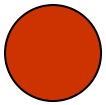
The clinical applications of Bone Marrow Transplantation (BMT) will increase over the next 10 years.



BMT is currently used predominantly in the treatment of some haematopoietic malignancies with variable efficacy.

now

There are systemic obstacles that prevent widespread adoption of BMT.

BMT has the potential to cure a diverse variety of diseases.

the future

The clinical applications of Bone Marrow Transplantation (BMT) will increase over the next 10 years.

BMT is currently used predominantly in the treatment of some haematopoietic malignancies.

Annual cases (2006)

AML	**2581**
ALL	**1239**
MDS	**929**
Non-Hodgkin Lymphoma	**826**
Non-malignant conditions	**619**
CML	**516**
Other Leukaemias	**516**
Aplastic Anaemia	**310**
Multiple myeloma	**310**
Hodgkin Lymphoma	**103**
Other malignancies	**52**
TOTAL	**8000**

Allogeneic cases only.
Autologous cases are not included.

The clinical applications of Bone Marrow Transplantation (BMT) will increase over the next 10 years.

There are systemic obstacles that prevent widespread adoption of BMT.

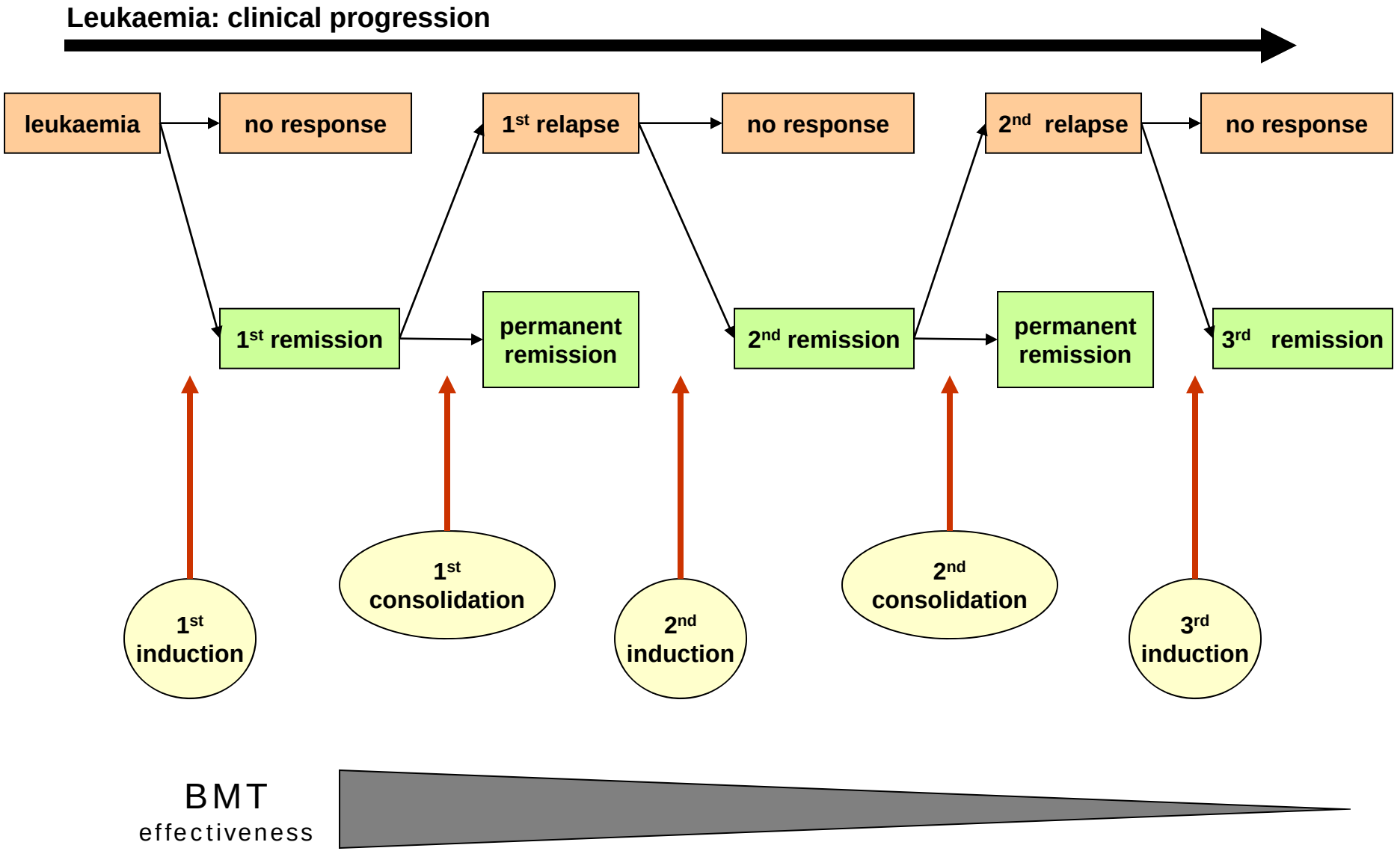
- poor representation of minorities in donor registries
- poor quality typing
- convoluted administrative practices in donor registries increase the turn-around time

The clinical applications of Bone Marrow Transplantation (BMT) will increase over the next 10 years.

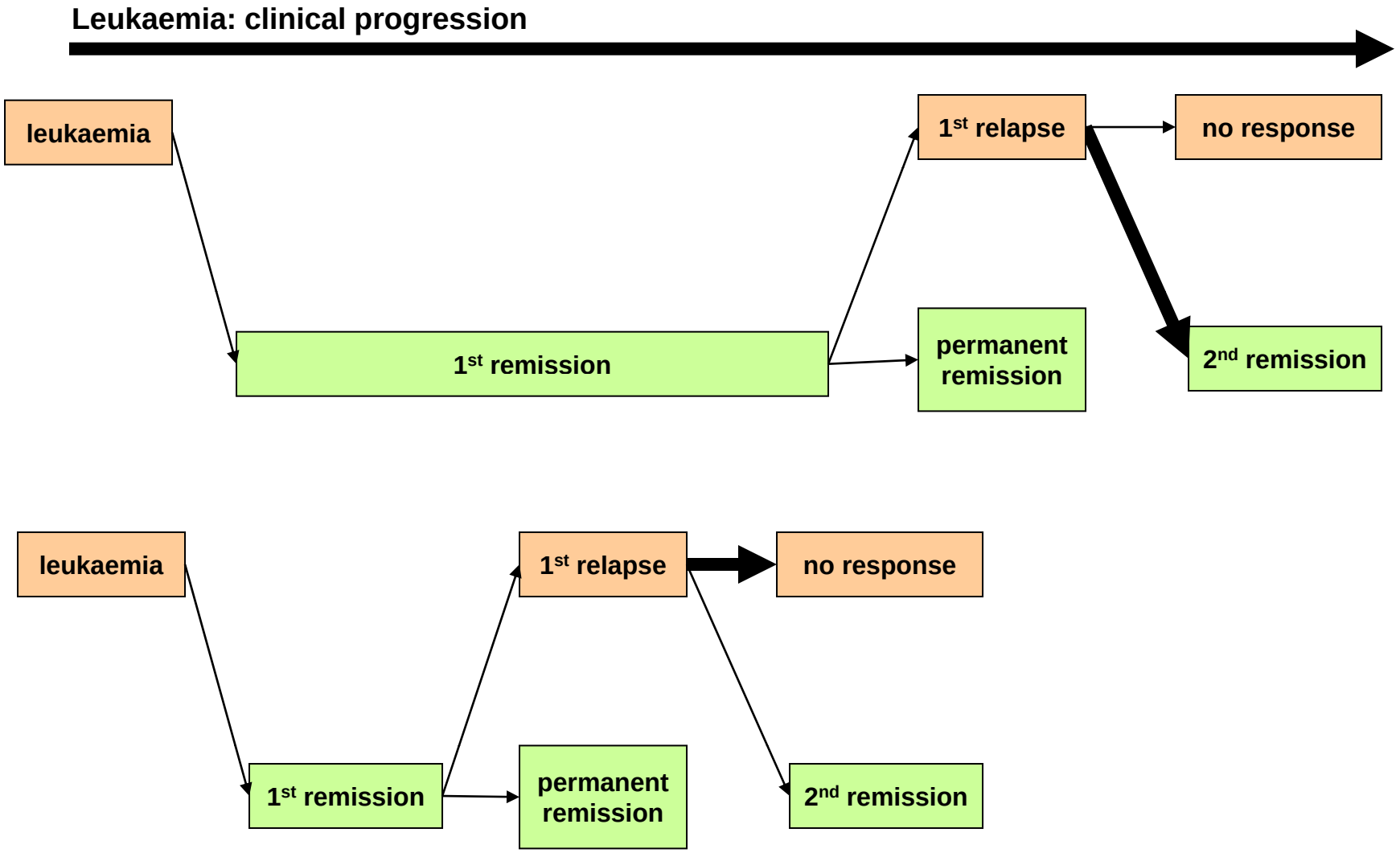
BMT has the potential to cure a diverse variety of diseases.

- Take advantage of efficient BMT donor registries with representation of the main phenotypes in each ethnic group.
- Create protocols for mismatching.
- Use multiple transplants for multiple purposes.
- Apply the principles and techniques of BMT for other clinical conditions.

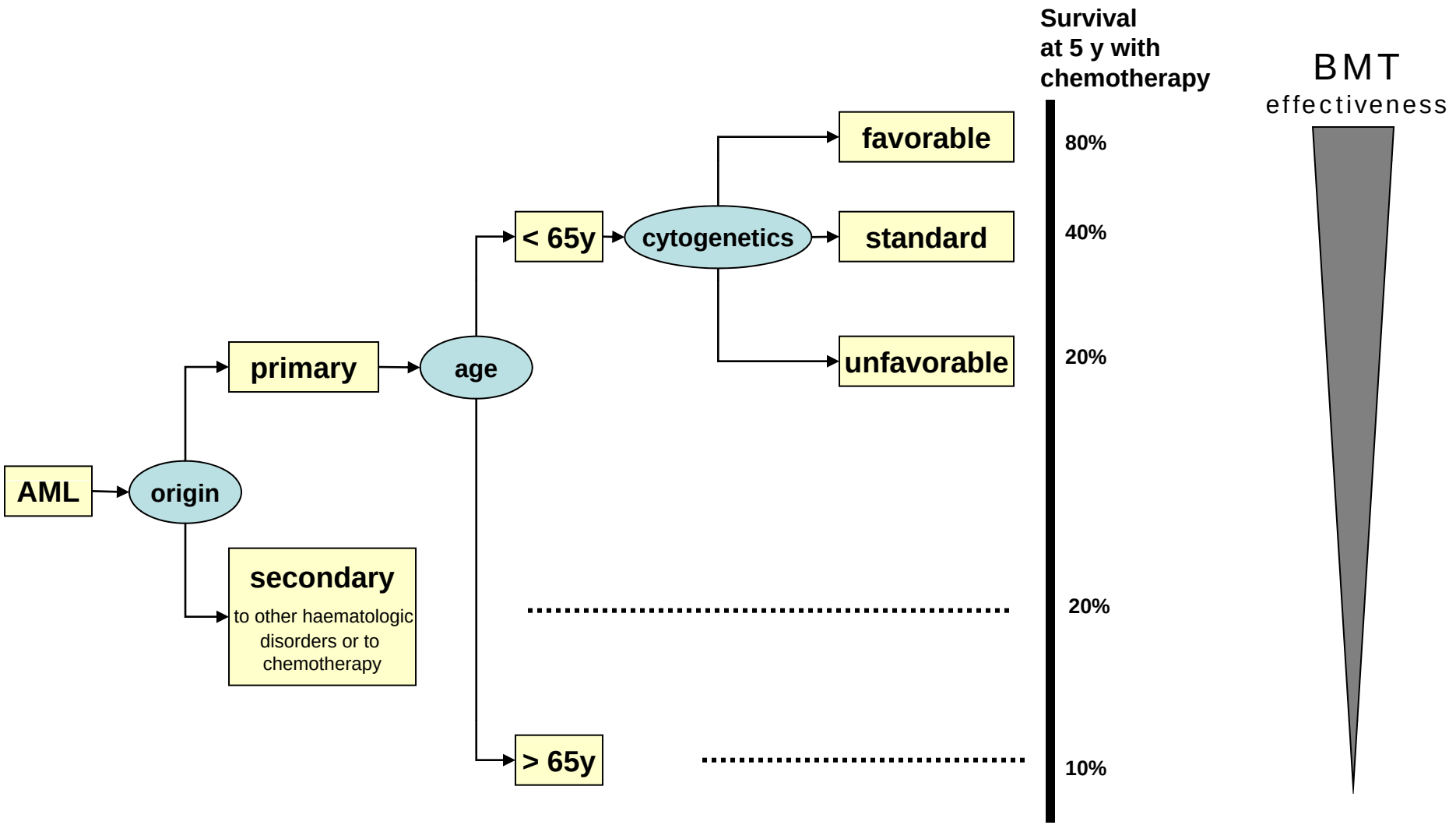
The effectiveness of BMT decreases with the stage in clinical progression



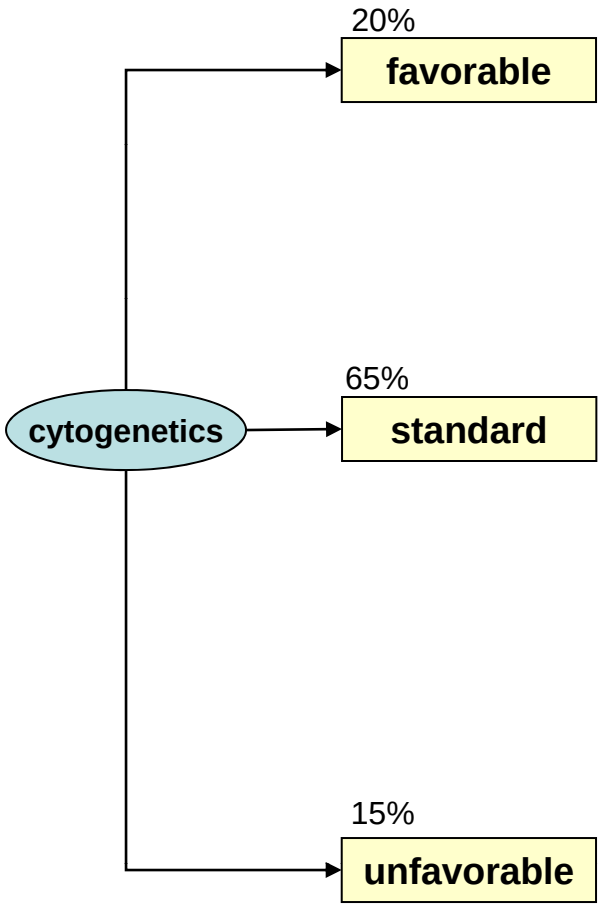
How long it takes a patient to go into relapse determines the likelihood of a second remission



AML: The effectiveness of BMT decreases with the clinical prognosis



AML: clinical prognosis based on cytogenetics analysis



t(15;17)
t(8;21)
inv(16)

no abnormalities or different ones besides those in the two other groups

- **abnormalities in more than one chromosome,**
- **monosomies of chromosome 5 or 7**
- **abnormalities in 5q**
- **abnormalities in chromosome 3**

ALL: BMT treatment

Children ALL- Philadelphia chromosome positive

TREATMENT	5-year progression-free survival
BMT: HLA-id. sib.	35%
chemotherapy	18%

BMT - HLA-identical sibling

DISEASE STAGE	5-year progression-free survival
first complete remission	55%
beyond first remission	27%

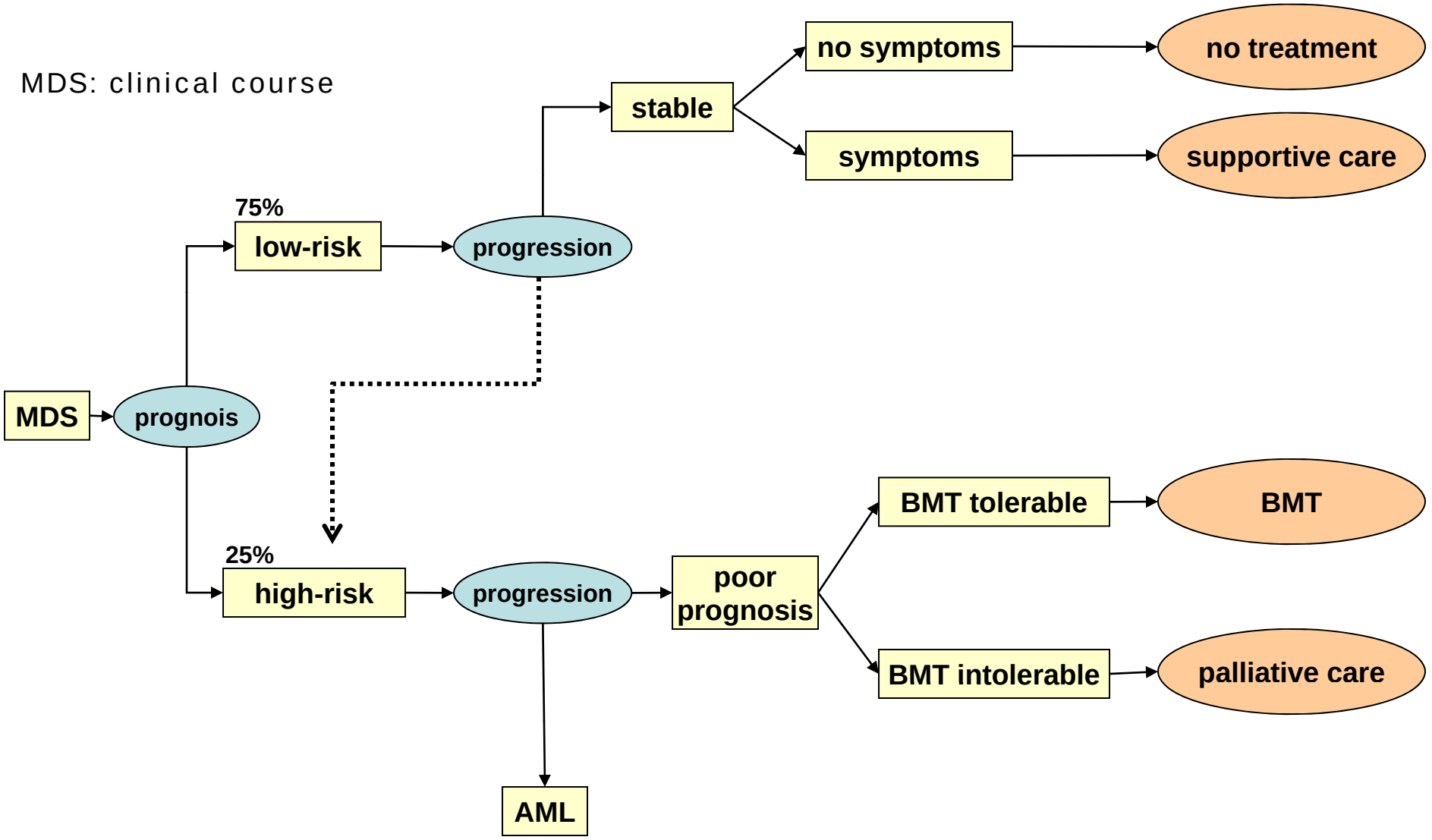
BMT - HLA-identical sibling
5-year survival and prognosis and age

PROGNOSIS	20 y. or less	more than 20 y.
early	55%	40%
intermediate	50%	30%
advanced	25%	18%

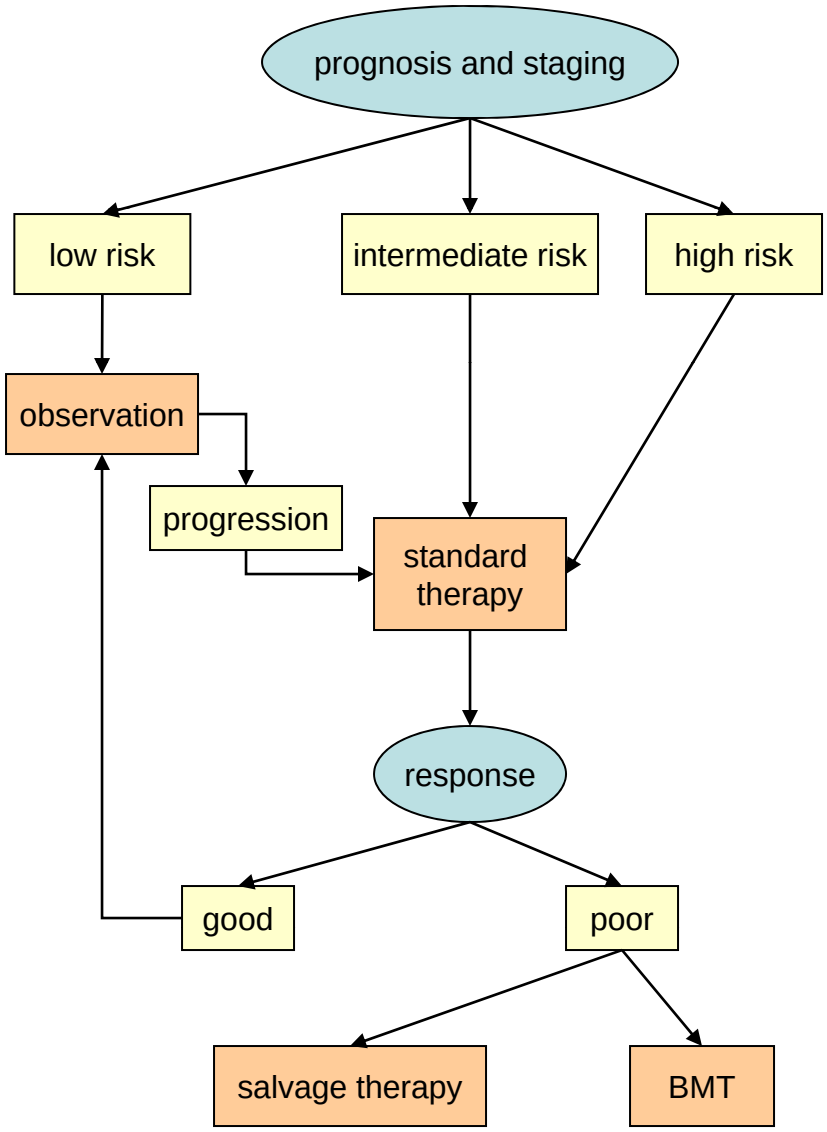
BMT: 3-year survival in adult ALL
and HLA matching

PROGNOSIS	HLA-ident. Sib.	MUD [matching?]
early	60%	48%
intermediate	52%	39%
advanced	29%	17%

MDS: BMT is the only curative treatment



CLL: a disease of the elderly (90% over 55 y.) with long-term clinical course

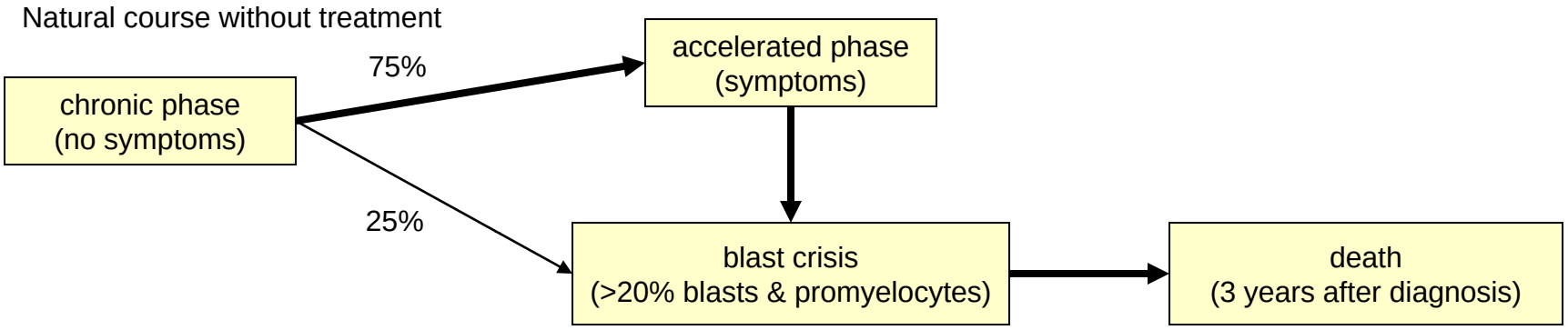


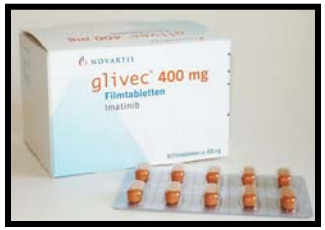
ZAP-70	5-year progression-free survival
negative	70%
positive	30%

CYTOGENETICS	5-year survival	10-year survival
13 q deletion	95%	60%
normal	65%	15%
17p deletion	20%	0%

TREATMENT	5-year progression-free survival
allogeneic BMT	55%
fludarabine + rituximab	55%
fludarabine + chlorambucil	30%
fludarabine	15%

CML: cured with imatinib (Gleevec / Glivec) or with BMT





	haematologic remission	cytogenetic ressponse
IFN-alpha	75%	25%
Imitanib	98%	92%

BMT
(2-haplotype-matched siblings)

	5-year survival
chronic phase	85%
accelerated phase	15%
blast crisis	10%

Non-malignant conditions respond to BMT.

Severe aplastic anaemia	80% cure rate
Congenital immunodeficiencies	90% cure rate
Thalassaemia major	80% cure rate
Sickle-cell disease	90% cure rate
Multiple sclerosis	74% survival without disease progression
Systemic lupus erythematosus (treatment refractory)	84% 5-year survival 50% disease free at 5 years