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**CONFIDENTIAL DOCUMENT—DO NOT COPY OR DISTRIBUTE****Supplementary Table 1. Grading of peak acute GVHD severity.<sup>1</sup>**

<b>GVHD GRADE</b>	<b>SKIN STAGE<sup>a</sup></b>		<b>LIVER STAGE<sup>b</sup></b>		<b>GUT STAGE<sup>c</sup></b>
1	1 or 2	and	0	and	0
2	3	or	1	or	1
3	4	or	2 - 3	or	2 - 3
4	-		4	or	4

<sup>a</sup> Skin stage 1, rash involving <25% of body surface; stage 2, 25-50%; stage 3, >50%; stage 4, generalized erythroderma with bullae

<sup>b</sup> Liver stage 1, total serum bilirubin 2-2.9 mg/dL; stage 2, 3-5.9 mg/dL; stage 3, 6-14.9 mg/dL; stage 4, ≥15 mg/dL (1 mg/dL=17.1 μmol/L).

<sup>c</sup> Gut stage 1, diarrhea 500-999 mL/day or biopsy-proven upper gut involvement; stage 2, diarrhea 1000-1499 mL/day; stage 3, diarrhea 1500-1999 mL/day; stage 4, diarrhea > 2000 mL or severe abdominal pain with or without ileus.

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**CONFIDENTIAL DOCUMENT—DO NOT COPY OR DISTRIBUTE****Supplementary Table 2. The Pretransplant Assessment of Mortality (PAM) index and the****score associated with each component, not including the conditioning regimen component****(see Methods).<sup>25</sup>**

<b>COMPONENT</b>	<b>SCORE</b>
<b><u>Age</u></b>	
< 20 years	1
20-30 years	1
30-40 years	1
40-50 years	1
50-60 years	3
> 60 years	5
<b><u>Donor Type</u></b>	
Matched sibling	1
Unrelated	3
Non-sibling or mismatched sibling	4
<b><u>Disease Risk<sup>a</sup></u></b>	
Low	1
Intermediate	8
High	12
<b><u>Serum Creatinine Level</u></b>	
≤ 1.2 mg/dL	1
> 1.2 mg/dL	8
<b><u>Serum alanine aminotransferase level</u></b>	
≤ 49 U/L	1
> 49 U/L	2
<b><u>FEV<sub>1</sub></u></b>	
> 80%	1
70-80%	3
< 70%	6

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<b><u>Carbon monoxide diffusing capacity</u></b>	
> 80%	1
70-80%	1
< 70%	4

<sup>a</sup> Low-risk disease includes chronic myeloid leukemia in chronic phase, refractory anemia, aplastic anemia, and inborn errors of the immune system. Intermediate-risk disease includes chronic myeloid leukemia in accelerated phase, chronic myeloid leukemia in remission following treatment of blast crisis, acute leukemia or lymphoma in remission, refractory anemia with excess blasts, chronic lymphocytic leukemia, paroxysmal nocturnal hemoglobinuria. High-risk disease includes chronic myeloid leukemia in blast crisis, juvenile chronic myeloid leukemia,, acute leukemia or lymphoma in relapse, refractory anemia with excess blasts in transition, solid tumors, autoimmune diseases.

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**CONFIDENTIAL DOCUMENT—DO NOT COPY OR DISTRIBUTE****Supplementary Table 3. The Hematopoietic Cell Transplant-specific Comorbidity Index****(HCT-CI) and the score associated with each comorbidity.<sup>26</sup>**

<b><u>COMORBIDITY</u></b>	<b><u>DEFINITION</u></b>	<b><u>SCORE</u></b>
Arrhythmia	Atrial fibrillation or flutter, sick sinus syndrome, or ventricular arrhythmias	1
Cardiac	Coronary artery disease (one or more vessel-coronary artery stenosis requiring medical treatment, stent, or bypass graft), congestive heart failure, myocardial infarction, or ejection fraction $\leq 50\%$	1
Inflammatory bowel disease	Crohn's disease or ulcerative colitis	1
Diabetes	Requiring treatment with insulin or oral hypoglycemic medication but not controlled with diet alone	1
Cerebrovascular disease	Transient ischemic attack or cerebro-vascular accident	1
Psychiatric disturbance	Depression or anxiety requiring psychiatric consult and/or treatment at the time of HCT	1
Hepatic, mild	Chronic hepatitis, total serum bilirubin greater than the upper limit of normal to 1.5 times the upper limit of normal, or AST/ALT greater than the upper limit of normal to 2.5 times the upper limit of normal.	1
Obesity	Patients with a body mass index $> 35 \text{ kg/m}^2$ for adults or with body mass index-for-age percentile of $\geq 95^{\text{th}}$ percentile for children	1
Infection	Documented infection or fever of unknown etiology requiring antimicrobial treatment before, during, and after the start of conditioning regimen	1

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Rheumatologic	Systemic lupus erythematosus, rheumatoid arthritis, polymyositis, mixed connective tissue disease, or polymyalgia rheumatica	2
Peptic ulcer	Requiring treatment	2
Moderate/severe renal	Serum creatinine > 2 mg/dL, on dialysis, or prior renal transplantation	2
Moderate pulmonary	DL <sub>CO</sub> and/or FEV <sub>1</sub> 66%-80% or dyspnea on slight activity	2
Prior solid tumor	Treated at any time point in the patient's past history, excluding non-melanoma skin cancer	3
Heart valve disease	Except asymptomatic mitral valve prolapse	3
Severe pulmonary	Carbon monoxide diffusion capacity and/or FEV <sub>1</sub> ≤ 65% or dyspnea at rest or requiring oxygen	3
Moderate/severe hepatic	Liver cirrhosis, total serum bilirubin greater than 1.5 times the upper limit of normal, or AST/ALT greater than 2.5 times the upper limit of normal.	3

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**CONFIDENTIAL DOCUMENT—DO NOT COPY OR DISTRIBUTE****Supplementary Table 4. Additional Patient Characteristics**

<b>CHARACTERISTIC</b>	<b>1993-1997 (N=1418)</b>	<b>2003-2007 (N=1148)</b>	<b>p-VALUE</b>
<u>Patient/Donor Gender</u>			0.30
F/F	256 (18%)	234 (20%)	
F/M	307 (22%)	247 (22%)	
M/F	344 (24%)	288 (25%)	
M/M	511 (36%)	379 (33%)	
<u>Patient/Donor CMV Serostatus</u>			<0.001
+/+	417 (29%)	311 (27%)	
+/-	326 (23%)	349 (30%)	
-/+	210 (15%)	118 (10%)	
-/-	465 (33%)	370 (32%)	
<u>Ethnicity</u>			<0.001
Caucasian	1221 (86%)	899 (78%)	
Hispanic	75 (5%)	52 (5%)	
Native American	17 (1%)	22 (2%)	
African American	33 (2%)	23 (2%)	
Asian	30 (2%)	50 (4%)	
Other	33 (2%)	75 (7%)	
Unknown	9 (1%)	26 (2%)	
<u>Pretransplant serum creatinine<sup>25</sup></u>			0.001
≤1.2 mg/dL	1355 (96%)	1063 (93%)	
>1.2 mg/dL	63 (4%)	85 (7%)	
<u>Pretransplant serum alanine aminotransferase<sup>25</sup></u>			<0.001
≤49 U/L	1060 (75%)	1020 (89%)	
>49 U/L	312 (22%)	128 (11%)	
Unknown	46 (3%)		

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<u>Pretransplant FEV<sub>1</sub><sup>25</sup></u>			0.20
>80%	922 (65%)	750 (65%)	
70-80%	287 (20%)	256 (22%)	
<70%	70 (5%)	54 (5%)	
Unknown	139 (10%)	88 (8%)	
<u>Pretransplant carbon monoxide diffusing capacity (DL<sub>CO</sub>)<sup>25</sup></u>			<0.001
>80%	811 (57%)	497 (43%)	
70-80%	365 (26%)	422 (37%)	
<70%	91 (6%)	123 (11%)	
Unknown	151 (11%)	106 (9%)	