

**Presenter: Bao Ngoc N. Tran, MD**

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**INTRODUCTION:** Sternotomy is the most common osteotomy and has been traditionally closed with wire cerclage. A newer alternative, rigid plate fixation (RPF), has been used in high-risk cases to prevent mediastinitis, sternal nonunion, and malunion with promising results. We used data from the National Surgical Quality Improvement Program to examine 30 day postoperative complications.

**METHODS:** All patient undergoing sternal RPF from 2005–2015 were identified. Demographic, perioperative information, and complication rates were reviewed. Primary RPF cases were classified as treatment group, those done concurrently with other procedures as prophylactic group. Complication rates were compared between two groups using chi-square test. A logistic regression analysis was performed to identify risk factors for postoperative complications.

**RESULTS:** There were 333 cases of RPF identified using the study period, the majority of which were after 2008. Most cases were done as primary or treatment procedure n=202 (62%). RPF was most frequently performed in conjunction with endocrine procedure, myocutaneous flap, and cardiac bypass. Complication rates included dehiscence n=6 (1.8%), infection n=50 (15%), bleeding n=79 (23.7%), on ventilation >48 hours n=61 (18.3%), and no graft failure. Risk factors for infection were non-elective procedure (OR 2.5, p=0.02); for bleeding were open wound at the time of surgery (OR 2.2, p=0.028), ASA class 3 and 4 (3.4, p=0.035), operating time (OR=1.008, p<0.001); for on ventilation greater than 48 hours were open wound (OR 3.4, p=0.002), non-elective procedures (OR 10, p<0.001), and history of dyspnea (OR 2.8, p=0.005). There were no differences in postoperative complications between treatment group and prophylactic group except for incidence of septic shock and overall complications; septic shock was higher in treatment group (p=0.04) while overall complication was higher in prophylactic group (p=0.037)

**CONCLUSION:** The use of sternal RPF is increasing and moreover, it is also used among patients with open wound. Postoperative complication profile associated with RPF is acceptable.

## **A Review of Dog Bites in the United States from 1958 to 2016: Systematic Review of the Peer-Reviewed Literature**

**Presenter: Chad M. Bailey, MD**

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**INTRODUCTION:** Plastic surgeons bear the burden of treating serious injuries resulting from pet and stray animal attacks. The largest subset of these incidents occurs as a result of a known canine (dog). The purpose of this systematic review is to summarize data regarding breed implicated in the literature as well as the effectiveness of breed specific legislation in the United States.

**METHODS:** Peer-reviewed articles were identified using PubMed (MEDLINE), EMBASE, Scopus, Google Scholar and the Cochrane Library by two authors (C.M.B and K.M.H.) using the search term “dog bite.” Inclusion criteria included articles with >1 patient reported, report population in the United States and breed identification attempted when trauma was sustained from a dog bite. Data regarding breed and method of breed identification were extracted and tabulated.

**RESULTS:** Prior to 1980, the majority of dog bites reported in peer-reviewed literature were attributed to the German Shepherd breed (68.4%). From 1981–2000 German Shepherds still accounted for the largest minority of breeds identified (20.1%), with mixed breeds (19.6%) and Pit Bull type breeds (14.1%) accounting for the 2<sup>nd</sup> and 3<sup>rd</sup> largest minorities. Since 2001, Pit Bull type breeds have accounted for the largest subset of dog bites reported in the medical literature (37.5%), with mixed breeds (13.3%) and German Shepherds (7.1%) accounting for the 2<sup>nd</sup> and 3<sup>rd</sup> largest minority groups during this same time period. In addition to these findings, we evaluated the effectiveness of breed specific legislation in Denver, CO, the largest jurisdiction in the

United States with a pit bull ban in place. Since 2001, 5.7% of bites in Denver, CO were attributed to Pit Bull type breeds compared to 54.4% in the remainder of the United States.

**CONCLUSION:** To our knowledge, this is the first systematic review devoted to breed responsible for severe dog bites in the peer-reviewed literature, as well as the first report evaluating breed specific legislation in the United States. Our data suggest that breed specific legislation may be effective in reducing the incidence of dog bites attributed to breeds that are regulated. Significant effort has been devoted to determining how best to minimize dog bites severe enough to require medical attention, and now, with this new information, Plastic Surgeons may be poised to lead the campaign on dog bite prevention.

### **The July Effect: Admission Quarter as a Risk Factor for Postoperative Complications Following Common Plastic Surgical Procedures**

**Presenter:** *William Ranson, BS*

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**INTRODUCTION:** There is a large amount of literature investigating the effects of patient, hospital, and surgical team characteristics on surgical complication rates. Despite this, the academic quarter in which the surgery takes place has not been examined for similar associations. This study seeks to assess admission quarter as a predictor of increased rates of surgical complications for a group of common plastic surgical cases.

**METHODS:** This was a retrospective analysis of the ACS-NSQIP database between 2005 and 2014 for patients undergoing implant and/or flap-based breast reconstruction, breast revisions, augmentation mammoplasty, mastopexy, breast capsulectomy, nipple reconstruction, or abdominoplasty. Patients were identified by CPT codes. Univariate logistic regression models were utilized to identify

potentially significant associations. Variables significant upon univariate study were subjected to multivariate logistic regression models to assess the relationship between admission quarter and various postoperative complications, controlling for confounding variables.

**RESULTS:** We identified 41,239 patients who underwent the aforementioned plastic surgery procedures. Univariate regression models were created to assess the relationship between admission quarter and various postoperative complications, including wound, cardiac, pulmonary, thromboembolic, renal, return to Operating Room (OR), and any complications. Wound complication ( $p=0.012$ ), return to OR ( $p=0.030$ ), and any complication ( $p=0.0181$ ) were found to be significant, with increased rates of all three complication categories in the third quarter of the academic year. These three complication types were subsequently analyzed via logistic regression analysis to adjust for confounding variables. Upon analysis, wound complications was elevated in Q3 vs Q1 (OR=1.16,  $p=0.034$ ), Q3 vs Q2 (OR=1.19,  $p=0.013$ ) and Q3 vs Q4 (OR=1.22,  $p=0.005$ ). Return to OR was elevated in Q3 vs Q4 (OR=1.19,  $p=0.014$ ). Any Complication was elevated in Q3 vs Q4 (OR=1.17,  $p=0.003$ ). For the occurrence of both Return to OR and Any Complication, Q1, Q2, and Q3 displayed differences that were not significant at  $\alpha=0.05$ .

**CONCLUSION:** This study elucidated the quarterly patterns of various postoperative complications for a group of common plastic surgery procedures. Quarter 3 was revealed to have higher rates of wound complications than any other quarter upon both univariate and multivariate logistic regression. This study provides compelling evidence for the need of further investigation to identify and address the underlying cause or causes.

### **The Isolated Effect of Smoking on Postoperative Complications in Plastic Surgical Procedures; A Propensity-Matched NSQIP Analysis**

**Presenter:** *Yoshiko Toyoda, BA*

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