Reducing Total Joint Replacement Infection Rates: An Evidence-Based Practice Quality Improvement Project in Orthopedic Operating Rooms

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BACKGROUND

- Periprosthetic joint infections occur in 0.5%-3% of all total joint replacements.
- Leads to patient dissatisfaction and increased cost for the patient and hospital.
- Silver-embedded dressings have shown a decrease in periprosthetic joint infections by 50%.

LOCAL PROBLEM

- The project site is a local Level 1 academic medical center.
- The rate of periprosthetic joint infections has been on the rise.
- Percentage of occurrence in 2023 was 1.34% and in 2024 was 1.42%.
- The purpose of this project is to reduce the number of periprosthetic joint infections.
- The aims of this project:
  - To reduce the rate of infections by 10%
  - To have 100% compliance with the use of silver-embedded dressings

METHODS

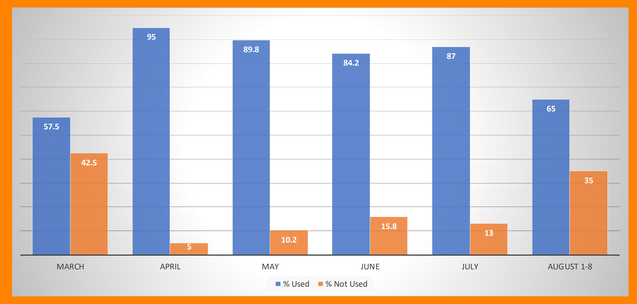
- The Evidence-Based Practice Improvement model was used as the basis for this project.
- The literature shows a decrease in periprosthetic joint infections by 50%
- Outcome measures include compliance with using silver-embedded dressings and number of periprosthetic joint infections.
- Data was measured for 12 months pre-implementation and during the 5 month implementation period.

The number of periprosthetic joint infections was reduced by 79.6% after the implementation of silver-embedded dressings.

Occurrence of Periprosthetic Joint Infections

	# of Total Joint Replacements	# of Infections	% of occurrence
2023	673	9	1.34%
2024	777	11	1.42%
2025 (Jan-Aug)	349	1	0.29%

Compliance of Silver-Embedded Dressings



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INTERVENTIONS

- Implemented silver-embedded dressings on March 3, 2025.
- Data collection was completed on August 8, 2025.
- Silver-embedded dressings were used on all elective total knee and total hip replacements.
- Worked with supply chain and sales representatives to overcome inventory difficulties.

RESULTS

- Periprosthetic joint infections decreased by 79.6% after implementation, far surpassing the aim.
- Compliance of dressing usage averaged 79.75%due to supply chain issues.

CONCLUSIONS

- Implementing the use of silver-embedded dressings reduced infection rates dramatically.
- There will be continued use of the silver-embedded dressings at the project site.
- Physicians are supportive of the continued initiative of reducing joint infections.

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