Appendix 6: Indications for adult allogeneic bone marrow transplant in New Zealand

This list provides indications for the majority of adult BMTs that are performed in New Zealand. A small number of BMTs are performed for other rare indications, comprising less than 10 percent of BMT activity.

A decision to perform BMT on an individual patient is based upon:

- an improved outcome following BMT compared with non-transplant therapy, recognising that transplant may be part of a combined modality approach. Potential benefits include cure, improved survival or a better quality of life
- an assessment of the potential benefits compared with risks. This assessment may change with time, and is dependent upon many factors, including patient disease; disease stage and risk; age and co-morbidity; goals of therapy; treatment options and availability; cost; and patient and physician preference.

The decision to perform BMT in New Zealand is made after due consideration in relation to evidence, international standards, peer review at local BMT advisory committees, patient counselling and consent and availability of health care resources. All BMT units in New Zealand are authorised to perform such procedures and report their data to regional and international transplant registries for ongoing audit of effectiveness.

Myeloablative allogeneic BMT / RIC allogeneic BMT

Up to 70 years of age approximately based on PS / Comorbidity
Chronological age is not used in isolation to decide on conditioning regimen choice. Biological fitness and formal comorbidity assessment are more relevant.

There is no age differentiation between HLA identical sibling and 8/8 allellic high resolution MUD, depending on patient assessment/comorbidity index.

All potential donor sources should be considered unless otherwise stated.

Acute myeloid leukaemia (AML)	Adverse risk in CR1 Adverse karyotype or molecular profile Therapy-related AML Antecedent haematological disorder Slow response to induction chemotherapy Primary refractory disease
	Any risk group in CR2 Previously treated AML managed with successful reinduction chemotherapy
	Acute promyelocytic leukaemia (APML) – relapsed disease Morphological CR2 with persisting molecular positivity

Acute lymphoblastic leukaemia (ALL)	Transplant in CR1 Consider in any adult with ALL aged >25 years with available HLA identical sibling donor (ablative conditioning age <40 years; RIC age >40 years) High risk ALL and available MUD donor (ablative conditioning age <40 years; RIC age >40 years) Acute biphenotypic leukaemia Any risk group in CR2 Previously treated ALL managed with successful reinduction chemotherapy
Myelodysplastic syndrome	Consider allogeneic BMT in patients with: • IPSS intermediate-2 / high risk score • adverse cytogenetic profile • clonal evolution • increased blast count • red blood cell or platelet transfusion dependence
Aplastic anaemia	Very severe/severe disease at first presentation Patients < 40 years with HLA identical sibling donor Consider allogeneic BMT in patients failing adequate trial of immunosuppression Patients >40 years with HLA identical sibling donor Patients with suitable matched unrelated donor
Chronic myeloid leukaemia	Patients in first chronic phase failing tyrosine kinase inhibitor therapy Patients with prior advanced stage disease obtaining disease control with tyrosine kinase inhibitor therapy
Myelofibrosis	Consider allogeneic BMT in patients with: • poor risk assessment based on blood count and cytogenetics • significant red cell transfusion requirement
Chronic lymphocytic leukaemia	Consider RIC allogeneic BMT in: • early stage disease with poor risk features (for example 17p deletion) • fludarabine refractory patients (non-response / relapse within 6–12 months of therapy) • young patients with multiple relapsed disease following prior fludarabine-based therapy
Multiple myeloma	Consider RIC allogeneic BMT in patients with poor risk disease (t(4;14), deletion 13q by G-banding, deletion 17p, complex karyotype) in first response as part of tandem autologous/allogeneic approach
Indolent lymphoma	Consider allogeneic BMT in patients with advanced stage but chemosensitive lymphoma in second or later disease response
Mantle cell lymphoma **Hodgkin lymphoma**	Consider RIC allogeneic BMT in patients with advanced stage disease in second response Consider RIC allogeneic BMT in relapsed disease ≥ six months following prior autologous BMT with good stable partial remission to salvage chemotherapy

Aggressive lymphoma	T / NK cell lymphomas in CR1 Consider allogeneic BMT for chemosensitive aggressive disease
	Relapsed T / NK cell lymphomas and large B cell lymphoma Consider allogeneic BMT for carefully selected patients with stable relapsed chemosensitive disease

Appendix 7: Indications for adult autologous bone marrow transplant in New Zealand

This list provides indications for the majority of adult BMT performed in New Zealand. A small number of BMTs are performed for other rare indications, comprising less than 10 percent of BMT activity.

Autologous BMT – up to 70 years of age approximately based on PS / Comorbidity

AML	Specific AML groups in CR2 APML in molecular CR2
ALL	Recent studies demonstrate no advantage of autologous BMT compared with chemotherapy
Multiple myeloma	De novo myeloma Standard of care following initial chemotherapy – chemosensitive disease Primary refractory disease Proven place of single or double BMT depending on myeloma response
	Relapsed myeloma Consider second autologous BMT if treatment-free interval of at least three years after first BMT Autologous BMT on first relapse if BMT not performed as part of initial myeloma treatment
AL amyloid	Perform BMT in carefully selected patients with limited organ involvement
Severe autoimmune diseases	Consider in carefully selected patients on a case-by-case basis
Hodgkin lymphoma	Standard of care in primary refractory or relapsed lymphoma demonstrating some chemosensitivity
Aggressive lymphoma	Consider in very poor risk chemosensitive large B cell or poor risk T/NK cell lymphoma at presentation
	Consider in primary refractory large B cell lymphoma with demonstrated stable chemosensitivity
	Standard of care in chemosensitive relapsed large B cell lymphoma
Indolent lymphoma	Consider in chemosensitive relapsed indolent B cell lymphoma
Mantle cell lymphoma	Recommended in de novo chemosensitive mantle cell lymphoma
	Consider in chemosensitive relapse (CR2)
Germ cell tumours	Standard of care for chemosensitive relapsed germ cell tumour

Appendix 8: Summary table of indications for BMT procedures, 2010

Key:

Allo	Allogeneic	Auto	Autologous	R	BMT recommended
ACP	Accepted clinical practice	NR	Not recommended	Sib	Sibling

D Developmental

		Allo Sib (or suitably matched family donor)	**RIC Allo**	**Allo MUD**	**Auto**
Age limit		**55**	**65**	**50 RIC 65**	**65–70**
Disease					
AML	CR1 (intermediate/high risk)	R	R	R	ACP
	Early first relapse	R	ACP	R	NR
	CR2	R	R	R	ACP
	Primary resistant leukaemia	ACP	NR	ACP	NR
	Resistant relapse	NR	NR	NR	NR
Adult ALL	L3 (Burkitt's) CR1	NR	NR	NR	NR
	Sensitive relapse	R	NR	R	ACP
	Ph^+ ALL CR1	R	ACP	R	NR
	CR2	R	ACP	R	NR
	Ph^- ALL CR1	R	ACP	R	NR
	CR2	R	ACP	R	NR
	Primary resistant leukaemia	NR	NR	NR	NR
	Resistant relapse	NR	NR	NR	NR
CML	First chronic phase, failing TKI	R	R	R	NR
	>First chronic or Accl phase	R	ACP	R	NR
	Blast crisis	NR	NR	NR	NR
CLL	Chemosensitive and • poor risk first presentation (eg, 17p del) • or fludarabine refractory • or advanced stage CLL	ACP	R	ACP	ACP
	Poor risk CLL in CR, or good PR	–	–	–	D
Myeloma	Primary responsive (single or double transplant)	D	ACP	D	R
	Primary refractory	D	ACP	D	R
	Sensitive relapse (no initial transplant or long first remission to transplant)	NR	ACP	NR	R
Al amyloid	Limited disease, good risk	D	D	D	ACP
MDS	Good risk (eg RA, RAEB)	R	R	R	NR
	Poor risk (chemosensitive)	R	R	R	D

		Allo Sib (or suitably matched family donor)	**RIC Allo**	**Allo MUD**	**Auto**
Severe aplastic anaemia	De novo, age < 40	R	–	NR	NR
	Relapsed, refractory to immunosupp	R	–	R	NR
	Red cell aplasia	R	ACP	ACP	NR
	β Thalassaemia major and severe variants	R	–	ACP	NR
	Sickle cell disease	R	–	ACP	NR
Severe autoimmune disease		D	D	NR	ACP
Hodgkin lymphoma	Poor prognosis CR1	NR	NR	NR	NR
	Primary refractory	NR	ACP	ACP	R
	Chemosensitive relapse	NR	ACP	ACP	R
Age limit		**55**	**65**	**45 RIC 65**	**65**
Disease					
Lymphoma	Lymphoblastic (adults) – CR1	ACP	ACP	ACP	ACP
	Chemosensitive relapse	R	ACP	R	ACP
	Burkitt's Chemosensitive relapse	ACP	ACP	ACP	R
	Aggressive poor risk – CR1	NR	NR	NR	ACP
	Primary refractory	NR	NR	NR	R
	Chemosensitive relapse	ACP	ACP	D	ACP
	Indolent	ACP	ACP	ACP	ACP
	Mantle De Novo – CR/PR	NR	ACP	NR	ACP
	Chemosensitive relapse	R	R	ACP	ACP
Myelofibrosis	Progressive or high risk	R	R	R	NR
Adult solid tumours	Germ cell tumours – relapse	NR	NR	NR	ACP