Autologous Stem Cell Collection for the Treatment of Malignant Diseases in Pediatric Patients: The Use of the Power Hickman
Mollie Mulberry, David Margolis, Rowena C. Punzalan, Michael Kelly, Meghen Browning, Pediatric Hematology/Oncology/Transplant, Medical College of Wisconsin, Milwaukee, WI; 2 Children's Hospital, Medical College of Wisconsin, Milwaukee, WI; 3 Pediatric Hematology/Oncology, Blood Center of Wisconsin, Milwaukee, WI; 4 Medical College of Wisconsin, Milwaukee, WI.

Background: Dual-use catheters for chemotherapy and hematopoetic progenitor cell collection are increasingly used in the pediatric autologous transplant population. Published data for benefits and complications with these lines is limited. We evaluated the use of various collection line strategies before and after an institutional change to the Power Hickman dual-use line to determine advantages and disadvantages.

Methods: We reviewed 65 collection episodes over a 5 year period comparing 3 groups: Power Hickman, Muhurkar dialysis catheter, and peripheral IV. We assessed variables in the categories of efficiency, complications, and cost.

Results: The Power Hickman was found to be more efficient than the Muhurkar for several variables including need for second anesthesia for line placement and number of collection days. No differences were found among the groups for complications. A cost advantage was suggested for the Power Hickman and PIV over the Muhurkar.

Discussion: A dialysis catheter may still be required for some patients due to their size and other variables. However, for other groups, our data indicate that dual-use catheters are a safe and efficient option.

Outcomes After Second Allogeneic Transplants in Pediatric Patients With Relapsed Hematological Malignancies
Swati Naik, Caridad Martinez, Catherine M. Bollard, Javier Amin El-Bietar, Stephen Gottschalk, Kathryn Leung, Malcolm K. Brenner, Robert A. Krance. Center for Cell and Gene Therapy, Baylor College of Medicine, Texas Children’s Hospital, Houston, TX

Recurrence of hematological malignancies is one of the most common indications for a second hematopoetic stem cell transplant (HSCT). However there are limited outcomes data after second HSCT in pediatric patients. We report the results of second HSCT in 42 patients with relapsed lymphoid (n=12) or myeloid (n=30) malignancies after first HSCT performed at our institution between 2000-2012. The median age at the time of the second transplant was 7 years (range: 2-19 years). 20/42 patients had active disease at the time of second transplant. The median time to relapse after a first transplant was 242 days (range: 138d-731d) for lymphoid malignancies and 202.5days (range: 50d-1687d) for myeloid malignancies. 20/42 received a haplo-identical donor (haplo), 19/42 received a matched or mismatched unrelated donor (MUD/MMUD) and 3/42 received a matched or mismatched related donor (MRD/MMRD). 16 patients had myeloablative conditioning and 26 reduced intensity conditioning. Overall survival and disease free survival (DFS) were 30% (13/42) and 26% (11/42), respectively with a median follow up of 1496 days (range: 37d-3434d), 5/16 of these survivors had received myeloablative conditioning versus 6/26 who received reduced intensity conditioning. The DFS by disease type was 16% (2/12) for lymphoid and 30% (9/30) for myeloid malignancies (MDS/AML, n=6/10; AML, n=2/17; biphenotypic, n=1/1), respectively. Patients with MDS/AML had better outcome than patients with AML alone. Survival also varied according to donor type (7/20 haplo, 4/19 MUD/MMUD, and 0/3 MRD/MMRD). Of the 11 disease free survivors, 8 were in remission at the time of the second transplant and 9 had relapsed >240 days post transplant. Overall median survival was 4.6 years (range: 0.2-9.7 years). The primary cause of death was relapse/persistent disease in 24/42 or infection/GVHD in 7/42. Additionally, 7 of these patients underwent a third HSCT for relapsed disease after second HSCT and all 7 had active disease at time of third transplant. No patients survived after a third transplant. Hence 26% of relapsed patients may be long term disease free survivors after a second HSCT from a haploidentical or unrelated donor. Patients transplanted in full remission with relapse >240 days after first HSCT and a diagnosis of MDS/AML are likely to be favorable prognostic factors.

Outcomes in Pediatric Patients With Engraftment Failure After Allogeneic Transplants
Swati Naik, Caridad Martinez, Catherine M. Bollard, Javier Amin El-Bietar, Stephen Gottschalk, Kathryn Leung, Nabil M. Ahmed, Carl Allen, Helen E. Heslop, Malcolm K. Brenner, Robert A. Krance. Center for Cell and Gene Therapy, Baylor College of Medicine, Texas Children’s Hospital, Houston, TX

Graft failure is an uncommon but serious complication after allogeneic haematopoietic stem cell transplantation (HSCT) and is an indication for a 2nd HSCT. However, there are limited outcomes data for pediatric patients who undergo such therapy. We now report on 44 pediatric patients who had a 2nd HSCT after graft failure following HSCT for malignant (n=14) or non-malignant diseases (n=30) at our institution between 2000-2012. Primary graft failure was defined as failure to achieve ANC >0.5x10^9/L or platelet count <20 x10^9/L (n=23). The median age at first transplant was 6 yrs (range 1month to 21 years), 18 pts were transplanted from a matched or mismatched unrelated donor (MUD/MMUD); 16pts from haplo-identical donor (haplo), and 10 from a matched or mismatched related donor (MRD/MMRD). Donor stem cell products were: marrow for 26 patients; peripheral blood (PB) for 17 patients and a cord blood unit (CBU) for 1 patient. 26 patients received myeloablative conditioning (MAC); 17 reduced-intensity conditioning (RIC) and 1 patient received no conditioning. The median time between 1st and 2nd HSCT was 55 days (range: 30d-2587d) for patients with malignancies and 66 days (range: 33d-1846d) for patients with non-malignant disorders. The donor was the same for both the 1st and 2nd transplant for 34 pts. More patients received PB stem cell products for their second transplant (marrow product=17, PB product=16).