rarely collected. The authors hypothesized that the Argenta classification might correlate with parental assessments, in which case it could be used as a proxy for parent-reported outcomes. However, this was not the case. Researchers must be rigorous about collecting parent-reported outcomes in future studies about the efficacy of NSP treatments.

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Craniosynostosis Surgery: Does Hospital Case-Volume Impact Outcomes or Cost?

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INTRODUCTION: The relationship between hospital/surgeon characteristics and operative outcomes and cost are being scrutinized increasingly. In patients with craniosynostosis specifically, the relationship between hospital-volume and outcomes has yet to be characterized.

METHODS: Subjects undergoing craniosynostosis surgery between 2004 and 2015 were identified in the Pediatric Health Information System (PHIS). Outcomes were compared between two exposure groups, those undergoing treatment at a high-volume institution (>40 cases per year), and those undergoing treatment at a low-volume institution (40 cases per year). Primary outcomes were: any complication, prolonged length of stay, and increased total cost.

RESULTS: Over thirteen thousand patients (N=13,112) from 49 institutions met inclusion criteria. In multivariate regression analyses, subjects treated in high-volume centers were less likely to experience any complication (OR 0.764, p<0.001), were less likely to have an extended length of stay (OR 0.624, p<0.001), and were less likely to have increased total cost (OR 0.596, p<0.001). Subjects undergoing strip-craniectomy in high-volume centers were also less likely to have any complication (OR 0.708, p=0.018), or increased total cost (OR 0.51, p<0.001). Subjects undergoing mid-vault reconstruction in high-volume centers were less likely to experience any complications (OR 0.696, p=0.002), have an extended length of stay (OR 0.542, p<0.001), or have increased total cost (OR 0.495, p<0.001).

CONCLUSION: In hospitals performing a high-volume of craniosynostosis surgery, subjects had significantly decreased odds of experiencing a complication, prolonged length of stay, or incurring increased total cost, when compared to those undergoing treatment in low-volume institutions.

Comparing the Utility of Head and Facial Computed Tomography (CT) Scans in Identifying Operative Facial Fractures

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INTRODUCTION: Computed Tomography (CT) scans have demonstrated utility in identifying facial fractures in trauma patients. However, dedicated facial scans have come under scrutiny compared to traditional head scans for higher radiation doses associated with the higher number of cuts acquired. To date, no study has evaluated the differences in clinical findings seen on head and face CT scans among facial trauma patients.
to determine if head scans alone are sufficient, or whether dedicated facial scans are required to identify fractures.

**METHODS**: All operative facial trauma over a 16 year period (1998 – 2013) at a single institution was reviewed. Patients were categorized based on the imaging modality (head or face scan) used to evaluate their facial fractures, excluding those receiving a single imaging study. Fracture patterns seen were categorized and patients receiving both scan types were grouped based on whether the results were identical. Demographic information was compared between the groups. Further analysis was performed for the group with non-identical results to determine the difference in the type and quantity of fractures captured by each scan.

**RESULTS**: A total of 307 patients were identified who underwent operative repair of traumatic facial fractures and received both face and head CT scans. 106 patients (35%) had findings which differed between the scans, while 201 patients (65%) had identical findings in each scan. No difference between the groups was observed with respect to age, length of hospital stay, gender, or insurance status. No difference was observed with most mechanisms of injury, except motorcycle accidents. For the 106 patients with differing results between the scans, the facial CT scans identified a clinically and statistically significant 40.6% more nasal fractures, 33% more midface fractures, 28.3% more zygoma fractures, 4.7% more frontal sinus fractures and 36.8% more orbital fractures — all of which were operative and would have been missed by standard head CT scan. In aggregate, a total of 151 fractures would have been missed in these patients by head scan alone.

**CONCLUSION**: A significant number of operative facial fractures were identified on dedicated facial imaging, when compared to standard head CT scan in about one third of patients. Dedicated facial CT scans should be strongly considered for patients with a suspicion for facial trauma by history and physical exam.

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**A Microplate Fixation for Treatment of Comminuted Mandibular Fractures**

*Presenter: Tae Joon Choi, MD*

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**INTRODUCTION**: Strong rigid fixation with miniplates and large plates has been widely used in comminuted mandibular fractures. However, normal bite forces are not generated for months after mandibular fracture\(^1\). Therefore, absolute rigidity of the bone segments is not necessary during the bone healing period\(^2\)\(^,\)\(^3\). The purpose of this article is to evaluate availability of microplate fixation for comminuted mandibular fractures.

**METHODS**: Fourteen patients with comminuted mandibular fractures were treated by microplate fixation. Accurate reduction of all bony segments and multiple fixation were performed at each fracture site with 1.2(1.0)-mm microplates with or without wire. At the lower border, no fracture gap of the inner and outer cortices along the inferior margin was confirmed after fixation. At the upper border, interdental wiring was applied to approximate the fracture edges of the inner and outer cortex as external fixation. In edentulous cases, microplate fixation was done at the upper margin. At the middle of the outer cortex, multiple microplate fixation was done at the outer cortex, pushing on the mandibular angles to tightly approximate the fracture edges of the inner cortex. When premature occlusal contact was observed by a thin-paper bite test after fixation, intermaxillary fixation was applied and maintained for 1 week postoperatively, and followed by active mouth opening exercise. The patients without IMF were allowed immediate mouth opening and provided a liquid diet for the first three or four days after the operation. All patients took a soft diet for the 6 weeks after the operation.

**RESULTS**: Comminuted mandibular fractures were located in the symphysis (6), the symphysis and the body (2), the body (4), the angle (1) and the symphysis, the body, the ramus and the subcondyle (1). During the follow-up period from 3 to 16 months, all fractures showed excellent bone healing without major complications requiring further treatment. Minor malocclusion with good functional occlusion was observed in two patients, who required no additional treatment.