

Applying the Concept of Standard Work to Inpatient Dental Consultations

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## **Dedication**

I dedicate this thesis to my beautiful babies, Theron and Ariaah, and to my husband, Johvin.

This study would not have been possible without the sacrifice and support of my family. I love you and thank you for everything.

## **Abstract**

Introduction: The concepts of standardizing work processes and continuous process improvement (CPI) have spread from manufacturing into other disciplines, including healthcare. CPI focuses on analyzing processes, identifying problems, standardizing repeatable elements, and testing results. The Department of Dentistry at Seattle Children's Hospital (SCH) identified dental inpatient consultations as an area to implement standardization to achieve improvements and introduced a standard dental consultation tool, the DCT, in 2009. An important part of CPI is reanalyzing workflow after change such as the DCT, are introduced.

Objectives: This study was designed to assess the use of the DCT at SCH. The primary objectives were: 1) to describe inpatient dental consultations at SCH, 2) to determine the frequency of use of the DCT at SCH, 3) to examine associations between DCT use and types of information documented in the consultation note, and 4) to evaluate the effectiveness of the DCT by comparing dental outcomes in consultations that utilized the DCT to consultations that did not utilize the DCT.

Methods: This study is a retrospective chart review of all inpatient dental consultations at SCH between May 1, 2009 and May 31, 2013. Descriptive statistics were calculated for all variables. Associations with types of data documented in the consultation and whether the DCT was utilized was tested using a Chi-square Test or a Fisher's Exact Test.

Results: A total of 632 consultations were included in the study, with 354 using the DCT (61.2%). The most frequent requesting service for the consultations was Hematology-

Oncology (50.6%) and the most frequent reason for a dental consultation request was baseline consultation (47.3%). Caries (23.6%) was the most frequent dental pathology identified. Data related to caries risk assessment were frequently omitted from consultation notes when the DCT was not used. It was not possible to analyze patient outcomes following dental consultation due to data limitations.

Conclusion: The DCT was used during 61.2% of all consultations and for 69.8% of baseline consultations. Use of the DCT most improved documentation of factors key to caries risk assessment. As a result of this study, the SCH Department of Dentistry is modifying the DCT to improve ease of use, creating a second DCT specific to problem-focused dental consultations, and exploring methods to improve tracking of patients with dental needs identified during the consultation. The evolution of the DCT at SCH is an example of using CPI principles to improve patient care.

## Introduction

This thesis project brings together dental care for hospitalized children and the philosophy of continuous process improvement (CPI). CPI is a business management style focused on optimizing workflow. The philosophy of CPI is credited to the Toyota Production System (TPS). Kiichiro Toyoda, the founder of the Toyota Motor Company, originated the process of CPI in order to become more competitive with the American automobile industry following World War II. At that time, an American automobile worker using mass production methods produced nine times more product than a Japanese automobile worker. (Ohno 1988) The TPS was refined and later disseminated worldwide by Taiichi Ohno, a production engineer and later Executive Vice President of the Toyota Motor Company. (Fujimoto 1999)

The purpose of the TPS is to eliminate non-value adding work or waste (*muda*). Examples of waste include redundancies, excess steps in workflow, unused or excessive inventory, and unproductive time spent waiting for parts. In order to reduce or eliminate waste, the workflow process is analyzed in small components (*kaizen*). (Yamada 2011) Initially, the workflow is observed and data is collected to visually map the process. After mapping, each step within the process is studied to identify opportunities for improvement and standardization. A streamlined and standardized work process is implemented after educating the employees. After an agreed upon time period, the work process is re-analyzed to measure the impact of the changes. After standardization, opportunities for further improvements are more easily recognized. CPI is the philosophy using the method of observation, data collection, analysis, implementing changes in a work process, and then

repeating the cycle to transform a work flow into an efficient, sustainable state. (Liker 2004)

### *Continuous Process Improvement Systems*

Two of the most common systems using principles of CPI are Six Sigma and Lean. The Six Sigma process, developed by Motorola in 1986, focuses on decreasing variability and eliminating defects. It concentrates on quality control and uses tools to identify areas for change. An example of a Six Sigma tool, which was developed from the TPS, is the 5 Whys. This tool asks a question regarding one identified area of concern five times to identify the root cause of the concern. (Adams 2008)

The term “Lean” was first used in 1988 by John Krafcik of the MIT International Motor Vehicle Program in recognition of the Toyota philosophy of simplifying processes and working with a smaller, more adaptable workforce. (Holweg 2007) Lean focuses on elimination of waste, standardization, and error prevention. A commonly used Lean tool is a value stream map. A value stream map is a diagram of all the actions required to complete a process, both essential and waste. Through process mapping, waste can be identified, eliminated, and more efficient work streams created. (Rother and Shook 2009)

In many industries, Lean and Six Sigma (LSS) are used concurrently. By integrating both systems, production can be streamlined and quality is increased. Companies may select the tools from either system to best fit their targeted workflow improvements. (George 2003)

### *Continuous Process Improvement in Industry*

Improved workflow and cost savings credited to CPI methodology have provided an impetus to use CPI to improve workflow, products and quality in widely diverse institutions and industries. (George 2003) The Department of Defense (DOD) released a Continuous Process Improvement Transformation Guidebook in May 2006 to educate constituents in the purpose and culture of CPI and encourage CPI use. The DOD has created a CPI/LSS Program Office and the guidebook has been revised to apply to military protocols. CPI has been used by the Navy to reduce costs in many areas, including research and development. The Army has used CPI to reduce costs on Humvee production, which has increased production and delivery to the field. (Sicilia 2008)

#### *Continuous Process Improvement in Healthcare*

The Institute of Medicine of the National Academies released reports in 1999 and 2001 highlighting the waste and medical errors occurring in US hospitals. (Richardson et al. 2000) Some hospital and health care systems responded by adopting CPI methodology to decrease waste and improve safe and efficient patient care. An early example of a health care site applying CPI principles is Virginia Mason Medical Center (VMMC) in Seattle, Washington. They adopted TPS principles to improve quality of patient care and reduce expenses. Since the incorporation of TPS into VMMC, they have steadily met financial goals, (Kenney 2010) become one of two hospitals to be named Top Hospitals of the Decade by the Leapfrog Group, and earned an "A" rating, five years in a row, for patient safety by the Leapfrog Group. (Virginia Mason) When VMMC incorporated TPS in the Emergency Department (ED), they reduced the amount of time patients spent in the ED until discharged by 43%. By analyzing workflow, VMMC found that the average time for

intervention for a heart attack victim was 42 minutes, significantly better than the American College of Cardiology and American Heart Association recommended goal of 90 minutes. (Plsek 2013)

At the Mayo Clinic in Rochester, NY, Lean and Six Sigma were used to evaluate and standardize processes in their large network of Operating Rooms (OR). They improved OR start times by approximately 30%, reduced redundancy in collection of patient information, and increased overall efficiency of the OR. Other benefits of the improvements were decreased costs from staff overtime and increased staff job satisfaction. (Cima et al. 2011)

Seattle Children's Hospital (SCH) embraced the concept of CPI and encouraged each department to identify areas where work could be standardized and patient care improved. SCH improved workflow in the Division of Pediatric Surgery after conducting two Lean / Rapid Process Improvement Workshops. Following the workshops, the number of steps for patients admitted to the surgical center for day surgery procedures until discharge was streamlined from 31 to 14 steps. Providers and patients both benefitted from the increase in efficiency. (Waldhausen et al. 2010)

Two note-worthy medical entities have merged CPI into on-going collaborations to implement into daily practices. In 2001, the British Medical Journal instituted an online database of Quality Improvement Reports, which include online resources, case reports, and on-call experts to help identify projects for improvement. (Smith 2000) The Institute of Medicine has released 15 volumes of their Learning Healthcare System Series, which includes improvement workshops and supports a round-table on Value and Science Driven

Health Care initiatives. (Olsen, Aisner, and McGinnis 2007)

Any frequently occurring medical or dental procedure can be analyzed using CPI methods and standardized. One dental example is the Caries Risk Assessment (CRA) tool. The CRA is a standardized tool adopted by the American Academy of Pediatric Dentistry (AAPD) in 2002, and updated in 2006, 2010, 2011, 2013, and 2014. Each update incorporates the latest science and is, where possible, simplified to eliminate redundancies. This tool assists dentists in assessing a patient's caries risk in a consistent way. (American Academy of Pediatric Dentistry 2015)

#### *Dental Status of Hospitalized Children*

Nicopoulos examined 120 hospital inpatients from the ages of 3 to 12, at the Carolinas Medical Center in Charlotte, North Carolina. The study found that 28% of the patients had never had a dental exam, 42% had unmet dental needs, and 59% had some form of soft tissue pathology. Barriers to dental care were reported by parents of chronically ill patients. (Nicopoulos et al. 2007) These results indicate that dental needs exist in some hospitalized children. A mechanism for providers to request dental evaluation when needed and a process to guide dentist consultants during inpatient dental consultations would benefit both patients and dentists.

#### *Dental Consultations*

In 2009, the Dental Service at SCH identified dental inpatient consultations as a potential area to implement CPI methodology to improve patient care. Dental consultations may be requested by any hospital provider for any inpatient with oral health

concerns. For example, the Hematology-Oncology service frequently requests an oral health baseline inpatient consultation for patients with a new diagnosis of cancer.

Inpatient dental consultations at SCH are ordered through a patient's electronic medical record (EMR – called Clinic Information Systems (CIS) at SCH) and include the reason for the consultation request (e.g. baseline examination prior to chemotherapy, dental pain, or oral soft tissue lesion). Each request is routed automatically to a messaging inbox, which is reviewed daily by the attending pediatric dentists and residents. Completed consultations are tracked by date, patient number, and provider in an electronic logbook maintained by the SCH Department of Dentistry.

### *Types of Dental Consultations*

Two types of dental consultations are performed at SCH: baseline consultations and problem-focused consultations. A baseline dental consultation includes collection of the patient's dental history, caries risk assessment, and clinical dental examination to identify areas of treatment need. The baseline consultation may also include anticipatory guidance such as recommendations for oral hygiene while hospitalized and discussion of common oral sequelae in immunosuppressed patients. (American Academy of Pediatric Dentistry 2014) A problem-focused consultation is generally requested when the medical team identifies a dental problem (e.g. painful tooth, bleeding gingiva, tongue injury from self-inflicted trauma). Problem-focused consultations may also be done as follow-up for a dental problem identified during the baseline consultation. The dental history obtained during problem-focused consultations is driven by the nature of the dental problem, for

example, caries-risk assessment is not essential when evaluating a patient with traumatic brain injury with neuropathologic chewing of oral soft tissues.

#### *Research Describing Dental Consultation at Seattle Children's Hospital*

A retrospective study described all inpatient dental consultations performed at SCH during 2007 to determine demographics, medical diagnoses, consultation reason(s), dental diagnoses, dental home status, and dental treatment indicated. (Kanuga et al. 2012) Key findings for the 155 consultations done for 133 patients were: 1) the majority of consultations were requested by Hematology-Oncology (37%), Transplant Oncology (17%), and Pediatric Medicine (12%) and, 2) comprehensive baseline consultations (33%) were the most frequent reason for requesting dental consultation, followed by pain (10%) and consultations to rule out dental sources for a fever (8%). Baseline evaluations comprised 50% of Hematology-Oncology's requests for consultations and 52% of Transplant Oncology's requests. The most common dental diagnoses were: soft tissue concerns (45%), dental caries or caries related infection (23%), and no dental pathology (19%). An examination only (44%) was the most frequent service provided during consultations. Thirty-nine percent of all consultations resulted in further treatment with 12% requiring comprehensive dental treatment under general anesthesia.

#### *Creation of the Dental Consultation Template at Seattle Children's Hospital*

The primary author of the SCH dental consultation study identified extreme variability in the dental information documented within consultations. Differences were beyond the stylistic heterogeneity expected with multiple dentist consultants and appeared

to reflect large variations in provider philosophy regarding data to be collected in a consultation. As a result of the study, the Dental Service at SCH proposed and created a consultation tool called the Inpatient Dental Consultation Template (DCT). (Appendix B)

The DCT was designed using the processes laid out by CPI. Information that was found to be commonly missing from the consultations in the 2007 study and data that is known to be important in a comprehensive baseline consultation were considered during the development of the DCT. The DCT was designed as a standardized tool to streamline the collection of necessary dental information to ensure a comprehensive consultation. The following items were included in the DCT: medical diagnosis, requesting service, reason for consultation, dental history, dietary and oral hygiene practices, dental examination (including both soft and hard tissue), dental pathology, and dental treatment plan. The DCT became available in May, 2009 for use during dental consultations at the discretion of the attending pediatric dentist. The DCT was last updated on September 7, 2013. It has not yet been assessed for its impact on the consultation process.

### *Objectives*

This study was designed to assess the use of the DCT at SCH. The primary objectives were: 1) to describe inpatient consultations at SCH, 2) to determine the frequency of use of the DCT at SCH, 3) to examine associations between DCT use and types of information documented in the consultation note, and 4) to evaluate the effectiveness of the DCT by comparing dental outcomes in consultations that utilized the DCT to consultations that did not utilize the DCT.

## **Methods and Materials**

This study was a retrospective chart review of all patients receiving inpatient consultations at Seattle Children's Hospital (SCH), a private hospital, affiliated with the University of Washington School of Medicine, between May 1, 2009 and May 31, 2013. The hospital has 323 inpatient beds and serves as the tertiary regional children's hospital for the geographic region of Washington, Alaska, Idaho, Montana, and Wyoming. This study was approved by the Institutional Review Board (IRB) from Seattle Children's Hospital, Seattle Washington (IRB-15079).

### *Data Collection*

Subjects for this study were identified via the Department of Dentistry consultation logbook. Once a subject was identified in the logbook, the specific consultation entry was found in the EMR using the patient Medical Record Number (MRN) and the date of consultation identified in the logbook. The following data was collected: patient demographics, medical diagnoses, requesting service, reason for consultation, dental history, examination details, and dental treatment given during the consultation or planned following the consultation. Payer information was collected from Epic Hyperspace™, a program used at SCH for scheduling appointments and billing. (Appendix A)

### *Variable Definitions*

#### Patient Demographics

1. Age at date of consultation was calculated by subtracting the patient's date of birth from the date of the consultation. Age was then categorized for data analysis using the following categories: 0-5 years, 6-10 years, 11-16 years, 17-20 years, and 21 years or older.
2. Gender was documented male or female from the designation in the patient's EMR.
3. Interpreter status was documented from the patient's language preference logged in their EMR, yes for any language other than English, and no for English speaking patients.
4. Payer status was retrieved from billing statements in Epic Hyperspace™. Payer status was collected into one variable consisting of the following 4 categories: DSHS/Medicaid, private insurance, self-pay, and charity contributions. If the billing statement reported more than one payer type, the payer type with the most entries used.
5. Dental home status was determined from the consultation note, reported by the historian, yes for a reported dental home and no for no reported dental home.

#### Service Requesting Consultation

The service within SCH that requested the consultation was collected into one variable consisting of the following 17 categories: Hematology-Oncology, Transplant Oncology, Pediatric Medicine, Rehabilitation, Gastroenterology, Psychiatric, Pediatric Intensive Care Unit (PICU), Cardiology, Surgery, Nephrology, Urology, Neurology, Rheumatology, Pulmonary, Craniofacial, Health, Behavior, and Development, or Other.

#### Number of Consultations

Some patients had multiple consultations within one admission to SCH. For these patients, the first consultation was documented as the initial consultation entry and each additional consultation was considered a “follow-up” consultation. Each “follow-up” was entered under the initial consultation entry. A variable containing the count of non-unique MRN variables was created to count the number of new consultations each unique patient received.

### Consultation Location

A consultation location variable was created that categorized location of the consultation as occurring either in the patient’s hospital room or in the dental clinic.

### Consultation Reason

Ten individual variables were collected for consultation reason. Each reason for consultation variable was coded yes if the consultation reason was listed for the patient or no if it was not listed. The following were the types of consultation reasons recorded: baseline, soft tissue concern, dental pain, dental caries or caries related infection, erupting or exfoliating teeth, fever of unknown origin to rule out dental infection, trauma, bruxing teeth, oral bleeding, or appliance removal. An indicator variable (yes vs. no) for whether any consultation reason was documented was created for further analysis.

### Dental Pathology

Fourteen individual dental pathology variables were collected. Each dental pathology variable was coded yes if the dental condition was listed for the patient or no if it

was not listed. These dental pathology were: caries and/or caries related infection, erupting/exfoliating tooth, mucositis, gingivitis, self-inflicted trauma, bruxism/temporomandibular joint dysfunction, accidental trauma, orthodontic concern, non-reversible or necrotic pulp, failing restorations, periodontal disease, malocclusion, graft versus host disease, or no dental pathology identified. An indicator variable (yes vs. no) for whether any dental pathology data was documented in the consultation was created for further analysis.

### Dental Treatment Delivered

Sixteen individual variables for dental treatment given during the consultation were collected. Each dental treatment delivered variable was coded yes if the dental treatment given was listed for the patient or no if it was not listed. The following were the types of dental treatments performed that were recorded: examination only, extractions, appliance removal, restorations, extraction plus palliative care, mouthguard, preventive care, extraction and incision and drainage, prescription for antibiotic, splinting, socket debridement, endodontics, prosthodontics, orthodontics, prescription for steroid rinse, and orthodontics and prevention. An indicator variable (yes vs. no) for whether any dental treatment delivered was documented in the consultation was created for further analysis.

### Historian

Eight variables for historian, the person who relayed the patient information collected during the consultation, were collected. Each variable was coded yes if the historian was documented for the patient or no if it was not documented. The following

were the types of historians recorded: self, mother, father, sibling, other family member, nurse, other, or no historian present. An indicator variable (yes vs. no) for whether any historian was documented in the consultation was created for further analysis.

### Dental History Data

1. Dentist: A variable was coded yes if the patient had ever seen a dentist before and no if they had not.
2. History of caries: A variable was coded yes if the patient had a history of caries and no if they had not.

### Consultation Documentation Data

Thirty-two individual variables for whether certain items were documented in the consultation were collected. Each consultation documentation variable was coded yes if the specific type of data was documented for the patient or no if it was not. The documentation data recorded were: reason for consultation, medical diagnosis, historian, previous evaluation by dentist, dental home recorded, dental home identified, dietary habits, oral hygiene routine, fluoride use, oral habits, history of dental trauma, temporomandibular joint symptoms, limited opening, soft tissue exam, oral hygiene with status, dentition, presence of oral or orthodontic appliances, restorations, caries presence, cooperation/behavior, dental pathology, treatment recommendation, location of consultation, products dispensed, caries risk status, discussion of oral hygiene instruction, diet advice, mucositis prevention, bruxism management, treatment options, follow-up plan, and treatment performed.

For oral hygiene documentation: If there was no classification of good, average, or poor for oral hygiene, it was still considered to be documented if the consultation report mentioned plaque or calculus levels.

#### Dental Anticipatory Guidance Discussed

Seven individual variables for dental anticipatory guidance were collected. Each variable was coded yes if the dental anticipatory guidance was listed as discussed with the patient or no if it was not listed. The following were the types of dental anticipatory guidance recorded: oral hygiene instructions, diet, mucositis prevention, bruxing, treatment and/or treatment options, other, and none.

#### DCT Utilization:

DCT utilization was collected as an indicator variable that was coded yes if the consultation template was determined to be used and no if it was not. The formatting of the consultation document indicated to the reviewer whether or not the consultation template had been used during the patient encounter. For example, the subheadings in the consultation note were identical and in the same order when the DCT was used.

#### Follow-up Consultations

Some patients received multiple consultations within one hospital admission. For these patients, the first consultation was documented and each additional consultation was considered a “follow-up” consultation and not a separate consultation entry.

Dental Outcomes: For follow-ups of dental problems identified during the baseline dental consultation (e.g., monitoring soft tissue healing after self-inflicted trauma), “no outcome” was documented. If the follow-up was in relation to a dental problem not previously diagnosed at the baseline consultation, it was considered a “dental outcome”, an example being a cavity or dental abscess not previously diagnosed in the baseline consultation.

### *Data Analysis*

All data for this study was entered into a secure web database, REDCap™ (6.4.4) (Institute of Translational Health Services, Vanderbilt University, Nashville, TN, USA) and exported into Stata™ (12.1) (StataCorp LP, College Station, TX, USA) for analysis.

Descriptive statistics were calculated for all variables. Counts and percentages were calculated for all categorical variables and means and standard deviations for age. Associations with types of data documented in the consultation and whether the DCT was utilized was tested using a Chi-square Test or a Fisher’s Exact Test (if expected cell counts were less than 5).

## Results

A total of 629 inpatient consultations were recorded in the logbook from May 1, 2009 until May 31, 2013 of which 62 (10%) were follow-up entries for a specific patient's original consultation. Seventy-three consultations were performed in the 8 months in 2009, 139 consultations in 2010, 157 in 2011, 171 in 2012, and 89 in the 5 months in 2013. Number of follow-up consultations ranged from zero to seven per patient. Of the 62 follow-up consultations, only 15 had dental outcomes documented. Twelve attending pediatric dentists and 28 dental residents provided consultations during the study period.

### *Patient Demographics by Services Requesting Consultation*

There were 567 original consultations recorded on 516 unique patients. Patient ages ranged from 0.01 to 24.90 years old with a mean age of 10.23 years (Standard Deviation (SD) = 6.12). The majority of patients were male (56.1%), had Medicaid as payer type (57.8%), did not require an interpreter (83.6%), and had a dental home (67.7%). The DCT was utilized in a majority of all consultations (61.5%). Services most frequently requesting consultations were: Hematology Oncology (50.6%), Pediatric Medicine (22.4%), Transplant Oncology (5.8%), Surgery (4.6%), PICU (3.9%), and Psychiatry (3.7%). (Table 1)

### *Consultation Location and Count by Services Requesting Consultation*

Nearly all consultations (94.0%) were done in the patient's hospital room. The majority of patients (83.4%) had only one consultation. A number of patients required two consultations. The hospital services requesting these were: Hematology-Oncology (12.9%), Pediatric Medicine (11.0%), Transplant Oncology (21.1%), Surgical Services (23.1%), PICU (9.1%), Cardiology (18.2%), Health, Behavior, and Development (75.0%),

and Rheumatology (33.3%). For patients requiring three consultations, the service requesting these were: Hematology-Oncology (3.1%), Pediatric Medicine (4.7%), Transplant Oncology (6.1%), and Rehabilitation Services (7.7%). Hematology-Oncology (1.1%) and Transplant Oncology (3.0%) requested four consultations on individual patients. (Table 2)

#### *Reason for Consultation by Services Requesting Consultation*

The most frequent reasons for requesting an inpatient consultation were: baseline examination (47.3%), soft tissue concern (14.3%), dental pain (14.1%), and caries or caries related infection (7.4%). Baseline consultations were most frequently requested by Hematology-Oncology (73.5%), Transplant Oncology (54.6%), and Cardiology (72.7%). Consultations for soft tissue concerns were most frequently requested by: Pediatric Medicine (29.1%), Transplant Oncology (30.3%), and PICU (27.3%). Consultations for dental pain were most frequently requested by: Psychiatry Service (47.6%), Rehabilitation Service (30.8%), Pulmonary Services (33.3%) and Rheumatology (66.7%). Consultations for caries or caries related infections were most frequently requested by: Health, Behavior, and Development (75.0%), Craniofacial (66.7%), and Neurology (25.0%). (Table 3)

#### *Dental pathology by Services Requesting Consultation*

Some form of dental pathology was detected during 55.9% of all dental consultations. Patients receiving dental consultations requested by Health, Behavior, and Development Service, Gastroenterology, and Other Services had dental pathology detected in all cases (100%). Patients of the Hematology-Oncology service were the only patient group in which no dental pathology was found in the majority of patients (60.0%). (Table 4)

The most common dental findings were: no dental pathology identified (44.1%), caries or caries-related infection (23.6%), and erupting/exfoliating tooth (12.0%). No dental pathology was most frequently found in consultations requested by: Hematology-Oncology (60.0%), Transplant Oncology (45.5%), and Cardiology (45.5%). Caries or caries related infection was most frequently found in consultations requested by: Pediatric Medicine (29.1%), Psychiatry Services (42.9%), Craniofacial (33.3%), and Health, Behavior, and Development (50.0%). Erupting/exfoliating teeth were most frequently found in consultations requested by: Pediatric Medicine (20.5%), PICU (27.3%), Rehabilitation Services (15.4%), Other Services (40.0%), Health, Behavior, and Development (25.0%), Craniofacial Services (33.3%), and Rheumatology (33.3%). (Table 4)

#### *Treatment Delivered by Services Requesting Consultation*

The most frequent treatments performed were: examination only (90.3%), extractions (3.4%), and orthodontic appliance removal (2.5%). An examination only was the most frequent dental treatment performed in consultations for all services: Hematology-Oncology (94.4%), Pediatric Medicine (81.1%), Transplant Oncology (93.9%), Surgical Services (96.2%), PICU (77.3%), Psychiatry Services (90.5%), Rehabilitation Services (92.3%), Cardiology (100.0%), Other Services (100.0%), Neurology (50.0%), Health, Behavior, and Development (75.0%), Pulmonary Services (100.0%), Craniofacial Services (100.0%), Rheumatology Services (100.0%), Nephrology Services (66.7%), and Gastroenterology (100.0%). Extractions were most frequently performed for patients of: Pediatric Medicine (9.4%), PICU (9.1%), Neurology (25.0%), and Health, Behavior, and Development (25.0%). An orthodontic appliance was removed frequently for: Hematology-

Oncology (2.8%), Transplant Oncology (3.0%), the PICU (4.6%), Rehabilitation Services (7.7%), and Neurology (25.0%). (Table 5)

*Associations between Data Documented on Consultation with the DCT versus without the DCT*

For nearly all consultations, there was more comprehensive documentation when the DCT was used. The largest disparity in data documented in consultations with the DCT versus without the DCT were: dietary habits (63.0% with, 6.7% without,  $p < 0.01$ ), oral hygiene routine (78.0% with, 14.3% without,  $p < 0.01$ ), and fluoride use (62.2% with, 4.0% without,  $p < 0.01$ ).

In almost all consultations, reason for consultation (98.6% with, 99.1% without,  $p = 0.71$ ), dental pathology (99.7% with, 99.1% without,  $p = 0.56$ ), treatment recommended (99.4% with, 99.6 without,  $p = 1.00$ ), location of consultation (99.2% with, 98.7% without,  $p = 0.08$ ), and follow-up plan (99.7% with, 97.8% without,  $p = 0.04$ ), and treatment delivered (100% with, 99.1% without,  $p = 0.15$ ) were recorded regardless of DCT utilization. (Table 6)

When analysis was restricted to baseline consultations, results were similar to those found for all consultations. Four types of documented information were significantly different when analyzing all consultations but did not differ significantly when considering baseline consultations only: presence of oral/orthodontic appliance (13.6% with, 7.1% without,  $p = 0.02$  for all consultations; 15.5% with, 8.6% without,  $p = 0.13$  for baseline consultations), restorations recorded (32.5% with, 17.9% without,  $p < 0.01$  for all consultations; 33.7% with, 22.2% without,  $p = 0.06$  for baseline consultations), caries risk status recorded (4.5% with, 0.5% without,  $p < 0.01$  for all consultations; 5.4% with, 1.2% without,  $p = 0.18$  for baseline consultations), and discussion of OHI (50.6% with, 36.6%

without,  $p < 0.01$  for all consultations; 64.7% with, 61.7% without,  $p = 0.64$  for baseline consultations). (Tables 6 and 7)

## **Discussion**

This study was the second research project to focus on inpatient dental consultations at SCH. Dr. Kanuga analyzed 155 consultations performed during 2007. At that time, the most frequently requesting services were Hematology-Oncology (37%), Transplant Oncology (17%), and Pediatric Medicine (12%) and the most frequent reason was a baseline consultation (33%). The most common diagnoses were soft tissue concerns (45%), caries (23%), and no dental pathology (19%). As a result of that study, the DCT was created and made available to improve the consultation process and documentation.

The current study examined all inpatient dental consultations at SCH from 2009 to 2013. Many results are similar to the previous study. Hematology-Oncology (50.6%), Transplant Oncology (5.8%), and Pediatric Medicine (22.4%) are the most frequently requesting services. Baseline consultations remain the primary reason for requesting consultation (47.3%). The finding of dental caries remained fairly constant (23.6%). The most frequent dental service performed was an examination including preventative services (96.2%)

### *Dental pathology by Services Requesting Consultation*

Dr. Nicopoulos concluded from her study in 2002, that patients who are acutely or chronically compromised have a higher percentage of unmet dental needs than their healthy peers. In her study, 43% of medically complex patients had unmet dental needs. The 2012 National Health Interview Survey (NHIS) estimated 6% of all children to have unmet dental needs. (Bloom, Jones, and Freeman 2013) In the present study, 55.9% of all patients receiving inpatient dental consultations had unmet dental needs. Among the

services requesting dental consultations, Hematology-Oncology (40.0% unmet dental needs), Transplant Oncology (54.5% unmet dental needs), and Surgery Services (65.4% unmet dental needs) may most accurately reflect the true dental needs of hospital inpatients, because the majority of the requested consultations by these services were baseline evaluations.

Caries was the most common dental pathology for: Hematology-Oncology (20.9%), Pediatric Medicine (29.1%), Surgery Services (26.9%), Psychiatry Services (42.9%), Cardiology (27.3%), and Health, Behavior, and Development (50.0%). For any child, untreated dental caries can lead to infection. In a child who is medically compromised, untreated dental caries can lead to unnecessary complications and delay life-saving treatments, such as a stem cell transplant. (American Academy of Pediatric Dentistry 2014)

#### *Associations between Data Documented on Consultation and Services Requesting Consultation*

Statistically significant differences in documentation were found comparing baseline consultations done using the DCT to those without the DCT. The most dramatic differences were documentation of: oral hygiene routine (78.6% vs. 18.5%, p-value <0.01), fluoride use (66.8% vs. 6.1%, p-value <0.01), and dietary habits (61.5% vs. 2.5%, p-value <0.01). Oral hygiene routine, fluoride use, and dietary habits are key indicators in a caries risk assessment, along with dental home and existing restorations or caries.

Most dental consultations (94.0%) were completed in the patient's room with the patient in bed. Small caries lesions and tooth-colored restorations may be difficult to see under conditions with limited lighting and oral access. In cases presenting the dentist with a challenging environment for clinical examination, the CRA is critical for predicting a patient's dental needs. We found a wide range of dental services were provided during or following consultations including anticipatory guidance, radiographs, restorations, and extractions.

Although this study included a large number of consultations completed by many different providers (12 attendings and 28 residents), documentation was above 95% for: reason for the consultation ordered, historian, dental pathology, treatment recommended, location of consultation, follow up plan, and treatment delivered, regardless of DCT use. Caries risk assessment, behavior, and oral habits were less consistently reported, even when the DCT was used.

This study found limited information about follow-up after dental consultations. Using the CPI philosophy, consultation follow-up presents an opportunity for change. Qualities of a system to track patients with dental needs identified during consultation include: automatic electronic tracking, readily accessible to medical and dental teams, and recurring prompts to remind providers until treatment needs are fully addressed.

As a result of this study, the DCT is currently under review within the SCH Department of Dentistry. The present DCT could be modified to use for baseline consultations by reorganizing items related to caries risk assessment, forcing consultants to classify caries risk, simplifying examination of occlusion, and increasing ease of use by

providing items to circle and minimizing areas of free text. A problem-focused DCT is needed with ease of use features for the most commonly found dental pathology (caries, soft tissue concerns, exfoliating/erupting teeth). An electronic DCT, eliminating the need for consultants to dictate consultations, would be ideal.

### *Limitations*

This study is limited by assessing quality of dental consultation through a report dictated into the EMR. For example, it is possible that caries risk or oral hygiene habits were assessed, but not recorded. Consultations may have been completed but not reported in the logbook, underestimating the busyness of the consultation service. The system in use during the study period did not permit ready tracking of consultation follow-ups and outcomes.

### *Conclusions*

- Inpatient dental consultations are requested for reasons similar to the previous study done at SCH.
- The DCT was used for 61.2% of all consultations and 69.8% of baseline consultations.
- Use of the DCT improved documentation of factors key to Caries Risk Assessment.
- This study exposed weaknesses in tracking patients following dental consultations, preventing comprehensive outcome assessment.
- The evolution of the DCT at SCH is an example of using CPI principles to improve patient care.

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## Tables

**Table 1. Demographics by Requesting Service.**

|                                  | <b>All Consultations<br/>(N=567)</b> | <b>Hematology-<br/>Oncology<br/>(N=287)</b> | <b>Pediatric<br/>Medicine<br/>(N=127)</b> | <b>Transplant<br/>Oncology<br/>(N=33)</b> |
|----------------------------------|--------------------------------------|---|---|---|
|                                  | N (%)                                | N (%)                                       | N (%)                                     | N (%)                                     |
| <b>Number of unique patients</b> | 516 (91.0)                           | 264 (92.0)                                  | 116 (91.3)                                | 25 (75.8)                                 |
| <b>DCT Used</b>                  | 348 (61.5)                           | 192 (66.9)                                  | 74 (58.7)                                 | 15 (45.5)                                 |
| <b>Gender</b>                    |                                      |   |   |   |
| Male                             | 318 (56.1)                           | 156 (54.4)                                  | 70 (55.1)                                 | 22 (66.7)                                 |
| Female                           | 249 (43.9)                           | 131 (45.6)                                  | 57 (44.9)                                 | 11 (33.3)                                 |
| <b>Age (years)</b>               |                                      |   |   |   |
|                                  | Mean (sd)<br><range>                 | Mean (sd)<br><range>                        | Mean (sd)<br><range>                      | Mean (sd)<br><range>                      |
|                                  | 10.23 (6.12)<br><0.01, 24.90>        | 10.49 (6.31)<br><0.02, 24.90>               | 9.47 (5.58)<br><0.01, 20.87>              | 9.03 (6.64)<br><0.36, 20.06>              |
|                                  | N (%)                                | N (%)                                       | N (%)                                     | N (%)                                     |
| 0-5                              | 182 (32.0)                           | 92 (32.1)                                   | 44 (34.6)                                 | 14 (42.4)                                 |
| 6-10                             | 116 (20.5)                           | 52 (18.1)                                   | 33 (26.0)                                 | 6 (18.2)                                  |
| 11-16                            | 172 (30.3)                           | 85 (29.6)                                   | 36 (28.4)                                 | 7 (21.2)                                  |
| 17-20                            | 88 (15.5)                            | 51 (17.8)                                   | 14 (11.0)                                 | 6 (18.2)                                  |
| 21+                              | 9 (1.6)                              | 7 (2.4)                                     | 0 (0.0)                                   | 0 (0.0)                                   |
| <b>Interpreter was Needed</b>    | 93 (16.4)                            | 48 (16.7)                                   | 25 (19.7)                                 | 4 (12.1)                                  |
| <b>Insurance/Payer Type</b>      |                                      |   |   |   |
| Medicaid                         | 328 (57.8)                           | 142 (49.5)                                  | 85 (66.9)                                 | 17 (51.5)                                 |
| Private insurance                | 222 (39.2)                           | 135 (47.0)                                  | 40 (31.5)                                 | 16 (48.4)                                 |
| Self-pay                         | 2 (0.4)                              | 1 (0.4)                                     | 0 (0.0)                                   | 0 (0.0)                                   |
| Charity                          | 15 (2.6)                             | 9 (3.1)                                     | 2 (1.6)                                   | 0 (0.0)                                   |
| <b>Have a Dental Home</b>        | 323 (67.7)                           | 197 (68.6)                                  | 59 (57.3)                                 | 14 (42.4)                                 |

**Table 1. Demographics by Requesting Service, contd.**

|                                  | <b>Surgery<br/>(N=26)</b>       | <b>PICU<br/>(N=22)</b>          | <b>Psychiatry<br/>(N=21)</b>  | <b>Rehabilitation<br/>(N=13)</b> |
|----------------------------------|---------------------------------|---------------------------------|-------------------------------|----------------------------------|
|                                  | N (%)                           | N (%)                           | N (%)                         | N (%)                            |
| <b>Number of unique patients</b> | 22 (84.6)                       | 21 (95.5)                       | 21 (100.0)                    | 12 (92.3)                        |
| <b>DCT Used</b>                  | 14 (53.9)                       | 9 (40.9)                        | 14 (66.7)                     | 8 (61.5)                         |
| <b>Gender</b>                    |                                 |                                 |                               |                                  |
| Male                             | 16 (61.5)                       | 14 (63.6)                       | 13 (61.9)                     | 5 (38.5)                         |
| Female                           | 10 (38.5)                       | 8 (36.4)                        | 8 (38.1)                      | 8 (61.5)                         |
| <b>Age (years)</b>               |                                 |                                 |                               |                                  |
|                                  | Mean (sd)<br><range>            | Mean (sd)<br><range>            | Mean (sd)<br><range>          | Mean (sd)<br><range>             |
|                                  | 9.00 (5.04)<br><1.89,<br>17.72> | 9.60 (6.53)<br><0.01,<br>18.28> | 13.19 (4.06)<br><4.22, 18.59> | 12.44 (4.21)<br><4.98, 17.21>    |
|                                  | N (%)                           | N (%)                           | N (%)                         | N (%)                            |
| 0-5                              | 8 (30.7)                        | 8 (36.4)                        | 1 (4.8)                       | 1 (7.7)                          |
| 6-10                             | 9 (34.6)                        | 3 (13.6)                        | 5 (23.8)                      | 4 (30.8)                         |
| 11-16                            | 8 (30.7)                        | 8 (36.4)                        | 10 (47.6)                     | 7 (53.8)                         |
| 17-20                            | 1 (3.8)                         | 3 (13.6)                        | 5 (23.8)                      | 1 (7.7)                          |
| 21+                              | 0 (0.0)                         | 0 (0.0)                         | 0 (0.0)                       | 0 (0.0)                          |
| <b>Interpreter was Needed</b>    | 1 (3.8)                         | 3 (13.6)                        | 2 (9.5)                       | 2 (15.4)                         |
| <b>Insurance/Payer Type</b>      |                                 |                                 |                               |                                  |
| Medicaid                         | 14 (53.9)                       | 16 (72.7)                       | 16 (76.2)                     | 10 (76.9)                        |
| Private insurance                | 10 (38.5)                       | 6 (27.7)                        | 5 (23.8)                      | 3 (23.1)                         |
| Self-pay                         | 0 (0.0)                         | 0 (0.0)                         | 0 (0.0)                       | 0 (0.0)                          |
| Charity                          | 2 (7.7)                         | 0 (0.0)                         | 0 (0.0)                       | 0 (0.0)                          |
| <b>Have a Dental Home</b>        | 9 (34.6)                        | 8 (36.4)                        | 10 (47.6)                     | 7 (63.6)                         |

**Table 1. Demographics by Requesting Service, contd.**

|                                  | <b>Cardiology<br/>(N=11)</b>  | <b>Other<br/>(N=5)</b>             | <b>Neurology<br/>(N=4)</b>    | <b>Health, Behavior,<br/>and<br/>Development<br/>(N=4)</b> |
|----------------------------------|-------------------------------|------------------------------------|-------------------------------|--|
|                                  | N (%)                         | N (%)                              | N (%)                         | N (%)  |
| <b>Number of unique patients</b> | 10 (90.9)                     | 5 (100.0)                          | 4 (100.0)                     | 3 (75.0)   |
| <b>DCT Used</b>                  | 5 (45.5)                      | 3 (60.0)                           | 2 (50.0)                      | 3 (75.0)   |
| <b>Gender</b>                    |                               |                                    |                               |  |
| Male                             | 6 (54.6)                      | 2 (40.0)                           | 4 (100.0)                     | 3 (75.0)   |
| Female                           | 5 (45.5)                      | 3 (60.0)                           | 0 (0.0)                       | 1 (25.0)   |
| <b>Age (years)</b>               |                               |                                    |                               |  |
|                                  | Mean (sd)<br><range>          | Mean (sd)<br><range>               | Mean (sd)<br><range>          | Mean (sd) <range>  |
|                                  | 13.32 (5.34)<br><4.64, 19.11> | 5.12<br>(6.85)<br><0.03,<br>16.77> | 13.27 (5.23)<br><5.71, 17.69> | 7.50 (8.41)<br><1.99, 19.75>                               |
|                                  | N (%)                         | N (%)                              | N (%)                         | N (%)  |
| 0-5                              | 2 (18.2)                      | 4 (80.0)                           | 1 (25.0)                      | 2 (50.0)   |
| 6-10                             | 1 (9.1)                       | 0 (0.0)                            | 0 (0.0)                       | 1 (25.0)   |
| 11-16                            | 4 (36.3)                      | 1 (20.0)                           | 2 (50.0)                      | 0 (0.0)  |
| 17-20                            | 4 (36.3)                      | 0 (0.0)                            | 1 (25.0)                      | 1 (25.0)   |
| 21+                              | 0 (0.0)                       | 0 (0.0)                            | 0 (0.0)                       | 0 (0.0)  |
| <b>Interpreter was Needed</b>    | 3 (27.3)                      | 1 (20.0)                           | 0 (0.0)                       | 2 (50.0)   |
| <b>Insurance/Payer Type</b>      |                               |                                    |                               |  |
| Medicaid                         | 9 (81.8)                      | 3 (60.0)                           | 2 (50.0)                      | 4 (100.0)  |
| Private insurance                | 2 (18.2)                      | 1 (20.0)                           | 2 (50.0)                      | 0 (0.0)  |
| Self-pay                         | 0 (0.0)                       | 0 (0.0)                            | 0 (0.0)                       | 0 (0.0)  |
| Charity                          | 0 (0.0)                       | 1 (20.0)                           | 0 (0.0)                       | 0 (0.0)  |
| <b>Have a Dental Home</b>        | 7 (63.6)                      | 2 (40.0)                           | 3 (75.0)                      | 2 (50.0)   |

**Table 1. Demographics by Requesting Service, contd.**

|                                  | <b>Pulmonary<br/>(N=3)</b>        | <b>Craniofacial<br/>(N=3)</b> | <b>Rheumatology<br/>(N=3)</b> | <b>Nephrology<br/>(N=3)</b>    |
|----------------------------------|-----------------------------------|-------------------------------|-------------------------------|--------------------------------|
|                                  | N (%)                             | N (%)                         | N (%)                         | N (%)                          |
| <b>Number of unique patients</b> | 3 (100.0)                         | 3 (100.0)                     | 2 (66.7)                      | 3 (100.0)                      |
| <b>DCT Used</b>                  | 3 (100.0)                         | 2 (66.7)                      | 2 (66.7)                      | 2 (66.7)                       |
| <b>Gender</b>                    |                                   |                               |                               |                                |
| Male                             | 2 (66.7)                          | 1 (33.3)                      | 1 (33.3)                      | 2 (66.7)                       |
| Female                           | 1 (33.3)                          | 2 (66.7)                      | 2 (66.7)                      | 1 (33.3)                       |
| <b>Age (years)</b>               |                                   |                               |                               |                                |
|                                  | Mean (sd)<br><range>              | Mean (sd)<br><range>          | Mean (sd)<br><range>          | Mean (sd)<br><range>           |
|                                  | 18.17 (3.09)<br><16.17,<br>21.74> | 2.83 (3.74)<br><0.01, 7.08>   | 10.45 (7.51)<br><2.26, 16.99> | 12.90 (10.81)<br><3.25, 24.58> |
|                                  | N (%)                             | N (%)                         | N (%)                         | N (%)                          |
| 0-5                              | 0 (0.0)                           | 2 (66.7)                      | 1 (33.3)                      | 1 (33.3)                       |
| 6-10                             | 0 (0.0)                           | 1 (33.3)                      | 0 (0.0)                       | 1 (33.3)                       |
| 11-16                            | 2 (66.7)                          | 0 (0.0)                       | 2 (66.7)                      | 0 (0.0)                        |
| 17-20                            | 0 (0.0)                           | 0 (0.0)                       | 0 (0.0)                       | 0 (0.0)                        |
| 21+                              | 1 (33.3)                          | 0 (0.0)                       | 0 (0.0)                       | 1 (33.4)                       |
| <b>Interpreter was Needed</b>    | 0 (0.0)                           | 0 (0.0)                       | 1 (33.3)                      | 1 (33.3)                       |
| <b>Insurance/Payer Type</b>      |                                   |                               |                               |                                |
| Medicaid                         | 2 (66.7)                          | 3 (100.0)                     | 2 (66.7)                      | 2 (66.7)                       |
| Private insurance                | 1 (33.3)                          | 0 (0.0)                       | 0 (0.0)                       | 0 (0.0)                        |
| Self-pay                         | 0 (0.0)                           | 0 (0.0)                       | 0 (0.0)                       | 1 (33.3)                       |
| Charity                          | 0 (0.0)                           | 0 (0.0)                       | 1 (33.3)                      | 0 (0.0)                        |
| <b>Have a Dental Home</b>        | 1 (33.3)                          | 0 (0.0)                       | 2 (66.7)                      | 2 (66.7)                       |

**Table 1. Demographics by Requesting Service, contd.**

|                                  |                   | <b>Gastroenterology<br/>(N=2)</b> |
|----------------------------------|-------------------|-----------------------------------|
|                                  |                   | N (%)                             |
| <b>Number of unique patients</b> |                   | 2 (100.0)                         |
| <b>DCT Used</b>                  |                   | 0 (0.0)                           |
| <b>Gender</b>                    |                   |                                   |
|                                  | Male              | 1 (50.0)                          |
|                                  | Female            | 1 (50.0)                          |
| <b>Age (years)</b>               |                   |                                   |
|                                  |                   | Mean (sd) <range>                 |
|                                  |                   | 10.48 (9.47) <4.16, 17.55>        |
|                                  |                   | N (%)                             |
|                                  | 0-5               | 1 (50.0)                          |
|                                  | 6-10              | 0 (0.0)                           |
|                                  | 11-16             | 0 (0.0)                           |
|                                  | 17-20             | 1 (50.0)                          |
|                                  | 21+               | 0 (0.0)                           |
| <b>Interpreter was Needed</b>    |                   | 0 (0.0)                           |
| <b>Insurance/Payer Type</b>      |                   |                                   |
|                                  | Medicaid          | 1 (50.0)                          |
|                                  | Private insurance | 1 (50.0)                          |
|                                  | Self-pay          | 0 (0.0)                           |
|                                  | Charity           | 0 (0.0)                           |
| <b>Have a Dental Home</b>        |                   | 0 (0.0)                           |

**Table 2. Number of Consultations and Location by Requesting Service.**

|  | All Consultations (N=567) |      | Hematology-Ontology (N=287) |      | Pediatric Medicine (N=127) |      | Transplant Oncology (N=33) |      |
|--|---------------------------|------|-----------------------------|------|----------------------------|------|----------------------------|------|
|  | N                         | %    | N                           | %    | N                          | %    | N                          | %    |
| <b>Consultation Location</b>               |                           |      |                             |      |                            |      |                            |      |
| In room                                    | 533                       | 94.0 | 271                         | 94.4 | 117                        | 93.9 | 31                         | 93.9 |
| In dental clinic                           | 28                        | 4.9  | 14                          | 4.9  | 7                          | 5.5  | 2                          | 6.1  |
| Missing data                               | 6                         | 1.1  | 2                           | 0.7  | 3                          | 2.4  | 0                          | 0.0  |
| <b>Number of Consultations per Patient</b> |                           |      |                             |      |                            |      |                            |      |
| 1  | 473                       | 83.4 | 238                         | 82.9 | 107                        | 84.3 | 23                         | 69.7 |
| 2  | 72                        | 12.7 | 37                          | 12.9 | 14                         | 11.0 | 7                          | 21.1 |
| 3  | 18                        | 3.2  | 9                           | 3.1  | 6                          | 4.7  | 2                          | 6.1  |
| 4  | 4                         | 0.7  | 3                           | 1.1  | 0                          | 0.0  | 1                          | 3.0  |

**Table 2. Number of Consultations and Location by Requesting Service, contd.**

|  | Surgery (N=26) |      | PICU (N=22) |       | Psychiatry (N=21) |       | Rehabilitation (N=13) |      |
|--|----------------|------|-------------|-------|-------------------|-------|-----------------------|------|
|  | N              | %    | N           | %     | N                 | %     | N                     | %    |
| <b>Consultation Location</b>               |                |      |             |       |                   |       |                       |      |
| In room                                    | 25             | 96.1 | 22          | 100.0 | 18                | 85.7  | 12                    | 92.3 |
| In dental clinic                           | 0              | 0.0  | 0           | 0.0   | 3                 | 14.3  | 1                     | 7.7  |
| Missing data                               | 1              | 3.9  | 0           | 0.0   | 0                 | 0.0   | 0                     | 0.0  |
| <b>Number of Consultations per Patient</b> |                |      |             |       |                   |       |                       |      |
| 1  | 20             | 76.9 | 20          | 90.9  | 21                | 100.0 | 12                    | 92.3 |
| 2  | 6              | 23.1 | 2           | 9.1   | 0                 | 0.0   | 0                     | 0.0  |
| 3  | 0              | 0.0  | 0           | 0.0   | 0                 | 0.0   | 1                     | 7.7  |
| 4  | 0              | 0.0  | 0           | 0.0   | 0                 | 0.0   | 0                     | 0.0  |

**Table 2. Number of Consultations and Location by Requesting Service, contd.**

|  | <b>Cardiology<br/>(N=11)</b> |       | <b>Other<br/>(N=5)</b> |       | <b>Neurology<br/>(N=4)</b> |       | <b>Health,<br/>Behavior,<br/>and<br/>Development<br/>(N=4)</b> |       |
|--|------------------------------|-------|------------------------|-------|----------------------------|-------|--|-------|
|  | N                            | %     | N                      | %     | N                          | %     | N  | %     |
| <b>Consultation Location</b>                   |                              |       |                        |       |                            |       |  |       |
| In room  | 11                           | 100.0 | 5                      | 100.0 | 3                          | 75.0  | 4  | 100.0 |
| In dental clinic                               | 0                            | 0.0   | 0                      | 0.0   | 1                          | 25.0  | 0  | 0.0   |
| Missing data                                   | 0                            | 0.0   | 0                      | 0.0   | 0                          | 0.0   | 0  | 0.0   |
| <b>Number of Consultations<br/>per Patient</b> |                              |       |                        |       |                            |       |  |       |
| 1  | 9                            | 81.8  | 5                      | 100.0 | 4                          | 100.0 | 1  | 25.0  |
| 2  | 2                            | 18.2  | 0                      | 0.0   | 0                          | 0.0   | 3  | 75.0  |
| 3  | 0                            | 0.0   | 0                      | 0.0   | 0                          | 0.0   | 0  | 0.0   |
| 4  | 0                            | 0.0   | 0                      | 0.0   | 0                          | 0.0   | 0  | 0.0   |

**Table 2. Number of Consultations and Location by Requesting Service, contd.**

|  | <b>Pulmonary<br/>(N=3)</b> |       | <b>Craniofacial<br/>(N3)</b> |       | <b>Rheumatology<br/>(N=3)</b> |       | <b>Nephrology<br/>(N=3)</b> |       |
|--|----------------------------|-------|------------------------------|-------|-------------------------------|-------|-----------------------------|-------|
|  | N                          | %     | N                            | %     | N                             | %     | N                           | %     |
| <b>Consultation Location</b>                       |                            |       |                              |       |                               |       |                             |       |
| In room  | 3                          | 100.0 | 3                            | 100.0 | 3                             | 100.0 | 3                           | 100.0 |
| In dental clinic                                   | 0                          | 0.0   | 0                            | 0.0   | 0                             | 0.0   | 0                           | 0.0   |
| Missing data                                       | 0                          | 0.0   | 0                            | 0.0   | 0                             | 0.0   | 0                           | 0.0   |
| <b>Number of<br/>Consultations per<br/>Patient</b> |                            |       |                              |       |                               |       |                             |       |
| 1  | 3                          | 100.0 | 3                            | 100.0 | 2                             | 66.7  | 3                           | 100.0 |
| 2  | 0                          | 0.0   | 0                            | 0.0   | 1                             | 33.3  | 0                           | 0.0   |
| 3  | 0                          | 0.0   | 0                            | 0.0   | 0                             | 0.0   | 0                           | 0.0   |
| 4  | 0                          | 0.0   | 0                            | 0.0   | 0                             | 0.0   | 0                           | 0.0   |

**Table 2. Number of Consultations and Location by Requesting Service, contd.**

|  |                  | <b>Gastroenterology<br/>(N=2)</b> |       |
|--|------------------|-----------------------------------|-------|
|  |                  | N                                 | %     |
| <b>Consultation Location</b>               |                  |                                   |       |
|  | In room          | 2                                 | 100.0 |
|  | In dental clinic | 0                                 | 0.0   |
|  | Missing data     | 0                                 | 0.0   |
| <b>Number of Consultations per Patient</b> |                  |                                   |       |
|  | 1                | 2                                 | 100.0 |
|  | 2                | 0                                 | 0.0   |
|  | 3                | 0                                 | 0.0   |
|  | 4                | 0                                 | 0.0   |

**Table 3. Reason for Consultation, by Requesting Service.**

|                                   | <b>All Consultations (N=567)</b> |             | <b>Hematology-Oncology (N=287)</b> |             | <b>Pediatric Medicine (N=127)</b> |             | <b>Transplant Oncology (N=33)</b> |             |
|-----------------------------------|----------------------------------|-------------|------------------------------------|-------------|-----------------------------------|-------------|-----------------------------------|-------------|
|                                   | N                                | %           | N                                  | %           | N                                 | %           | N                                 | %           |
| <b>Baseline</b>                   | <b>268</b>                       | <b>47.3</b> | <b>211</b>                         | <b>73.5</b> | <b>14</b>                         | <b>11.0</b> | <b>18</b>                         | <b>54.6</b> |
| Unique Patients                   | 259                              | 96.6        | 207                                | 98.1        | 14                                | 100.0       | 13                                | 72.2        |
| DCT Used                          | 187                              | 69.8        | 147                                | 69.7        | 11                                | 78.6        | 11                                | 61.1        |
| <b>Soft Tissue</b>                | <b>81</b>                        | <b>14.3</b> | <b>17</b>                          | <b>5.9</b>  | <b>37</b>                         | <b>29.1</b> | <b>10</b>                         | <b>30.3</b> |
| Unique Patients                   | 69                               | 85.2        | 12                                 | 70.6        | 35                                | 94.6        | 7                                 | 70.0        |
| DCT Used                          | 42                               | 51.9        | 13                                 | 76.5        | 19                                | 51.4        | 2                                 | 20.0        |
| <b>Dental Pain</b>                | <b>80</b>                        | <b>14.1</b> | <b>32</b>                          | <b>11.2</b> | <b>21</b>                         | <b>16.5</b> | <b>3</b>                          | <b>9.1</b>  |
| Unique Patients                   | 68                               | 85.0        | 26                                 | 81.3        | 19                                | 90.5        | 2                                 | 66.7        |
| DCT Used                          | 44                               | 55.0        | 19                                 | 59.4        | 10                                | 47.6        | 1                                 | 33.3        |
| <b>Caries</b>                     | <b>42</b>                        | <b>7.4</b>  | <b>8</b>                           | <b>2.8</b>  | <b>16</b>                         | <b>12.6</b> | <b>0</b>                          | <b>0.0</b>  |
| Unique Patients                   | 37                               | 88.1        | 5                                  | 62.5        | 16                                | 100.0       | 0                                 | 0.0         |
| DCT Used                          | 26                               | 63.4        | 3                                  | 37.5        | 11                                | 73.3        | 0                                 | 0.0         |
| <b>Erupting Teeth</b>             | <b>31</b>                        | <b>5.5</b>  | <b>7</b>                           | <b>2.4</b>  | <b>12</b>                         | <b>9.5</b>  | <b>2</b>                          | <b>6.1</b>  |
| Unique Patients                   | 26                               | 83.9        | 5                                  | 71.4        | 9                                 | 75.0        | 2                                 | 100.0       |
| DCT Used                          | 11                               | 35.5        | 3                                  | 42.9        | 6                                 | 50.0        | 0                                 | 0.0         |
| <b>Fever r/o Dental Infection</b> | <b>23</b>                        | <b>4.1</b>  | <b>6</b>                           | <b>2.1</b>  | <b>10</b>                         | <b>7.9</b>  | <b>0</b>                          | <b>0.0</b>  |
| Unique Patients                   | 20                               | 87.0        | 3                                  | 50.0        | 10                                | 100.0       | 0                                 | 0.0         |
| Template Used                     | 15                               | 65.2        | 4                                  | 66.7        | 6                                 | 60.0        | 0                                 | 0.0         |
| <b>Trauma</b>                     | <b>20</b>                        | <b>3.5</b>  | <b>4</b>                           | <b>1.4</b>  | <b>4</b>                          | <b>3.2</b>  | <b>0</b>                          | <b>0.0</b>  |
| Unique Patients                   | 18                               | 90.0        | 3                                  | 75.0        | 3                                 | 75.0        | 0                                 | 0.0         |
| DCT Used                          | 10                               | 50.0        | 2                                  | 50.0        | 3                                 | 75.0        | 0                                 | 0.0         |
| <b>Bruxism</b>                    | <b>19</b>                        | <b>3.4</b>  | <b>1</b>                           | <b>0.4</b>  | <b>11</b>                         | <b>8.7</b>  | <b>1</b>                          | <b>3.0</b>  |
| Unique Patients                   | 16                               | 84.2        | 1                                  | 100.0       | 9                                 | 81.8        | 1                                 | 100.0       |
| DCT Used                          | 7                                | 36.8        | 0                                  | 0.0         | 4                                 | 36.4        | 0                                 | 0.0         |
| <b>Bleeding</b>                   | <b>12</b>                        | <b>2.1</b>  | <b>5</b>                           | <b>1.7</b>  | <b>5</b>                          | <b>3.9</b>  | <b>0</b>                          | <b>0.0</b>  |
| Unique Patients                   | 8                                | 66.7        | 4                                  | 80.0        | 3                                 | 60.0        | 0                                 | 0.0         |
| DCT Used                          | 9                                | 75.0        | 5                                  | 100.0       | 4                                 | 80.0        | 0                                 | 0.0         |
| <b>Oral Appliance Removal</b>     | <b>4</b>                         | <b>0.7</b>  | <b>2</b>                           | <b>0.7</b>  | <b>2</b>                          | <b>1.6</b>  | <b>0</b>                          | <b>0.0</b>  |
| Unique Patients                   | 4                                | 100.0       | 2                                  | 100.0       | 2                                 | 100.0       | 0                                 | 0.0         |
| DCT Used                          | 3                                | 75.0        | 2                                  | 100.0       | 0                                 | 0.0         | 0                                 | 0.0         |

**Table 3. Reason for Consultation, by Requesting Service, contd.**

|                                   | Surgery<br>(N=26) |             | PICU<br>(N=22) |             | Psychiatry<br>(N=21) |             | Rehabilitation<br>(N=13) |             |
|-----------------------------------|-------------------|-------------|----------------|-------------|----------------------|-------------|--------------------------|-------------|
|                                   | N                 | %           | N              | %           | N                    | %           | N                        | %           |
| <b>Baseline</b>                   | <b>7</b>          | <b>26.9</b> | <b>1</b>       | <b>4.6</b>  | <b>2</b>             | <b>9.5</b>  | <b>2</b>                 | <b>15.4</b> |
| Unique Patients                   | 7                 | 100.0       | 1              | 100.0       | 2                    | 100.0       | 2                        | 100.0       |
| DCT Used                          | 5                 | 71.4        | 0              | 0.0         | 2                    | 100.0       | 2                        | 100.0       |
| <b>Soft Tissue</b>                | <b>5</b>          | <b>19.2</b> | <b>6</b>       | <b>27.3</b> | <b>0</b>             | <b>0.0</b>  | <b>1</b>                 | <b>7.7</b>  |
| Unique Patients                   | 4                 | 80.0        | 6              | 100.0       | 0                    | 0.0         | 0                        | 0.0         |
| DCT Used                          | 2                 | 40.0        | 3              | 50.0        | 0                    | 0.0         | 1                        | 100.0       |
| <b>Dental Pain</b>                | <b>3</b>          | <b>11.5</b> | <b>2</b>       | <b>9.1</b>  | <b>10</b>            | <b>47.6</b> | <b>4</b>                 | <b>30.8</b> |
| Unique Patients                   | 2                 | 66.7        | 2              | 100.0       | 10                   | 100.0       | 4                        | 100.0       |
| DCT Used                          | 1                 | 33.3        | 1              | 50.0        | 7                    | 70.0        | 2                        | 50.0        |
| <b>Caries</b>                     | <b>3</b>          | <b>11.5</b> | <b>1</b>       | <b>4.6</b>  | <b>4</b>             | <b>19.1</b> | <b>1</b>                 | <b>7.7</b>  |
| Unique Patients                   | 2                 | 66.7        | 1              | 100.0       | 4                    | 100.0       | 1                        | 100.0       |
| DCT Used                          | 2                 | 66.7        | 1              | 100.0       | 3                    | 75.0        | 0                        | 0.0         |
| <b>Erupting Teeth</b>             | <b>1</b>          | <b>3.9</b>  | <b>4</b>       | <b>18.2</b> | <b>1</b>             | <b>4.8</b>  | <b>0</b>                 | <b>0.0</b>  |
| Unique Patients                   | 1                 | 100.0       | 4              | 100.0       | 1                    | 100.0       | 0                        | 0.0         |
| DCT Used                          | 0                 | 0.0         | 0              | 0.0         | 1                    | 100.0       | 0                        | 0.0         |
| <b>Fever r/o Dental Infection</b> | <b>2</b>          | <b>7.7</b>  | <b>2</b>       | <b>9.1</b>  | <b>0</b>             | <b>0.0</b>  | <b>1</b>                 | <b>7.7</b>  |
| Unique Patients                   | 2                 | 100.0       | 2              | 100.0       | 0                    | 0.0         | 1                        | 100.0       |
| DCT Used                          | 2                 | 100.0       | 1              | 50.0        | 0                    | 0.0         | 1                        | 100.0       |
| <b>Trauma</b>                     | <b>2</b>          | <b>7.7</b>  | <b>3</b>       | <b>13.6</b> | <b>4</b>             | <b>19.1</b> | <b>3</b>                 | <b>23.1</b> |
| Unique Patients                   | 2                 | 100.0       | 3              | 100.0       | 4                    | 100.0       | 3                        | 100.0       |
| DCT Used                          | 1                 | 50.0        | 1              | 33.3        | 1                    | 25.0        | 2                        | 66.7        |
| <b>Bruxism</b>                    | <b>1</b>          | <b>3.9</b>  | <b>2</b>       | <b>9.1</b>  | <b>0</b>             | <b>0.0</b>  | <b>1</b>                 | <b>7.7</b>  |
| Unique Patients                   | 1                 | 100.0       | 1              | 50.0        | 0                    | 0.0         | 1                        | 100.0       |
| DCT Used                          | 0                 | 0.0         | 2              | 100.0       | 0                    | 0.0         | 0                        | 0.0         |
| <b>Bleeding</b>                   | <b>1</b>          | <b>3.9</b>  | <b>1</b>       | <b>4.6</b>  | <b>0</b>             | <b>0.0</b>  | <b>0</b>                 | <b>0.0</b>  |
| Unique Patients                   | 0                 | 0.0         | 1              | 100.0       | 0                    | 0.0         | 0                        | 0.0         |
| DCT Used                          | 0                 | 0.0         | 0              | 0.0         | 0                    | 0.0         | 0                        | 0.0         |
| <b>Oral Appliance Removal</b>     | <b>0</b>          | <b>0.0</b>  | <b>0</b>       | <b>0.0</b>  | <b>0</b>             | <b>0.0</b>  | <b>0</b>                 | <b>0.0</b>  |
| Unique Patients                   | 0                 | 0.0         | 0              | 0.0         | 0                    | 0.0         | 0                        | 0.0         |
| DCT Used                          | 0                 | 0.0         | 0              | 0.0         | 0                    | 0.0         | 0                        | 0.0         |

**Table 3. Reason for Consultation, by Requesting Service, contd.**

|                                       | <b>Cardiology<br/>(N=11)</b> |             | <b>Other<br/>(N=5)</b> |             | <b>Neurology<br/>(N=4)</b> |             |
|---------------------------------------|------------------------------|-------------|------------------------|-------------|----------------------------|-------------|
|                                       | N                            | %           | N                      | %           | N                          | %           |
| <b>Baseline</b>                       | <b>8</b>                     | <b>72.7</b> | <b>2</b>               | <b>40.0</b> | <b>1</b>                   | <b>25.0</b> |
| Unique Patients                       | 8                            | 100.0       | 2                      | 100.0       | 1                          | 100.0       |
| DCT Used                              | 4                            | 50.0        | 2                      | 100.0       | 1                          | 100.0       |
| <b>Soft Tissue</b>                    | <b>0</b>                     | <b>0.0</b>  | <b>1</b>               | <b>20.0</b> | <b>1</b>                   | <b>25.0</b> |
| Unique Patients                       | 0                            | 0.0         | 1                      | 100.0       | 1                          | 100.0       |
| DCT Used                              | 0                            | 0.0         | 0                      | 0.0         | 0                          | 0.0         |
| <b>Dental Pain</b>                    | <b>1</b>                     | <b>9.1</b>  | <b>0</b>               | <b>0.0</b>  | <b>1</b>                   | <b>25.0</b> |
| Unique Patients                       | 0                            | 0.0         | 0                      | 0.0         | 1                          | 100.0       |
| DCT Used                              | 0                            | 0.0         | 0                      | 0.0         | 1                          | 100.0       |
| <b>Caries</b>                         | <b>2</b>                     | <b>18.2</b> | <b>1</b>               | <b>20.0</b> | <b>1</b>                   | <b>25.0</b> |
| Unique Patients                       | 2                            | 100.0       | 1                      | 100.0       | 1                          | 25.0        |
| DCT Used                              | 1                            | 50.0        | 1                      | 100.0       | 0                          | 0.0         |
| <b>Erupting Teeth</b>                 | <b>0</b>                     | <b>0.0</b>  | <b>2</b>               | <b>40.0</b> | <b>0</b>                   | <b>0.0</b>  |
| Unique Patients                       | 0                            | 0.0         | 2                      | 100.0       | 0                          | 0.0         |
| DCT Used                              | 0                            | 0.0         | 0                      | 0.0         | 0                          | 0.0         |
| <b>Fever r/o Dental<br/>Infection</b> | <b>0</b>                     | <b>0.0</b>  | <b>0</b>               | <b>0.0</b>  | <b>0</b>                   | <b>0.0</b>  |
| Unique Patients                       | 0                            | 0.0         | 0                      | 0.0         | 0                          | 0.0         |
| DCT Used                              | 0                            | 0.0         | 0                      | 0.0         | 0                          | 0.0         |
| <b>Trauma</b>                         | <b>0</b>                     | <b>0.0</b>  | <b>0</b>               | <b>0.0</b>  | <b>0</b>                   | <b>0.0</b>  |
| Unique Patients                       | 0                            | 0.0         | 0                      | 0.0         | 0                          | 0.0         |
| DCT Used                              | 0                            | 0.0         | 0                      | 0.0         | 0                          | 0.0         |
| <b>Bruxism</b>                        | <b>0</b>                     | <b>0.0</b>  | <b>0</b>               | <b>0.0</b>  | <b>0</b>                   | <b>0.0</b>  |
| Unique Patients                       | 0                            | 0.0         | 0                      | 0.0         | 0                          | 0.0         |
| DCT Used                              | 0                            | 0.0         | 0                      | 0.0         | 0                          | 0.0         |
| <b>Bleeding</b>                       | <b>0</b>                     | <b>0.0</b>  | <b>0</b>               | <b>0.0</b>  | <b>0</b>                   | <b>0.0</b>  |
| Unique Patients                       | 0                            | 0.0         | 0                      | 0.0         | 0                          | 0.0         |
| DCT Used                              | 0                            | 0.0         | 0                      | 0.0         | 0                          | 0.0         |
| <b>Oral Appliance<br/>Removal</b>     | <b>0</b>                     | <b>0.0</b>  | <b>0</b>               | <b>0.0</b>  | <b>0</b>                   | <b>0.0</b>  |
| Unique Patients                       | 0                            | 0.0         | 0                      | 0.0         | 0                          | 0.0         |
| DCT Used                              | 0                            | 0.0         | 0                      | 0.0         | 0                          | 0.0         |

**Table 3. Reason for Consultation, by Requesting Service, contd.**

|                                       | Health, Behavior,<br>and<br>Development<br>(N=4) |             | Pulmonary<br>(N=3) |             | Craniofacial<br>(N=3) |             | Rheumatology<br>(N=3) |             |
|---------------------------------------|--|-------------|--------------------|-------------|-----------------------|-------------|-----------------------|-------------|
|                                       | N  | %           | N                  | %           | N                     | %           | N                     | %           |
| <b>Baseline</b>                       | <b>0</b>   | <b>0.0</b>  | <b>1</b>           | <b>33.3</b> | <b>0</b>              | <b>0.0</b>  | <b>0</b>              | <b>0.0</b>  |
| Unique Patients                       | 0  | 0.0         | 1                  | 100.0       | 0                     | 0.0         | 0                     | 0.0         |
| DCT Used                              | 0  | 0.0         | 1                  | 100.0       | 0                     | 0.0         | 0                     | 0.0         |
| <b>Soft Tissue</b>                    | <b>1</b>   | <b>25.0</b> | <b>0</b>           | <b>0.0</b>  | <b>0</b>              | <b>0.0</b>  | <b>1</b>              | <b>33.3</b> |
| Unique Patients                       | 1  | 100.0       | 0                  | 0.0         | 0                     | 0.0         | 1                     | 100.0       |
| DCT Used                              | 1  | 100.0       | 0                  | 0.0         | 0                     | 0.0         | 1                     | 100.0       |
| <b>Dental Pain</b>                    | <b>0</b>   | <b>0.0</b>  | <b>1</b>           | <b>33.3</b> | <b>0</b>              | <b>0.0</b>  | <b>2</b>              | <b>66.7</b> |
| Unique Patients                       | 0  | 0.0         | 1                  | 100.0       | 0                     | 0.0         | 1                     | 50.0        |
| DCT Used                              | 0  | 0.0         | 1                  | 100.0       | 0                     | 0.0         | 1                     | 50.0        |
| <b>Caries</b>                         | <b>3</b>   | <b>75.0</b> | <b>0</b>           | <b>0.0</b>  | <b>2</b>              | <b>66.7</b> | <b>0</b>              | <b>0.0</b>  |
| Unique Patients                       | 3  | 75.0        | 0                  | 0.0         | 2                     | 66.7        | 0                     | 0.0         |
| DCT Used                              | 2  | 66.7        | 0                  | 0.0         | 2                     | 100.0       | 0                     | 0.0         |
| <b>Erupting Teeth</b>                 | <b>1</b>   | <b>25.0</b> | <b>0</b>           | <b>0.0</b>  | <b>1</b>              | <b>33.3</b> | <b>0</b>              | <b>0.0</b>  |
| Unique Patients                       | 1  | 100.0       | 0                  | 0.0         | 1                     | 100.0       | 0                     | 0.0         |
| DCT Used                              | 1  | 100.0       | 0                  | 0.0         | 0                     | 0.0         | 0                     | 0.0         |
| <b>Fever r/o Dental<br/>Infection</b> | <b>0</b>   | <b>0.0</b>  | <b>1</b>           | <b>33.3</b> | <b>0</b>              | <b>0.0</b>  | <b>0</b>              | <b>0.0</b>  |
| Unique Patients                       | 0  | 0.0         | 1                  | 100.0       | 0                     | 0.0         | 0                     | 0.0         |
| DCT Used                              | 0  | 0.0         | 1                  | 100.0       | 0                     | 0.0         | 0                     | 0.0         |
| <b>Trauma</b>                         | <b>0</b>   | <b>0.0</b>  | <b>0</b>           | <b>0.0</b>  | <b>0</b>              | <b>0.0</b>  | <b>0</b>              | <b>0.0</b>  |
| Unique Patients                       | 0  | 0.0         | 0                  | 0.0         | 0                     | 0.0         | 0                     | 0.0         |
| DCT Used                              | 0  | 0.0         | 0                  | 0.0         | 0                     | 0.0         | 0                     | 0.0         |
| <b>Bruxism</b>                        | <b>0</b>   | <b>0.0</b>  | <b>0</b>           | <b>0.0</b>  | <b>0</b>              | <b>0.0</b>  | <b>0</b>              | <b>0.0</b>  |
| Unique Patients                       | 0  | 0.0         | 0                  | 0.0         | 0                     | 0.0         | 0                     | 0.0         |
| DCT Used                              | 0  | 0.0         | 0                  | 0.0         | 0                     | 0.0         | 0                     | 0.0         |
| <b>Bleeding</b>                       | <b>0</b>   | <b>0.0</b>  | <b>0</b>           | <b>0.0</b>  | <b>0</b>              | <b>0.0</b>  | <b>0</b>              | <b>0.0</b>  |
| Unique Patients                       | 0  | 0.0         | 0                  | 0.0         | 0                     | 0.0         | 0                     | 0.0         |
| DCT Used                              | 0  | 0.0         | 0                  | 0.0         | 0                     | 0.0         | 0                     | 0.0         |
| <b>Oral Appliance<br/>Removal</b>     | <b>0</b>   | <b>0.0</b>  | <b>0</b>           | <b>0.0</b>  | <b>0</b>              | <b>0.0</b>  | <b>0</b>              | <b>0.0</b>  |
| Unique Patients                       | 0  | 0.0         | 0                  | 0.0         | 0                     | 0.0         | 0                     | 0.0         |
| DCT Used                              | 0  | 0.0         | 0                  | 0.0         | 0                     | 0.0         | 0                     | 0.0         |

**Table 3. Reason for Consultation, by Requesting Service, contd.**

|                                   | Nephrology<br>(N=3) |             | Gastroenterology<br>(N=2) |             |
|-----------------------------------|---------------------|-------------|---------------------------|-------------|
|                                   | N                   | %           | N                         | %           |
| <b>Baseline</b>                   | <b>1</b>            | <b>33.3</b> | <b>0</b>                  | <b>0.0</b>  |
| Unique Patients                   | 1                   | 100.0       | 0                         | 0.0         |
| DCT Used                          | 1                   | 100.0       | 0                         | 0.0         |
| <b>Soft Tissue</b>                | <b>1</b>            | <b>33.3</b> | <b>0</b>                  | <b>0.0</b>  |
| Unique Patients                   | 1                   | 100.0       | 0                         | 0.0         |
| DCT Used                          | 0                   | 0.0         | 0                         | 0.0         |
| <b>Dental Pain</b>                | <b>0</b>            | <b>0.0</b>  | <b>0</b>                  | <b>0.0</b>  |
| Unique Patients                   | 0                   | 0.0         | 0                         | 0.0         |
| DCT Used                          | 0                   | 0.0         | 0                         | 0.0         |
| <b>Caries</b>                     | <b>0</b>            | <b>0.0</b>  | <b>0</b>                  | <b>0.0</b>  |
| Unique Patients                   | 0                   | 0.0         | 0                         | 0.0         |
| DCT Used                          | 0                   | 0.0         | 0                         | 0.0         |
| <b>Erupting Teeth</b>             | <b>0</b>            | <b>0.0</b>  | <b>0</b>                  | <b>0.0</b>  |
| Unique Patients                   | 0                   | 0.0         | 0                         | 0.0         |
| DCT Used                          | 0                   | 0.0         | 0                         | 0.0         |
| <b>Fever r/o Dental Infection</b> | <b>0</b>            | <b>0.0</b>  | <b>1</b>                  | <b>50.0</b> |
| Unique Patients                   | 0                   | 0.0         | 1                         | 100.0       |
| DCT Used                          | 0                   | 0.0         | 0                         | 0.0         |
| <b>Trauma</b>                     | <b>0</b>            | <b>0.0</b>  | <b>0</b>                  | <b>0.0</b>  |
| Unique Patients                   | 0                   | 0.0         | 0                         | 0.0         |
| DCT Used                          | 0                   | 0.0         | 0                         | 0.0         |
| <b>Bruxism</b>                    | <b>1</b>            | <b>33.3</b> | <b>1</b>                  | <b>50.0</b> |
| Unique Patients                   | 1                   | 100.0       | 1                         | 100.0       |
| DCT Used                          | 1                   | 100.0       | 0                         | 0.0         |
| <b>Bleeding</b>                   | <b>0</b>            | <b>0.0</b>  | <b>0</b>                  | <b>0.0</b>  |
| Unique Patients                   | 0                   | 0.0         | 0                         | 0.0         |
| DCT Used                          | 0                   | 0.0         | 0                         | 0.0         |
| <b>Oral Appliance Removal</b>     | <b>0</b>            | <b>0.0</b>  | <b>0</b>                  | <b>0.0</b>  |
| Unique Patients                   | 0                   | 0.0         | 0                         | 0.0         |
| DCT Used                          | 0                   | 0.0         | 0                         | 0.0         |

**Table 4. Dental Pathology, by Requesting Service.**

|                                 | <b>All Consultations (N=567)</b> |      | <b>Hematology-Oncology (N=287)</b> |      | <b>Pediatric Medicine (N=127)</b> |      | <b>Transplant Oncology (N=33)</b> |      | <b>Surgery (N=26)</b> |      |
|---------------------------------|----------------------------------|------|------------------------------------|------|-----------------------------------|------|-----------------------------------|------|-----------------------|------|
|                                 | N                                | %    | N                                  | %    | N                                 | %    | N                                 | %    | N                     | %    |
| <b>No Dental Pathology</b>      | 250                              | 44.1 | 172                                | 60.0 | 31                                | 24.4 | 15                                | 45.5 | 9                     | 34.6 |
| <b>Dental Pathology</b>         |                                  |      |                                    |      |                                   |      |                                   |      |                       |      |
| Caries/Caries Related Infection | 134                              | 23.6 | 60                                 | 20.9 | 37                                | 29.1 | 4                                 | 12.1 | 7                     | 26.9 |
| Erupting/Exfoliating Tooth      | 68                               | 12.0 | 22                                 | 7.7  | 26                                | 20.5 | 4                                 | 12.1 | 2                     | 7.7  |
| Mucositis                       | 32                               | 5.6  | 14                                 | 4.9  | 8                                 | 6.3  | 6                                 | 18.2 | 0                     | 0.0  |
| Gingivitis                      | 29                               | 5.1  | 11                                 | 3.8  | 8                                 | 6.3  | 3                                 | 9.1  | 2                     | 7.7  |
| Self-Inflicted Trauma           | 17                               | 3.0  | 1                                  | 0.4  | 10                                | 7.9  | 0                                 | 0.0  | 0                     | 0.0  |
| Bruxism/TMD                     | 17                               | 3.0  | 2                                  | 0.7  | 6                                 | 4.7  | 1                                 | 3.0  | 3                     | 11.5 |
| Accidental Trauma               | 15                               | 2.6  | 3                                  | 1.1  | 3                                 | 2.4  | 0                                 | 0.0  | 3                     | 11.5 |
| Orthodontic                     | 10                               | 1.8  | 3                                  | 1.1  | 1                                 | 0.8  | 0                                 | 0.0  | 0                     | 0.0  |
| Non-reversible/Necrotic Pulp    | 5                                | 0.9  | 2                                  | 0.7  | 2                                 | 1.6  | 0                                 | 0.0  | 0                     | 0.0  |
| Failing Restorations            | 5                                | 0.9  | 3                                  | 1.1  | 1                                 | 0.8  | 0                                 | 0.0  | 0                     | 0.0  |
| Periodontal Disease             | 5                                | 0.9  | 2                                  | 0.7  | 2                                 | 1.6  | 0                                 | 0.0  | 0                     | 0.0  |
| Malocclusion                    | 1                                | 0.2  | 1                                  | 0.4  | 0                                 | 0    | 0                                 | 0.0  | 0                     | 0.0  |
| Graft vs. Host Disease          | 1                                | 0.2  | 0                                  | 0.0  | 0                                 | 0.0  | 1                                 | 3.0  | 0                     | 0.0  |

**Table 4. Dental Pathology, by Requesting Service, contd.**

|                                 | PICU<br>(N=22) |      | Psychiatry<br>(N=21) |      | Rehabilitation<br>(N=13) |      | Cardiology<br>(N=11) |      |
|---------------------------------|----------------|------|----------------------|------|--------------------------|------|----------------------|------|
|                                 | N              | %    | N                    | %    | N                        | %    | N                    | %    |
| <b>No Dental Pathology</b>      | 4              | 18.2 | 4                    | 19.1 | 5                        | 38.5 | 5                    | 45.5 |
| <b>Dental Pathology</b>         |                |      |                      |      |                          |      |                      |      |
| Caries/Caries Related Infection | 5              | 22.7 | 9                    | 42.9 | 2                        | 15.4 | 3                    | 27.3 |
| Erupting/Exfoliating Tooth      | 6              | 27.3 | 1                    | 4.8  | 2                        | 15.4 | 0                    | 0.0  |
| Mucositis                       | 0              | 0.0  | 0                    | 0.0  | 0                        | 0.0  | 0                    | 0.0  |
| Gingivitis                      | 1              | 4.6  | 3                    | 14.3 | 0                        | 0.0  | 1                    | 9.1  |
| Self-Inflicted Trauma           | 5              | 22.7 | 1                    | 4.8  | 0                        | 0.0  | 0                    | 0.0  |
| Bruxism/TMD                     | 1              | 4.6  | 0                    | 0.0  | 0                        | 0.0  | 1                    | 9.1  |
| Accidental Trauma               | 1              | 4.6  | 3                    | 14.3 | 2                        | 15.4 | 0                    | 0.0  |
| Orthodontic                     | 1              | 4.6  | 1                    | 4.8  | 1                        | 7.7  | 1                    | 9.1  |
| Non-reversible/Necrotic Pulp    | 0              | 0.0  | 0                    | 0.0  | 1                        | 7.7  | 0                    | 0.0  |
| Failing Restorations            | 0              | 0.0  | 0                    | 0.0  | 0                        | 0.0  | 0                    | 0.0  |
| Periodontal Disease             | 0              | 0.0  | 0                    | 0.0  | 0                        | 0.0  | 0                    | 0.0  |
| Malocclusion                    | 0              | 0.0  | 0                    | 0.0  | 0                        | 0.0  | 0                    | 0.0  |
| Graft vs. Host Disease          | 0              | 0.0  | 0                    | 0.0  | 0                        | 0.0  | 0                    | 0.0  |

**Table 4. Dental Pathology, by Requesting Service, contd.**

|                                 | <b>Other<br/>(N=5)</b> |      | <b>Neurology<br/>(N=4)</b> |      | <b>Health, Behavior,<br/>and Development<br/>(N=4)</b> |      | <b>Pulmonary<br/>(N=3)</b> |      |
|---------------------------------|------------------------|------|----------------------------|------|--|------|----------------------------|------|
|                                 | N                      | %    | N                          | %    | N  | %    | N                          | %    |
| <b>No Dental Pathology</b>      | 0                      | 0.0  | 1                          | 25.0 | 0  | 0.0  | 1                          | 33.3 |
| <b>Dental Pathology</b>         |                        |      |                            |      |  |      |                            |      |
| Caries/Caries Related Infection | 2                      | 40.0 | 1                          | 25.0 | 2  | 50.0 | 1                          | 33.3 |
| Erupting/Exfoliating Tooth      | 2                      | 40.0 | 0                          | 0.0  | 1  | 25.0 | 0                          | 0.0  |
| Mucositis                       | 0                      | 0.0  | 1                          | 25.0 | 0  | 0.0  | 1                          | 33.3 |
| Gingivitis                      | 0                      | 0.0  | 0                          | 0.0  | 0  | 0.0  | 0                          | 0.0  |
| Self-Inflicted Trauma           | 0                      | 0.0  | 0                          | 0.0  | 0  | 0.0  | 0                          | 0.0  |
| Bruxism/TMD                     | 0                      | 0.0  | 0                          | 0.0  | 0  | 0.0  | 0                          | 0.0  |
| Accidental Trauma               | 0                      | 0.0  | 0                          | 0.0  | 0  | 0.0  | 0                          | 0.0  |
| Orthodontic                     | 1                      | 20.0 | 1                          | 25.0 | 0  | 0.0  | 0                          | 0.0  |
| Nonreversible/<br>Necrotic Pulp | 0                      | 0.0  | 0                          | 0.0  | 0  | 0.0  | 0                          | 0.0  |
| Failing Restorations            | 1                      | 20.0 | 0                          | 0.0  | 0  | 0.0  | 0                          | 0.0  |
| Periodontal Disease             | 0                      | 0.0  | 0                          | 0.0  | 1  | 25.0 | 0                          | 0.0  |
| Malocclusion                    | 0                      | 0.0  | 0                          | 0.0  | 0  | 0.0  | 0                          | 0.0  |
| Graft vs. Host Disease          | 0                      | 0.0  | 0                          | 0.0  | 0  | 0.0  | 0                          | 0.0  |

**Table 4. Dental Pathology, by Requesting Service, contd.**

|                                     | <b>Craniofacial<br/>(N=3)</b> |      | <b>Rheumatology<br/>(N=3)</b> |      | <b>Nephrology<br/>(N=3)</b> |      | <b>Gastroenterology<br/>(N=2)</b> |      |
|-------------------------------------|-------------------------------|------|-------------------------------|------|-----------------------------|------|-----------------------------------|------|
|                                     | N                             | %    | N                             | %    | N                           | %    | N                                 | %    |
| <b>No Dental Pathology</b>          | 1                             | 33.3 | 1                             | 33.3 | 1                           | 33.3 | 0                                 | 0.0  |
| <b>Dental Pathology</b>             |                               |      |                               |      |                             |      |                                   |      |
| Caries/Caries Related<br>Infection  | 1                             | 33.3 | 0                             | 0.0  | 0                           | 0.0  | 0                                 | 0.0  |
| Erupting/Exfoliating<br>Tooth       | 1                             | 33.3 | 1                             | 33.3 | 0                           | 0.0  | 0                                 | 0.0  |
| Mucositis                           | 0                             | 0.0  | 0                             | 0.0  | 1                           | 33.3 | 1                                 | 50.0 |
| Gingivitis                          | 0                             | 0.0  | 0                             | 0.0  | 0                           | 0.0  | 0                                 | 0.0  |
| Self-Inflicted Trauma               | 0                             | 0.0  | 0                             | 0.0  | 0                           | 0.0  | 0                                 | 0.0  |
| Bruxism/TMD                         | 0                             | 0.0  | 1                             | 33.3 | 1                           | 33.3 | 1                                 | 50.0 |
| Accidental Trauma                   | 0                             | 0.0  | 0                             | 0.0  | 0                           | 0.0  | 0                                 | 0.0  |
| Orthodontic                         | 0                             | 0.0  | 0                             | 0.0  | 0                           | 0.0  | 0                                 | 0.0  |
| Non-<br>reversible/Necrotic<br>Pulp | 0                             | 0.0  | 0                             | 0.0  | 0                           | 0.0  | 0                                 | 0.0  |
| Failing Restorations                | 0                             | 0.0  | 0                             | 0.0  | 0                           | 0.0  | 0                                 | 0.0  |
| Periodontal Disease                 | 0                             | 0.0  | 0                             | 0.0  | 0                           | 0.0  | 0                                 | 0.0  |
| Malocclusion                        | 0                             | 0.0  | 0                             | 0.0  | 0                           | 0.0  | 0                                 | 0.0  |
| <b>Graft vs. Host<br/>Disease</b>   | 0                             | 0.0  | 0                             | 0.0  | 0                           | 0.0  | 0                                 | 0.0  |

**Table 5. Treatment Provided, by Requesting Service.**

|                              | All Consultations (N=567) |      | Hematology-Oncology (N=287) |      | Pediatric Medicine (N=127) |      | Transplant Oncology (N=33) |      |
|------------------------------|---------------------------|------|-----------------------------|------|----------------------------|------|----------------------------|------|
|                              | N                         | %    | N                           | %    | N                          | %    | N                          | %    |
| <b>Treatment Provided</b>    |                           |      |                             |      |                            |      |                            |      |
| Examination only             | 512                       | 90.3 | 271                         | 94.4 | 103                        | 81.1 | 31                         | 93.9 |
| Extractions                  | 19                        | 3.4  | 1                           | 0.4  | 12                         | 9.4  | 0                          | 0.0  |
| Appliance removal            | 14                        | 2.5  | 8                           | 2.8  | 2                          | 1.6  | 1                          | 3.0  |
| Restorations                 | 6                         | 1.1  | 1                           | 0.4  | 4                          | 3.2  | 0                          | 0.0  |
| Extraction + palliative care | 3                         | 0.5  | 1                           | 0.4  | 2                          | 1.6  | 0                          | 0.0  |
| Mouthguard                   | 3                         | 0.5  | 0                           | 0.0  | 1                          | 0.8  | 0                          | 0.0  |
| Preventative care            | 3                         | 0.5  | 1                           | 0.4  | 2                          | 1.6  | 0                          | 0.0  |
| Extraction + I&D             | 1                         | 0.2  | 0                           | 0.0  | 1                          | 0.8  | 0                          | 0.0  |
| Rx antibiotic                | 2                         | 0.3  | 2                           | 0.7  | 0                          | 0.0  | 0                          | 0.0  |
| Splinting                    | 2                         | 0.3  | 0                           | 0.0  | 1                          | 0.8  | 0                          | 0.0  |
| Socket debridement           | 1                         | 0.2  | 0                           | 0.0  | 0                          | 0.0  | 0                          | 0.0  |
| Endodontics                  | 0                         | 0.0  | 0                           | 0.0  | 0                          | 0.0  | 0                          | 0.0  |
| Prosthodontics               | 0                         | 0.0  | 0                           | 0.0  | 0                          | 0.0  | 0                          | 0.0  |
| Orthodontic                  | 0                         | 0.0  | 0                           | 0.0  | 0                          | 0.0  | 0                          | 0.0  |
| Rx for steroid rinse         | 0                         | 0.0  | 0                           | 0.0  | 0                          | 0.0  | 0                          | 0.0  |
| Orthodontic + preventive     | 0                         | 0.0  | 0                           | 0.0  | 0                          | 0.0  | 0                          | 0.0  |

**Table 5. Treatment Provided, by Requesting Service, contd.**

|                                 | <b>Surgery<br/>(N=26)</b> |      | <b>PICU<br/>(N=22)</b> |      | <b>Psychiatry<br/>(N=21)</b> |      | <b>Rehabilitation<br/>(N=13)</b> |      | <b>Cardiology<br/>(N=11)</b> |       |
|---------------------------------|---------------------------|------|------------------------|------|------------------------------|------|----------------------------------|------|------------------------------|-------|
|                                 | N                         | %    | N                      | %    | N                            | %    | N                                | %    | N                            | %     |
| <b>Treatment<br/>Provided</b>   |                           |      |                        |      |                              |      |                                  |      |                              |       |
| Examination only                | 25                        | 96.2 | 17                     | 77.3 | 19                           | 90.5 | 12                               | 92.3 | 11                           | 100.0 |
| Extractions                     | 1                         | 3.9  | 2                      | 9.1  | 1                            | 4.8  | 0                                | 0.0  | 0                            | 0.0   |
| Appliance removal               | 0                         | 0.0  | 1                      | 4.6  | 0                            | 0.0  | 1                                | 7.7  | 0                            | 0.0   |
| Restorations                    | 0                         | 0.0  | 0                      | 0.0  | 1                            | 4.8  | 0                                | 0.0  | 0                            | 0.0   |
| Extraction +<br>palliative care | 0                         | 0.0  | 0                      | 0.0  | 0                            | 0.0  | 0                                | 0.0  | 0                            | 0.0   |
| Mouthguard                      | 0                         | 0.0  | 1                      | 4.6  | 0                            | 0.0  | 0                                | 0.0  | 0                            | 0.0   |
| Preventative care               | 0                         | 0.0  | 0                      | 0.0  | 0                            | 0.0  | 0                                | 0.0  | 0                            | 0.0   |
| Extraction + I&D                | 0                         | 0.0  | 0                      | 0.0  | 0                            | 0.0  | 0                                | 0.0  | 0                            | 0.0   |
| Rx antibiotic                   | 0                         | 0.0  | 0                      | 0.0  | 0                            | 0.0  | 0                                | 0.0  | 0                            | 0.0   |
| Splinting                       | 0                         | 0.0  | 1                      | 4.6  | 0                            | 0.0  | 0                                | 0.0  | 0                            | 0.0   |
| Socket debridement              | 0                         | 0.0  | 0                      | 0.0  | 0                            | 0.0  | 0                                | 0.0  | 0                            | 0.0   |
| Endodontics                     | 0                         | 0.0  | 0                      | 0.0  | 0                            | 0.0  | 0                                | 0.0  | 0                            | 0.0   |
| Prosthodontics                  | 0                         | 0.0  | 0                      | 0.0  | 0                            | 0.0  | 0                                | 0.0  | 0                            | 0.0   |
| Orthodontic                     | 0                         | 0.0  | 0                      | 0.0  | 0                            | 0.0  | 0                                | 0.0  | 0                            | 0.0   |
| Rx for steroid rinse            | 0                         | 0.0  | 0                      | 0.0  | 0                            | 0.0  | 0                                | 0.0  | 0                            | 0.0   |
| Orthodontic +<br>preventive     | 0                         | 0.0  | 0                      | 0.0  | 0                            | 0.0  | 0                                | 0.0  | 0                            | 0.0   |

**Table 5. Treatment Provided, by Requesting Service, contd.**

|                              | <b>Other<br/>(N=5)</b> |       | <b>Neurology<br/>(N=4)</b> |      | <b>Health, Behavior,<br/>and Development<br/>(N=4)</b> |      | <b>Pulmonary<br/>(N=3)</b> |       |
|------------------------------|------------------------|-------|----------------------------|------|--|------|----------------------------|-------|
|                              | N                      | %     | N                          | %    | N  | %    | N                          | %     |
| <b>Treatment Provided</b>    |                        |       |                            |      |  |      |                            |       |
| Examination only             | 5                      | 100.0 | 2                          | 50.0 | 3  | 75.0 | 3                          | 100.0 |
| Extractions                  | 0                      | 0.0   | 1                          | 25.0 | 1  | 25.0 | 0                          | 0.0   |
| Appliance removal            | 0                      | 0.0   | 1                          | 25.0 | 0  | 0.0  | 0                          | 0.0   |
| Restorations                 | 0                      | 0.0   | 0                          | 0.0  | 0  | 0.0  | 0                          | 0.0   |
| Extraction + palliative care | 0                      | 0.0   | 0                          | 0.0  | 0  | 0.0  | 0                          | 0.0   |
| Mouthguard                   | 0                      | 0.0   | 0                          | 0.0  | 0  | 0.0  | 0                          | 0.0   |
| Preventative care            | 0                      | 0.0   | 0                          | 0.0  | 0  | 0.0  | 0                          | 0.0   |
| Extraction + I&D             | 0                      | 0.0   | 0                          | 0.0  | 0  | 0.0  | 0                          | 0.0   |
| Rx antibiotic                | 0                      | 0.0   | 0                          | 0.0  | 0  | 0.0  | 0                          | 0.0   |
| Splinting                    | 0                      | 0.0   | 0                          | 0.0  | 0  | 0.0  | 0                          | 0.0   |
| Socket debridement           | 0                      | 0.0   | 0                          | 0.0  | 0  | 0.0  | 0                          | 0.0   |
| Endodontics                  | 0                      | 0.0   | 0                          | 0.0  | 0  | 0.0  | 0                          | 0.0   |
| Prosthodontics               | 0                      | 0.0   | 0                          | 0.0  | 0  | 0.0  | 0                          | 0.0   |
| Orthodontic                  | 0                      | 0.0   | 0                          | 0.0  | 0  | 0.0  | 0                          | 0.0   |
| Rx for steroid rinse         | 0                      | 0.0   | 0                          | 0.0  | 0  | 0.0  | 0                          | 0.0   |
| Orthodontic + preventive     | 0                      | 0.0   | 0                          | 0.0  | 0  | 0.0  | 0                          | 0.0   |

**Table 5. Treatment Provided, by Requesting Service, contd.**

|                                 | <b>Craniofacial<br/>(N=3)</b> |       | <b>Rheumatology<br/>(N=3)</b> |       | <b>Nephrology<br/>(N=3)</b> |      | <b>Gastroenterology<br/>(N=2)</b> |       |
|---------------------------------|-------------------------------|-------|-------------------------------|-------|-----------------------------|------|-----------------------------------|-------|
|                                 | N                             | %     | N                             | %     | N                           | %    | N                                 | %     |
| <b>Treatment Provided</b>       |                               |       |                               |       |                             |      |                                   |       |
| Examination only                | 3                             | 100.0 | 3                             | 100.0 | 2                           | 66.7 | 2                                 | 100.0 |
| Extractions                     | 0                             | 0.0   | 0                             | 0.0   | 0                           | 0.0  | 0                                 | 0.0   |
| appliance removal               | 0                             | 0.0   | 0                             | 0.0   | 0                           | 0.0  | 0                                 | 0.0   |
| Restorations                    | 0                             | 0.0   | 0                             | 0.0   | 0                           | 0.0  | 0                                 | 0.0   |
| Extraction + palliative<br>care | 0                             | 0.0   | 0                             | 0.0   | 0                           | 0.0  | 0                                 | 0.0   |
| Mouthguard                      | 0                             | 0.0   | 0                             | 0.0   | 1                           | 33.3 | 0                                 | 0.0   |
| Preventative care               | 0                             | 0.0   | 0                             | 0.0   | 0                           | 0.0  | 0                                 | 0.0   |
| Extraction + I&D                | 0                             | 0.0   | 0                             | 0.0   | 0                           | 0.0  | 0                                 | 0.0   |
| Rx antibiotic                   | 0                             | 0.0   | 0                             | 0.0   | 0                           | 0.0  | 0                                 | 0.0   |
| Splinting                       | 0                             | 0.0   | 0                             | 0.0   | 0                           | 0.0  | 0                                 | 0.0   |
| Socket debridement              | 0                             | 0.0   | 0                             | 0.0   | 0                           | 0.0  | 0                                 | 0.0   |
| Endodontics                     | 0                             | 0.0   | 0                             | 0.0   | 0                           | 0.0  | 0                                 | 0.0   |
| Prosthodontics                  | 0                             | 0.0   | 0                             | 0.0   | 0                           | 0.0  | 0                                 | 0.0   |
| Orthodontic                     | 0                             | 0.0   | 0                             | 0.0   | 0                           | 0.0  | 0                                 | 0.0   |
| Rx for steroid rinse            | 0                             | 0.0   | 0                             | 0.0   | 0                           | 0.0  | 0                                 | 0.0   |
| Orthodontic +<br>preventive     | 0                             | 0.0   | 0                             | 0.0   | 0                           | 0.0  | 0                                 | 0.0   |

**Table 6. Documentation by DCT Use.**

|   | DCT Use       |      |                |       | p-value |
|---|---------------|------|----------------|-------|---------|
|   | No<br>(N=224) |      | Yes<br>(N=354) |       |         |
|   | N             | %    | N              | %     |         |
| Reason for consultation recorded        | 222           | 99.1 | 349            | 98.6  | 0.71**  |
| Medical dx recorded                     | 183           | 81.7 | 350            | 98.9  | <0.01 * |
| Historian recorded                      | 211           | 94.2 | 345            | 97.5  | 0.05*   |
| Previous evaluation by dentist recorded | 145           | 64.7 | 293            | 82.8  | 0.47*   |
| Dental home recorded                    | 103           | 46.0 | 228            | 64.4  | 0.99*   |
| Dental home identified                  | 51            | 22.8 | 176            | 49.7  | <0.01*  |
| Dietary habits recorded                 | 15            | 6.7  | 223            | 63.0  | <0.01 * |
| Oral hygiene routine recorded           | 32            | 14.3 | 276            | 78.0  | <0.01 * |
| Fluoride use recorded                   | 9             | 4.0  | 220            | 62.2  | <0.01 * |
| Oral habits recorded                    | 19            | 8.5  | 157            | 44.4  | <0.01 * |
| History of dental trauma recorded       | 17            | 7.6  | 196            | 55.4  | <0.01 * |
| TMJ symptoms recorded                   | 13            | 5.8  | 125            | 35.3  | <0.01 * |
| Limited opening recorded                | 13            | 5.8  | 164            | 46.3  | <0.01 * |
| Soft tissue exam recorded               | 161           | 71.9 | 344            | 97.2  | <0.01 * |
| Oral hygiene recorded with status       | 55            | 24.6 | 268            | 75.7  | <0.01 * |
| Teeth present/dentition documented      | 80            | 35.7 | 329            | 92.9  | <0.01 * |
| Presence of oral/orthodontic appliance  | 16            | 7.1  | 48             | 13.6  | 0.02*   |
| Restorations recorded                   | 40            | 17.9 | 115            | 32.5  | <0.01 * |
| Caries presence recorded / new caries   | 123           | 54.9 | 306            | 86.4  | <0.01 * |
| Cooperation/behavior recorded           | 23            | 10.3 | 182            | 51.4  | <0.01 * |
| Dental pathology recorded               | 222           | 99.1 | 353            | 99.7  | 0.56**  |
| Treatment recommendation recorded       | 223           | 99.6 | 352            | 99.4  | 1.00**  |
| Location of consultation recorded       | 221           | 98.7 | 351            | 99.2  | 0.08*   |
| Products dispensed recorded             | 2             | 0.9  | 68             | 19.2  | <0.01 * |
| Caries risk status recorded             | 1             | 0.5  | 16             | 4.5   | <0.01 * |
| Discussion of OHI recorded              | 82            | 36.6 | 179            | 50.6  | <0.01 * |
| Diet advice recorded                    | 30            | 13.4 | 50             | 14.1  | 0.80*   |
| Mucositis prevention recorded           | 13            | 5.8  | 59             | 16.7  | <0.01 * |
| Bruxism management recorded             | 3             | 1.3  | 1              | 0.3   | 0.30**  |
| Treatment options recorded              | 82            | 36.6 | 110            | 31.1  | 0.17*   |
| Follow up plan recorded                 | 219           | 97.8 | 353            | 99.7  | 0.04**  |
| Treatment delivered recorded            | 222           | 99.1 | 354            | 100.0 | 0.15**  |

\*p-value obtained by Chi-square Test.

\*\*p-value obtained by Fisher's Exact Test.

**Table 7. Documentation by DCT Use, Baseline Consultations Only.**

|  | DCT Use      |       |                |       | p-value |
|--|--------------|-------|----------------|-------|---------|
|  | No<br>(N=81) |       | Yes<br>(N=187) |       |         |
|  | N            | %     | N              | %     |         |
| <b>Reason for consultation recorded</b>        | 81           | 100.0 | 187            | 100.0 | #       |
| <b>Medical dx recorded</b>                     | 75           | 92.6  | 186            | 99.5  | <0.01** |
| <b>Historian recorded</b>                      | 74           | 91.4  | 181            | 96.8  | 0.07**  |
| <b>Previous evaluation by dentist recorded</b> | 65           | 80.3  | 158            | 84.5  | 0.18*   |
| <b>Dental home recorded</b>                    | 50           | 61.7  | 132            | 70.6  | 0.81*   |
| <b>Dental home identified</b>                  | 19           | 23.5  | 104            | 55.6  | <0.01*  |
| <b>Dietary habits recorded</b>                 | 2            | 2.5   | 115            | 61.5  | <0.01*  |
| <b>Oral hygiene routine recorded</b>           | 15           | 18.5  | 147            | 78.6  | <0.01*  |
| <b>Fluoride use recorded</b>                   | 5            | 6.1   | 125            | 66.8  | <0.01*  |
| <b>Oral habits recorded</b>                    | 4            | 4.9   | 88             | 47.1  | <0.01*  |
| <b>History of dental trauma recorded</b>       | 5            | 6.2   | 116            | 62.0  | <0.01*  |
| <b>TMJ symptoms recorded</b>                   | 3            | 3.7   | 75             | 40.1  | <0.01*  |
| <b>Limited opening recorded</b>                | 2            | 2.5   | 93             | 49.7  | <0.01*  |
| <b>Soft tissue exam recorded</b>               | 65           | 80.3  | 183            | 97.9  | <0.01*  |
| <b>Oral hygiene recorded with status</b>       | 27           | 33.3  | 150            | 80.2  | <0.01*  |
| <b>Teeth present/dentition documented</b>      | 40           | 49.4  | 181            | 96.8  | <0.01*  |
| <b>Presence of oral/orthodontic appliance</b>  | 7            | 8.6   | 29             | 15.5  | 0.13*   |
| <b>Restorations recorded</b>                   | 18           | 22.2  | 63             | 33.7  | 0.06*   |
| <b>Caries presence recorded / new caries</b>   | 68           | 84.0  | 175            | 93.6  | 0.01*   |
| <b>Cooperation/behavior recorded</b>           | 6            | 7.4   | 83             | 44.4  | <0.01*  |
| <b>Dental pathology recorded</b>               | 80           | 98.8  | 186            | 99.5  | 0.51**  |
| <b>Treatment recommendation recorded</b>       | 80           | 98.8  | 186            | 99.5  | 0.51**  |
| <b>Location of consultation recorded</b>       | 81           | 100.0 | 186            | 99.5  | 1.00**  |
| <b>Products dispensed recorded</b>             | 1            | 1.2   | 48             | 25.7  | <0.01*  |
| <b>Caries risk status recorded</b>             | 1            | 1.2   | 10             | 5.4   | 0.18**  |
| <b>Discussion of OHI recorded</b>              | 50           | 61.7  | 121            | 64.7  | 0.64*   |
| <b>Diet advice recorded</b>                    | 23           | 28.4  | 42             | 22.5  | 0.30*   |
| <b>Mucositis prevention recorded</b>           | 8            | 9.9   | 55             | 29.4  | <0.01*  |
| <b>Bruxism management recorded</b>             | 1            | 1.2   | 0              | 0.0   | 0.30**  |
| <b>Treatment options recorded</b>              | 16           | 19.8  | 35             | 18.7  | 0.84*   |
| <b>Follow up plan recorded</b>                 | 78           | 96.3  | 187            | 100.0 | 0.03**  |
| <b>Treatment delivered recorded</b>            | 80           | 98.8  | 187            | 100.0 | 0.30**  |

\*p-value obtained by Chi-square Test.

\*\*p-value obtained by Fisher's Exact Test.

# no p-value due to lack of variability

## **Appendix A**

### *Inpatient Consultation Variables Collected*

Patient Record Number

Date of Birth

Date of Admission

Date of Consultation

Medical Diagnosis Documentation - yes/no

Requesting Service

- Hematology-Oncology
- Transplant-Oncology
- Pediatric Medicine
- Rehabilitation
- Gastroenterology
- Psychiatric
- Pediatric Intensive Care Unit
- Cardiology
- Surgery
- Nephrology
- Urology
- Neurology
- Rheumatology
- Pulmonary
- Craniofacial
- Health, Behavior, and Development
- Other

Reason for Consultation

- Baseline
- Pain
- Bruxism
- Bleeding
- Soft Tissue
- Erupting Teeth
- Caries
- Trauma
- Fever
- Appliance Removal

Relationship of Consultation Historian

- Self
- Mother
- Sibling
- Other Family Member
- Nurse

- Other
- No Historian Present

Has the patient ever seen a dentist before?

Does the patient have a dental home and seen their dentist withing the last year?

Dental Home Identified?

History of Caries?

Diet Documented?

Oral Hygiene Routine Documented?

Fluoride Use Documented?

Oral Habits Documented?

History of Trauma Documented?

Temperomandibular Joint Pain Documented?

Limited Opening Documented?

Soft Tissue Exam Documented?

Oral Hygiene Presentation Documented?

Oral Hygiene Classification

- Poor
- Average
- Good

Dentition Documented?

Arch Lengths Documented?

Orthodontic Appliances Documented?

Restorations Presence Documented?

Caries Presence Documented?

Behavior Documented?

Radiographs Taken?

- Provided by Dental Home
- Panoramic
- Periapical
- 2 Bitewings
- 4 Bitewings
- None Taken/Indicated

Photographs Taken?

Dental Pathology

- Mucositis
- Graft Vs. Host Disease
- Gingivitis
- Caries/Caries Related Infection
- Failing Restorations
- Erupting/Exfoliating Tooth
- Periodontal Disease
- Malocclusion
- Bruxism/TMD
- Self-Inflicted Trauma
- Accidental Trauma

- Nonreversible/Necrotic Pulp
- Orthodontic
- No Dental Pathology

#### Treatment Recommended

- Exam Only
- Preventive
- Restorations
- Root Canal Therapy
- Prosthodontics
- Orthodontics
- Mouthguard
- Extraction/s
- Socket Debridement
- Appliance Removal
- Splinting
- Prescription written fo Dexmethasone Rinse
- Extraction and Palliative Care
- Extraction and Incision and Drainage
- Orthodontic and Preventive

#### Treatment Location

- Exam in Patient Room
- Exam in Clinic

#### Dispensed

- Brush
- Floss
- Biotene Pack

#### Caries Risk Documented?

##### Caries Risk

- High
- Moderate
- Low

#### Discussed

- Oral Hygiene Instructions
- Diet
- Mucositis Prevention
- Bruxing
- Treatment/Treatment Options
- Other
- None

#### Follow-up

- Home Dentist - Recall
- Treatment under General Anesthesia
- Treatment at SCH Clinic
- Treatment with Home Dentist

- Orthodontic Appliance Removal
- Mouthguard
- Other

Treatment Delivered

- Exam Only
- Preventive
- Restorations
- Root Canal Therapy
- Prosthodontics
- Orthodontics
- Mouthguard
- Extraction/s
- Socket Debridement
- Appliance Removal
- Splinting
- Prescription written fo Dexmethasone Rinse
- Extraction and Palliative Care
- Extraction and Incision and Drainage
- Orthodontic and Preventive

Date of Follow-up Consultation

Unanticipated Outcomes From Follow-up Consultations

- Mucositis
- Graft Vs. Host Disease
- Gingivitis
- Caries/Caries Related Infection
- Erupting/Exfoliating Tooth
- Periodontal Disease
- Malocclusion
- Bruxism/TMD
- Self-Inflicted Trauma
- Accidental Trauma
- No Unanticipated Outcomes

Was DCT Used?

Gender

- Male
- Female

Interpreter Status – yes/no

Patient Deceased?

# Appendix B

**DENTAL INPATIENT CONSULTATION**

PATIENT NAME: \_\_\_\_\_  
 MRN: \_\_\_\_\_ DATE OF BIRTH: \_\_\_\_\_ ROOM # \_\_\_\_\_  
 ADMISSION DATE: \_\_\_\_\_ CONSULT DATE: \_\_\_\_\_

MEDICAL DIAGNOSIS: \_\_\_\_\_  
 REQUESTING SERVICE: SCCA ICU Heme-Onc Rehab Other: \_\_\_\_\_  
 Attending requesting: \_\_\_\_\_  
 REASON FOR CONSULT: Baseline exam Other (specify): \_\_\_\_\_  
 NAME /RELATIONSHIP OF HISTORIAN: \_\_\_\_\_ Mother Father Sibling Other: \_\_\_\_\_

**DENTAL HISTORY**

|              |     |    |                              |                                  |
|--------------|-----|----|------------------------------|----------------------------------|
| DENTAL HOME: | YES | NO | Dentist name/city: _____     | Month/year of last appt: _____   |
| HX CARIES:   | YES | NO | Reason: Exam x-rays Cleaning | Operative Extraction Orthodontic |

DIET: SWEET DRINKS /DAY: 0 1 2 3+ SNACKS /DAY: 0 1 2 3+ SNACK TYPE: CRACKERS CHIPS COOKIES FRUIT  
 ORAL HYGIENE: BRUSHING/DAY: 0 1 2 2+ FLOSS: YES NO RINSE YES NO  
 FLUORIDE USE: TOOTH PASTE SYSTEMIC SUPPLEMENT RINSE GEL  
 ORAL HABITS: DIGIT PACIFIER BRUXISM LIP BITING OR CHEWING  
 HX TRAUMA: Yes  No  SCARS Yes  No  Location of scars: R L Chin Lip Cheek Forehead  
 Comments: \_\_\_\_\_  
 TMJ: PAIN Yes  No  R L LIMITED OPENING No  Yes  if yes maximum opening \_\_\_\_\_ mm\_

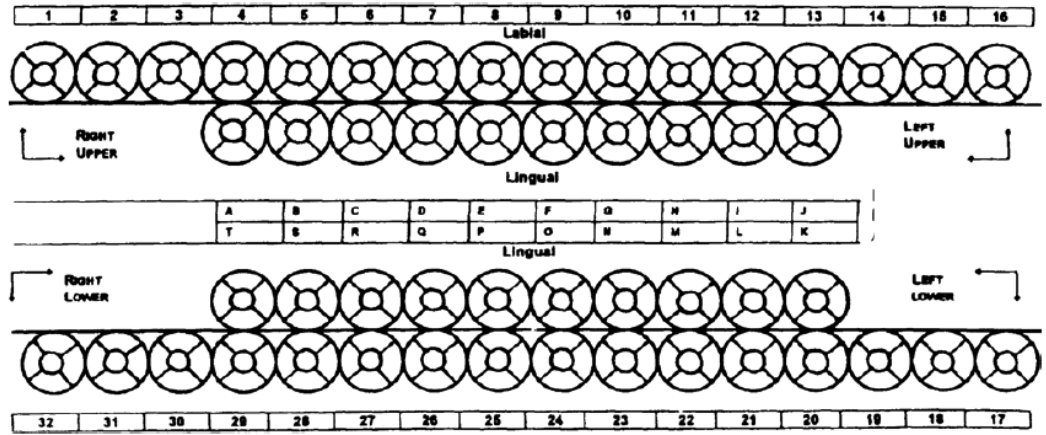
**DENTAL EXAMINATION**

SOFT TISSUE EXAMINATION (Circle appropriate response) -- (Describe "other" in dictated note)

|                 |        |                 |              |                              |
|-----------------|--------|-----------------|--------------|------------------------------|
| TONGUE:         | NORMAL | GEOGRAPHIC      | LACERATION   | OTHER                        |
| FLOOR OF MOUTH: | NORMAL | OTHER           |              |                              |
| PALATE:         | NORMAL | NARROW          | WIDE         |                              |
| BUCCAL MUCOSA:  | NORMAL | APHTHOUS ULCERS | INFLAMMATION | OTHER                        |
| GINGIVA:        | NORMAL | INFLAMMATION    | BLEEDING     | RECESSION HYPERPLASTIC OTHER |
| FRENUM:         | NORMAL | MX CRESTAL      | MN CRESTAL   |                              |

ORAL HYGIENE POOR AVERAGE GOOD STAIN Yes  No  CALCULUS Yes  No

**DENTITION:** PRIMARY MIXED PERM  
**ARCH LENGTH (MAX):** OK SPACING CROWDING ANT POST MILD MOD SEVERE  
**ARCH LENGTH (MAN):** OK SPACING CROWDING ANT POST MILD MOD SEVERE  
**FIXED ORTHODONTIC APPLIANCE:** MX MN BRACES SPACE MAINTAINER  
**REMOVABLE ORTHODONTIC APPLIANCE:** MX MN RETAINER OTHER \_\_\_\_\_



**TEETH:** HYPOCALCIFIED  FLOUROSIS

**BEHAVIOR** ++ + \_ \_ \_ Comments: \_\_\_\_\_

**RADIOGRAPHIC:** Panorex PA 2 BW 4 BW **FINDINGS:** Caries OTHER: \_\_\_\_\_

**PHOTOGRAPHS:** \_\_\_\_\_

**DENTAL DIAGNOSIS AND PLAN:**

**TREATMENT:** EXAM in pt room Exam in clinic DISPENSED: BRUSH FLOSS BIOTENE PACK

**Caries Risk:** HIGH MODERATE LOW

**DISCUSSED** OHI DIET MUCOSITIS PREVENTION BRUXING OTHER: \_\_\_\_\_

**FOLLOW-UP PLANS:** HOME DENTIST-recall TX UNDER GA TX AT SCH CLINIC TX WITH HOME DENTIST-oper ORTHO APPLIANCE REMOVAL MOUTHGUARD OTHER: \_\_\_\_\_

**ATTENDING:** \_\_\_\_\_ **RESIDENTS:** \_\_\_\_\_