



Optimisation of Rural Clinical and Haematological Indicators in Diabetes in pregnancy

**Hot North Professional Development
Workshop Presentation
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What is 'Gestational Diabetes Mellitus' (GDM)?



- **GDM is:**
 - **Too much sugar in the blood during pregnancy**

- **Why it is important to know if you have GDM?**
 - **High blood sugar levels can make both the women and their babies very unwell**
 - **Clinics need to know to reduce the chance of problems during pregnancy**

Testing for Gestational Diabetes-



- Gestational Diabetes is tested by a Oral Glucose Tolerance Test (OGTT) – also known as the ‘Fasting test with a Sugar drink/sugar drink test’
- Patient comes in fasted, have a blood test, then drinks the sugar drink, 1 hour bloods taken & 2 hours bloods taken

Testing for Gestational Diabetes?



- All pregnant women are required to be tested for diabetes using the OGTT when they are 24-28 wks gestation
- Many women don't like the OGTT & decline the test
- Previous study in rural WA showed only 50% of women are being tested

Reasons for OGTT not being completed



Include but not limited to:

- Transport
- Remoteness
- Moving between care sites
- High staff turnover / relationships with pregnant women /ratio midwife to patients
- Late presentation for antenatal care
- Do not like the test
- Leaving before 2 hours is up
- Family demands, other children, no time

A climate for change..



- OGTT not being completed
- However retains its place as THE GDM screening and diagnostic test
- How do we develop a screening process for GDM to reduce the number of OGTT required?
- Answer: ORCHID study

What is the ORCHID Study?



- ORCHID study began 2014 in rural and remote WA
- ORCHID study partners are: Rural Clinical School of WA, KAMS, ACCHS across WA, Hospitals & private clinics across WA
- To see if HbA_{1c} (and other glycation products) could be useful in helping us work out who has GDM or who needs the OGTT so that we can
 - Find better ways to diagnose GDM
 - See if we can detect GDM earlier in pregnancy
- This study has the potential to deliver REAL change for women and
- Should reduce the amount of OGTTs that clinics have to do

Where is the ORCHID Study?



- The ORCHID Study is only in WA

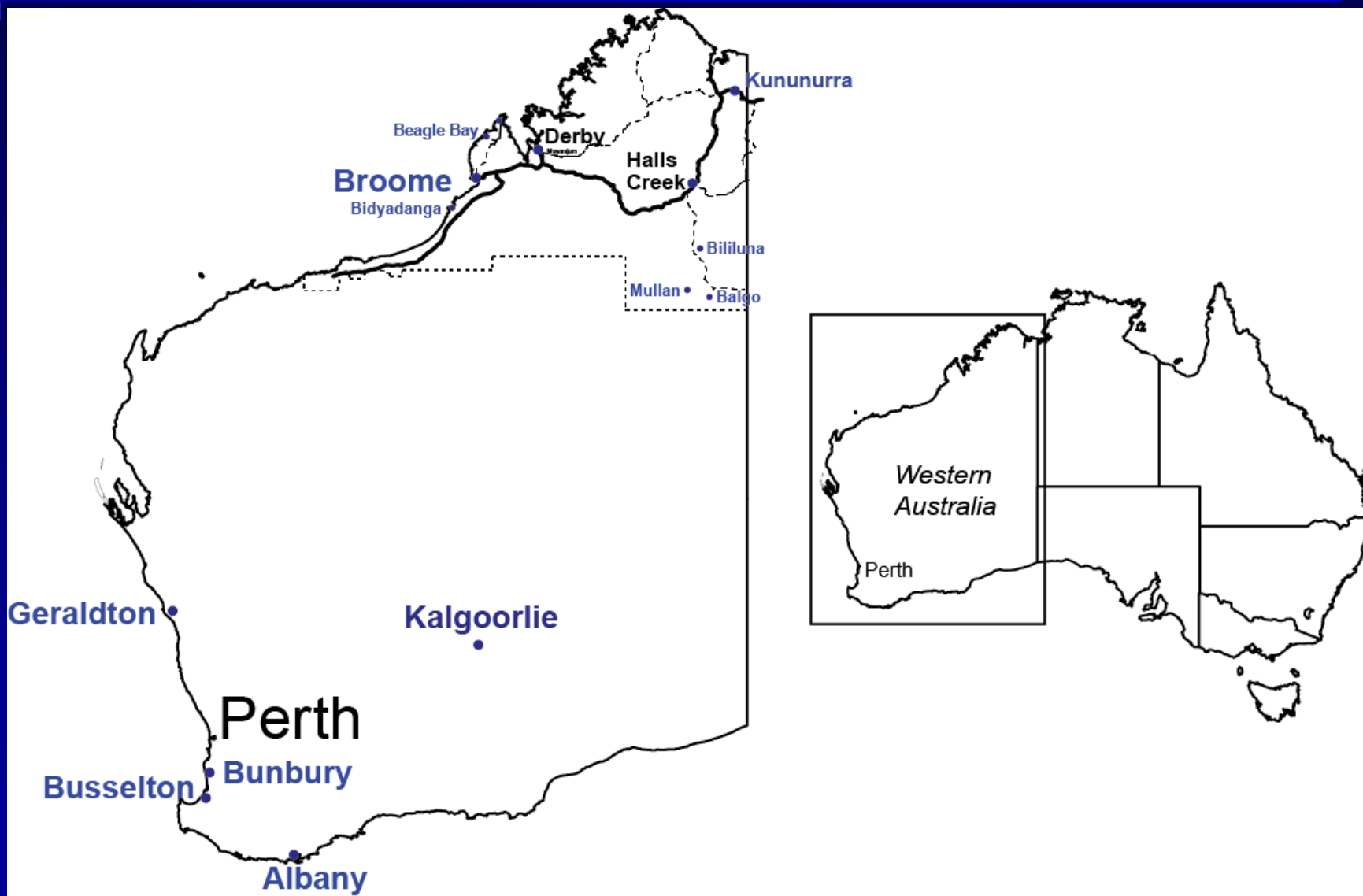
- South area:

Townships: Goldfields (Kalgoorlie), South West (Bunbury and Busselton), Great Southern (Albany) and Mid West (Geraldton)

- North area:

- Townships: Broome, Derby, Kununurra and Fitzroy Crossing and Halls Creek
- Remotes: Dampier Peninsula (One Arm Point 'Ardyaloon', Lombadina/Djarindjin & Beagle Bay), Bidyadanga & Kutjungka (Balgo, Mulan & Bililuna)

WA state-wide study – north and south



Methods



Women are being recruited through health services at the point of presentation for antenatal care:

- **Routinely collected risk factors for GDM**
- **Blood collection at first trimester visit: <10 ml extra blood to test glycation products (HbA_{1c}, GA, AGE/RAGE)**
- **Blood collection at 24-28 weeks gestation: <10 ml extra blood to test glycation products (HbA_{1c}, GA, AGE/RAGE)**
- **Cord blood for C-Peptide levels (if cord blood is collected)**
- **Delivery and outcomes for the baby (STORK)**

Study Design Flow Diagram



Recruit pregnant patients (up to 38 weeks if doing a late OGTT):

- Check eligibility
- Explain what the study is about (use 1 page summary) and obtain consent
- Complete the study Data Collection Form 1 (can fill in history later)
- Request extra blood samples using the “first visit” study GREEN pack at the same time as routine bloods – BSL, FBE, etc (1 x EDTA for HbA_{1c}, 2 x SST for GA and AGE/RAGE)

Based on screening at first antenatal visit does the participant have GDM?

NO

Was the participant recruited at the same time as second / third trimester OGTT and had study bloods taken at the same time as the OGTT?

NO

If the participant is recruited <18 weeks gestation, based on risk factors / blood tests (RPG > 7.8 mmol/L; FPG > 5.5 mmol/L, HbA_{1c} ≥ 5.7%), does she need an early (<18 week) OGTT that is separate to first visit screening?

YES

No further tests required from the participant for the study

YES

At the same time as OGTT request extra blood samples using the ORANGE “early screen” study pack (1 x EDTA for HbA_{1c}, 2 x SST for GA and AGE/RAGE)

NO

Does the participant have GDM?

NO

YES

Complete the 2nd/3rd trimester routine screen (even if they refuse OGTT):

- Complete the study Data Collection Form 2
- Request extra blood samples using the “24-28 week” BLUE study pack at the same time as routine bloods – OGTT etc ((1 x EDTA for HbA_{1c}, 2 x SST for GA and AGE/RAGE)

Birth:

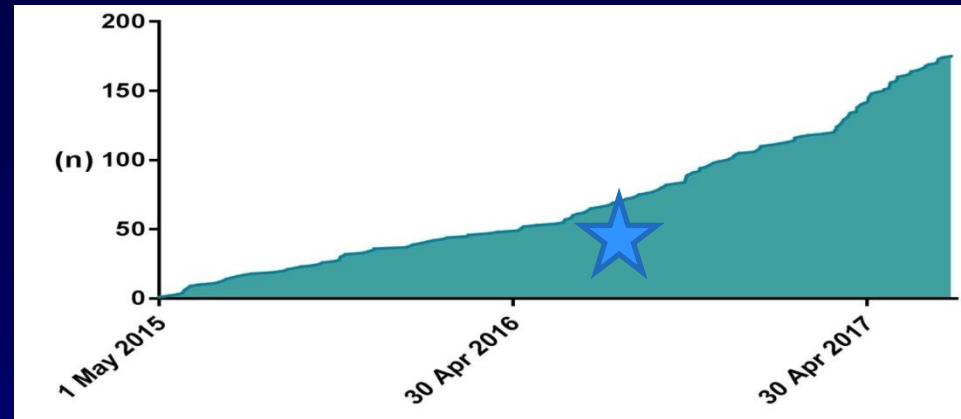
- If cord blood is collected, collect an extra SST and send to PathWest with study pathology form for C-peptide test
- Birth outcome data will be extracted from STORK

Minimising Extra Work Associated with the Study



- Recruiting at routine antenatal visits
- Only taking samples at routine antenatal visits
- Creating study packs to streamline processes and provide labels, materials and pre-filled PathWest Forms
- Having investigators within your region
- Only collecting cord blood if routinely collected on site
- With practice only takes an extra 10 min!
- We hypothesise that using HbA_{1c} we will reduce the number of OGTTs and associated labour in the future

Kimberley Recruitment Status



Kimberley Site	Recruited (n=175)	Target (n=250)
Broome	56	75
Derby	52	50
Kununurra	35	50
Dampier Peninsula	15	15
Bidyadanga	9	5
Halls Creek	4	20
Fitzroy Crossing	1	20
Kutjungka	2	15

Current recruitment status



- **State-wide study aiming to recruit 800 pregnant women (50% Aboriginal)**
 - 1st & 2nd/3rd trimester study bloods
 - 2nd/3rd trimester OGTT over 2.5 years (from Jan 2015)
- **Recruited 679 participants (38% Aboriginal) in:**
 - Goldfields (Kalgoorlie): 262
 - South West (Bunbury and Busselton): 124
 - Great Southern (Albany): 45
 - Mid West (Geraldton): 73
 - Kimberley: 175

Reflection on managing this project



- Diabetes in general – KAMS journey
- Challenges with managing project – what we need with resources – staff /need project coordinator, understanding the Kimberley/ diversity of places towns/remote clinics/people languages, logistics: transporting study bloods -cars/planes/bus
- Learn how the ACCHSs/AMS and WACHS clinics operate – understanding the context/staff training
- Informed consent for research projects is important/ Aboriginal people need to be respected & understand
- ORCHID study data/results will be published 2018



THANK YOU!



For other Kimberley health research interest

Please check out our Kimberley Aboriginal
Medical Services website:

<http://kams.org.au>