



CWIS Chest Wall Injury Summit 2023

Oral Presentation Abstract Submission

Name Zachary Bauman

Credentials DO, MHA, FACOS, FACS

Preferred email address zachary.bauman@unmc.edu

Name of work institution University of Nebraska Medical Center

Additional authors:

	Full Name	Credentials	Email address	Mobile or WhatsApp number
Author/Presenter 2	Kevin Cahoy	BS	kevin.cahoy@unmc.edu	
Author/Presenter 3	Tylor King	BS	tylor.king@unmc.edu	
Author/Presenter 4	Lindsey Cavlovic	BS	licavlovic@unmc.edu	
Author/Presenter 5	Emily Cantrell	MD	emily.cantrell@unmc.edu	

Title of Presentation Surgical Stabilization of Rib Fractures is Associated with Better Return on Investment for a Healthcare Institution than Non-Operative Management

Background

Surgical stabilization of rib fractures (SSRF) continues to gain popularity as a superior treatment option for rib fracture patients. Literature regarding the patient benefits (both short and long term) continues to grow at an exponential rate. However, little has been produced regarding SSRF and its financial benefits to a hospital as well as its impact on various hospital metrics such as those created through the Vizient program. The aim of this study is to explore these benefits hypothesizing SSRF will demonstrate significant return on investment for a healthcare institution.

Methods

Single center retrospective review of all rib fracture patients over the past 5 fiscal years (FY17 – FY21) at our level 1 trauma center. Patients were initially grouped into operative versus non-operative cohorts. This was then compared against all other hospital admissions over the same time frame. Case mix index for the three cohorts was obtained and compared. Outcomes of interest include actual average hospital length of stay (LOS) per patient compared to Vizient expected LOS, average contribution margin per patient and total contribution margin per patient. Chi square, t-test and median test were used for analysis. Significance was set at a $p < 0.05$.

Results

A total of 1,639 patients were admitted to our institution during this time frame with rib fractures. Of that, 230 (14%) of patients underwent SSRF for their rib fractures. Average age for all rib fracture patients was 54.29 (+\ - 21.13), 66.9% were male, median ISS was 13 (IQR 9,22) and median number of ribs fractured was 4 (IQR 2,6) per patient. 508 (31%) of patients had bilateral rib fractures and 247 (15.1%) patients had flail chest. Patients who underwent SSRF had significantly higher case mix index compared to those who were managed non-operatively suggesting these patients were more injured and/or sick at baseline. Furthermore, patients undergoing SSRF were discharged from the hospital approximately one day prior to the expected LOS provided by Vizient calculations. Lastly, SSRF patients demonstrate significantly higher average contribution margins per patient compared to those rib fracture patients managed non-operatively, and all patients with rib fractures demonstrate higher contribution margins per patient compared to the rest of the hospital admissions over the same time frame. See Table 1.

Conclusion

Patient undergoing SSRF demonstrate a significant return on invest to a healthcare organization financially. Despite the SSRF cohort having a higher case mix index, these patients were able to be discharged sooner than expected by Vizient calculations resulting in better contribution margins. Although this is the first study to analyze actual LOS versus Vizient expected LOS, additional studies are needed to further confirm these findings.