

Summer Student Research Program  
Project Description

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**PROJECT TITLE (200 Characters max):** Predicting short-term complication risk in patients treated with radical resection of musculoskeletal disease

**HYPOTHESIS:**

Patients with primary or metastatic bone disease may be managed surgically with wide resection. Past studies have demonstrated that wide resection with or without reconstruction is associated with considerable risk of complications. While these risks are inherent to the procedure and discussed pre-operatively with patients, we hypothesize that certain additional patient characteristics, including diabetes and obesity may be associated with additional risk of complications.

**PROJECT DESCRIPTION (Include design, methodology, data collection, techniques, data analysis to be employed and evaluation and interpretation methodology)**

The State Inpatient Database (SID), a part of the Healthcare Cost and Utilization Project of the Agency for Healthcare Research and Quality, includes short-term readmission data for patients throughout the United States. Data collection will be performed during the months of June and July 2017. Demographic information to be collected includes age, sex, race/ethnicity, income quartile, hospital length of stay (LOS), discharge location, primary payer, readmission status, and the total charges of the initial procedure and the readmission. Clinicopathologic factors include: anemia, chronic pulmonary disease, coagulopathy, congestive heart failure, diabetes, fluid and electrolyte disorder, hypertension, liver disease, obesity, renal failure, and rheumatoid arthritis, and diagnosis upon readmission. Data analysis will be performed utilizing statistical programs SAS and SPSS.

Interested applicants should have a background in statistical analysis utilizing SAS and SPSS

**SPONSOR'S MOST RECENT PUBLICATIONS RELEVANT TO THIS RESEARCH:**

1. Beebe KS. CORR Insights(®): Do Surgical Margins Affect Local Recurrence and Survival in Extremity, Nonmetastatic, High-grade Osteosarcoma? Clin Orthop Relat Res. 2016;474(3):684-6.
2. Benevenia J, Kirchner R, Patterson F, Beebe K, Wirtz DC, Rivero S, et al. Outcomes of a Modular Intercalary Endoprosthesis as Treatment for Segmental Defects of the Femur, Tibia, and Humerus. Clin Orthop Relat Res. 2015.
3. Benevenia J, Patterson F, Beebe K, Tucker K, Moore J, Ippolito J, et al. Results of 20 consecutive patients treated with the Repiphysis expandable prosthesis for primary malignant bone. Springerplus. 2015;4:793.
4. Fitzhugh VA, Katava G, Wenokor C, Roche N, Beebe KS. Giant cell tumor of bone with secondary aneurysmal bone cyst-like change producing  $\beta$ -human chorionic gonadotropin. Skeletal Radiol. 2014;43(6):831-4.
5. Fitzhugh VA, Wenokor C, Beebe KS, Aisner SC. Leiomyoma of deep soft tissue mimicking calcific myonecrosis. Radiol Case Rep. 2016;11(4):430-3.

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6. Hwang JS, Mehta AD, Yoon RS, Beebe KS. From amputation to limb salvage reconstruction: evolution and role of the endoprosthesis in musculoskeletal oncology. J Orthop Traumatol. 2014;15(2):81-6.

8. Siracuse BL, Gorgy G, Ruskin J, Beebe KS. What is the Incidence of Suicide in Patients with Bone and Soft Tissue Cancer? : Suicide and Sarcoma. Clin Orthop Relat Res. 2016.

**IS THIS PROJECT SUPPORTED BY EXTRAMURAL FUNDS?**

Yes  or No

*(IF YES, PLEASE SUPPLY THE GRANTING AGENCY'S NAME)*

**THIS PROJECT IS:**     Clinical     Laboratory     Behavioral     Other

**THIS PROJECT IS CANCER-RELATED**

**Please explain Cancer relevance**

This study will add to the literature in evaluating various risk factors which may alter complication risk in patients treated with radical resection of bone and soft-tissue tumors, thus providing surgeons with more information to support clinical decision making.

**THIS PROJECT IS HEART, LUNG & BLOOD- RELATED**

**Please explain Heart, Lung, Blood relevance**

**THIS PROJECT EMPLOYS RADIOISOTOPES**

**THIS PROJECT INVOLVES THE USE OF ANIMALS**

PENDING     APPROVED     IACUC PROTOCOL #

**THIS PROJECT INVOLVES THE USE OF HUMAN SUBJECTS**

PENDING     APPROVED     IRB PROTOCOL # M

**THIS PROJECT IS SUITABLE FOR:**

UNDERGRADUATE STUDENTS     ENTERING FRESHMAN   
SOPHOMORES     1<sup>st</sup> & 2<sup>nd</sup> Year Medical Students

**THIS PROJECT IS WORK-STUDY:**    Yes     or    No

**THIS PROJECT WILL BE POSTED DURING ACADEMIC YEAR**

**FOR INTERESTED VOLUNTEERS:**    Yes     or    No

**WHAT WILL THE STUDENT LEARN FROM THIS EXPERIENCE?**

*The student will gain insight into orthopaedic oncology, including mentorship in performing a detailed analysis of both the current literature and data extracted from the HCUP databases, as well as the development of a manuscript in clinical research.*