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# Clinical and economic outcomes of cesarean deliveries with skin closure through skin staples plus waterproof wound dressings versus 2-octyl cyanoacrylate plus polymer mesh tape

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## Abstract

### Purpose

To compare clinical and economic outcomes of cesarean deliveries with skin closure through skin staples plus waterproof wound dressings (SSWWD) versus 2-octyl cyanoacrylate plus polymer mesh tape (2OPMT). We hypothesized that cesarean deliveries with skin closure through 2OPMT may be associated with a lower rate of

wound complications and infections as compared with skin closure through SSWWD; we also hypothesized that, accordingly, 2OPMT may be associated with lower hospital length of stay (LOS), hospital costs, and all-cause readmissions as compared with SSWWD.

## Methods

Retrospective, observational study using a research database derived from administrative records routinely contributed by hundreds of hospitals in the USA. We queried the database for patients aged 18–49 years who had an in-hospital low transverse cesarean delivery between 1 January, 2012 and 31 March, 2017. Using records of medical supplies used during deliveries, we identified deliveries for which skin closure was performed by either SSWWD (SSWWD group) or 2OPMT (2OPMT group). Our primary study outcome was a composite endpoint of infection/wound complication diagnosis during the hospital stays in which the deliveries were performed. Our secondary outcomes included: length of stay (LOS) and total hospital costs for the hospital stays in which the deliveries were performed, and all-cause readmissions (30/60/90 days post discharge) to the same hospital in which the delivery was performed. We compared outcomes between propensity-score matched groups using regressions accounting for hospital-level clustering and non-Gaussian empirical outcome distributions.

## Results

Each group comprised 2133 patients (4266 total patients; mean age = 30.3 years [SD = 4.6]). Compared with the SSWWD group, the 2OPMT group had statistically significant lower rates of complications (infection, 0.7 versus 1.6%, p = .011; wound complication, 0.6 versus 1.3%, p = .036; composite, 0.9 versus 2.0%, p = .002), shorter LOS (mean = 3.5 days [SD = 1.6] versus 3.7 days [SD = 1.8], p = .007), and lower total hospital costs (mean = $8879 [SD = $3157] versus $9313 [SD = $3311], p = .025). Between-group differences for 30/60/90-day all-cause readmissions were statistically insignificant.

## Conclusions

This large observational study is the first of its kind and provides evidence that cesarean delivery skin closure with 2OPMT is associated with lower rates of in-hospital

infection and wound complications, lower LOS, lower total hospital costs as compared with SSWWD.

Keywords:

2-octyl cyanoacrylate | cesarean delivery | skin closure | skin staples | infection, wound complications

## Acknowledgments

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## Disclosure statement

Stephen S. Johnston, Brian Po-Han Chen, Stephanie Hsiao Yu Lee, Michelle Costa, and Giovanni A. Tommaselli are employees of Johnson & Johnson. Akhil Nayak is an employee of Mu Sigma, which is a paid consultant to Johnson & Johnson.

## Data availability statement

Although we are contractually unable to make the specific dataset on which this study was based publicly available, the overall Premier Healthcare Database is a commercially-available research database.

# Additional information

## Funding

This study was funded and conducted by Johnson & Johnson.

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