A realist review of the use of reminder systems for follow-up screening and early detection of type 2 diabetes in women with previous gestational diabetes

Nielsen, Jane Hyldgård; Rotevatn, Torill Alise; Peven, Kimberly; Melendez-Torres, G. J.; Sørensen, Erik Elgaard; Overgaard, Charlotte

Publication date:
2019

Document Version
Accepted author manuscript, peer reviewed version

A realist review of the use of reminder systems for follow-up screening and early detection of type 2 diabetes in women with previous gestational diabetes

Jane Hyldgaard Nielsen, Torill Alise Rotevatn, Kimberly Peven, G.J. Melendez-Torres, Erik Elgaard Sørensen, Charlotte Overgaard

Citation

Jane Hyldgaard Nielsen, Torill Alise Rotevatn, Kimberly Peven, G.J. Melendez-Torres, Erik Elgaard Sørensen, Charlotte Overgaard. A realist review of the use of reminder systems for follow-up screening and early detection of type 2 diabetes in women with previous gestational diabetes. PROSPERO 2019 CRD42019123769 Available from: http://www.crd.york.ac.uk/PROSPERO/display_record.php?ID=CRD42019123769

Review question

Which effect of the use of reminders to increase and maintain participation in the recommended follow up screening for women with previous gestational diabetes mellitus (GDM) are found and how, why, for whom and under which circumstances are reminders believed to produce unintended and intended outcomes?

Searches

MEDLINE Ovid, PubMed, The Cochrane Library, CINAHL, EMBASE, Web of Science, and Scopus

Grey literature: http://www.opengrey.eu/, http://www.greylit.org/, https://ClinicalTrials.gov/, https://www.isrctn.com/ and Research Gate.

All databases have been searched for both quantitative and qualitative evidence on the 1th of November, 2018 - 1th of January 2019

No restrictions were applied.

Types of study to be included

This review includes both experimental and quasi-experimental study designs including randomized controlled trials, non-randomized controlled trials, before-after studies, in order to evaluate the effects of the interventions. Other study designs such as qualitative or mixed-method studies will also be included if they contain relevant information on implementation processes and experiences regarding interventions based on the use of reminders to increase participation in follow-up screening of women with pregnancy complicated by GDM. All types of qualitative study designs are eligible.

Condition or domain being studied

Gestational diabetes Mellitus (GDM) is a rising Public health concern mainly associated with increasing overweight and age in pregnant women. GDM has health consequences for both mother and child, as it is a serious clinical condition that requires close control and treatment throughout pregnancy in order to avoid birth complications or perinatal mortality. Even though GDM typically disappears after birth, these women remain in an approximately 7-fold higher risk of developing type 2 diabetes, compared to women without pregnancy complicated by GDM. Previous studies indicate, that approximately 40% of women with pregnancy complicated by GDM will develop type 2 diabetes within a 10-year period after birth.

Participants/population

Inclusion: Studies that include women with pregnancy complicated by GDM. All these women, regardless of any other characteristics, are recommended to participate in the recommended follow up screening.

Exclusion: Women with no GDM diagnosis.

Intervention(s), exposure(s)

Studies that includes an intervention based on the use of reminders to increase participation in follow-up screening of women with pregnancy complicated by GDM. Reminders are defined as postal reminder, email reminders, or telephone calls/text messages for the patients. For health professionals' reminders are

defined as for the patients and additional the option of pop-up electronically implemented reminders/ alerts or simple reminders either in paper form posted on medical reports or implemented electronically in the patient registry system. No inclusion criteria regarding the content of the reminders.

Comparator(s)/control
The review will include studies that include a control group receiving standard care as far as it is eligible in term of the study design.

Context
In order to strengthen early detection of type 2 diabetes, is follow up screening after birth internationally recommended for women with pregnancy complicated by GDM? Participation rates are however often found low. Electronic support systems like reminders are suggested to have effect if contextually adapted and sufficiently implemented. Knowledge are needed on how, why, for whom and under which circumstances reminders are believed to produce unintended and intended outcomes.

Main outcome(s)
Effect of the intervention are measured as the percentage of women who underwent a test postpartum; Oral glucose tolerance test (OGTT) or other screening test for diabetes (e.g HbA1c or FPG). This on both short term: A postpartum visit within the first 6 months after giving birth (First time follow- up is recommended 6-12 weeks after birth) and long term: any time after 6 months after giving birth. (women are after the first follow-up screening recommended screening every 1-3 year).

Experiences and perspectives regarding the intervention from people associated with the intervention (e.g. end-users, health professionals or relevant stakeholders).

Additional outcome(s)
Diagnosis with Type 2 diabetes.

Diabetes associated morbidity.

Data extraction (selection and coding)
The procedures for selecting studies will be conducted in two screening processes: 1) based on title and abstracts 2) based on full-text content. Studies will be included or excluded based on a priori set criteria.

Data extraction will be conducted using an Excel spread sheet. Data on study characteristics, intervention, intervention mechanisms, population, settings/context, methods and relevant outcomes will be extracted. Piloting of the data extraction form will be performed in order to secure homogeneity of the data extracted.

All processes will be conducted by two reviewers, and any discrepancies between the two reviewers will be discussed, and the opinion of a third reviewer will be included if necessary.

Risk of bias (quality) assessment
Cochrane Risk of Bias tool for RCTs

ROBINS-I (Risk Of Bias In Non-randomised Studies - of Interventions) for non-randomised studies

The EPPI-Centre tool for appraisal of qualitative studies will be used to evaluate qualitative studies.

Strategy for data synthesis
Results extracted from quantitative studies will be synthesised through the use of narrative synthesis. It is anticipated to be difficult to conduct a quantitative synthesis due to heterogeneity between studies, however, this will be conducted if the included studies are sufficiently homogenous.

A synthesis of Context-Mechanism-Outcome (CMO) configurations will be performed. This provides an understanding of interactions among resources within the setting of the intervention - the intervention itself and the mechanism it triggers. This allows, a constant comparison between CMO configurations identified in different interventions, which in a synthesis can be used to describe and discuss transferable lessons on how, why, for whom and under which circumstances the interventions works.

Findings will be presented in narrative form including tables and figures where appropriate.

Analysis of subgroups or subsets

Subgroup analysis will be conducted if sufficient data is available. This regarding to; types of participants, types of intervention, settings and types of study.

Contact details for further information

Jane Hyldgaard Nielsen
jhy@hst.aau.dk

Organisational affiliation of the review

1)University College of Northern Denmark, Department of Midwifery, University College of Northern Denmark, Selma Lagerløfs Vej 2, 9220 Aalborg Øst, Denmark.
2)Aalborg University, Public Health and Epidemiology Group, Department of Health Science and Technology, Niels Jernes Vej, 14, 9220 Aalborg Øst, Denmark
3)Cardiff University, DECIPHer, Cardiff School of Social Sciences, Wales
4) King's College London, Florence Nightingale Faculty of Nursing, Midwifery & Palliative Care, Department of Child and family health nursing
5) Aalborg University, Clinical Nursing Research unit, Aalborg University Hospital
https://www.ucn.dk/english/programmes-and-courses/midwifery

http://vbn.aau.dk/en/organisations/pp_cde552c3-aa18-4aec-a35b-e11b2c092b5e.html

http://decipher.uk.net/

https://www.kcl.ac.uk/index.aspx

http://vbn.aau.dk/en/organisations/klinisk-institut(c1821753-f516-45d5-96f9-9298280d75ee).html

Review team members and their organisational affiliations

Ms Jane Hyldgaard Nielsen. University College of Northern Denmark, Department of Midwifery and Aalborg University (1,2)
Ms Torill Alise Rotevatn. Aalborg and Cardiff University (2, 3)
Ms Kimberly Peven. King's College London (4)
Assistant/Associate Professor G.J. Melendez-Torres. Cardiff University (3)
Professor Erik Elgaard Sørensen. Aalborg University, Clinical Nursing Research unit, Aalborg University Hospital (5)
Assistant/Associate Professor Charlotte Overgaard. Aalborg University (2)

Anticipated or actual start date

01 November 2018

Anticipated completion date

01 September 2019

Funding sources/sponsors

The PhD student (Jane H. Nielsen) is funded by University College North of Denmark, Department of Midwifery and research program of Sustainable Science, as well as The Doctoral School in Medicine, Biomedical Science and Technology, Aalborg University and The Clinical Research Unit, Aalborg University Hospital, Aalborg University. No further funding are provided for this study.

Conflicts of interest

Language

English

Country

Denmark, Wales

Stage of review
Review_Ongoing

Subject index terms status
Subject indexing assigned by CRD

Subject index terms
Diabetes Mellitus, Type 2; Diabetes, Gestational; Early Diagnosis; Female; Follow-Up Studies; Humans; Postpartum Period; Pregnancy; Reminder Systems

Date of registration in PROSPERO
06 February 2019

Date of publication of this version
06 February 2019

Details of any existing review of the same topic by the same authors

Stage of review at time of this submission

Stage	Started	Completed
Preliminary searches	Yes	No
Piloting of the study selection process	Yes	No
Formal screening of search results against eligibility criteria	Yes	No
Data extraction	No	No
Risk of bias (quality) assessment	No	No
Data analysis	No	No

Versions
06 February 2019