

# Title: The Impact of the PediMACS Profile Score on Pediatric Heart Transplant Survival: A 25 Year Experience

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**Background:** The Pediatric Interagency Registry for Mechanical Circulatory Support (PediMACS) profile has not been applied to pediatric heart transplant (HTx) patients to predict post-operative outcomes. We sought to assess the predictive value of the PediMACS profile at listing on early and late post-operative morbidity and mortality in pediatric transplant patients.

**Methods:** This is a retrospective cohort study of 217 patients at our center who received an initial heart transplant between May 1989 and December 2014. PediMACS profiles were assigned by 2 blinded cardiologists at listing. Data were collected at 1 month, 1 year, and 5 years post-HTx to assess early and late morbidity and mortality. Statistical analysis included univariate modeling, Kaplan-Meier overall survival curves and the log-rank test.

**Results:** At listing, PediMACS profiles were as follows: 1 (n=75, 35%); 2 (n=26, 12%); 3 (n=78, 36%); and 4-6 (n=38, 17%). Heart disease etiology prior to transplant were cardiomyopathy (n=129, 59%) and congenital heart disease (n=88, 41%). The mortality rates post-HTx were 6%, 11% and 32% at 1 month, 1 year, and 5 years, respectively. The PediMACS profile at listing was associated with early mortality. Profiles 1-2, those most seriously ill, had an increased rate of mortality compared to profiles 3-6, those more stable (1-2: 9%; 3-6: 3%; p=0.044). Profiles 1-2 had higher rates of post-operative dialysis (1-2: 15%; 3-6: 4%; p=0.003). At 1 month post-HTx, profiles 1-2 were more likely to require respiratory support (1-2: 29%; 3-6: 12%; p=0.001), and sedation (1-2: 19%; 3-6: 5%; p=0.002), and were less likely to be discharged from the hospital (1-2: 49%; 3-6: 19%; p<0.001). Long-term mortality was not significantly associated by the PediMACS profile at listing (Figure).

**Conclusion:** A lower PediMACS profile assigned at listing was associated with increased mortality and resource utilization early after transplant. However, long-term mortality was not associated with PediMACS profiles assigned prior to transplant.

