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The Effects of Oral Hygiene on Mucositis in Patients Undergoing Hematopoietic Stem Cell Transplant (HSCT)

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Topic Significance & Study Purpose/Background/Rationale: Immunosuppression experienced in HSCT patients leads to oral complications and life-threatening infections. Oral complications result in significant oral pain, limiting the child's ability to eat and drink, often leading to malnutrition and dehydration and airway obstruction [1,2]. The impact of oral hygiene on incidence of mucositis was studied in patients on a 36 bed complex pediatric HSCT unit, patients' pre, intra- and post-transplantation.

Methods, Intervention, & Analysis: Dental assessments were completed at various points in the transplant process. With T equaling the transplant date or day zero, the 19 participating patients were assessed on T–14, T–1, T+7, T+14, and T+28. Assessments occurring ±3 days. To enhance reliability, the same dental resident performed all of the assessments over a 12 month period. Variables examined included the utility of existing grading scales to assess gingival inflammation, bacterial coating on the tongue, plaque buildup on the teeth, and mucositis grading tools. These tools support the ability to measure and evaluate oral health.

Findings & Interpretation: The study revealed 68% of the data points were positively associated with mucositis and 30% of those patients had a pre-transplant history of no poor oral hygiene. Of these identified 19 patients, 26% were diagnosed with a mucositis score of 3 which is defined as painful and requiring IV hydration. 84% of patients with mucositis had worsening plaque buildup over the dental assessment period.

Discussion & Implications: A larger sample size is needed to further examine the connection of poor oral hygiene pre-transplant and mucositis. This initial study revealed an association between plaque accumulation and onset of mucositis. Nursing interventions are focused on more consistent oral assessments and mucositis grading, including improved interrater reliability to more accurately assess oral status and impact of oral hygiene.

Next steps include implementation of a consistent mucositis/stomatitis grading process using the National Cancer Institute's (NCI) grading scale [3].

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Improving Provider Classification and Documentation of Graft-Versus-Host Disease (GVHD)

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Topic Significance & Study Purpose/Background/Rationale: Graft-versus-host disease (GVHD), a common complication following allogeneic hematopoietic stem cell transplantation (HSCT) can pose both immediate and long-term health care challenges. Acute GVHD occurs in up to 60% of transplant recipients (Ali, DiPersio, & Schroeder, 2016). An estimated 30% to 70% of patients who have undergone allogeneic HSCT are affected by chronic GVHD, an autoimmune-like complication, associated with a 5-year mortality rate of 30% to 50% (Jagasia et al., 2015; Pusic & Pavletic, 2015). Chronic GVHD is the foremost cause of non-relapse mortality (NRM) post allogeneic HSCT (Arai et al., 2015).

In 2005, the National Institutes of Health (NIH) Consensus committee recommended new guidelines for diagnosing and scoring chronic GVHD (Jagasia et al., 2015). Assessment, scoring, and reporting of GVHD have been inconsistent despite recommendations set forth by the NIH Consensus Committee. Disparities in reporting have confounded diagnosis and evaluation of treatment response. Advanced Practice Providers (APPs) routinely follow HSCT recipients in the outpatient clinic and are in a key position to assess, monitor, and document GVHD. A quality improvement project implementing a standardized assessment and reporting process has been instituted in one Midwestern transplant center (See Attachment 1).

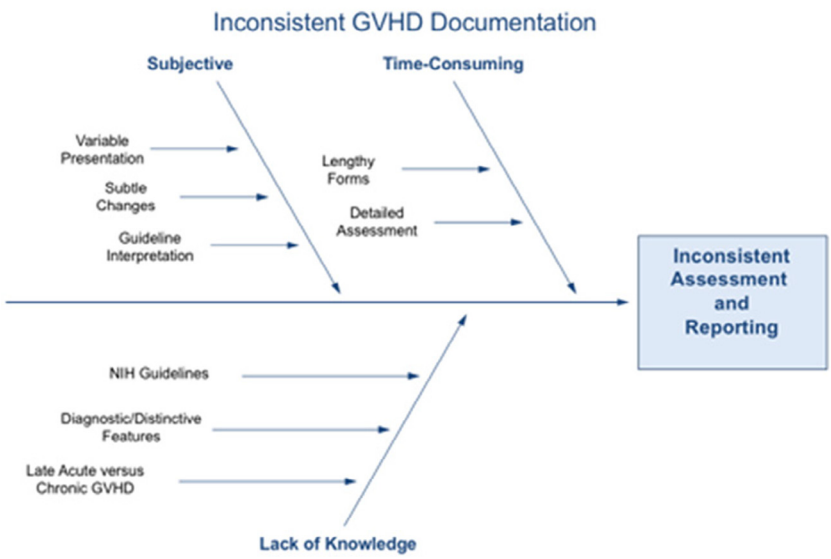
Methods, Intervention, & Analysis: Bone Marrow Transplant (BMT) staff were educated regarding the NIH Consensus Committee changes and recommendations. Assessment and documentation training were provided for the BMT APPs. Transplant milestone clinic visits were established for performing GVHD assessments. Assessment tools were created utilizing the Minnesota-CIBMTR criteria for acute GVHD and the NIH Consensus Committee criteria for chronic GVHD. Assessment data were entered into the Organ Transplant Tracking Record (OTTR). A retrospective chart review was performed analyzing an eight-week period in 2016 and compared with the same period in 2015 (See Attachment 2).

Findings & Interpretation: This quality improvement initiative continues and data collection is ongoing. Fifty percent of the milestone visits had complete GVHD documentation by the second month of implementation.

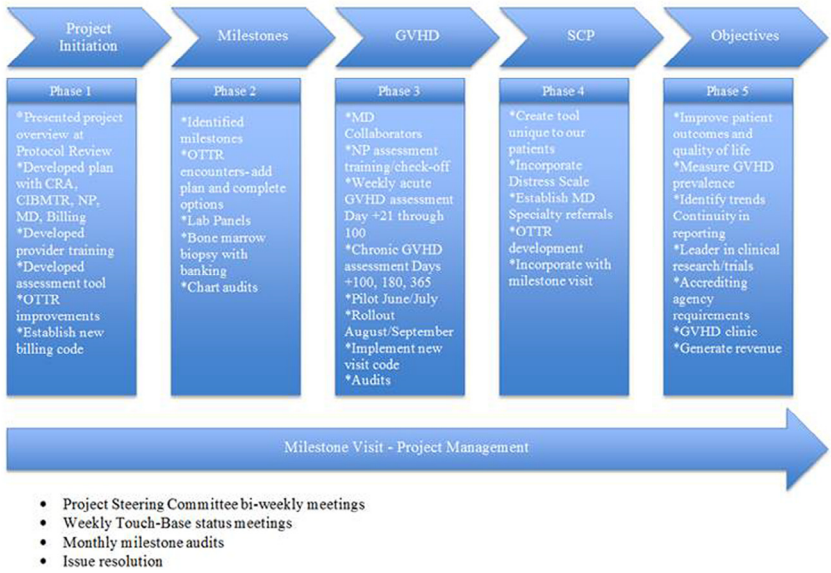
Discussion & Implications:

- Standardized assessment and reporting enhances appropriate diagnosis, prompt intervention, and consistent evaluation of treatment response.
- Development of a clinically annotated data base for future and retrospective research.
- Implement evidence-based practice to meet the demands of users, payers, and regulators.

Attachment 1



Attachment 2



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Reduction in Central Venous Catheter Occlusions on a BMT Inpatient Unit

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Topic Significance & Study Purpose/Background/Rationale: The BMT unit began to experience sheaths in CVC's when a new injection cap was implemented. These resulted in removal and replacement to complete lab draws. The CLABSI risk was increased related to cap removal and physical presence of the sheath. A workgroup was assembled. The process began with a literature review of both problem and product. Staff collected data regarding characteristics of patients and CVC types associated with sheaths. A root cause analysis was attempted. Vascular experts observed the practice of clinicians when performing routine care. No rationale was clearly identified.

Methods, Intervention, & Analysis: An updated literature search was completed this year. Other BMT organizations were surveyed regarding products and practices. One consistent difference was the injection cap. This led to our attempt to correct the problem. Baseline data was collected for 10 days. Each CVC blood draw was recorded and an incidence rate was calculated. Baseline data showed a 13% incidence of sheath presence. The product used by the other institutions was trialed. The process began with a 10-day implementation which consisted of conversion to the trial product. After the implementation period, data collection occurred for 10 days.

Findings & Interpretation: Three products were trialed using the same procedure. The products showed a sheath incidence of 13%, 5% and 3%. Based on these results and the staff review of all products, a recommendation has been put forth to the Value Analysis Team (VAT) to implement a change to