



# Cost comparison of carbetocin compared to oxytocin as primary postpartum haemorrhage prophylaxis at caesarean section

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## BACKGROUND

- Carbetocin is a longer-acting oxytocic agent that reduces secondary uterotonic re-treatment at caesarean section (CS), and therefore it is hypothesized that carbetocin is financially beneficial overall despite being more expensive per dose.
- There is increasing evidence that carbetocin may reduce blood loss at CS but there is significant heterogeneity in the literature.

## AIM

- To examine if carbetocin confers economic benefit compared to oxytocin at CS

## METHOD

Retrospective cohort study

- Participants - All CS (n = 2487) performed at Australian Level 5 Hospital from 2008-2010. No exclusion criteria
- Intervention - Carbetocin 100µg (Duratocin® Ferring) from April 2009 – Dec 2010
- Comparator - Oxytocin 10-unit bolus (Syntocinon) from Jan 2008- March 2009
- Outcomes

- Estimated Blood Loss
- Requirement of secondary uterotonic treatment

Statistical Analysis

- SPSS software; T test, Chi Square test

## POST HOC COST ANALYSIS

### Uterotonic Drug Costs (\$AUD)

#### Primary

- Carbetocin \$33.7
- Oxytocin Bolus \$1.1

#### Secondary

- Oxytocin Infusion \$4.2
- Ergometrine \$21.5
- Misoprostol \$1.9
- Carboprost \$71.5

### Australian Refined Diagnosis Related Groups (ARD-RG) classification

Classified based on PPH occurrence:

- EBL<1000mL → CS Minor Complexity
- PPH≥1000mL → CS Intermediate Complexity
- PPH≥1500mL → CS Major Complexity

## RESULTS

### Postpartum Haemorrhage

- Carbetocin was associated with a 1.9% and 0.9% reduction in PPH≥1000mL and PPH≥ 1500mL respectively, but this was not statistically significant
- 20.1% reduction in secondary uterotonic treatment with carbetocin\*\*\*

### Cost Comparison

- Average drug cost/patient lower with oxytocin (\$4.74) than carbetocin (\$36.42)
- AR-DRG associated cost/patient was \$63.46 lower for carbetocin; as derived from incidence of PPH
- Cost-effectiveness ratio of \$1,667 to prevent one case of PPH≥1000mL

Table 1: Cost/ Patient by ARD-RG Classification

| ARD-RG Classification                                | Cost (\$AUD) | Carbetocin       | Oxytocin         |
|--|--------------|------------------|------------------|
| <b>CS- Minor Complexity</b><br>(EBL < 1000mL)        | 8286.26      | 1352             | 925              |
| <b>CS - Intermediate Complexity</b><br>(PPH ≥1000mL) | 10,007.09    | 83               | 69               |
| <b>CS- Major Complexity</b><br>(PPH ≥1500mL)         | 14,281.91    | 32               | 30               |
| <b>Average Cost/Patient</b>                          |              | <b>\$8514.41</b> | <b>\$8577.87</b> |

## DISCUSSION

### Strengths

- Large sample size
- No exclusion criteria or selection bias
- Comparable baseline demographics

### Limitations

- Non-randomized and non blinded
- Clinician subjectivity in estimation of blood loss and secondary uterotonic
- Limited cost comparison only, not inclusive of staffing or equipment costs

## CONCLUSIONS

- Despite reducing secondary uterotonics by 20.1%, carbetocin remained more expensive by drug cost
- However, incidence of PPH≥1000mL was reduced by 1.9% with carbetocin, which conferred a \$63.46 AUD cost reduction/ patient