

# **Readmission rates and costs associated with fibrin sealant use among patients undergoing orthopedic surgery.**

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## **Abstract:**

**OBJECTIVES:** Payers and hospital administrators are increasingly concerned about readmission rates in surgical patients. We sought to examine the readmission rates and hospital costs associated with EVICEL fibrin sealant (all-human formulation), versus VITAGEL fibrin sealant (with bovine thrombin), or no adjunct hemostat use for patients undergoing inpatient joint replacement surgeries. **METHODS:** A retrospective analysis was conducted using Premier administrative data from over 500 US hospitals. Hospitalized patients ( $\geq 18$  years) who underwent orthopedic surgery and received EVICEL, VITAGEL or no hemostat during surgery between January 1, 2009 and November 30, 2009 were identified. A 1:1 (EVICEL:VITAGEL) and 1:3 (EVICEL: no hemostat) match was conducted using surgery type and propensity scores of receiving EVICEL, based on patient and hospital characteristics via a logistic regression model. The outcomes included 30-day all-cause readmission rates and total index hospital costs. Differences in readmission rates were analyzed using conditional logistic regression. A generalized linear model with loglink/ gamma distribution was used for analyzing differences in total costs. **RESULTS:** A total of 316 patients were identified (158 per cohort) for the EVICEL versus VITAGEL and 1,808 patients for EVICEL ( $n=452$ ) versus no hemostat ( $n=1,356$ ) analysis. Patients in the VITAGEL cohort were 6.8 times more likely to be readmitted to the hospital compared to the EVICEL cohort (12.7% vs 3.8%; OR=6.81, 95%CI 1.62, 28.66). Patients in the no hemostat cohort were 1.6 times more likely to be readmitted compared to the EVICEL cohort. Total index hospital cost was lower for the EVICEL cohort (\$16,704) compared to VITAGEL cohort (\$18,192  $p=0.001$ ) on average. The EVICEL cohort

(\$17,387) had similar total costs compared to no adjunct hemostat (\$17,389) cohort.

CONCLUSIONS: Readmission presents significant costs and has been added to hospital quality measures. In this study, EVICEL was associated with lower readmission rates compared to VITAGEL or no adjunct hemostat use in inpatient joint replacement surgeries.