ANZTCT Benchmarking and CQR Government Reporting

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THE UNIVERSITY OF SYDNEY

ANZTCT ASM 2026

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What is a CQR and Benchmarking

Clinical Quality Registries (CQRs) make a unique contribution to the Australian health system. They collect, analyse and report information about the care and outcomes being delivered by health service organisations.

Benchmarking is the process of measuring patient care and outcomes against other comparable healthcare organisations or practices. Risk adjusted models must be applied to the data.

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What do Others do?

EBMT

Centre specific benchmarking of 1 year overall survival (OS) in adult Allo-HSCT and Auto-HSCT with risk adjustment. Minimum data entry of 80%

CIBMTR®
A RESEARCH COLLABORATION BETWEEN THE MEDICAL COLLEGE OF WISCONSIN AND NMDP

Centre specific benchmarking of 1 year overall survival (OS) in adult and paediatric Allo-HSCT with risk adjustment. Publicly available results. Minimum data entry of 90%.

FACT/JACIE Requirements

B4.7.5 The Clinical Program should achieve one-year survival outcome within or above the expected range when compared to national or international outcome data.

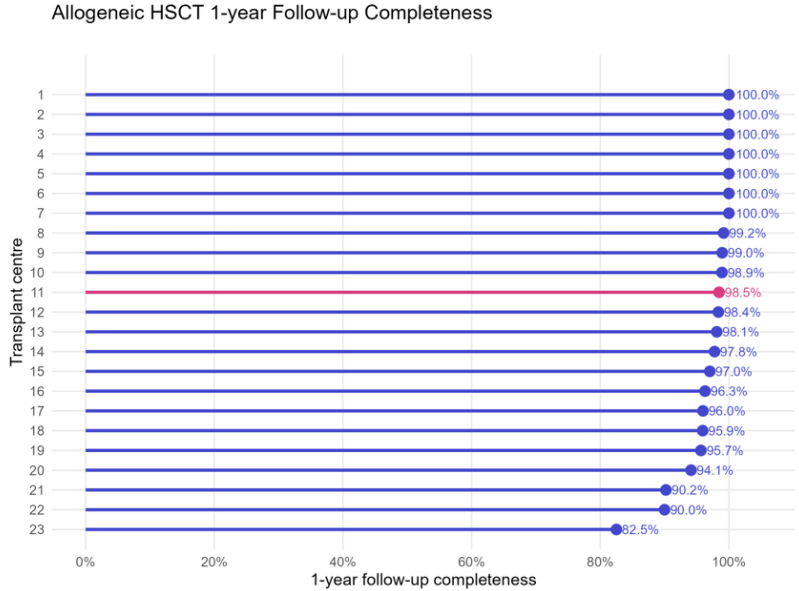
> *B4.7.5.1 If expected one-year survival outcome is not met, the Clinical Program shall implement a Corrective Action Plan that meets FACT or JACIE requirements*

B4.7.2 Both individual cellular therapy product data and aggregate data shall be evaluated for each type of cellular therapy product, recipient diagnosis, and donor type

B4.7.3.2 For IEC products, including donor lymphocyte infusions, an endpoint of clinical function as approved by the Clinical Program Director.

Data Quality

Completeness: 1-year follow-up



Data quantity checked
Review of some quality metrics
No formal auditing of primary documents performed by ANZTCT

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Allo-HSCT Characteristics and Raw Outcomes

Patient variables	Overall
Transplant year	
2020	680 (17.8%)
2021	765 (20.0%)
2022	731 (19.1%)
2023	803 (21.0%)
2024	839 (22.0%)
Patient age	
Mean (SD)	44.9 (20.8)
Median (LQ, UQ)	51.5 (30.0, 62.0)
Min, Max	0.0, 75.0
Patient sex	
Female	1530 (40.1%)
Male	2288 (59.9%)
CMV status	
Negative	1282 (33.6%)
Positive	2480 (65.0%)
Unknown	56 (1.5%)
Karnofsky score	
<80	176 (4.6%)
80	675 (17.7%)
90-100	2772 (72.6%)
Unknown	195 (5.1%)
Total allogeneic transplants	**3818**

Disease variables	Overall
Diagnosis	
Acute Lymphoblastic Leukaemia (ALL)	598 (15.7%)
Acute Myelogenous Leukaemia (AML)	1449 (38.0%)
Autoimmune disorders	3 (0.1%)
Bone marrow failure syndromes (including anaemias)	190 (5.0%)
Chronic Myelogenous Leukaemia	77 (2.0%)
Combined Myelodysplastic/Myeloproliferative Syndrome	91 (2.4%)
Haemoglobinopathy	16 (0.4%)
Histiocytic disorders	16 (0.4%)
Hodgkin Lymphoma	76 (2.0%)
Inherited disorders (Disorders of metabolism, Immune deficiencies, Platelet disorders)	126 (3.3%)
Myelodysplastic Syndrome (MDS)	480 (12.6%)
Myeloproliferative Syndrome (MPS)	236 (6.2%)
Non-Hodgkin Lymphoma (NHL)	319 (8.4%)
Other Acute Leukaemia	54 (1.4%)
Other disease, specify	8 (0.2%)
Other Leukaemias	57 (1.5%)
Plasma cell disorder	22 (0.6%)
DRI	
1	304 (8.0%)
2	2159 (56.5%)
3	443 (11.6%)
4	545 (14.3%)
Unknown	367 (9.6%)
Total allogeneic transplants	**3818**

Time	Stratum	Survival (95% CI)	N risk
Day 100	ANZTCT	90.59% (89.65–91.54)	3306
6-months	ANZTCT	84.71% (83.55–85.88)	3051
1-year	ANZTCT	77.67% (76.32–79.04)	2698

Cox regression One-year Survival: Allo-HSCT

Variable	Level	HR (95% CI)	Wald p	Overall p
Transplant year	**2020 (ref)**	**1.00**		**0.02**
	2021	1.13 (0.91–1.40)	0.26	
	2022	1.02 (0.82–1.28)	0.84	
	2023	0.80 (0.64–1.01)	0.06	
	2024	0.88 (0.70–1.10)	0.25	
Recipient age	Per unit	1.34 (1.25–1.44)	<0.001	
Patient sex	**Female (ref)**	**1.00**		**0.52**
	Male	1.05 (0.91–1.21)	0.52	
Karnofsky score	**90-100 (ref)**	**1.00**		**<0.001**
	80	1.55 (1.32–1.82)	<0.001	
	<80	2.20 (1.69–2.87)	<0.001	
Prior HSCT	**No (ref)**	**1.00**		**0.20**
	Yes	1.27 (0.89–1.79)	0.18	
DRI	**1 (ref)**	**1.00**		**<0.001**
	2	0.94 (0.73–1.23)	0.67	
	3	1.32 (0.97–1.78)	0.07	
	4	1.41 (1.05–1.88)	0.02	
Diagnosis to HSCT interval	Per unit	0.98 (0.93–1.05)	0.62	
Donor age	Per unit	1.04 (0.97–1.12)	0.27	
Donor sex	**Female (ref)**	**1.00**		**0.22**
	Male	0.91 (0.79–1.06)	0.22	
CMV status	**Negative (ref)**	**1.00**		**0.04**
	Positive	1.17 (1.01–1.37)	0.04	
Donor type	**HLA identical sib (ref)**	**1.00**		**<0.001**
	Other related	1.63 (1.32–2.01)	<0.001	
	Unrelated	1.33 (1.09–1.62)	0.00	

Overall p-values are likelihood ratio tests for the full categorical term; values <0.001 are displayed as <0.001.

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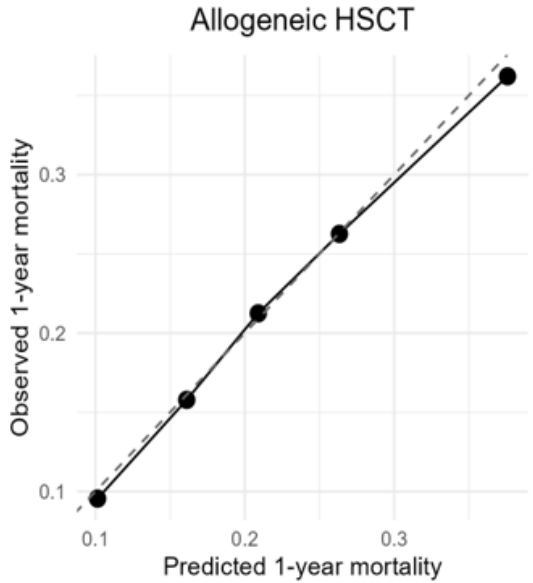
Allo-HSCT Modelling



Model	C-index	95% CI	Optimism Corrected
Allogeneic HSCT	0.646	(0.628–0.665)	0.635

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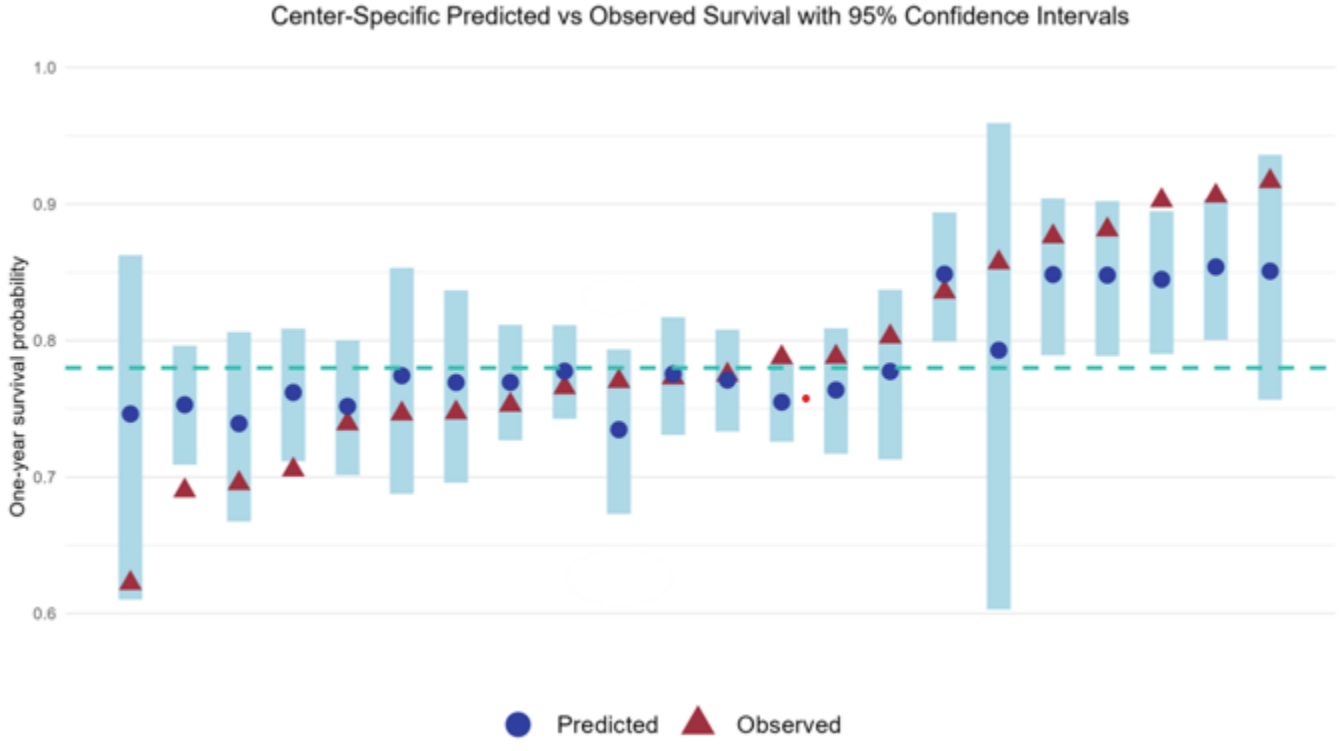
CIBMTR Methodology



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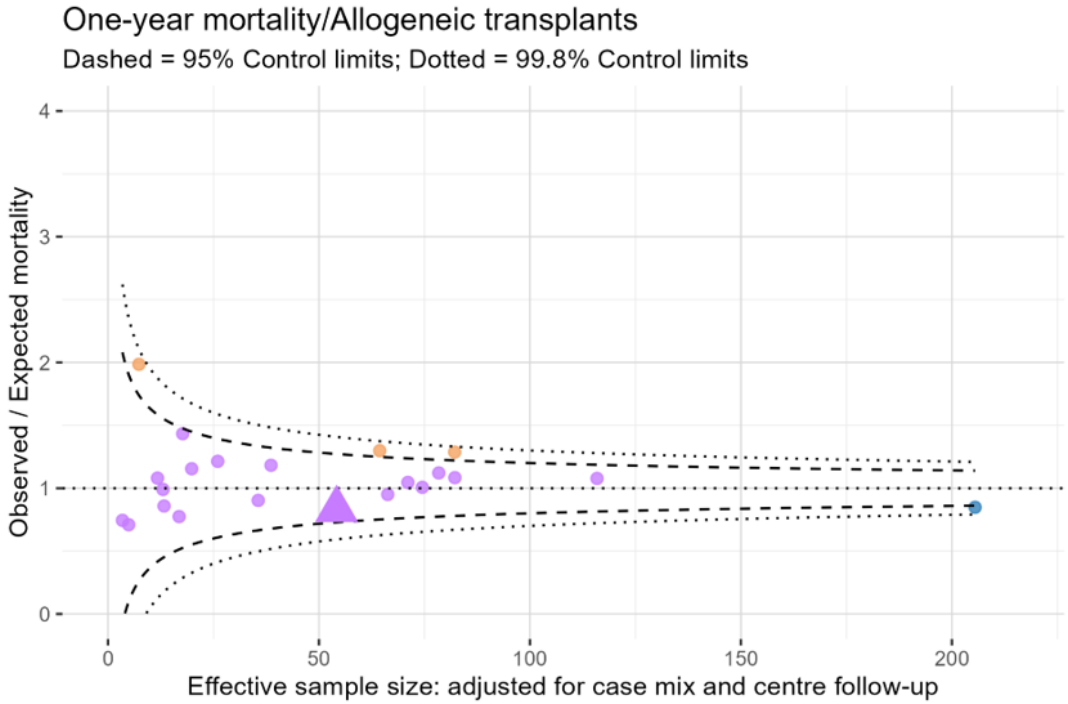
Auto-HSCT Outcomes EBMT Methodology



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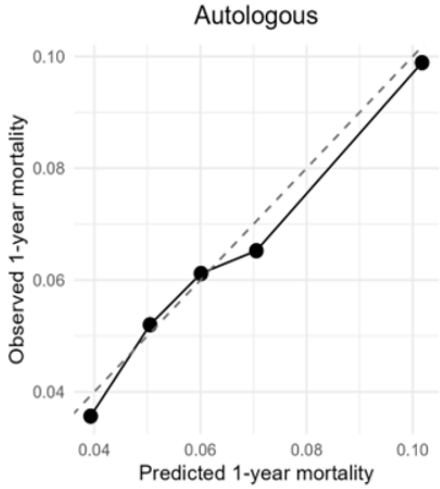
Auto-HSCT Characteristics and Raw Outcomes

Patient variables	ANZTCT
Transplant year	
2020	1238 (20.9%)
2021	1242 (20.9%)
2022	1122 (18.9%)
2023	1189 (20.1%)
2024	1138 (19.2%)
Patient age	
Mean (SD)	59.2 (10.4)
Median (LQ, UQ)	62.0 (54.0, 67.0)
Min, Max	18.0, 81.0
Patient sex	
Female	2225 (37.5%)
Male	3704 (62.5%)
CMV status	
Negative	1664 (28.1%)
Positive	3015 (50.9%)
Unknown	1250 (21.1%)
Karnofsky score	
<80	325 (5.5%)
80	955 (16.1%)
90-100	3267 (55.1%)
Unknown	1382 (23.3%)
Diagnosis to HSCT (months)	
Mean (SD)	16.5 (28.3)
Median (LQ, UQ)	7.2 (5.6, 12.0)
Min, Max	0.0, 540.9
Total autologous transplants	**5929**

Disease variables	ANZTCT
Diagnosis	
Hodgkin Lymphoma	269 (4.5%)
Multiple myeloma	3648 (61.5%)
Non-Hodgkin Lymphoma (NHL)	1791 (30.2%)
Plasma cell disorder - Other	221 (3.7%)
DRI	
1	664 (11.2%)
2	4418 (74.5%)
3	650 (11.0%)
4	77 (1.3%)
Unknown	120 (2.0%)
Total autologous transplants	**5929**

Time	Stratum	Survival (95% CI)	N risk
Day 100	ANZTCT	98.27% (97.93–98.62)	5387
6-months	ANZTCT	96.76% (96.29–97.22)	5178
1-year	ANZTCT	93.71% (93.06–94.36)	4703

Auto-HSCT Modelling



Variable	Level	HR (95% CI)	Wald p	Overall p
Transplant year	**2020 (ref)**	**1.00**		**0.91**
	2021	0.93 (0.66–1.31)	0.67	
	2022	1.01 (0.71–1.42)	0.98	
	2023	0.88 (0.62–1.25)	0.47	
	2024	0.89 (0.62–1.26)	0.50	
Recipient age	Per unit	1.27 (1.04–1.56)	0.02	
Patient sex	**Female (ref)**	**1.00**		**0.02**
	Male	1.32 (1.04–1.68)	0.02	
Karnofsky score	**90-100 (ref)**	**1.00**		**<0.001**
	80	1.39 (1.06–1.82)	0.02	
	<80	1.97 (1.43–2.70)	<0.001	
DRI	**1 (ref)**	**1.00**		**0.10**
	2	1.37 (0.89–2.11)	0.16	
	3+	1.70 (1.03–2.79)	0.04	
Diagnosis to HSCT interval	Per unit	1.05 (0.93–1.19)	0.39	

Overall p-values are likelihood ratio tests for the full categorical term; values <0.001 are displayed as <0.001.

Model	C-index	95% CI	Optimism Corrected
Autologous	0.602	(0.571–0.633)	0.582

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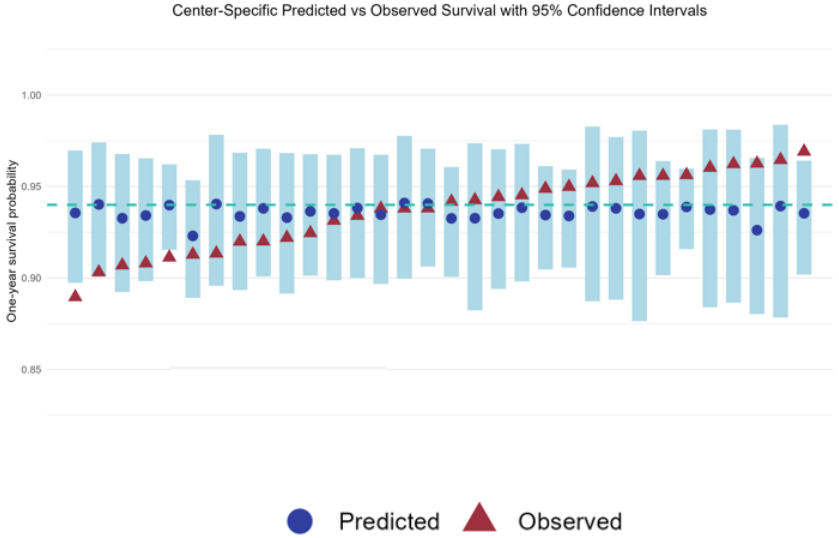
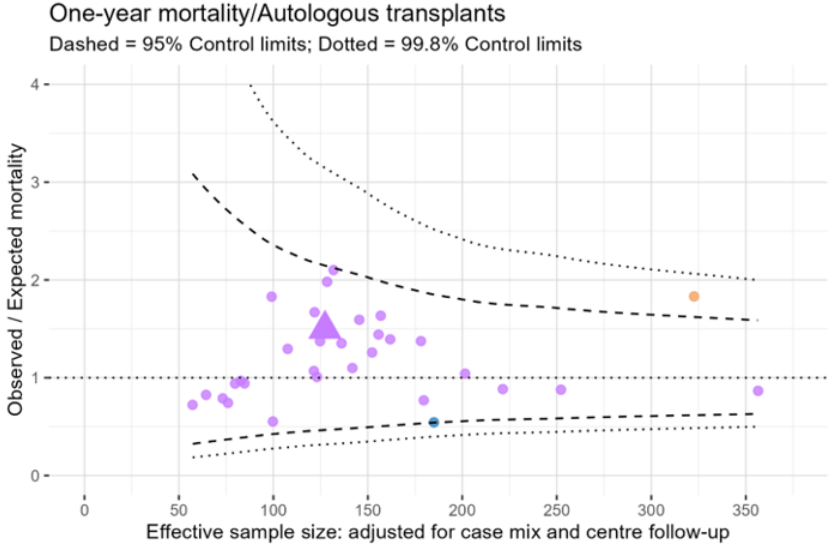
Auto-HSCT Benchmarking Outcomes





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CAR T Characteristics and Raw Outcomes

Patient variables	ANZTCT
Index year of first CT	
2020	61 (8.6%)
2021	105 (14.8%)
2022	135 (19.0%)
2023	172 (24.2%)
2024	237 (33.4%)
Patient sex	
Female	257 (36.2%)
Male	453 (63.8%)
Age	
Median (LQ, UQ)	64.0 (55.0, 72.0)
ECOG prior to CT	
0	251 (35.4%)
1	348 (49.0%)
2	26 (3.7%)
3	7 (1.0%)
4	1 (0.1%)
Unknown	77 (10.8%)
LDH	
Median (LQ, UQ)	249.0 (206.0, 331.0)
Bridging therapy	
No	113 (15.9%)
Yes	582 (82.0%)
Unknown	15 (2.1%)
CT product name	
Axicabtagene ciloleucel	405 (57.0%)
Brexucabtagene autoleucel	46 (6.5%)
Tisagenlecleucel	259 (36.5%)
Total CT infusions	**710**

Disease variables	ANZTCT
Primary diagnosis	
Acute lymphoblastic leukaemia	76 (10.7%)
Large B-cell lymphoma	599 (84.4%)
Mantle cell lymphoma	35 (4.9%)
Total CT infusions	**710**

centre	time	Survival (95% CI)	N risk
ANZTCT	Day 100	88.0% (85.2–91.0%)	426
ANZTCT	6 months	77.8% (74.2–81.6%)	373
ANZTCT	1 year	67.2% (63.1–71.5%)	287

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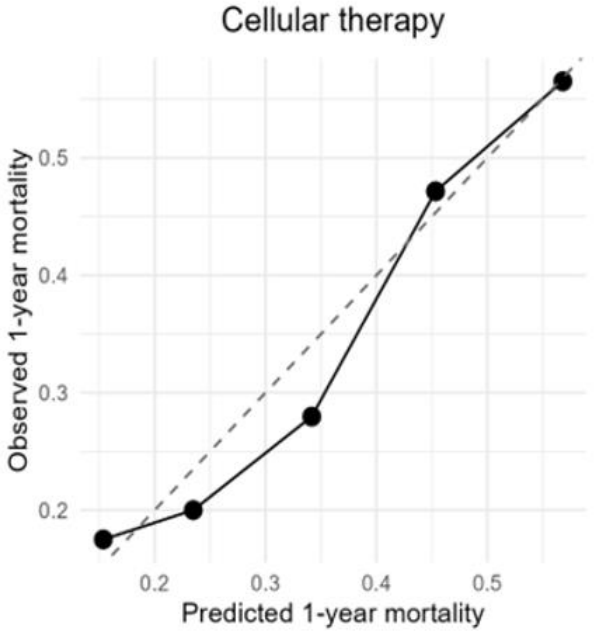
3rd Line CAR T LBCL Modelling



Variable	Level	HR (95% CI)	Wald p	Overall p
Recipient age	Per unit	1.04 (0.82–1.31)	0.75	
Sex	**Male (ref)**	**1.00**		**0.02**
	Female	0.70 (0.52–0.94)	0.02	
ECOG performance status	**Ecog1-4 (ref)**	**1.00**		**<0.00**
	Ecog0	0.37 (0.27–0.53)	<0.00	
Disease / product category	**Axicabtagene ciloleucel 3rd line (ref)**	**1.00**		**<0.00**
	Tisagenlecleucel	1.65 (1.24–2.19)	<0.00	
Bridging therapy	**Yes (ref)**	**1.00**		**0.00**
	No	0.53 (0.34–0.83)	0.01	

Overall p-values are likelihood ratio tests for the full categorical term; values <0.001 are displayed as <0.001.

Model	C-index	95% CI	Optimism Corrected
CAR-T LBCL	0.674	(0.638–0.711)	0.665

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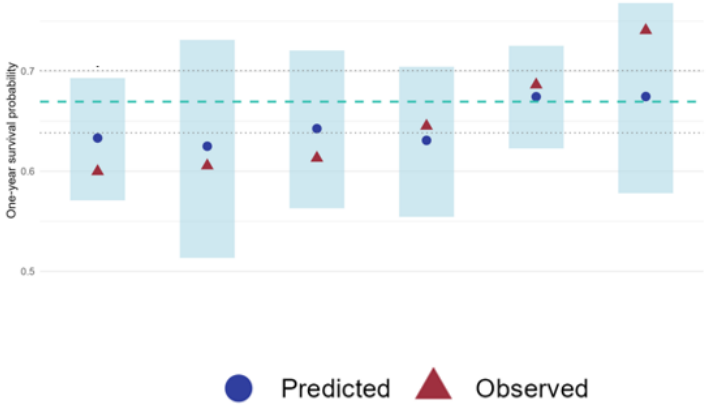
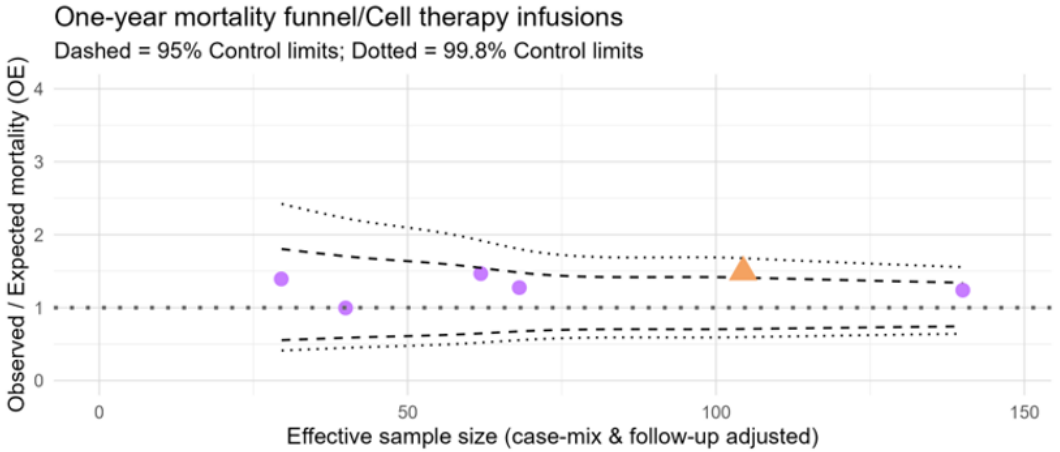
3rd Line LBCL Benchmarking Outcomes





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ANZTCT Benchmarking

Allo-HSCT model is the most robust

- High concordance and stability
- Non relapse mortality for OS events may make the best representation of quality

Auto-HSCT model is less predictive of outcomes

- Low relative event rate makes it challenging to model
- Predictors of early relapse may not be accurately captured

CAR T LBCL is the most challenging and being actively developed

- Model prediction is variable between low and high risk patients
- Limited centres create risks of bias
- Ongoing work in process with additional numbers, and follow up required

Government Reporting

Individual Benchmarking reports delivered all contributing centres in May 2026

State based de-identified reports delivered to state MoH in June 2026

Aggregated data delivered to the Commonwealth, States and Centres as the Annual Data Summary July 2026

– benchmarking models not available in the ADS currently

Benchmarking in Cellular Therapies

Benefits

- Provides guidance for centres and funders to assess and improve process
- Documents and re-evaluates changes in practice over time
- Allows for assessment in change in practice compared to peer centres
- Incentive for centres to invest in high-quality data and reporting
- Allows programs to meet FACT/JACIE standards

Cautions

- Models have limitations which need acknowledgement
- Not intended for punitive action but guidance to improve quality
- May discourage centres from accepting high risk patients who have factors not captured by the models

Thanks

Centre staff

Data managers!

ANZTCT Staff

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ANZTCT Registry Committee