| Covariates                        | Overall mortality | Pulmonary death |
|----------------------------------|-------------------|-----------------|
|                                  | HR 95% C.I.       | HR 95% C.I.     |
|                                  | p-value           | p-value         |
| **Transplant year**              |                   |                 |
| 1989-1997                        | 1.00 (0.27-0.84)  | 1.00 (0.21-0.84)|
| 1998-2010                        | 0.48 (0.27-0.84)  | 0.42 (0.21-0.84)|
| **Transplant year as continuous covariate** | 0.94 (0.89-0.98)  | 0.92 (0.86-0.97)|
| **Age at transplant as continuous covariate** | 1.02 (1.00-1.03)  | 1.01 (0.99-1.03)|
| **Cell source:**                 |                   |                 |
| PBSC                             | 1.00 (0.27-0.84)  | 1.00 (0.21-0.84)|
| BM/CB                            | 2.88 (1.57-5.29)  | <.001           |
| **Donor type**                   |                   |                 |
| Autologous                       | 1.00 (0.27-0.84)  | 1.00 (0.21-0.84)|
| Allogeneic                       | 1.53 (0.69-3.39)  | 0.291           |
| **Conditioning regimen**         |                   |                 |
| MA + TBI (≥12Gy)                 | 1.00 (0.27-0.84)  | 1.00 (0.21-0.84)|
| MA +/- low TBI                   | 1.04 (0.60-1.81)  | 0.89 (0.44-1.69)|
| Non-myeloablative                | 0.44 (0.17-1.13)  | 0.47 (0.16-1.35)|
| **WBC count, 10^6/L**            |                   |                 |
| >1000                            | 1.00 (0.27-0.84)  | 1.00 (0.21-0.84)|
| ≤1000                            | 2.07 (1.22-3.49)  | 1.98 (1.06-3.69)|
| **Lymphocyte count, 10^6/L**     |                   |                 |
| ≥100                             | 1.00 (0.27-0.84)  | 1.00 (0.21-0.84)|
| <100                             | 1.48 (0.86-2.56)  | 1.42 (0.74-2.72)|
| **Neutrophil count, 10^6/L**     |                   |                 |
| ≥100                             | 1.00 (0.27-0.84)  | 1.00 (0.21-0.84)|
| <100                             | 1.58 (0.88-2.82)  | 1.49 (0.74-2.98)|
| **Monocyte count, 10^6/L**       |                   |                 |
| ≥100                             | 1.00 (0.27-0.84)  | 1.00 (0.21-0.84)|
| <100                             | 2.33 (1.29-4.20)  | 2.45 (1.22-4.90)|
| **Platelet count, 10^6/L**       |                   |                 |
| ≥10000                           | 1.00 (0.27-0.84)  | 1.00 (0.21-0.84)|
| <10000                           | 1.97 (1.16-3.34)  | 1.96 (1.05-3.67)|
| **Day of RSV LTD following HCT**|                   |                 |
| ≥30                              | 1.00 (0.27-0.84)  | 1.00 (0.21-0.84)|
| <30                              | 1.49 (0.88-2.52)  | 1.59 (0.85-2.95)|
| **Copathogen**                   |                   |                 |
| None                             | 1.00 (0.27-0.84)  | 1.00 (0.21-0.84)|
| Any copathogen                   | 1.96 (1.16-3.32)  | 1.49 (0.80-2.78)|
| **Oxygen at diagnosis of LRD**   |                   |                 |
| None/≤2L                         | 1.00 (0.27-0.84)  | 1.00 (0.21-0.84)|
| >2L/Ventilator                   | 2.27 (1.34-3.86)  | 2.97 (1.56-5.64)|
| **Mechanical ventilation as time-** | 5.08 (2.98-8.66)  | <.001           |

Supplemental Table 1: Univariate analyses of risk factors for overall mortality and pulmonary death by day 90 after RSV LRD (N = 118)
| dependent                                      |   |   |   |   |
|------------------------------------------------|---|---|---|---|
| **Steroid use at diagnosis of LRD**           |   |   |   |   |
| ≤2 mg/kg                                       | 1.00 |   |   |   |
| >2 mg/kg                                       | 3.25 (1.66-6.33) | <.001 |   |   |
| **Steroid use >2mg as time-dependent**        |   |   |   |   |
|                                               | 3.98 (1.98-8.00) | <.001 |   |   |
| **Palivizumab Treatment**                     |   |   |   |   |
| No                                            | 1.00 |   |   |   |
| Yes                                           | 0.59 (0.33-1.05) | 0.075 | 1.00 | 0.027 |
| **Preemptive ribavirin prior to LRD**         |   |   |   |   |
| None                                          | 1.00 |   |   |   |
| <5 days                                        | 0.58 (0.21-1.60) | 0.292 | 0.20 (0.03-1.43) | 0.109 |
| ≥5 days                                        | 0.38 (0.14-1.05) | 0.061 | 0.39 (0.12-1.25) | 0.113 |
| **Ribavirin treatment for LRD**               |   |   |   |   |
| None                                          | 1.00 |   |   |   |
| Systemic                                      | 0.53 (0.22-1.28) | 0.16 | 0.40 (0.14-1.14) | 0.087 |
| Aerosolized                                   | 0.27 (0.14-0.51) | <.001 | 0.22 (0.11-0.46) | <.001 |
| **Ribavirin treatment as time-dependent**     |   |   |   |   |
|                                               | 0.35 (0.18-0.66) | 0.001 | 0.29 (0.14-0.59) | <.001 |
| **FEV/FVC % prior to RSV**                    |   |   |   |   |
| ≥70                                           | 1.00 |   |   |   |
| <70                                           | 0.55 (0.25-1.21) | 0.135 | 0.44 (0.15-1.23) | 0.115 |
| **TLC % prior to RSV LRD**                    |   |   |   |   |
| ≥80                                           | 1.00 |   |   |   |
| <80                                           | 0.94 (0.23-3.88) | 0.933 | 1.29 (0.31-5.36) | 0.73 |
| **IVIG**                                      |   |   |   |   |
| None                                          | 1.00 |   |   |   |
| Weekly                                        | 0.97 (0.51-1.85) | 0.934 | 0.82 (0.37-1.82) | 0.621 |
| High                                          | 0.84 (0.41-1.71) | 0.633 | 0.93 (0.42-2.06) | 0.85 |

Abbreviations: PBSC, peripheral blood stem cell; BM, bone marrow; CB, cord blood; MA, myeloablative; TBI, total body irradiation; IVIG, intravenous immunoglobulin.
Supplemental Figure 1: Cohort description

Supplemental Figure 1

118
Patients with RSV LRD

26
No serum/plasma available

92
Patients with serum/plasma available

64 (70%)
No RSV RNA detected

28 (30%)
RSV RNA detected
Supplemental Figure 2: Unadjusted Kaplan-Meier curves for overall survival and cumulative incidence curves for pulmonary death for entire cohort and subgroups at day 90 following RSV LRD. P-values derived from Cox proportional hazard models. **Supplemental Figure 2A:** Overall survival at day 90 following RSV LRD by ribavirin treatment (N = 118). **Supplemental Figure 2B:** Cumulative incidence of pulmonary death at day 90 following RSV LRD by ribavirin treatment (N= 118). **Supplemental Figure 2C:** Overall survival at day 90 following RSV LRD by oxygen requirement at diagnosis in patients receiving no ribavirin (YES = >2L/Ventilator, NO = None/≤2L) (N = 17). **Supplemental Figure 2D:** Cumulative incidence of pulmonary death at day 90 following RSV LRD by oxygen requirement at diagnosis in patients receiving no ribavirin (N = 17). **Supplemental Figure 2E:** Overall survival at day 90 following RSV LRD by oxygen requirement in patients receiving systemic ribavirin (N = 13). **Supplemental Figure 2F:** Cumulative incidence of pulmonary death at day 90 following RSV LRD by oxygen requirement in patients receiving systemic ribavirin (N = 13).
