

Sterile versus Non-Sterile Gloves: Infection Risk and Cost Comparison in Corticosteroid Shoulder Injections

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INTRODUCTION: Corticosteroid injection into the subacromial space is a common treatment option in orthopedics for various shoulder pathologies. However, it remains unclear if using non-sterile gloves correlates with higher infection risk compared to sterile gloves for such procedures. While literature in other fields supports the non-inferiority of non-sterile gloves towards infection risk, similar studies have not been performed in orthopedics. This study seeks to identify if there is an increased infection risk and difference in costs with using non-sterile gloves compared to sterile gloves for shoulder injections.

METHODS: A retrospective chart review identified patients who received shoulder injections from a single surgeon from February 2023 to July 2024. The surgeon transitioned from using sterile gloves to non-sterile gloves during this time period, and a proportionate number of patients were assigned to non-sterile and sterile glove groups. Records were reviewed for demographic information, body mass index (BMI), Charlson Comorbidity Index (CCI), follow-up length, and post-injection infection as identified through ICD-10 code T80.29XA. Rate of infection was evaluated at 1 month, 3 months, and 6 months following injections. Glove prices were obtained through our institution. Percentages were obtained for categorical variables and means were calculated for continuous variables. Descriptive statistics were performed using Chi-Squared tests for percentages and Student's T-Tests for means for any baseline differences between patient groups.

RESULTS: A total of 641 patients were evaluated with a minimal follow-up period of 6 months. 317 injections were performed using sterile gloves and 323 injections were performed using non-sterile gloves. There were no significant differences in average age, gender, racial composition, average BMI, and average CCI between the two groups. No shoulder joint infections were recorded following any injection performed with either glove type. Sterile gloves were 36 times more expensive than non-sterile gloves per injection.

DISCUSSION AND CONCLUSION: Even though sterile gloves are substantially more expensive than non-sterile gloves, there was no difference in infection risk outcomes for corticosteroid shoulder injections in clinical practice.

Table 1. Comparison of demographic characteristics between patients receiving shoulder injections with sterile and non-sterile gloves.

Characteristics	Sterile Gloves (317 patients)	Non-Sterile Gloves (323 patients)	P Value
Mean Age	65 years	66 years	0.521
Gender			
Female	192 (61%)	196 (61%)	0.990
Male	125 (39%)	127 (39%)	
Mean BMI	30.2 kg/m ²	30.8 kg/m ²	0.286
Mean CCI	4.6	4.3	0.347
Race			
Asian	7 (2%)	7 (2%)	0.964
African-American/Black	58 (18%)	64 (20%)	0.676
Hispanic	55 (17%)	54 (17%)	0.834
Caucasian/White	180 (57%)	185 (57%)	0.906
Other	17 (5%)	13 (4%)	0.487

BMI = Body Mass Index; CCI = Charlson Comorbidity Index

Table 2. Comparison of cost between shoulder injection procedures utilizing sterile and non-sterile gloves.

	Sterile Gloves (317 injections)	Non-Sterile Gloves (323 injections)
Price Per Box	\$53.93	\$5.75
Price Per Glove	\$1.07	\$0.03
Total Procedural Cost	\$683.83	\$18.57
Cost Per Procedure	\$2.16	\$0.06