**MINI-CAT Final- RT4-WK3&4-Chowdhury**

**Clinical Question:** As in the past, please briefly outline the scenario and state your clinical question as concisely and specifically as possible

In OB/GYN rotation, I encounter a 29 y/o female G1P001 with LMP 08/22/2019 EGA 26w2d who came to the clinic routine prenatal visit. The clinicians provided the patient with fetal movement counting chart in which patient was requested to count fetal movement every morning for 1hr after the breakfast and 1hr before going to sleep. The patient was curious to understand the benefits of fetal count and asked the provider if fetal count will inform the about the fetal wellbeing meaning movement, growth and overall health.

**Modified PICO Question:** In third trimester pregnancy, does fetal counting help to identify the child growth, development and fetal death?

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| P | I | C | O |
| Third trimester pregnancy  | Fetal count  |  No fetal count  | Fetus growth |
| Pregnant Patient  | Fetal movement |  No fetal movement  | Fetus development  |
|  | Movement count  |   | Growth restriction  |
|  | NST |  | Fetal death  |
|    |  |   | Healthy fetus |

**Search Strategy:**

**PubMed:**

Fetal count (Best Match) – 11545

* Filter (Best Match, 10 years, Systematic Reviews, Meta-Analysis, RCT, free full text)-79

Fetal movement (Best Match) – 6874

* Filter (Best Match, 10 years, Systematic Reviews, Meta-Analysis, RCT, free full text)- 27

**Cochrane Library:**

Fetal count – 430

* Filter (Cochrane review) – 14

Fetal movement– 372

* Filter (Cochrane review) - 26

 Fetal count to identify fetus wellbeing

* Filter (Cochrane review)- 4

**How I selected articles:**

While researching for the articles, I used PubMed and Cochrane to look for systemic review, meta-analysis, RCT, indexed for Medline and that was published with in last 10 years because I wanted to access highest level of evidence that would answer the PICO questions effectively.

**Article # 1**

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| Citation: Bellussi, F., Poʼ, G., Livi, A., Saccone, G., Vivo, V. D., Oliver, E. A., & Berghella, V. (2020). Fetal Movement Counting and Perinatal Mortality. Obstetrics & Gynecology, 135(2), 453–462. doi: 10.1097/aog.0000000000003645 |
| Type of article:   A Systematic Review and Meta-analysis |
| **Abstract:**OBJECTIVE:To assess the association of fetal movement counting with perinatal mortality.DATA SOURCES:Electronic databases (ie, MEDLINE, ClinicalTrials.gov, ScienceDirect, the Cochrane Library at the CENTRAL Register of Controlled Trials) were searched from inception until May 2019. Search terms used were: "fetal movement," "fetal movement counting," "fetal kick counting," "stillbirth," "fetal demise," "fetal mortality," and "perinatal death."METHODS OF STUDY SELECTION:We included all randomized controlled trials comparing perinatal mortality in those women randomized to receive instructions for fetal movement counting compared with a control group of women without such instruction.TABULATION, INTEGRATION AND RESULTS:The primary outcome was perinatal mortality. Five of 1,290 identified articles were included, with 468,601 fetuses. Definitions of decreased fetal movement varied. In four of five studies, women in the intervention group were asked to contact their health care providers if they perceived decreased fetal movement; the fifth study did not provide details. Reported reduction in fetal movement usually resulted in electronic fetal monitoring and ultrasound assessment of fetal well-being. There was no difference in the incidence of perinatal outcome between groups. The incidence of perinatal death was 0.54% (1,252/229,943) in the fetal movement counting group and 0.59% (944/159,755) in the control group (relative risk [RR] 0.92, 95% CI 0.85-1.00). There were no statistical differences for other perinatal outcomes as stillbirths, neonatal deaths, birth weight less than 10th percentile, reported decreased fetal movement, 5-minute Apgar score less than 7, neonatal intensive care unit admission or perinatal morbidity. There were weak but significant increases in preterm delivery (7.6% vs 7.1%; RR 1.07, 95% CI 1.05-1.10), induction of labor (36.6% vs 31.6%; RR 1.15, 95% CI 1.09-1.22), and cesarean delivery (28.2% vs 25.3%; RR 1.11, 95% CI 1.10-1.12).CONCLUSION:Instructing pregnant women on fetal movement counting compared with no instruction is not associated with a clear improvement in pregnancy outcomes. There are weak associations with some secondary outcomes such as preterm delivery, induction of labor, and cesarean delivery. |
| Article:  |

**Article #2**

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| Citation: Saastad, E., Winje, B. A., Stray Pedersen, B., & Frøen, J. F. (2011). Fetal movement counting improved identification of fetal growth restriction and perinatal outcomes--a multi-centre, randomized, controlled trial. *PloS one*, *6*(12), e28482. https://doi.org/10.1371/journal.pone.0028482 |
| Type of article:  multicentre, randomized, controlled trial |
| **Abstract:** BACKGROUND:Fetal movement counting is a method used by the mother to quantify her baby's movements, and may prevent adverse pregnancy outcome by a timely evaluation of fetal health when the woman reports decreased fetal movements. We aimed to assess effects of fetal movement counting on identification of fetal pathology and pregnancy outcome.METHODOLOGY:In a multicentre, randomized, controlled trial, 1076 pregnant women with singleton pregnancies from an unselected population were assigned to either perform fetal movement counting from gestational week 28, or to receive standard antenatal care not including fetal movement counting (controls). Women were recruited from nine Norwegian hospitals during September 2007 through November 2009. Main outcome was a compound measure of fetal pathology and adverse pregnancy outcomes. Analysis was performed by intention-to-treat.PRINCIPAL FINDINGS:The frequency of the main outcome was equal in the groups; 63 of 433 (11.6%) in the intervention group, versus 53 of 532 (10.7%) in the control group [RR: 1.1 95% CI 0.7-1.5)]. The growth-restricted fetuses were more often identified prior to birth in the intervention group than in the control group; 20 of 23 fetuses (87.0%) versus 12 of 20 fetuses (60.0%), respectively, [RR: 1.5 (95% CI 1.0-2.1)]. In the intervention group two babies (0.4%) had Apgar scores <4 at 1 minute, versus 12 (2.3%) in the control group [RR: 0.2 (95% CI 0.04-0.7)]. The frequency of consultations for decreased fetal movement was 71 (13.1%) and 57 (10.7%) in the intervention and control groups, respectively [RR: 1.2 (95% CI 0.9-1.7)]. The frequency of interventions was similar in the groups.CONCLUSIONS:Maternal ability to detect clinically important changes in fetal activity seemed to be improved by fetal movement counting; there was an increased identification of fetal growth restriction and improved perinatal outcome, without inducing more consultations or obstetric interventions. |
| Article: |

**Article # 3**

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| Citation: Delaram, M., & Jafarzadeh, L. (2016). The Effects of Fetal Movement Counting on Pregnancy Outcomes. Journal of clinical and diagnostic research : JCDR, 10(2), SC22–SC24. https://doi.org/10.7860/JCDR/2016/16808.7296 |
| Type of article:  A Randomized Control Trial  |
| Abstract:INTRODUCTION:Counting fetal movements may lead to timely assess fetal health and prevent the adverse effects of pregnancy.AIM:The aim of this study was to determine the effect of fetal movement counting on pregnancy outcomes.MATERIALS AND METHODS:In a randomized controlled trial, 208 women with singleton pregnancy were randomly divided into two groups of fetal movement counting and control. Pregnancy outcomes were compared between the two groups. Data were analysed with SPSS and p<0.05 was considered significant.RESULTS:There was no significant difference in the mean maternal concern (p=0.36), admission to hospital due to the decreased fetal movements (p=0.99), birth weight (p=0.21), Apgar score (p=0.51), the mean of gestational age at the time of decreased fetal movements (p=0.49) and mode of delivery (p=0.69) between the two groups. There were no cases of premature labour, intrauterine growth retardation and fetal death in the two groups.CONCLUSION:Pregnancy outcome was similar in the two groups of fetal movement counting and control. Further studies are needed to evaluate the effect of fetal movement counting on the major outcomes of pregnancy such as intrauterine fetal death. |
| Article:  |

**Article #4:**

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| Citation: Mangesi, L., Hofmeyr, G. J., Smith, V., & Smyth, R. M. (2015). Fetal movement counting for assessment of fetal wellbeing. Cochrane Database of Systematic Reviews. doi: 10.1002/14651858.cd004909.pub3 |
| Type of article:    Randomised controlled trials (RCTs) and cluster-RCTs |
| Abstract:BACKGROUND:Fetal movement counting is a method by which a woman quantifies the movements she feels to assess the condition of her baby. The purpose is to try to reduce perinatal mortality by alerting caregivers when the baby might be compromised. This method may be used routinely, or only in women who are considered at increased risk of complications affecting the baby. Fetal movement counting may allow the clinician to make appropriate interventions in good time to improve outcomes. On the other hand, fetal movement counting may cause unnecessary anxiety to pregnant women, or elicit unnecessary interventions.OBJECTIVES:To assess outcomes of pregnancy where fetal movement counting was done routinely, selectively or was not done at all; and to compare different methods of fetal movement counting.SEARCH METHODS:We searched the Cochrane Pregnancy and Childbirth Group's Trials Register (31 May 2015) and reference lists of retrieved studies.SELECTION CRITERIA:Randomised controlled trials (RCTs) and cluster-RCTs where fetal movement counting was assessed as a method of monitoring fetal wellbeing.DATA COLLECTION AND ANALYSIS:Two review authors assessed studies for eligibility, assessed the methodological quality of included studies and independently extracted data from studies. Where possible the effects of interventions were compared using risk ratios (RR), and presented with 95% confidence intervals (CI). For some outcomes, the quality of the evidence was assessed using the GRADE approach.MAIN RESULTS:Five studies (71,458 women) were included in this review; 68,654 in one cluster-RCT. None of these five trials were assessed as having low risk of bias on all seven risk of bias criteria. All included studies except for one (which included high-risk women as participants) included women with uncomplicated pregnancies.Two studies compared fetal movement counting with standard care, as defined by trial authors. Two included studies compared two types of fetal movement counting; once a day fetal movement counting (Cardiff count-to-10) with more than once a day fetal movement counting methods. One study compared fetal movement counting with hormone assessment.(1) Routine fetal movement counting versus mixed or undefined fetal movement countingNo study reported on the primary outcome 'perinatal death or severe morbidity'. In one large cluster-RCT, there was no difference in mean stillbirth rates per cluster (standard mean difference (SMD) 0.23, 95% CI -0.61 to 1.07; participants = 52 clusters; studies = one, low quality evidence). The other study reported no fetal deaths. There was no difference in caesarean section rate between groups (RR 0.93, 95% CI 0.60 to 1.44; participants = 1076; studies = one,low quality evidence). Maternal anxiety was significantly reduced with routine fetal movement counting (SMD -0.22, 95% CI -0.35 to -0.10; participants = 1013; studies = one, moderate quality evidence). Maternal-fetal attachment was not significantly different (SMD -0.02, 95% CI -0.15 to 0.11; participants = 951; studies = one, low quality evidence). In one study antenatal admission after reporting of decreased fetal movements was increased (RR 2.72, 95% CI 1.34 to 5.52; participants = 123; studies = one). In another there was a trend to more antenatal admissions per cluster in the counting group than in the control group (SMD 0.38, 95% CI -0.17 to 0.93; participants = 52 clusters; studies = one, low quality evidence). Birthweight less than 10th centile was not significantly different between groups (RR 0.98, 95% CI 0.66 to 1.44; participants = 1073; studies = one, low quality evidence). The evidence was of low quality due to imprecise results and because of concerns regarding unclear risk of bias. (2) Formal fetal movement counting (Modified Cardiff method) versus hormone analysisThere was no difference between the groups in the incidence of caesarean section (RR 1.18, 95% CI 0.83 to 1.69; participants = 1191; studies = one). Women in the formal fetal movement counting group had significantly fewer hospital visits than those randomised to hormone analysis (RR 0.26, 95% CI 0.20 to 0.35), whereas there were fewer Apgar scores less than seven at five minutes for women randomised to hormone analysis (RR 1.72, 95% CI 1.01 to 2.93). No other outcomes reported showed statistically significant differences. 'Perinatal death or severe morbidity' was not reported. (3) Formal fetal movement counting once a day (count-to-10) versus formal fetal movement counting method where counting was done more than once a day (after meals)The incidence of caesarean section did not differ between the groups under this comparison (RR 2.33, 95% CI 0.61 to 8.99; participants = 1400; studies = one). Perinatal death or severe morbidity was not reported. Women were more compliant in using the count-to-10 method than they were with other fetal movement counting methods, citing less interruption with daily activities as one of the reasons (non-compliance RR 0.25, 95% CI 0.19 to 0.32).Except for one cluster-RCT, included studies were small and used different comparisons, making it difficult to measure the outcomes using meta-analyses. The nature of the intervention measured also did not allow blinding of participants and clinicians..AUTHORS' CONCLUSIONS:This review does not provide sufficient evidence to influence practice. In particular, no trials compared fetal movement counting with no fetal movement counting. Only two studies compared routine fetal movements with standard antenatal care, as defined by trial authors. Indirect evidence from a large cluster-RCT suggested that more babies at risk of death were identified in the routine fetal monitoring group, but this did not translate to reduced perinatal mortality. Robust research by means of studies comparing particularly routine fetal movement counting with selective fetal movement counting is needed urgently, as it is a common practice to introduce fetal movement counting only when there is already suspected fetal compromise. |
|  Article  |

**Summary of the Evidence**:

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| Author (Date) | Level of Evidence | Sample/Setting(# of subjects/ studies, cohort definition etc. ) | Outcome(s) studied | Key Findings | Limitations and Biases |
| Federica Bellussi, MD, Gaia Po’, MD, Alessandra Livi, MD, Gabriele Saccone, MD, Valentino De Vivo, MD,Emily A. Oliver, MD, and Vincenzo Berghella, MD | Systematic Review and Meta-analysis | * Electronic databases (ie, MEDLINE,

ClinicalTrials.gov, ScienceDirect, the Cochrane Libraryat the CENTRAL Register of Controlled Trials) were searched from inception until May 2019* **5 RCT** was chosen from were chosen from **1,290** identified article and 468,601 fetuses were part of the subject group
* **Intervention group**= women instructed

to monitor fetal movement during pregnancy * **control group** = women did not receive

instruction regarding fetal movementmonitoring | * One of the **primary outcome** measure = incidence perinatal mortality, stillbirths and neonatal deaths
* **Secondary outcome** measure=
* small for gestational age (birth weight less than the 10th percentile)
* 5-minute Apgar score less than 7
* admission to the neonatal ICU decreased fetal movement
* admission to hospital for reduced fetal movement,
* elective or emergent delivery (cesarean or induction of labor) after decreased fetal movement,
* preterm birth
* induction of labor, and cesarean delivery.
* association of fetal movement counting with perinatal mortality
 | * In this systematic review and meta-analysis, there were no difference between the control and intervention group meaning the women who were instructed on fetal movement counting had no difference in perinatal mortality compared with those who did not receive instructions
* The only statistically significant results in this meta-analysis are small increased rates of preterm birth, induction of labor and cesarean delivery
* Fetal movement counting were not associated with clear improvement in pregnancy outcome
* It is not possible to

know whether the clinical interventions preventeda stillbirth, neonatal death, or neonatal morbidity | * 82% of the subjects of the study are from one study therefore other studies had little contribution to he conclusion of this meta-analysis
* Most of RCT in this meta-analysis were conducted in high income countries where pre-natal death is rare so it might not be generalized in the low-income population. However, USA is considered high income country so it could be generalized among American populations.
* The sample size might not be large enough to detect a small risk reduction
* The instruction to the patient regarding fetal count movements, the management of decreased fetal movement and the definition of stillbirth might differ based on the provider.
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| Eli Saastad, Brita A. Winje, Babill Stray Pedersen,, J. Frederik Frøen | aMulti-Centre, Randomized, Controlled Trial | * 1076 pregnant women with singleton pregnancies were assigned to either perform fetal movement counting from gestational week 28, or to receive

standard antenatal care not including fetal movement counting  | **Primary outcomes** * fetal growth restriction <2.5th centile
* emergency Caesarean section on fetal indication
* Oligohydramnios
* pathological blood flow in arteria umbilicalis
* maternal perception of absent fetal movements for more than 24 hours before admission to hospital
* perinatal death

**Secondary outcomes*** Apgar scores <4 at 1 and 5 minutes
* fetal growth restriction <2.5th centile unidentified prior to birth
* the total number of consultations for decreased fetal activity
* use of health resources in evaluation of these pregnancies
* interventions prior to or during delivery.
 | * There was an increased identification of fetal growth restriction and improved perinatal outcomes
* There were less adverse outcomes in the intervention group than in the control group
* decreased fetal movements, more often a fetus with a <-10% weight estimate was identified in the Intervention versus the control group
* Further research is needed to assess the effects of fetal movement counting on hard outcomes such as stillbirth rates.
 | * The sample was only representative pregnant patient from Norway and small number of sample size had characteristic of smoking which may indicate a bias towards healthier pregnancies.
* The sample size were predominantly employed, cohabiting, white, and well-educated; a typical Scandinavian population. Therefore, it can not be generalized rather need to be districted to similar population
* The intervention group received additional information about fetal activity and how to register and interpret the fetal movement pattern, but this information may also have reached the women in the control group.
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|  Masoumeh Delaram1, Lobat Jafarzadeh2 | randomized controlled tri | * 208 women with singleton pregnancy were randomly divided into two groups of fetal movement counting and control
* randomly assigned to the intervention group (n = 100) and control group (n = 108)
* Exclusion criteria included oligohydramnios, multifetal pregnancy, fetal abnormalities and maternal smoking.
 | Primary outcomes * Maternal concern about reduced fetal movements
* Admission to hospital due to maternal concern
* Birth weight
* Apgar score
* preterm delivery
* intrauterine growth retardation
* mode of delivery
 | * There were no significant difference between the intervention and control group regarding hospital admission due to decrease fetal movements, birth weight, Apgar score
* There were no significant difference between the mode of delivery between two groups
* There were no case of premature labor, intra-uterine growth retardation and fetal death between the two groups
* Pregnancy outcome was similar in the two groups of fetal movement counting and control.
* Further studies are needed to evaluate the effect of fetal movement counting on the major outcomes of pregnancy such as intrauterine fetal death
 | * The most women participating in the study were more employed and educated. Therefore, the finding scan not be generalized and should be limited to the same population.
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| Lindeka Mangesi,G Justus Hofmeyr,Valerie Smith,Rebecca MD Smyth | Randomised clinical trials or cluster‐randomised trials  | Five included studies comprised of 71,458 women with singleton pregnancies Pregnant women who reached the gestational age 28 to 32 weeks Three Intervention group Routine fetal movement counting versus mixed or undefined fetal movement countingFormal fetal movement counting (Modified Cardiff method) versus hormone analysisFormal fetal movement counting once a day (count‐to‐10) versus formal fetal movement counting method where counting was done more than once a day (after meals) | **Primary outcomes**Perinatal death or severe morbidity (neonatal intensive care unit admission, neonatal encephalopathy)Caesarean section**Secondary outcomes**Maternal outcomesMaternal satisfaction as defined by trial authorsMaternal anxiety as defined by trial authorsMaternal‐fetal attachment as defined by trial authorsNon‐compliance (not pre‐specified)Pregnancy complicationsAntenatal hospital admissionOther fetal testingStillbirthsPremature birthBirthweight; less than 2500 g or less than 10th centile (not pre‐specified)Assisted birthOperative birthNumber of hospital visit (not pre‐specified)Consultation for decreased fetal movements (not pre‐specified)Neonatal outcomesFive‐minute Apgar score less than sevenUmbilical arterial pH less than 7.2Neonatal intensive care unit admissionRespiratory distress syndromeNeonatal encephalopathyEarly neonatal deathPerinatal deathChildhood disability | Intervention#1 Routine fetal movement counting versus mixed or undefined fetal movement counting* Routine fetal movement counting lead to reduced maternal anxiety
* There were no significant difference between the intervention vs control regarding Maternal-fetal attachment
* Intervention group had increased hospital admission as the mother reported decreased fetal movements
* Birthweight less than 10th centile was not significantly different between groups

Intervention#2Formal fetal movement counting versus hormone analysis* There was no difference between the groups in regard to incidence of c- section
* Women in the fetal movement counting had significantly fewer hospital visits than hormone analysis
* Hormone analysis group had fewer Apgar scores less than seven at five minutes
* Perinatal death or severe morbidity' was not reported.

Intervention#3Formal fetal movement counting once a day versus formal fetal movement counting method* The incidence of caesarean section did not differ between the two groups
* Perinatal death or severe morbidity was not reported
 | One study weighted more than other as out of 71,458 participants 68,654 participants were from one study so the contribution from the other studies were relatively small Meta‐analysis was not performed because of the degree of heterogeneity The nature of the intervention measured also did not allow blinding of participants and clinicians.All five studies were conducted in high income countries (Norway, United Kingdom, Ireland, Sweden, Belgium and the USA) |

**Conclusion(s):**

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| **Article**  | **Conclusions** |
| **Article #1**  | Based on this article, there are no benefits of counting fetal movements because the instruction to fetal counting did not improve pregnancy outcomes. There are weak association between fetal counting and identification of preterm labor, induction of labor or Cesarean delivery. However, association does not confirm a finding, so further studies need to be conducted to identify the benefits of fetal counting. Also, this study includes a large sample size of 468,601 but the author believes this large sample size is still not enough to identify the small risk in this population. One of the biggest restrictions of this study is that it includes RCT that was conducted in high income countries, where prenatal mortality is rare, so it cannot be generalized to low income countries. However, since America still fit into the high-income countries, it can be generalized to American population that we are going to serve as a future clinician. |
| **Article #2** | This article directly looks at the effect of fetal movement counting on the fetal wellbeing by early identification of fetal growth restriction, decrease fetal movement, stillborn, and mortality. The authors concluded that the fetal counting intervention leads to improved identification of fetal growth restriction and reduce severe low Apgar score when compared to the control group with no intervention. However, this study was conducted in Norway and most of these participants were employed, white and well-educated Scandinavian population meaning it has low transferability to the general population. The author suggests conducting a large, heterogeneous, randomized control trial so it’s not limited to this specific populations. |
| **Article #3** | Based on this article, fetal movement counting does not help to identify fetal wellbeing because the result shows there were no statistically significant difference between the intervention and control group regarding the primary intervention of early identification of intrauterine growth restriction, preterm delivery, birth weight, Apgar score or mode of delivery. This study concludes there was no significant difference in pregnancy outcome between intervention and control group of fetal movement counting. Further studies need to be conducted to identify the effect of fetal movement counting on a pregnancy.  |
| **Article #4**  | Based on this article, fetal movement counting leads to reduced anxiety for the mother as it provides a sensation that the fetus is doing well. Decrease fetal movement sensation leads to increase hospital admission. However, the study reveals fetal movement counting does not reduce stillbirths, caesarean sections, birth weight less than 10th centile and mother‐baby attachment.  |

**Clinical “Bottom Line”:**

Most clinicians view fetal counting chart as a simple, inexpensive and easily accessible method in helping the mother monitoring the fetus, which helps to keep a mental peace for the mother and the providers. Fetal count is common practice in the OB field as I encounter multiple clinicians providing the same advice of fetal count. However, based on my research, the fetal monitoring does not help to identify fetal wellbeing. Even though one of the studies suggest that the fetal monitoring is effective, but it was conducted in 2011 with a specific population meaning it cannot be generalized to the American population. The research suggests approaching fetal count under different light as this intervention can keep mother alert and more connected to the fetus and alert patient to seek medical care if the fetus has not moved for a prolonged period of time. However, it cannot help identifying fetus weight retraction, still born, or any other major complications.

**Weight of the Evidence:**

Bellussi, F., Poʼ, G., Livi, A., Saccone, G., Vivo, V. D., Oliver, E. A., & Berghella, V (Article#1) weighs the most because it is a systemic review and meta-analysis that provides highest level of evidence. Also, this article was published in 2020, which is a very recently published article that attempted to answer the PICO question. This study includes 5 RCT that answers my PICO question effectively and efficiently.

I would weigh the Delaram, M., & Jafarzadeh, L. (Article#3) as second most important because this article was published in 2016 and it is a randomized control trial, which is a high level of evidence. This article also answers the PICO questions of fetal movement counting effect on pregnancy. There were few limitations to the study and was conducted with a sample size of 208 subjects.

I would weigh Lindeka M ,G Justus H,Valerie S, Rebecca S(Article # 4) as third most important because it is randomized control trial that was published within the last 10 years. This study also includes a large sample size of 71,458 participants ,which was used to answer the PICO questions efficiently.

I weighed the Saastad, E., Winje, B. A., Stray Pedersen, B., & Frøen, J. F (Article#2) last because it was published in 2011, which is less recent compare to the other 2 articles. Nevertheless, the article is a randomized controlled trial including a sample size of 1076 pregnant women.

**Magnitude of any effects**

Based on the meta-analysis and the RCT (2020), fetal movement counting does not improve the pregnancy outcomes especially in determining the child’s wellbeing. Based on statistical significance and weight of the evidence, there are no benefit of fetal movement counting.

**Clinical significance (not just statistical significance)**

The effect of fetal movement counting is an ongoing debate. Maternal perception of decrease fetal activity can be an important tool to identify fetal compromise. Fetal movement counting is not an invasive, expensive or harmful procedure so most providers believe it provides a sense of connection and peace to the mother. All four articles acknowledge that this screening cannot be stopped as it is part of maternal perception, but the current screening can be improved. Improvement can be initiated by providing standard instructions to perform fetal movement counting starting gestational age of 28 weeks.

**Any other considerations important in weighing this evidence to guide practice**

Two articles reveal that fetal movement counting has no effect on child’s wellbeing or pregnancy outcomes, but one of the RCT suggest continuing instructing patients to perform the fetal movement counting. One RCT suggest that fetal movement counting leads to lower anxiety for mother, but it does not decrease mortality or improve pregnancy outcomes. Since, all four articles do not agree to answer the PICO question I believe further studies need to be conducted with larger sample size to effectively answer the question.