were assigned a score. Scores relevant to each individual patient were totaled and this equated to an acuity level. Validation and reliability testing were performed and the tool piloted for 4 weeks in 6 different units. All units were Haematology/SCT (adult and pediatric) but may also have included Oncology. Analysis of the results shows that 86% of the nurses using the tool believed that the acuity of their patient was accurately reflected. Of those who didn't agree with the tool's rating, all believed that the acuity level should have been higher, particularly those patients whose condition was unstable and whose acuity rating was on the border line between levels. Compliance in units that did not receive face-to-face orientation was lower.

A major limitation of the study was an unrealistic timeframe which impacted on validity and reliability testing and compliance. More extensive trialing of a refined tool is planned. The development of this tool provides a sound tool on which to build, whilst succinctly demonstrating the difficulties in accurately assessing the acuity of SCT/Haematology patients.

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DEVELOPING THE CRITICAL THINKING SKILLS OF NOVICE NURSES IN BLOOD AND MARROW TRANSPLANTATION

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Today's nursing shortage is evidenced by fewer nurses entering the workforce, acute nursing shortages in certain geographic areas, and a shortage of nurses prepared to meet specialty patient needs in a changing health care environment. This is clearly evident in the blood and marrow transplant unit at MDACC, which processes approximately 500 transplants per year. It is a challenge to recruit nurses with cancer experience, much less, with a background in this specialty. Nurses new to the blood and marrow transplant arena are challenged with complex information including hematology, immunology as well as acute and chronic complications of the transplant treatment modality. This BMT unit refined its current orientation program to include evidence-based practice and implemented strategies for critical thinking skills. Methods were developed and implemented to train the nurse coaches to teach critical thinking skills. Tools were developed for use by both the coach and new nurse to promote critical thinking. Tools developed include orientation pathways with transplant modules, communication tools, and coach manual with coaching cards. These tools will be presented and outcomes impacting length of orientation, retention, coach satisfaction, and new nurse satisfaction will be detailed.

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SAFETY OF LEUKAPHERESIS IN DONORS AND PATIENTS WITH WBC COUNTS GREATER THAN 60K

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As new protocols are developed and treatment plans change, the demand for higher numbers of donor stem cells for patients has increased. This is especially true for non-myeloablative transplants where a higher cell dose may be needed to assure engraftment. There is a concern for safety in this donor population that elevated white blood cell counts may lead to altered blood flow kinetics, cause shortness of breath, decreased cerebral blood flow, and contribute to cardiac ischemia.

In reviewing 3037 leukapheresis collections in Duke University adult bone marrow stem cell transplant program over a 7-year period, it was noted that pre-leukapheresis WBC counts were greater than or equal to 60,000/microliter in 296 cases (9.75%). A WBC count greater than or equal to 100,000 was noted in 7 cases (0.23%).

In reviewing our apheresis records for patients with WBC greater than 60,000/microliter, there were no serious adverse events reported other than the common reports of myalgia, bone pain, and headache associated with administration of cytokine. Pain levels ranged from mild to severe. Pain was managed in most cases by either over the counter analgesics and some required a mild narcotic.

Our apheresis SOP directs nursing staff to contact the physician when the pre-leukapheresis WBC is greater than 60,000/mcl. The physician reviews the cytokine dose and the numbers of cells collected and provides the apheresis nurse with orders for withholding a dose of cytokine or for a 50% dose reduction. The circulating CD-34 count does not consistently correlate to the elevated WBC and can drop rapidly when cytokines are withheld which may be problematic if the target number of cells for transplantation has not been reached. Careful nursing and physician assessment and monitoring for adverse events in this donor population include pain levels, breathing difficulties, chest discomfort and any neurological changes. After careful evaluation of the data, we feel collections of CD-34+ cell from donors and patients with WBC greater than 60,000 can be safely performed (Table1).

Table 1. *WBC vs CD-34*

	Auto	Auto	Auto	Allo	Allo	Allo	Total
WBC	N	WBC Mean	CD-34 Mean	N	WBC Mean	CD-34 Mean	N
60-69	40	64.6	81.6	60	63.8	110.0	100
70-79	30	74.3	89.5	16	74.5	95.2	46
80-89	13	84.1	56.9	5	85.7	84.1	18
90-99	6	94	95.5	5	94.1	105.1	11
100+	4	110.5	318.3	3	102.7	68.9	7
total	93	74.3	91.8	89	70.0	104.3	182

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THE NURSING ROLE IN THE ORIENTATION AND EDUCATION FOR OUTPATIENT PRE-HSCT PATIENTS, FAMILIES, AND CAREGIVERS AT THE SEATTLE CANCER CARE ALLIANCE

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When patients, families, and caregivers arrive at the Seattle Cancer Care Alliance in preparation for a Hemopoietic Stem Cell Transplant, they are often overwhelmed with information and clinic appointments. The HSCT clinic nurses play a pivotal role in orienting and educating patients and caregivers as they are evaluated for transplant. To ensure consistent education, a comprehensive process of clinic visits, written education materials, and classes was developed to support patients and caregivers through the first several weeks in the Outpatient Clinic. The nursing process and clinics are supported by written policies and procedures that outline nursing responsibilities. The proposed poster will communicate the SCCA nursing role in the pre transplant orientation and education of patients, family and caregivers.

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ESTABLISHMENT OF A LONG-TERM ALLOGENEIC BLOOD AND MARROW FOLLOW-UP PROGRAM FOR EARLY DETECTION OF COMPLICATIONS AND MEASURING OUTCOMES

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Almost 60% of the 613 patients transplanted at our center last year received allogeneic blood or marrow transplantation. Allogeneic BMT complications are most prevalent in the first 100 days, but late infections and chronic graft versus host disease frequently occur after patients leave our comprehensive cancer center at day 100. Establishing a thorough, comprehensive and central computer accessible patient assessment will enable practitioners to phone triage problems with community healthcare providers and identify changes during follow-up visits for prevention, early detection of complication, and prompt referrals. At our center the patient's initial BMT physician remains involved in the care throughout the transplant process and follow-up. Referrals to our GVHD clinic occur as deemed appropriate by the clinic physician. Capture of the overall program incidence and severity of complications like GVHD can be problematic. We have assigned one full-time Nurse Practitioner (NP) to follow the allogeneic patients from day 80-100 to the end of the first year after transplantation. The LTFU

program NP coordinates care with the patient's clinic physician and Physician Assistant (PA). An extensive assessment is performed around the time the patient will be leaving the transplant center. Baseline data and outcome tracking will include incidence and severity of chronic graft vs host disease, infections, endocrine and nutritional disorders, quality of life, and survival. Information about assessment tools and outcomes will be shared, as well as a case study.

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IMPROVING CLINICAL OUTCOMES UTILIZING A BMT UNIT-BASED CLINICAL PRACTICE COUNCIL

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A BMT unit-based Clinical Practice Council (CPC) was formed in our Oncology Intensive Care Unit (OICU) to address clinical issues and improve clinical outcomes for our pediatric BMT patients. The nurses in the OICU were concerned about several patient care issues and inconsistent clinical practice. Due to the nursing shortage, our unit is often staffed with new graduate nurses, registry and traveling nurses, and nurses floating from other units, which often results in inconsistent clinical practice. In order to address the clinical issues and increase staff involvement, the Clinical Director and Clinical Nurse Specialist (CNS) developed a unit-based Clinical Practice Council. The Clinical Practice Council consists of the Charge Nurses, staff nurses from both shifts, the BMT Coordinators, the Clinical Director, and the CNS. At our first meeting, the nurses were asked to brainstorm about the clinical issues that they were concerned about and then prioritize the issues. All Clinical Practice Council members were asked to "volunteer" for one or more clinical issues that they would like to research and determine best practices. The staff embraced the challenge and went straight to work. The nurses have worked on a variety of issues that have resulted in practice changes and improved clinical outcomes. For example, we have made improvements in our BMT diet, calorie counts, blood specimen collection from central venous catheters, documentation of fluid balance, discharge education, and blood product utilization. Recommendations for clinical practice changes are presented to the BMT Medical Director, Oncologists, and other disciplines as needed for review and approval. The Clinical Practice Council has been successful in improving clinical outcomes, increasing staff involvement and job satisfaction, and increasing patient and family satisfaction. Based on the success of this practice council model in the OICU, we have implemented Clinical Practice Councils in our Cancer Institute Clinic and Hematology/Oncology Unit.

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ARSENIC TRIOXIDE IN COMBINATION WITH ASCORBIC ACID AND HIGH-DOSE MELPHALAN IS SAFE FOR PATIENT WITH MM UNDERGOING AN AUTOLOGOUS TRANSPLANT

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Purpose: To evaluate the safety of a new conditioning regimen of arsenic trioxide (ATO), ascorbic acid (AA), and Melphalan for patient with multiple myeloma undergoing an autologous hematopoietic stem cell transplantation. **Rationale**: ATO is an active agent against multiple myeloma and has been shown to have synergistic effect with melphalan and ascorbic acid AA both in vitro and in vivo. **Design**: Phase I/II clinical trial **Methods**: Twenty-five patients with multiple myeloma (11 females, 14 males median age: 53, range: 49-69) were treated between 4/04 and 1/05. All patient received melphalan 100 mg/m^2 IV on days -4 and -3 and AA 1000 mg/day IV on days -9 to -3. Patients were randomized to 3 arms; no ATO (arm 1), ATO 0.15 mg/kg IV on days -9 to -3 (arm 2) and ATO 0.25 mg/kg IV on days -9 to -3 (arm 3). Seven patients had a prior autograft. Median CD34 cells dose infused was 4.4×10^6/kg (range 2.3-10.9). **Results**: With a median F/U of 7.1 months post autograft, no dose-limiting toxicity or non-relapse mortality was seen. Median ATO level on day 0 in arms 1, 2, and 3 were 0.2, 26.3 and 46.2 ng/ml, respectively. Median time to neutrophil engraftment (ANC >500/ dl) was 9 days. There were no engraftment failures or delays in the ATO arms. Toxicity was limited grade I or II nausea, vomiting and diarrhea. See Table 1. **Conclusions**: Arsenic trioxide given in combination with melphalan and ascorbic acid as preparative regimen for an autograft is safe and well tolerated. No dose limiting toxicity or adverse effects or delays in engraftment were seen. No difference in infections was noted at any dose level (Table1).

Table 1. *Toxicities*

Patient no.	Dose Level	Toxicities Day 0	Toxicities Day 15	Toxicities Day 30
1	placebo	none	none	none
2	.15mg/kg/day	N&V gr 1	none	none
3	placebo	N & V gr 1	N & V gr 1, dia gr 1, muco gr 2	none
4	.25mg/kg/day	none	N & V gr 1	none
5	.15mg/kg/day	N & V gr 1, mucogr 1, diarr gr 1, perip edema gr 1	none	none
6	.15mg/kg/day	N & V gr 1, diarr gr 1	none	none
7	.15mg/kg/day	N & V gr 1, diarr gr 1, fever gr 1	none	none
8	.15mg/kg/day	N & V gr 1, fever gr 1	diarr gr 1	none
9	.15mg/kg/day	diarr gr 1, mucos gr 1, pedal edema gr 1, N & V gr 1	none	none
10	.15mg/kg/day	hypert gr 1, neu fev gr 1	N & V gr 1, ALT, AST gr 1, creatgr 1, GI & chest pain gr 1	none
11	.15mg/kg/day	none	none	none
12	.15mg/kg/day	N & V gr 1, diarr gr 1, mucos gr 1	none	N & V gr 1
13	.15mg/kg/day	N & V gr 1	none	none
14	.15mg/kg/day	perip edema gr 1, diarr gr 1	N & V gr 1	none
15	.15mg/kg/day	nausea gr 1	perip edema gr 1	none

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ADVERSE EVENTS TO CAMPATH IN A PEDIATRIC SETTING

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Alemtuzumab (Campath) has been used to prevent graft versus host disease in adult recipients of unrelated donor bone marrow. Given the limited experience using Campath in pediatrics, we are reporting the incidence of adverse reactions.

Campath (0.2 mg/kg/day IV $\times$ 5 days) was given to recipients on day 8 or 9 prior to receiving grafts from a HLA matched unrelated donor. All patients received Acetaminophen (10-15 mg/kg/dose PO, 650 mg max) and Diphenhydramine (1mg/kg/dose PO/IV) to prevent adverse reactions. Adverse events were identified from the retrospective review of nursing and physician progress notes. **Results**: 10 patients received Campath. All 10 patients had reactions to Campath including fever (n = 7), chills (n = 3), hypotension (n = 2), urticaria (n = 1), anxiety (n = 1), headache (n = 1), nausea and emesis (n = 1). Four patients received IVIG during their preparative therapy. Given the high incidence of adverse reactions despite premedication, the program adapted the following practice changes: (1) BMT order sets were revised to encompass immediate intervention algorithm for wider range of adverse reactions. The algorithm calls for a stop of infusion, drug intervention(s), and physician notification. If SOB develops, Hydrocortisone (1-2 mg/kg/dose IV, 100 mg max) will be given, NS bolus (10-20 mg/kg/dose, 1000 ml max) will be added for hypotension, Meperidine (1 mg/kg/dose IV, 50mg max) for rigors and Ranitidine (1-2 mg/kg/dose IV, 50 mg max) for rash. (2) Campath administration is scheduled in the day shift in order to facilitate close monitoring and medical staff availability. (3) IVIG will be given either prior to start of conditioning or at day -1. (4) The program will collect prospect data to evaluate the efficacy of the practice change.