Allogeneic HCT for the Older Patient with AML

Frederick R. Appelbaum, MD
December 7, 2012
Atlanta, Georgia

FRED HUTCHINSON CANCER RESEARCH CENTER
A LIFE OF SCIENCE

Indications for Allogeneic HCT in Patients with AML <50

Primary induction failure

First remission except favorable risk

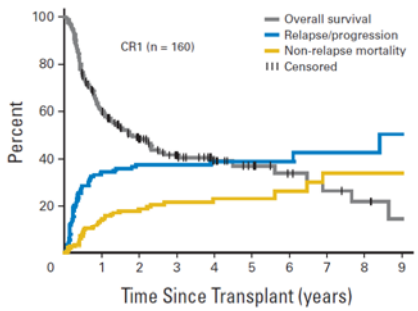
Recurrent disease

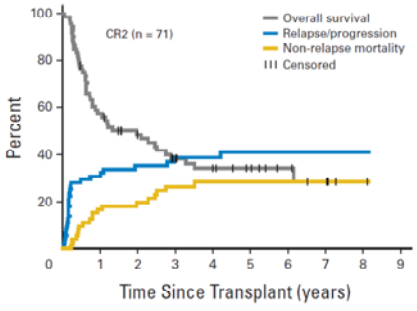
FRED HUTCHINSON CANCER RESEARCH CENTER
A LIFE OF SCIENCE

What are the indications for Allogeneic HCT in patients with AML age 50-70?

FRED HUTCHINSON CANCER RESEARCH CENTER
A LIFE OF SCIENCE

Allogeneic HCT for older Patients with AML [1]

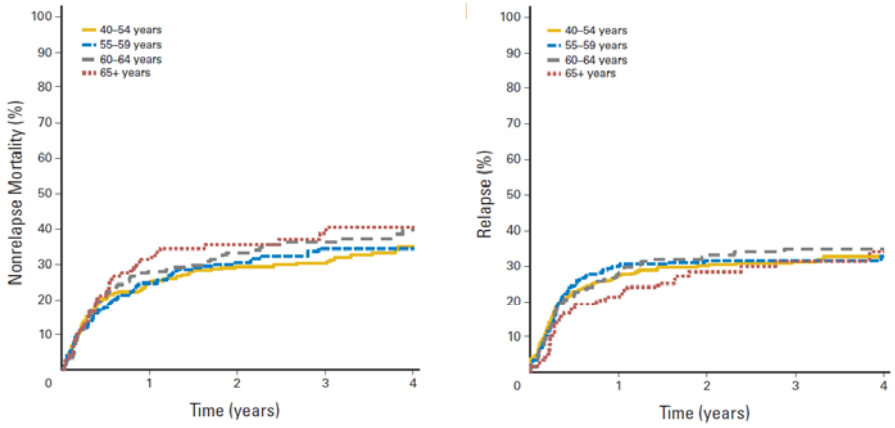




[1]Gyurkocza et al. JCO 2010, 28:2859-2867

FRED HUTCHINSON CANCER RESEARCH CENTER
A LIFE OF SCIENCE

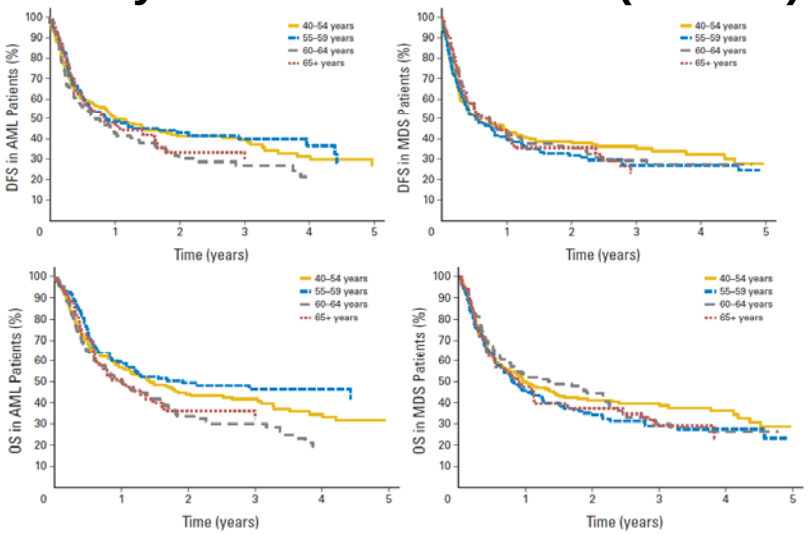
Effect of Age on Outcome of Reduced-Intensity HCT for AML in CR1 (n=1080)[1]



[1]McClune et al. JCO 2010, 28:1878-1887

FRED HUTCHINSON CANCER RESEARCH CENTER
A LIFE OF SCIENCE

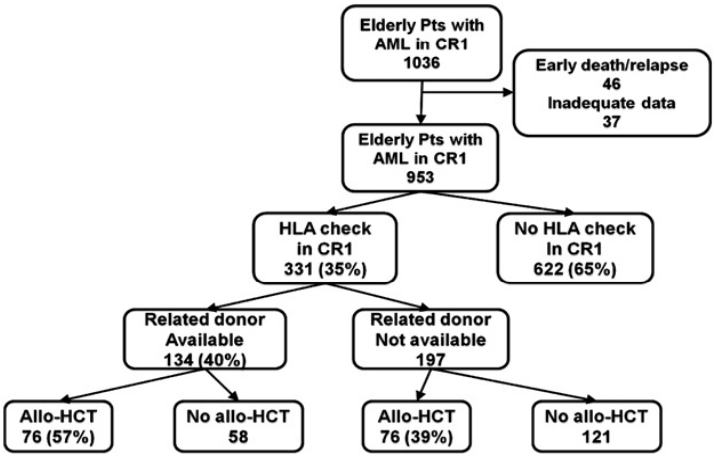
Effect of Age on Outcome of Reduced-Intensity HCT for AML in CR1 (n=1080)[1]



[1]McClune et al. JCO 2010, 28:1878-1887

FRED HUTCHINSON CANCER RESEARCH CENTER
A LIFE OF SCIENCE

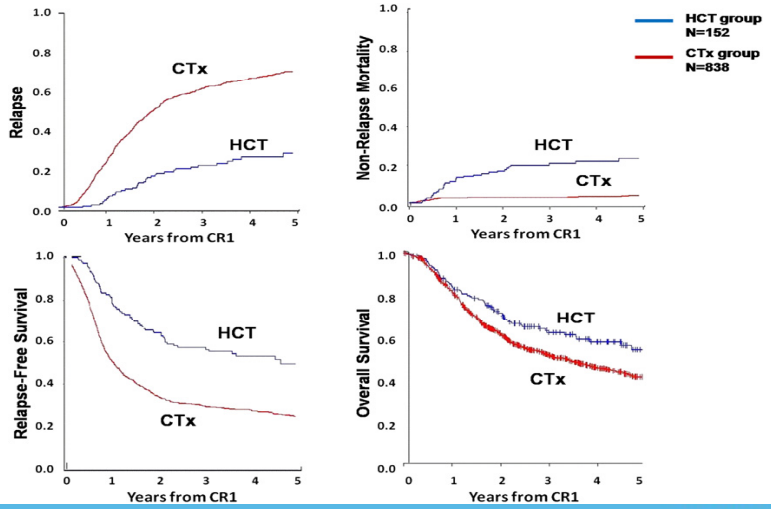
Comparison of Allogeneic HCT with Chemotherapy for Older Patients with AML in CR1[1]



[1]Kurosawa et al. BBMT 2011, 17:401-411

FRED HUTCHINSON CANCER RESEARCH CENTER
A LIFE OF SCIENCE

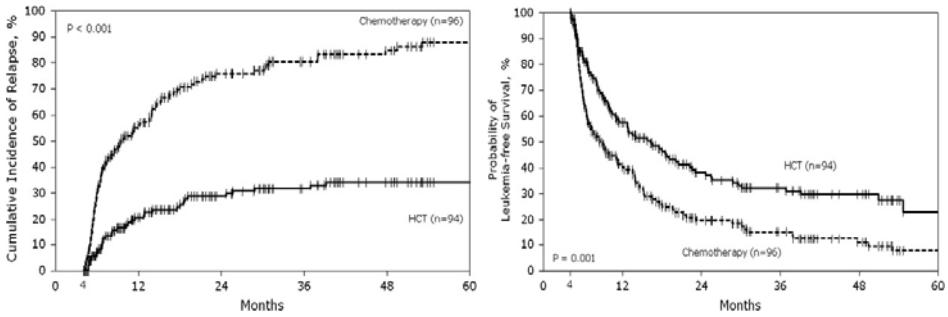
Comparison of Allogeneic HCT with Chemotherapy for Older Patients with AML in CR1[1]



[1]Kurosawa et al. BBMT 2011, 17:401-411

FRED HUTCHINSON CANCER RESEARCH CENTER
A LIFE OF SCIENCE

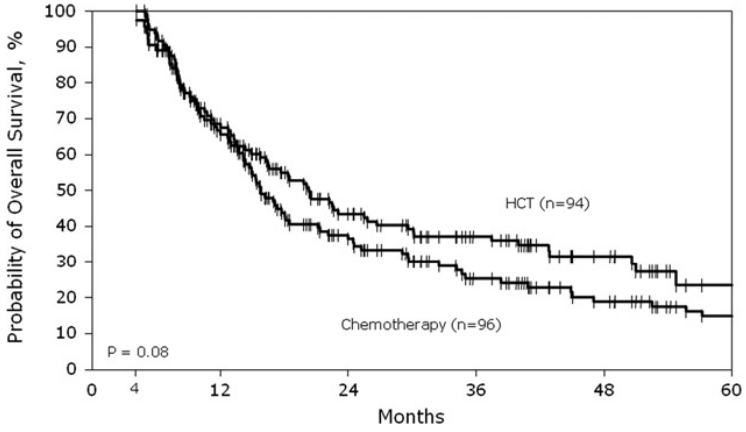
Comparison of Reduced Intensity HCT with Chemotherapy Patients Age 60-70 with AML in CR1[1]



[1]*Farag et al. BBMT 2001, 19:1796-1803*

FRED HUTCHINSON CANCER RESEARCH CENTER
A LIFE OF SCIENCE

Comparison of Reduced Intensity HCT with Chemotherapy for Patients Age 60-70 with AML in CR1[1]



[1]*Farag et al. BBMT 2011, 17:1791-1803*

FRED HUTCHINSON CANCER RESEARCH CENTER
A LIFE OF SCIENCE

Comparison of Reduced Intensity HCT with Chemotherapy for Patients Age 60-70 with AML in CR1[1]

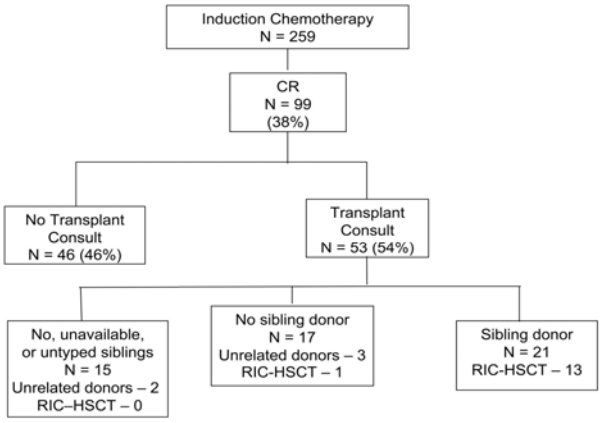
Overall Survival (3yr)		
	HCT (%)	Chemotherapy (%)
Favorable Karyotype	100	50
Normal	45	27
Intermediate - II	32	23
Adverse	23	13

[1]Farag et al. ABMT 2011, 17:1796-1803

FRED HUTCHINSON CANCER RESEARCH CENTER
A LIFE OF SCIENCE

Prospective Feasibility Analysis of RIC HCT for Older Patients with AML[1]

"Many are called, few answer"



[1]Estey et al, Blood 2007, 109: 1395-1400

FRED HUTCHINSON CANCER RESEARCH CENTER
A LIFE OF SCIENCE

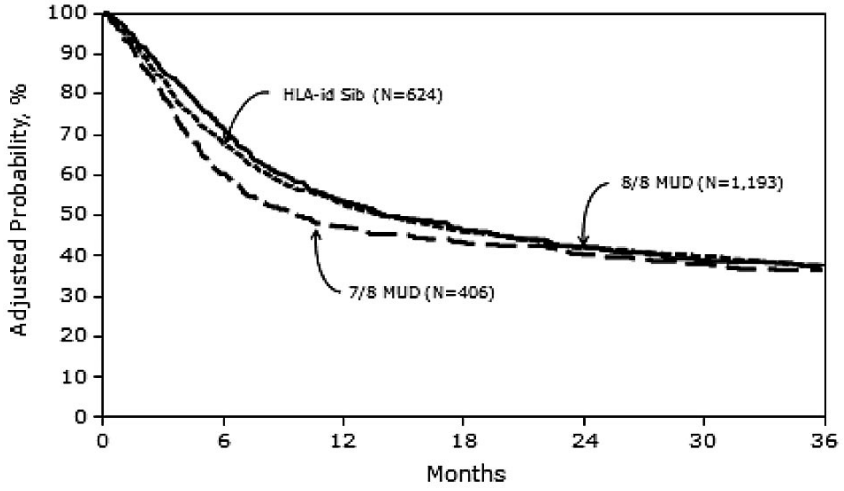
Frequency of Allogeneic HCT for AML in CR1 Age 50-75 in Seattle (2008-2010)[1]

N	81	
HCT	53	65%
No HCT		
Early Relapse		10%
Co-morbidities		7%
Physician/Patient		6%
Financial		3%
Other		9%
Donor		
Related		29%
Unrelated		63%
Cord		8%

[1]Pagel et al. ASH, 2011

FRED HUTCHINSON CANCER RESEARCH CENTER
A LIFE OF SCIENCE

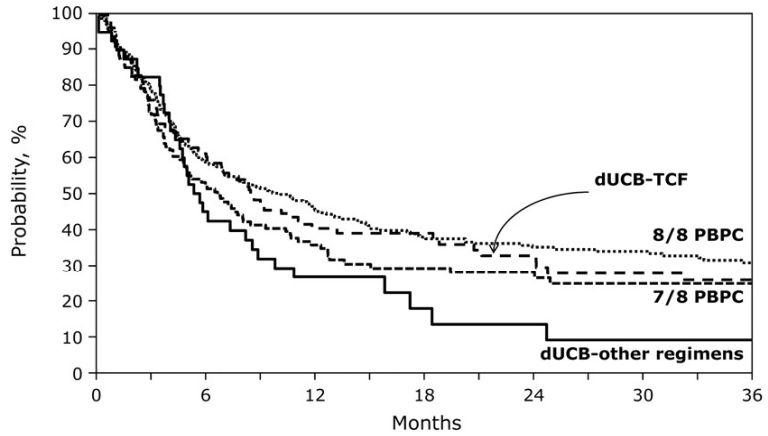
Matched Related versus Matched Unrelated Donor HCT for Adults with AML[1]



[1]Saber et al. Blood, 2012; 119:3908-3916

FRED HUTCHINSON CANCER RESEARCH CENTER
A LIFE OF SCIENCE

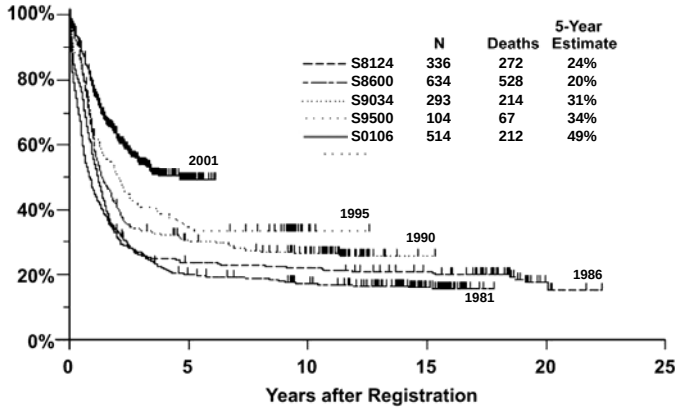
Cord versus Peripheral Blood Unrelated HCT for Adults with AML Treated with RIC[1]



[1]*Brunstein et al. Blood, 2012; 119:5591-5598*

FRED HUTCHINSON CANCER RESEARCH CENTER
A LIFE OF SCIENCE

AML Survival in Consecutive SWOG Studies[1]



[1]*CAHO 10:1, 2012*

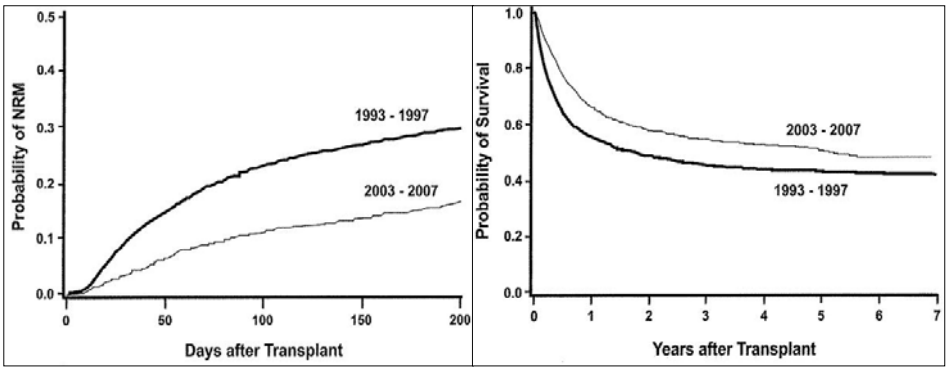
FRED HUTCHINSON CANCER RESEARCH CENTER
A LIFE OF SCIENCE

Changes in Treatment-Related Mortality in AML

	Cohort	1991-95	1996-2000	2001-05	2006-09
N	SWOG	392	406	113	498
	MDA	102	638	732	470
Age	SWOG	64	65	58	49
	MDA	58	60	59	56
TRM	SWOG	18	13	12	3
	MDA	16	14	9	4
	>60	22	16	13	5

FRED HUTCHINSON CANCER RESEARCH CENTER
A LIFE OF SCIENCE

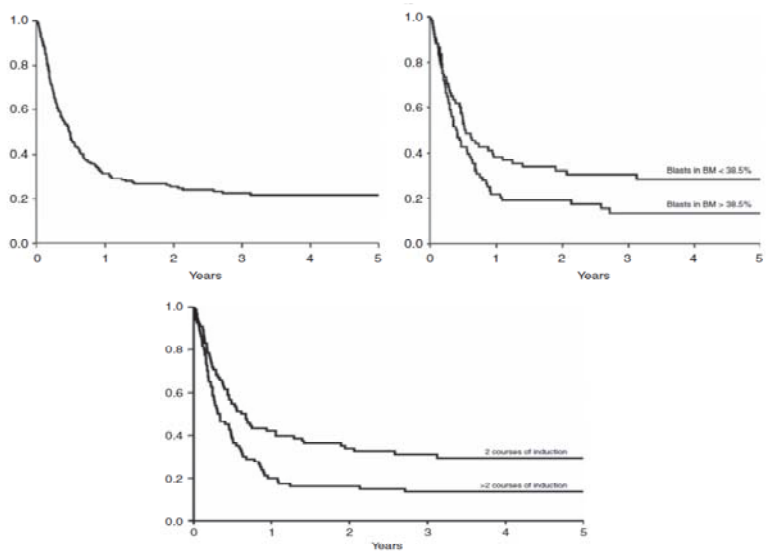
Outcome Following Allogeneic HCT in Two Eras[1]



[1]Gooley, et al. NEJM 363: 2091, 2010

FRED HUTCHINSON CANCER RESEARCH CENTER
A LIFE OF SCIENCE

URD HCT for PIF AML[1]



[1]Craddock, Leukemia 25:808-813, 2011

FRED HUTCHINSON CANCER RESEARCH CENTER
A LIFE OF SCIENCE

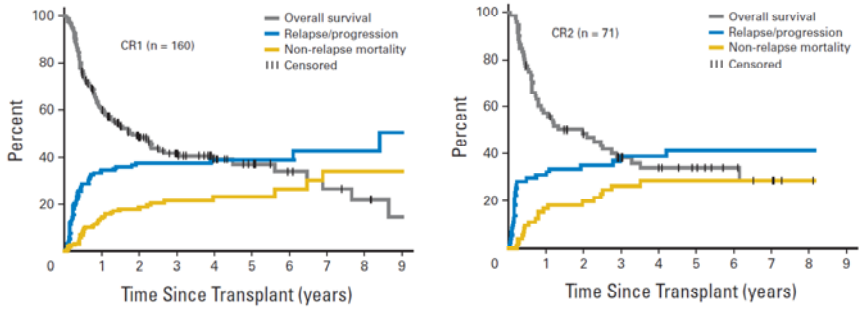
Factors Associated with Improved Outcome with HCT for PIF AML[1]

1. Shorter Time to HCT	**p = .04**
2. < 3 Induction Courses	**p = .007**
3. < 38.5 % BM Blasts	**p = .02**
4. RIC	**p = .07**

[1]Craddock et al. Leukemia 2011; 25:808-813

FRED HUTCHINSON CANCER RESEARCH CENTER
A LIFE OF SCIENCE

Allogeneic HCT for Older Patients with AML [1]



[1]*Gyurkocza et al. JCO 2010, 28:2859-2867*

FRED HUTCHINSON CANCER RESEARCH CENTER

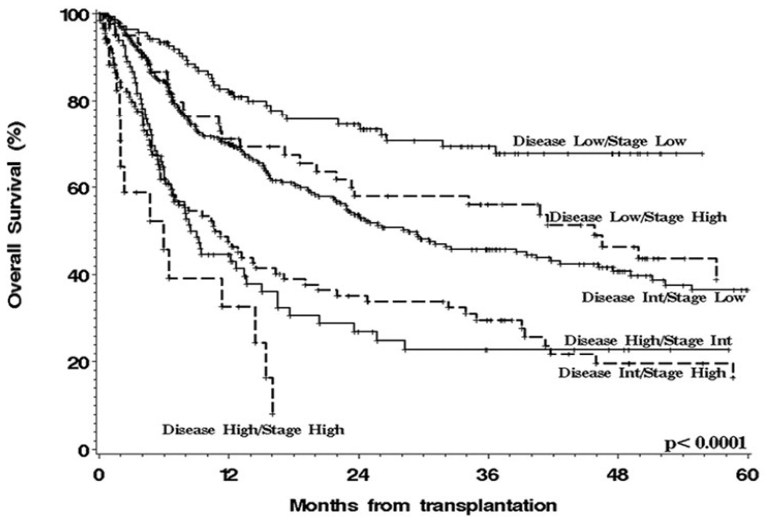
Risk Index for Patients with AML Undergoing HCT[1]

Disease Risk	
Favorable Cytogenetics	**Low**
Intermediate Cytogenetics	**Intermediate**
Adverse Cytogenetics	**High**
Status	
1st or 2nd CR	**Low**
Active Relapse	**High**

[1]*Armand et al. Blood 2012; 120;905-913*

FRED HUTCHINSON CANCER RESEARCH CENTER

Survival Following RIC by Disease Risk[1]



[1]*Armand et al. Blood 2012; 120:905-913*

FRED HUTCHINSON CANCER RESEARCH CENTER
A LIFE OF SCIENCE

Indications for Allogeneic HCT in Patients with AML Age 50-70

Primary Induction Failure

First Remission Except Favorable Risk

Recurrent Disease

FRED HUTCHINSON CANCER RESEARCH CENTER
A LIFE OF SCIENCE

TRM Score for AML Chemotherapy[1]

(N=3365)

	Factors	
PS		Albumin
Age		Secondary AML
Platelet Count		Peripheral Blast %
Creatinine		

[1]*Walter et al. JCO 2011; 29:4417-4423*

FRED HUTCHINSON CANCER RESEARCH CENTER
A LIFE OF SCIENCE

TRM Score for AML Chemotherapy[1]

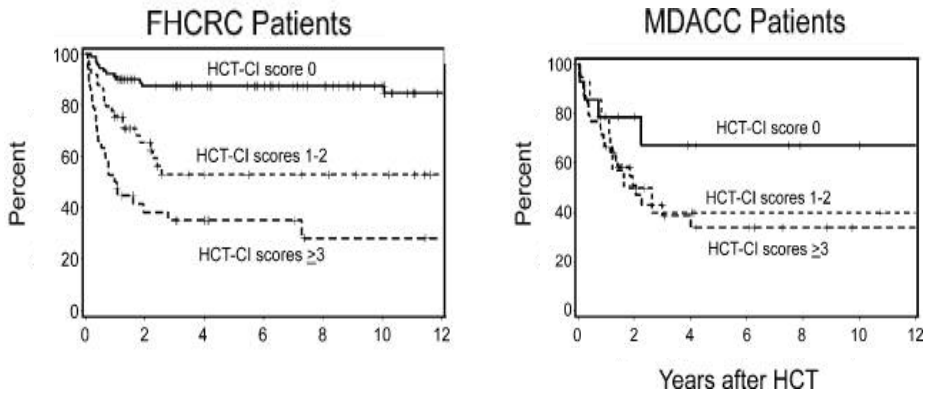
(N=3365)

Model	AUC
Complete	0.82
Without Age	0.80

[1]*Walter et al. JCO 2011; 29:4417-4423*

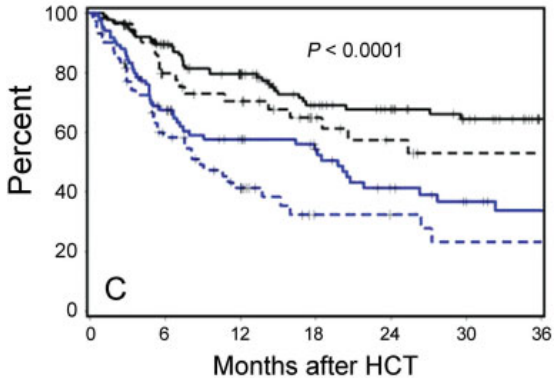
FRED HUTCHINSON CANCER RESEARCH CENTER
A LIFE OF SCIENCE

Co-Morbidity Index and Outcome of Allogeneic HCT for AML in CR1[1]



[1]Sorror et al. Blood 2007; 110:4606-4613

HCT-CI and KPS are Independent Predictions of Survival[1]



___ = Patients with HCT-CI scores of 0 to 2 and a KPS of >80%

----- = Patients with HCT-CI scores of 0 to 2 and a KPS of ≤80%

___ = Patients with HCT-CI scores of ≥3 and a KPS of >80%

----- = Patients with HCT-CI scores of ≥3 and a KPS of ≤80%

[1]Sorror et al. Cancer 2008; 112:1992-2001

Impact of HCT-CI and Age on Outcome of Allogeneic HCT

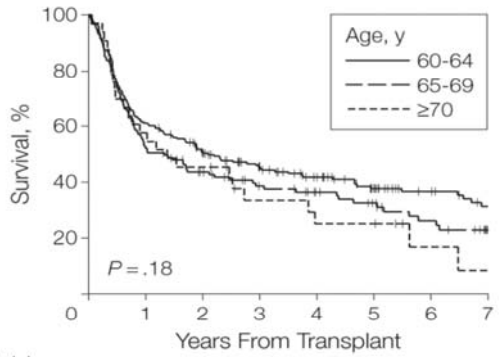
(n=3033)[1]

		NRM				Survival		
		HCT-CI				HCT-CI		
Age		0	1-2	>2		0	1-2	>2
0-19		8	26	28		73	61	41
20-39		11	20	39		80	62	33
40-49		12	26	43		75	56	39
50-59		21	31	39		60	48	33
>59		7	27	38		63	47	27

[1]Ostronoff et al. ASH, 2011

FRED HUTCHINSON CANCER RESEARCH CENTER
A LIFE OF SCIENCE

Allogeneic HCT in Patients > Age 70[1]



No. at risk

Age, y								
60-64	218	133	102	78	61	43	31	23
65-69	121	63	48	36	29	23	16	6
≥70	33	19	14	8	6	6	2	1

[1]Sorror et al. JAMA 2011; 306:1874-1883

FRED HUTCHINSON CANCER RESEARCH CENTER
A LIFE OF SCIENCE

Conclusions

1) The indications for allogeneic HCT for patients with AML age 50-70 are similar to those for patients age <50.

2) Transplantation can be successfully conducted in selected patients age >70.

3) Co-morbidities are far more important than age in predicting outcomes of allogeneic HCT.

FRED HUTCHINSON CANCER RESEARCH CENTER
A LIFE OF SCIENCE