# Effect of Closed Incision Negative Pressure Therapy in the Management of Complications and Costs Following Caesarean Section in South Africa

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## Introduction

- Caesarean section rates are growing globally. Current rates of 21.1% are expected to increase to 28.5% by 2030.[1]
- The global incidence of surgical site infections following a caesarean section is 5.63% with the African region highest with a rate of 11.91%.[2]

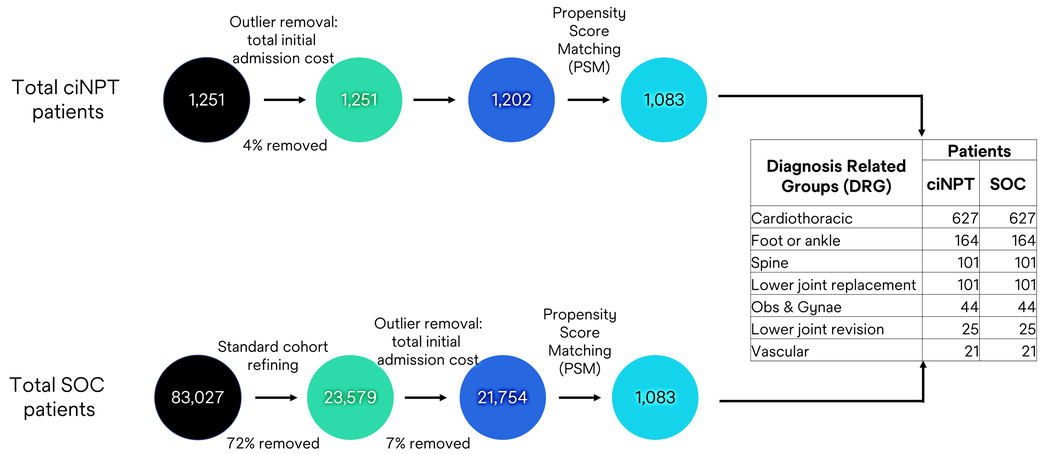
## Purpose

- The aim of this study was to examine the effect of closed incision negative pressure therapy (ciNPT*) in reducing surgical site complications (SSC) and healthcare utilization in South Africa following caesarean section.

## Methods

- This retrospective study was conducted utilizing a large, South African, private health insurance claims database consisting of 84,278 patients.
- Following redefining and outlier removal, a propensity matched cohort was created of 44 patients receiving ciNPT or standard of care (SOC) for caesarean sections from 2018 to 2022.
- Differences in multiple clinical and health economic outcomes were compared between ciNPT and SOC using t-tests.
- The primary outcome measure for the analysis was SSC rate.

## Results




| Diagnosis Related Groups (DRG) | Patients | |
|---|---|---|
| | ciNPT | SOC |
| Cardiothoracic | 627 | 627 |
| Foot or ankle | 164 | 164 |
| Spine | 101 | 101 |
| Lower joint replacement | 101 | 101 |
| Obs & Gynae | 44 | 44 |
| Lower joint revision | 25 | 25 |
| Vascular | 21 | 21 |

**Figure 1.** Schematic diagram of the retrospective study utilizing a health insurance claims database

**Table 1.** Surgical site complication distribution among propensity matched groups

| | Control Group (n=44) | ciNPT (n=44) | P-value |
|---|---|---|---|
| Total Patients with Surgical Site Complication | 4 | 0 | 0.041 |

**Table 2.** Secondary outcome distribution among propensity matched groups

| | Control Group (n=44) | ciNPT (n=44) | P-value |
|---|---|---|---|
| **Average Length of Hospital Stay** | 5.5 days | 4.1 days | 0.041 |
| **% of Total Admissions with an ICU Stay** | 18.2% | 2.3% | 0.014 |

**Table 3.** Health economic outcome distribution among propensity matched groups

| | Control Group (n=44) | ciNPT (n=44) | P-value |
|---|---|---|---|
| **Total Average Admission Cost** | R119,747 | R85,392 | 0.017 |
| **Total Average ICU Cost** | R51,584 | R7,346 | 0.02 |

## Results (Cont'd)

- The retrospective comparative trial included data on a total of 88 patients undergoing caesarean delivery in South Africa (**Figure 1**).
- In the control group, 4 of 44 patients had a SSC at a rate of 9.1%.
- Comparatively, the ciNPT group had 0 cases of SSC at 0% rate of complication (**Table 1**).
- This difference in SSC rate was statistically significant (p=0.041).
- Secondary outcome measures analyzed included length of hospital stay and percentage of total admissions with an Intensive Care Unit stay (**Table 2**).
- Health Economic outcome measures analyzed included total average admission cost, total average Intensive Care Unit cost (**Table 3**).

## Conclusions

- The data suggests ciNPT may reduce wound-related healthcare utilization and costs in the management of caesarean sections in South Africa.

## References

1. Betran AP, Ye J, Moller A, et al. Trends and projections of caesarean section rates: global and regional estimates. *BMJ Glob Health*. 2021;6: e005671.
2. Farid Mojtahedi M, Sepidarkish M, Almukhtar M, et al. Global incidence of surgical site infections following caesarean section: a systematic review and meta-analysis. *J Hosp Infect*. 2023;139:82-92. doi: 10.1016/j.jhin.2023.05.019. Epub 2023 Jun 10. PMID: 37308061.

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