

# Steroids in Pregnancy for Women Having an Elective Caesarean Birth at Term

Dr Alice Varley & Miss Mandeep Kaler

The Royal London Hospital, London, UK

Email correspondence:  
alice.varley2@nhs.net



**Barts Health**  
NHS Trust

## INTRODUCTION

- Antenatal administration of corticosteroids have established benefits in women at risk of preterm birth for fetal lung maturation.
- Their use is associated with a significant reduction in perinatal death and the adverse morbidities attributed to prematurity, including respiratory distress syndrome (RDS), sepsis, ventilation requirements and intraventricular haemorrhages (IVH) [1,2].
- Updated evidence-based recommendations highlight uncertainty on their benefit for women undergoing planned Caesarean birth at term [3].
- There is a low certainty of evidence that steroids provide a reduction in RDS, transient tachypnoea of the newborn (TTN) or overall NICU admissions in this cohort of women [4].
- Their use may increase the risks of neonatal hypoglycaemia [7, 8] and have associated detrimental implications for neurodevelopmental delay [9-13], cardiovascular and metabolic profiles [14-18] in later life.
- The aim of this study was to determine whether stopping the routine use of antenatal corticosteroids in women undergoing planned Caesarean birth at term impacted neonatal morbidity at a high-risk maternity unit in London, whilst ensuring safety was maintained.

## METHODS

- A Quality Improvement Project was conducted at the Royal London Hospital maternity unit to investigate the neonatal outcomes prior to and after stopping the routine administration of corticosteroids at term.
- 160 pregnant women undergoing planned Caesarean birth between 37+0 and 38+6 weeks were included.
- The neonatal outcomes were retrospectively collected and reviewed for 80 women who were given antenatal corticosteroids between January 2020 to June 2021 and compared to those from 80 women who did not receive steroids after stopping their routine administration from May 2022 to October 2022.
- The neonatal outcomes included TTN, RDS, hypoglycaemia and the requirement for NICU admission.
- Exclusion criteria included the following; <37 weeks, emergency Caesarean births, or those undergoing Caesarean birth in labour.
- Both diabetic (including gestational diabetes (GDM) / type 2 diabetes (T2DM)) and non-diabetic women were included in the study.

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## RESULTS

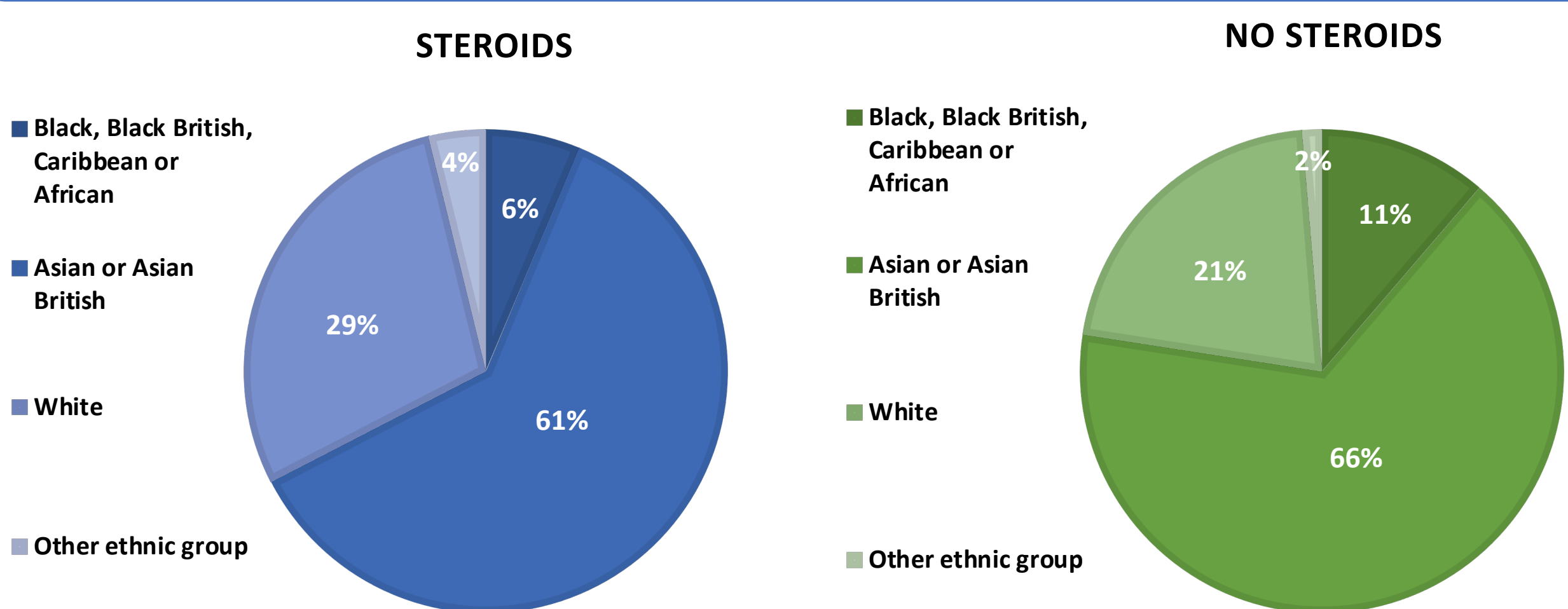


**Figure 1: Ethnicity**

The ethnicities of the women were comparable between the two groups with the majority of women either Asian or Asian British.

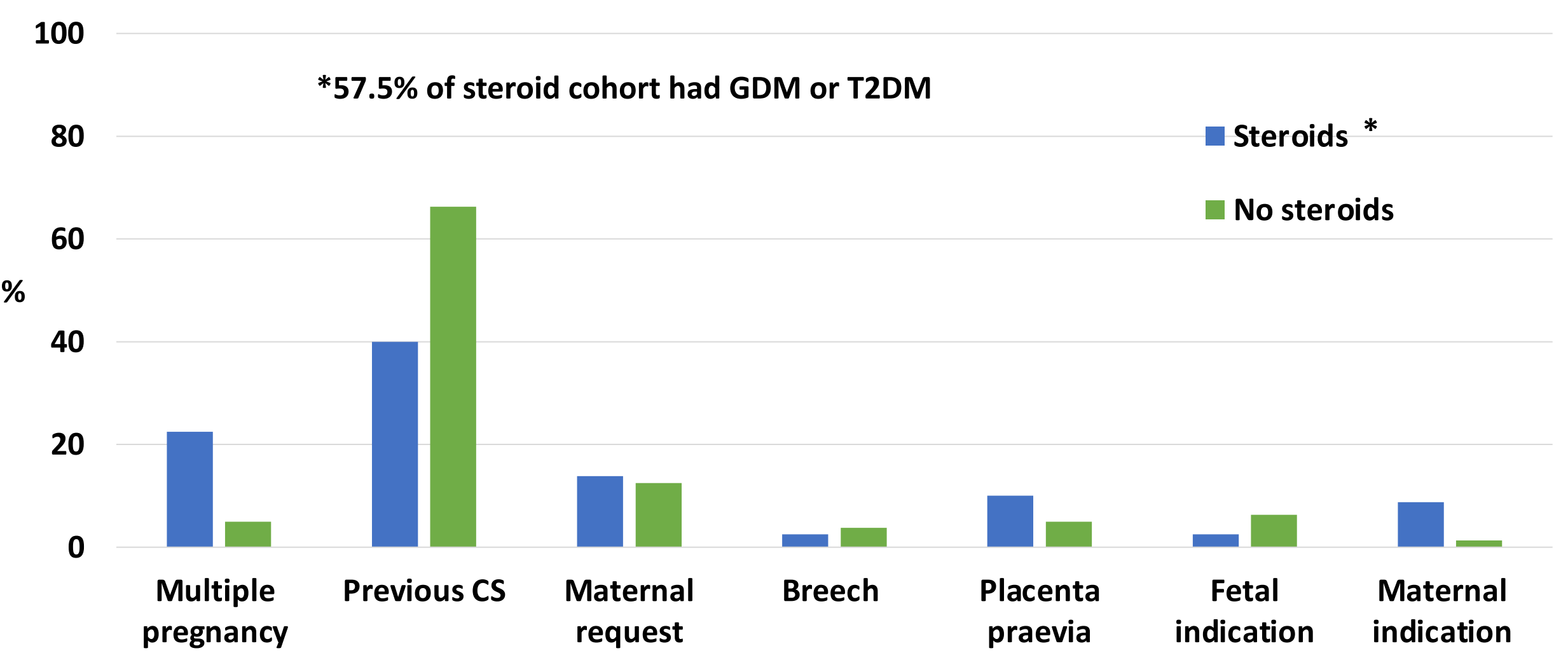


**Figure 2: Caesarean section indications**

The primary indications for Caesarean section in the steroid cohort included multiple pregnancy, placenta praevia or maternal co-morbidities. For the non-steroid group, the primary indication was previous Caesarean section.

### Supplementary 1: Cost effectiveness

Approximate total cost per diabetic woman for 3-day hospital stay including steroids and sliding scale = £1055.91. 46 diabetic women included in steroid cohort. *Total saving of £48,571.86.*

|                                    | Steroids | No steroids |
|------------------------------------|----------|-------------|
| Sample number, 80 per cohort       |          |             |
| Maternal age, years                | 33.0     | 34.3        |
| Maternal BMI, kg/m <sup>2</sup>    | 28.6     | 29.2        |
| Gestational age at delivery, weeks | 37+5     | 38+6        |
| Parity, number                     | 0        | 2           |

**Table 1: Demographics** (Data expressed as mean)

The demographic characteristics were balanced between the two groups, except for parity whereby the mean parity was 2 for no steroids and 0 for the steroid group. The gestational age was also lower for the steroid group.

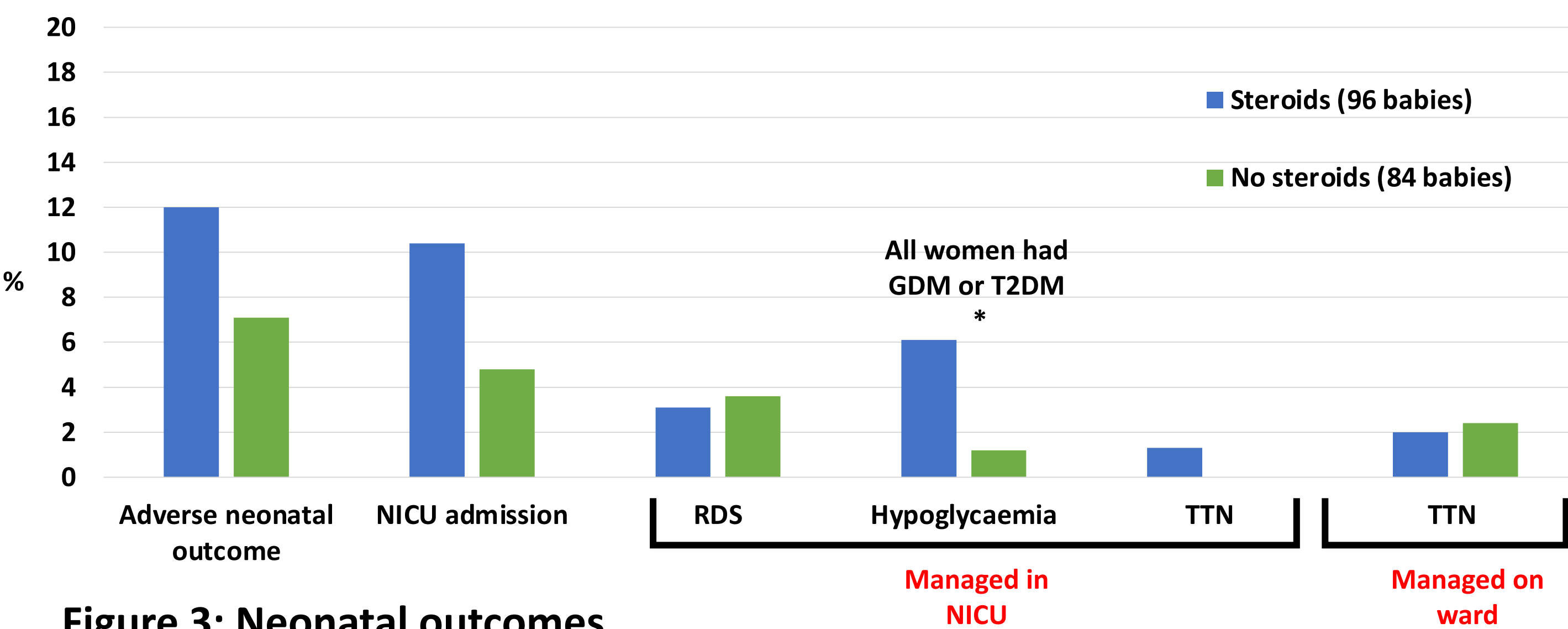


**Figure 3: Neonatal outcomes**

12 of the 98 babies (12.2%) who received steroids had adverse neonatal outcomes vs. 6 of the 84 babies (7.1%) who did not. 10 of the 12 babies in the steroid group were managed in NICU; 3 with RDS, 6 for hypoglycaemia and 1 for TTN. 2 babies were managed on the ward for TTN. 4 of the 6 babies who did not receive steroids were admitted to NICU; 3 for RDS management, and 1 for hypoglycaemia. 2 babies were managed on the ward for TTN.

### Supplementary 2: Improved patient experience

Minimising prolonged hospital admissions improves patient physical and mental wellbeing.

## CONCLUSION

- Reassuringly, there were no significant differences in the adverse neonatal outcomes after stopping the routine administration of corticosteroids in women undergoing planned Caesarean birth at term.
- Importantly, a reduction in neonatal hypoglycaemia was observed, particularly in diabetic women.
- In practise, the risks and benefits of corticosteroids should be discussed with women prior to their use after 37 weeks for planned Caesarean birth following the recent updated evidence.