Post-Partum Screening and Monitoring for Gestational Diabetes: Clinical Effectiveness and Guidelines
Authors: Michelle Clark, Suzanne McCormack


Acknowledgments:

Disclaimer: The information in this document is intended to help Canadian health care decision-makers, health care professionals, health systems leaders, and policy-makers make well-informed decisions and thereby improve the quality of health care services. While patients and others may access this document, the document is made available for informational purposes only and no representations or warranties are made with respect to its fitness for any particular purpose. The information in this document should not be used as a substitute for professional medical advice or as a substitute for the application of clinical judgment in respect of the care of a particular patient or other professional judgment in any decision-making process. The Canadian Agency for Drugs and Technologies in Health (CADTH) does not endorse any information, drugs, therapies, treatments, products, processes, or services.

While care has been taken to ensure that the information prepared by CADTH in this document is accurate, complete, and up-to-date as at the applicable date the material was first published by CADTH, CADTH does not make any guarantees to that effect. CADTH does not guarantee and is not responsible for the quality, currency, propriety, accuracy, or reasonableness of any statements, information, or conclusions contained in any third-party materials used in preparing this document. The views and opinions of third parties published in this document do not necessarily state or reflect those of CADTH.

CADTH is not responsible for any errors, omissions, injury, loss, or damage arising from or relating to the use (or misuse) of any information, statements, or conclusions contained in or implied by the contents of this document or any of the source materials.

This document may contain links to third-party websites. CADTH does not have control over the content of such sites. Use of third-party sites is governed by the third-party website owners’ own terms and conditions set out for such sites. CADTH does not make any guarantee with respect to any information contained on such third-party sites and CADTH is not responsible for any injury, loss, or damage suffered as a result of using such third-party sites. CADTH has no responsibility for the collection, use, and disclosure of personal information by third-party sites.

Subject to the aforementioned limitations, the views expressed herein are those of CADTH and do not necessarily represent the views of Canada’s federal, provincial, or territorial governments or any third party supplier of information.

This document is prepared and intended for use in the context of the Canadian health care system. The use of this document outside of Canada is done so at the user’s own risk.

This disclaimer and any questions or matters of any nature arising from or relating to the content or use (or misuse) of this document will be governed by and interpreted in accordance with the laws of the Province of Ontario and the laws of Canada applicable therein, and all proceedings shall be subject to the exclusive jurisdiction of the courts of the Province of Ontario, Canada.

The copyright and other intellectual property rights in this document are owned by CADTH and its licensors. These rights are protected by the Canadian Copyright Act and other national and international laws and agreements. Users are permitted to make copies of this document for non-commercial purposes only, provided it is not modified when reproduced and appropriate credit is given to CADTH and its licensors.

About CADTH: CADTH is an independent, not-for-profit organization responsible for providing Canada’s health care decision-makers with objective evidence to help make informed decisions about the optimal use of drugs, medical devices, diagnostics, and procedures in our health care system.
Research Questions

1. What is the clinical effectiveness of an intervention to screen and monitor patients post-partum gestational diabetes?

2. What are the evidence-based guidelines regarding post-partum gestational diabetes screening or monitoring?

Key Findings

Three systematic reviews, two randomized controlled trials, six non-randomized studies, and four evidence-based guidelines were identified regarding the screening and monitoring of post-partum gestational diabetes.

Methods

A limited literature search was conducted on key resources including PubMed, the Cochrane Library, University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. No methodological filters were applied to limit retrieval to study type. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2013 and August 15, 2018. Internet links were provided, where available.

Selection Criteria

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

Table 1: Selection Criteria

<table>
<thead>
<tr>
<th>Population</th>
<th>Post-partum patients with gestational diabetes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intervention</td>
<td>Compliance tools (e.g., text message, e-mail, mail reminder)</td>
</tr>
<tr>
<td>Comparators</td>
<td>Q1: Alternative comparators</td>
</tr>
<tr>
<td></td>
<td>Q2: No comparator</td>
</tr>
<tr>
<td>Outcomes</td>
<td>Q1: Reducing harm, increasing compliance</td>
</tr>
<tr>
<td></td>
<td>Q2: Guidelines</td>
</tr>
<tr>
<td>Study Designs</td>
<td>Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies, evidence-based guidelines</td>
</tr>
</tbody>
</table>
Results

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials, non-randomized studies, and evidence-based guidelines.

Three systematic reviews, two randomized controlled trials, six non-randomized studies, and four evidence-based guidelines were identified regarding the screening and monitoring of post-partum gestational diabetes. No relevant health technology assessments were identified.

Additional references of potential interest are provided in the appendix.

Overall Summary of Findings

Three systematic reviews, two randomized controlled trials, six non-randomized studies, and four evidence-based guidelines were identified regarding the screening and monitoring of post-partum gestational diabetes. Generally, the results of these studies showed no or little difference between groups in terms of postnatal testing follow through. Details regarding the studies are provided in Table 2.

Four evidence-based guidelines were identified regarding the post-partum management of gestational diabetes. The guidelines recommend that women with gestational diabetes be encouraged to breastfeed. A fasting glucose test should be offered between six weeks to six months post-partum. An annual HbA1c test should be offered to women who had gestational diabetes but who test negative at their postnatal test. Lifestyle advice, including weight control, diet, and exercise, should be provided postnatally.

Table 2: Summary of Included Studies

<table>
<thead>
<tr>
<th>Author, Year</th>
<th>Population, Setting, and Study Characteristics</th>
<th>Intervention</th>
<th>Comparators</th>
<th>Results and Authors’ Conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jeppesen, 2015¹</td>
<td>Women with previous GDM Primary and secondary healthcare facilities 6 studies</td>
<td>Reminder and reminder systems for post-partum screening for type 2 diabetes: • Letters • Emails • Personal telephone calls</td>
<td>Not specified</td>
<td>• The efficacy of reminders varied between studies • Two studies found that phone calls were good reminders • Reminding women or healthcare providers separately was more effective than reminding them together</td>
</tr>
<tr>
<td>Middleton, 2015²</td>
<td>Women with previous GDM One RCT</td>
<td>Any type of reminder</td>
<td>Control groups (not further specified)</td>
<td>• One low quality study was identified comparing mailed reminders with no reminder 3 months</td>
</tr>
</tbody>
</table>
### Randomized Controlled Trials

<table>
<thead>
<tr>
<th>Author, Year</th>
<th>Population, Setting, and Study Characteristics</th>
<th>Intervention</th>
<th>Comparators</th>
<th>Results and Authors’ Conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carson, 2013³</td>
<td>Women with previous GDM 54 studies</td>
<td>Proactive patient contact programs: Phone calls, Education programs, Postal reminders</td>
<td>No reminder</td>
<td>The use of a reminder system increased post-partum testing between 33% and 60%</td>
</tr>
<tr>
<td>Khorshidi Roozbahani, 2015⁴</td>
<td>Women with previous GDM (N = 80)</td>
<td>Telephone follow-up on blood glucose levels during pregnancy and post-partum screening Calls for 10 weeks during pregnancy and one call 6 weeks post-partum</td>
<td>Telephone follow-up 3 times during pregnancy and one call 6 weeks post-partum</td>
<td>The rate of post-partum glucose screening was statistically significantly higher in the intervention group</td>
</tr>
<tr>
<td>Van Ryswyk, 2015⁵</td>
<td>Women with previous GDM (N = 276)</td>
<td>Text message reminder system (n = 140): Sent a reminder text at 6 weeks post-partum to attend OGTT Additional reminder texts sent at 3 months and 6 months if required</td>
<td>Text message reminder system (n = 136): Sent a reminder text 6 months post-partum to attend OGTT</td>
<td>Attendance for OGTT was not significantly different between groups within 6 months post-partum Although there was no difference between groups, the authors noted a high rate of test completion in both groups</td>
</tr>
</tbody>
</table>

### Non-Randomized Studies

<table>
<thead>
<tr>
<th>Author, Year</th>
<th>Population, Setting, and Study Characteristics</th>
<th>Intervention</th>
<th>Comparators</th>
<th>Results and Authors’ Conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benhalima, 2017⁶</td>
<td>Women with previous GDM (N = 7269 registered)</td>
<td>GDM recall register Registrants receive a yearly reminder to have a fasting plasma glucose test</td>
<td>No comparator</td>
<td>Yearly response rates varied from 74.4% after the first year to 61.8% after the fifth year Women who never responded were more often less than 30 years of age and were more often obese</td>
</tr>
<tr>
<td>Soffer, 2017⁷</td>
<td>Women with previous GDM (n = 107 pre-intervention and n = 42 post-intervention)</td>
<td>Advanced order sets for: Glucose monitoring at 35-week pregnancy visit Educational module Nutritionist phone call reminders for post-</td>
<td>Before and after comparison</td>
<td>The percentage of orders placed for post-partum glucose testing was higher after the intervention was implemented There was no increased observed in</td>
</tr>
<tr>
<td>Author, Year</td>
<td>Population, Setting, and Study Characteristics</td>
<td>Intervention</td>
<td>Comparators</td>
<td>Results and Authors’ Conclusions</td>
</tr>
<tr>
<td>--------------</td>
<td>-----------------------------------------------</td>
<td>--------------</td>
<td>-------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>Carral, 2015&lt;sup&gt;8&lt;/sup&gt;</td>
<td>Pregnant women with diabetes (including gestational, type 1 and type 2) (N = 104)</td>
<td>Telemedicine group monitored with follow-up by the Gestational Diabetes Unit and web-based telemedicine</td>
<td>Control group monitored by follow-up by the Gestational Diabetes Unit alone</td>
<td>• There were no significant differences observed in mean glycated hemoglobin level during or after pregnancy between groups</td>
</tr>
<tr>
<td>Carson, 2015&lt;sup&gt;9&lt;/sup&gt;</td>
<td>Pregnant women with GDM (N = 40)</td>
<td>Blood drawn in the office for random sugar and HbA1c at the post-partum visit</td>
<td>OGTT testing at an outside laboratory separate from the post-partum visit</td>
<td>• All of the women who were eligible had their blood drawn in the office while only 53% in the OGTT group completed testing</td>
</tr>
<tr>
<td>Mendez-Figuerosa, 2014&lt;sup&gt;10&lt;/sup&gt;</td>
<td>Women with previous GDM</td>
<td>1-year intensive follow-up program with nurse and outreach worker case management</td>
<td>Women with GDM attending the same clinic before the intervention was implemented</td>
<td>• Adherence to post-partum OGTT increased from 43.1% to 59.4% after implementing the program • The authors predicted the change would have resulted in the detection of an additional 12 cases of diabetes or pre-diabetes the previous year</td>
</tr>
<tr>
<td>Carson, 2013&lt;sup&gt;11&lt;/sup&gt;</td>
<td>Women with GDM (N = 69)</td>
<td>Fingerstick blood glucose 4 times a day for 2 days at 6 weeks post-partum followed by an OGTT</td>
<td>No comparator group</td>
<td>• 18% of women participating in the study completed both the fingerstick and OGTT • 30% of participants completed at least part of the testing • The authors determined that the home testing option did not improve participation rates</td>
</tr>
</tbody>
</table>

GDM = gestational diabetes mellitus; OGTT = oral glucose tolerance test; RCT = randomized controlled trial.
References Summarized

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-analyses


Randomized Controlled Trials


Non-Randomized Studies


Guidelines and Recommendations


Appendix — Further Information

Systematic Reviews and Meta-Analyses—Alternative Outcomes


Non-Randomized Studies – No Abstract Available


Qualitative Studies


   PubMed: PM25997731

   PubMed: PM24981396

Clinical Practice Guidelines – Methodology Not Specified


Review Articles

   PubMed: PM29889746

   PubMed: PM28901851

   PubMed: PM28150160

   PubMed: PM28455081