

Supplementary File 1: CASE STUDY 1.**WHO recommendations on antenatal care for a positive pregnancy experience (2016)****Web reference:**

http://www.who.int/reproductivehealth/publications/maternal_perinatal_health/anc-positive-pregnancy-experience/en/

Source reviews:	Review methods	Assessment of evidence
Scoping Review to inform prioritization of the guideline questions and critical outcomes (n=1)	Scoping, Framework Synthesis and Meta-ethnography	N/A
Individual interventions for clinical practices (n=37)	Effectiveness reviews, systematic reviews	GRADE
Antenatal testing (n=2)	Test accuracy reviews	GRADE
Barriers and facilitators to access to and provision of ANC (n=2)	Qualitative evidence synthesis:	GRADE-CERQual
Health systems interventions to improve the utilization and quality of ANC (n=6)	Effectiveness reviews	GRADE
Large scale WHO ANC model (4-visit) case studies (n=1)	Mixed-methods review, focusing on contextual and health system factors affecting implementation	N/A

Ways of evidence integration:

Types of studies: Qualitative and quantitative

Types of Synthesis: Statistical (inferential) and qualitative: Scoping methods: Framework synthesis and meta-ethnography. Cochrane intervention review methods & meta-analysis, Cochrane Diagnostic Test Accuracy methods; Qualitative Framework synthesis and meta-ethnography.

Mode of analysis: Theory testing AND theory building.

Questions addressed by mixed-methods syntheses:

Qualitative evidence synthesis to determine outcomes of interest: What do women in high, medium- and low-income countries want and expect from ANC, based on their own accounts of their beliefs, views, expectations and experiences of pregnancy?

Quantitative review of effects: What are the evidence-based practices during ANC that improved outcomes and lead to positive pregnancy experience and how should these practices be delivered?

Qualitative evidence syntheses: Factors that influence the uptake of routine antenatal services by pregnant women: a qualitative evidence synthesis; factors that influence the provision of good-quality routine antenatal services: a qualitative evidence synthesis of the views and experiences of maternity care providers.

Review designs used: It combined a segregated and contingent approach and sequential synthesis design. Although the quantitative and qualitative reviews were undertaken separately (segregated), an initial scoping review of qualitative evidence was undertaken to establish women's preferences and outcomes for antenatal care, which informed design of the quantitative intervention review (contingent). A second set of qualitative evidence syntheses was undertaken independently of the quantitative intervention review to look at implementation factors (sequential). Quantitative and

qualitative findings were then brought together in a series of DECIDE frameworks. In this guideline there was no formal cross study synthesis process and limited testing of theory, the DECIDE framework however served as an integration framework. This design best aligns with mixed-method synthesis.

Study methodological limitations: The Quantitative reviews used the Cochrane risk of bias tool. The qualitative reviews used an instrument developed by Walsh and Downe (2006) and modified by Downe et al. (2007). Methodological limitations were not assessed in the mixed-method review in case study 1.

Data extraction methods: Qualitative evidence syntheses – data were extracted against an a priori Framework with additional use of a theory. Other quantitative reviews had method-specific data extraction forms, one of which was informed by a qualitative scoping review. The qualitative and quantitative review teams generally worked separately.

Points of data integration: Some joint review team membership, using findings to inform next review design. Post hoc after completion of reviews at the evidence to recommendation stage. Used GRADE and GRADE CERQual. Integration of findings in PICO specific DECIDE Frameworks.

Reviews contributing to the Guideline:

- 1) Sobhy S, Rogozinska E, Khan KS.
Accuracy of on-site tests to detect anemia during prenatal care.
Int J Gynaecol Obstet. 2017 Nov;139(2):130-136. doi: 10.1002/ijgo.12289. Epub 2017 Aug 19. Review.
- 2) Rogozińska E, Formina S, Zamora J, Mignini L, Khan KS.
Accuracy of Onsite Tests to Detect Asymptomatic Bacteriuria in Pregnancy: A Systematic Review and Meta-analysis.
Obstet Gynecol. 2016 Sep;128(3):495-503. doi: 10.1097/AOG.0000000000001597. Review.
- 3) Muktabhant B¹, Lawrie TA, Lumbiganon P, Laopaiboon M. Diet or exercise, or both, for preventing excessive weight gain in pregnancy. Cochrane Database Syst Rev. 2015 Jun 15;(6):CD007145.
- 4) Ota E, Hori H, Mori R, Tobe-Gai R, Farrar D.
Antenatal dietary education and supplementation to increase energy and protein intake.
Cochrane Database Syst Rev. 2015 Jun 2;(6):CD000032. doi: 10.1002/14651858.CD000032.pub3. Review.
- 5) Peña-Rosas JP, De-Regil LM, Garcia-Casal MN, Dowswell T.
Daily oral iron supplementation during pregnancy.
Cochrane Database Syst Rev. 2015 Jul 22;(7):CD004736. doi: 10.1002/14651858.CD004736.pub5. Review.
- 6) Peña-Rosas JP, De-Regil LM, Gomez Malave H, Flores-Urrutia MC, Dowswell T.
Intermittent oral iron supplementation during pregnancy.
Cochrane Database Syst Rev. 2015 Oct 19;(10):CD009997. doi: 10.1002/14651858.CD009997.pub2. Review.
- 7) Buppasiri P, Lumbiganon P, Thinkhamrop J, Ngamjarus C, Laopaiboon M, Medley N.
Calcium supplementation (other than for preventing or treating hypertension) for improving pregnancy and infant outcomes.
Cochrane Database Syst Rev. 2015 Feb 25;(2):CD007079. doi: 10.1002/14651858.CD007079.pub3. Review.
- 8) McCauley ME, van den Broek N, Dou L, Othman M.
Vitamin A supplementation during pregnancy for maternal and newborn outcomes.
Cochrane Database Syst Rev. 2015 Oct 27;(10):CD008666. doi: 10.1002/14651858.CD008666.pub3.
- 9) Abe SK, Balogun OO, Ota E, Takahashi K, Mori R.
Supplementation with multiple micronutrients for breastfeeding women for improving outcomes for the mother and baby.
Cochrane Database Syst Rev. 2016 Feb 18;2:CD010647. doi: 10.1002/14651858.CD010647.pub2. Review.

- 10) Haider BA, Bhutta ZA.
Multiple-micronutrient supplementation for women during pregnancy.
Cochrane Database Syst Rev. 2015 Apr 13;4:CD004905. doi: 10.1002/14651858.CD004905.pub5. Review.
- 11) Salam RA, Zuberi NF, Bhutta ZA.
Pyridoxine (vitamin B6) supplementation during pregnancy or labour for maternal and neonatal outcomes.
Cochrane Database Syst Rev. 2015 Jun 3;(6):CD000179. doi: 10.1002/14651858.CD000179.pub3.
- 12) Rumbold A, Ota E, Hori H, Miyazaki C, Crowther CA.
Vitamin E supplementation in pregnancy.
Cochrane Database Syst Rev. 2015 Sep 7;(9):CD004069.
- 13) Rumbold A, Ota E, Nagata C, Shahrook S, Crowther CA.
Vitamin C supplementation in pregnancy.
Cochrane Database Syst Rev. 2015 Sep 29;(9):CD004072. doi: 10.1002/14651858.CD004072.pub3. Review.
- 14) De-Regil LM, Palacios C, Lombardo LK, Peña-Rosas JP.
Vitamin D supplementation for women during pregnancy.
Cochrane Database Syst Rev. 2016 Jan 14;(1):CD008873. doi: 10.1002/14651858.CD008873.pub3. Review.
- 15) Jahanfar S, Jaafar SH.
Effects of restricted caffeine intake by mother on fetal, neonatal and pregnancy outcomes.
Cochrane Database Syst Rev. 2015 Jun 9;(6):CD006965. doi: 10.1002/14651858.CD006965.pub4. Review.
- 16) Mangesi L, Hofmeyr GJ, Smith V, Smyth RM.
Fetal movement counting for assessment of fetal wellbeing.
Cochrane Database Syst Rev. 2015 Oct 15;(10):CD004909. doi: 10.1002/14651858.CD004909.pub3. Review.
- 17) Robert Peter J, Ho JJ, Valliapan J, Sivasangari S.
Symphysial fundal height (SFH) measurement in pregnancy for detecting abnormal fetal growth.
Cochrane Database Syst Rev. 2015 Sep 8;(9):CD008136. doi: 10.1002/14651858.CD008136.pub3. Review.
- 18) Grivell RM, Alfirevic Z, Gyte GM, Devane D.
Antenatal cardiotocography for fetal assessment.
Cochrane Database Syst Rev. 2015 Sep 12;(9):CD007863. doi: 10.1002/14651858.CD007863.pub4. Review.
- 19) Whitworth M, Bricker L, Mullan C.
Ultrasound for fetal assessment in early pregnancy. Cochrane Database Syst Rev. 2015 Jul 14;(7):CD007058. doi: 10.1002/14651858.CD007058.pub3.
- 20) Alfirevic Z, Stampalija T, Medley N.
Fetal and umbilical Doppler ultrasound in normal pregnancy. Cochrane Database Syst Rev. 2015 Apr 15;(4):CD001450. doi: 10.1002/14651858.CD001450.pub4.
- 21) Widmer M, Lopez I, Gülmezoglu AM, Mignini L, Roganti A.
Duration of treatment for asymptomatic bacteriuria during pregnancy.
Cochrane Database Syst Rev. 2015 Nov 11;(11):CD000491. doi: 10.1002/14651858.CD000491.pub3. Review.
- 22) Smaill FM, Vazquez JC.
Antibiotics for asymptomatic bacteriuria in pregnancy.
Cochrane Database Syst Rev. 2015 Aug 7;(8):CD000490. doi: 10.1002/14651858.CD000490.pub3. Review.
- 23) Schneeberger C, Geerlings SE, Middleton P, Crowther CA.
Interventions for preventing recurrent urinary tract infection during pregnancy.
Cochrane Database Syst Rev. 2015 Jul 26;(7):CD009279. doi: 10.1002/14651858.CD009279.pub3. Review.
- 24) Salam RA, Haider BA, Humayun Q, Bhutta ZA.
Effect of administration of antihelminthics for soil transmitted helminths during pregnancy.
Cochrane Database Syst Rev. 2015 Jun 18;(6):CD005547. doi: 10.1002/14651858.CD005547.pub3.
- 25) Demicheli V, Barale A, Rivetti A.
Vaccines for women for preventing neonatal tetanus.
Cochrane Database Syst Rev. 2015 Jul 6;(7):CD002959. doi: 10.1002/14651858.CD002959.pub4.

- 26) Matthews A, Haas DM, O'Mathúna DP, Dowswell T. Interventions for nausea and vomiting in early pregnancy. *Cochrane Database Syst Rev*. 2015 Sep 8;(9):CD007575. doi: 10.1002/14651858.CD007575.pub4.
- 27) Phupong V, Hanprasertpong T. Interventions for heartburn in pregnancy. *Cochrane Database Syst Rev*. 2015 Sep 19;(9):CD011379. doi: 10.1002/14651858.CD011379.pub2.
- 28) Zhou K, West HM, Zhang J, Xu L, Li W. Interventions for leg cramps in pregnancy. *Cochrane Database Syst Rev*. 2015 Aug 11;(8):CD010655. doi: 10.1002/14651858.CD010655.pub2
- 29) Liddle SD, Pennick V. Interventions for preventing and treating low-back and pelvic pain during pregnancy. *Cochrane Database Syst Rev*. 2015 Sep 30;(9):CD001139. doi: 10.1002/14651858.CD001139.pub4.
- 30) Turawa EB, Musekiwa A, Rohwer AC. Interventions for preventing postpartum constipation. *Cochrane Database Syst Rev*. 2015 Sep 18;(9):CD011625. doi: 10.1002/14651858.CD011625.pub2.
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- 34) Catling CJ, Medley N, Foureur M, Ryan C, Leap N, Teate A, Homer CS. Group versus conventional antenatal care for women. *Cochrane Database Syst Rev*. 2015 Feb 4;(2):CD007622. doi: 10.1002/14651858.CD007622.pub3.
- 35) Mbuagbaw L, Medley N, Darzi AJ, Richardson M, Habiba Garga K, Ongolo-Zogo P. Health system and community level interventions for improving antenatal care coverage and health outcomes. *Cochrane Database Syst Rev*. 2015 Dec 1;(12):CD010994. doi: 10.1002/14651858.CD010994.pub2.
- 36) Dowswell T, Carroli G, Duley L, Gates S, Gülmezoglu AM, Khan-Neelofur D, Piaggio G. Alternative versus standard packages of antenatal care for low-risk pregnancy. *Cochrane Database Syst Rev*. 2015 Jul 16;(7):CD000934. doi: 10.1002/14651858.CD000934.pub3. Review
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- 40) S Downe, K Finlayson, Ö Tunçalp, AM Gülmezoglu. Factors that influence the provision of good-quality routine antenatal services: a qualitative evidence synthesis of the views and experiences of maternity care providers (Protocol). *The Cochrane Library*. 2017
- 41) S Downe, K Finlayson, Ö Tunçalp, AM Gülmezoglu.

Factors that influence the uptake of routine antenatal services by pregnant women: a qualitative evidence synthesis (Protocol) The Cochrane Library 2017

42) Abalos E, Chamillard M, Diaz V, Tuncalp Ö, Gülmezoglu AM.

Antenatal care for healthy pregnant women: a mapping of interventions from existing guidelines to inform the development of new WHO guidance on antenatal care. BJOG. 2016 Mar;123(4):519-28. doi: 10.1111/1471-0528.13820. Epub 2015 Dec 23. Review.

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