

## Gestational Diabetes Management

**About Technical Assistance Briefs.** The MCH Evidence Center provides ongoing technical assistance (TA) to Title V agencies related to the emerging evidence base, strategies, and measures related to many topics interconnected with National Performance Measures and other critical topics in MCH. *Technical Assistance Briefs* are an outcome of these TA sessions that are designed to act as *conversation starters* in thinking about programs that can be developed to address issues that affect women, infants, children, adolescents, youth, families, and communities. These briefs are not meant to be comprehensive; full analyses of the NPM topic areas are provided in [Evidence Analysis Reports](#).

The Center makes these customized briefs available during TA and on the program website to identify evidence-based/informed strategies, promising practices, examples of ESMs from the field and peer-reviewed resources. Please [contact us](#) if you would like us to develop a similar report for topics that you are working on.

**Initial Query for this Brief.** Identify measures and best practices around Gestational Diabetes Management.

### [HRSA's TVIS State Action Plans: NPMs and ESMs](#)

**Search criteria: diabetes, gestational diabetes. Looked through various aspects of the annual reports and annual action plans**

- Federated States of Micronesia: Improve perinatal/infant outcomes through early and adequate prenatal care services including gestational diabetes and anemia screening.
  - Domain: Perinatal/Infant Health:
    - SPM 3: Percent of pregnant women who are screened for gestational diabetes by 24 – 28 weeks.
- Searching the TVIS website for 'gestational diabetes' the following states were identified:
  - 17 states and 10 narrative sections mentioned gestational diabetes.
  - Complete information can be found here:  
<https://mchb.tvisdata.hrsa.gov/Narratives/SearchContainer?q=gestational+diabetes&x=56&y=13>
    - NPM 4, breastfeeding and the prevention of obesity and type 2 diabetes in children and gestational diabetes in subsequent pregnancies (MA)
    - NPM 1, prevent the onset of Type II diabetes for women with a history of GDM. Strategy: Work in collaborative partnership to address the prevention of Type II diabetes by addressing barriers to postpartum visit completing for women with GDM. (NM)
    - NPM 1, continue GDM QI Projects to improve postpartum visit and testing rates (OH)
    - NPM 14, the Healthy Texas Mothers and Babies offers classes through their community coalitions to increase knowledge about prenatal care, GDM and postpartum visits, etc. (TX)
    - The California Diabetes and Pregnancy Program (CDPP) Sweet Success Resource and Training Center conducts webinars that include perinatal, GDM, postpartum, etc. to about 200 program affiliates each year. (CA)

## [MCH Evidence Center](#)

Search criteria: <https://www.mchlibrary.org/evidence/state-esms.php> --> keyword 'gestational diabetes', 'diabetes', and 'gestational'. Searched all ESMs, domains, levels, etc.

Note: There are only a few other ESMs in Well-Woman that somewhat align to the inclusion of screening for/addressing gestational diabetes. Below we have provided a few examples of ways that gestational diabetes may be able to be incorporated into existing ESMs. These include: preconception health visit screenings, annual well-woman visits, tailored messaging to low-income/minority women.

- [ESM 1.1 → Screening women in pediatric clinics](#)
  - No evidence
  - **Significance:** well-woman or preconception visit provides a critical opportunity to receive recommended clinical preventive services, including screening, counseling, and immunizations, which can lead to appropriate identification, treatment, and prevention of disease to optimize the health of women before, between, and beyond potential pregnancies. For example, screening and management of **chronic conditions such as diabetes**, and **counseling to achieve a healthy weight** and smoking cessation, can be advanced within a well woman visit to promote women's health prior to and between pregnancies and improve subsequent maternal and perinatal outcomes. Well child visits are generally well-attended, providing an opportunity to offer elements of the well woman visit in conjunction with the child's appointment. Depression screening particularly important to reduce health disparities. By partnering closely with pediatric clinics, we have the opportunity to support standardized depression screening, increase health equity, and be a conduit for quality improvement processes. (North Dakota)
  
- [ESM 1.1 → Preconception health screening in Title X clinics](#)
  - No evidence
  - **Significance:** A well-woman or preconception visit provides a critical opportunity to receive recommended clinical preventive services, including screening, counseling, and immunizations, which can lead to appropriate identification, treatment, and prevention of disease to optimize the health of women before, between, and beyond potential pregnancies. For example, screening and management of **chronic conditions such as diabetes, and counseling to achieve a healthy weight** and smoking cessation, can be advanced within a well woman visit to promote women's health prior to and between pregnancies and improve subsequent maternal and perinatal outcomes. The annual well-woman visit has been endorsed by the American College of Obstetrics and Gynecologists (ACOG) and was also identified among the women's preventive services required by the Affordable Care Act (ACA) to be covered by private insurance plans without cost-sharing. (Virgin Islands)
  
- [ESM 1.1 → Percent of women with a routine checkup within the past 2 years \(BRFSS\)](#)
  - No evidence
  - **Significance:** A well-woman or preconception visit provides a critical opportunity to receive recommended clinical preventive services, including screening, counseling, and immunizations, which can lead to appropriate identification, treatment, and **prevention of disease to optimize** the health of women before, between, and beyond potential pregnancies. For example, screening and management of **chronic conditions such as diabetes, and counseling to achieve a healthy weight**

and smoking cessation, can be advanced within a well woman visit to promote women's health prior to and between pregnancies and improve subsequent maternal and perinatal outcomes.

- [ESM 1.1 --> Media Campaign](#)
  - Evidence Level: Moderate
  - Significance: Preconception health and other maternal diseases and risks/complications in future pregnancies and births can be addressed at medical preventive visits. This can help ensure that women receive adequate **preventive health care and minimize complex problems that may derive from chronic illness or other risks factors that may lead to unfavorable conditions during pregnancies such as Gestational Diabetes**. Women who are healthy prior to pregnancy usually have better pregnancy and birth outcomes than those who are not. (America Samoa)
- [ESM 1.3 → Prenatally or postpartum enrollment in a home visiting program](#)
  - No similar strategy found in the evidence
  - Significance: Currently, Indiana's home visiting services provide support to women and families during and after pregnancy. A postpartum visit is defined as a visit between the mother and her health care provider to **assess her current physical health, including the status of pregnancy-related conditions like gestational diabetes**, screen for postpartum depression, provide counseling on infant care and family planning, as well as screening and referrals for the management of chronic conditions. Additionally, a provider can use this opportunity to conduct a breast exam and discuss breastfeeding. (Indiana)

### [AMCHP's Innovation Hub](#)

Search criteria: keyword 'gestational diabetes', 'diabetes', and 'gestational'.

- No strategies found

### [Robert Wood Johnson What Works for Health](#)

Search criteria: keyword 'gestational diabetes', 'diabetes', and 'gestational'.

Note, similar the MCH Library and State ESMs, there are few innovations or programs that specifically identify gestational diabetes as part of their strategies. The innovations listed below could easily incorporate messages around gestational diabetes.

- [Community Health Workers](#)
  - Some evidence
  - Gestational Diabetes is not specifically mentioned however, increase access to care, increased preventative care, and increased healthy behaviors are mentioned.
  - "CHW interventions appear to reduce A1c levels in diabetic patients, with larger effects among patients with higher baseline levels<sup>1</sup>."
- [Chronic Disease Self-Management \(CDSM\)](#)
  - Strong evidence
  - Gestational Diabetes is not specifically mentioned however, improved chronic disease management, improved care for chronic conditions are mentioned.
  - "CDSM programs reduce HBA1c levels..."<sup>2</sup>

- [Text Message based Health Interventions](#)
  - Strong evidence
  - Gestational Diabetes is not specifically mentioned however, improved chronic disease management, increased healthy behaviors, and improved health outcomes are mentioned.
  - “Text message-based health interventions improve health outcomes in diabetics<sup>3</sup>, including improved blood glucose levels<sup>4</sup>. For prediabetes, interventions can increase weight loss and improve blood glucose levels, especially in Spanish language users<sup>5</sup>”.
- [CenteringPregnancy](#)
  - Strong evidence.
  - Gestational Diabetes is not specifically mentioned however, “participants may engage in healthier behaviors, and have more appropriate gestational weight gain than non-participants.<sup>6</sup>

## Literature Review

Search terms: gestational diabetes, evidence-based programs, promising practices ESMs, NPM, Title V.

Note the literature examined research from 2015 – 2022 in the US and abroad. Articles below specifically focus on various types of interventions or programs that address gestational diabetes during before, during or after pregnancy as well as preventative measures. The literature did not identify any programs that were specifically associated with state ESMs. The abstracts and information below has been edited for brevity.

Overall Findings: Overall lifestyle behavior changes prior to and during pregnancy have been found to be moderately successful in addressing gestational diabetes. These including text messaging reminders, campaigns to increase physical activity (and healthy eating), weight management during pregnancy, and possibly clinical use of probiotics.

### [Mother-Infant Dyad program in primary care: evidence-based postpartum care following gestational diabetes](#)

**Seuli Bose Brill, et al. (2022)**

- **Objective:** To determine if the Mother-Infant Dyad postpartum primary care program provides a framework to link well-child visits with postpartum primary care visits to increase postpartum clinical interactions promoting longitudinal care, such as postpartum visit attendance and T2DM screening.
- **Study design:** All patients with a diagnosis of GDM that received care at a postpartum mother-infant dyad program at a Midwestern academic medical center internal medicine and pediatrics primary care clinic were enrolled. Clinic level data was obtained by baseline and 6-month post-enrollment surveys and chart review. A comparison population was identified from Medicaid claims data using propensity score matching to enable a comparison of program participants' outcomes to a population comprised of similar individuals diagnosed with GDM that received care at sites not participating in the Dyad program. Our primary outcome was completion of T2DM screening in the 4-12 week postpartum period. The secondary outcomes were postpartum visit attendance with a prenatal provider, and prediabetes diagnoses.
- **Results:** A total of 75 mother-infant dyads were seen by the clinic. Of the enrolled women, 43% were Non-Hispanic White and 30% were Non-Hispanic Black; mean age was 30.75 years. The matched comparison group ( $n = 62$ ) had a mean age of 30.75 years, were 43% Non-Hispanic White and 30% Non-

Hispanic Black. Women who participated in the program were more likely to receive T2DM screenings than women who did not participate (87 vs. 79%,  $p < .001$ ) and complete postpartum visits (95 vs. 58%, respectively;  $p < .001$ ). Additionally, a higher rate of new prediabetes diagnoses was observed (12 vs. 6%,  $p < .001$ ).

- **Conclusion:** The Mother-Infant Dyad postpartum primary care program improved T2DM screenings and postpartum visit attendance. In addition, a **greater proportion of Dyad program participants experienced new prediabetes diagnoses that those in the comparison group.** Our findings suggest that the dyad care model, in which women with GDM engage in postpartum primary care concurrent with well-child visits, can improve longitudinal postpartum care after a GDM diagnosis.

### [Bump2Baby and Me: protocol for a randomized trial of mHealth coaching for healthy gestational weight gain and improved postnatal outcomes in high-risk women and their children. \(2021\)](#)

Sharleen L O'Reilly, et al.

*(upcoming study; one to watch to address the efficacy of implementing a Mhealth coaching program)*

- **Background:** Impact Diabetes Bump2Baby is an implementation project of an evidence-based system of care for the prevention of overweight and obesity. Bump2Baby and Me is the multicentre randomised controlled trial investigating the effectiveness of a mHealth coaching programme in pregnancy and postpartum for women at high risk of developing GDM.
- **Methods:** Eight hundred women **will be recruited** in early pregnancy from 4 clinical sites within Ireland, the UK, Spain, and Australia. Women will be screened for eligibility using the validated Monash GDM screening tool. Participants will be enrolled from 12 to 24 weeks' gestation and randomised on a 1:1 basis into the intervention or control arm. Alongside usual care, the intervention involves mHealth coaching via a smartphone application, which uses a combination of synchronous and asynchronous video and text messaging, and allows for personalised support and goal setting with a trained health coach. The control arm receives usual care. All women and their children will be followed from early pregnancy until 12 months postpartum. The primary outcome will be a difference in maternal body mass index (BMI) of 0.8 kg/m<sup>2</sup> at 12 months postpartum. Secondary maternal and infant outcomes include the development of GDM, gestational weight gain, pregnancy outcomes, improvements in diet, physical activity, sleep, and neonatal weight and infant growth patterns. The 5-year project is funded by the EU Commission Horizon 2020 and the Australian National Health and Medical Research Council. Ethical approval has been received.
- **Discussion:** Previous interventions have not moved beyond tightly controlled efficacy trials into routine service delivery. This project aims to provide evidence-based, sustainable support that could be incorporated into usual care for women during pregnancy and postpartum. This study will contribute evidence to inform the early prevention of non-communicable diseases like obesity and diabetes in mothers and the next generation.

### [A telehealth lifestyle intervention to reduce excess gestational weight gain in pregnant women with overweight or obesity \(GLOW\): a randomized, parallel-group, controlled trial.](#)

Assiamira Ferrara, et al. (2020)

- **Background:** We investigated whether a primarily telehealth lifestyle intervention reduced excess GWG among women with overweight or obesity.
- **Methods:** We did a randomised controlled trial in five antenatal clinics of Kaiser Permanente; Oakland, San Leandro, Walnut Creek, Fremont, and Santa Clara, CA, USA. Women at 8-15 weeks' gestation with

singletons, pre-pregnancy BMI 25.0-40.0 kg/m<sup>2</sup>, and aged 18 years or older were randomly assigned (1:1) to receive the telehealth lifestyle intervention or usual antenatal care. Randomisation was adaptively balanced for age, BMI, and race and ethnicity. Data collectors and investigators were masked to group assignments. The core lifestyle intervention consisted of two in-person and 11 telephone sessions on behavioural strategies to improve weight, diet, and physical activity, and stress management to help women meet a trial goal of gaining at the lower limit of the Institute of Medicine (IOM) guidelines range for total GWG: 7 kg for women with overweight and 5 kg for women with obesity. Usual antenatal care included an antenatal visit at 7-10 weeks' gestation, an additional seven antenatal visits, on average, and periodic health education newsletters, including the IOM GWG guidelines and information on healthy eating and physical activity in pregnancy. The primary outcome was weekly rate of GWG expressed as excess GWG, per Institute of Medicine guidelines and mean assessed in the intention-to-treat population. The trial is registered at ClinicalTrials.gov, [NCT02130232](https://clinicaltrials.gov/ct2/show/study/NCT02130232).

- **Findings:** Between March 24, 2014, and Sept 26, 2017, 5329 women were assessed for eligibility and 200 were randomly assigned to the lifestyle intervention group and 198 to the usual care group. Analyses included 199 women in the lifestyle intervention group (one lost to follow-up) and 195 in the usual care group (three lost to follow-up). 96 (48%) women in the lifestyle intervention group and 134 (69%) women in the usual care group exceeded Institute of Medicine guidelines for rate of GWG per week (relative risk 0.70, 95% CI 0.59 to 0.83). Compared with usual care, women in the lifestyle intervention had reduced weekly rate of GWG (mean 0.26 kg per week [SD 0.15] vs 0.32 kg per week [0.13]; mean between-group difference -0.07 kg per week, 95% CI -0.09 to -0.04). No between-group differences in perinatal complications were observed.
- **Interpretation:** Our evidence-based programme showed that health-care delivery systems could further adapt to meet the needs of their clinical settings to prevent excess GWG and improve healthy behaviours and markers of insulin resistance among women with overweight or obesity by using telehealth lifestyle interventions.

### [Treatments for women with gestational diabetes mellitus: an overview of Cochrane systematic reviews \(Cochrane Database of Systematic Reviews\) – 2018](#)

[Ruth Martis, Caroline A Crowther, Emily Shepherd, Jane Alsweiler, Michelle R Downie, and Julie Brown](#)

- **Objectives:** To provide a comprehensive synthesis of evidence from Cochrane systematic reviews of the benefits and harms associated with interventions for treating GDM on women and their babies.
- **Methods:** We searched the *Cochrane Database of Systematic Reviews* (5 January 2018) for reviews of treatment/management for women with GDM. Reviews of pregnant women with pre-existing diabetes were excluded. Two overview authors independently assessed reviews for inclusion, quality (AMSTAR; ROBIS), quality of evidence (GRADE), and extracted data.
- **Main results:** We included 14 reviews. Of these, 10 provided relevant high-quality and low-risk of bias data (AMSTAR and ROBIS) from 128 randomised controlled trials (RCTs), 27 comparisons, 17,984 women, 16,305 babies, and 1441 children. Evidence ranged from high- to very low-quality (GRADE). Only one effective intervention was found for treating women with GDM.
- **Effective:**
  - **Lifestyle versus usual care** Lifestyle intervention versus usual care probably reduces large-for-gestational age (risk ratio (RR) 0.60, 95% confidence interval (CI) 0.50 to 0.71; 6 RCTs, N = 2994; GRADE moderate-quality).
- **Promising**
  - No evidence for any outcome for any comparison could be classified to this category.
- **Ineffective or possibly harmful**

- **Lifestyle versus usual care.** Lifestyle intervention versus usual care probably increases the risk of induction of labour (IOL) suggesting possible harm (average RR 1.20, 95% CI 0.99 to 1.46; 4 RCTs, N = 2699; GRADE moderate-quality).
- **Exercise versus control.** Exercise intervention versus control for return to pre-pregnancy weight suggested ineffectiveness (body mass index, BMI) MD 0.11 kg/m<sup>2</sup>, 95% CI -1.04 to 1.26; 3 RCTs, N = 254; GRADE moderate-quality)
- **Insulin versus oral therapy.** Insulin intervention versus oral therapy probably increases the risk of IOL suggesting possible harm (RR 1.3, 95% CI 0.96 to 1.75; 3 RCTs, N = 348; GRADE moderate-quality).
- **Probably ineffective or harmful interventions**
  - **Insulin versus oral therapy.** For insulin compared to oral therapy there is probably an increased risk of the hypertensive disorders of pregnancy (RR 1.89, 95% CI 1.14 to 3.12; 4 RCTs, N = 1214; GRADE moderate-quality).
- **Inconclusive**
  - **Lifestyle versus usual care.** The evidence for childhood adiposity kg/m<sup>2</sup> (RR 0.91, 95% CI 0.75 to 1.11; 3 RCTs, N = 767; GRADE moderate-quality) and hypoglycaemia was inconclusive (average RR 0.99, 95% CI 0.65 to 1.52; 6 RCTs, N = 3000; GRADE moderate-quality).
  - **Exercise versus control.** The evidence for caesarean section (RR 0.86, 95% CI 0.63 to 1.16; 5 RCTs, N = 316; GRADE moderate quality) and perinatal death or serious morbidity composite was inconclusive (RR 0.56, 95% CI 0.12 to 2.61; 2 RCTs, N = 169; GRADE moderate-quality).
  - **Insulin versus oral therapy.** The evidence for the following outcomes was inconclusive: pre-eclampsia (RR 1.14, 95% CI 0.86 to 1.52; 10 RCTs, N = 2060), caesarean section (RR 1.03, 95% CI 0.93 to 1.14; 17 RCTs, N = 1988), large-for-gestational age (average RR 1.01, 95% CI 0.76 to 1.35; 13 RCTs, N = 2352), and perinatal death or serious morbidity composite (RR 1.03; 95% CI 0.84 to 1.26; 2 RCTs, N = 760). GRADE assessment was moderate-quality for these outcomes.
  - **Insulin versus diet.** The evidence for perinatal mortality was inconclusive (RR 0.74, 95% CI 0.41 to 1.33; 4 RCTs, N = 1137; GRADE moderate-quality).
  - **Insulin versus insulin.** The evidence for insulin aspart versus lispro for risk of caesarean section was inconclusive (RR 1.00, 95% CI 0.91 to 1.09; 3 RCTs, N = 410; GRADE moderate quality).
- **No conclusions possible.** No conclusions were possible for: lifestyle versus usual care (perineal trauma, postnatal depression, neonatal adiposity, number of antenatal visits/admissions); diet versus control (pre-eclampsia, caesarean section); myo-inositol versus placebo (hypoglycaemia); metformin versus glibenclamide (hypertensive disorders of pregnancy, pregnancy-induced hypertension, death or serious morbidity composite, insulin versus oral therapy (development of type 2 diabetes); intensive management versus routine care (IOL, large-for-gestational age); post- versus pre-prandial glucose monitoring (large-for-gestational age). The evidence ranged from moderate-, low- and very low-quality.
- **Authors' conclusions:** Currently there is insufficient high-quality evidence about the effects on health outcomes of relevance for women with GDM and their babies for many of the comparisons in this overview comparing treatment interventions for women with GDM. Lifestyle changes (including as a minimum healthy eating, physical activity and self-monitoring of blood sugar levels) was the only intervention that showed possible health improvements for women and their babies. Lifestyle interventions may result in fewer babies being large. Conversely, in terms of harms, lifestyle interventions may also increase the number of inductions. Taking insulin was also associated with an increase in hypertensive disorders, when compared to oral therapy. There was very limited information on long-term health and health services costs. Further high-quality research is needed.

[Exercise during pregnancy has a preventative effect on excessive maternal weight gain and gestational diabetes. A randomized controlled trial \(2019\)](#)  
 RubenBarakat· EveliaFranco

### Highlights:

- Exercise in pregnancy is associated with better control of maternal weight gain.
- Moderate regular exercise throughout pregnancy prevents gestational diabetes.
- Healthy pregnant women should be encouraged to exercise regularly.

### Effects of Social Media and Mobile Health Apps on Pregnancy Care: Meta-Analysis (2019)

Ko Ling Chan ; Mengtong Chen

- **Background:** The use of social media and mobile health (mHealth) apps has been increasing in pregnancy care. However, the effectiveness of these interventions is still unclear.
- **Objectives:** We conducted a meta-analysis to examine the effectiveness of these interventions with regard to different health outcomes in pregnant and postpartum women and investigate the characteristics and components of interventions that may affect program effectiveness.
- **Method:** We performed a comprehensive literature search of major electronic databases and reference sections of related reviews and eligible studies. A random effects model was used to calculate the effect size.
- **Results:** Fifteen randomized controlled trial studies published in and before June 2018 that met the inclusion criteria were included in the meta-analysis. The interventions were effective in promoting maternal physical health including weight management, gestational diabetes mellitus control, and asthma control with a moderate to large effect size ( $d=0.72$ ). Large effect sizes were also found for improving maternal mental health ( $d=0.84$ ) and knowledge about pregnancy ( $d=0.80$ ). Weight control interventions using wearable devices were more effective.
- **Conclusion:** Social media and mHealth apps have the potential to be widely used in improving maternal well-being. More large-scale clinical trials focusing on different health outcomes are suggested for future studies.

### **Effect of Probiotics on Metabolic Outcomes in Pregnant Women with Gestational Diabetes: A Systematic Review and Meta-Analysis of Randomized Controlled Trials (2017)**

**Bonnie L. Taylor, Georgia E. Woodfall, Katherine E. Sheedy, Meggan L. O'Riley, Kelsie A. Rainbow, Elsa L. Bramwell and Nicole J. Kellow**

- **Abstract:** The metabolic effects of probiotic administration in women with gestational diabetes mellitus (GDM) is unknown. The objective of this review was to investigate the effect of probiotics on fasting plasma glucose (FPG), insulin resistance (HOMA-IR) and LDL-cholesterol levels in pregnant women diagnosed with GDM. Seven electronic databases were searched for RCTs published in English between 2001 and 2017 investigating the metabolic effects of a 6–8 week dietary probiotic intervention in pregnant women following diagnosis with GDM. Eligible studies were assessed for risk of bias and subjected to qualitative and quantitative synthesis using a random effects model meta-analyses. Four high quality RCTs involving 288 participants were included in the review.
- **Findings:** Probiotic supplementation was not effective in decreasing FBG (Mean Difference =  $-0.13$ ; 95% CI  $-0.32, 0.06, p = 0.18$ ) or LDL-cholesterol ( $-0.16$ ; 95% CI  $-0.45, 0.13, p = 0.67$ ) in women with GDM. However, a significant reduction in HOMA-IR was observed following probiotic supplementation ( $-0.69$ ; 95% CI  $-1.24, -0.14, p = 0.01$ ). There were no significant differences in gestational weight gain, delivery method or neonatal outcomes between experimental and control groups, and no adverse effects of the probiotics were reported. **Probiotic supplementation for 6–8 weeks resulted in a significant reduction in insulin resistance in pregnant women diagnosed with GDM.**
- **Conclusion:** The use of probiotic supplementation is promising as a potential therapy to assist in the metabolic management of GDM. Further high quality studies of longer duration are required to determine the safety, optimal dose and ideal bacterial composition of probiotics before their routine use can be recommended in this patient group.

### Gestational diabetes mellitus: does an effective prevention strategy exist? (2016)

Rochan Agha-Jaffar, Nick Oliver, Desmond Johnston & Stephen Robinson

Key Take-aways:

- The use of **dietary intervention or combined lifestyle measures does not seem to reduce the risk of developing gestational diabetes mellitus (GDM) in women with no defined risk factors, but the evidence for increasing physical activity is conflicting**
- Dietary intervention can reduce the risk of developing GDM and the proportion of infants born with macrosomia in pregnant women with obesity; physical activity interventions have not had the same effect
- Combined lifestyle modifications have reduced gestational weight gain in pregnant women with obesity and have improved certain materno–fetal outcomes even if hyperglycaemia is not improved
- In individuals at high risk of developing GDM, preliminary data have demonstrated that probiotic and myoinositol supplementation might reduce the incidence of GDM.

### Educational and intervention programmes for gestational diabetes mellitus (GDM) management: An integrative review (2016)

Mary C. Carolan-Olah, PhD

- Aim: The aim of this integrative review was to identify and to critically review existing self-management programmes for GDM.
- Method: A search for studies published between 2000 and 2013 was conducted on: PubMed, CINAHL, Medline, OvidSP, ProQuest, SCOPUS and Wiley online library. GDM search terms included gestational diabetes mellitus; GDM, pregnancy diabetes. Search terms for self-management programmes, included educational programmes; lifestyle intervention; exercise, diet, weight management in pregnancy; life-style interventions.
- Results: Fifty papers were located in the search, and 12 were included in the review. Interventions fell into three main groups: (1) dietary and exercise interventions; (2) self-monitoring of blood glucose levels; and (3) counselling/behavioural interventions. This review found that although interventions varied in approach, most were successful in **reducing insulin requirements; in reducing rates of macrosomia and hypertensive disorders, and in improving levels of knowledge and pregnancy outcomes**. Only one study found that the intervention did not contribute some positive outcome.
- Conclusion: **Interventions that include adopting a low glycemic index diet and increasing levels of activity appear to be successful at reducing maternal blood glucose levels and reducing insulin requirements during pregnancy. Reducing maternal blood glucose levels, in turn, is associated with a reduction of macrosomia and maternal weight gain.**

### Applying the COM-B model to creation of an IT-enabled health coaching and resource linkage program for low-income Latina moms with recent gestational diabetes: the STAR MAMA program (2016)

Margaret A Handley, et al.

*Having trouble located the outcome of this study*

- **Background:** This study aims to tailor a IT-enabled health communication program to promote DPP-concordant behavior change among postpartum Latina women with recent gestational diabetes. The COM-B model (incorporating Capability, Opportunity, and Motivational behavioral barriers and enablers) and the Behavior Change Wheel (BCW) framework, convey a theoretically based approach for intervention development.

- **Methods:** We combined a health literacy-tailored health IT tool for reaching ethnic minority patients with diabetes with a BCW-based approach to develop a health coaching intervention targeted to postpartum Latina women with recent gestational diabetes. Current evidence, four focus groups (n = 22 participants), and input from a Regional Consortium of health care providers, diabetes experts, and health literacy practitioners informed the intervention development. Thematic analysis of focus group data used the COM-B model to determine content. Relevant cultural, theoretical, and technological components that underpin the design and development of the intervention were selected using the BCW framework.
- **Results:** STAR MAMA delivers DPP content in Spanish and English using health communication strategies to: (1) validate the emotions and experiences postpartum women struggle with; (2) encourage integration of prevention strategies into family life through mothers becoming intergenerational custodians of health; and (3) increase social and material supports through referral to social networks, health coaches, and community resources. Feasibility, acceptability, and health-related outcomes (weight loss, physical activity, consumption of healthy foods, breastfeeding, and glucose screening) will be evaluated at 9 months postpartum using a randomized controlled trial design.
- **Conclusions:** STAR MAMA provides a DPP-based intervention that integrates theory-based design steps. Through systematic use of behavioral theory to inform intervention development, STAR MAMA may represent a strategy to develop health IT intervention tools to meet the needs of diverse populations.

## References:

- [Palmas 2015\\*](#)
- [Zhao 2017\\*](#)
- [Arambepola 2016\\*](#)
- [Poorman 2015\\*](#)
- [Fischer 2016\\*](#)
- [Trotman 2015\\*](#)

---

Gestational Diabetes Management: Technical Assistance Brief

Last Updated: June, 2022

Access other resources at <https://www.mchevidence.org>

This project is supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) under grant number U02MC31613, Strengthen the Evidence for Maternal and Child Health Programs, \$3.5 M. This information or content and conclusions are those of the author and should not be construed as the official position or policy of, nor should any endorsements be inferred by HRSA, HHS or the U.S. Government.