<u>**Systematic Review Protocol: Outcome Predictors and Care Plans for Pregnancy In Obese Women (PROSPERO Registry # CRD42017060503)**</u>

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1. Background

Women with obesity who become pregnant represent a population at risk of adverse outcomes for pregnancy and overall health issues. As obesity is prevalent, the creation of screening and triaging tools to differentiate women at the highest risk of adverse outcomes from those at lower risk is essential to allow stratification of maternity care provision. Early identification will lead to improved individual outcomes and decreased burden on the Canadian health care system. The Society for Obstetricians and Gynaecologists of Canada (SOGC), Canadian Obesity Network (CON) and Canadian Paediatric Society (CPS) have all identified maternal obesity as a critical health issue because it plays a direct role in short- and long-term health outcomes for both mother and baby including perpetuating the intergenerational cycle of obesity.[1,2]

Over recent decades, there have been striking trends of increasing body weight – by 2019, it is estimated that one in five Canadian adults will be obese (body mass index [BMI] ≥30 kg/m²).[3] Among Canadians aged 18-39 years, the prevalence of overweight increased 48% and the prevalence of obesity increased 14% between 2000 and 2011.[3] Consequently, obesity complicating pregnancy has become commonplace. The increase in maternal weight has been accompanied by a concurrent increase in rates of pregnancy complications. Between 1996 and 2010, there was a doubling in the rate of both gestational diabetes (from 2.7% to 5.6%) and pre-gestational diabetes (from 0.7% to 1.5%).[4] Rates of preeclampsia and gestational hypertension increased 25% and 184% respectively in the United States between 1987 and 2004.[5] Although the gestational condition usually resolves postpartum, these women are at long-term risk of developing overt diabetes, chronic hypertension and cardiovascular disease. Short- and long-term morbidity related to adverse pregnancy outcomes in at-risk women must not be underestimated. Given the costs of treating obesity and related sequelae, novel and innovative ways to identify women who should receive specialized prenatal care are critical for improving outcomes.

This protocol summarizes plans to conduct two systematic reviews which will inform additional primary research targeted toward improving the health of overweight and obese women during pregnancy. The planned reviews will seek to identify and synthesize fundamental information regarding (1) predictors of adverse pregnancy events in obese women, and (2) currently recommended care plans for obese pregnant women. These reviews represent first steps in a grander research program which has been planned to improve the quality and effectiveness of maternity care in Canada and elsewhere.

2. Research Questions to be Addressed

The two research questions to be addressed in the planned systematic reviews are as follows:

> *Related to Pregnant Women with Obesity:*
>
> 1. **What are the predictors of adverse pregnancy outcomes among women who are obese?**
>
> 2. **What is the recommended care plan for pregnant women who are obese and followed in a low risk setting? In a high risk setting?**

Details regarding review methods to be used to address these research questions are described in detail below. This protocol was prepared in consultation of the PRISMA-P checklist[6] and will be posted to the University of Ottawa Health Sciences Library's online repository. The review has been registered in the Prospero database (CRD42017060503). Changes made to the review methods after posting of the protocol will be appropriately noted in the final publication as post-hoc protocol modifications.

3. Planned Methods for the Reviews
3.1 Literature Searches
Given the overlap of the research questions to be addressed, a combined search strategy for the research questions will be implemented an experienced information specialist (Mrs. Becky Skidmore) with extensive experience in systematic reviews and a history of supporting researchers in obstetrics and gynecology. Study design filters will be applied in order to identify citations of relevance for screening for each question. The search will cover the following electronic databases: EMBASE, Medline, and Epub Ahead of Print, In-Process and Other Non-Indexed Citations. Searching of grey literature will also be important for the identification of clinical practice guidelines, and will be performed in consideration of CADTH's Grey Matters (www.cadth.ca). Literature searches will be peer reviewed by a second independent information specialist using the established PRESS framework.[7] A preliminary draft of the search strategy to be used is provided in **Appendix 1**.

3.2 Study Eligibility Criteria
Research questions 1 and 2 were outlined earlier in Section 2. Eligibility criteria that will be used to identify relevant studies for each of the planned reviews have been pre-defined in terms of PICOS criteria and are as follows:

Topic 1: Predictors of adverse pregnancy outcomes in obese women	
PICOS Component	**Eligibility Criteria Details**
Population	• Pregnant women meeting criteria for obesity (pre-pregnancy BMI ≥ 30kg/m^2)
Interventions/Comparators/ Exposures	• Presence versus absence of individual indicators (including but not limited to age ≥35; BMI measures of ≥ 30 kg/m^2, 35 kg/m^2, 40 kg/m^2, 50kg/m^2; history of bariatric surgery; history of hypertension; history of diabetes; sleep apnea; underlying cardiovascular morbidities; history of cesarean section; and so forth)

Topic 1: Predictors of adverse pregnancy outcomes in obese women	
PICOS Component	**Eligibility Criteria Details**
Outcomes	• maternal mortality, neonatal mortality, stillbirth, new onset hypertension/preeclampsia, new onset diabetes, VTE, hospital admission, ICU admission, NICU admission, adverse placental mediated complications
Study Design	• Retrospective and prospective cohort studies • Case-control studies • Existing reviews addressing the topic • Excluded: case reports, letters, editorials, qualitative studies, narrative reviews

Topic 2: Recommended care plans for pregnant women who are obese and followed in low and high risk settings	
PICOS Component	**Eligibility Criteria Details**
Population	• Pregnant women meeting criteria for obesity (pre-pregnancy BMI ≥ 30kg/m²) • Women in low risk settings (e.g. care provider=GP or midwife) and high risk settings (e.g. OBS or MFM)
Interventions/Comparators/ Exposures	• Not relevant; care proposed care plans will be sought
Outcomes	• Not relevant; care proposed care plans will be sought
Study Design	• Clinical Practice Guidelines

Included studies will be restricted to those published in English and French. No abstracts, letters or commentaries will be eligible. Variations in endpoint definitions will not be used to exclude studies, but will be documented and factored into presentation of findings.

3.3 Study Screening and Selection
Duplicates from the bibliographic and grey literature searches for each of the planned reviews will be identified and removed. The remaining articles will be uploaded into an online systematic review software package, Distiller SR (Evidence Partners, Inc, Ottawa, Canada) for level 1 (title/abstract) and level 2 (full text) screening. Both levels of screening will consist of two reviewers screening for relevancy based on title and abstracts first, and subsequently based upon the full texts of the reports deemed potentially relevant. Conflicts will be resolved by consensus or a third team member. Reports that are co-publications or multiple reports of the same study will be identified as such. A PRISMA flow diagram will summarize the number of studies included and excluded with reasons provided for exclusion at level 2.[8]

3.4 Data Collection and Risk of Bias Evaluations
For each review question, data extraction forms will be developed in Microsoft Excel and pilot tested on a sample of studies. One reviewer will extract data and a second reviewer will verify the information collected. For all identified studies, the following study characteristics will be extracted: authorship list; date of publication; journal of publication; and country/language of publication. Related to the specific review topics, the following information will also be collected:

- ***Review 1 – predictors of adverse endpoints***: study design used; endpoints assessed (maternal mortality, neonatal mortality, stillbirth, new onset hypertension/preeclampsia, new onset diabetes, VTE, hospital admission, ICU admission, NICU admission, adverse placental mediated complications); demographics of the study population; predictor variables assessed for association; statistical methods used to assess association with adverse endpoints (e.g. univariate approaches such as contingency tables; multivariable approaches including logistic regression, proportional hazards modeling, linear regression, and so forth); degree of comprehensiveness of multivariable models performed (e.g. covariates adjusted for and in which structure, to enhance comparability of findings across studies); summary measures of association for predictors of interest, by outcome (e.g. odds ratios, risk ratios, hazard ratios with corresponding 95% confidence intervals).

- ***Review 2 – care plans for pregnancy in obese women***: recommendations related to different types of maternity care providers (e.g. OB, GP, midwife, and so forth), location of care (e.g. clinic, hospital, etc); details of the care plans and/or individual elements recommended (for example, when to do diabetes testing and which test to use); underlying evidence (e.g. systematic reviews, etc; if available, details on the approach to generate evidence for recommendations will be collected); citations of studies cited as informing the recommended care plans.

We anticipate that the evidence base identified for research question 1 will consist of mostly or entirely non-randomized studies. The value of risk of bias evaluations for both questions will be discussed amongst the research team once study identification is complete. If performed, risk of bias assessments for question 1 will be performed at the study level using the Newcastle Ottawa Scale.[9] As research question two is anticipated to focus upon clinical practice guidelines, quality assessment will be performed at the report level using the AGREE-2 tool.[10] Findings from assessments of quality for both reviews will be narratively summarized to provide additional clarity to readers of the reviews as to the rigor of the included studies.

3.5 Evidence Syntheses
There is equal interest in all outcomes for the planned reviews, and thus there are no a priori endpoints of primary interest to be noted.

Review question #1 pertains to identification of risk factors/predictors for the occurrence of negative pregnancy outcomes in obese pregnant women. We anticipate this information will mostly be reported in terms of association measures from univariate analyses (e.g. odds ratios from 2x2 tables and univariate regressions) and multivariable analyses (e.g. from logistic regression models of multiple factors). Narrative summary of trends in statistically significant predictors of the assorted endpoints of interest will be compiled, including comparing and contrasting of magnitudes of association across studies (with summary of other adjustment factors used). If feasible, meta-analyses of adjusted odds ratios from individual studies for identified risk factors will also be performed, with statistical heterogeneity assessed using the I^2 statistic (where values higher than 50% will be considered to be high). Results will be presented separately for each of the endpoints of interest (maternal mortality, neonatal mortality, stillbirth, new onset hypertension/preeclampsia, new onset diabetes, VTE, hospital admission, ICU admission, NICU admission, adverse placental mediated complications).

Review question #2 pertains to identification of care plans for obese pregnant women. Given the nature of the research question, no quantitative syntheses will be performed. Narrative summaries with table-based presentations as needed will be documented to summarize proposed care plans identified from the included literature.

3.6 Deliverables
Summary reports will be drafted to present the evidence identified for both research questions using the systematic approach outlined above. All reports will be prepared to correspond with guidance recommended by the PRISMA Statement. Involvement of the clinical lead (Dr. Gaudet) in terms of seeking input will be planned to occur at all key landmarks in the review process including selection of studies, review of study characteristics, discussion of findings and drafting of all reports. Team members Simon and Pratt will work on screening and data collection as described above for both reviews. Mrs. Garritty and Dr. Hutton will collaborate with the team to support all methodologic aspects of the review, to contribute to discuss the study findings at all key landmarks, and to contribute to authorship of manuscripts in whatever capacity is most helpful to achieve the goals of the planned reviews. The literature searches for the review shall be run in December 2016.

Additional Details of Note
- ***Guarantors.*** Laura Gaudet and Brian Hutton will both operate as guarantors of the protocol and completed reviews
- ***Team Contributions.*** All team members have read the study protocol and provided final approval prior to finalization of the protocol.
- ***Study Funding.*** The planned reviews will be performed with funds provided from a successful team grant application submitted to the Canadian Institutes of Health Research. The funders will play no role in the design, conduct or final approval of the review protocol or final review manuscripts.

Reference List

1. Davies, G. A. L. *et al.* Obesity in pregnancy. *J. Obstet. Gynaecol. Can. JOGC J. Obstet. Gynecol. Can. JOGC* **32,** 165–173 (2010).
2. Best Start Resource Centre. Obesity in preconception and pregnancy. (2013).
3. Twells, L. K., Gregory, D. M., Reddigan, J. & Midodzi, W. K. Current and predicted prevalence of obesity in Canada: a trend analysis. *CMAJ Open* **2,** E18-26 (2014).
4. Feig, D. S. *et al.* Trends in incidence of diabetes in pregnancy and serious perinatal outcomes: a large, population-based study in Ontario, Canada, 1996-2010. *Diabetes Care* **37,** 1590–1596 (2014).
5. Wallis, A. B., Saftlas, A. F., Hsia, J. & Atrash, H. K. Secular trends in the rates of preeclampsia, eclampsia, and gestational hypertension, United States, 1987-2004. *Am. J. Hypertens.* **21,** 521–526 (2008).
6. Moher, D. *et al.* Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Syst. Rev.* **4,** 1 (2015).
7. Sampson M *et al.* An evidence-based practice guideline for the peer review of electronic search strategies. *J. Clin. Epidemiol.* **62,** 944–952 (2009).
8. Moher D, Liberati A, Tetzlaff J, Altman D & PRISMA group. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS Med.* **6,** (2008).
9. Wells G, Shea B, O'Connell D & Peterson J et al. The Newcastle-Ottawa Scale (NOS) for assessing the quality of nonrandomised studies in meta-analyses.
10. Brouwers M, Kho M, Browman G & Burgers J et al. AGREE II: advancing guideline development, reporting and evaluation in health care. *CMAJ* **182,** E839–E842

Appendix 1: PRISMA-P Checklist

PRISMA-P (Preferred Reporting Items for Systematic review and Meta-Analysis Protocols) 2015 checklist: recommended items to address in a systematic review protocol*

Section and topic	Item No	Checklist item	Page # in protocol?
ADMINISTRATIVE INFORMATION			
Title:			
Identification	1a	Identify the report as a protocol of a systematic review	1
Update	1b	If the protocol is for an update of a previous systematic review, identify as such	NA
Registration	2	If registered, provide the name of the registry (such as PROSPERO) and registration number	1
Authors:			
Contact	3a	Provide name, institutional affiliation, e-mail address of all protocol authors; provide physical mailing address of corresponding author	1
Contributions	3b	Describe contributions of protocol authors and identify the guarantor of the review	5
Amendments	4	If the protocol represents an amendment of a previously completed or published protocol, identify as such and list changes; otherwise, state plan for documenting important protocol amendments	NA
Support:			
Sources	5a	Indicate sources of financial or other support for the review	5
Sponsor	5b	Provide name for the review funder and/or sponsor	5
Role of sponsor or funder	5c	Describe roles of funder(s), sponsor(s), and/or institution(s), if any, in developing the protocol	5
INTRODUCTION			
Rationale	6	Describe the rationale for the review in the context of what is already known	1
Objectives	7	Provide an explicit statement of the question(s) the review will address with reference to participants, interventions, comparators, and outcomes (PICO)	2
METHODS			
Eligibility criteria	8	Specify the study characteristics (such as PICO, study design, setting, time frame) and report characteristics (such as years considered, language, publication status) to be used as criteria for eligibility for the review	3-4
Information sources	9	Describe all intended information sources (such as electronic databases, contact with study authors, trial registers or other grey literature sources) with planned dates of coverage	2
Search strategy	10	Present draft of search strategy to be used for at least one electronic database, including planned limits, such that it could be repeated	Appendix 2
Study records:			
Data management	11a	Describe the mechanism(s) that will be used to manage records and data throughout the review	3

Selection process	11b	State the process that will be used for selecting studies (such as two independent reviewers) through each phase of the review (that is, screening, eligibility and inclusion in meta-analysis)	3
Data collection process	11c	Describe planned method of extracting data from reports (such as piloting forms, done independently, in duplicate), any processes for obtaining and confirming data from investigators	3-4
Data items	12	List and define all variables for which data will be sought (such as PICO items, funding sources), any pre-planned data assumptions and simplifications	3-4
Outcomes and prioritization	13	List and define all outcomes for which data will be sought, including prioritization of main and additional outcomes, with rationale	4
Risk of bias in individual studies	14	Describe anticipated methods for assessing risk of bias of individual studies, including whether this will be done at the outcome or study level, or both; state how this information will be used in data synthesis	4
Data synthesis	15a	Describe criteria under which study data will be quantitatively synthesised	4
	15b	If data are appropriate for quantitative synthesis, describe planned summary measures, methods of handling data and methods of combining data from studies, including any planned exploration of consistency (such as I^2, Kendall's τ)	4
	15c	Describe any proposed additional analyses (such as sensitivity or subgroup analyses, meta-regression)	None planned
	15d	If quantitative synthesis is not appropriate, describe the type of summary planned	4
Meta-bias(es)	16	Specify any planned assessment of meta-bias(es) (such as publication bias across studies, selective reporting within studies)	None planned
Confidence in cumulative evidence	17	Describe how the strength of the body of evidence will be assessed (such as GRADE)	No formal plans beyond quality assessment are planned

* It is strongly recommended that this checklist be read in conjunction with the PRISMA-P Explanation and Elaboration (cite when available) for important clarification on the items. Amendments to a review protocol should be tracked and dated. The copyright for PRISMA-P (including checklist) is held by the PRISMA-P Group and is distributed under a Creative Commons Attribution Licence 4.0.

Appendix 2: Draft Search Strategies

Pregnancy – Obesity – Predictors of Adverse Outcomes
Final
2016 Dec 7

Database: Embase <1980 to 2016 Week 49>, Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE(R) Daily and Ovid MEDLINE(R) <1946 to Present>
Search Strategy:
----
1   Pregnancy/ (1495258)
2   exp Pregnancy Complications/ (524175)
3   Pregnant Women/ (61578)
4   exp Pregnancy Trimesters/ (738188)
5   pregnan*.tw,kw. (997473)
6   Prenatal Care/ (57830)
7   (prenatal* or antenatal* or ante natal* or antepartum or ante partum).tw,kw. (268857)
8   or/1-7 [PREGNANCY] (1903342)
9   exp Obesity/ (606166)
10   (obesity* or obese).tw,kw. (589473)
11   ((body mass index* or body mass indic* or BMI or BMIs) adj2 (30* or 31* or 32* or 33* or 34* or 35* or 36* or 37* or 38* or 39*)).tw,kw. (65838)
12   ((body mass index* or body mass indic* or BMI or BMIs) adj2 (40* or 41* or 42* or 43* or 44* or 45* or 46* or 47* or 48* or 49*)).tw,kw. (27441)
13   ((body mass index* or body mass indic* or BMI or BMIs) adj2 (50* or 51* or 52* or 53* or 54* or 55*)).tw,kw. (10358)
14   or/9-13 [OBESITY] (797590)
15   8 and 14 [OBESITY IN PREGNANCY] (44110)
16   exp Animals/ not (exp Animals/ and Humans/) (15820253)
17   15 not 16 [ANIMAL-ONLY REMOVED] (25005)
18   (comment or editorial or interview or news or newspaper article).pt. (1781416)
19   (letter not (letter and randomized controlled trial)).pt. (1943739)
20   17 not (18 or 19) [OPINION PIECES REMOVED] (23942)
21   exp Risk/ (3402912)
22   (risk or risked or risks or risky or risking or risk-related).tw,kw. (4171011)
23   predict*.tw,kw. (2855393)
24   logistic*.tw,kw. (556933)
25   (logit* adj1 model*).tw,kw. (3558)
26   Prevalence/ (869433)
27   prevalen*.tw,kw. (1407549)
28   Pregnancy Complications/ep [epidemiology] (12467)
29   or/21-28 [RISK/PREDICTION] (8335483)
30   20 and 29 (15045)
31   Pregnancy Outcome/ (90909)
32   ((pregnan* or prenatal* or antenatal* or ante natal* or antepartum or ante partum or perinatal* or peripartum) adj3 outcome*).tw,kw. (82663)
33   ((maternal* or mother* or baby or babies or f?etal* or f?etus* or neonat* or newborn*) adj3 outcome*).tw,kw. (57280)
34   exp Pregnancy Complications/mo [mortality] (6241)
35   Maternal Mortality/ (29484)

36   Fetal Mortality/ (3562)
37   Perinatal Mortality/ (13146)
38   (mortalit* or death* or fatal*).tw,kw. (2919208)
39   exp Fetal Death/ (64582)
40   ((baby or babies or f?etal or f?etus* or neonat* or newborn*) adj3 (dead or demise? or died or dying)).tw,kw. (13828)
41   (stillbirth* or stillborn*).tw,kw. (28200)
42   exp Abortion, Spontaneous/ (71202)
43   ((abort* adj2 spontaneous*) or miscarriage? or (recur* adj2 loss*) or (habit* adj2 abort*)).tw,kw. (56929)
44   exp Hospitalization/ (507887)
45   hospitali*.tw,kw. (490915)
46   ((admit* or admission* or readmit* or readmission*) adj3 (hospital? or critical care or intensive care or ICU or ICUs or NICU or NICUs or SICU or SICUs)).tw,kw. (263870)
47   exp Hypertension, Pregnancy-Induced/ (47808)
48   ((eclamp* or hypertensi* or preeclamp* or pre-eclamp* or toxemi* or toxaemi* or EPH or hemolys#s) adj3 (gestational* or maternal* or "new onset" or pregnancy-induced)).tw,kw. (22992)
49   PIH.tw,kw. (4148)
50   HELLP.tw,kw. (5669)
51   exp Diabetes, Gestational/ (37235)
52   ((diabet* or DM or T2DM) adj3 (gestational* or maternal* or "new onset" or pregnancy-induced)).tw,kw. (40175)
53   PID.tw,kw. (9250)
54   macrosomi*.tw,kw. (8386)
55   Venous Thromboembolism/ (37314)
56   (DVT or thromboemboli* or VTE).tw,kw. (139752)
57   exp Placenta Diseases/ (37596)
58   Placental Circulation/ (6267)
59   (placenta* adj3 (abnormal* or disease* or disorder* or dysfunction*)).tw,kw. (9243)
60   (placenta* adj2 mediate*).tw,kw. (815)
61   Fetal Growth Retardation/ (27366)
62   ((f?etal or f?etus* or intrauterin*) adj grow* adj3 (restrict* or retard*)).tw,kw. (35821)
63   (FGR or IUGR).tw,kw. (16080)
64   Premature Birth/ (62384)
65   (preterm or prematur*).tw,kw. (393843)
66   or/31-65 [OUTCOMES] (4383595)
67   30 and 66 (8482)
68   limit 67 to english (7696)
69   limit 67 to french (198)
70   68 or 69 (7887)
71   limit 70 to yr="2009-current" (4738)
72   71 use ppez (3453) [MEDLINE RECORDS]
73   pregnancy/ (1495258)
74   exp pregnancy complication/ (524175)
75   pregnant woman/ (76251)
76   first trimester pregnancy/ or second trimester pregnancy/ or third trimester pregnancy/ (101209)
77   pregnan*.tw,kw. (997473)
78   prenatal care/ (57830)
79   (prenatal* or antenatal* or ante natal* or antepartum or ante partum).tw,kw. (268857)

80   or/73-79 [PREGNANCY] (1897755)
81   exp obesity/ (606166)
82   (obesity* or obese).tw,kw. (589473)
83   ((body mass index* or body mass indic* or BMI or BMIs) adj2 (30* or 31* or 32* or 33* or 34* or 35* or 36* or 37* or 38* or 39*)).tw,kw. (65838)
84   ((body mass index* or body mass indic* or BMI or BMIs) adj2 (40* or 41* or 42* or 43* or 44* or 45* or 46* or 47* or 48* or 49*)).tw,kw. (27441)
85   ((body mass index* or body mass indic* or BMI or BMIs) adj2 (50* or 51* or 52* or 53* or 54* or 55*)).tw,kw. (10358)
86   or/81-85 [OBESITY] (797590)
87   80 and 86 [OBESITY IN PREGNANCY] (43941)
88   exp animal experimentation/ or exp models animal/ or exp animal experiment/ or nonhuman/ or exp vertebrate/ (45057276)
89   exp human/ or exp human experimentation/ or exp human experiment/ (35654193)
90   88 not 89 (9404761)
91   87 not 90 [ANIMAL-ONLY REMOVED] (40654)
92   editorial.pt. (970098)
93   letter.pt. not (letter.pt. and randomized controlled trial/) (1938487)
94   91 not (92 or 93) [OPINION PIECES REMOVED] (39281)
95   risk/ (1197344)
96   risk assessment/ (643080)
97   risk factor/ (1625757)
98   (risk or risked or risks or risky or risking or risk-related).tw,kw. (4171011)
99   predict*.tw,kw. (2855393)
100   logistic*.tw,kw. (556933)
101   (logit* adj1 model*).tw,kw. (3558)
102   prevalence/ (869433)
103   prevalen*.tw,kw. (1407549)
104   exp pregnancy complication/ep [Epidemiology] (54308)
105   or/95-104 [RISK] (8170295)
106   94 and 105 (25353)
107   pregnancy outcome/ (90909)
108   ((pregnan* or prenatal* or antenatal* or ante natal* or antepartum or ante partum or perinatal* or peripartum) adj3 outcome*).tw,kw. (82663)
109   maternal mortality/ (29484)
110   fetus mortality/ (3098)
111   exp perinatal mortality/ (24302)
112   prenatal mortality/ (253)
113   (mortalit* or death* or fatal*).tw,kw. (2919208)
114   exp fetus death/ (35940)
115   ((baby or babies or f?etal or f?etus* or neonat* or newborn*) adj3 (dead or demise? or died or dying)).tw,kw. (13828)
116   (stillbirth* or stillborn*).tw,kw. (28200)
117   abortion, spontaneous/ (38493)
118   ((abort* adj2 spontaneous*) or miscarriage? or (recur* adj2 loss*) or (habit* adj2 abort*)).tw,kw. (56929)
119   exp hospitalization/ (507887)
120   hospital admission/ (152214)
121   hospitali*.tw,kw. (490915)

122   ((admit* or admission* or readmit* or readmission*) adj3 (hospital? or critical care or intensive care or ICU or ICUs or NICU or NICUs or SICU or SICUs)).tw,kw. (263870)
123   maternal hypertension/ (13910)
124   exp "eclampsia and preeclampsia"/ (49961)
125   ((eclamp* or hypertensi* or preeclamp* or pre-eclamp* or toxemi* or toxaemi* or EPH or hemolys#s) adj3 (gestational* or maternal* or "new onset" or pregnancy-induced)).tw,kw. (22992)
126   PIH.tw,kw. (4148)
127   HELLP syndrome/ (5801)
128   HELLP.tw,kw. (5669)
129   exp pregnancy diabetes mellitus/ (27411)
130   ((diabet* or DM or T2DM) adj3 (gestational* or maternal* or "new onset" or pregnancy-induced)).tw,kw. (40175)
131   PID.tw,kw. (9250)
132   macrosomia/ (5435)
133   macrosomi*.tw,kw. (8386)
134   exp venous thromboembolism/ (130485)
135   (DVT or thromboemboli* or VTE).tw,kw. (139752)
136   exp placenta disorder/ (37596)
137   (placenta* adj3 (abnormal* or disease* or disorder* or dysfunction*)).tw,kw. (9243)
138   (placenta* adj2 mediate*).tw,kw. (815)
139   exp intrauterine growth retardation/ (49427)
140   ((f?etal or f?etus* or intrauterin*) adj grow* adj3 (restrict* or retard*)).tw,kw. (35821)
141   (FGR or IUGR).tw,kw. (16080)
142   preterm birth/ (51426)
143   (preterm or prematur*).tw,kw. (393843)
144   or/107-143 [OUTCOMES] (4468561)
145   106 and 144 (14758)
146   journal conference abstract.pt. (2404812)
147   145 not 146 (11856)
148   limit 147 to english (10807)
149   limit 147 to french (267)
150   148 or 149 (11061)
151   limit 150 to yr="2009-current" (7881)
152   151 use emez (4600)
153   72 or 152 (8053)
154   limit 153 to yr="2013-current" (4953)
155   remove duplicates from 154 (3148)
156   153 not 154 (3100)
157   remove duplicates from 156 (2039)
158   155 or 157 (5187) [TOTAL UNIQUE RECORDS]
159   158 use ppez [MEDLINE UNIQUE RECORDS] (2852)
160   158 use emez [EMBASE UNIQUE RECORDS] (2335)

Pregnancy – Obesity – Guidelines/Care Plans
Final
2016 Dec 2

Database: Embase <1974 to 2016 December 01>, Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE(R) Daily and Ovid MEDLINE(R) <1946 to Present>
Search Strategy:
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1   Pregnancy/ (1508800)
2   exp Pregnancy Complications/ (524941)
3   Pregnant Women/ (61699)
4   exp Pregnancy Trimesters/ (751903)
5   pregnan*.tw,kw. (1005064)
6   Prenatal Care/ (58151)
7   (prenatal* or antenatal* or ante natal* or antepartum or ante partum).tw,kw. (270085)
8   or/1-7 [PREGNANCY] (1919274)
9   exp Obesity/ (608692)
10   (obesity* or obese).tw,kw. (591053)
11   ((body mass index* or body mass indic* or BMI or BMIs) adj2 (30* or 31* or 32* or 33* or 34* or 35* or 36* or 37* or 38* or 39*)).tw,kw. (65845)
12   ((body mass index* or body mass indic* or BMI or BMIs) adj2 (40* or 41* or 42* or 43* or 44* or 45* or 46* or 47* or 48* or 49*)).tw,kw. (27448)
13   ((body mass index* or body mass indic* or BMI or BMIs) adj2 (50* or 51* or 52* or 53* or 54* or 55*)).tw,kw. (10357)
14   or/9-13 [OBESITY] (800104)
15   8 and 14 [OBESITY IN PREGNANCY] (44197)
16   exp Animals/ not (exp Animals/ and Humans/) (15917522)
17   15 not 16 [ANIMAL-ONLY REMOVED] (25167)
18   (comment or editorial or interview or news or newspaper article).pt. (1781141)
19   (letter not (letter and randomized controlled trial)).pt. (1944096)
20   17 not (18 or 19) [OPINION PIECES REMOVED] (24106)
21   exp Guidelines as Topic/ (551026)
22   exp Clinical Protocols/ (234994)
23   Guideline.pt. (16983)
24   Practice Guideline.pt. (23568)
25   standards.fs. (655725)
26   Consensus Development Conference.pt. (11148)
27   Consensus Development Conference, NIH.pt. (901)
28   (guidance* or guideline* or standards or recommendation*).ti. (284126)
29   (expert consensus or consensus statement* or consensus conference* or practice parameter* or position statement* or policy statement* or CPG or CPGs).tw,kw. (102792)
30   ((care or clinical or healthcare or patient or practice or therap* or treatment*) adj2 (algorithm* or protocol*)).tw,kw. (102152)
31   Critical Pathways/ (14315)
32   pathway*.tw,kw. (2028384)
33   ((care or clinical or critical or healthcare) adj2 (map or maps or path or paths)).tw,kw. (3881)
34   (care plan? or healthcare plan?).tw,kw. (16895)
35   patient care/ (268267)
36   exp "Continuity of Patient Care"/ (729990)
37   ((continuit* or continuum) adj2 (care or healthcare)).tw,kw. (19330)

38   or/21-37 [GUIDELINES/CARE PATHWAYS] (4288351)
39   20 and 38 [OBESITY IN PREGNANCY - GUIDELINES/CARE PATHWAYS] (2226)
40   39 use ppez (1223) [MEDLINE RECORDS]
41   pregnancy/ (1508800)
42   exp pregnancy complication/ (524941)
43   pregnant woman/ (76372)
44   first trimester pregnancy/ or second trimester pregnancy/ or third trimester pregnancy/ (101315)
45   pregnan*.tw,kw. (1005064)
46   prenatal care/ (58151)
47   (prenatal* or antenatal* or ante natal* or antepartum or ante partum).tw,kw. (270085)
48   or/41-47 [PREGNANCY] (1913656)
49   exp obesity/ (608692)
50   (obesity* or obese).tw,kw. (591053)
51   ((body mass index* or body mass indic* or BMI or BMIs) adj2 (30* or 31* or 32* or 33* or 34* or 35* or 36* or 37* or 38* or 39*)).tw,kw. (65845)
52   ((body mass index* or body mass indic* or BMI or BMIs) adj2 (40* or 41* or 42* or 43* or 44* or 45* or 46* or 47* or 48* or 49*)).tw,kw. (27448)
53   ((body mass index* or body mass indic* or BMI or BMIs) adj2 (50* or 51* or 52* or 53* or 54* or 55*)).tw,kw. (10357)
54   or/49-53 [OBESITY] (800104)
55   48 and 54 [OBESITY IN PREGNANCY] (44028)
56   exp animal experimentation/ or exp models animal/ or exp animal experiment/ or nonhuman/ or exp vertebrate/ (45211947)
57   exp human/ or exp human experimentation/ or exp human experiment/ (35705103)
58   56 not 57 (9508538)
59   55 not 58 [ANIMAL-ONLY REMOVED] (40732)
60   editorial.pt. (970059)
61   letter.pt. not (letter.pt. and randomized controlled trial/) (1938837)
62   59 not (60 or 61) [OPINION PIECES REMOVED] (39360)
63   exp practice guideline/ (431674)
64   (guidance* or guideline* or standards or recommendation*).ti. (284126)
65   (expert consensus or consensus statement* or consensus conference* or practice parameter* or position statement* or policy statement* or CPG or CPGs).tw,kw. (102792)
66   ((care or clinical or healthcare or patient or practice or therap* or treatment*) adj2 (algorithm* or protocol*)).tw,kw. (102152)
67   pathway*.tw,kw. (2028384)
68   ((care or clinical or critical or healthcare) adj2 (map or maps or path or paths)).tw,kw. (3881)
69   (care plan? or healthcare plan?).tw,kw. (16895)
70   patient care/ (268267)
71   ((continuit* or continuum) adj2 (care or healthcare)).tw,kw. (19330)
72   or/63-71 [GUIDELINES/CARE PATHWAYS] (3071058)
73   62 and 72 [OBESITY IN PREGNANCY - GUIDELINES/CARE PATHWAYS] (3122)
74   journal conference abstract.pt. (2404812)
75   73 not 74 (2615)
76   75 use oemezd (1776) [EMBASE RECORDS]
77   40 or 76 [BOTH DATABASES] (2999)
78   remove duplicates from 77 (2150) [TOTAL UNIQUE RECORDS]
79   78 use ppez [MEDLINE unique records] (1010)
80   78 use oemezd [EMBASE unique records] (1140)