-------------|
| Disease relapse or progression | 7 | 70% | 2 | 20% | 30 | 46% | 39 | 46% |
| Transplant related | 3 | 30% | 8 | 80% | 33 | 51% | 44 | 52% |
| New malignancy | 0 | 0% | 0 | 0% | 2 | 3% | 2 | 2% |
| Total deaths | 10 | 100% | 10 | 100% | 65 | 100% | 85 | 100% |

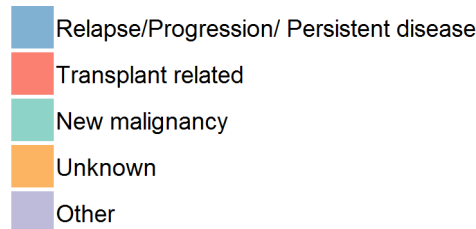
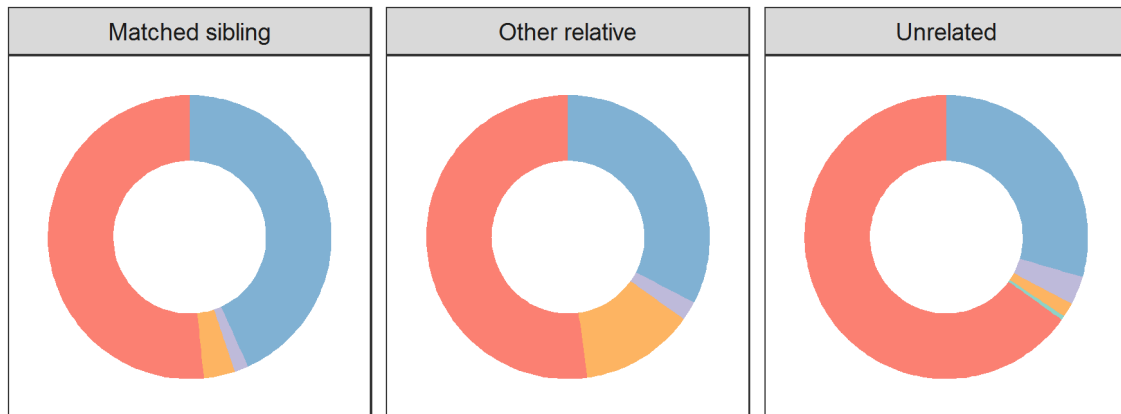
Contributing causes of TRM in the first year post allogeneic transplant

Patients may have had more than one contributing cause of TRM. The percentage column shows the number of each contributing cause as a percentage of all transplant related deaths in each donor group.

| Contributing cause of TRM | Matched sib (3 deaths) | | Other relative (8 deaths) | | Unrelated (33 deaths) | |
|-------------------------------|---------------------------|-----|------------------------------|-----|--------------------------|-----|
| Infection | 0 | 0% | 5 | 63% | 19 | 58% |
| VOD | 1 | 33% | 2 | 25% | 5 | 15% |
| Pulmonary toxicity | 1 | 33% | 1 | 13% | 8 | 24% |
| Organ failure | 1 | 33% | 0 | 0% | 5 | 15% |
| GVHD | 1 | 33% | 1 | 13% | 4 | 12% |
| Rejection/poor graft function | 0 | 0% | 3 | 38% | 3 | 9% |
| Cardiac toxicity | 0 | 0% | 0 | 0% | 1 | 3% |
| Other / not specified | 1 | 33% | 2 | 25% | 10 | 30% |

Primary cause of death post allogeneic transplant - first year

Recipients aged 16+



| Cause of death | Matched sib | | Other relative | | Unrelated | | Total | |
|--------------------------------|-------------|-------------|----------------|-------------|------------|-------------|------------|-------------|
| Disease relapse or progression | 109 | 43% | 15 | 33% | 127 | 30% | 251 | 34% |
| Transplant related | 130 | 52% | 24 | 52% | 280 | 65% | 434 | 60% |
| New malignancy | 0 | 0% | 0 | 0% | 2 | 0% | 2 | 0% |
| Other | 4 | 2% | 1 | 2% | 14 | 3% | 19 | 3% |
| Unknown / not reported | 9 | 4% | 6 | 13% | 7 | 2% | 22 | 3% |
| Total deaths | 252 | 100% | 46 | 100% | 430 | 100% | 728 | 100% |

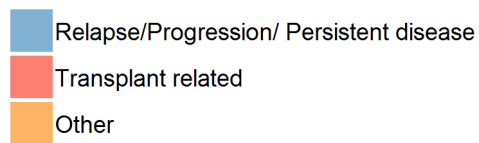
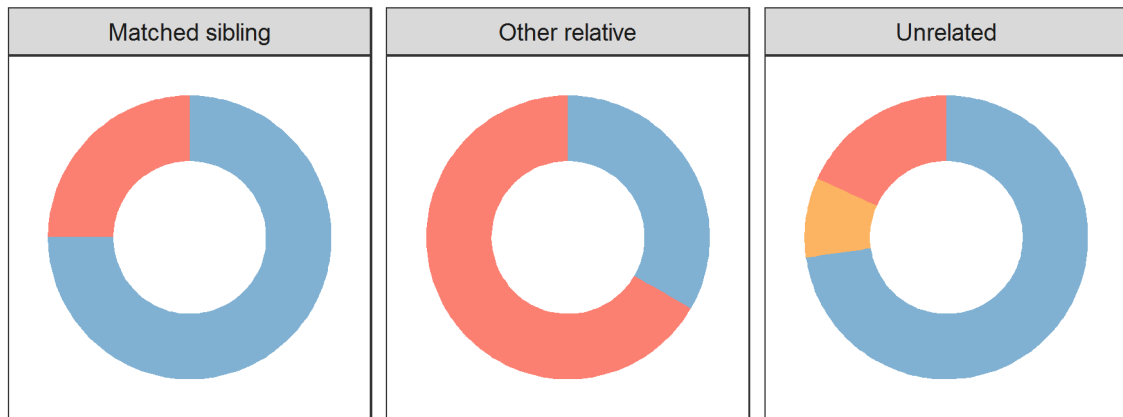
Contributing causes of TRM in the first year post allogeneic transplant

Patients may have had more than one contributing cause of TRM. The percentage column shows the number of each contributing cause as a percentage of all transplant related deaths in each donor group.

| Contributing cause of TRM | Matched sib (130 deaths) | | Other relative (24 deaths) | | Unrelated (280 deaths) | |
|-------------------------------|-----------------------------|-----|-------------------------------|-----|---------------------------|-----|
| Infection | 82 | 63% | 13 | 54% | 156 | 56% |
| GVHD | 48 | 37% | 6 | 25% | 117 | 42% |
| Organ failure | 18 | 14% | 2 | 8% | 22 | 8% |
| Pulmonary toxicity | 8 | 6% | 0 | 0% | 19 | 7% |
| VOD | 9 | 7% | 1 | 4% | 10 | 4% |
| Haemorrhage | 2 | 2% | 1 | 4% | 3 | 1% |
| Rejection/poor graft function | 8 | 6% | 3 | 13% | 14 | 5% |
| Cardiac toxicity | 5 | 4% | 0 | 0% | 2 | 1% |
| Other / not specified | 33 | 25% | 11 | 46% | 79 | 28% |

Primary cause of death post allogeneic transplant - second year

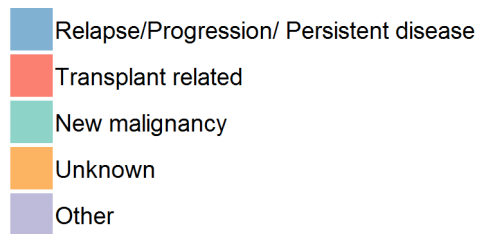
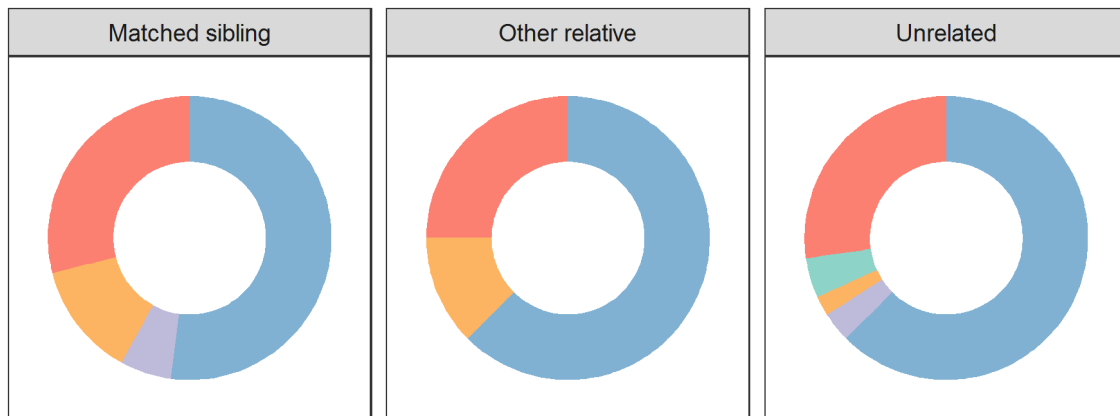
Recipients aged 0-15



| Cause of death | Matched sib | | Other relative | | Unrelated | | Total | |
|--------------------------------|-------------|-------------|----------------|-------------|-----------|-------------|-----------|-------------|
| Disease relapse or progression | 3 | 75% | 1 | 33% | 9 | 69% | 13 | 65% |
| Transplant related | 1 | 25% | 2 | 67% | 3 | 23% | 6 | 30% |
| Other | 0 | 0 | 0 | 0 | 1 | 8% | 1 | 5% |
| Total deaths | 4 | 100% | 3 | 100% | 13 | 100% | 20 | 100% |

Primary cause of death post allogeneic transplant - second year

Recipients aged 16+



| Cause of death | Matched sib | | Other relative | | Unrelated | | Total | |
|--------------------------------|-------------|-------------|----------------|-------------|-----------|-------------|------------|-------------|
| Disease relapse or progression | 36 | 52% | 5 | 63% | 55 | 63% | 96 | 58% |
| Transplant related | 20 | 29% | 2 | 25% | 24 | 27% | 46 | 28% |
| New malignancy | 0 | 0% | 0 | 0% | 4 | 5% | 4 | 2% |
| Other | 4 | 6% | 0 | 0% | 3 | 3% | 7 | 4% |
| Unknown / not reported | 9 | 13% | 1 | 13% | 2 | 2% | 12 | 7% |
| Total deaths | 69 | 100% | 8 | 100% | 88 | 100% | 165 | 100% |

Contributing centres

The ABMTRR would like to acknowledge the support of all staff associated with the transplant programs at our participating centres: clinicians, data managers, nurses, scientists, quality officers, researchers and others. Centres marked * are no longer performing transplants, but clinicians may still be providing follow up data for their patients.

Australia

Australian Capital Territory

Canberra Hospital

New South Wales

The Children's Hospital at Westmead

Concord Repatriation and General Hospital

Gosford Hospital

John Hunter Children's Hospital

Liverpool Hospital

Nepean Hospital

Newcastle Mater Hospital

Prince of Wales Hospital

Royal North Shore Hospital

Royal Prince Alfred Hospital

St George Hospital

St Vincent's Hospital, Sydney

Sydney Adventist Hospital*

Sydney Children's Hospital

Westmead Hospital

Wollongong Hospital

Queensland

Brisbane Private Hospital*

Gold Coast University Hospital

Greenslopes Private Hospital

Mater Hospital Brisbane

Mater Private Hospital Brisbane

Princess Alexandra Hospital

Queensland Children's Hospital

Royal Brisbane and Women's Hospital

Townsville Hospital

The Wesley Hospital

South Australia

Adelaide Cancer Centre*

Flinders Medical Centre

Queen Elizabeth Hospital

Royal Adelaide Hospital

Women's & Children's Hospital

Tasmania

Royal Hobart Hospital

Victoria

Alfred Hospital

Austin Hospital

Box Hill Hospital

Geelong Hospital

Peter MacCallum Cancer Centre

Royal Children's Hospital, Melbourne

Royal Melbourne Hospital

St Vincent's Hospital, Melbourne

Western Australia

Fiona Stanley Hospital

Fremantle Hospital*

Perth Children's Hospital

Royal Perth Hospital

Sir Charles Gairdner Hospital

New Zealand

Auckland City Hospital

Christchurch Hospital

Palmerston North Hospital

Starship Hospital

Waikato Hospital

Wellington Hospital

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Bryant A, Nivison-Smith I, Pillai ES, Kennedy G, Kalff A, Ritchie D, George B, Hertzberg M, Patil S, Spencer A, Fay K, Cannell P, Berkahn L, Doocey R, Spearing R, Moore J. Fludarabine Melphalan reduced intensity conditioning allotransplantation provides similar disease control in lymphoid and myeloid malignancies-analysis of 344 patients. *Bone Marrow Transplant* 2014;49:17-23.

Mitchell R, Nivison-Smith I, Anazodo A, Tiedemann K, Shaw P, Teague L, Fraser C, Carter T, Tapp H, Alvaro F, O'Brien T. Outcomes of Hematopoietic Stem Cell Transplantation for Inherited Metabolic Disorders: A report from Australian and New Zealand Children's Haematology/Oncology Group (ANZCHOG) and the Australasian Bone Marrow Transplant Recipient Registry (ABMTRR). *Paediatric Transplantation* 2013; 17:582-588.

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