The First International Association of Diabetes and Pregnancy Study Groups (IADPSG) Summit on the Diagnosis of Gestational Diabetes in Early Pregnancy: TOBOGM Summit Report

14 November 2023

The First International Association of Diabetes and Pregnancy Study Groups (IADPSG) summit on the diagnosis of gestational diabetes in early pregnancy: TOBOGM Summit Report

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Tables/Figures 2 (plus 5 supplementary)

Introduction

While approaches may differ, there is global agreement that screening for gestational diabetes mellitus (GDM: hyperglycaemia first detected in pregnancy and below diabetes in pregnancy [DIP: likely undiagnosed type 2 diabetes]), should occur routinely at 24-28 weeks' gestation (1, 2), largely based upon two high quality randomised controlled treatment trials (RCT) (3, 4). The World Health Organisation (WHO) and International Association of the Diabetes and Pregnancy Study Groups (IADPSG) diagnostic criteria for GDM were subsequently developed based upon the large, international Hyperglycemia and Adverse Pregnancy Outcomes (HAPO) cohort study (5). Both the HAPO study and the HAPO-Follow Up Studies (HAPO-FUS: a prospective follow up of the HAPO cohort and their offspring for 10-14 years) demonstrated continuous linear associations between maternal glycaemia during a 2-h 75g oral glucose tolerance test (OGTT) at 24-32 weeks' gestation, perinatal, and long-term maternal and offspring complications (5-7).

International guidelines now also generally recommend early testing for women at high risk of DIP (8). While glycaemic thresholds identifying DIP in early pregnancy are well established (1, 2), whether and how to define maternal hyperglycaemia below this threshold (early GDM diagnosed prior to 20-24 weeks' gestation) is unclear. Despite a physiological decrease in maternal fasting glucose in the first trimester (9), a linear relationship between early pregnancy fasting glucose levels below DIP thresholds and risk of perinatal complications also exists (10). Until recently, high-quality evidence for diagnosing and treating early GDM had been lacking. A meta-analysis of 13 cohort studies in women with early GDM demonstrated greater perinatal mortality (relative risk [RR] 3.58; 95% Confidence Interval [CI], 1.91 to 6.71) compared to women diagnosed with GDM in later pregnancy, despite treatment (11).

In the Early Gestational Diabetes Screening in the Gravid Obese Woman (EGGO) trial (12) in the United States (US), early screening for GDM among 922 women with body mass index (BMI) ≥ 30 kg/m^2 using the 1-h 50 g glucose challenge test (GCT), followed by a 100-g, 3-hour OGTT if the initial GCT was ≥ 7.5 mmol/L (135 mg/dL), showed no difference in overall risk of perinatal complications (a composite of macrosomia [>4000 g], primary caesarean delivery, hypertensive disease of pregnancy, shoulder dystocia, neonatal hyperbilirubinemia, and neonatal hypoglycaemia). GDM was diagnosed if two or more values on the OGTT were above the thresholds: fasting ≥ 5.3 mmol/l (95 mg/dL), 1-hour ≥ 10.0 mmol/l (180 mg/dL), 2-hour ≥ 8.6 mmol/l (155 mg/dL) and/or 3-hour ≥ 7.8 mmol/l (140mg/dL). However, the trial included only a small number of women diagnosed and treated for GDM (69 women [15.0%] in the early screening group vs 56 women [12.1%] in the routine screening group, with the average gestational age at diagnosis 24.3 ± 5.2 weeks vs 27.1 ± 1.7 weeks, respectively), and its design did not allow a comparison of pregnancy outcomes between women with treated and untreated early GDM.

The recent Treatment of Booking Gestational Diabetes Mellitus (TOBOGM) trial (13) was the first large multicentre international RCT to test diagnostic criteria and treatment for early GDM in women with risk factors for hyperglycaemia in pregnancy. The TOBOGM study showed that immediate treatment of GDM (2-h 75g OGTT WHO 2013 criteria: fasting glucose ≥ 5.1 mmol/L [92 mg/dL], and/or 1-h glucose ≥ 10.0 mmol/L [180 mg/dL], and/or 2-h glucose ≥ 8.5 mmol/L [153 mg/dL]) (2) before 20 weeks' gestation led to a reduction in the incidence of a composite of major adverse neonatal outcomes (preterm birth < 37 weeks' gestation, birth trauma, birth weight ≥ 4500 g, respiratory distress, phototherapy, stillbirth or neonatal death, or shoulder dystocia) from 30.5% in the control group to 24.9% in the immediate-treatment group (adjusted risk difference, -5.6%; 95% CI, -10.1 to -1.2). Prespecified subgroup analyses

suggested a potentially greater effect of early intervention among women with higher glycaemic values on the OGTT, based on the 2.0 odds ratio for adverse pregnancy outcomes shown in the HAPO study (fasting glucose 5.3-6.0 mmol/L [95-109 mg/dL], and/or 1-h glucose ≥ 10.6 mmol/L [191 mg/dL], and/or a 2-h glucose level 9.0-11.0 mmol/L [162-199 mg/dL]) vs women in the lower glycaemic band, based on the 1.75 odds ratio for adverse pregnancy outcomes in the HAPO study (fasting glucose level 5.1-5.2 mmol/L [92-94 mg/dL], 1-h glucose level 10.0-10.5 mmol/L [180-190 mg/dL], and/or a 2-h glucose level 8.5-8.9 mmol/L [153-161 mg/dL]), and among women who underwent OGTT prior to 14 weeks' gestation. A potential for harm was also shown in the lower glycaemic band with more small-for-gestational-age (SGA) offspring (adjusted risk difference, +5.5%; 95% CI, 1.4 to 9.7).

The TOBOGM Summit

The TOBOGM trial sought to address the knowledge-gap in whether to diagnose and treat early GDM, following the identification of the various issues with existing GDM diagnostic criteria in early pregnancy (14, 15). The TOBOGM Summit emulated the process for defining diagnostic criteria for GDM following the publication of the HAPO study in 2008 (5), when the IADPSG ran a series of workshops and set up a writing group to gain consensus for the IADPSG criteria for GDM diagnosis at 24-28 weeks' gestation (1). A caveat to this process was that while these IADPSG criteria were adopted by the WHO and major international diabetes and obstetric organisations (2, 16-20), several national organisations either did not adopt the criteria, or proposed different criteria (15, 21-23). The rationale for not adopting the IADPSG/WHO criteria varied but largely came down to a predicted increase in workload with no RCT evidence of benefit (21, 24).

The purpose of The First IADPSG Summit on the Diagnosis of Gestational Diabetes in early Pregnancy (the TOBOGM Summit) was therefore to use the TOBOGM trial findings to scope the issues involved with early screening, to inform future discussions over possible approaches and criteria for diagnosing GDM in early pregnancy.

The TOBOGM Summit (Summit) was hosted by the IADPSG on 17th November 2022, in Sydney, Australia. Over 170 delegates from 21 countries attended, representing a range of health professionals/clinicians, academics, policy makers and consumers with lived experience. Attendees are listed in the supplementary appendix (**S1**). Representatives from organisations with an interest in diabetes and pregnancy included the IADPSG, International Federation of Gynaecology and Obstetrics (FIGO), International Diabetes Federation (IDF), National Institutes of Health (NIH), and New South Wales Health. The TOBOGM findings were shared with attendees, in confidence, after submission but prior to revisions and publication, but few changes were made to the results presented between the summit and the final paper. This report represents the opinions of individual delegates of the Summit and does not necessarily reflect the position of the organizations they represent. It is expected that this report will serve as a scoping review/report for nationally and internationally endorsed approaches and criteria for the diagnosis of GDM in early pregnancy.

Methodology

Format and key questions at the Summit

The Summit was divided into two parts - presentations and workshops.

Presentations by leading international experts included a global overview on the prevalence, current screening practice and diagnostic criteria for GDM in early pregnancy, as well as the

issues relating to screening, diagnosis and treatment of hyperglycaemia in early pregnancy. Presentation of the TOBOGM Study results included sessions on the primary outcomes, the pre-analytical glucose TOBOGM sub-study, consumer perspectives on potential glycaemic thresholds, and options for glycaemic thresholds and glycaemic measures from the TOBOGM study, followed by a panel discussion. The TOBOGM Summit Program is presented in **Supplementary Appendix 2**.

A series of workshops followed the presentations, where delegates discussed the following key questions:

1. Should we test for and treat GDM from early pregnancy?
2. What diagnostic criteria should we use for GDM in early pregnancy?
3. What are the issues over how we should screen for early GDM to decide who should have an OGTT?
4. What are the challenges in nomenclature/classification for GDM in early pregnancy?
5. What are the challenges and facilitators for translating findings from RCTs of when to test for and treat GDM from early pregnancy into practice?

The final workshop collated and presented the delegate discussions, provided international perspectives, and discussed future directions related to the Summit Report and roadmap to a framework for the diagnosis of GDM in early pregnancy.

Data collection and analysis

Feedback to the questions was collected through a pre- and post-Summit survey, sent to all delegates (**Supplementary Appendix 1**). Issues were collated using an interactive graphic polling platform (SLIDO) and audio recorded round-table discussions (with the option for

written comments), that explored perspectives on early GDM before and after presentation of the TOBOGM findings. No identifiable data were collected and delegates were aware that a summary of survey data and discussions would be disseminated via a Summit Report. Survey data were collated and descriptively analysed. Word clouds were downloaded from SLIDO with word size reflecting the degree of recurrence of any given theme (e.g. larger words for more pertinent themes). Audio recordings and written comments were manually transcribed. Transcripts and word cloud data were analysed using an inductive 6-step thematic analysis approach (25), with the identified themes summarised in the present Report.

Findings

Table 1 summarises the results of the survey prior to and following the Summit. Most delegates both prior to and following the Summit agreed that testing for early GDM should occur, that this should involve a one-step 75g OGTT, and that hyperglycaemia less than DIP occurring early in pregnancy should be called "early GDM". Following the TOBOGM presentation, there was a small increase in the proportion of delegates preferring early risk factor-based screening to decide who should perform a subsequent early OGTT. The criteria preferred by most delegates for diagnosing early GDM shifted from the WHO (based on the 1.75 odds ratio for adverse pregnancy outcomes shown in the HAPO study or TOBOGM lower glycaemic band) before the presentations, to the Canadian Diabetes Association (CDA) (based on the 2.0 odds ratio for adverse pregnancy outcomes shown in the HAPO study or TOBOGM higher glycaemic band), after the presentation.

Workshop discussion (**Table 2** includes all themes) and SLIDO data (**Figures S1-5**) showed broad support for testing and treating GDM in early pregnancy given the elevated risk shown with early hyperglycaemia and effectiveness of early treatment. Overall, delegates felt there was insufficient evidence to currently define diagnostic criteria for GDM in early pregnancy.

Financial barriers, need for consensus and resources were the most frequent issues raised in relation to testing and treating GDM in early pregnancy, defining early GDM criteria, identifying who should undergo an early OGTT and translation into clinical care. Other key issues were acceptability, the applicability of the TOBOGM findings in different populations/cohorts, which risk factors to select, equity (including access to an OGTT), the level of evidence required to revise diagnostic criteria for GDM, the need for re-testing in later pregnancy, overdiagnosis and the potential risk of overtreatment. Participants also consistently expressed that for early testing to be effective there needs to be more patient and healthcare professional education about the importance of accessing healthcare in the earlier stages of pregnancy. Major issues around nomenclature were stigma, confusion and consistency.

Conclusions and Future Directions

Despite most delegates supporting testing for early GDM using a one-step 75g OGTT approach (CDA criteria preferred to IADPSG criteria), the TOBOGM Summit thematic analysis highlights the importance of considering resources, cost, consumer perspectives and equity in translating TOBOGM results into a clinical approach to early GDM. Health economic analyses may provide further clarity. Regarding future directions, there was broad consensus for the development of a writing group comprising relevant international stakeholders in DIP to define the approach and diagnostic criteria for early GDM, ensure equity and be able to evaluate the implementation process effectively across populations and geographic regions. Further work, including more consumer perspectives, health economic analyses and modelling of the impacts of different cut-offs and risk factor approaches, are required to inform the work of the writing group. The impact on the diagnostic approach at 24-28 weeks' gestation will also need to be considered. Additional randomised controlled trials are needed including those in different populations. As such trials will take several years to fund, implement and report, consensus is

needed on how and whether, in the interim, to progress from the TOBOGM findings to clinical service implementation.

Table 1. Pre- and Post-Summit Delegate Survey Data.

Survey Questions	Pre-Summit (%)	Post-Summit (%)
1. Should at least some women be tested and treated for GDM from early pregnancy?	Yes (95%) n=133	Yes (93%) n=119
2. What diagnostic criteria should be used for GDM in early pregnancy?	IADPSG (60%) Canadian (7.6%) Other (16.8%) n=119	IADPSG (27%) Canadian (46%) Other (14%) n=132
3. What test should be used?	75g 2-h OGTT (92%) n=115	75g 2-h OGTT (99%) n=97
4. How many blood test steps should there be?	One (89%) n=113	One (95%) n=108
5. How should we screen for early GDM to decide who should have an OGTT?	Those with DIP risk factors (69%) n=126	Those with DIP risk factors (79%) n=113
6. What should we call hyperglycaemia less than DIP?	Early GDM (76%) Other (15.8%) n=127	Early GDM (77%) Other (11%) n=117

Legend: SLIDO Pre- and Post-TOBOGM Summit Survey listed in Supplementary Appendix 3 (**S3)**. n: Number of delegate responses. IADPSG: International Association of the Diabetes and Pregnancy Study Groups diagnostic criteria for GDM (2-h 75g OGTT: fasting glucose ≥ 5.1 mmol/L; and/or 1-h glucose ≥ 10.0 mmol/L; and/or 2-h glucose ≥ 8.5 mmol/L); Canadian Diabetes Association diagnostic criteria for GDM (2-h 75g OGTT: fasting glucose ≥ 5.3 mmol/L; and/or 1-h glucose ≥10.6 mmol/L; and/or 2-h glucose ≥ 9.0 mmol/L). DIP: Diabetes in Pregnancy.

Table 2. Key TOBOGM Summit Themes.

ISSUE/BARRIER IDENTIFIED AT THE SUMMIT
Issues/barriers related to testing/treating GDM in early pregnancy
Screening every woman early in pregnancy not practical
Missing later onset GDM (not retesting after initial testing) - Primary care may stop monitoring for GDM after initial early screening - Women perceiving they may only need testing once
Burden of OGTT on uptake and preference for shorter test
Financial barriers
Funding for early testing (competing with other types of care)
Early testing not worth the cost of additional resources/staff
Cost of education for testing in early stages
Harm of exposure to hypoglycaemia without any effective/appropriate treatments
Late development of GDM
Inequitable access to early testing - OGTT not easily accessible for some populations - Women cannot attend a 2-h test due to work or other obligations
Untimely access to early testing
Women do not present early for pregnancy care - lack of knowledge in women re accessing early care
Distribution of resources
Distribution of resources based on risk
Education
Identifying who is at higher risk of GDM
Waiting lists for women to access education from health care practitioners (HCP)
Mental health of the women
Women becoming distressed from testing early in pregnancy
Insufficient diabetes educator workforce to cope with greater numbers of women requiring education in early pregnancy
Treatments available
Evidence for treatment options lacking
Women following treatment options from early pregnancy

Overtreatment
Testing early may lead to false results and/or unnecessary treatment
Overtreatment may lead to increased risk of small-for-gestational age (SGA) offspring
Issues/barriers related to choosing criteria for GDM in early pregnancy
Not enough evidence for concrete diagnostic criterion in early pregnancy
Diversity of risk in different populations
Different populations, different risk factors, different diagnosis criteria required
Risk factor criteria not relevant for high-risk ethnic populations already defined as high risk by their ethnicity-All would need early testing and to progress to late testing unless GDM is diagnosed
Those diagnosed with early GDM may not develop/correspond with later GDM diagnosis - Misdiagnosis - Unnecessary resource use - Unnecessary stress for the woman
Previously established criteria
Differences in diagnostic criteria
Lack of evidence on how various diagnostic criteria translate into GDM
Limited flexibility with current criteria (e.g. early application of criteria may lead to false positive diagnosis – not corresponding to repeat positive OGTT in later pregnancy)
Two separate criteria (early vs later stages)
Indicators of GDM risk differ within ethnic groups
Inclusion of ethnicity as a criterion complicated in diverse populations - Criteria would need to be applied to several populations with different risk factors
Not sufficient evidence to determine if two separate criteria for early and late-stage pregnancy are appropriate
Risks of two separate criteria for early and late-stage pregnancy
Difficulties arranging screening after 24 weeks' gestation
Over medicalisation of pregnancy
Medical confusion for women by using different criteria at different stages of pregnancy (e.g. woman could be told they do not have GDM at the early stage but then go on to develop it at later testing)
Issues/barriers over how to screen for early GDM to determine who should have an OGTT
Burden of testing
Burdensome (on women and the health system) and invasive testing versus precise criteria

- Too low criteria would mean potentially testing for no reason
Colonial bias
Medical bias within guidelines where non-white groups are high risk and require an OGTT
OGTT not relevant in countries where the whole population are classed as high risk based on ethnicity (precise screening required)
Nomenclature/classification
Re-education on new classification - GDM viewed as less important than other issues - Use of alienating, harmful & complicated terminology - Pre-existing low levels of knowledge surrounding GDM
Impact of the term used to describe early GDM
Evidence too premature to define criteria based on TOBOGM - Lack of follow up studies looking at impacts of confounding factors such as differences in management

Supplementary Appendix 1. TOBOGM Summit Attendees.

First Name	Last Name	Organisation	Country
Gabriela	Abrahamson	Royal North Shore Hospital	Australia
Marwan	Ahmed	The University of Western Australia (Telethon Kids Institute)	Australia
Rehena	Ahmed	The Maitland Hospital	Australia
Jaqui	Aikens	University of Adelaide	Australia
Helen	Allen	Te Whatu Ora Health NZ: Waitemata	New Zealand
Jane	Alsweiler	University of Auckland	New Zealand
Cecilia	Astorga	Liverpool Health Service	Australia
Helena	Backman	Region Örebro County	Sweden
Robyn	Barnes	Bankstown-Lidcombe Hospital	Australia
Helen	Barrett	Royal Hospital for Women NSW	Australia
Alison	Barry	Royal Brisbane & Women's Hospital	Australia
Amanda	Bartlett	Australian Diabetes Educators Association	Australia
Ashley	Battarbee	University of Alabama at Birmingham	United States
Amanda	Beech	Royal Hospital for Women	Australia
Katrien	Benhalima	UZ Leuven	Belgium
Anna	Bubb	Blacktown Hospital	Australia
Leonie	Callaway	Queensland Health	Australia
Amy	Castelli	Monash Health	Australia
Thora	Chai	Westmead Hospital	Australia
Ka Ian	Chan	Northern Health	Australia
Julie	Chemmanam	Women's and Children's Hospital	Australia
Angela Xun-Nan	Chen	Flinders Medical Centre/Flinders University	Australia
N Wah	Cheung	Westmead Hospital	Australia
Min Jeng	Cho	Ulsan university hospital	South Korea
In Young	Choi	Kangbuk Samsung Hospital	South Korea
Maria Hornstrup	Christensen	Odense University Hospital, Denmark	Denmark
Tine	Clausen	Nordsjællands Hospital	Denmark
Jessica	Clift	SA Health	Australia
Suzette	Coat	The University of Adelaide	Australia
Stephen	Colagiuri	University of Sydney	Australia
Kylie	Connor	Fiona Stanley Hospital	Australia
Caroline	Cook	Southern NSW Local Health District	Australia
Shamil	Cooray	Monash Health	Australia
Stephanie	Cox	Auckland District Health Board	New Zealand
Coralie	Cross	York and Northern Local Area Health Network	Australia
Caroline	Crowther	University of Auckland	New Zealand
Cristina	Cuenca	Roche Diabetes Care Australia Pty Limited	Australia
Laura	Cunningham	Royal Prince Alfred Hospital	Australia
Peter	Damm	Rigshospitalet, University of Copenhagen	Denmark
Susan	de Jersey	Royal Brisbane and Women’s Hospital	Australia
Jessica	Deitch	Western Health	Australia
Difei	Deng	Campbelltown Hospital	Australia

Daria	Di Filippo	University of New South Wales	Australia
Edwina	Dorney	NSW Ministry of Health	Australia
Anna	Duke	Blacktown Mt Druitt Hospital	Australia
Fidelma	Dunne	National University of Ireland, Galway Ireland (NUIG)	Ireland
Naomi	Eastwood-Wilshere	Canterbury Hospital	Australia
Jade	Eccles-Smith	The Royal Brisbane and Women's Hospital	Australia
Alexandra	Emerton	Royal Prince Alfred Hospital	Australia
Joanne	Enticott	Monash University	Australia
Denice	Feig	University of Toronto	Canada
Amelia	Fernandes	Royal Prince Alfred Hospital	Australia
Jeff	Flack	Bankstown-Lidcombe Hospital	Australia
Elizabeth	Fletcher	Macarthur Diabetes Service	Australia
Kathy	Fu	Wollongong Hospital	Australia
Ian	Fulcher	Liverpool Hospital	Australia
Alison	Gebuehr	John Hunter Hospital	Australia
Emily	Gianatti	Fiona Stanley Hospital	Australia
Reetu	Gogna	Mercy Hospital for Women	Australia
Rebecca	Goldstein	Monash University	Australia
Akhil	Gupta	Western Sydney University	Australia
Kamala	Guttikonda	Northern Beaches Hospital	Australia
Bill	Hague	Robinson Research Institute	Australia
Rabbia	Haider	Blacktown Hospital	Australia
Rosemary	Hall	Wellington Hospital	New Zealand
Mohammad Monirul	Haque	Western Sydney University	Australia
Anandwardhan	Hardikar	Western Sydney University	Australia
Anna-Jane	Harding	Royal Prince Alfred Hospital	Australia
Matthew	Hare	Royal Darwin Hospital	Australia
Lorie	Harper	University of Texas at Austin, Dell Medical School	United States
Jürgen	Harreiter	Medical University of Vienna	Austria
Wendy	Hawke	POWPH/RHW Sydney	Australia
Kate	Hawke	Royal Brisbane & Women's Hospital	Australia
Susan	Hendon	University Clinic & Research Centre Blacktown	Australia
William	Herman	University of Michigan	United States
Teri	Hernandez	University of Colorado	United States
Emily	Hibbert	University of Sydney/ Nepean Hospital	Australia
Rachel	Hicks	Western Sydney University	Australia
Roslyn	Hogan	Westmead Hospital	Australia
Christine	Houlihan	Mercy Hospital For Women	Australia
Ruth	Hughes	Canterbury District Health Board	New Zealand
Jincy	Immanuel	Western Sydney University	Australia
Emma	Jamieson	The University of Western Australia	Australia
Alicia	Jawerbaum	CEFYBO-CONICET. School of Medicine. University of Buenos Aires	Argentina
Shan	Jiang	Campbelltown Hospital	Australia
Mugdha	Joglekar	Western Sydney University	Australia
Lynda	Jones	NSW Health, Nepean Hospital	Australia

Andrew	Kirke	The Rural Clinical School of Western Australia	Australia
Jeremy	Knott	St George Hospital	Australia
Anna Sofie	Koefoed	Aarhus University	Denmark
Pooja	Kunte	Western Sydney University	Australia
Janet	Lagstrom	Diabetes Nurse Practitioner	Australia
Heena	Lakhdhir	Counties DHB	New Zealand
Cathy	Latino	Fiona Stanley Hospital	Australia
Florence	Law	Private Practice	Australia
Margaret	Layton	Gosford Hospital	Australia
Soo-Jeong	Lee	University of Ulsan College of Medicine, Ulsan University Hospital	South Korea
I-Lynn	Lee	Western Health	Australia
Cathy	Lee	North Shore Private Hospital	Australia
William	Lowe Jr	Feinberg School of Medicine - Northwestern University	United States
Matthew	Luttrell	Wollongong Hospital	Australia
Michele	Mack	Sunshine Coast University Hospital	Australia
Diana	MacKay	Royal Darwin Hospital	Australia
Freya	MacMillan	Western Sydney University	Australia
Helle Terkildsen	Maindal	Aarhus University	Denmark
Julia	Marley	The University of Western Australia	Australia
David	McIntyre	University of Queensland	Australia
Mark	Mclean	Blacktown Hospital	Australia
Ashish	Mehta	Blacktown Hospital	Australia
Nina	Meloncelli	Metro North Health	Australia
Amanthi Shamani	Mendis	Complete Health Australia	Australia
Yitayeh	Mengistu	Monash University	Australia
Boyd	Metzger	Northwestern University	United States
Robert	Moses	Illawarra Shoalhaven Local Health District	Australia
Jodie	Nema	Western Sydney University	Australia
Christine	Newman	Galway University Hospital	Ireland
Suzie	Neylon	ADIPS and SOMANZ	Australia
Christopher	Nolan	1) Canberra Hospital and Health Services; 2)Australian National University	Australia
Jeremy	Oats	The Royal Women's Hospital	Australia
Karaponi	Okesene-Gafa	CMDHB & Auckland University	New Zealand
Ulla Kampmann	Opstrup	Aarhus University Hospital	Denmark
Per	Ovesen	Department of Gynecology and Obstetrics, Aarhus University Hospital, Palle Juul-Jensens Boulevard 99, DK-8200 Aarhus N, Denmark	Denmark
Suja	Padmanabhan	Westmead Hospital	Australia
Michael	Peek	Australian National University	Australia
Agata	Piotrowicz	Launceston General Hospital	Australia
Sarah	Price	Royal Women's Hospital/ University of Melbourne	Australia
Rohit	Rajagopal	Campbelltown Hospital	Australia
Uma	Ram	Seethapathy Clinic & Hospital	India
Gladys	Ramos	University of California, San Diego	United States

Sidsel Linneberg	Rathcke	Aalborg University Hospital	Denmark
Yoon Ji Jina	Rhou	Westmead Hospital, Sydney	Australia
Michelle	Robins	Northern Health	Australia
Glynis	Ross	Royal Prince Alfred Hospital	Australia
Victoria	Rudland	Westmead Hospital	Australia
David	Sacks	NIH	United States
Joanne	Said	Sunshine Hospital, Western Health	Australia
Justine	Salisbury	NSW Ministry of Health	Australia
Carlos	Salomon	The University of Queensland	Australia
Cathrine	Scheuer	Nordsjællands Hospital Hillerød	Denmark
Christina	Scifres	Indiana University	United States
Anand	Shankar	Shankar Diabetes Care Centre	India
Alexis	Shub	Mercy Hospital for Women	Australia
David	Simmons	Western Sydney University	Australia
Leah	Snape	CCLHD	Australia
Georgia	Soldatos	Monash Health	Australia
Anne	Sørensen	Aalborg University Hospital	Denmark
Erica	Spry	Kimberley Aborigional Medical Services and Rural Clinical School of Western Australia	Australia
Louise Laage	Stentebjerg	Steno Diabetes Center Odense, Odense Universitetshospital	Denmark
Arianne	Sweeting	Royal Prince Alfred Hospital	Australia
Lee	Tan	ASHFORD Hospital	Australia
Nadia	Tejani	Fairfield Hospital	Australia
Shailja	Tewari	The Canterbury Hospital	Australia
Helen	Tippler	Te Whatu Ora - Health New Zealand	New Zealand
Nerida	Titchiner	Waikato Hospital	New Zealand
Huy	Tran	NSW Health Pathology Hunter	Australia
Hannah	Wesley	Deakin University, Geelong, Australia	India
Nikki	Whelan	Wesley Medical Centre	Australia
Barbara	White	Werribee Mercy / Specialised Diabetes Services	Australia
Penny	Wolski	Royal Brisbane and Women's Hospital	Australia
Tang	Wong	Bankstown Hospital/Prince of Wales Hospital	Australia
Vincent	Wong	Liverpool Hospital	Australia
Anna	Wood	RDH	Australia
Jenny (Jian Hong)	Wright	Fairfield Hospital	Australia
Yoko	Yamakawa	Light Touch Technology Inc.	Japan
Jennifer	Yamamoto	University of Manitoba	Canada
Myra	Yeo	University Hospital Geelong	Australia
Gin-Rachelle	Ynson	Westmead Hospital	Australia
Stephanie	Young	West Moreton Hospital & Health Service, Queensland Health	Australia
Lili	Yuen	Western Sydney University	Australia
Julia	Zinga	Royal Women's Hospital	Australia

Supplementary Appendix 2. TOBOGM Summit Program 17th November 2022

Welcome and Acknowledgement to Country

8:30AM - 9:00AM

Should we treat hyperglycaemia less than over diabetes before 24 weeks gestation?

9:00AM - 10:00AM

Chairs: Fidelma Dunne & Christina Scifres

Katrien Benhalima

Where are we now? Global overview on the current screening practice and diagnostic criteria for gestational diabetes in early pregnancy. abs# 1

Lorie Harper

What are the issues relating to screening, diagnosis and treatment of hyperglycaemia in early pregnancy? abs# 2

David Simmons

Study design/sample handing/statistics abs# 3

Morning Tea

10:00AM - 10:20AM

The TOBOGM design

10:20AM - 12:30PM

Chair: Christopher Nolan

10:20 AM David Simmons

Primary Outcomes of the TOBOGM Study abs# 4

10:50 AM Helena Backman

How should we collect samples for glucose estimations Comparison of samples? TOBOGM sub-study abs# 5

11:20 AM Rachel Hicks

Consumer perspectives on potential glycaemic thresholds abs# 6

11:50 AM Arianne Sweeting

Options for glycaemic thresholds and glycaemic measures including from the TOBOGM study abs# 7

Lunch

12:30PM - 1:30PM

Workshop: Should we screen for and diagnose gestational diabetes from early pregnancy and if so how?

1:00PM - 2:15PM

Chairs: Rosemary Hall & Boyd Metzger

Workshop: How should we screen for early GDM to decide who should have an OGTT? Nomenclature/classification for GDM in early pregnancy

2:15PM - 3:45PM

Chair: Stephen Colagiuri

Workshop: Perspectives and results

3:45PM - 4:45PM

Chairs: Jeremy Oats & Denice Feig

Boyd Metzger (HAPO), LMIC (Viswanathan Mohan), David McIntyre (FIGO), Stephen Colagiuri (IDF), Fidelma Dunne (IADPSG)

Workshop: Future directions/Where to now

4:45PM - 5:30PM

Chairs: Jeremy Oats & Denice Feig

Supplementary Appendix 3 – SLIDO Questions.

1. Should at least some women be tested and treated for gestational diabetes from early pregnancy?
    i. Yes/No
2. If yes, what diagnostic OGTT criteria should we use for GDM in early pregnancy?
    a. What test should be used?
        i. 75g
        ii. 100g
    b. How many blood test steps?
        i. One (only an OGTT)
        ii. Two (eg preceding 50g glucose challenge test and then OGTT)
    c. What criteria?
        i. IADPSG (5.1;10.0;8.5)
        ii. Canadian (5.3;10.6;9.0)
        iii. Carpenter Coustan if 100g; Modified carpenter and coustan for 75g OGTT=5.3;10.0;8.5)
        iv. New Zealand (5.5/9.0)
        v. UK (5.6/7.8)
        vi. India (--/7.8)
        vii. FBG 6.1
        viii. Other
3. How should we screen for early GDM to decide who should have an OGTT?
    i. Universal-everyone should have a blood test
    ii. Those with Diabetes in pregnancy Risk factors
    iii. Other

4. Nomenclature/classification for GDM in early pregnancy -what should we call hyperglycaemia less than overt diabetes in early pregnancy?
    i. Early GDM
    ii. Prevalent GDM
    iii. Booking GDM
    iv. Other
5. How should we adjust glucose concentrations for the use of citrate
    i. Add difference from citrate using number from collated studies
    ii. Can’t adjust
    iii. Other

Wordcloud poll

What are the issues with testing and treating gestational diabetes from early pregnancy?

135

Wordcloud poll

What are the issues with choosing criteria?

109

Wordcloud poll

What are the issues associated with who should have an early OGTT?

0 9 7

Wordcloud poll

What are the issues with how we name GDM occuring in early pregnancy?

1 0 8

Figures S1-5. Key Issues relating to testing early in pregnancy for GDM identified via SLIDO word clouds at the TOBOGM Summit.

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