

# Real-world gestational diabetes screening: problems with the sugar drink test in rural and remote Australia

## What do we already know?

Gestational diabetes mellitus (GDM) means high blood sugar in pregnancy. A lot of women find the sugar drink test for GDM hard to do and many do not want to do it. In the **ORCHID Study** we wanted to see if we could make it easier to check for GDM. During the study we discovered that there are problems with the way the blood sample tubes are stored before they are tested.

To get correct sugar results, the blood tubes need to be put straight on ice in an esky until they are tested. Testing needs to happen within one hour of the last blood sample being taken. This is not part of usual practice in Australia. Instead blood samples are put in tubes that contain an additive (fluoride) to stop cells in the blood sample from using sugar. However, this takes four hours to work, so when the blood gets tested there is less sugar. We wanted to explore this further to see if usual practice effects sugar results and if we are missing women with GDM.

## How was this study done?

- 600 of 694 (39% Aboriginal) women from 27 clinics across regional, rural and remote WA completed the ORCHID study and delivered their babies after 30 weeks gestation. Most of the blood sample tubes took over four hours to get to the lab for testing.
- We found out how much the sugar result dropped by getting women to give blood samples that could get tested quickly. We kept blood sample tubes from these women at room temperature (**usual clinic practice**), on ice (**research grade**), and in a different blood sample tube that is better at keeping sugar stable (**FC Mix tubes**).

## What does this research show?

- We think that we missed 2 out of 3 women who had GDM due to the drop in sugar results.
- Sugar results did not change in blood samples put in FC Mix tubes. This would mean more women would be told they had GDM.

## Changes to clinical practice

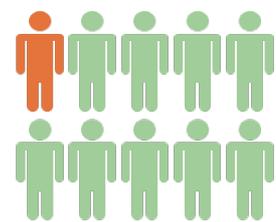
FC Mix tubes are easier to use than putting samples on ice to stop sugar results from dropping. While more women might be told they have GDM when we use these blood tubes, this will allow the clinic to help look after the woman with a care plan that includes a special diet, exercise, and more regular checking of sugar results. More education programs and resources are needed about the effects of too much sugar.

Kimberley Aboriginal Community Controlled Health Organisations are now using FC Mix tubes and Pathwest will accept these tubes for sugar testing. We plan to meet with the *Royal College of Pathologists of Australasia* (RCPA), to discuss updating their guidelines for blood sample collection for sugar testing.

**We would like to thank all women who took part in this study, health service staff and students who assisted with ORCHID, and the health services that agreed to participate.**

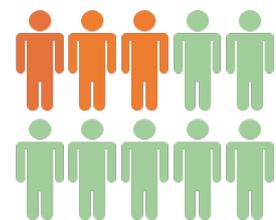
ORCHID is a collaboration between the Rural Clinical School of WA (RCSWA), Kimberley Aboriginal Medical Services and WA Country Health Services. This study was part funded through grants from RCSWA, Lishman Health Foundation and Diabetes Australia. If you have any questions or comments please direct them to ORCHID Study Chief Investigator A/Prof Julia Marley; email: [julia.marley@rcswa.edu.au](mailto:julia.marley@rcswa.edu.au); phone: (08) 9194 3235.

Usual clinical practice



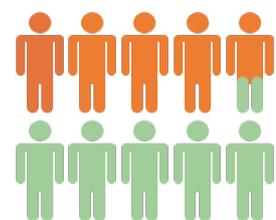
11% GDM – Fluoride blood tube stored at room temperature, takes more than 4 h to get to the lab for testing

Research grade



29% GDM – Fluoride blood tube put on ice straight away and kept on ice while waiting for 1 and 2 hour samples

FC Mix tubes



45% GDM – FC Mix tube – stable for 24 hours at room temperature