

Diabetes in Pregnancy and Postpartum Care

Professor Louise Maple-Brown

*Diabetes across the Lifecourse: Northern Australia
Partnership*



Overview

- Diabetes in Pregnancy Project
 - Clinical Register and its contribution towards improved communication and communication systems
 - Development of the Key 5 resources which were informed by data from our research
 - Next steps and sustainability – your feedback

Context

- 1 in 5 pregnancies among Aboriginal mothers in the NT was complicated by hyperglycaemia in 2015¹
- Preventing hyperglycaemia improves pregnancy & obstetric outcomes
- Offspring exposed to hyperglycaemia in-utero have higher rates of diabetes and overweight
- Mothers with previous GDM are at high risk for GDM in future pregnancies, future type 2 diabetes and other cardiometabolic conditions

Diabetes in Pregnancy – Project Components

1. **Information management systems and communication of information**
2. **Clinical register**
3. Access to healthcare through culturally appropriate pathways
4. **Increased workforce capacity to support women after a pregnancy with diabetes**
5. Policy and guidelines

NT Diabetes in Pregnancy Clinical Register

- Includes women who have any type of diabetes in pregnancy (type 1, type 2 and gestational diabetes) in the NT



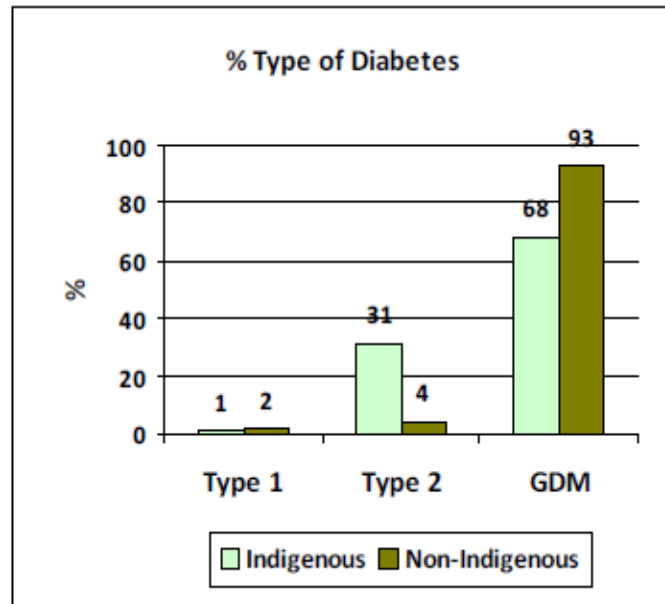
- Gathers **antenatal information** (weight, smoking status, OGTT results, pre-pregnancy tests, medications) and **birth outcomes** (baby's weight, gestational age at delivery, birth complications, APGAR score)

Register provides:

- Key Findings Reports and
- Postpartum lists for clinics

Key Findings - NT Diabetes in Pregnancy Clinical Register

Oct 2011– Dec 2018



Type 2 Diabetes	Indigenous	Non-Indigenous
No.	367	56
Average HbA1C (%)	8	6.8
Median gestation (weeks) at this HbA1c	8.65	8.95

	Indigenous	Non-Indigenous
No. of pregnancies	1168	1268
Average Age (years)	29.5	32
Regional/Remote	73%	9%
Nulliparous:	21%	44%
Ultrasound <= 13 weeks	55%	83%
Smoking at 1st Antenatal	41%	5%

Key Findings for NT Diabetes in Pregnancy Clinical Register Oct 2011– Dec 2018

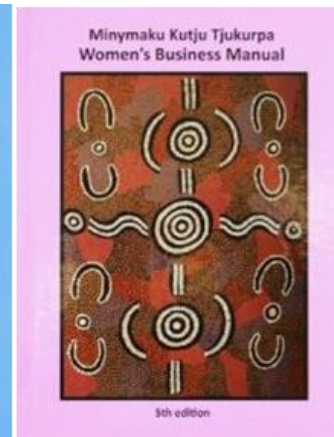
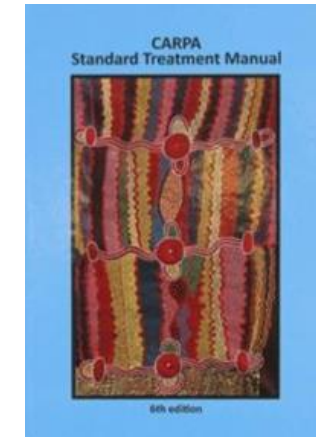
Births	Type 2	GDM
No. of births	423	2009
Live birth	94%	99%
Caesarean section	61%	43%
Still birth/neonatal death (n)	13	6
Miscarriage/abortion (n)	13	<5

*Note excludes n=36 women with type 1 diabetes

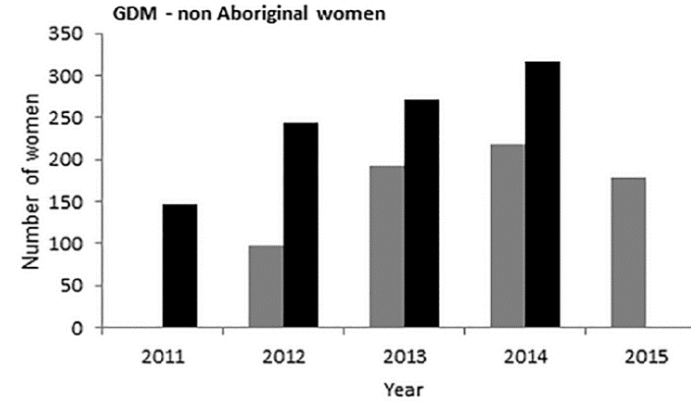
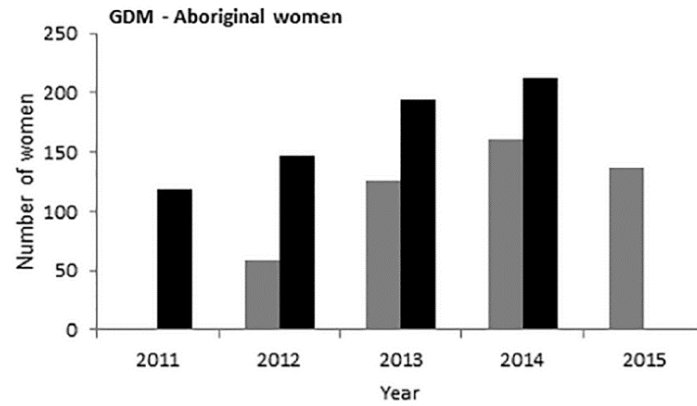
Weight and Gestational Age	Type 2	GDM
Birth weight (gm)	3294	3253
Gestational age (wks)	36.9	38.3
% LGA	36%	14%
% SGA	6%	10%

Congenital Malformations	Type 2	GDM
Major malformation	4%	1%
Minor malformation	8%	5%

- Key areas of change:
 - Improved communication
 - Strengthened networks
 - Integration of quality improvement activities
 - Contribution writing & promotion of guidelines
 - Improved collaboration & relationships between health professionals
 - Improved access to specialist services
 - More education opportunities:
regional workshops

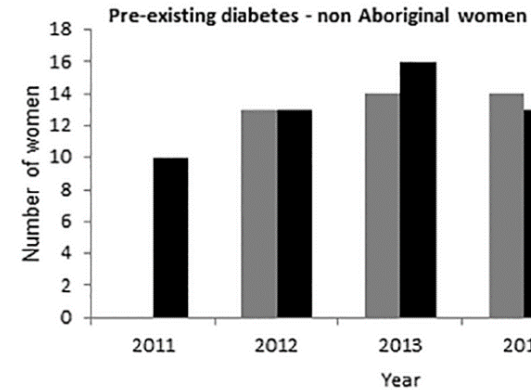
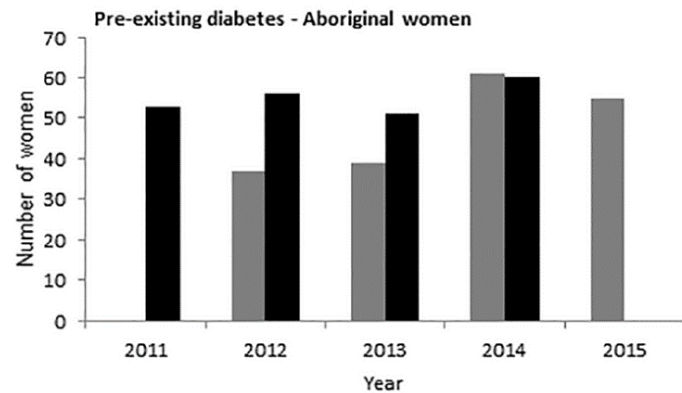


NT DIP Clinical Register



Legend:

- Midwives Data Collection
- Clinical Register



- 80% ↑ GDM prevalence in NT Midwives Data Collection among Aboriginal women (2011-13)
- Likely related to increased awareness, screening & reporting of DIP

The importance of the post-partum period

Opportunity to:

1. Implement strategies to improve child health
2. Optimise “pre-conception” health for the next pregnancy
3. Maximise mothers’ long-term health

Key 5 for postpartum care



Importance of glucose checks post-GDM

T2DM risk after GDM

- 4x higher risk in Indigenous compared with non-Indigenous women
- At 7 years postpartum, 42.4% of Indigenous women were diagnosed with T2DM compared with 13.5% of non-Indigenous women

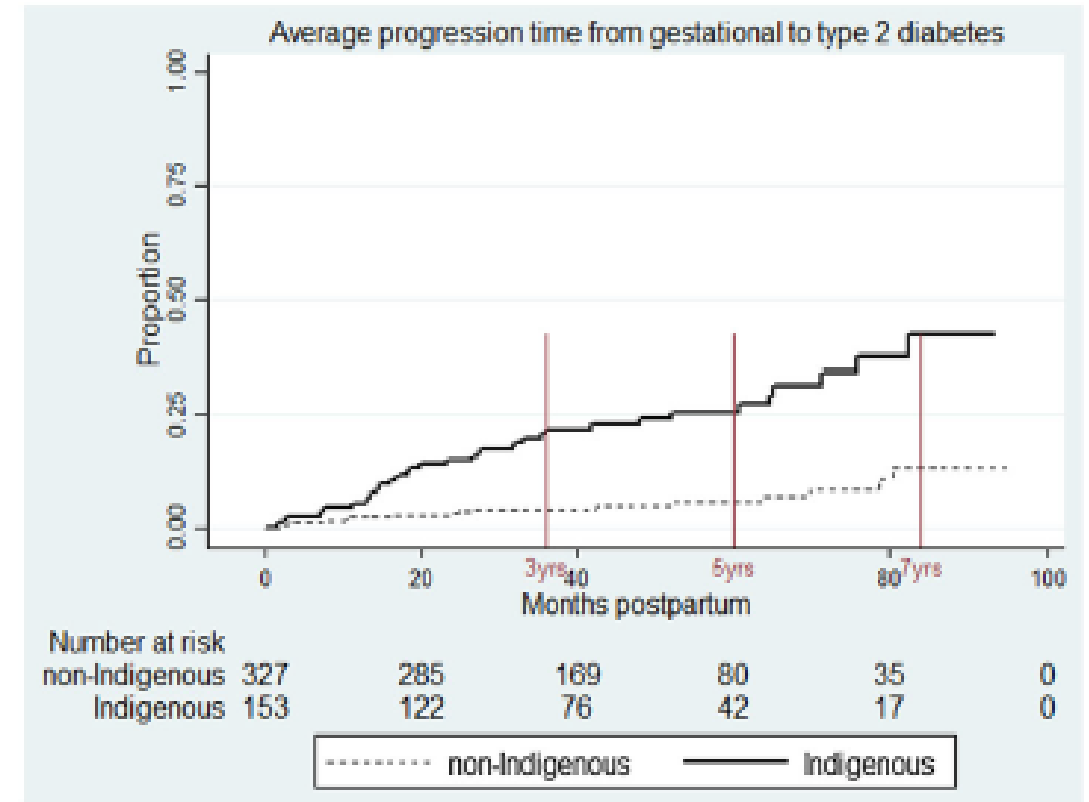


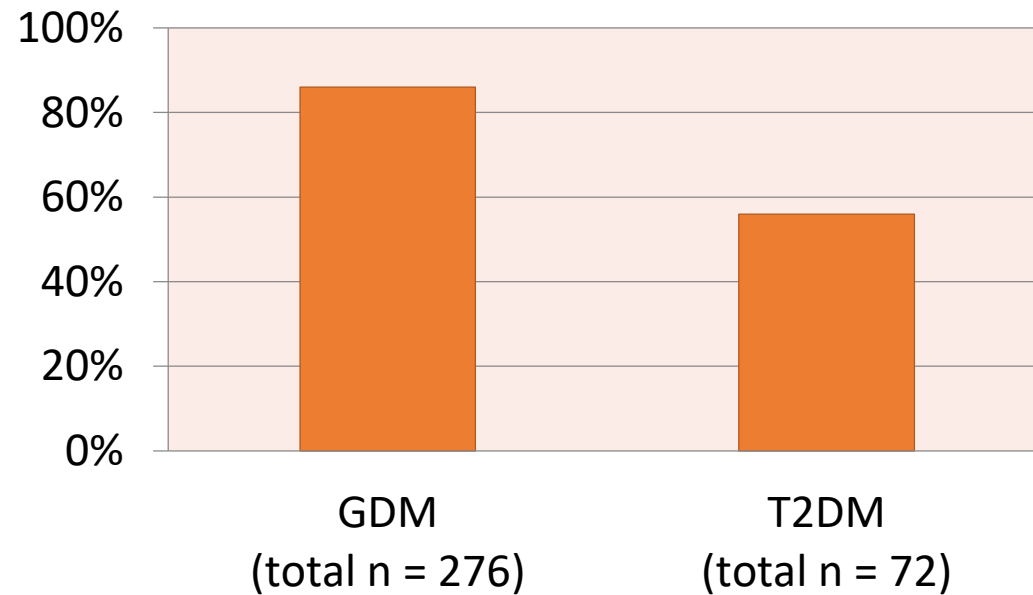
Figure 2. Incidence of type 2 diabetes among women diagnosed with gestational diabetes 1 January 2004 to 31 December 2010, receiving any screening test between 1 January 2004 and 30 November 2011 (Kaplan–Meier estimates)



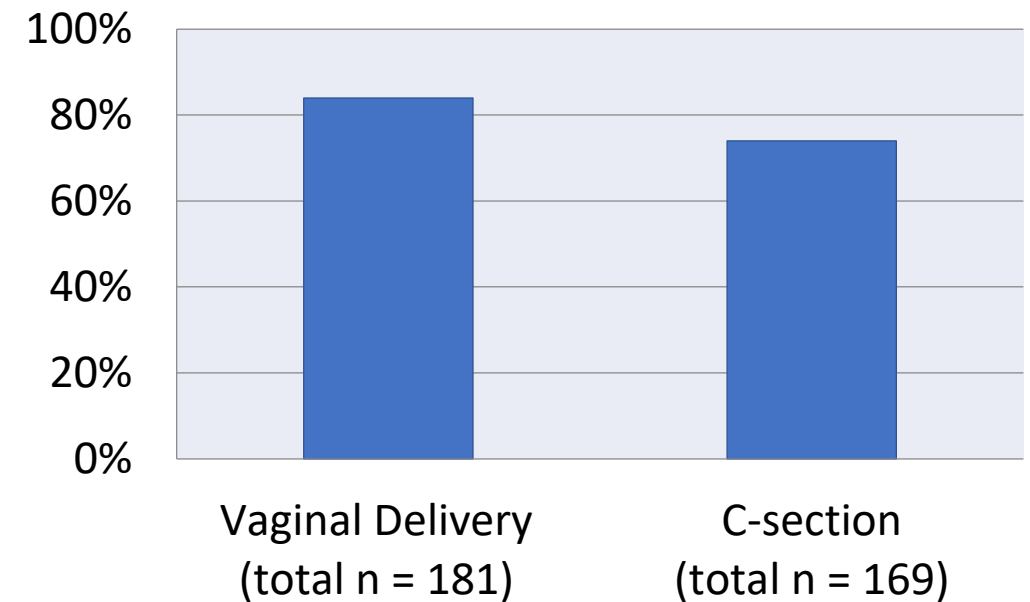
Breastfeeding

NT DIP Clinical Register 2017

Exclusive Breastfeeding on Discharge



Exclusive Breastfeeding on Discharge





Healthy Weight

- Pre-pregnancy BMI & excessive gestational weight gain are independent predictors of pregnancy complications¹
- Weight gain between pregnancies increases risk of future GDM²
- Weight loss is highly effective for preventing type 2 diabetes³
- Aim for weight loss of 5-10% of body weight – even modest amounts of weight loss are beneficial

References: 1. Santos et al, *BJOG*, 2019; 2. Schwartz et al, *Endocrine*, 2016; 3. Erlich et al, *Obstet Gynecol*, 2011; 3. 1. Diabetes Prevention Program Research Group, *Lancet*, 2009



Healthy Weight

Weight monitoring in pregnancy

- Pregnancy is a good motivator / opportunity for women to make healthy lifestyle choices.
- Recommended GWG depends on pre-pregnancy BMI – assess and discuss with mum at earliest opportunity, and monitor throughout pregnancy
- Weight gain trackers are a useful tool

Ref: IOM, 2009 cited in Australian Government Department of Health, 2019

Pre-pregnancy BMI (kg/m ²)	Rate of gain 2 nd and 3 rd trimester (kg/week) - calculations assume 0.5-2kg weight gain in 1 st TM	Recommended range of total weight gain for singleton pregnancies (kg)
<18.5 – underweight	0.51 (0.44-0.58)	12.5-18
18.5-24.9 – healthy	0.42 (0.35-0.50)	11.5-16
25-29.9 - overweight	0.28 (0.23-0.33)	7-11.5
≥ 30 - obese	0.22 (0.17-0.27)	5-9



Next steps

- Project funding ends 2020 and planning for sustainability has begun
- Partnership seeking to transition elements of the project into existing systems particularly the Clinical Register and the information it provides such as postpartum lists and key findings
- Are these useful items for CQI Coordinators? How can the above be integrated into existing systems?

Thank you

- **NT & FNQ DIP Partners:** Menzies, Apunipima, QH, SAHMRI, Baker, AMSANT, NT DoH, Healthy Living NT
- **NT & FNQ DIP Investigators:** A Brown, C Connors, J Shaw, K O'Dea, HD McIntyre, J Oats, P Zimmet, M Wenitong, A Sinha, S Eades, J Boyle, J Mein, A McLean, S Campbell, R McDermott, S Corpus, S Chitturi, E Moore, C Inglis, C Whitbread
- **Funding:** NHMRC Partnership Grant #1032116, Project Grant #107833, GACD #1092968. NHMRC Practitioner Fellowship
- All Diabetes Lifecourse researchers, staff & students
- PANDORA participants, NT & FNQ health services & health staff
- Illustrations created by digital artist Charlotte Allingham, a young Wiradjuri woman, thanks to Monash Centre for Health Research and Implementation and Victorian Assisted Reproductive Treatment Authority



1 GLUCOSE CHECKS

2 BREASTFEEDING

3 HEALTHY WEIGHT

4 SMOKE FREE

5 CONTRACEPTION

Questions or ideas:

ntdippartnership@menzies.edu.au



@diabpartnership

Artist & funding acknowledgement: A number of illustrations in this presentation were created by digital artist Charlotte Allingham, a young Wiradjuri woman living in inner Naarm (Melbourne). We would like to acknowledge Monash Centre for Health Research and Implementation (MCHRI) and HealthLAB (Menzies) for their contribution developing the illustrations and Victorian Assisted Reproductive Treatment Authority (VARTA) for their financial contributions to the illustrations