a blinded audit by three physicians, RVI contributed to death in 1.2% of patients in the pre-mask period and 0.2% in the mask period ($P = .12$). Patients with RVI required more peri-transplant care (median 76 days vs. 21 days, $P < .0001$). These data suggest that requiring all individuals with direct patient contact to wear a surgical mask can reduce the incidence of RVI, particularly PIV3, during the vulnerable period following HSCT.

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Is Edentulism Associated with Lower Bacteremia and Transplant-Associated Toxicities in Patients with Multiple Myeloma?

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Objective: Previous studies suggest that edentulous (subjects without teeth) have a lower inflammatory state than non-edentulous individuals probably due to periodontal infection in non-edetulous subjects. We hypothesized that edentulous patients would have a lower incidence of bacteremia and other complications associated with autotransplantation for multiple myeloma (MM).

Methods: We conducted a retrospective case-control study of patients who received autologous hematopoietic stem cell transplantation (AHSCT) for multiple MM at the Audie L. Murphy Memorial Veterans Hospital Bone Marrow Transplant Unit, in San Antonio, Texas from January 2003 through September 2012. Case subjects were defined as edentulous and controls were defined as non-edentulous. The 2 groups were matched for age, gender, ethnicity, MM stage, time from diagnosis to transplant, performance status, and conditioning regimen. The following posttransplant toxicities were analyzed: bacteremia, oral mucositis, nausea/vomiting, diarrhea, neutrophil engraftment and length of hospital stay.

Table 1
Post-AHSCT patient toxicities

	Edentulous N=45	Control Group N=90	*P*-value
Bacteremia, n (%)			0.553
Yes	11 (24)	18 (20)	
No	34 (76)	72 (80)	
Oral mucositis, n (%)			0.465
Grade 0	13 (29)	33 (37)	
Grade 1	16 (36)	21 (23)	
Grade 2	13 (29)	27 (30)	
Grade 3	3 (7)	9 (10)	
Nausea/Vomiting, n (%)			0.744
Grade 0	4 (9)	7 (8)	
Grade 1	24 (53)	40 (44)	
Grade 2	14 (31)	36 (40)	
Grade 3	3 (7)	7 (8)	
Diarrhea, n (%)			0.095
Grade 0	6 (13)	10 (11)	
Grade 1	7 (16)	17 (19)	
Grade 2	15 (33)	24 (27)	
Grade 3	14 (31)	39 (43)	
Grade 4	3 (7)	0 (0)	
Days to ANC engraftment			0.966
Mean (SD)	10.84 (1.80)	10.83 (1.16)	
Range	8-31	9-17	
Length of hospital stay (days)			0.098
Mean (SD)	15.76 (4.94)	17.47 (5.99)	
Range	3-30	3-52	

Results: During the study period, 297 AHSCT were performed at our institution. Of these, 45 (15%) patients were found to be edentulous at the time of first AHSCT. Forty-five case subjects were matched to 90 controls. All patients were males, their median age was 60 years (range, 42-75), their Karnofsky performance status score mean was 90 (range, 70-90), and all received melphalan as part of the conditioning regimen. The majority of patients, 90 (67%) had stage III MM at transplantation and the median time from diagnosis to transplantation was 12 months (range, 4-103).

The incidence and severity of all posttransplant toxicities analyzed were similar in both groups (see Table 1). Thirty-eight (84%) of edentulous patients were smokers or had a history of smoking at the time of AHSCT compared to 58 (64%) of the control group ($P = .016$). Overall survival after transplant was similar in both groups.

Conclusions: The incidence of toxicities after AHSCT experienced by edentulous MM patients was similar to controls including bacteremia and oral mucositis. There was a strong association between edentulism and smoking.

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Polymicrobial and Multiple Microbiologically Proven Infections in HSCT Recipients

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Microbiologically confirmed infections (MCI) which occur during stem cell transplantation (HSCT) increase morbidity and mortality. HSCT recipients who develop polymicrobial or multiple microbiologically confirmed infections (MMCI) may be at increased risk for unfavorable outcomes, yet data is limited. Herein we report the incidence, risk factors and survival associated for polymicrobial and multiple microbiologically confirmed infections (MMCI) in 901 HSCT recipients.

Electronic databases were used for HSCT recipients treated at Northwestern Memorial Hospital between 2004-09. Infection data was recorded from the time of admission through discharge. Any single CONS or VRE BAL culture was excluded from analysis. Patients received acyclovir, azole antifungal, and flouroquinolone for prophylaxis. Polymicrobial infection was defined as the occurrence of 2 MCI's from different organisms within 72 hours of the 1st positive culture. Fischers Exact test and Chi-Square was used for analysis of continuous and discreet variables. This study is IRB approved.

Amongst 905 HSCT recipients, 59 patients (6.8%) developed MMCI's. Polymicrobial infection was identified in 30 (3.4%) patients. 17 patients had > 2MCI's. Most MCI's (55%) were blood stream infections. The duration of time which transpired between positive cultures was as follows: Concommitant cultures (n=13), <24 hr (n=9), 48 hr (n=8), <72 hr (n=5), <96 hr (n=4), <120 hr (n=3), <144hr (n=5), >7 days(n=12). When MMCI'S cases were compared to patients without any positive cultures using bivariate analysis, statistically significant differences included : female gender (0.0377), diagnosis of myeloma ($P < .0133$) or AML ($P < .0497$), receipt of allo-HSCT ($P < .0001$), vancomycin ($P < .0004$)or cefepime($P < .0005$) use, and positive VRE

surveillance cultures ($P < .0001$). When MMCI cases were compared to single MCI cases, significant differences included: female gender ($P < .0349$), receipt of allo-HSCT ($P < .0373$), vancomycin ($P < .0012$) and cefepime ($P < .0009$) use. There was no difference in the number of patients who experienced neutropenic fever between MMCI, MCI ($P < .275$) or culture negative cases ($P < .1247$). *Strept mitis* or *C.difficile*infection occurred concommitantly or preceded the second MCI in 29(47%) cases. Overall mortality was significantly higher in MMCI cases when compared to cases without any positive cultures ($P < .001$) or patients with a single MCI ($P < .0197$). There was no difference in overall mortality for patients who developed MMCI <72hours (polymicrobial) versus MMCI>72 (non-polymicrobial; $P < .2990$).
MMCI are an infrequent but serious cause of adverse events which occur during HSCT. Patients who are at high risk for developing MMCI require increased vigilance and early aggressive antibiotic therapy.

POSTER SESSION 1: TRANSPLANT DATA MANAGEMENT

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Reduce Errors and Past Due Reports Via Monthly Audits Using Crid Numbers

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Background: In 2004, the National Marrow Donor Program's database merged with the International Bone Marrow Transplant Registry to streamline transplant research. To manage the fusion of forms generated in two separate databases, the Center for International Blood and Marrow Transplant Research (CIBMTR) began assigning each patient a unique Recipient Identification Number (CRID) in 2007. This has allowed transplant outcomes to be reported annually, because forms are now automatically generated for each CRID. Our center created a secure CRID spreadsheet to manage the merge and track form due dates (Figure 1). The spreadsheet has evolved into an auditing tool, serving to simplify our form assignment process and improve quality.
Best Practices: Using Forms Net, a designated Protocol Coordinator (PC) generates a monthly list of forms due for the next five week reporting period. Next, the list is exported to an excel spreadsheet allowing the PC to assign forms to Data Coordinators (DC's) with a DC due date set two weeks prior to the final due date in FormsNet. After the forms are assigned, DC's use the CRID spreadsheet to cross reference CRID numbers with Medical Record Numbers (MRN) to identify the corresponding patient to complete forms. The PC reviews each form using the CRID spreadsheet to track any errors made by the DC completing the form. Next, the audited forms are returned to the DC who corrects and reprocess the form in FormsNet. Each quarter, a designated DC cross references the CRID spreadsheet with Forms Net to ensure error correction and data quality. The spreadsheet can also be used as an opportunity to re-educate DC's on frequently missed fields and reduce errors on the following month's forms.
Outcomes: In the 2008 CIBMTR audit, our center's critical field error rate was 4.2%. Subsequently, implementation of the secure CRID spreadsheet helped reduce our 2012 critical field error rate to 1.7%. This tool will continue increasing data quality and reporting outcomes while concomitantly helping us reach our department goal of <1% error rate in 2016.

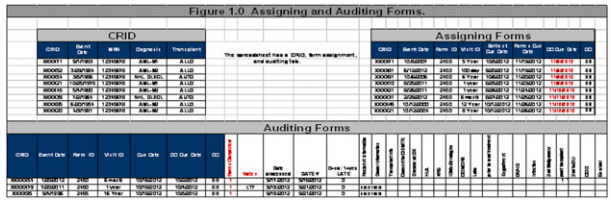

Figure 1.

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Timely Capture of Relevant Data for CIBMTR

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Introduction: Each hematopoietic stem cell transplant (HSCT) performed and fully reported to CIBMTR generates key information to support research that has cumulatively led to increased survival and enriched quality of life of thousands of patients. Between 50 and 60 HSCT (autologous, related and unrelated) are now annually performed at the Pediatric Oncology Institute, São Paulo, Brazil. The program started in 1999 and the first 167 transplants were reported by physicians and by the Cell Processing Laboratory staff. However, over the past 4 years, the institution was unable to keep up with the reporting schedule due to increasing working load. In February 2012, the effort to report all new and old patients to CIBMTR was resumed.
Objective: To report and share the strategy used to have all 629 forms efficiently updated and reported within 8 months.
Methods: The institutional efforts started by hiring a trained CRA part time devoted to CIBMTR data management. A very useful and comprehensive Excel-based spreadsheet was developed to have visual display of all due dates with colorful flags and automatic updates to the current date. Work flows were developed to capture data during weekly medical rounds. All sources of medical information – charts, laboratory and radiological reports, medical round reports - were accessed whenever necessary and included in the patient charts as documented source of information. All forms were weekly reviewed with a senior physician to ensure appropriate training and education of the new CRA.
Results: A total of 360 patients underwent HSCT between 1999 and September 2012. The CIBMTR forms had been last updated in 2008 and no new patients were registered since then. All information that posed the greatest