

Use Of Early Home Blood Glucose Monitoring (HBGM) In Women With History Of GDM

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INTRODUCTION

- Gestational Diabetes Mellitus(GDM) affects around **5% pregnancies** in UK
- History of GDM increases recurrence of GDM in subsequent pregnancies and also Type 2 Diabetes Mellitus.
- Risk of recurrence of GDM in future pregnancies is between **30% to 69%.**
- Rates of recurrent GDM range widely – screening practices, diagnostic criteria for GDM, underlying risk for glucose intolerance, particularly by race/ethnicity, women undergoing postpartum diabetes screening .
- NICE - up to 50% of women diagnosed with GDM will develop T2DM within 5 years of giving birth.**
- Home-monitoring of blood glucose (HMBG) is recommended as a key component of the management plan for diabetes during pregnancy.
- There is an **increased insulin resistance in GDM** women to counter the hyperglycemia caused by pregnancy hormones – Oestrogen, progesterone, Human Placental Lactogen.
- Obesity was found to be the biggest modifiable risk factor** (48%) for gestational diabetes, rest are genetic.

Home blood glucose monitoring

Testing fasting and post meal blood glucose levels at home with a blood glucose monitor over the course of days/weeks and feeding back results to the antenatal diabetes team.

Recommended by NICE for subsequent pregnancies following a previous GDM pregnancy.



COMPLICATIONS

Hypertensive disorders in pregnancy including pre-eclampsia, preterm delivery, cesarean section, and neonatal jaundice (all P < 0.001) were more prevalent in women with pre-existing diabetes and early GDM.¹

Macrosomia, large for gestational age and neonatal intensive care admission in women in whom GDM was diagnosed at <12 weeks of gestation were comparable to rates seen in women with pre-existing diabetes.²

Early GDM women and their offspring are at greater risk of an **adverse pregnancy outcome** compared with those diagnosed at 24–28 weeks. In view of the abnormal post-natal glucose findings, early GDM may reflect a more advanced state in diabetes pathogenesis³

In summary – Early GDM behave like pre-existing Diabetes

BACKGROUND TO AUDIT

In 2017 –Oral Glucose Tolerance Test (OGTT) was introduced as screening test for GDM for high risk women

In 2018 – audit was done on OGTT raised capacity issues .

129% (VHK) and 171% (QMH) increase in average monthly tests (VHK and QMH are 2 sites at NHS Fife

Women with previous GDM – require 2 tests, at 16 weeks and at 24-28 weeks

To reduce workload – HBGM was introduced in April 2018, as recommended by NICE

OBJECTIVES

- To evaluate the effectiveness of early Home Blood Glucose Monitoring (HBGM) to diagnose early GDM in women with history of gestational diabetes
- Rate of diagnosis of pre-exisitng diabetes or treat as Type 2 DM (when GDM is diagnosed less than 16 weeks)
- Pregnancy outcome in women with early diagnosis of GDM

METHODS

Patient identification : was through data collected from the diabetic centre of the number of women who collected the HBGM kit with history of GDM (n=42)

Retrospective study of obstetric electronic case notes (Badgernet) of the women who collected the HBGM kit

Study period: 1st Jan 2019 to 31st Dec 2019

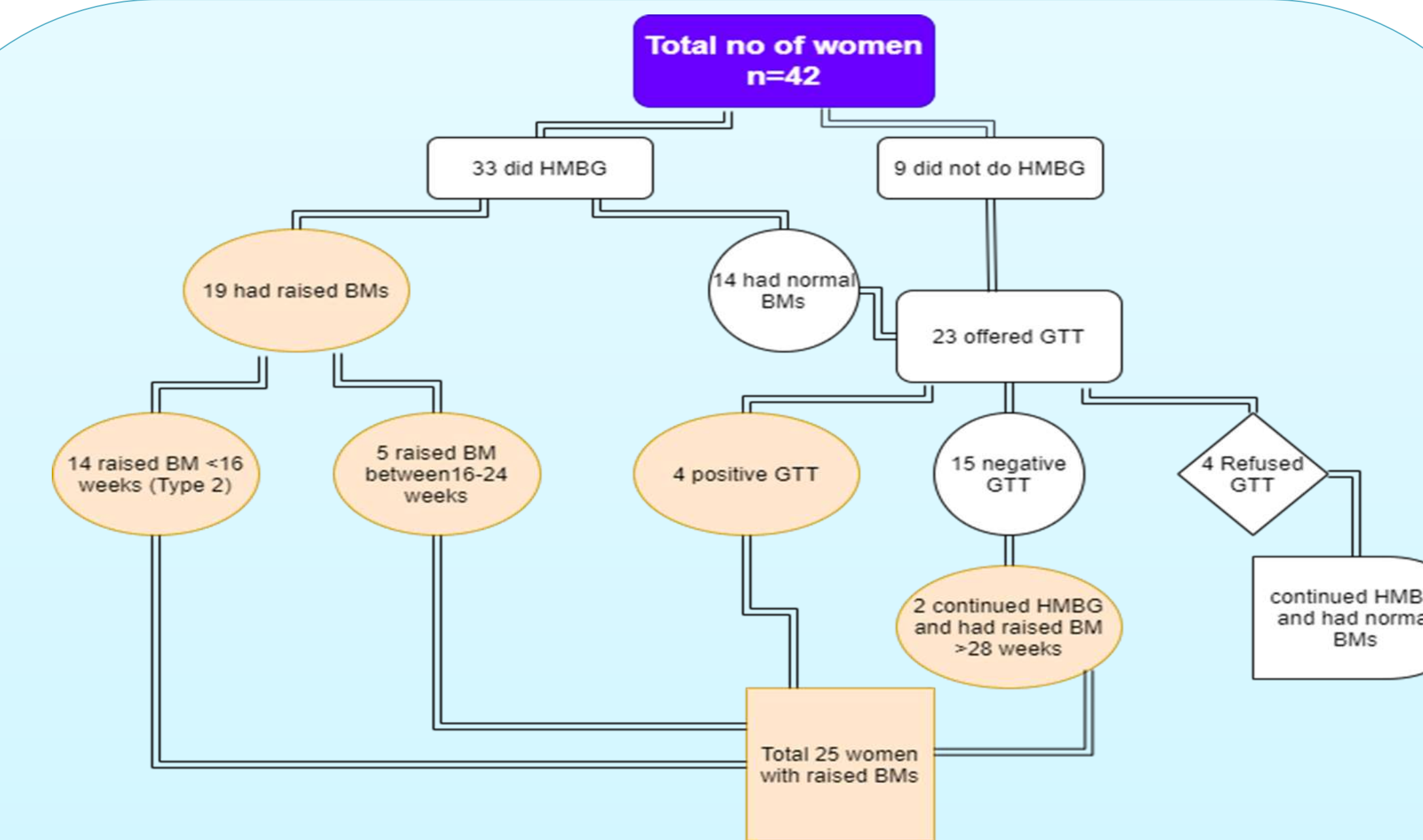
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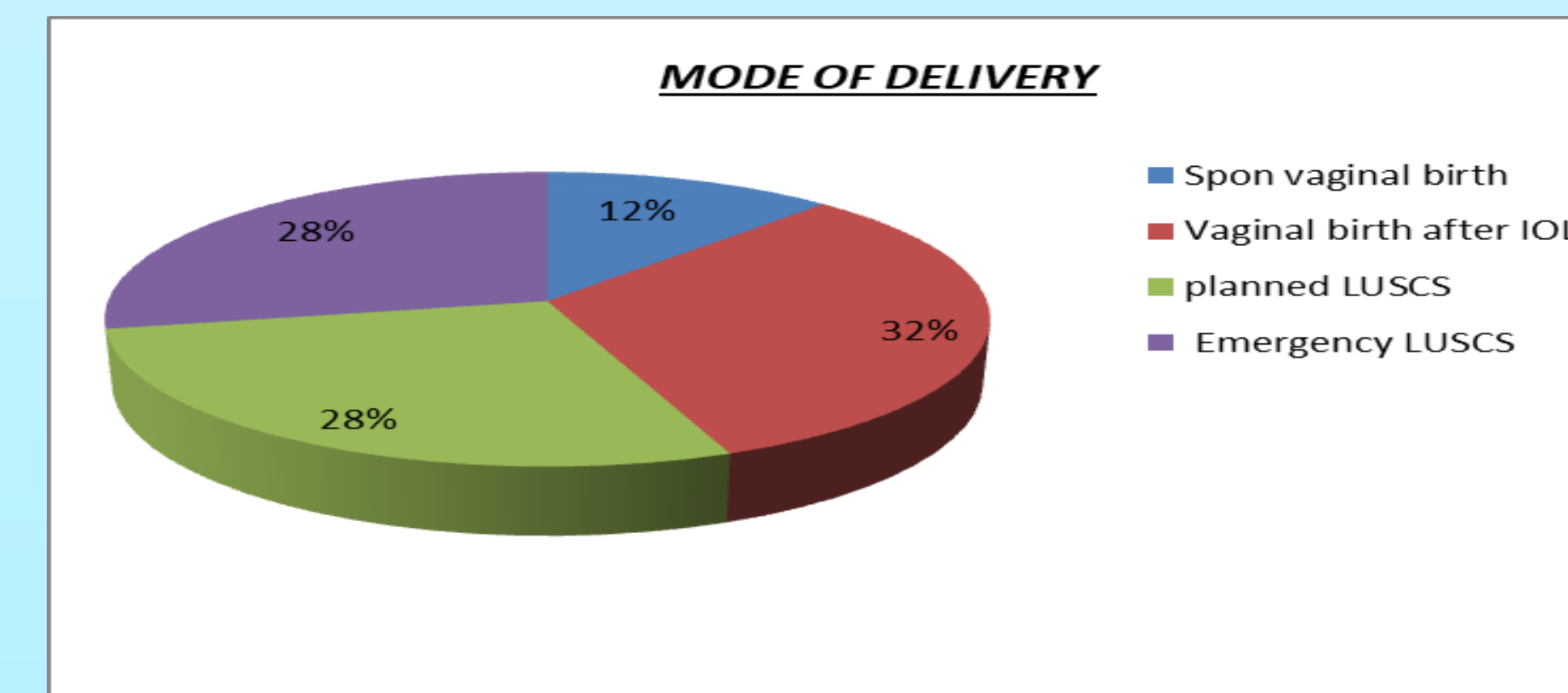
RESULTS



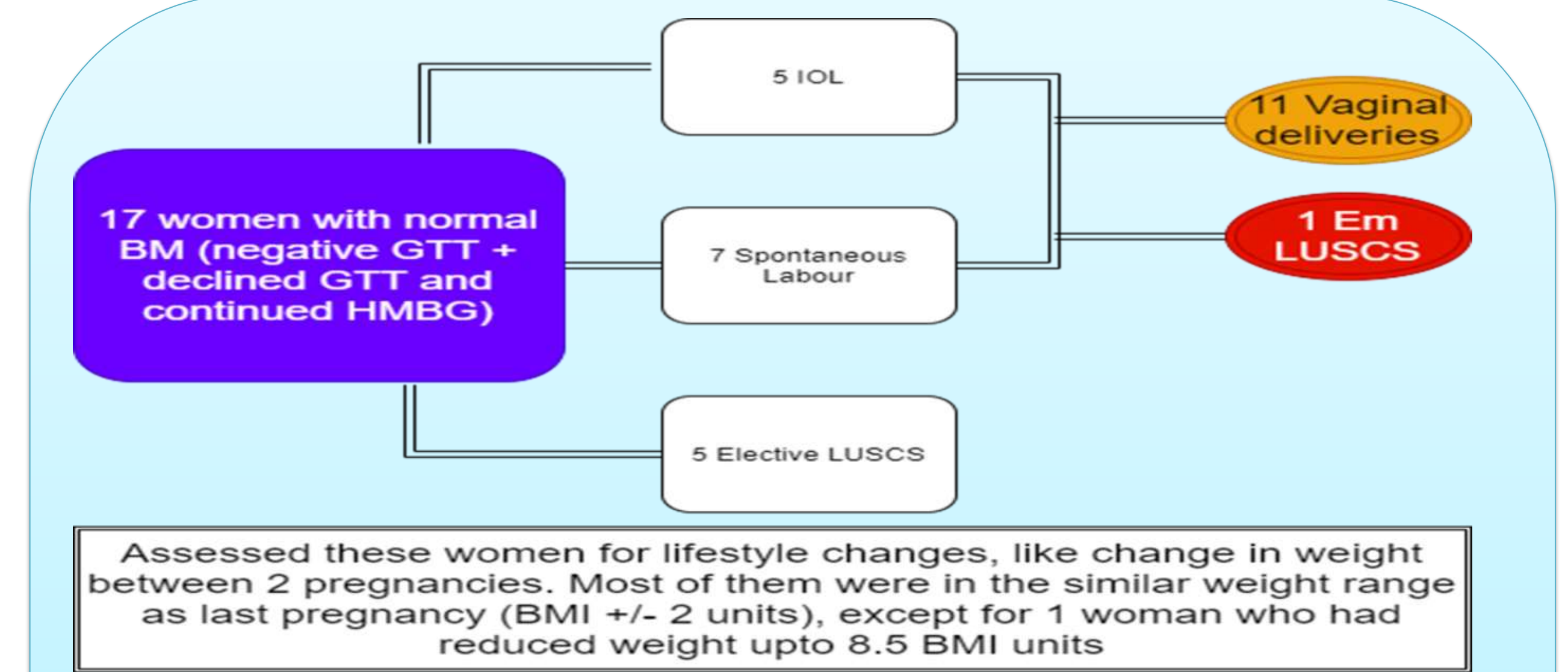
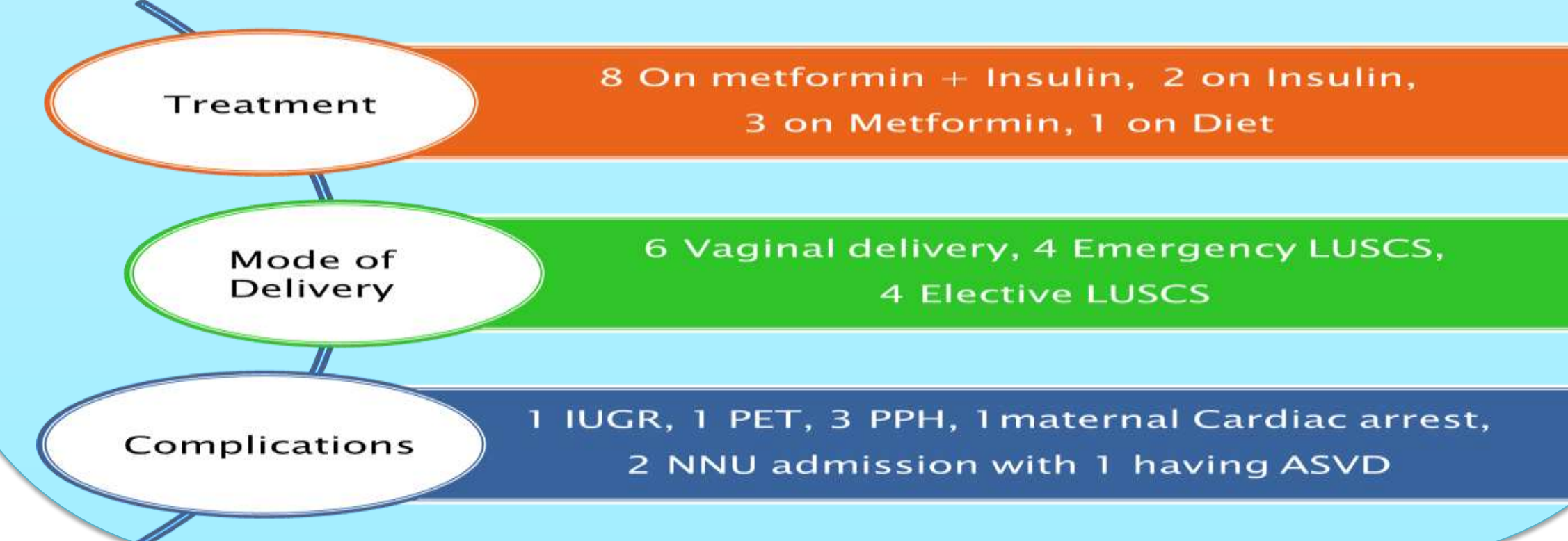
Rate of recurrent GDM in our group is 59.52%



Treatment received by GDM Women



With Type 2 DM (<16 weeks)(n= 14)



Assessed these women for lifestyle changes, like change in weight between 2 pregnancies. Most of them were in the similar weight range as last pregnancy (BMI +/- 2 units), except for 1 woman who had reduced weight upto 8.5 BMI units

Postnatal Follow Up



SUMMARY

- Rate of recurrence 59.52%.
- 15 out of 25 (60%) were managed as Type 2 DM (<16 weeks)
- Baby weight was <4 kg for 92%, except for 2 women, but still <4.5 kg.
- 85% had postnatal follow up and 4 women turned Type 2 DM postnatally (approx 10%).

CONCLUSIONS

- HMBG is an effective tool for diagnosis of early onset GDM.
- It helped in identification of early onset DM in around 60% of the women in study group.
- Early diagnosis and optimisation of blood glucose reduces both maternal and fetal morbidity .
- NHS Fife would like to continue early HMBG for women with previous GDM.

RESEARCH POINTS

- 2 women with negative GTT who continued HMBG - had raised BMs - questions the accuracy of GTT as diagnostic predictor for GDM
- Further study needs to be done on the gestational age at which GTT should be done, as well as if it needs to be repeated at later gestation to prevent diagnosis of late GDM