

FACTORS INFLUENCING DOSE ESCALATION OF REMIFENTANIL PCA IN LABOUR

Lindsay DAWSON, Kailash BHATIA, Nico ZIN, Malachy COLUMB



Manchester University
NHS Foundation Trust

1 BACKGROUND

Remifentanil patient-controlled analgesia (PCA) is available in approximately 50% of UK maternity units, with NICE guidance recommending a 40 µg bolus dose.¹

Our tertiary unit uses an escalating Remifentanil PCA regimen, commencing at 20 µg with a 3 minute lockout and increasing to 40 µg on maternal request.

2 AIMS

Determine the incidence of dose escalation from 20 µg to 40 µg.

Maternal and obstetric factors linked to an increase in dosage to 40 µg.

Maternal and neonatal outcomes.

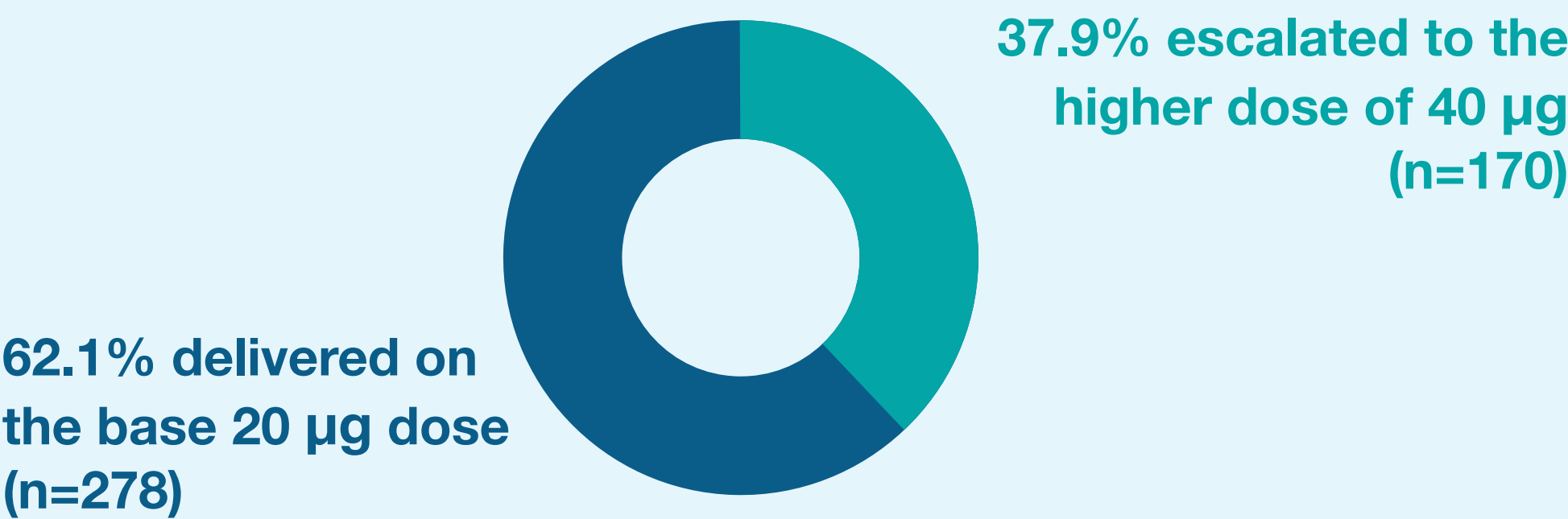
3 METHODS

We analysed 448 women between Jan - Mar 2024 at our tertiary centre, who utilised an escalating regimen of Remifentanil PCA for labour analgesia.

Data were analysed using NCSS 2024 and are presented as mean (SD), median [interquartiles] and count (%) with $p < 0.05$ defined as statistically significant. Adjusted odds ratio (aOR) and 95% confidence intervals (CI) are presented using multivariable logistic regression with $P < 0.20$ for entry.

4 RESULTS

INCIDENCE OF ESCALATING DOSE



MATERNAL DEMOGRAPHICS

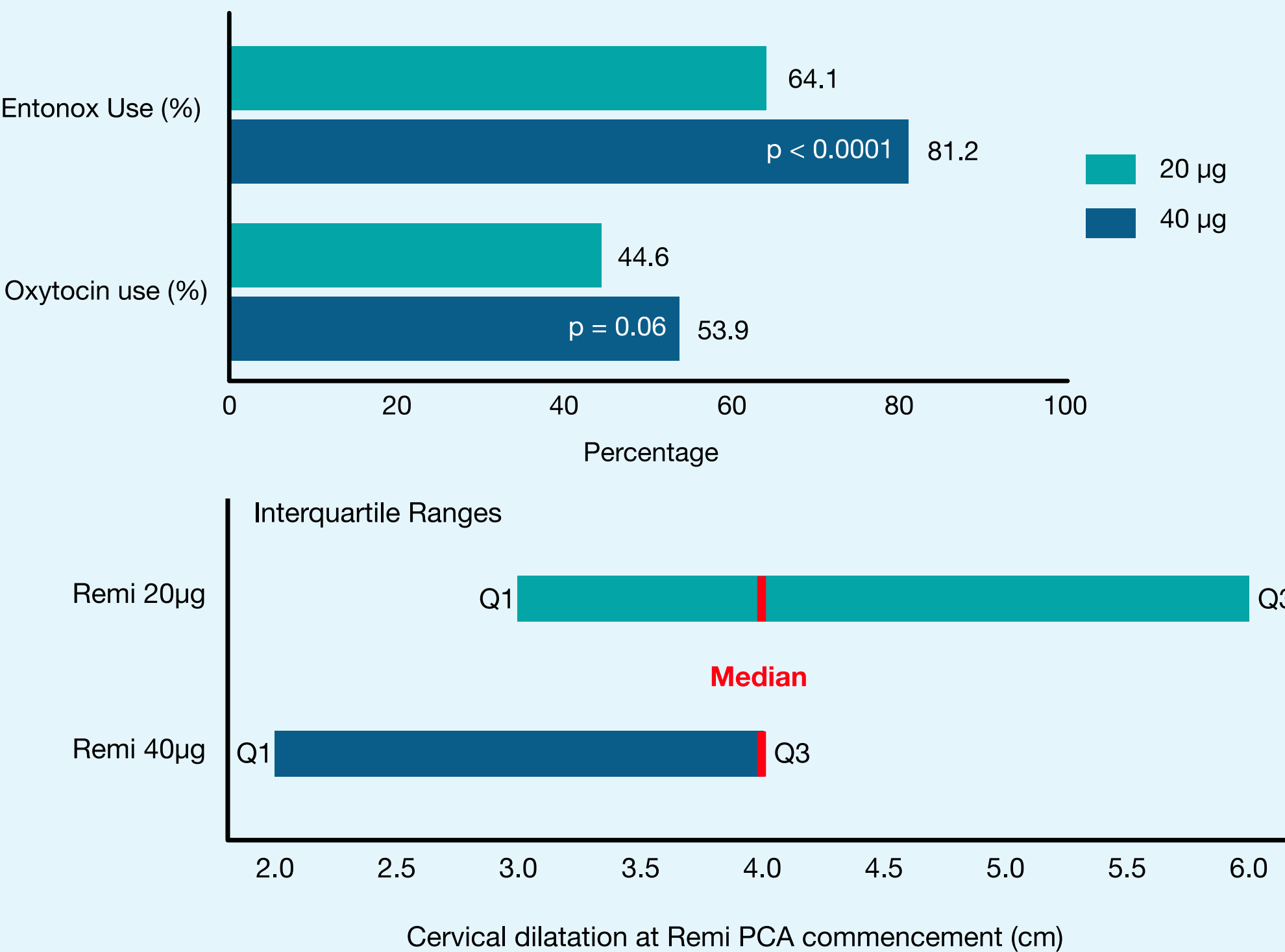
There were no significant differences in age, BMI, ethnicity, gestational age, gravida and multiple pregnancy between the two groups.

Only primiparity was found to be the variable that was associated with an escalation to 40 micrograms dose.

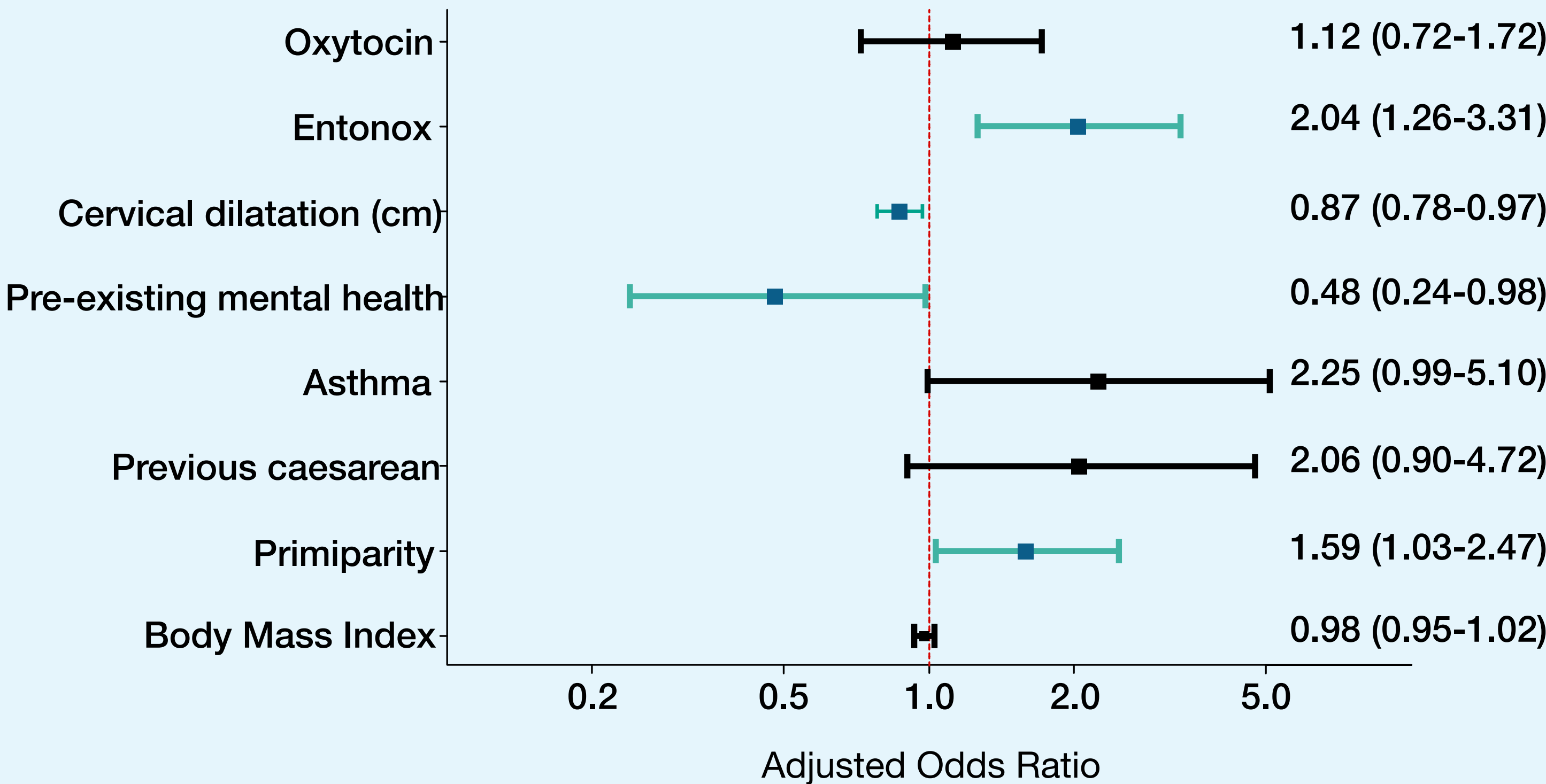
COMORBIDITIES

Other than mental health and asthma, there were no other significant association between other comorbidities and escalating the dose of remifentanil.

OBSTETRIC FACTORS

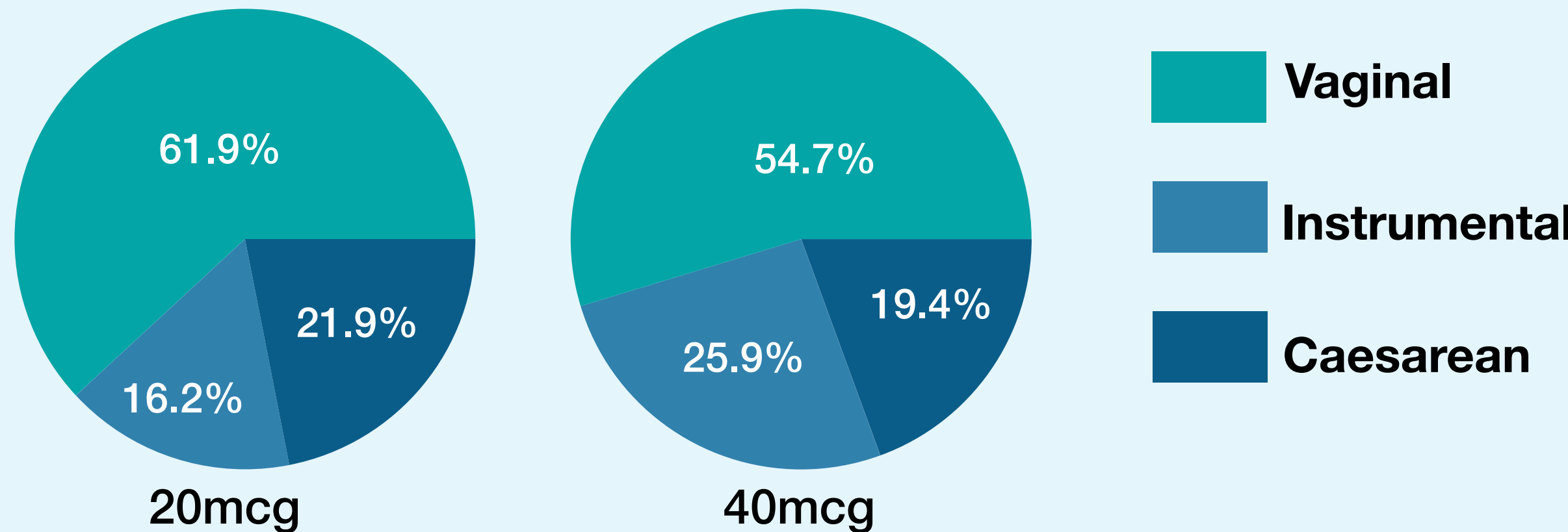


INDEPENDENT PREDICTORS



MATERNAL AND NEONATAL OUTCOMES

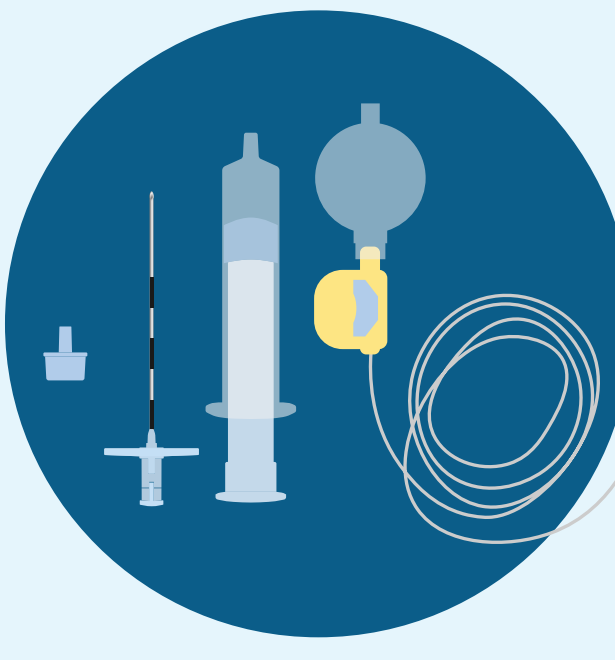
Mode of Birth



An escalation to 40µg regimen was associated with:



Maternal oxygen supplementation ($p < 0.0001$)



Conversion to epidural analgesia ($p = 0.002$)

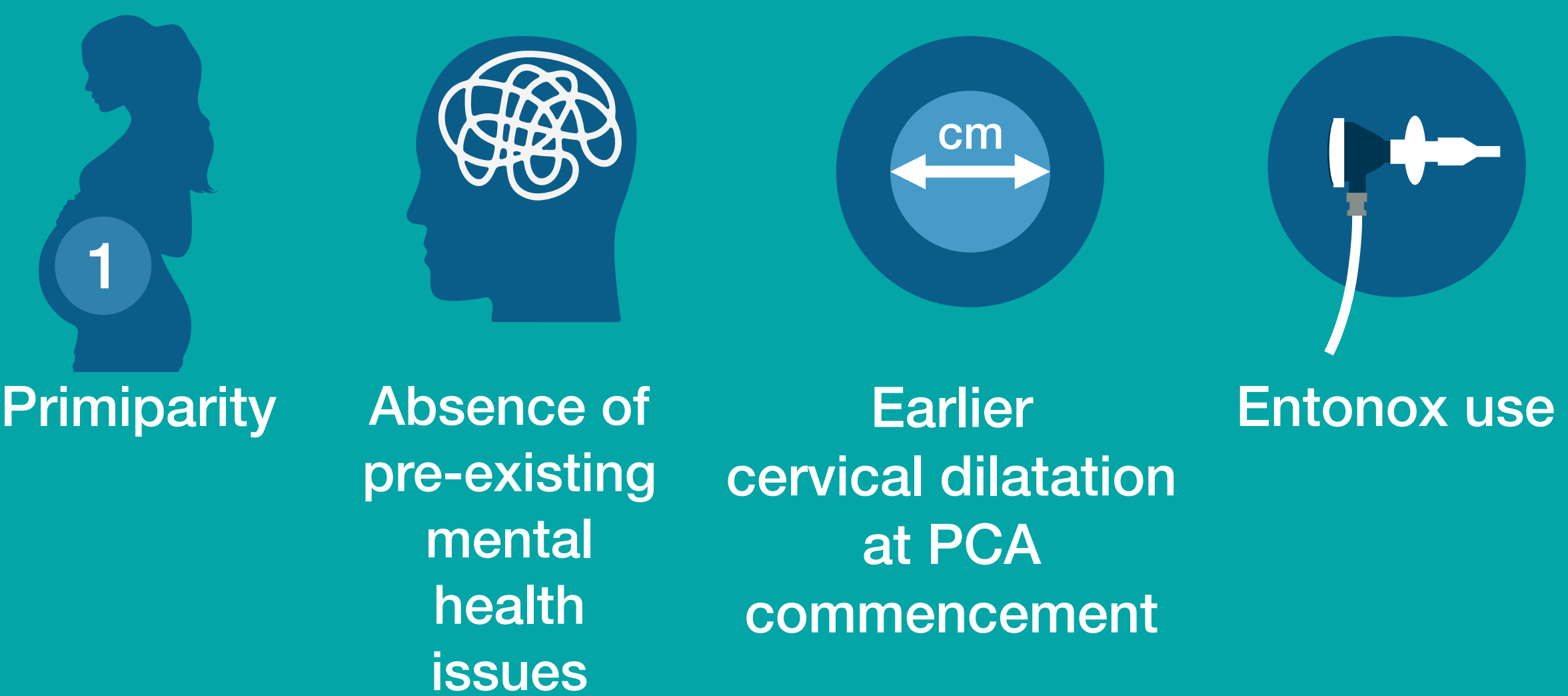


Increased neonatal oxygen requirement ($p = 0.088$)

5 DISCUSSION

Over 1/3 of women escalated to 40µg dose

Independent predictors of escalation were:



Oxytocin use was NOT an independent predictive factor

KEY MESSAGE

With over 60% of patients delivering on the lower 20mcg PCA dose, the escalating regimen may confer certain advantages that require validation in larger studies.

The advantages may include lower oxygen supplementation in the mother, lower epidural conversion, and lower neonatal oxygen requirement

CONCLUSION

Further studies should investigate and compare fixed dose regimens versus escalating dose regimens for labour analgesia and the related maternal and neonatal outcomes.

REFERENCES

1. National Institute of Health and Care Excellence. Intrapartum Care NG235. <https://www.nice.org.uk/guidance/ng235> (accessed January 1 2026).