

# THE LANCET

## **Supplementary appendix**

This appendix formed part of the original submission and has been peer reviewed. We post it as supplied by the authors.

Supplement to: Renfrew MJ, McFadden A, Bastos MH, et al. Midwifery and quality care: findings from a new evidence-informed framework for maternal and newborn care. *Lancet* 2014; published online June 23. [http://dx.doi.org/10.1016/S0140-6736\(14\)60789-3](http://dx.doi.org/10.1016/S0140-6736(14)60789-3).

## Number and type of sources of evidence informing each component of the framework for quality maternal and newborn care

Practice categories	Education Information Health Promotion	Assessment Screening Care planning	Promoting normal processes, preventing complications	First-line management of complications	Management of serious complications
	N=6 meta-syntheses of women's views N=13 Cochrane reviews of specific practices and workforce components	N=6 meta-syntheses of women's views N=2 Cochrane reviews of specific practices and workforce components	N=6 meta-syntheses of women's views N=34 Cochrane reviews of specific practices and workforce components	N=6 meta-syntheses of women's views N=31 Cochrane reviews of specific practices and workforce components	N=1 meta-syntheses of women's views N=86 Cochrane reviews of specific practices and workforce components
<b>Organisation of care</b>	N=6 meta-syntheses of women's views N=7 Cochrane reviews of specific practices and workforce components				
<b>Values</b>	N=12 meta-syntheses of women's views Case studies: Brazil				
<b>Philosophy</b>	N=4 meta-syntheses of women's views N=44 Cochrane reviews of specific practices and workforce components Case studies: Brazil, China, India				
<b>Care providers</b>	N = 7 high quality systematic reviews of workforce contribution (of which Cochrane reviews n=4) Case studies: Brazil, China, India				

## Methods and findings of the meta-syntheses of women's views and experiences

We searched three databases (Medline, Cinahl, Maternity and Infant Care) in May 2013 (checked again pre-publication in January 2014 ) using the terms: “midwifery” or “midwives” or “maternal health services” or “maternity care” or “women’s experiences” or “women’s satisfaction” or “women’s views” combined with search terms for meta-syntheses of qualitative studies. While there are several large-scale surveys of women’s experiences of maternity care in developed countries<sup>1-3</sup> these have not been synthesised to provide review level evidence. No limits of years or language were applied to the search.

Seventeen meta-syntheses met the inclusion criteria of synthesising qualitative studies addressing women’s views and experiences of maternity care provided by a range of caregivers. Following quality appraisal (see below), four were excluded; three because they provided insufficient details to assess methodological quality<sup>4-6</sup> and one<sup>7</sup> because all of the included studies and findings were incorporated into a more recent meta-synthesis.<sup>8</sup> The findings of the remaining 13,<sup>8-20</sup> which were generally of good quality, were summarised to identify common themes and mapped to the components of the framework. Six further meta-syntheses were identified in the pre-publication check as above. These were not included in the analyses but are included in the reference list.<sup>21-26</sup>

Only one meta-synthesis<sup>14</sup> included studies (n=21) from low and middle-income countries. The studies in the other 12 meta-syntheses (208 studies in total when studies of women’s views and those that combined provider and women’s views are included) were predominantly from high-income, English-speaking and Nordic countries although one study each from Tanzania and South Africa were included. Six meta-syntheses<sup>9, 10, 14, 17, 19, 20</sup> were relevant to the experiences of all childbearing women, six addressed experiences of women with complications<sup>8, 11, 13, 15, 16, 18</sup> and one addressed experiences of women with serious complications.<sup>12</sup> Although the meta-syntheses addressed different topics, there was consistency both in the care and caregivers that women described positively and in care that was depicted negatively. The numbers of meta-syntheses informing specific components of the framework are shown above.

*Views related to practices:* A common theme was the importance of information and education, provided in a manner that enabled women to draw on experience and learn for themselves, to facilitate informed decision-making and choice.<sup>11, 15-17, 20</sup> Characteristics of good information were that it was relevant, evidence-based, realistic, accurate, sufficiently detailed, and promoted dialogue,<sup>8, 15, 17, 20</sup> whereas poor information was characterised by being vague, inconsistent, dogmatic and with over-reliance on written materials rather than face-to-face communication.<sup>8, 15-17</sup>

*Views related to organisation of care:* Common themes related to the organisation of care were that women may delay accessing care because they are unfamiliar with the health-care system and unaware of what support is available.<sup>9, 12, 16</sup> In low- and middle-income countries, the cost of transport and treatment may outweigh perceptions of the benefits of accessing services, or women may be reluctant to seek professional help for a normal life event.<sup>14</sup> Another reason for delay in accessing services was previous poor experiences with health professionals.<sup>9, 14</sup> Women described

how they were reluctant to seek help because of fear of negativity, prejudice, stigma, denial of medical treatment or losing custody of their child, or were fearful of disclosing sexual orientation or symptoms of depression.<sup>10-12, 14</sup>

*Views related to values:* The most frequent emphasis in the included meta-syntheses involved respect and communication. Supportive care engendered confidence and trust and helped women to feel in control and be able to make choices. Attributes included having a trusting relationship and rapport with the caregiver,<sup>17, 19</sup> staff who were empathic<sup>12, 17, 19</sup> and offered care that was culturally sensitive and tailored to individual needs.<sup>8, 9, 11, 20</sup> For women who had experienced midwife-led care, the most important attributes of their relationship with care providers during labour was empathy and retaining control, and this was critical to having a positive birth experience.<sup>19</sup> Conversely, poor care resulted in women feeling guilty, embarrassed, fearful, out of control and unable to make choices. It was characterised by lack of communication in which women's opinions were ignored,<sup>8, 13</sup> task-orientated behaviour by staff,<sup>11, 13, 20</sup> care providers who held stereotyped views or lacked knowledge of cultural practices,<sup>9, 10, 14, 20</sup> prejudice and stigmatisation including disparaging, sarcastic, homophobic or racist remarks<sup>10, 14, 18, 20</sup> lack of respect, or care that was inhumane, degrading, condescending or cruel<sup>13, 14, 16</sup> including insensitive or invasive touch.<sup>17</sup>

*Views related to philosophy of care:* There were relatively fewer themes relating to optimising biological, psychological and social processes of reproduction and early life in the included meta-syntheses. Dissonance between women's perceptions of pregnancy as a normal life event and the risk-focus of antenatal care was evident in low and middle income countries.<sup>14</sup> Women were also aware of positive aspects of vaginal birth, and some felt that health professionals used risk statistics to undermine their confidence in choosing vaginal birth following a previous caesarean section.<sup>15</sup> Some wished they had voiced concerns regarding routine interventions such as having their membranes ruptured.<sup>13</sup> Obese women felt that medicalisation of obesity resulted in depersonalisation of care.<sup>18</sup>

*Views related to care providers:* The themes related to care providers overlapped with the themes related to values. Overall women wanted caring health professionals who combined clinical knowledge and skills with interpersonal and cultural competence. Women highlighted a range of qualities/attributes which they valued in health care providers such as empathic, kind and caring,<sup>9, 12, 17, 19, 20</sup> relaxed and good humoured,<sup>10</sup> supportive<sup>10, 17</sup> and trustworthy.<sup>17</sup> For some women, having a female care provider was important.<sup>9</sup> Women also described negative experiences with care providers who were disrespectful, dismissive and sarcastic,<sup>14, 16, 18</sup> abusive and/or cruel,<sup>13, 14, 16</sup> prejudiced,<sup>10</sup> dogmatic.<sup>17</sup>

## References

1. Declercq E, Sakala C, Corry M, Applebaum S, Herrlich A. Listening to mothers III: pregnancy and birth. New York: Childbirth Connection; 2013.
2. Redshaw M, Heikkila K. Delivered with care: a national survey of women's experience of maternity care 2010. Oxford: National Perinatal Epidemiology Unit, University of Oxford; 2010.
3. Brown SJ, Davey M-A, Bruinsma FJ. Women's views and experiences of postnatal hospital care in the Victorian survey of recent mothers 2000. *Midwifery* 2005; **21**(2): 109-26.
4. Nelson AM. A meta-synthesis related to infant feeding decision-making. *MCN: The American Journal of Maternal/Child Nursing* 2012; **37**(4): 247-52.

5. Nolan ML. Information giving and education in pregnancy: a review of qualitative studies. *Journal of Perinatal Education* 2009; **18**(4): 21-30.
6. Puia D. A meta-synthesis of women's experiences of cesarean birth. *MCN: The American Journal of Maternal Child Nursing* 2013; **38**(1): 41-7.
7. Campbell F, Johnson M, Messina J, Guillaume L, Goyder E. Behavioural interventions for weight management in pregnancy: a systematic review of quantitative and qualitative data. *BMC Public Health* 2011; **11**: 491.
8. Johnson M, Campbell F, Messina J, Preston L, Buckley Woods H, Goyder E. Weight management during pregnancy: a systematic review of qualitative evidence. *Midwifery* 2013.
9. Balaam M-C, Akerjordet K, Lyberg A, et al. A qualitative review of migrant women's perceptions of their needs and experiences related to pregnancy and childbirth. *Journal of Advanced Nursing* 2013; **69**(9): 1919-30.
10. Dahl B, Margrethe Fylkesnes A, Sørli V, Malterud K. Lesbian women's experiences with healthcare providers in the birthing context: a meta-ethnography. *Midwifery* 2012; **29**(6): 674-81.
11. Dennis C-L, Chung-Lee L. Postpartum depression help-seeking barriers and maternal treatment preferences: a qualitative systematic review. *Birth* 2006; **33**(4): 323-31.
12. Dolman C, Jones I, Howard LM. Pre-conception to parenting: a systematic review and meta-synthesis of the qualitative literature on motherhood for women with severe mental illness. *Archives Of Women's Mental Health* 2013; **16**(3): 173-96.
13. Elmir R, Schmied V, Wilkes L, Jackson D. Women's perceptions and experiences of a traumatic birth: a meta-ethnography. *Journal of Advanced Nursing* 2010; **66**(10): 2142-53.
14. Finlayson K, Downe S. Why do women not use antenatal services in low- and middle-income countries? A meta-synthesis of qualitative studies. *PLOS Medicine* 2013; **10**(1): e1001373.
15. Lundgren I, Begley C, Gross MM, et al. 'Groping through the fog': a meta-synthesis of women's experiences on VBAC (vaginal birth after caesarean section). *BMC Pregnancy And Childbirth* 2012; **12**: 85.
16. Priddis H, Dahlen H, Schmied V. Women's experiences following severe perineal trauma: a meta-ethnographic synthesis. *Journal of Advanced Nursing* 2013; **69**(4): 748-59.
17. Schmied V, Beake S, Sheehan A, McCourt C, Dykes F. Women's perceptions and experiences of breastfeeding support: a meta-synthesis. *Birth* 2011; **38**(1): 49-60.
18. Smith D, Lavender T. The maternity experience for women with a body mass index  $\geq 30$  kg/m<sup>2</sup>: a meta-synthesis. *BJOG: An International Journal of Obstetrics & Gynaecology* 2011; **118**(7): 779-89.
19. Walsh D, Devane D. A meta-synthesis of midwife-led care. *Qualitative Health Research* 2012; **22**(7): 897-910.
20. Wikberg A, Bondas T. A patient perspective in research on intercultural caring in maternity care: a meta-ethnography. *International Journal Of Qualitative Studies On Health And Well-Being* 2010; **5**: doi: 10.3402/qhw.v5i1.4648.
21. Afoakwah G, Smyth R, Lavender T. Women's experiences of breastfeeding: A narrative review of qualitative studies. *African Journal of Midwifery and Women's Health* 2013; **7**(2): 71-7.
22. Higginbottom G, Hadziabdic E, Yohani S, Paton P. Immigrant women's experience of maternity services in Canada: a meta-ethnography. *Midwifery* 2013; (doi: 10.1016/j.midw.2013.06.004. [Epub ahead of print]).
23. Montgomery E. Feeling safe: a meta-synthesis of the maternity care needs of women who were sexually abused in childhood. *Birth* 2013; **40**(2): 88-95.
24. Simoni M, Volkmer C, Angeloni B. Brazilian scientific publications of obstetrical nurses on home delivery: systematic literature review. *Texto & Contexto Enfermagem* 2013; **22**(1): 247-56.

25. Brighton A, D'Arcy R, Kirtley S, Kennedy S. Perceptions of prenatal and obstetric care in Sub-Saharan Africa. *International Journal Of Gynaecology And Obstetrics* 2013; **120**(3): 224-7.
26. Furuta M, Sandall J, Bick D. Women's perceptions and experiences of severe maternal morbidity - A synthesis of qualitative studies using a meta-ethnographic approach. *Midwifery* 2013; (doi: 10.1016/j.midw.2013.09.001. [Epub ahead of print]).

## Meta-syntheses of women's views and experiences of maternal and newborn care: details and quality assessment of included studies (n=13).

Quality assessed using criteria based on Walsh D, Downe S. Appraising the quality of qualitative research. *Midwifery* 2006; 22: 108–19.

First author year	Focus of review	Search limitations	No of studies Settings	Participants	Quality Grade
Balaam 2013	Migrant women's perceptions of their needs and experiences related to pregnancy and childbirth	Date; 1996–2010 European focus	16 studies Greece (1), Ireland (1), Norway (1), Sweden (5), Switzerland (2), UK (6)	Migrant women and men, care providers. Range: 4-80	B
Dahl 2012	Lesbian women's experiences with health-care providers in the birthing context	English or Scandinavian languages	13 studies Canada (2), Norway (1), Sweden (3), UK (4), US (3)	Lesbian women and nurses Range: 7-50	B
Dennis 2006	Postpartum depression help-seeking barriers and maternal treatment preferences	Date: 1980–2005	40 studies Settings not systematically reported	Women suffering from postpartum depression Numbers not systematically reported	C
Dolman 2013	Motherhood for women with severe mental illness	English language	30 studies Australia (3), Canada (4), Greece (1), Japan (1), New Zealand (1), Sweden (5), UK (9), US (6)	Women with severe mental illness, care providers Range: 4-55	A
Elmir 2010	Women's perceptions and experiences of a traumatic birth	Date: 1994–2009 English language	10 studies UK (6), New Zealand (1), Multi-country (all English-speaking high income) (3)	Women who had experienced traumatic birth, birth trauma or post-traumatic stress disorder, and men Range: 6-145	B
Finlayson 2012	Reasons for non- use of antenatal services in low- and middle-income countries	Date: 1980–2012 Low- or middle-income countries	21 studies Bangladesh (2), Benin (1), Cambodia (1), Gambia (1), India (1), Indonesia (1), Kenya (1), Lebanon (1), Mexico (1), Mozambique (1), Nepal (1), Pakistan (1), South Africa (4), Tanzania (2), Uganda (2),	Women accessing antenatal care late (after 12 weeks), infrequently (less than 4 times) or not at all 10-240	A
Johnson 2013	Weight management during pregnancy	Date: 1990-2011 English language Conducted in UK	17 studies All UK	Women who were or had been pregnant Health professionals Range: 6-76	A

Lundgren 2012	Women's experiences on VBAC (Vaginal birth after Caesarean section)	English language	8 studies Australia (4), UK (3), US (1)	Women who had previous C/S and/or experience of VBAC Range: 4-35	A
Priddis 2013	Women's experiences following severe perineal trauma	Date: 1996-2011 English Language	4 studies Australia (1), UK (3)	Women who have experienced severe perineal trauma related to childbirth Range: 6-10	B
Schmied 2011	Women's perceptions and experiences of breastfeeding support	Date: 1990 – 2007 English language	31 studies Australia (3), New Zealand (1), Tanzania (1), UK (14), US (11), Canada and US (1),	Breastfeeding women Range: 6-203	B
Smith 2011	The maternity experience for women with a body mass index $\geq$ 30 kg/m <sup>2</sup> : a meta-synthesis.	English language	6 studies Sweden (1), UK (4), unclear (1)	Women with a BMI $\geq$ 30 kg/m <sup>2</sup> who had experienced maternity services Range: 10-76	B
Walsh 2012	Midwife-led care of women at low obstetric risk	Dates: 1980 – 2010 English language	8 studies Australia (1), Sweden (1), UK (2), US (3)	Women who had experienced midwife-led care Range: 6-38	A
Wikberg 2010	A patient perspective on intercultural caring in maternity care	English, German, Finnish, Swedish, Norwegian, and Danish languages	40 studies Australia (8), Canada (2), Denmark (1), Ireland (1), Israel (1), Japan (1), Norway (2), South Africa (1), Sweden (5), UK (9), US (9)	Women with experience of intercultural caring (defined as: mutual but asymmetrical relationship between a patient and a professional nurse from different cultures in maternity care Range: 5-388	B

## References to relevant Cochrane reviews published and updated since our analyses

### New reviews

1. Wong KS, Connan K, Rowlands S, Kornman LH, Savoia HF. Antenatal immunoglobulin for fetal red blood cell alloimmunization. *Cochrane Database of Systematic Reviews*, 2013; 5: DOI: 10.1002/14651858.CD008267.pub2.
2. Imdad A, Bautista RMM, Senen KAA, Uy MEV, Mantaring I I I JB, Bhutta ZA. Umbilical cord antiseptics for preventing sepsis and death among newborns. *Cochrane Database of Systematic Reviews*, 2013; 5: DOI: 10.1002/14651858.CD008635.pub2.
3. Grant NH, Dorling J, Thornton JG. Elective preterm birth for fetal gastroschisis. *Cochrane Database of Systematic Reviews*, 2013; 6: DOI: 10.1002/14651858.CD009394.pub2.
4. Tieu J, Bain E, Middleton P, Crowther CA. Interconception care for women with a history of gestational diabetes for improving maternal and infant outcomes. *Cochrane Database of Systematic Reviews*, 2013; 6: DOI: 10.1002/14651858.CD010211.pub2.
5. Dawood F, Dowswell T, Quenby S. Intravenous fluids for reducing the duration of labour in low risk nulliparous women. *Cochrane Database of Systematic Reviews*, 2013; 6: DOI: 10.1002/14651858.CD007715.pub2.
6. Horey D, Kealy M, Davey M-A, Small R, Crowther CA. Interventions for supporting pregnant women's decision-making about mode of birth after a caesarean. *Cochrane Database of Systematic Reviews*, 2013; 7: DOI: 10.1002/14651858.CD010041.pub2.
7. Hofmeyr GJ, Gülmezoglu AM, Novikova N, Lawrie TA. Postpartum misoprostol for preventing maternal mortality and morbidity. *Cochrane Database of Systematic Reviews*, 2013; 7: DOI: 10.1002/14651858.CD008982.pub2.
8. Downe S, Gyte GML, Dahlen HG, Singata M. Routine vaginal examinations for assessing progress of labour to improve outcomes for women and babies at term. *Cochrane Database of Systematic Reviews*, 2013; 7: DOI: 10.1002/14651858.CD010088.pub2.
9. Yonemoto N, Dowswell T, Nagai S, Mori R. Schedules for home visits in the early postpartum period. *Cochrane Database of Systematic Reviews*, 2013; 7: DOI: 10.1002/14651858.CD009326.pub2.
10. Lavender T, Richens Y, Milan SJ, Smyth RMD, Dowswell T. Telephone support for women during pregnancy and the first six weeks postpartum. *Cochrane Database of Systematic Reviews*, 2013; 7: DOI: 10.1002/14651858.CD009338.pub2.
11. Bain E, Heatley E, Hsu K, Crowther CA. Relaxin for preventing preterm birth. *Cochrane Database of Systematic Reviews*, 2013; 8: DOI: 10.1002/14651858.CD010073.pub2.
12. Van Teeffelen S, Pajkrt E, Willekes C, Van Kuijk SMJ, Mol BWJ. Transabdominal amnioinfusion for improving fetal outcomes after oligohydramnios secondary to preterm prelabour rupture of membranes before 26 weeks. *Cochrane Database of Systematic Reviews*, 2013; 8: DOI: 10.1002/14651858.CD009952.pub2.
13. Okusanya BO, Oladapo OT. Prophylactic versus selective blood transfusion for sickle cell disease in pregnancy. *Cochrane Database of Systematic Reviews* 2013; 12: DOI: 10.1002/14651858.CD010378.pub2.
14. Yaju Y, Kataoka Y, Eto H, Horiuchi S, Mori R. Prophylactic interventions after delivery of placenta for reducing bleeding during the postnatal period. *Cochrane Database of Systematic Reviews* 2011; 11: DOI: 10.1002/14651858.CD009328.pub2.
15. Motaze Nkengafac V, Mbuagbaw L, Young T. Prostaglandins before caesarean section for preventing neonatal respiratory distress. *Cochrane Database of Systematic Reviews*, 2013; 11: DOI: 10.1002/14651858.CD010087.pub2.

16. Miller BJ, Murray L, Beckmann MM, Kent T, Macfarlane B. Dietary supplements for preventing postnatal depression. *Cochrane Database of Systematic Reviews*, 2013; 10: DOI: 10.1002/14651858.CD009104.pub2.
17. Nikpoor P, Bain E. Analgesia for forceps delivery. *Cochrane Database of Systematic Reviews*, 2013; 9: DOI: 10.1002/14651858.CD008878.pub2.
18. Lim CED, Ho KKW, Cheng NCL, Wong FWS. Combined oestrogen and progesterone for preventing miscarriage. *Cochrane Database of Systematic Reviews*, 2013; 9: DOI: 10.1002/14651858.CD009278.pub2.
19. Dudley LM, Kettle C, Ismail KMK. Secondary suturing compared to non-suturing for broken down perineal wounds following childbirth. *Cochrane Database of Systematic Reviews*, 2013; 9: DOI: 10.1002/14651858.CD008977.pub2.
20. Vogel JP, West HM, Dowswell T. Titrated oral misoprostol for augmenting labour to improve maternal and neonatal outcomes. *Cochrane Database of Systematic Reviews*, 2013; 9: DOI: 10.1002/14651858.CD010648.pub2.

### Updated reviews with conclusions changed

1. Abdel-Aleem H, Shaaban OM, Abdel-Aleem MA. Cervical pessary for preventing preterm birth. *Cochrane Database of Systematic Reviews*, 2013; 5: DOI: 10.1002/14651858.CD007873.pub3.
2. Gurung V, Middleton P, Milan SJ, Hague W, Thornton JG. Interventions for treating cholestasis in pregnancy. *Cochrane Database of Systematic Reviews*, 2013; 6: DOI: 10.1002/14651858.CD000493.pub2.
3. Dodd J, M., McLeod A, Windrim RC, Kingdom J. Antithrombotic therapy for improving maternal or infant health outcomes in women considered at risk of placental dysfunction. *Cochrane Database of Systematic Reviews*, 2013; 7: DOI: 10.1002/14651858.CD006780.pub3.
4. Lavender T, Hart A, Smyth RMD. Effect of partogram use on outcomes for women in spontaneous labour at term. *Cochrane Database of Systematic Reviews*, 2013; 7: DOI: 10.1002/14651858.CD005461.pub4.
5. McDonald S, J., Middleton P, Dowswell T, Morris PS. Effect of timing of umbilical cord clamping of term infants on maternal and neonatal outcomes. *Cochrane Database of Systematic Reviews*, 2013; 7: DOI: 10.1002/14651858.CD004074.pub3.
6. Churchill D, Duley L, Thornton JG, Jones L. Interventionist versus expectant care for severe pre-eclampsia between 24 and 34 weeks' gestation. *Cochrane Database of Systematic Reviews*, 2013; 7: DOI: 10.1002/14651858.CD003106.pub2.
7. Dodd JM, Jones L, Flenady V, Cincotta R, Crowther CA. Prenatal administration of progesterone for preventing preterm birth in women considered to be at risk of preterm birth. *Cochrane Database of Systematic Reviews*, 2013; 7: DOI: 10.1002/14651858.CD004947.pub3.
8. Hofmeyr GJ, Abdel-Aleem H, Abdel-Aleem MA. Uterine massage for preventing postpartum haemorrhage. *Cochrane Database of Systematic Reviews*, 2013; 7: DOI: 10.1002/14651858.CD006431.pub3.
9. Smith CA, Crowther CA, Grant SJ. Acupuncture for induction of labour. *Cochrane Database of Systematic Reviews*, 2013; 8: DOI: 10.1002/14651858.CD002962.pub3.
10. Lawrence A, Lewis L, Hofmeyr GJ, Styles C. Maternal positions and mobility during first stage labour. *Cochrane Database of Systematic Reviews*, 2013; 8: DOI: 10.1002/14651858.CD003934.pub3.
11. Sandall J, Soltani H, Gates S, Shennan A, Devane D. Midwife-led continuity models versus other models of care for childbearing women. *Cochrane Database of Systematic Reviews*, 2013; 8: DOI: 10.1002/14651858.CD004667.pub3.
12. Naik GN, Raman P, Bain E, Crowther CA. Maintenance therapy with calcium channel blockers for preventing preterm birth after threatened preterm labour. *Cochrane Database of Systematic Reviews*, 2013; 10: DOI: 10.1002/14651858.CD004071.pub3.

13. Westhoff G, Cotter Amanda M, Tolosa Jorge E. Prophylactic oxytocin for the third stage of labour to prevent postpartum haemorrhage. *Cochrane Database of Systematic Reviews*, 2013; 10: DOI: 10.1002/14651858.CD001808.pub2.
14. Kelly Anthony J, Alfirevic Z, Ghosh A. Outpatient versus inpatient induction of labour for improving birth outcomes. *Cochrane Database of Systematic Reviews*, 2013; 11: DOI: 10.1002/14651858.CD007372.pub3.
15. Flenady V, Hawley G, Stock Owen M, Kenyon S, Badawi N. Prophylactic antibiotics for inhibiting preterm labour with intact membranes. *Cochrane Database of Systematic Reviews*, 2013; 12: DOI: 10.1002/14651858.CD000246.pub2.

## Effective practices related to the continuum of care and two cross-cutting components of the framework: organisation of care and philosophy

Identified from the analysis of included reviews (see methods in main paper) contributed to the Cochrane Library by the Cochrane Pregnancy and Childbirth Group, and The Partnership for Maternal, Newborn and Child Health Review

Core characteristic of midwifery	Pregnancy	Labour	Postnatal mother and baby	Postnatal mother only	Postnatal baby only
<b>Optimising normal processes of reproduction and early life, using interventions only when indicated</b>	<ul style="list-style-type: none"> <li>– Digital perineal massage</li> <li>– Antenatal care programmes with reduced visits for low-risk women</li> <li>– Interventions intended to promote breastfeeding</li> <li>– Midwife-led continuity models of care</li> <li>– Any intervention delivered by lay health workers (LHWs) to improve MCH</li> <li>– Maternal hydration for increasing amniotic fluid volume</li> <li>– External cephalic version for breech presentation at term</li> <li>– Breast stimulation for cervical ripening or labour induction</li> <li>– Community-based intervention packages for reducing maternal and neonatal morbidity and mortality and improving neonatal outcomes</li> <li>– Lower genital tract infection screening and treatment programmes</li> <li>– Anti-D administration in</li> </ul>	<ul style="list-style-type: none"> <li>– Any perineal technique performed during the second stage of labour</li> <li>– Immersion in any bath tub or pool during labour</li> <li>– Planned early birth versus expectant management for PROM</li> <li>– Interventions intended to promote breastfeeding</li> <li>– Midwife-led continuity models of care</li> <li>– Alternative institutional birth environment</li> <li>– Continuous labour support</li> <li>– Breast stimulation for cervical ripening or labour induction</li> <li>– Labour assessment programmes aimed at delaying admission to the labour ward</li> <li>– Upright positions assumed by women in the first stage of labour</li> <li>– Skin-to-skin contact between a mother and her baby</li> <li>– Acupuncture or acupressure for pain management in labour</li> <li>– Massage, reflexology and other manual methods for pain management in labour</li> </ul>	<ul style="list-style-type: none"> <li>– Kangaroo mother care for low-birthweight babies</li> <li>– Interventions intended to promote breastfeeding</li> <li>– Midwife-led continuity models of care</li> <li>– Any intervention delivered by Lay health workers (LHWs) to improve MCH</li> <li>– Community-based intervention packages for reducing maternal and neonatal morbidity and mortality and improving neonatal outcomes</li> <li>– Skin-to-skin contact between a mother and her baby</li> <li>– Breastfeeding support for healthy mothers and babies</li> <li>– Exclusive breastfeeding for at least six months</li> <li>– Anti-retrovirals for reducing the risk of mother-to-child transmission of HIV infection.</li> </ul>	<ul style="list-style-type: none"> <li>– Education for contraceptive use by women after childbirth</li> <li>– Anti-D administration after childbirth for preventing Rhesus alloimmunisation.</li> <li>– Psychosocial and psychological interventions for prevention of postpartum depression</li> </ul>	

	<p>pregnancy for preventing Rhesus alloimmunisation</p> <ul style="list-style-type: none"> <li>– Tetanus toxoid</li> <li>– Folic acid in the periconceptional period / early pregnancy</li> <li>– Antiplatelet agents for preventing pre-eclampsia and its complications</li> <li>– Insecticide-treated nets for preventing malaria in pregnancy</li> <li>– Antimalarial drugs given regularly for preventing malaria in pregnant women</li> <li>– Calcium supplementation during pregnancy for preventing hypertensive disorders</li> <li>– Routine zinc supplementation</li> <li>– Specific advice to increase dietary energy and protein intakes, energy and protein supplementation</li> <li>– Daily universal oral supplementation with iron or iron+folic acid</li> <li>– Oral supplements of iron, or iron+folic acid, or iron+vitamins and minerals, given intermittently</li> <li>– Multiple micro-nutrient supplementation for pregnant women</li> <li>– Any interventions intended to increase the frequency or ease of defecation</li> <li>– Interventions for preventing and treating pelvic and back pain in pregnancy</li> <li>– Antiretrovirals for reducing the risk of mother-to-child transmission of HIV infection.</li> </ul>	<ul style="list-style-type: none"> <li>– Relaxation techniques</li> <li>– Unclamping the previously clamped and divided umbilical cord</li> <li>– Restrictive episiotomy</li> <li>– Anti-retrovirals for reducing the risk of mother-to-child transmission of HIV infection.</li> </ul>			
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	<ul style="list-style-type: none"> <li>– Psychosocial and psychological interventions for prevention of postpartum depression</li> </ul>				
<b>Strengthening women's capabilities</b>	<ul style="list-style-type: none"> <li>– Antenatal care programmes with reduced visits for low-risk women</li> <li>– Interventions intended to promote breastfeeding</li> <li>– Midwife-led continuity models of care</li> <li>– Interventions designed to promote smoking cessation in pregnancy</li> <li>– Insecticide-treated nets for preventing malaria in pregnancy</li> <li>– Specific advice to increase dietary energy and protein intakes, energy and protein supplementation.</li> </ul>	<ul style="list-style-type: none"> <li>– Interventions intended to promote breastfeeding</li> <li>– Midwife-led continuity models of care</li> <li>– Relaxation techniques.</li> </ul>	<ul style="list-style-type: none"> <li>– Interventions intended to promote breastfeeding</li> <li>– Midwife-led continuity models of care</li> <li>– Breastfeeding support for healthy mothers and babies</li> <li>– Exclusive breastfeeding for at least six months.</li> </ul>	<ul style="list-style-type: none"> <li>– Education for contraceptive use by women after childbirth.</li> </ul>	
<b>Other</b>	<ul style="list-style-type: none"> <li>– Antibiotics for gonorrhoea in pregnancy</li> <li>– Interventions for treating genital chlamydia trachomatis infection in pregnancy</li> <li>– Magnesium sulphate and other anticonvulsants for women with pre-eclampsia.</li> <li>– Magnesium sulphate versus diazepam/phenytoin for eclampsia.</li> <li>– Interventions for trichomoniasis in pregnancy</li> <li>– Antibiotics for treating bacterial vaginosis in pregnancy</li> <li>– Antibiotics for asymptomatic bacteriuria in pregnancy</li> <li>– Antiretroviral therapy for treating HIV infection in ART-eligible pregnant women</li> <li>– Treatments for symptomatic urinary tract infections during pregnancy</li> <li>– Any topical treatment for</li> </ul>	<ul style="list-style-type: none"> <li>– Magnesium sulphate and other anticonvulsants for women with pre-eclampsia.</li> <li>– Magnesium sulphate versus diazepam/phenytoin for eclampsia.</li> <li>– Active management of 3rd stage</li> <li>– Oxytocin given prophylactically for the third stage of labour</li> <li>– Different methods for the induction of labour in outpatient settings</li> <li>– Prostaglandins for preventing postpartum haemorrhage.</li> <li>– Continuous versus interrupted sutures for episiotomy/second degree tears</li> <li>– Any inhaled analgesia during labour</li> <li>– Prophylactic use of ergot alkaloids in the third stage of labour, using any route and timing of administration</li> </ul>		<ul style="list-style-type: none"> <li>– Magnesium sulphate and other anticonvulsants for women with pre-eclampsia.</li> <li>– Magnesium sulphate versus diazepam/phenytoin for eclampsia.</li> <li>– A single administration of paracetamol for early postpartum pain</li> <li>– Any type of approved analgesia for after birth pains following vaginal birth</li> <li>– Treatment for women with postpartum iron deficiency anaemia</li> <li>– Antibiotic regimens for endometritis after delivery</li> <li>– Analgesic rectal suppositories for the relief of perineal pain.</li> </ul>	<ul style="list-style-type: none"> <li>– Any type of fiberoptic device to deliver phototherapy.</li> </ul>

	vaginal candidiasis – Prevention of stretchmarks with active cream.	– Prophylactic ergometrine – oxytocin – Antibiotics for meconium-stained amniotic fluid in labour – Carbetocin for preventing PPH – Rapid versus stepwise negative pressure application for vacuum extraction.			
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## Workforce reviews, included studies

Quality assessed using criteria from Scottish Intercollegiate Guidelines Network. Methodology Checklist 1: Systematic Reviews and Meta-analyses. 2013.

<http://www.sign.ac.uk/methodology/checklists.html> (accessed May 20, 2013),

Author Year	Workforce cadres	Intervention	Comparison	Number and type of studies Country settings	Outcomes Maternal	Outcomes Infant	Review quality (SIGN)	Included (framework category)/excluded (reason) in analysis of Cochrane reviews
Sandall 2013	Midwives Physicians/ Obstetricians Nurses	Midwife-led continuity model of care in which the midwife is the woman's lead professional during the antenatal and intrapartum periods but one or more consultations with medical staff are often part of routine practice.	Other models of care include a) where the physician/obstetrician is the lead professional, and midwives and/or nurses provide intrapartum care and in-hospital postpartum care under medical supervision; b) shared care, where the lead professional changes depending on whether the woman is pregnant, in labour or has given birth, and on whether the care is given in the hospital, birth centre (free standing or integrated) or in community setting(s); and c) where the majority of care is provided by physicians or obstetricians	13 RCTs (1 cluster randomised, 12 individually randomised) all in high-income countries	Women who had midwife-led continuity models of care were less likely to experience regional analgesia, episiotomy and instrumental birth, and were more likely to experience no intrapartum analgesia/anaesthesia, spontaneous vaginal birth, attendance at birth by a known midwife and a longer mean length of labour (hours) (mean difference (hours) 0.50. There were no differences between groups for caesarean births.	Women who were randomised to receive midwife-led continuity models of care were less likely to experience preterm birth and fetal loss before 24 weeks' gestation although there were no differences in fetal loss/neonatal death of at least 24 weeks or in overall fetal/neonatal death.	Cochrane review	Included Organisation of services
Gogia 2010	Community health workers (CHW) defined as any paid	Home visits for neonatal care by CHW	No home-based intervention by CHW during the neonatal period (defined as first month of	5 trials (2 cluster randomised, 2 non-randomised with concurrent control	Not reported	Risk of neonatal death was reduced with home-based neonatal care	High quality	N/A

	village worker or unpaid volunteer, or any auxiliary health professional working in the community		life)	groups, 1 quasi-randomised with concurrent control group) All in South Asian countries with high baseline neonatal mortality rates, 3 from a middle income country and 2 from low income countries		Trials with adequate randomisation showed a greater reduction in neonatal deaths than non- or quasi-randomised trials		
Khan-Neelofur 1998	Midwives General Practitioners Obstetricians	Reduced antenatal care visits (number of visits not specified) In 3 studies relevant to workforce - midwife/general practitioner managed care	Standard care  In 3 studies relevant to workforce - Obstetrician-led shared care	3 RCTs Developed countries	No differences in caesarean section, anaemia, urinary tract infections and postpartum haemorrhage. Women receiving midwife/general practitioner-led clinics expressed higher satisfaction with continuity of care than those in obstetrician-led clinics.	No statistically significant differences reported	Summary of Cochrane review	Updated version of this review included (but which does not include the comparison of workforce cadres) Organisation of services
Lassi 2010	Lady health workers/visitors Community midwives Community/village health workers Facilitators TBAs	Intervention packages included additional training and supervision of outreach workers resident in their communities (lady health workers/visitors, community midwives, community/village health workers, facilitators or TBAs,) to deliver interventions in maternal care during pregnancy, delivery and in the	Usual maternal and newborn care services from local government and non-government facilities	18 cluster randomised controlled trails and quasi-randomised controlled trials 17 in low and middle income countries 1 in a high income country	Intervention group: Reduction in maternal morbidity, increased referrals to health facility for pregnancy related complications, improved rates of breastfeeding in the first hour after birth	Intervention group Reduction in neonatal mortality, stillbirths and perinatal mortality , improved rates of breastfeeding in the first hour after birth  The most successful intervention packages included home visits (focused on	Cochrane review	Included Organisation of services

		postpartum period, and in routine newborn care, to their target populations				antenatal care and referral of sick newborns) alongside education and/or community support/mobilisation		
Lewin 2010	Lay Health Workers (any health worker who performed functions related to healthcare delivery; was trained in some way in the context of the intervention; but had received no formal professional or paraprofessional certificate or tertiary education degree)	Any intervention delivered by Lay health workers and intended to improve maternal or child health or the management of infectious diseases	Usual care	82 RCTs 55 in high income countries 12 in middle income countries 15 in low income countries	None specifically for childbearing women	LHWs increased immunisation uptake and breastfeeding and reduced child morbidity and mortality when compared to usual care	Cochrane review	Included Organisation of services
Sibley 2012	Traditional Birth Attendants defined as a person who assists the mother during childbirth and who initially acquires skills by delivering babies herself or through an	Training or additional training of TBAs	No training or training of TBAs	6 RCTs (1 study trained versus untrained and 5 studies additionally trained versus trained). All in low and middle income countries	None reported	a) Trained vs untrained TBAs: lower perinatal death rate, lower stillbirth rate, lower neonatal death rate (Caveat: all in 1 trial only) b) Additionally trained versus trained TBAs: No difference for	Cochrane review	Excluded Evidence inconclusive

	apprenticeship to other TBAs					stillbirths or early neonatal deaths CAVEAT - lack of contrast in training in the intervention and control clusters may have contributed to the null result for stillbirths and an insufficient number of studies may have contributed to the failure to achieve significance for early neonatal deaths.		
Wilson 2011	Traditional birth attendants (TBAs). TBA defined as “a person who assists the mother during childbirth and who often acquires her skills by delivering babies herself or through an apprenticeship with other TBAs” (WHO, 1996)	Strategies that incorporated training and support or additional training and support for TBAs. Support included resources such as clean delivery kits/resuscitation equipment; referral support and links with other health workers	Strategies that did not provide any training or support or that provided minimal training and support	6 cluster RCTs All in low and middle-income countries	No difference in maternal mortality	Intervention group: Reductions in perinatal death and neonatal death	High quality	N/A

## Workforce reviews, excluded studies

Author, Year	Workforce cadre	Design of included studies	Reason for exclusion
Andrews 2004	Community health care workers working with ethnic minority women	Mixed - experimental, quasi-experimental, cross-sectional, descriptive, qualitative	Study design Maternal and infant health outcomes not reported separately
Austin 2003	Interventions provided by clinical psychologists, psychiatric nurse, midwife	RCTs	Outcomes not analysed by workforce cadre
Brown 1995	Interventions provided by nurse-midwives or nurse-midwives and physician teams compared with physician-managed care	Not reported	Study design
Christopher 2011	Impact of interventions delivered by community health workers on child mortality	RCT, Controlled and uncontrolled before and after, case-control	Outcome was child mortality (up to 6 years old)
Conseil d'Evaluation des Technologies de la Sante du Quebec 1999	Prenatal and intrapartum care mainly led by midwives (with or without consultation by physicians) with care mainly led by physicians (with or without the participation of midwives)	RCTs, observational comparative and descriptive Meta-analysis of RCTs	Not a high-quality review
Devane 2010	Midwife-led care compared to other models of care	RCTs	Sandall 2013 is a more recent review on same topic
Glenton 2011	Lay health workers to increase uptake of immunisations	RCTs, controlled before and after studies, interrupted time series study	Outcome uptake of immunisation in children up to 5 years old
Hall 2011	Community-based interventions delivered by any trained person, either a health professional or a lay person	RCTs	Outcomes not analysed by workforce cadre
Hall Moran 2007	Workforce cadre not the focus of the review	Qualitative and intervention studies	Not a review of workforce cadres
Hatem 2008	Midwife –led care compared with other forms of care	Cochrane review of RCTs	All studies were included in Devane 2010
Kendrick 2000	Interventions delivered by personnel who undertake tasks within the remit of British Health visiting and who did not belong to another professional group	Intervention studies with control groups	Outcomes not analysed by workforce cadre
Muthu 2004	Free-standing midwife led maternity units compared with obstetric-led units	Observational studies	Study design
Scott 2009	The nature of the association between maternal mortality and birth with a health professional	Observational studies	Study design
Sibley 2004a	Relationship between traditional birth attendant (TBA) training and increased use of professional antenatal care	Mixed – no randomised controlled trials	Study design
Sibley 2004b	Effectiveness of traditional birth attendant (TBA) training to improve access to skilled birth attendance for obstetric emergencies		
Spaulding 2009	One out of six categories of interventions was 'interventions delivered by community health workers'. The other five categories of interventions did not specify workforce cadre.	Pre/post or multi-arm intervention studies with control group and evaluation studies (qualitative or quantitative)	Study design MCH Interventions not reported by workforce cadre

Sunguya 2013	Training of nutrition health workers	RCTs and cluster-randomised controlled trials	Review excluded children under 6 months old
Swider 2002	Effectiveness of community health workers	Cross-sectional, surveys, retrospective studies, RCTs, quasi-experimental studies.	No RCTs of Maternal and Child Health interventions
Waldenstrom 1998	Continuity of midwifery care compared with standard pattern of maternity care	Review of RCTs	Not a high-quality review
Walsh 2004	Free-standing midwife-led birth centres compared with obstetric-led units	Observational studies	Study design

### References to excluded studies

Andrews JO, Felton G, Wewers ME, Heath J. Use of community health workers in research with ethnic minority women. *Journal of Nursing Scholarship* 2004; **36**(4): 358-65.

Austin MP. Targeted group antenatal prevention of postnatal depression: a review (Structured abstract)2003; DOI:

Brown SA, Grimes DE. A meta-analysis of nurse practitioners and nurse midwives in primary care. *Nursing Research* 1995; **44**(6): 332-9.

Christopher JB, Le May A, Lewin S, Ross DA. Thirty years after Alma-Ata: a systematic review of the impact of community health workers delivering curative interventions against malaria, pneumonia and diarrhoea on child mortality and morbidity in sub-Saharan Africa. *Human Resources for Health* 2011; **9**(1).

Conseil d'Evaluation des Technologies de la Sante du Quebec. Stillbirths within the framework of midwifery pilot projects in Quebec (Structured abstract). 1999: 62 ST-Stillbirths within the framework of midwi.

Devane D, Brennan M, Begley C, et al. Socioeconomic value of the midwife: a systematic review, meta-analysis, meta-synthesis and economic analysis of midwife-led models of care. London: Royal College of Midwives Trust; 2010

Glenton C, Scheel IB, Lewin S, Swingler GH. Can lay health workers increase the uptake of childhood immunisation? Systematic review and typology. *Tropical Medicine and International Health* 2011; **16**(9): 1044-53.

Hall J. Effective community-based interventions to improve exclusive breast feeding at four to six months in low- and low-middle-income countries: a systematic review of randomised controlled trials (Provisional abstract). 2011: Hall J. Effective community-based interventions to improve exclusive breast feeding at four to six months in low- and low-middle-income countries: a systematic review of randomised controlled trials. *Midwifery*.2011;27(4):497-502.

Hall Moran V, Edwards J, Dykes F, Downe S. A systematic review of the nature of support for breast-feeding adolescent mothers 2007.

Hatem M, Sandall J, Devane D, Soltani H, Gates S. Midwife-led versus other models of care for childbearing women. *Cochrane Database of Systematic Reviews*, 2008; 4: DOI: 10.1002/14651858.CD004667.pub2.

Kendrick D, Hewitt M, Dewey M, et al. The effect of home visiting programmes on uptake of childhood immunisation: a systematic review and meta-analysis (Structured abstract). 2000: 90-8 ST - The effect of home visiting programmes.

Muthu V, Fischbacher C. Free-standing midwife-led maternity units: a safe and effective alternative to hospital delivery for low-risk women? *Evidence-Based Healthcare and Public Health* 2004; **8**(6): 325-31.

Scott S, Ronsmans C. The relationship between birth with a health professional and maternal mortality in observational studies: a review of the literature2009; 12: DOI: 10.1111/j.1365-3156.2009.02402.x.

Sibley LM, Sipe TA, Koblinsky M. Does traditional birth attendant training increase use of antenatal care? A review of the evidence2004; 4: DOI: 10.1016/j.jmwh.2004.03.009.

Sibley L, Sipe TA, Koblinsky M. Does traditional birth attendant training improve referral of women with obstetric complications: a review of the evidence. *Social science & medicine (1982)* 2004; **59**(8): 1757-68.

Spaulding AB, Bain Brickley D, Kennedy C, et al. Linking family planning with HIV/AIDS interventions: a systematic review of the evidence. *Aids* 2009; **23**(Supplement 1): S79-S88.

Sunguya BF, Poudel KC, Mlunde LB, et al. Effectiveness of nutrition training of health workers toward improving caregivers' feeding practices for children aged six months to two years: a systematic review. *Nutrition Journal* 2013; **12**(1): 66.

Swider SM. Outcome effectiveness of community health workers: an integrative literature review. *Public Health Nursing* 2002; **19**(1): 11-20.

Waldenström U, Turnbull D. A systematic review comparing continuity of midwifery care with standard maternity services. *British Journal of Obstetrics and Gynaecology* 1998; **105**(11): 1160-70.

Walsh D, Downe S. Appraising the quality of qualitative research. *Midwifery* 2006; **22**(2): 108-19.

## Competencies of the midwife mapped to the framework for quality maternal and newborn care using internationally-agreed competencies, International Confederation of Midwives

International Confederation of Midwives. Essential competencies for basic midwifery practice 2010: revised 2013. 2013.

<http://www.internationalmidwives.org/assets/uploads/documents/CoreDocuments/ICM%20Essential%20Competencies%20for%20Basic%20Midwifery%20Practice%202010,%20revised%202013.pdf> (accessed July 30, 2013).

Practice categories	Education Information Health Promotion	Assessment Screening Care planning	Promoting normal processes, preventing complications	First-line management of complications	Management of serious complications
	C1: C2; C3; C4; C5; C6; C7	C1: C2; C3; C4; C5; C6; C7	C1: C2; C3; C4; C5; C6; C7	C1: C3; C4; C5; C6; C7	C1
<b>Organisation</b>	KMC; C1; C2; C3; C4; C5; C6; C7				
<b>Values</b>	KMC; C1				
<b>Philosophy</b>	KMC; C1; C2; C3; C4; C5; C6				
<b>Workforce</b>	C1				

### KEY MIDWIFERY CONCEPTS (KMC)

There are a number of key midwifery concepts that define the unique role of midwives in promoting the health of women and childbearing families. These include:

- partnership with women to promote self-care and the health of mothers, infants, and families;
- respect for human dignity and for women as persons with full human rights;
- advocacy for women so that their voices are heard and their health-care choices are respected;
- cultural sensitivity, including working with women and health-care providers to overcome those cultural practices that harm women and babies;
- a focus on health promotion and disease prevention that views pregnancy as a normal life event; and
- advocacy for normal physiologic labour and birth to enhance best outcomes for mothers and infants.

C1: Midwives have the requisite knowledge and skills from obstetrics, neonatology, the social sciences, public health and ethics that form the basis of high-quality, culturally-relevant, appropriate care for women, newborns, and childbearing families.

C2: Midwives provide high-quality, culturally-sensitive health education and services to all in the community in order to promote healthy family life, planned pregnancies and positive parenting

C3: Midwives provide high-quality antenatal care to maximise health during pregnancy and that includes early detection and treatment or referral of selected complications.

C4: Midwives provide high-quality, culturally-sensitive care during labour, conduct a clean and safe birth and handle selected emergency situations to maximise the health of women and their newborns.

C5: Midwives provide comprehensive, high-quality, culturally-sensitive postpartum care for women.

C6: Midwives provide high quality, comprehensive care for the essentially healthy infant from birth to two months of age.

C7: Midwives provide a range of individualised, culturally-sensitive abortion-related care services for women requiring or experiencing pregnancy termination or loss that are congruent with applicable laws and regulations and in accord with national protocols