
Evidence Brief: Doula Support for Veterans

Supplemental Materials

April 2022

VA



U.S. Department of Veterans Affairs

Veterans Health Administration
Health Services Research & Development Service

Recommended citation: Rahman B, Williams E, Anderson J, Ward RM, Mackey KM, Parr NJ. Evidence Brief: Doula Support for Veterans. Washington, DC: Evidence Synthesis Program, Health Services Research and Development Service, Office of Research and Development, Department of Veterans Affairs. VA ESP Project #09-199; 2022.

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APPENDIX A: SEARCH STRATEGY

SYSTEMATIC REVIEWS

Search for current systematic reviews (limited to last 7 years)			
Date Searched: 01/05/2022			
A. Bibliographic Databases:	#	Search Statement	Results
MEDLINE: Systematic Reviews Ovid MEDLINE(R) ALL 1946 to January 04, 2022	1	Doulas/ OR (doula\$1 OR (labo?r adj1 (coach* OR companion\$1)) OR (birth* adj1 (coach* OR companion\$1))).mp.	558
	2	(systematic review.ti. or meta-analysis.pt. or meta-analysis.ti. or systematic literature review.ti. or this systematic review.tw. or pooling project.tw. or (systematic review.ti,ab. and review.pt.) or meta synthesis.ti. or meta-analy*.ti. or integrative review.tw. or integrative research review.tw. or rapid review.tw. or umbrella review.tw. or consensus development conference.pt. or practice guideline.pt. or drug class reviews.ti. or cochrane database syst rev.jn. or acp journal club.jn. or health technol assess.jn. or evid rep technol assess summ.jn. or jbi database system rev implement rep.jn. or (clinical guideline and management).tw. or ((evidence based.ti. or evidence-based medicine/ or best practice*.ti. or evidence synthesis.ti,ab.) and (((review.pt. or diseases category/ or behavior.mp.) and behavior mechanisms/ or therapeutics/ or evaluation studies.pt. or validation studies.pt. or guideline.pt. or pmcbook.mp.)) or (((systematic or systematically).tw. or critical.ti,ab. or study selection.tw. or ((predetermined or inclusion) and criteri*).tw. or exclusion criteri*.tw. or main outcome measures.tw. or standard of care.tw. or standards of care.tw.) and ((survey or surveys).ti,ab. or overview*.tw. or review.ti,ab. or reviews.ti,ab. or search*.tw. or handsearch.tw. or analysis.ti. or critique.ti,ab. or appraisal.tw. or (reduction.tw. and (risk/ or risk.tw.) and (death or recurrence).mp.)) and ((literature or articles or publications or publication or bibliography or bibliographies or published).ti,ab. or pooled data.tw. or unpublished.tw. or citation.tw. or citations.tw. or database.ti,ab. or internet.ti,ab. or textbooks.ti,ab. or references.tw. or scales.tw. or papers.tw. or datasets.tw. or trials.ti,ab. or meta-analy*.tw. or (clinical and studies).ti,ab. or treatment outcome/ or treatment outcome.tw. or pmcbook.mp.))) not (letter or newspaper article).pt.	493747
	3	1 and 2	33
	4	limit 3 to english language	32
CDSR: Protocols and Reviews EBM Reviews - Cochrane Database of Systematic Reviews 2005 to December 28, 2021	1	Doulas.kw. or (doula\$1 or (labo?r adj1 (coach* or companion\$1)) or (birth* adj1 (coach* or companion\$1))).mp.	20

Search for current systematic reviews (limited to last 7 years) Date Searched: 01/05/2022		
B. Non-bibliographic databases	Evidence	Results
AHRQ: evidence reports, technology assessments, U.S Preventative Services Task Force Evidence Synthesis	http://www.ahrq.gov/research/findings/evidence-based-reports/search.html Search: doula	0
CADTH	https://www.cadth.ca Search: doula	0
ECRI Institute	https://guidelines.ecri.org/ Search: doula	0
HTA: Health Technology Assessments (UP TO 2016)	http://www.ohsu.edu/xd/education/library/ See CDSR search above	0
NHS Evidence	http://www.evidence.nhs.uk/default.aspx Search: doula, limit Secondary Evidence	39
EPPI-Centre	http://eppi.ioe.ac.uk/cms/Default.aspx?tabid=62 Use browser search function [CNTL + F] for keyword search Search: doula	0
NLM	http://www.ncbi.nlm.nih.gov/books Search: doula Spiby H, Green JM, Darwin Z, et al. Multisite implementation of trained volunteer doula support for disadvantaged childbearing women: a mixed-methods evaluation. Southampton (UK): NIHR Journals Library; 2015 Mar. (Health Services and Delivery Research, No. 3.8.). https://www.ncbi.nlm.nih.gov/books/NBK280017/?term=doula Morrell CJ, Sutcliffe P, Booth A, et al. A systematic review, evidence synthesis and meta-analysis of quantitative and qualitative studies evaluating the clinical effectiveness, the cost-effectiveness, safety and acceptability of interventions to prevent postnatal depression. Southampton (UK): NIHR Journals Library; 2016 May. (Health Technology Assessment, No. 20.37.). https://www.ncbi.nlm.nih.gov/books/NBK361846/?term=doula	2

VA Products - VATAP, PBM and HSR&D publications	A. http://www.hsr.d.research.va.gov/research/default.cfm B. http://www.research.va.gov/research_topics/ Search: doula	0
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PRIMARY STUDIES

Search for primary literature Date searched: 01/05/2022		
MEDLINE [Ovid MEDLINE(R) ALL 1946 to January 04, 2022]		
#	Search Statement	Results
1	Doulas/ OR (doula\$1 OR (labo?r adj1 (coach* OR companion\$1)) OR (birth* adj1 (coach* OR companion\$1))).mp.	558
CINAHL [EBSCO CINAHL Plus with Full Text]		
#	Search Statement	Results
1	(MH "Doulas")	809
2	doula OR doulas OR (labo?r N1 (coach* OR companion*)) OR (birth* N1 (coach* OR companion*))	1211
3	1 OR 2	1211
4	limit 3 to English language	1187

APPENDIX B: EXCLUDED STUDIES

Exclude reasons: E1=Ineligible population, E2=Ineligible intervention, E3=Ineligible comparator, E4=Ineligible outcome, E5=Ineligible timing, E6=Ineligible study design, E7=Ineligible publication type, E8=Outdated or ineligible systematic review, E9=non-English, E10=Unable to retrieve.

Citation	Exclude Reason
Abramson R, Breedlove G, Isaacs B. Birthing support and the community-based doula. <i>Zero to Three</i> . 2007. p. 55-60.	E10
Abramson R. The critical moment and the passage of time: reflections on community-based doula support. <i>Int J Childbirth Educ</i> . 2004;19(4):34-35.	E7
Adams C, Curtin-Bowen M. Countervailing powers in the labor room: The doula-doctor relationship in the United States. <i>Soc Sci Med</i> . 2021;285:114296.	E7
Adams ED, Bianchi AL. A practical approach to labor support. <i>J Obstet Gynecol Neonatal Nurs</i> . 2008;37(1):106-15.	E7
Afulani P, Kusi C, Kirumbi L, Walker D. Companionship during facility-based childbirth: results from a mixed-methods study with recently delivered women and providers in Kenya. <i>BMC Pregnancy Childbirth</i> . 2018;18(1). doi:10.1186/s12884-018-1806-1	E4
Agoratus L. Improving Pregnancy Outcomes For Families: Model Programs Of The Span Parent Advocacy Network. <i>Exceptional Parent</i> . 2018;48(8):32-33.	E7
AHC Media. Labor of love: doula care helps new moms. Women's Health Center Management. Atlanta, Georgia: AHC Media; 1997. p. 11-13.	E10
AHC Media. Newborn home care can improve outcomes and expand services. <i>Hospital Home Health</i> . 2005;22(4):37-40.	E10
Ahlemeyer J, Mahon S. Doulas for childbearing women. <i>MCN Am J Matern Child Nurs</i> . 2015;40(2):122-7.	E7
Ahmad N, Syed Nor SF, Daud F. Understanding Myths in Pregnancy and Childbirth and the Potential Adverse Consequences: A Systematic Review. <i>Malaysian J Med Sci</i> . 2019;26(4):17-27.	E6
Akbarzadeh M, Masoudi Z, Zare N, Vaziri F. Comparison of the effects of doula supportive care and acupuncture at the BL32 point on the mother's anxiety level and delivery outcome. <i>Iranian J Nurs Midwifery Res</i> . 2015;20(2):239-46.	E4
Akhavan S, Edge D. Foreign-born women's experiences of Community-Based Doulas in Sweden--a qualitative study. <i>Health Care Women Int</i> . 2012a;33(9):833-48.	E4
Akhavan S, Lundgren I. Midwives' experiences of doula support for immigrant women in Sweden--a qualitative study. <i>Midwifery</i> . 2012b;28(1):80-5.	E2
Allen J. Doulas create birth memories worth cherishing. <i>Canadian Women's Health Network</i> ; 2003. p. 6-7.	E10
Anderson T. Support in labour. <i>Modern Midwife</i> . 1996;6(1):7-11.	E10
Anonymous. Doula project boosted with government funding. <i>Practising Midwife</i> . 2009;12(6):10-10.	E7
Anonymous. Doulas lend support in times of need. <i>GENESIS</i> . Fall2001 2001;(3):5-5.	E7

Citation	Exclude Reason
Anonymous. Doulas may indicate failings in patient care, warns doctor. <i>Practising Midwife</i> . 2010;13(1):8-8.	E7
Anonymous. Mind over matter: minimising the pain of labour...Mind over matter: minimising the pain of labour (Midwives 2011 7:20-1). <i>Midwives</i> . 2012;15(1):6-6.	E7
Anonymous. Operation Doula Care: reaching out to military families in North Carolina. <i>GENESIS</i> . 2005;(2):3-3.	E7
Attanasio LB, DaCosta M, Kleppel R, Govantes T, Sankey HZ, Goff SL. Community Perspectives on the Creation of a Hospital-Based Doula Program. <i>Health Equity</i> . 2021;5(1):545-553.	E4
Bainbridge J. Doulas: supportive, calm birth partners or obstructive to clinicians? <i>Br J Midwifery</i> . 2010;18(1):57-57.	E7
Bareford CG. Commentary on Social support during labor: a community based study [original article by Pascoe J appears in PUBLIC HEALTH NURS 1993;10(2):97-9]. <i>AWHONN's Women's Health Nursing Scan</i> . 1993;7(6):10-10.	E7
Barron SP, Lane HW, Hannan TE, Struempfer B, Williams JC. Factors influencing duration of breast feeding among low-income women. <i>J Am Dietetic Assoc</i> . 1988. p. 1557-61.	E7
Bar-Yam NB. Political issues. Doula care: an age-old practice meets the 21st century. <i>Int J Childbirth Educ</i> . 2003;18(4):18-21.	E7
Basile Ibrahim B, Knobf MT, Shorten A, et al. "I had to fight for my VBAC": A mixed methods exploration of women's experiences of pregnancy and vaginal birth after cesarean in the United States. <i>Birth: Issues in Perinatal Care</i> . 2021;48(2):164-177. doi:10.1111/birt.12513	E4
Behnke EF, Hans SL. Becoming a doula. <i>Zero to Three</i> . 2002;23(2):9-13.	E7
BenZion M. Learning to Trust Birth through Continuity of Care. <i>Midwifery Today</i> . 2018;(125):18-22.	E7
Berbyuk Lindstrom N, Rodriguez Pozo R. Perspectives of Nurses and Doulas on the Use of Information and Communication Technology in Intercultural Pediatric Care: Qualitative Pilot Study. <i>JMIR Pediatrics and Parenting</i> . 2020;3(1):e16545.	E4
Berg M, Terstad A. Swedish women's experiences of doula support during childbirth. <i>Midwifery</i> . 2006;22(4):330-8.	E4
Berghella V, Baxter JK, Chauhan SP. Evidence-based labor and delivery management. <i>Am J Obstet Gynecol</i> 2008. p. 445-54.	E8
Berghella V, Di Mascio D. Evidence-based labor management: before labor (Part 1). Review. <i>Am J Obstet Gynecol MFM</i> . 2020;2(1):100080.	E7
Betrán AP, Temmerman M, Kingdon C, et al. Interventions to reduce unnecessary caesarean sections in healthy women and babies. <i>Lancet</i> . 2018;392(10155):1358-1368. doi:10.1016/S0140-6736(18)31927-5	E7
Bevinetto G. Lean on me: having a doula at the birth...Debra Pascali-Bonaro. <i>American Baby</i> . 2003;65(8):41-42.	E10
Bharti J, Kumari A, Zangmo R, Mathew S, Kumar S, Sharma AK. Establishing the practice of birth companion in labour ward of a tertiary care centre in India-a quality improvement initiative. <i>BMJ Open Quality</i> . 2021;10(Suppl 1):07.	E4
Bhutta ZA, Darmstadt GL, Haws RA, Yakoob MY, Lawn JE. Delivering interventions to reduce the global burden of stillbirths. <i>Neonatal Intensive Care</i> . 2009;22(7):39-43.	E2

Citation	Exclude Reason
Bianchi AL, Adams ED. Doulas, labor support, and nurses. <i>Int J Childbirth Educ.</i> 2004;19(4):24-30.	E7
Biggs S, Keon J, Singer O, et al. Question of the quarter. Q: What are the essential elements of good prenatal care? <i>Midwifery Today.</i> 2001;(59):8-68.	E7
Birth Issues. Continuous labour support offers big benefits to mothers & babies: support from non-hospital caregivers reduced risk of caesarean birth by impressive 26%. <i>Birth Issues</i> ; 2003. p. 24-27.	E7
Bohren MA, Berger BO, Munthe-Kaas H, Tuncalp O. Perceptions and experiences of labour companionship: a qualitative evidence synthesis. <i>Cochrane Database Syst Rev.</i> 2019;3:CD012449.	E4
Bower K, Jordan B, VanZandt S. A birthing buddy: emotional care during childbirth. <i>Nursing Spectrum -- Washington DC & Baltimore Edition.</i> 2003a;13(13):11-11.	E10
Bower K, Van Zandt S, Jordan B. Birth companions at JHU. <i>Nursing Spectrum -- Washington DC & Baltimore Edition.</i> 2003b;13(15):4-4.	E7
Bowers BB. Mothers' experiences of labor support: exploration of qualitative research. <i>J Obstet Gynecol Neonatal Nurs.</i> 2006;31(6):742-52.	E6
Breedlove G. Perceptions of social support from pregnant and parenting teens using community-based doulas. <i>J Perinatal EducEd.</i> 2005. p. 15-22.	E10
Breedlove GK. <i>A description of social support and hope in pregnant and parenting teens receiving care from a doula.</i> University of Missouri - Kansas City; 2001.	E4
Brigstocke S. What really happens during birth and how can a doula help? <i>J Holistic Healthcare.</i> 2017;14(2):14-16.	E7
Brisco CM, Small SP. Doula Support During Childbearing--Aiming for the Best Birthing Experience: A Phenomenological Study. <i>International Journal of Childbirth.</i> 2017;7(3):139-151. doi:10.1891/2156-5287.7.3.139	E4
British Homeopathic Association. Mum's the word. <i>Health & Homeopathy.</i> Spring/Summer2019 2019:19-21.	E10
Bromberg SR, Frankel K. Perinatal support in substance abuse: the requirements of relationship and reflection. <i>Zero to Three.</i> 2009;29(4):22-27.	E4
Brown C. Focal point on labor support: pregnancy and labor support for the high-risk woman. <i>Int J Childbirth Educ.</i> 2001;16(2):24-27.	E4
Brown CE. Unexpected outcomes in the childbearing cycle: how the doula and childbirth educator can help at the time of crisis. <i>Int J Childbirth Educ.</i> 2000;15(3):32-33.	E7
Bruggemann OM, Osis MJ, Parpinelli MA. [Support during childbirth: perception of health care providers and companions chosen by women]. Randomized Controlled Trial. <i>Revista de Saude Publica.</i> 2007;41(1):44-52.	E9
Bruggemann OM, Parpinelli MA, Osis MJ. [Evidence on support during labor and delivery: a literature review]. <i>Cadernos de Saude Publica.</i> 2005;21(5):1316-27.	E9
Burch JK, J. What are the views of women and healthcare providers regarding labor companions during childbirth? <i>Cochrane Clinical Answers.</i> 2019/09/09 2019;	E7
Burgess A. An Evolutionary Concept Analysis of Labor Support. <i>Int J Childbirth Educ.</i> 2014;29(2):64-72.	E4
Campbell D, Scott KD, Klaus MH, Falk M. Female relatives or friends trained as labor doulas: outcomes at 6 to 8 weeks postpartum. <i>Birth.</i> 2007;34(3):220-7.	E4

Citation	Exclude Reason
Campbell-Voytal K, Fry McComish J, Visger JM, Rowland CA, Kelleher J. Postpartum doulas: motivations and perceptions of practice. <i>Midwifery</i> . 2010;27(6):e214-21.	E4
Campero L, Garcia C, Diaz C, Ortiz O, Reynoso S, Langer A. "Alone, I wouldn't have known what to do": a qualitative study on social support during labor and delivery in Mexico. <i>Soc Sci Med</i> . 1998;47(3):395-403.	E4
Cattelona G, Friesen CA, Hormuth LJ. The Impact of a Volunteer Postpartum Doula Program on Breastfeeding Success: A Case Study. <i>Journal of Human Lactation</i> . 2015;31(4):607-10.	E7
Chalmers B, Wolman W. Social support in labor--a selective review. <i>Journal of Psychosomatic Obstetrics & Gynecology</i> . 1993;14(1):1-15.	E9
Chang YS, Coxon K, Portela AG, Furuta M, Bick D. Interventions to support effective communication between maternity care staff and women in labour: A mixed-methods systematic review. <i>Midwifery</i> . 2018;59:4-16.	E2
Chapple W, Gilliland A, Li D, Shier E, Wright E. An economic model of the benefits of professional doula labor support in Wisconsin births. <i>WMJ</i> . 2013;112(2):58-64.	E6
Chee A. A birth doula for every mother. <i>Midwifery Today with International Midwife</i> . 2012;(104):21-3.	E7
Chi PC, Urdal H. The evolving role of traditional birth attendants in maternal health in post-conflict Africa: A qualitative study of Burundi and northern Uganda. <i>SAGE Open Medicine</i> . 2018;6:.	E4
Choi Myung S, Kim Gum J. Effects of Paters' Duola Touch during Labor on the Paternal Attachment and Role Confidence to Neonate and Couple Attachment. <i>Korean Journal of Women Health Nursing</i> . 2011;17(4):426-437. doi:10.4069/kjwhn.2011.17.4.426	E9
Claudio E, Donahue J, Niles PM, et al. Mobilizing a Public Health Response: Supporting the Perinatal Needs of New Yorkers During the COVID-19 Pandemic. <i>Mat Child Health J</i> . 2020;24(9):1083-1088. doi:10.1007/s10995-020-02984-6.	E4
Collins CC, Rice H, Bai R, Brown PL, Bronson C, Farmer C. "I felt like it would've been perfect, if they hadn't been rushing": Black women's childbirth experiences with medical providers when accompanied by perinatal support professionals. <i>J Advanced Nurs</i> . 2021;77(10):4131-4141.	E4
Conrad M, Stricker S. Personality and labor: a retrospective study of the relationship between personality traits and birthing experiences. <i>Journal of Reproductive & Infant Psychology</i> . 2017;36(1):67-80.	E4
Culley C. Postpartum Doula Support: Filling a Gap in Maternity Care. <i>RN Idaho</i> . 2020;43(2):13-13.	E7
da Matta Machado Fernandes L, Lansky S, Reis Passos H, C TB, B AS. Brazilian women's use of evidence-based practices in childbirth after participating in the Senses of Birth intervention: A mixed-methods study. <i>PLoS ONE</i> . 2021;16(4):e0248740.	E4
Dahl CM, Geynisman-Tan JM, Premkumar A. Birth Behind Bars: The Need for Labor Support in the Incarcerated Population. <i>Obstet Gyn</i> . 2020;136(5):1036-1039.	E4
Dames N, White S. One progressive hospital-based Doula program in a small central California town. <i>Int J Childbirth Educ</i> . Summer98 1998;13(2):6-8.	E4

Citation	Exclude Reason
Darwin Z, Green J, McLeish J, Willmot H, Spiby H. Evaluation of trained volunteer doula services for disadvantaged women in five areas in England: women's experiences. Evaluation Study. <i>Health Soc Care Community</i> . 2017;25(2):466-477.	E4
Davis-Floyd R, Gutschow K, Schwartz DA. Pregnancy, Birth and the COVID-19 Pandemic in the United States. <i>Med Anthro</i> . 2020;39(5):413-427.	E4
de Oliveira ASS, Rodrigues DP, Guedes MVC, Felipe GF, de Galiza FT, Monteiro LC. THE COMPANION DURING LABOUR AND BIRTH: NEW MOTHERS' PERCEPTIONS. <i>Cogitare Enfermagem</i> . 2011;16(2):247-253.	E9
Declercq ER, Sakala C, Corry MP, Applebaum S, Herrlich A. Major Survey Findings of Listening to MothersSM III: Pregnancy and Birth. <i>J Perinatal Educ</i> . 2014;23(1):9-16. doi:10.1891/1058-1243.23.1.9	E4
Dodson A. The Military Birth Resource Network: Serving Those Who Serve. <i>Midwifery Today</i> . 2018;(127):36-36.	E7
Donegan T. The labour doula. <i>Singapore Nurs J</i> . 2005;32(2):49-50.	E4
dos Santos Moura NA, Rolim de Holanda V, Pereira Melo de Albuquerque G, de Lima Castro JF, de Lira Silva HR, Gomes da Rocha EP. Analysis of practices in childbirth and postpartum hospital care. <i>Rev Rene</i> . 2020;21(1):1-8. doi:10.15253/2175-6783.20202143671	E4
Dunne CL, Fraser J, Gardner GE. Women's perceptions of social support during labour: development, reliability and validity of the Birth Companion Support Questionnaire. <i>Midwifery</i> . 2014;30(7):847-52.	E2
Dynes MM, Binzen S, Twentymen E, et al. Client and provider factors associated with companionship during labor and birth in Kigoma Region, Tanzania. <i>Midwifery</i> . 2019;69:92-101.	E4
Edwards RC, Thullen MJ, Korfmacher J, Lantos JD, Henson LG, Hans SL. Breastfeeding and complementary food: randomized trial of community doula home visiting. <i>Pediatrics</i> . 2013;132 Suppl 2:S160-6.	E4
Eftekhary S, Klein MC, Xu SY. The life of a Canadian doula: successes, confusion, and conflict. <i>J Obstet Gyn Can</i> . 2010;32(7):642-9.	E4
Esenalp S, Çoker H. Of Deliveries and Doulas in Turkey. <i>Midwifery Today</i> . Spring2018 2018;(125):35-36.	E4
Essentially MIDIRS. Reducing caesareans in 'low-risk' women. <i>Essentially MIDIRS</i> . 2013;4(3):25-25.	E10
Essentially MIDIRS. Update on: support in labour part 2. <i>Essentially MIDIRS</i> . 2011;2(5):39-42.	E10
Fathi Najafi T, Latifnejad Roudsari R, Ebrahimipour H. The best encouraging persons in labor: A content analysis of Iranian mothers' experiences of labor support. <i>PLoS ONE</i> 2017;12(7):e0179702.	E4
Felsenthal R. As they grow: pregnancy & birth. A doula delivery. <i>Parents</i> . 2006;81(2):117-118.	E4
Fink JLW. Consult stat. Coordinate patient care when you're working with a doula. <i>RN</i> . 2005;68(12):61-2p.	E7
Frank GJ, Swan ML. Doula support for women who are Asylum Seekers or Refugees. <i>Australian Midwifery News</i> . 2016;16(1):34-36.	E7

Citation	Exclude Reason
Froggé GM. Supporting Pregnant Incarcerated Women: Through Childbirth Educational Perspectives. <i>Int J Childbirth Educ.</i> 2019;34(2):51-53.	E4
Garces A, McClure EM, Espinoza L, et al. Traditional birth attendants and birth outcomes in low-middle income countries: A review. <i>Sem Perinat.</i> 2019;43(5):247-251.	E6
Gentry QM, Nolte KM, Gonzalez A, Pearson M, Ivey S. "Going beyond the call of doula": a grounded theory analysis of the diverse roles community-based doulas play in the lives of pregnant and parenting adolescent mothers. <i>J Perinatal Educ.</i> 2010;19(4):24-40.	E4
Giangregorio N. Hospital-Based Doula Program. <i>J Obstet Gynecol Neonatal Nurs.</i> 2016;45:S10-S11. doi:10.1016/j.jogn.2016.03.041	E4
Gilliland AL. After praise and encouragement: emotional support strategies used by birth doulas in the USA and Canada. <i>Midwifery.</i> 2011;27(4):525-31.	E7
Gilliland AL. Beyond holding hands: the modern role of the professional doula. <i>J Obstet Gynecol Neonatal Nurs.</i> 2002;762-9.	E4
Giordano J, Surita FG. The role of the respectful maternity care model in Sao Paulo, Brazil: A cross-sectional study. <i>Birth.</i> 2019;46(3):509-516.	E4
Gjerdingen DK, McGovern P, Pratt R, Johnson L, Crow S. Postpartum doula and peer telephone support for postpartum depression: a pilot randomized controlled trial. Randomized Controlled Trial. <i>Journal of Primary Care & Community Health.</i> 2013;4(1):36-43.	E4
Goldbort J. Postpartum depression: bridging the gap between medicalized birth and social support. <i>Int J Childbirth Educ.</i> 2002;17(4):11-17.	E7
Gorsline-Flamm E. Prenatal, labor and delivery support through doula-interpreters. <i>Int J Childbirth Educ.</i> 2002;17(2):20-21.	E4
Greiner KS, Hersh AR, Hersh SR, et al. The Cost-Effectiveness of Professional Doula Care for a Woman's First Two Births: A Decision Analysis Model. <i>J Midwifery Womens Health.</i> 2019;64(4):410-420.	E6
Greiner KS, Hersh AR, Hersh SR, Gallagher AC, Caughey AB, Tilden EL. Cost-Effectiveness of Continuous Support From a Layperson During a Woman's First Two Births. Review. <i>J Obstet Gynecol Neonatal Nurs.</i> 2019;48(5):538-551.	E4
Hall WA, Tomkinson J, Klein MC. Canadian care providers' and pregnant women's approaches to managing birth: minimizing risk while maximizing integrity. <i>Qualitative Health Research.</i> 2012;22(5):575-86.	E4
Hardy Baker S. Military Doulas: The Doula Dialogue. <i>Midwifery Today.</i> 2018;(127):34-34.	E7
Harris SJ, Janssen PA, Saxell L, Carty EA, MacRae GS, Petersen KL. Effect of a collaborative interdisciplinary maternity care program on perinatal outcomes. <i>CMAJ Canadian Medical Association Journal.</i> 2012;184(17):1885-92.	E2
Harte JD, Sheehan A, Stewart S, Foureur M. The Birth Unit Design's influence on women's birth supporters. <i>Women & Birth.</i> 2013;26:S28-9. doi:10.1016/j.wombi.2013.08.182	E7
Harte JD, Sheehan A, Stewart SC, Foureur M. Childbirth Supporters' Experiences in a Built Hospital Birth Environment: Exploring Inhibiting and Facilitating Factors in Negotiating the Supporter Role. <i>HERD: Health Environments Research & Design Journal.</i> 2016;9(3):135-61.	E7

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APPENDIX C: EVIDENCE TABLES

CHARACTERISTICS OF INCLUDED PRIMARY STUDIES

Randomized Controlled Studies

Author Year	Participant Characteristics	Setting/Context	Intervention	Comparator
N				
Bolbol-Haghighi 2016 ¹	Race/Ethnicity - NR (Likely 100% Persian)	Iran	Midwifery students	Routine care. The students in the non-supportive group (control group) only participated in the partogram workshop and were not trained for the supportive care.
N = 100 pregnant individuals (50 support vs 50 no support), 20 doulas	Maternal Age, mean (SD) 25.60 (4.51) vs 23.42 (4.51)	Hospital	Training included theoretical labor exam, six 60 min training sessions, emphasizing the importance of continued support and partogram use. Types of support: massaging back, belly and legs of the mother during labor, acupressure, aromatherapy, heat, and cold therapy, encouraging the mother to walk during labor, and changing position.	
RCT	Parity, mean (SD) 0.69 (0.95) vs 0.65 (0.90), <i>p</i> =0.82			
Campbell 2006 ²	Race/Ethnicity White: 56% vs 56% Black: 36% vs 29% Indian: 0.4% vs 0.6% Chinese: 0.7% vs 0.2% Filipino: 0.4% vs 0.6% Other: 6.4% vs 12%	US	Trained doula support (certified doula, TBA & other L&D)	Control group had support people of their own choosing, but not doula-trained
N = 600 (298 doula vs 300 control)		Hospital, ambulatory care	Lay doula, female friend or relative who had 2 sessions (2 hrs) of labor support training from doula.	
RCT	Maternal Age, mean 22.2 vs 22.6		Curriculum consisted of anatomy and physical changes during childbirth, assessing the mother's progress in labor, coping strategies, anticipatory	
	Parity			

Author Year	Participant Characteristics	Setting/Context	Intervention	Comparator
N				
	Nulliparous 100%		guidance and comfort measures, and praise and reassurance to their partners.	
Cogan 1988 ³ N = 34 birthing persons RCT	Race/Ethnicity %White: 50% vs 45%, <i>p</i> =1.00 Black or Mexican American: 50% vs 55% Maternal Age, mean 18.1 vs 21.4 Parity Primiparous 71% vs 64%, <i>p</i> =0.70	US Hospital	Lamaze childbirth preparation instructor acting as a doula During labor, the support persons provided 1:1 CLS to the woman in labor, provided information to the woman in labor and her family, often acted as a liaison with hospital personnel, and taught relaxation and breathing measures to the woman in labor. Support persons also helped family members provide effective support when present.	Routine care: intermittent nursing care with family members allowed to be present
Dickinson 2002 ⁴ N = 992 (499 CMS vs 493 EPI) RCT	Race/Ethnicity %White: 429 (85.9%) vs 433 (87.8%) Maternal Age, mean (SD) 26.5 (5.58) vs 26.5 (5.38), <i>p</i> =0.90 Parity Nulliparous 100%	Australia Hospital	Trained doula support (certified doula, TBA & other L&D) Hospital doula 1:1 Continuous Midwifery Support (CMS) with pharmacologic and nonpharmacologic alternatives to EPI. Women with CMS were encouraged to avoid epidural analgesia. EPI alternatives included intramuscular pethidine (1.5 mg/kg maternal body weight), nitrous oxide inhalation, or non-	Epidural for pain relief only

Author Year	Participant Characteristics	Setting/Context	Intervention	Comparator
N			pharmacological methods of pain relief.	
Gagnon 1997 ⁵ Gagnon 1999 ⁶ N = 413 (209 1:1 nursing care vs 204 usual care) RCT	Race/Ethnicity - NR Maternal Age, mean (SD) 27.6 (4.6) vs 27.8 (5.0) Parity nulliparous 100%	Canada Urban, hospital	Nurse 1:1 support during labor and birth Continuous support during labor (family member or friend) in addition to usual intrapartum nursing support included emotional support, physical comfort, and instruction on relaxation and coping techniques.	Routine intrapartum nursing care (1:2 or 1:3 care with varying levels of support and activity)
Gordon 1999 ⁷ N = 314 (149 doula group vs 165 usual care) RCT	Race/Ethnicity %White: 56.7% vs 54% Maternal age 29 years (overall) 18-34 years: 79.9% vs 79.4% >35 years: 22.1% vs 20.6 Parity 100% nulliparous	US Urban, medical centers	Trained doula support (certified doula, TBA & other L&D) Hospital-based doula All doulas attended doula training in the community, served as supervised doulas for at least 2 births, and attended half-day orientation.	Routine care
Hans 2018 ⁸ N = 312 (doula vs control) RCT	Race/Ethnicity %White: 13 (8.3%) vs 13 (8.3%) Maternal Age, mean (SD) 18.5 (2.0) vs 18.3 (1.6) Parity	US Urban, high poverty rate, hospital	Trained doula support (certified doula, TBA & other L&D) Doula and home-visit services CLS as well as pre/post-natal visits	Women referred to available case management services

Author Year	Participant Characteristics	Setting/Context	Intervention	Comparator
N				
	nulliparous: 152 (97.4%) vs 154 (98.7%)		During labor, doulas provided physical comfort, emotional support, and advocacy.	
Hodnett 2002 ⁹	<p>Race/Ethnicity %White: 2561 (74.2%) vs 2594 (75%)</p> <p>Maternal Age, mean (SD) [range] 29.4 (5.5) [15.2, 45.8] vs 29.5 (5.7) [15.2, 47.7]</p> <p>Parity Nulliparous: 1701 (49.3%) vs 1694 (49%) 1: 1121 (32.5%) vs 1083 (31.3%) 2: 440 (12.7%) vs 485 (14%) >2: 192 (5.6%) vs 199 (5.8%)</p>	US & Canada Urban, hospital	Nursing staff received 2-day training conducted by expert labor nurse and doula trainer and met regularly with trainer throughout trial to review cases and practice skills. Birthing persons were randomly assigned to trained nurses in experimental support group.	Routine nursing care
N = 6915 (3454 in CLS vs 3461 in usual care) RCT				
Hofmeyr 1991 ¹⁰	<p>Race/Ethnicity Asian: 12 (13%) vs 13 (13%) Black: 7 (7.5%) vs 1 (1.0%) Other: 73 (79%) vs 83 (86%)</p> <p>Maternal Age, mean (SE) 20.5 (0.36) vs 20.3 (0.28)</p>	South Africa Urban, low-income, hospital	Layperson as doula Lay volunteer trained in CLS by the researchers	Routine delivery care
N=189 (92 with support, 97 control) RCT				

Author Year	Participant Characteristics	Setting/Context	Intervention	Comparator
N	Parity Nulliparous 100%			
Isbir 2017 ¹¹	Race/Ethnicity %White: 100% (Turkish) Maternal Age, mean (SD) 24.9 (5.9) vs 25 (4.7)	Turkey Urban, hospital	Midwifery students	Routine delivery care
N = 72 (36 intervention vs 36 control)				
RCT	Parity Primipara: 10 (30.3%) vs 14 (43.3%) Multipara: 23 (69.7%) vs 17 (56.7%)			
Kashanian 2010 ¹²	Race/Ethnicity - NR (likely 100% Persian) Maternal Age, mean (SD) 21.2 (2.56) with supportive care vs 23.88 (3.35) with routine care	Iran University hospital	Midwife One-on-one support during labor, patient education from midwife	No midwife support
N = 100 (50 supportive vs 50 routine care)				
RCT	Parity 100% primigravida			
Kennell 1991 ¹³	Race/Ethnicity Hispanic: 136 (64%) vs 116 (57%) Black: 53 (25%) vs 56 (27%) White: 21 (10) vs 29 (14%) Asian: 2 (1%) vs 3 (1%)	US Public hospital	Trained doula support (Certified doula, TBA & other L&D) Doula Doulas went through a 3-week training period and offered continuous labor support (were at bedside from admission)	Observed group: observer in labor room not interacting with mother, taking notes on contacts, procedures, and interventions Control group: no doula or observer present in labor room. Routine care
N = 616 (212 supported vs 204 control)				
RCT				

Author Year	Participant Characteristics	Setting/Context	Intervention	Comparator
N	Maternal Age, mean (SD) 19.9 (3.5) vs 20.3 (3.8)		through delivery, soothing and touching the patient, giving encouragement, explaining procedures, translating medical instructions, and keeping a written record of contacts/ interventions/ procedures).	
Klaus 1986 ¹⁴	Race/Ethnicity - NR	Guatemala	Layperson as doula	Routine care, no consistent support
N = 417 (249 control vs 168 experimental)	Maternal Age - NR	Social Security Hospital	Doulas with no obstetric training provided constant support and companionship. Social support, emotional and physical support, providing explanation and encouragement	
RCT	Parity 100% primigravida			
Langer 1998 ¹⁵	Race/Ethnicity 100% Mexican	Mexico	Trained doula support (certified doula, TBA & other L&D)	Routine care
N = 724 (361 labor support vs 363 control)	Maternal Age, mean 22.5 in intervention group and control	Large public hospital	Doula	
RCT	Parity 93.1% primipara in intervention group vs 90.6% primipara in control group		Doula accompanied mother without interruption throughout labor, childbirth, and immediate postpartum period. Care consisted of emotional support, information, physical support, communication, and contact between mother and child.	
Lesser 2005 ¹⁶	Race/Ethnicity - NR	US	Trained doula support (Certified doula, TBA & other L&D)	Routine care
N = 221 (120 control vs 101 doula support)	Maternal Age - NR	Urban hospital (low-income)	Volunteer layperson, trained by La Leche League members	

Author Year	Participant Characteristics	Setting/Context	Intervention	Comparator
N				
RCT	Parity - NR		Continuous support through birth and initial post-partum period	
Madi 1999 ¹⁷	Race/Ethnicity % White = 0 (100% Botswana)	Botswana	Layperson as doula	Routine hospital care with no female relative companion
N = 109		Hospital	Female relative support	
RCT	Maternal Age, mean 20 in experimental and control group		Company of a female relative for duration of labor	
	Parity 100% primigravida			
McGrath 2008 ¹⁸	Race/Ethnicity White/Caucasian: 180 (80.4%) vs 149 (76.0%) African American: 37 (16.5%) vs 43 (21.9%) Asian: 6 (2.7%) vs 3 (1.5%) Hispanic: 1 (0.4%) vs 1 (0.5%)	US	Trained doula support (Certified doula, TBA & other L&D)	Routine obstetric and nursing care
N = 420		Hospital	Trained doulas	
RCT	Maternal Age, mean (SD) 28.97 (4.83) vs 28.60 (4.49)		Continuous labor support including verbal encouragement, teaching, touch, eye contact, and close physical proximity to support the laboring woman and her partner as a unit.	
	Parity 100% Nulliparous			
Morhason-Bello 2009 ¹⁹	Race/Ethnicity Nigerian: 100%	Nigeria	Layperson as doula	No labor companion

Author Year	Participant Characteristics	Setting/Context	Intervention	Comparator
N				
N = 585 (293 doula vs 292 control) RCT	-Hausa: 4.5% vs 10.6%, <i>p</i> =0.001 -Igbo: 10.6% vs 11.3% -Yoruba: 76.4% vs 63.4% -Others: 8.9% vs 14.7% Maternal Age, mean 29.0 vs 29.5 Parity Nulliparous 35.8%	Hospital	Untrained labor companion Labor support of gentle massage, reassuring words, spiritual support and acting as intermediary between the woman and health care team.	
Ravangard 2017 ²⁰ N = 150 (75 doula support vs 75 control) RCT	Race/Ethnicity - NR Maternal Age, n (%) 16-26 years: 38 (25.33%) vs 37 (24.66%) 27-44 years: 35 (23.33%) vs 40 (26.66%) Parity Nulliparous 100%	Iran Hospital	Trained doula support (certified doula, TBA & other L&D) Doula Doula presence during delivery (details of support NR)	Other non-medical methods of support (hot shower, aromatherapy, etc)
Safarzadeh 2012 ²¹ N = 150 (75 doula supported vs 75 control) RCT	Race/Ethnicity - NR (likely 100% Persian) Maternal Age, mean 25 Parity Primiparous 100%	Iran Maternity ward	Layperson as doula Untrained female friend or relative selected by the birthing person	Routine care without doula support
Trueba 2000 ²²	Race/Ethnicity - NR	Mexico	Students from the Lamaze International Childbirth	No CLS

Author Year	Participant Characteristics	Setting/Context	Intervention	Comparator
N				
N = 100 (50 doula supported vs 50 not doula supported)	Maternal Age - NR Parity Primiparous 100%	Urban, hospital	Educator program at Anahuac University under supervision of trained doula	
RCT			Support during hospital labor	
Yuenyong 2012 ²³	Race/Ethnicity - NR	Thailand	Layperson as doula	No CLS
N = 120 (60 w/ support vs 50 w/o)	Maternal Age - NR Parity Primiparous 100%		Layperson - female relative	
RCT			Support from admission until 2 hours after birth	

Abbreviations. ACOG= American College of Obstetrics & Gynecology CLS=continuous labor support; CMS=continuous midwifery support; EPI=epidural anesthesia; L&D=labor and delivery; NR=not reported; RCT= randomized control trial; SD=standard deviation; SE=standard error; TBA=traditional birth attendant.

Notes. All data are displayed to compare groups with labor support or doula versus the comparator. Maternal age is shown in years. Term pregnancy (ACOG definition): between 37 weeks 0 days and 38 weeks 6 days' gestation. Full term pregnancy (ACOG definition): between 39 weeks 0 days and 40 weeks 6 days' gestation. Late term pregnancy (ACOG definition): between 41 weeks 0 days and 41 weeks 6 days' gestation. Post term pregnancy (ACOG definition): 42 weeks 0 days' gestation and beyond. Alert line: a partogram provides a pictorial overview of labor to alert midwives and obstetricians to deviations in maternal or fetal wellbeing and labor progress. Charts often contain pre-printed alert and action lines. An alert line represents the slowest 10% of primigravid women's labor progress.



Observational Studies

Author Year	Participant Characteristics	Setting/Context	Intervention	Comparator
N				
Design				
Austad 2020 ²⁴ N = 276 mothers in TBA cohort vs 506 in non-TBA cohort (847 births over 12 month period) 41 TBA/OCNs Retrospective cohort	Race/Ethnicity %Indigenous Mayan: 100 Maternal Age 27 years (IQR 22, 31) Parity Nulliparous 43% of cohort Multiparous (IQR 1, 4) 57%	Guatemala Rural (indigenous Mayan villages)	Trained doula support (certified doula, TBA & other L&D) Traditional Birth Attendants (TBA) trained as OCNs who were equipped with mHealth technology to improve the detection of high-risk pregnancies and birth complications within the rural Maya villages in Guatemala OCNs are trained to provide accompaniment and care coordination to mothers. They provide a formal linkage between TBAs and hospital-level care and improve the quality of care by coordinating referral logistics, interpreting between non-Spanish-speaking patients and hospital providers, advocating for respectful maternity care, and providing emotional and doula-like support.	No OCN services
Byrskog 2020 ²⁵	Race/Ethnicity Migrant subgroup: 17,699 (12% of total) -880/17,699 (5% within subgroup) CBD vs	Sweden All births reported in Sweden across all settings	Trained doula support (certified doula, TBA & other L&D) Community-based Doula (CBD)	No CBD

Author Year	Participant Characteristics	Setting/Context	Intervention	Comparator
N				
Design				
N = 17,699 Migrant women (880 CBD vs 16,789 no support)	16,789/17,799 (95% within subgroup) non-CBD		Doulas bilingual in Swedish and the woman’s own language and well acquainted with the cultures of both countries.	
Secondary comparison to 129,706 Swedish-born women	Maternal Age (Migrant) <25 years: 24.2% vs 16.9% 25-34 years: 59.1% vs 61.5% >35 years: 16.7% vs 21.7%		All attended 8 days of certified training conducted by registered midwives with specific accreditation for CBD training.	
Retrospective cohort	Parity (Migrant) Nulliparous: 379 (43.1%) vs 6,440 (38.4%), <i>p</i> <0.05 Parous: 500 (56.9%) vs 10,349 (61.6%), <i>p</i> <0.05		The course included basic anatomy, normal pregnancy and birth, relaxation techniques, pain relief, medical interventions, instrumental delivery, breast feeding, attachment and the newborn baby. Information about the CBD service was provided either when women participated in other activities organized by the community association or via a referral from the woman’s regular antenatal care midwife	
Chen 2020 ²⁶	Race/Ethnicity - NR (likely 100% Taiwanese or Chinese)	Northern Taiwan Hospital/medical center	Trained doula support (certified doula, TBA & other L&D) Hospital-based doula	Routine hospital care in the labor and delivery room
N = 220 (125 w/ doula vs 95 no doula)	Maternal Age - NR			
Prospective cohort				

Author Year	Participant Characteristics	Setting/Context	Intervention	Comparator
N Design	Parity Nulliparous (primigravida): 97 (77.6%) vs 55 (57.9%)		The Birth Doula Program was run by the first author, a DONA-certified doula trainer, and the 6 trained doulas, to provide doula services before, during, and after the labor process. All participants met the doula for the first time at the obstetrics clinic. In the program, each participant was treated according to their needs during labor. The researcher provided both continuous psychological support and comfort measures to the women in the experimental group and their family and simultaneously assisted them in obtaining information and the best advocacy. The doula program was terminated after the baby was born and the post labor questionnaire was completed.	
Dundek 2006 ²⁷ N = 348 (123 doula attended Somali births vs 225 non-doula attended Somali births) Retrospective cohort	Race/Ethnicity Somali 100% Maternal Age - NR Parity Nulliparous: 44 (35.8%) vs 68 (30.2%)	US (Somali community) Hospital	Trained doula support (certified doula, TBA & other L&D) Hospital-based doula (female, Somali only) DONA certified, culturally competent care	Non-doula attended Somali births

Author Year	Participant Characteristics	Setting/Context	Intervention	Comparator
N Design			Doulas are on call for 24-hour periods and carry pagers. When a Somali woman comes into the hospital in labor, she is offered the services of a doula. The doula arrives within 1 hour of being called and stays with the mother until the infant is born or until the mother is moved into a postpartum room. Doulas complete a birth summary sheet. Doulas do not document on the medical record.	
Feng 2013 ²⁸ N = 400 (200 doula + EPI vs 200 control) Prospective cohort	Race/Ethnicity - NR (Likely 100% Chinese) Maternal Age 20-34 Parity Primiparous: 100%	China Hospital	Doula Midwife + EPI	No support and no EPI
Fulton 2011 ²⁹ <i>Study 1</i> N = 141 (44 doula care vs 97 standard care) <i>Study 2</i> N = 60 (8 doula care vs 52 standard care)	<i>Study 1</i> Race/Ethnicity White: 29% Hispanic: 50% African American: 20% Asian: 1% Maternal Age, mean 23.1 vs 22.4	US <i>Study 1</i> Hospital, home <i>Study 2</i> Urban health care center	Doula midwife Author did not have access to important information as to the characteristics of each doula, doula arrival time during labor, and the types of comfort measures employed. In addition, we were unable to determine whether one doula supported multiple mothers during their	Standard care, no doula support

Author Year	Participant Characteristics	Setting/Context	Intervention	Comparator
N				
Design				
Prospective Cohort	<p>Parity Primiparous: 100%</p> <p><i>Study 2</i></p> <p>Race/Ethnicity Hispanic: 1 (12.50) vs 32 (62.75) White (non-Hispanic): 4 (50.00) vs 11 (21.57) African American: 0 vs 1 (1.96) Asian: 0 vs 5 (9.80) Other: 3 (37.50) vs 2 (3.92)</p> <p>Maternal Age, mean (SD) 26.63 (5.9) years vs 27.2 (5.9) years</p> <p>Parity Primiparous: 6 (75.0%) vs 28 (53.85%), $p > 1.0$</p>		<p>birth experience (eg, clustering), or conversely whether there were multiple doulas who supported different mothers.</p>	
Gadappa 2021 ³⁰ N = 4221 birth companion vs 4373 control	<p>Race/Ethnicity - NR (Likely 100% Indian)</p> <p>Maternal Age, mean (SD) 24.88 (3.6) vs 24.86 (3.8)</p>	<p>India</p> <p>Hospital</p>	<p>Layperson as doula</p> <p>Layperson; female friend or relative who has undergone process of childbirth herself and 2 hours of training</p>	<p>No birth companion</p>
Prospective cohort	Parity			

Author Year	Participant Characteristics	Setting/Context	Intervention	Comparator
N				
Design				
	Primigravida: 1809 (42.87%) vs 1875 (43.04%) Multigravida: 2412 (57.13%) vs 2498 (56.96%)		Birth companions were trained (2 sessions) and were with mothers for antenatal visits and childbirth. Training was focused on emotional support and physical support.	
Goedkoop 2009 ³¹	Race/Ethnicity - NR	UK	Trained doula support (certified doula, TBA & other L&D)	NHS statistics for general maternity services
N = 140 birth doulas; 735 births	Maternal Age - NR	NR - survey was sent to birth/post-natal doulas and post-natal doulas throughout the NHS system	Doula support during birth and postnatal - any setting	
Prospective cohort	Parity Primiparous: 350 (48%)			
Gruber 2013 ³²	Race/Ethnicity African American: 75 (33.2%) vs 101 (44.7%) White: 8 (3.5%) vs 8 (3.5%) Other: 14 (6.2%) vs 19 (8.4%)	US Urban, hospital	Trained doula support (certified doula, TBA & other L&D) Certified doula support during prenatal, birth, and postpartum period + childbirth education Doula support and at least 2 pre- and 2 post-partum visits	Individuals selecting non-doula care; routine services
N=226 (97 w/ doula vs 129 control)	Maternal Age, mean 20.3 vs 19.1			
Prospective cohort	Parity - NR			
Kabakian-Khasholian 2018 ³³	Race/Ethnicity - NR	Egypt, Lebanon, Syria	Layperson as doula	Pre-implementation group
	Maternal Age, mean (SD) 26.09 (6.69) vs 25.41 (5.87)	Public tertiary university hospitals serving low-	Layperson (female relative)	

Author Year	Participant Characteristics	Setting/Context	Intervention	Comparator
N				
Design				
<p>N = 2523 (pre implementation) vs 2491 (implementation)</p> <p>Non-randomized controlled trial</p>	<p>Parity</p> <p>Primigravida: 35.7% vs 37.2%</p> <p>Multigravida: 64.4% vs 62.8%</p>	<p>middle socioeconomic populations</p>	<p>Residents/interns/midwives had scripted interactions with labor companions and mothers during labor. Companions were able to stay with mother through first stage of labor.</p> <p>Information, communication, and education (IEC) materials were provided to labor companions: Two-sided flipchart detailing the role of companions used to facilitate briefing of companions and laboring women. Three posters: 1 addressing healthcare providers and 2 addressing companions about the importance of labor companionship and the regulations of the labor rooms as reminders of messages covered in the flipchart.</p> <p>The Arabic dialect and pictures on materials were adjusted for use in the three sites.</p> <p>Adjustments in labor rooms Chairs for the use of companions, curtains or separators around beds, access to hot water and toilet facilities,</p>	

Author Year	Participant Characteristics	Setting/Context	Intervention	Comparator
N				
Design				
			disposable gowns, and nametags for companions.	
KC 2020 ³⁴	Race/Ethnicity - reported by religious affiliation & caste	Nepal	Layperson as doula	No companion present
N = 53,872 (10,321 had labor companion)		Public hospitals	Layperson	
Retrospective cohort	Maternal Age, mean 23.0			
	Parity - NR			
Kozhimannil 2013 ³⁵	Race/Ethnicity (doula supported only)	US	Trained doula support (certified doula, TBA & other L&D)	Routine care
N = 280,087 with Medicaid (n=1,079 with doula support)	Asian: 5.6% Black: 46.3% US Born Black: 10.3% African Born Black: 35.9%	Hospitals	Everyday Miracles doula (DONA certified)	
Retrospective cohort	White: 10.2% Hispanic: 36.3%			
	Maternal Age, mean 27.3			
	Parity Primiparous: 5,288 (1.9%) vs 22,140 (7.9%)			
Kozhimannil 2014 ³⁶	Race/Ethnicity	US	Trained doula support (certified doula, TBA & other L&D)	Women with no doula support and women who indicated desire for doula care but did not have it
N = 2400 (5.9% had doula, 27.3% wanted)	White: 54.5% Black: 15.3% Hispanic: 23.1%	Hospitals	Doula/trained labor assistant	

Author Year	Participant Characteristics	Setting/Context	Intervention	Comparator
N				
Design				
a doula but did not have one)	Other/multiple race: 7.0%			
Retrospective cohort	<p>Maternal Age</p> <p>18-24 years: 31.8%</p> <p>25-29 years: 28.9%</p> <p>30-34 years: 24.8%</p> <p>35+ years: 15.1%</p> <p>Parity</p> <p>Multiparous: 59.3%</p>			
Mottl-Santiago 2008 ³⁷	<p>Race/Ethnicity</p> <p>Black: 569 (26%) vs 3719 (40%)</p> <p>White: 116 (6%) vs 1222 (13%)</p> <p>Hispanic: 960 (44%) vs 2022 (22%)</p> <p>Haitian: 192 (9%) vs 1113 (12%)</p> <p>Asian: 152 (7%) vs 380 (4%)</p> <p>Cape Verdean: 103 (5%) vs 304 (3%)</p> <p>Other: 77 (3%) vs 461 (5%)</p> <p>Maternal Age, mean (SD)</p> <p>27 (6) vs 28 (6)</p> <p>Parity</p>	<p>US</p> <p>Hospital, urban</p>	<p>Trained doula support (certified doula, TBA & other L&D)</p> <p>Birth Sister - trained laywoman</p> <p>Birth Sisters program providing emotional and physical comfort provided to the woman throughout active labor, birth, and the first several hours postpartum</p>	<p>No Birth Sisters program support (could include other doula support not reported)</p>
N = 11,471 (2174 Birth Sisters program vs 9297 others)				
Retrospective cohort				

Author Year	Participant Characteristics	Setting/Context	Intervention	Comparator
N				
Design				
	Nulliparous: 42.5% Multiparous: 57.2%			
Nommsen-Rivers 2009 ³⁸	Race/Ethnicity, n (%) Hispanic: 34 (35.1) vs 26 (59.1)	US Hospital	Trained doula support (certified doula, TBA & other L&D)	Routine hospital care with no doula
N = 169	White (non-Hispanic): 33 (34.0) vs 8 (18.2)		Trained laywomen	
Retrospective cohort	African American: 23 (23.7) vs 6 (13.6) Asian: 7 (7.3) vs 4 (9.1)		Emotional, informational, and physical support during labor, breastfeeding and skin to skin support immediately after giving birth, and 2 home postpartum visits	
	Maternal Age, mean (95% CI) 21.1 (19.5, 23.3) vs 22.1 (20.1, 25.8)			
	Parity 100% primiparous			
Shelp 2004 ³⁹	Race/Ethnicity Somali: 100%	US (Somali community) Hospital	Trained doula support (certified doula, TBA & other L&D)	No Somali doula support
N = 104	Maternal Age - NR		Trained Somali layperson	
Retrospective cohort	Parity - NR		Somali doula support of comfort, praise, reassurance, and information, and by acting as a cultural bridge.	
Spiby 2015 ⁴⁰	Race/Ethnicity White: 59% white British	UK Hospitals	Trained doula support (certified doula, TBA & other L&D)	Non doula supported
N = 507				

Author Year	Participant Characteristics	Setting/Context	Intervention	Comparator
N				
Design				
Retrospective cohort	<p>Maternal Age</p> <p><20: 14.6%</p> <p>20-24: 23.3%</p> <p>25-29 years: 29.4%</p> <p>30-34: 19.8%</p> <p>>35: 13%</p> <p>Parity</p> <p>Nulliparous: 48.7%</p>		Trained volunteer doulas	
Thomas 2017 ⁴¹	<p>Race/Ethnicity</p> <p>Black (non-Latina): 410 (84%) vs 20,740 (59%)</p> <p>White (non-Latina), Asian Pacific Islander, Latina, other, unknown: 79 (16%) vs 14,172 (41%)</p>	<p>US</p> <p>Urban underserved</p>	<p>Trained doula support (certified doula, TBA & other L&D)</p> <p>Certified, full spectrum doula</p> <p>12 doulas subcontracted to support Healthy Start Brooklyn.</p> <p>Doula support during pregnancy consisted of three prenatal home visits, covering the traditional doula curriculum (prenatal care, stages of labor, birth preferences, communicating with care providers), screening for depression, food insecurity, intimate partner violence, and medical risk factors, and making referrals to services as needed. Care was also provided during childbirth and the postpartum</p>	Non HSB program participants
N = 489 (489 in doula program vs 34,912 project area)	<p>Maternal Age, mean</p> <p>27 vs 27.7</p> <p>Parity - NR</p>			
Retrospective cohort				

Author Year	Participant Characteristics	Setting/Context	Intervention	Comparator
N				
Design				
Zhang 2018 ⁸	<p>Race/Ethnicity Chinese: 100%</p> <p>Maternal Age, mean 28.88 vs 28.55 vs 28.79 years</p> <p>Parity Primipara: 85.1%</p>	China	<p>period (within 2 days of the birth and another at 2 weeks postpartum).</p> <p>Other Labor & Delivery as doula</p> <p>Current or retired nurses with experience in midwifery and healthcare in the hospital</p> <p>Support during hospital labor</p>	TENS unit or epidural analgesia

Abbreviations. ACOG= American College of Obstetrics & Gynecology; CBD=community-based doula; DONA=Doulas of North America, national organization with doula training and certification standards; EPI=epidural analgesia; HSB=Healthy Start Brooklyn doula program; IEC=information, education, communication; IQR=interquartile range; L&D=labor and delivery; NHS=National Health Service; NR=not reported; OCN=obstetric care navigators; SD=standard deviation; TBA=traditional birth attendant; TENS=transcutaneous electrical nerve stimulation; UK=United Kingdom; US=United States.

Notes. All data are displayed to compare groups with labor support or doula versus the comparator. Maternal age is shown in years. term pregnancy (ACOG definition): between 37 weeks 0 days and 38 weeks 6 days' gestation. Full term pregnancy (ACOG definition): between 39 weeks 0 days and 40 weeks 6 days' gestation. Late term pregnancy (ACOG definition): between 41 weeks 0 days and 41 weeks 6 days' gestation. Post term pregnancy (ACOG definition): 42 weeks 0 days' gestation and beyond. Alert line: A partogram provides a pictorial overview of labor to alert midwives and obstetricians to deviations in maternal or fetal wellbeing and labor progress. Charts often contain pre-printed alert and action lines. An alert line represents the slowest 10% of primigravid women's labor progress.



OUTCOME DATA OF INCLUDED PRIMARY STUDIES

Randomized Controlled Studies

Author Year	Intervention/Comparator	Efficacy/Effectiveness Outcomes		Implementation Outcomes
Bolbol-Haghighi 2016 ¹ N = 100 pregnant individuals Iran Hospital	Intervention: Other Labor & Delivery as doula Comparator: Routine care	Maternal	NR	Six sessions of 60 minutes on the importance of continued support and types of supportive methods, including massaging back, belly and legs of the mother during labor, acupuncture, aromatherapy, heat, and cold therapy, encouraging the mother to walk during labor, and changing position. There was additional training on how to use the partogram.
		Neonatal	1-min Apgar, mean (SD): 8.49 (0.81) vs 7.82 (0.93), $p < 0.001$ 5-min Apgar, mean (SD): 9.25 (0.70) vs 8.92 (0.90), $p = 0.04$	
		Delivery	Normal vaginal delivery: 49 (98%) vs 47 (94%) Caesarean section/vacuum: 1 (2%) vs 3 (6%) First stage of labor (hours), mean (SD): 7.90 (3.55) vs 11.46 (3.71), $p < 0.001$ Second stage of labor (min), mean (SD): 52.47 (28.97) vs 64.14 (34.67), $p = 0.06$ Oxytocin: 7 (14) vs 8 (16), $p = 0.77$	
Campbell 2006 ² N = 600 (298 doula group vs 300 control =) US Hospital, ambulatory care	Intervention: Trained doula support (certified doula, TBA & other L&D) Comparator: Control group had untrained support people of their own choosing	Maternal	NR	Training of doulas was limited to the 2 sessions provided by the trainer. Timing: In the doula group, data were included for those mother-doula pairs who had complete doula training (2 sessions) and had the doula present during the labor and birth.
		Neonatal	1-min Apgar >6: 95% vs 90% ($p = 0.04$) 5-min Apgar >6: 99.7% vs 97% ($p = 0.006$)	
		Delivery	Cesarean: 18.9% vs 17.9% ($p = 0.7$) (Vaginal deliveries) Labor length (hour), mean (SD): 10.4 (4.3) vs 11.7 (4.8), $p = 0.004$ Length of second stage labor (min), mean (SD): 58 (51) vs 64 (57), $p = 0.2$ Epidural: 85% vs 88% ($p = 0.4$)	

Author Year	Intervention/ Comparator	Efficacy/Effectiveness Outcomes		Implementation Outcomes
Cogan 1988 ³ N = 34 birthing persons US Hospital	Intervention: Other Labor & Delivery as doula Comparator: Routine care	Maternal	Attempted labor suppression: 36% vs 28%, $p=0.41$ PROM: 36% vs 28%, $p=0.41$.	Support provided by a Lamaze childbirth preparation instructor. Support included continuous presence, acting as a liaison with hospital staff, providing information, teaching relaxation, and breathing measures, and helping family members to effectively support.
		Neonatal	1-min Apgar: 7.7 vs 6.4, $p=0.19$ 5-min Apgar: 8.7 vs 7.4, $p=0.04$ 5+ min Apgar: >7 vs 3-6	
			Birth weight (g): 2338 vs 2314, $p=0.92$	
			NICU admissions: 43% vs 57%, $p= 0.50$ 1 or more indications of fetal distress - 43% vs 36% (late deceleration, severe variable deceleration, bradycardia, above plus absent variability, tachycardia, and fetal heart rate less than 100 or greater than 160 beats/min)	
		Delivery	Oxytocin use: 43% vs 64%, $p=0.22$ Epidural (pethidine injections): 43% vs 82%, $p=0.05$	
			Labor length ($p<0.01$): Active - (4-8 cm) - 2.4 (1.0) vs 4.2 (4.8)	
Dickinson 2002 ⁴ N = 992 (499 CMS vs 493 EPI)	Intervention: Trained doula support (certified Doula, TBA & other L&D)	Maternal	Antenatal complications: 138 (27.6%) vs 131 (26.6%), $p=0.70$	NR
			Maternal urinary catheterization: 52.5% vs 60.6%, $p=0.01$	
Australia Hospital	Comparator: Epidural for pain relief only	Neonatal	5-min Apgar <7: 4 (0.8%) vs 8 (1.6%), $p=0.26$	
			Birth weight (g): 3420 (IQR 3120, 3730) vs 3410 (IQR 3160, 3715), $p=0.70$	

Author Year	Intervention/ Comparator	Efficacy/Effectiveness Outcomes	Implementation Outcomes	
Gagnon 1997 ⁵ Gagnon 1999 ⁶ N = 413 (209 1:1 nursing care vs 204 usual care) Canada Urban, hospital	Intervention: Trained doula support (certified doula, TBA & other L&D)	Delivery	Cord arterial pH: 7.24; IQ 7.19, 7.28 (n = 258) vs 7.23; IQ 7.18, 7.29 (n = 265), p=0.83 <hr/> Mode of delivery, p=0.054 SVD: 280 (56.1%) vs 239 (48.5%) Operative vaginal delivery: 148 (29.7%) vs 169 (34.3%) Caesarean: 71 (14.2%) vs 85 (17.2%), p=0.222 Operative delivery: 219 (43.9%) vs 254 (51.5%), p=0.019 Induction of labor: 226 (45.3%) 229 (46.4%), p=0.41 Overall labor (hours), median (IQR): 10.7 (7.0, 15.2) vs 11.4 (8.2, 15.2), p=0.039 Epidural rate: 306 (61.3%) vs 356 (72.2%), p=0.0003	Support provided during labor only
		Maternal	Post-study epidural anesthesia: 37 (67.3%) vs 33 (73.3%) Perineal trauma: 168 (81.4%) vs 166 (83.0%) PROM: 128 (61.1%) vs 126 (61.8%)	
		Neonatal	Postpartum urinary catheterization 28 (13.5%) vs 26 (12.8%) <hr/> Apgar (1 min), mean (SD): 8.0 (1.4%) vs 8.3 (0.9%) Apgar (5 min), mean (SD): 8.9 (0.9%) vs 9.0 (0.8%) NICU admission: 4 (7.3%) vs 4 (8.9%), RR=0.82, CI (0.22, 3.09)	

Author Year	Intervention/ Comparator	Efficacy/Effectiveness Outcomes		Implementation Outcomes
		Delivery	Cesarean: 7 (12.7%) vs 13 (28.9%), RR=0.44, CI 0.19-.01 Instrumental delivery: 17 (30.9%) vs 10 (22.2%), RR=0.82, CI (0.71, 2.73) Labor duration from study entry (hours), mean (SD): 8.9 (3.7) vs 9.6 (4.9), RR=-0.7, 95% CI (-2.7, 1.3) Oxytocin: 55 (26.3%) vs 45 (22.1%) Epidural: 36 (17.2%) vs 41 (20.1%)	
Gordon 1999 ⁷ N = 314 (149 doula group vs 165 usual care) US Urban, medical centers	Intervention: Trained doula support (certified doula, TBA & other L&D) Comparator: Routine care	Maternal	NR	All doulas attended doula training in the community, served as supervised doulas for at least 2 births, and attended half-day orientation. After each birth, an attending doctor and nurse evaluated the doula and followed up with project if there were any issues. Each day, 1 on-call and 1 back-up doula were scheduled to be available.
Neonatal	NR	Delivery	Those with doulas were less likely to receive epidural analgesia ($p=0.047$). No significant difference in cesarean rates, uncomplicated vaginal delivery, or use of oxytocin. Cesarean: 25/149 (16.8%) vs 26/165 (15.8%) Instrumental vaginal delivery (forceps/vacuum): 29/149 (19.2%) vs 47/165 (28.8%) Uncomplicated vaginal delivery: 67.8% vs 60% Epidural anesthesia: 54.4% vs 66.1% Analgesia during first stage: 61.1% vs 68.5% Oxytocin during first stage: 61.7% vs 62.4%	
Maternal	Mother re-hospitalized within 3 weeks: 4 (2.8%) vs 3 (2.1%), OR = 1.53, 95% CI (0.33, 7.21)			
Hans 2018 ⁸	Intervention:	Maternal	Mother re-hospitalized within 3 weeks: 4 (2.8%) vs 3 (2.1%), OR = 1.53, 95% CI (0.33, 7.21)	All doulas completed at least foundational training by national models and Ounce of Prevention

Author Year	Intervention/ Comparator	Efficacy/Effectiveness Outcomes	Implementation Outcomes
N = 312 (doula vs control) US Urban, high poverty rate, hospital	Trained doula support (certified doula, TBA & other L&D) Comparator: Women referred to available case management services	Neonatal Preterm birth (GA <37 weeks): 10 (6.7%) vs 12 (8.2%), OR = 0.57, 95% CI (0.22, 1.46), <i>p</i> =0.18 Low birth weight, n (%): 9 (6.4%) vs 13 (9%), OR = 0.64, 95% CI (0.26, 1.59), <i>p</i> =0.17 NICU admission: 21 (14.8%) vs 23 (16%), OR = 0.87, 95% CI (0.45, 1.68), <i>p</i> =0.34 Hospital stay ≥4 days: 25 (17.6%) vs 28 (19.4%), OR = 0.89, 95% CI (0.48, 1.63), <i>p</i> =0.35 Infant re-hospitalized within 3 weeks: 3 (1.4%) vs 5 (3.6%), OR = 0.45, 95% CI (0.08, 2.48), <i>p</i> =0.18 Fetal death: 0 (0%) vs 2 (1.3%)	Fund training. Weekly visits during pregnancy and postpartum. The doula worked with the mother more intensely during pregnancy and first weeks postpartum. During labor, doulas provided physical comfort, emotional support, and advocacy. They offered breastfeeding counseling postpartum and prenatal classes.
		Delivery Cesarean: 33 (23.2%) vs 31 (21.5%), OR = 1.04, 95% CI (0.59, 1.84), NSD Epidural/pain medication use: 94 (71.76%) vs 114 (83.2%), OR = 0.47, 95% CI (0.25, 0.88), <i>p</i> =0.01	
Hodnett 2002 ⁹ N = 6915 (3454 in CLS vs 3461 in routine care) US & Canada	Intervention: Other Labor & Delivery as doula Comparator: Routine care	Maternal Perineal trauma: 1828 (52.9%) vs 1860 (53.7%), <i>p</i> =0.5 Fever: 23 (0.7%) vs 16 (0.5%) Antibiotics: 415 (12%) vs 419 (12.1%) Hemorrhage: 93 (2.7%) vs 91 (2.6%) Transfusion: 12 (0.3%) vs 17 (0.5%) Other health problems postpartum: 39 (1.1%) vs 30 (0.9%)	Training of nurses was 2 days and provided by expert labor nurse and doula trainer

Author Year	Intervention/ Comparator	Efficacy/Effectiveness Outcomes	Implementation Outcomes
Urban, hospital		<p>Neonatal</p> <p>1-min Apgar <7: 317 (9.1%) vs 367 (10.6%), $p=0.04$ 5-min Apgar <7: 30 (0.9%) vs 25 (0.7%), $p=0.5$</p> <p>Birth weight (g), mean (SD): 3474 (488) vs 3491 (478)</p> <p>FHRM: 2590 (75%) vs 2741 (79.2%), $p<0.001$ Resuscitation: 1246 (35.9%) vs 1325 (38.2%), $p=0.05$ Asphyxia: 60 (1.7%) vs 43 (1.2%), $p=0.09$</p> <p>Higher level of care: 246 (7.1%) vs 254 (7.3%), $p=0.7$</p>	
		<p>Delivery</p> <p>Cesarean: 432 (12.5%) vs 437 (12.6%), $p=0.44$ Vaginal delivery: 541 (15.7%) vs 561 (16.2%), $p=0.54$</p> <p>Labor augmentation: 1040 (30.1%) vs 942 (27.2%), $p=.008$</p> <p>Epidural: 2282 (66.1%) vs 2352 (68.0%) Intramuscular/venous opioid: 946 (27.4%) vs 933 (27.0%) Nitrous oxide: 459 (13.3%) vs 513 (14.8%) Combined spinal/epidural: 49 (1.4%) vs 54 (1.6%) Pudendal/paracervical block: 41 (1.2%) vs 38 (1.1%) Spinal anesthesia: 26 (0.8%) vs 34 (1%) General anesthesia: 8 (0.2%) vs 13 (0.4%) Other anesthesia: 5 (0.1%) vs 1 (0.03%) Regional anesthesia: 2349 (68%) vs 2436 (70.4%), $p= 0.03$</p>	

Author Year	Intervention/ Comparator	Efficacy/Effectiveness Outcomes	Implementation Outcomes
Length of hospital stay (hours), median (IQR): 47.7 (40.1, 61.4) vs 47.5 (40.1, 61.5)			
Hofmeyr 1991 ¹⁰ N=189 (92 support vs 97 control)	Intervention: Layperson as doula Comparator: Routine care	<p data-bbox="737 423 1486 488">Maternal McGill pain rating index for intervention group was 50% that of control group.</p> <hr/> <p data-bbox="737 537 1486 708">Neonatal 1-min Apgar <7: 12 (13.8%) vs 22 (24.2%), <i>p</i>=0.08, OR=0.5, 95% CI (0.24, 1.0) 5-min Apgar <7: 4 (4.5%) vs 6 (6.2%), <i>p</i>=0.92, OR=0.71, 95% CI (0.2, 2.5)</p> <p data-bbox="911 748 1465 846">Meconium staining: 18 (19.6%) vs 10 (10.3%), <i>p</i>=0.11, OR=2.07, 95% CI (0.93, 4.6)</p> <p data-bbox="911 886 1430 951">Birth weight (g), mean (SE): 3093 (45.5) vs 3116 (42.5), <i>p</i>=0.66</p> <p data-bbox="911 992 1440 1089">Oxygen required: 24 (26.1%) vs 27 (27.8%), <i>p</i>=0.92, OR=0.92, 95% CI (0.48, 1.7)</p> <p data-bbox="911 1130 1415 1195">Baby intubated: 0 (0%) vs 1 (1%), <i>p</i>=0.51, OR=0.14, 95% CI (0.003, 7)</p> <hr/> <p data-bbox="737 1211 1486 1336">Delivery Assisted delivery: 7 (7.6%) vs 7 (7.2%), <i>p</i>=0.86, OR=1.06, 95% CI (0.36, 3.1) Cesarean: 11 (12%) vs 14 (14.4%), <i>p</i>=0.77, OR=0.81, 95% CI (0.35, 1.9)</p>	Volunteers received training from researchers on CLS focusing on comfort, reassurance, and praise.

Author Year	Intervention/Comparator	Efficacy/Effectiveness Outcomes		Implementation Outcomes
		Labor duration (hours), mean (SE): 9.6 (0.41) vs 10.2 (0.5), $p=0.63$ Analgesia: 52 (57%) vs 56 (58%), $p=0.98$, OR = 0.98, 95% CI (0.55, 1.7) Analgesia >once: 6 (6.5%) vs 13 (13.4%), $p=0.18$, OR = 0.47, 95% CI (0.18, 1.2)		
Isbir 2017 ¹¹ N = 72 (36 intervention vs 36 control)	Intervention: Other Labor & Delivery as doula Comparator: Routine care	Maternal	Pain scores, mean (SD) Latent phase: 6.1 (1.7) vs 5.2 (2.6), $p=0.111$ Active phase: 7.3 (1.7) vs 7.9 (2.3), $p=0.212$ Transitional phase: 9.0 (1.4) vs 9.7 (0.7), $p=0.010$	24 hours of skills training in CLS techniques and 2-hour theoretical course Physical support: environmental control, positioning, touch, application of cold and heat, hygiene, urinary elimination, nourishment Emotional support: distraction, verbal, and nonverbal expression, reframe negative thoughts into positive, prayer Instructional support: breathing, relaxation and pushing techniques, acupressure, positioning for first and second stages, massage Informational support: routines and procedures Advocacy support: conveying respect, ensuring security, acknowledging mother's expectations for labor and birth, conflict resolution, partner care
		Neonatal	NR	
		Delivery	Duration of labor (hours), mean (SD): 8.0 (3.1%) vs 12.7 (5.0%), $p=0.000$ Oxytocin use: 23 (69.7%) vs 25 (83.3%), $p=0.204$	
Kashanian 2010 ¹²	Intervention:	Maternal	NR	NR
		Neonatal	5-min Apgar score <7: 0 vs 1, $p=0.29$	

Author Year	Intervention/Comparator	Efficacy/Effectiveness Outcomes	Implementation Outcomes
N = 100 (50 supportive vs 50 usual care)	Other Labor & Delivery as doula Comparator: No midwife support	Delivery Cesarean delivery: 4 vs 12, $p=0.026$ Length of labor (min): 167.9 vs 247.7, $p<0.001$ Oxytocin use: 11 vs 19, $p=0.088$	
Kennell 1991 ¹³ N = 616 (212 supported vs 204 control)	Intervention: Trained doula support (Certified Doula, TBA & other L&D) Comparator: Routine care	Maternal Maternal fever: 1.4% vs 10.3% Neonatal Infants remaining in hospital for 48+ hours: 22 (10.4%) vs 49 (24%), $p=0.001$ Delivery Cesarean: 17/212 (8.0%) vs 37/204 (18.1%), $p=0.004$ Instrumental vaginal delivery: 16/212 (7.5%) vs 44/204 (21.6%), $p=0.006$ Duration of labor: shortest labor in supported group ($p=.0001$). Interaction with type of delivery. Oxytocin: 36/212 (17.0%) vs 89/204 (43.6%) Epidural: 14/179(7.8%) vs. 68/123(55.3%)	NR
Klaus 1986 ¹⁴ N = 417 (249 control, 168 experimental)	Intervention: Layperson as doula Comparator: Routine care	Maternal NR Neonatal NICU admission: 2% vs 7%, $p=0.07$ Delivery Cesarean: 7% vs 17% ($p<0.01$) Labor duration (hours), mean (SD): 7.7 (3.5) vs 15.5 (7), $p<0.001$ Oxytocin: 2% in experimental group, 13% in control group ($p<0.001$)	NR
Langer 1998 ¹⁵	Intervention: Trained doula support (certified doula, TBA & other L&D)	Maternal Hospitalization of mother: 5/34 (14.7%) vs 1/36 (2.8%) RR 5.29 (95% CI .65, 43.03)	NR

Author Year	Intervention/ Comparator	Efficacy/Effectiveness Outcomes		Implementation Outcomes
N = 724 (361 labor support vs 363 control)	Comparator: Routine care	PROM: 286/361 (18.2%) vs 78/359 (21.7%)		
		Neonatal	1-min Apgar <7 reported as “rare” 1-min Apgar <7 reported as “rare”	
		Delivery	Cesarean: 23.8% vs 27.2%, RR = 0.87, 95% CI (0.68, 1.12)	
			AVD (forceps): 2.8% vs 3.4%, RR = 0.86, 95% CI (0.38, 1.96)	
			Duration of labor (hours), mean: 4.56 vs 5.58, I-C = -1.02, 95% CI (-1.25, 10.51)	
			Epidural: 88.1% vs 87.3%, RR = 1.01, 95% CI (0.95, 1.07)	
Lesser 2005 ¹⁶ N = 221 (120 control, 101 doula support)	Intervention: Trained doula support (certified doula, TBA & other L&D) Comparator: Routine care	Maternal	NR	NR
		Neonatal	NR	
		Delivery	Cesarean: 11.9% vs 18.3%	
			Labor length (hours), mean: 7.9 vs 8.2	
			Epidural: 79% vs 88.1%	
			Oxytocin: 82.3% vs 78.7%	
Madi 1999 ¹⁷ N = 109	Intervention: Layperson as doula Comparator: Routine care	Maternal	NR	Accompaniment of an untrained female companion for duration of labor who presented to the hospital with the pregnant woman
		Neonatal	1-min Apgar: 8 vs 7, <i>p</i> =NSD 5-min Apgar: 9 vs 9, <i>p</i> =NSD	
		Delivery	Cesarean: 6% vs 13%, <i>p</i> =0.03 Vacuum extraction: 6% vs 16%, <i>p</i> =0.03	
			Analgesic use: 53% vs 73%, <i>p</i> =0.03 Oxytocin: 13% vs. 30%, <i>p</i> =0.03	

Author Year	Intervention/Comparator	Efficacy/Effectiveness Outcomes		Implementation Outcomes
McGrath 2008 ¹⁸ N = 420	Intervention: Trained doula support (certified doula, TBA & other L&D) Comparator: Routine care	Maternal	Fever during labor >37.5 Celsius: 73 (17.4%)	Hospital-provided trained and certified doulas for duration of labor
		Neonatal	5-min Apgar ≤ 7: 1.8% vs 3.1%, <i>p</i> =0.30	
		Delivery	Cesarean delivery: 30/224 (13.4%) vs 49/196 (25.0%), <i>p</i> =0.002	
			Use of oxytocin: 16/224 (7.1%) vs 17/196 (8.7%) Epidural: 145/224 (64.7%) vs 149/196 (76.0%), <i>p</i> =0.008 Duration of labor (hours), mean (SD): 13.6 (6.5) - for all study participants	
Morhason-Bello 2009 ¹⁹ N = 585 (293 doula vs 292 control)	Intervention: Layperson as doula Comparator: No labor companion	Maternal	Labor pain, mean (95% CI): 6.3 (6.1, 6.5) vs 6.9 (6.7, 7.1), <i>p</i> <0.001, adjusted means (95% CI): 6.37 (6.14, 6.60) vs 6.84 (6.60, 7.07), <i>p</i> =0.011	Untrained companion of mother's choice provided with an informational leaflet explaining duties of gentle massage, reassuring words, spiritual support and acting as intermediary between the woman and health-care team
		Neonatal	NR	
		Delivery	Cesarean: 8.2 vs 22.3, AOR=4.88, 95% CI (1.98–12.05), <i>p</i> =0.001	
			Duration of labor (hours), mean (95% CI): 4.53 (4.35, 5.47) vs 5.47 (5.29, 5.66), <i>p</i> <0.001 Analgesia use: 28.8 (95% CI 26.2, 31.4) vs 30.5 (95% CI 27.8, 33.2), <i>p</i> =0.650 Oxytocin use: 17.5 (95%CI 15.3, 19.7) vs 19.2 (95%CI 16.9, 21.6), <i>p</i> =0.598	
Ravangard 2017 ²⁰	Intervention: Trained doula support (certified doula, TBA & other L&D)	Maternal	Pain rate during labor: 36.52 vs 41.72, <i>p</i> <.001	The intervention group participated in some training classes with the hospital authorities' permission on neuromuscular exercises, proper
		Neonatal	NR	
		Delivery	NR	

Author Year	Intervention/Comparator	Efficacy/Effectiveness Outcomes		Implementation Outcomes
N = 150 (75 doula support vs 75 control)	Comparator: Other non-medical methods of support (hot shower, aromatherapy, etc)			breathing, relaxation, and appropriate maternal positioning during labor to get prepared for pregnancy and childbirth at 6 sessions each lasting 105 minutes 1x/week. Each session consisted of 45 minutes of theoretical courses, 15 minutes of Q&A, 30 minutes of exercise, and 15 minutes of relaxation.
Safarzadeh 2012 ²¹	Intervention: Layperson as doula	Maternal	Severe labor pain (beginning of active phase): 5 vs 3, $p=0.359$ Severe labor pain (end of active phase): 36 doula vs 61 control, $p=0.001$	Untrained female friend or relative selected by the birthing person
N = 150 (75 doula supported vs 75 control)	Comparator: Routine care	Neonatal	NR	
		Delivery	No drug use: 38 vs 39, $p=0.975$ Oxytocin: 18 vs 19, $p=0.975$ Labor length (min): 189.32 vs 251.13, $p=0.000$	
Trueba 2000 ²²	Intervention: Other Labor & Delivery as doula	Maternal	NR	Students assigned to hospitalized women in labor
N = 100 (50 doula supported vs 50 not doula supported)	Comparator: No support person	Neonatal	NR	
		Delivery	Cesarean: 1 (2%) vs 12 (24%), $p=0.003$ Labor length (hours), mean: 14.5 vs 19.38, $p=NSD$ Pitocin use: 21 (42%) vs 48 (96%), $p=.001$ Epidural: 4 (8%) vs 16 (32%), $p=NSD$	
Yuenyong 2012 ²³	Intervention: Layperson as doula	Maternal	NR	A close female relative identified by the mother attend a 2-hour preparation class (also with the
		Neonatal	1-min Apgar, $p=0.20$ 8–10 points: 58 (96.6%) vs 51 (91.1%)	

Author Year	Intervention/ Comparator	Efficacy/Effectiveness Outcomes	Implementation Outcomes
N = 120 (60 w/ support vs 50 w/o)	Comparator: No support person	<p>4–7 points: 2 (3.4%) vs 2 (3.4%) 0–3 points: 0 (0.0%) vs 3 (5.4%)</p> <p>5-min Apgar, $p=0.49$ 8–10 points: 58 (51.3%) vs 55 (48.7%) 4–7 points: 0 (0.0%) vs 1 (1.8%)</p> <p>Birth weight (g), mean (SD): 3137.3 (375.2%) vs 3133.5 (389.4%)</p> <p>Newborn complications: 4 (6.9%) vs 7 (12.5%), $p=.24$</p> <hr/> <p>Delivery</p> <p>Cesarean section: 10 (17.2%) vs 14 (25%)</p> <p>Oxytocin use: 21 (36.2%) vs 18 (32.1%), $p=.69$ Received analgesic: 13 (22.4%) vs 15 (26.8%), $p=.66$</p> <p>Labor length (min), mean (SD): 709.1 (335.9) vs 748.7 (470.7), $p=.63$</p>	mother) at an antenatal appointment, practiced comfort-promoting techniques, and participated in a tour of the labor unit. During birth, the close female relative performed supportive activities included “being there” as continuously as possible from early labor (admission) until 2 hours after the birth except for short meals and bathroom breaks.

Abbreviations. ACOG= American College of Obstetrics & Gynecology; Apgar Score= appearance, pulse, grimace, activity, respiration - newborn assessment comprised of five components (color, heart rate, reflexes, muscle tone, and respiration), each scored as 0, 1, or 2, and the normative total value is >7 out of 10; AVD=assisted vaginal delivery; CI=confidence interval; CLS=continuous labor support; CMS=continuous midwifery support; EPI=epidural analgesia; FHRM=fetal heart rate monitoring; GA=gestational age; I-C=information coefficient; IQR=interquartile range; L&D=labor and delivery; NICU=neonatal intensive care unit; NSD=no significant difference; OR=odds ratio; PROM=premature rupture of membranes; RR=risk ratio; SD= standard deviation; SE=standard error; SVD=spontaneous vaginal delivery; TBA=traditional birth attendant.

Notes. All data are displayed to compare groups with labor support or doula versus the comparator. Maternal age is shown in years. term pregnancy (ACOG definition): between 37 weeks 0 days and 38 weeks 6 days’ gestation. Full term pregnancy (ACOG definition): between 39 weeks 0 days and 40 weeks 6 days’ gestation. Late term pregnancy (ACOG definition): between 41 weeks 0 days and 41 weeks 6 days’ gestation. Post term pregnancy (ACOG definition): 42 weeks 0 days’ gestation and beyond. Alert line: a partogram provides a pictorial overview of labor to alert midwives and obstetricians to deviations in maternal or fetal wellbeing and labor progress. Charts often contain pre-printed alert and action lines. An alert line represents the slowest 10% of primigravid women’s labor progress. Parity indicates number of pregnancies including live births and stillbirths.



Observational Studies

Author Year	Intervention/Comparator	Efficacy/Effectiveness Outcomes	Implementation Outcomes
Austad 2020 ²⁴ N = 782 (276 mothers in TBA cohort vs 506 in non-TBA cohort) 847 births over 12-month period 41 TBA/OCNs	Intervention: Trained doula support (certified doula, TBA & other L&D) Comparator: No OCN services	Maternal Maternal death: 0/276 (0%) vs 0/571 (0%) Uterine rupture: 1/276 (0.4%) vs 0/506 (0%), <i>p</i> =0.175 Hypertensive disorders of pregnancy: 23/276 (8.3%) vs 13/506 (2.6%), <i>p</i> <0.001 <hr/> Neonatal Neonatal death: 6/276 (2.2%) vs 13/571 (2.8%), <i>p</i> =0.732 Stillbirth: 4/276 (1.5%) vs 0/571 (0%), <i>p</i> =0.007 <hr/> Delivery Home delivery (SVB): 73/276 (26.5%) vs 426/506 (84.2%), <i>p</i> <0.001 Caesarean delivery: 97/276 (32.6%) vs 30/506 (6.0%), <i>p</i> <0.001	The OCN intervention was implemented from April 2017 to March 2018 with 41 TBAs. TBAs continued to provide home-based care with the aid of the smartphone application. All patients under the care of TBAs were eligible for accompaniment by an OCN. When TBAs—supported by MHA staff—detected the need for emergency facility-level care, the on-call OCN was notified and coordinated ambulance service for transport.
Byrskog 2020 ²⁵ (Migrant women) N = 17,699 (880 CBD vs 16,789 no support) Secondary comparison to	Intervention: Trained doula support (certified doula, TBA & other L&D) Comparator: No CBD	Maternal Perineal injury third/fourth degree: Nulliparous - 6 (1.6%) vs 155 (2.4%), OR=0.65, 95% CI (0.29–1.48) Parous – 5 (1.0%) vs 49 (0.5%), OR=2.12, 95% CI (0.84–5.35) Hospital stays after birth >2 days: Nulliparous – 206 (54.9%) vs 3269 (50.9%), OR=1.18, 95% CI (0.95–1.45) Parous – 105 (21.1%) vs 2096 (20.3%), OR=1.06, 95% CI (0.93–1.22)	Antenatal care visits: <8 visits - 115 (13.2%) vs 2963 (18.1%) 8–12 visits - 544 (62.7%) vs 10,132 (62%) >12 visits - 209 (24.1%) vs 3258 (19.9%)

Author Year	Intervention/Comparator	Efficacy/Effectiveness Outcomes	Implementation Outcomes
129,706 Swedish-born women		<p>Neonatal</p> <p>5-min Apgar <7: Nulliparous – 9 (2.4%) vs 112 (1.8%), OR=1.37, 95% CI (0.69–2.72) Parous – 8 (1.8%) vs 131 (1.3%), OR=1.28, 95% CI (0.62–2.62)</p> <p>Birth weight: ≤2500g - 26 (3.0%) vs 888 (5.3) 2501g–4500g – 834 (94.8%) vs 15,566 (92.8%) >4500g – 20 (2.3%) vs 319 (1.9%)</p> <hr/> <p>Delivery</p> <p>Non-instrumental vaginal birth: Nulliparous – 267 (70.4%) vs 4541 (70.5%), OR=1.00, 95% CI (0.79–1.25) Parous – 428 (85.6%) vs 8603 (83.1%), OR=1.21, 95% CI (0.94–1.56)</p> <p>Instrumental vaginal birth: Nulliparous – 34 (9.0%) vs 596 (9.3%), OR=1.04, 95% CI (0.73–1.46) Parous – 12 (2.4%) vs 189 (1.8%), OR=1.41, 95% CI (0.80–2.50)</p> <p>Emergency caesarean: Nulliparous - 67 (17.7%) vs 972 (15.1%), OR=1.21, 95% CI (0.92–1.59) Parous – 38 (7.6%) vs 788 (7.6%), OR=1.00, 95% CI (0.71–1.40)</p> <p>Epidural analgesia: Nulliparous – 107 (28.2%) vs 3760 (39.6%), OR=0.60, 95% CI (0.48–0.76) Parous – 39 (7.8%) vs 1212 (11.7%), OR=0.64, 95% CI (0.46–0.89)</p>	

Author Year	Intervention/Comparator	Efficacy/Effectiveness Outcomes	Implementation Outcomes
Chen 2020 ²⁶	Intervention: Trained doula support (certified doula, TBA & other L&D)	<p>Maternal NR</p> <p>Neonatal 1-min Apgar, mean (SD): 7.80 (0.80) vs 7.94 (0.24) 5-min Apgar, mean (SD): 8.93 (0.33) vs 8.88 (0.48)</p> <p>Meconium staining: 1 (100.0) vs 0 (0)</p>	Need doula support (had doula vs no doula) not needed – 4 (3.8%) vs 19 (26.8%)

Author Year	Intervention/Comparator	Efficacy/Effectiveness Outcomes	Implementation Outcomes
	Comparator: Routine hospital care in the labor and delivery room	<p>Delivery</p> <p>First stage labor (min), mean (SD): 755.50 (420.99) vs 482.48 (317.96), $p < 0.01$</p> <p>Second stage labor (min), mean (SD): 46.04 (61.43) vs 31.48 (28.24), NSD</p> <p>Third stage labor (min), mean (SD): 12.68 (68.72) vs 3.90 (3.52), NSD</p> <p>Total stage labor (min), mean (SD): 795.76 (432.03) vs 517.86 (333.70), $p < 0.01$</p> <p>SVD: 80 (87.0%) vs 21 (56.8%), $p < 0.001$</p> <p>Vacuum aspiration: 8 (8.8%) vs 0 (0.0%), NSD</p> <p>Cesarean section: 12 (13.0%) vs 16 (43.2%), $p < 0.001$</p> <p>Normal delivery status: 89 (97.8%) vs 36 (100.0%), NSD</p> <p>Oxytocin use: 66 (67.4%) vs 12 (33.3%), $p < 0.001$</p> <p>Spinal anesthesia: 52 (56.5%) vs 24 (66.7%), NSD</p> <p>Analgesics: 43 (48.3%) vs 21 (61.8%), NSD</p>	<p>ordinary needed - 27 (25.7%) vs 27 (38.0%)</p> <p>needed - 59 (56.2%) vs 19 (26.8%)</p> <p>very needed - 15 (14.3%) vs 10 (14.1%)</p>
<p>Dundek 2006²⁷</p> <p>N = 348 (123 doula attended Somali births vs 225 non-doula)</p>	<p>Intervention: Trained doula support (certified doula, TBA & other L&D)</p> <p>Comparator: Non-doula attended Somali births (n=225)</p>	<p>Maternal</p> <p>NR - data could not be accurately extracted for Somali patients from retrospective evaluation of chart data</p> <p>5 participants had intrauterine fetal demise but were eliminated from study</p> <hr/> <p>Neonatal</p> <p>NR</p>	<p>The initial Somali doula education event emphasized emotional presence, gentle touch, reassurance, and cultural understanding over more physical aspects of support.</p>

Author Year	Intervention/Comparator	Efficacy/Effectiveness Outcomes	Implementation Outcomes
attended Somali births)		<p>Delivery</p> <p>Vaginal: 102 (30%) vs 165 (49.4%) Primiparous – 36 (10.7%) vs 49 (15%)</p> <p>Cesarean: 21 (6.3%) vs 60 (18%) Primiparous – 19 (57%) vs 49 (15%)</p> <p>SVB: 229 Forceps: 4 Vacuum: 12 TOLAC: 9 (including 1 set of twins) vs 11</p>	<p>The program was conducted in 2 parts:</p> <ol style="list-style-type: none"> 1. First session gathered women from throughout the Somali community to meet with hospital nursing staff to develop a “shared language” of birth. After this initial session, Somali women were offered the opportunity to apply for paid doula positions with the hospital. Nine women were initially hired. 2. A second, more detailed Hofmeyr-based training was provided after hiring, and these 9 women began work in May 2002. One condition of their employment was that the doulas needed to pursue a nationally recognized doula certification (DONA) within 1 year of employment.
Feng 2013 ²⁸ N = 400 (200 doula + EPI vs 200 control)	<p>Intervention: Other Labor & Delivery as doula</p> <p>Comparator: No support and no EPI</p>	<p>Maternal</p> <p>Postpartum hemorrhage: 13 (6.6%) vs 11 (5.5%), NSD</p> <p>Labor pain (VAS scores), mean (SD): Latent period - 8.1 (1.3) vs 8.3 (1.7), NSD Active phase - 3.6 (1.1) vs 8.8 (1.0), <i>p</i><0.05 Second stage - 3.2 (1.1) vs 9.1 (0.6), <i>p</i><0.05 Third stage - 2.6 (1.4) vs 5.4 (1.6), <i>p</i><0.05</p> <hr/> <p>Neonatal</p> <p>Neonatal asphyxia: 9 (4.5%) vs 11 (5.5%)</p>	<p>From initial laboring to 2 hours postpartum, each primipara was accompanied by one doula midwife. During the delivery accompanying process, the doula midwife conducted psychological, physiological, and physical care, and explained delivery-related concepts to primiparas and their</p>



Author Year	Intervention/Comparator	Efficacy/Effectiveness Outcomes	Implementation Outcomes
		<p>Delivery</p> <p>Labor time, mean (SD): Active phase (hours) - 6.1 (2.1) vs 5.8 (1.7) Second stage of labor (min) - 86.6 (20.1) vs 82.6 (29.2) Third stage of labor (min) - 11.2 (3.1) vs 10.1 (1.6)</p> <p>Amniotomy: 61 (33.9%) vs 54 (33.3%) Oxytocin: 38 (21.1%) vs 35 (21.6%)</p> <p>Natural delivery: 145 (72.5%) vs 141 (70.5%), NSD Assisted VD: 35 (17.5%) vs 21 (10.5%), <i>p</i><0.05 Cesarean: 20 (10.0%) vs 38 (19.0%), <i>p</i><0.05</p>	families and provided mental and spiritual support.
Fulton 2011 ²⁹	Intervention: Other Labor & Delivery as doula	Maternal	Six doulas were identified in 2002 and trained by the lead investigator to increase their repertoire of skills and facilitated all doulas to achieve DONA certification.
Study 1 N = 141 (44 doula care vs 97 routine care)	Comparator: Routine care	No episiotomy/tear >second degree: 32 (48.4%) vs 73 (32%) Labor pain <6: 44 (27.3%) vs 97 (43.3%)	
Study 2 N = 60 low income (8 doula care vs 52 standard care)		Neonatal	
		<p>Study 1</p> <p>5-min Apgar >9: 44 (93.2%) vs 97 (88.7%)</p> <p>Study 2</p> <p>1-min Apgar: 8.29 (0.76%) vs 7.7 (1.5%) 5-min Apgar: 9 (0) vs 9 (0.16%)</p> <p>Birth weight (g), mean (SD): 3396 (429) vs 3533 (552)</p>	Each doula worked with 10 mothers during labor, and with the lead investigator to survey the newly primiparous mothers after labor and during the third trimester of pregnancy, and conducted a 1-time, videotaped,



Author Year	Intervention/Comparator	Efficacy/Effectiveness Outcomes	Implementation Outcomes
		<p>Delivery</p> <p>Vaginal delivery: Study 1 - 44 (72.7%) vs 97 (75.3%) Study 2 – 7 (88.0%) vs 38 (87.4%), <i>p</i>=0.85</p> <p>Received analgesia: Study 1 - 34 (67.7%) vs 78 (42.3%)</p> <p>Epidural during labor: Study 2 - 0 (0%) vs 7 (16.7%), <i>p</i>=0.82</p>	<p>and coded home visit when the infant was approximately 12 weeks old.</p>
<p>Gadappa 2021³⁰</p> <p>N = 4221 birth companion vs 4373 control</p>	<p>Intervention: Layperson as Doula</p> <p>Comparator: No birth companion</p>	<p>Maternal</p> <p>Episiotomy: 362 (8.57%) vs 681 (15.57%), <i>p</i><0.0000001</p> <p>Post-partum hemorrhage: 101 (2.4%) vs 109 (2.5%), <i>p</i>=0.7646</p> <hr/> <p>Neonatal</p> <p>5-min Apgar ≤7: 42 (1%) vs 140 (3.2%), <i>p</i><0.00007711</p> <p>5-min Apgar >7: 4174 (98.8%) vs 4233 (96.8%)</p> <p>Neonatal jaundice: 63 (1.5%) vs 66 (1.5%)</p> <p>Prolonged PROM: 46 (1.1%) vs 52 (1.2%)</p> <p>Low birth weight (kg) >4: 63 (1.5%) vs 66 (1.5%)</p> <p>Refusal to feed: 34 (0.8%) vs 109 (2.5%)</p> <p>Asphyxia: 42 (1%) vs 140 (3.2%)</p> <p>Convulsions: 25 (0.6%) vs 101 (2.3%)</p>	<p>A birth companion register was maintained in the antenatal OPD.</p> <p>Training: Based on a pre-planned schedule, all birth companions were trained for ≥2 sessions: a theoretical session and a site visit. Training focused on emotional and physical support, education for the birthing person of warning signs and symptoms during pregnancy, labor, and the postpartum period. Emphasis was laid on not interfering in</p>

Author Year	Intervention/Comparator	Efficacy/Effectiveness Outcomes		Implementation Outcomes
		Delivery	Mode of delivery: $p < 0.0000001$ SVD: 3318 (78.6%) vs 3175 (72.6%), Caesarean: 844 (20%) vs 1137 (26%) AVD: 59 (1.4%) vs 61 (1.4%)	medical procedures and respecting the privacy of other women. IEC materials were developed in the local language and displayed in the labor room and OPD to reinforce information dissemination during the training. The birth companions were requested to accompany expectant mothers during subsequent antenatal visits and childbirth.
Goedkoop 2009 ³¹	Intervention: Trained doula support (certified doula, TBA & other L&D)	Maternal	Episiotomies: 80 (11%) - fewer episiotomies compared with 13% in general population	NR
N = 140 birth doulas	Comparator: NHS statistics for general maternity services	Neonatal	NR	
735 births		Delivery	Intervention-free delivery: 329 (45%) Cesarean: 112 (15%) vs 24.3% (NHS rate) VBAC: 46/66 (70%) Induction rate: 76 (10%) vs 20% (general population) Epidurals: 148 (20%) vs 33% (general population) Opiate use: 27 (4%)	
Gruber 2013 ³²		Maternal	10.3% vs 19.5%, $p < 0.04$	Doulas received DONA-certified training and monthly continuing
		Neonatal	Low birth weight: 2 (2.1%) vs 11 (8.6%), $p < 0.04$	

Author Year	Intervention/Comparator	Efficacy/Effectiveness Outcomes	Implementation Outcomes
N=226 (97 w/ doula vs 129 control)	<p>Intervention: Trained doula support (certified doula, TBA & other L&D)</p> <p>Comparator: Individuals selecting non-doula care; routine services</p>	<p>Delivery No significant differences in birth outcomes (cesarean birth or epidurals) between doula/non-doula groups.</p> <p>Vaginal delivery: 26 (26.8%) vs 28 (21.9%) Cesarean: 19 (19.6%) vs 31 (24.2%) Epidural: 52 (53.6%) vs 68 (53.1%)</p>	<p>education from YWCA-program staff.</p> <p>Doulas met with mothers 2x before birth, offered continuous assistance throughout labor and birth, and visited 2x postpartum. Doulas arrived at hospital before mother was 4 cm dilated and stayed 1 hour after birth.</p>
Kabakian-Khasholian 2018 ³³	<p>Intervention: Layperson as doula</p> <p>Comparator: Pre-implementation group</p> <p>N = 2523 pre-implementation N = 2491 implementation</p>	<p>Maternal NR</p> <hr/> <p>Neonatal Apgar <6: 11.6% vs 6.7%, $p=0.001$, 95% CI (0.03, 0.06)</p> <hr/> <p>Delivery Caesarean rate: 22% vs 11%, $p=0.000$, 95% CI (0.09, 0.13)</p> <p>Length of labor: 5h 9 min vs 4h 39 min, $p=0.001$, 95% CI (12, 47) - Increased by 30 minutes</p>	<p>The model gave an opportunity for family engagement in the process of care within the facility. The companions found the information on the IEC materials as being 'useful' and 'excellent'. Providers' attitudes and skepticism towards labor companionship changed after a certain period of experience with the intervention. There was also a perception of a reduced workload in Egypt and Syria. Nurses in Egypt expressed the need for more space in shared labor rooms to accommodate companions, and midwives in Lebanon perceived the implementation of the model as an added burden.</p>
KC 2020 ³⁴		Maternal NR	NR

Author Year	Intervention/Comparator	Efficacy/Effectiveness Outcomes	Implementation Outcomes
N = 53,872 (10,321 had labor companion)	Intervention: Layperson as doula Comparator: No companion present	Neonatal FHRM: 46.4% vs 37.4%, $p < 0.001$, RR=1.45, 95% CI (1.93, 1.51) Partogram: 37.1% vs 22.3%, $p < 0.001$, RR=2.06, 95% CI (1.96, 2.15) Reported in Appendix S1 (not available) Gestational age Low birth weight Stillbirth Neonatal death	
		Delivery Augmentation of labor: 30.5% vs 38.6%, $p > 0.001$, RR=0.70, 95% CI (0.66, 0.73) Emergency cesarean: 16.0% vs 13.9%, $p < 0.001$ Unnecessary cesarean: 5.2% vs 6.8%, $p < 0.001$, RR=0.75, 95% CI (0.68, 0.82) AVD: 30.5% vs 38.6%, $p < 0.001$	
Kozhimannil 2013 ⁴² N = 280,087 (n=1,079 with doula support)	Intervention: Trained doula support (certified doula, TBA & other L&D) Comparator: Routine care	Maternal NR	NR
		Neonatal Preterm birth, mean (95% CI): 6.1 (4.7, 7.6), AOR=0.81 (0.63, 1.04) Low birth weight (<2500g), mean (95% CI): 4.2 (3.0, 5.4)	
		Delivery Cesarean, mean (95% CI): 22.3 (19.8, 24.8), AOR=0.59 (0.51, 0.68), $p < .001$ Epidural: 27.9% Other pain medication: 19.9%	
Kozhimannil 2014 ³⁶		Maternal NR	NR
		Neonatal NR	

Author Year	Intervention/Comparator	Efficacy/Effectiveness Outcomes	Implementation Outcomes
N = 2400	<p>Intervention: Trained doula support (certified doula, TBA & other L&D)</p> <p>Comparator: Women with no doula support and women who indicated desire for doula care but did not have it</p>	<p>Delivery</p> <p>Cesarean: 31%, AOR=0.41, 95% CI (0.18, 0.96) Non-indicated cesarean: 10.2%, AOR=0.17, 95% CI (0.07, 0.39)</p> <p>Cesarean, AOR (95% CI): 0.31, (0.06, 0.33) Non-indicated cesarean, AOR (95% CI): 0.11 (0.03, 0.36)</p>	
Mottl-Santiago 2008 ³⁷	<p>Intervention: Trained doula support (certified doula, TBA & other L&D)</p> <p>Comparator: No Birth Sisters program support (could include other doula support not reported)</p>	<p>Maternal NR</p> <p>Neonatal 5-min Apgar <7: 1.5% vs 1.2%, adjusted RR=0.75, 95% CI (0.50, 1.13)</p> <p>Delivery Cesarean: 16% vs 19%, adjusted RR=1.08, 95% CI (0.96, 1.21) Operative vaginal delivery: 5% vs 6%, adjusted RR=0.94, 95% CI (0.74, 1.19)</p> <p>Epidural analgesia: 36% vs 46%, adjusted RR=0.96, 95% CI [0.86, 1.079]</p>	<p>Birth Sisters program of trained layperson support including prenatal contact, support for duration of labor, assistance with breastfeeding, and up to 8 hours of in-home postpartum social support.</p> <p>Provider refers patients to Birth Sister doula at beginning of third trimester.</p>
Nommsen-Rivers 2009 ³⁸	<p>Intervention: Trained doula support (certified doula, TBA & other L&D)</p> <p>Comparator: Routine care</p>	<p>Maternal Childbirth pain rating <6: 43.3% vs 27.3%, AOR=0.51, 95% CI (0.22, 1.19)</p> <p>Neonatal 1-min Apgar ≥9: 35% vs 56.8%, AOR=2.64, 95% CI (1.17, 5.98)</p> <p>5-min Apgar ≥9: 88.7% vs 93.2%, AOR=1.86, 95% CI (0.45, 7.62)</p> <p>No resuscitation: 80.4% vs 88.6%, AOR=1.78, 95% CI (0.61, 5.22)</p>	<p>Hospital-based implementation of trained laywomen acting as doulas for low-income women for duration of labor and for 2 visits postpartum.</p> <p>Median hours from doula arrival to birth of the infant was 10.5.</p>

Author Year	Intervention/Comparator	Efficacy/Effectiveness Outcomes	Implementation Outcomes
		<p>Delivery Vaginal delivery: 72.7% vs 75.3%, AOR=1.56, 95% CI (0.61-4.00)</p> <p>Unassisted vaginal delivery: 93.2% vs 79.4%, AOR=4.68, 95% CI (1.14, 19.28)</p> <p>No analgesics: 15.5% vs 13.6%, AOR=0.65, 95% CI (0.13-3.27)</p>	
Shelp 2004 ⁴³ N = 104	<p>Intervention: Trained doula support (certified doula, TBA & other L&D)</p> <p>Comparator: No Somali doula support</p>	<p>Maternal NR</p> <p>Neonatal 1-min Apgar, mean: 7.9 vs 7.6, NSD 5-min Apgar, mean: 9 vs 8.8, NSD</p> <p>Delivery Cesarean: 14.4% vs 27.1%, <i>p</i>=0.0025</p>	<p>Birth companions were Somali laypeople trained in providing nonmedical support for Somali birthing persons. They had familiarity with birth outcomes related to FGM, were trained as doulas, and added to hospital staff to provide support during labor, birth, and postpartum.</p> <p>Assigned to all Somali births at the Riverside Campus of Fairview University Medical Center.</p>
Spiby 2015 ⁴⁰ N = 507	<p>Intervention: Trained doula support (certified doula, TBA & other L&D)</p> <p>Comparator: Non doula supported</p>	<p>Maternal NR</p> <p>Neonatal NICU Admission higher among doula-supported mothers (NSD) (Figure 10)</p> <p>Fewer babies with low birth weight with doula support (NSD) (Figure 15)</p> <p>Delivery Hull doula cohort Cesarean: 20% Normal birth: 70% Instrumental: 5% NSD between doula and other groups (Figure 8-9)</p>	<p>5 NHS volunteer doula services in 'Kingston upon Hull' district</p>
Thomas 2017 ⁴¹		<p>Maternal NR</p>	

Author Year	Intervention/Comparator	Efficacy/Effectiveness Outcomes	Implementation Outcomes
N = 489 (489 in doula program vs 34,912 project area)	Intervention: Trained doula support (certified doula, TBA & other L&D) Comparator: Non HSB program participants	Neonatal Low birth weight (<2500g): 32 (6.5%) vs 3882 (11.1%), <i>p</i> =0.001 Preterm birth (<37 weeks): 31 (6.3%) vs 4319 (12.4%), <i>p</i> <0.001 <hr/> Delivery Cesarean section: 164 (33.5%) vs 12,894 (36.9%), <i>p</i> =0.122	Certified doulas who received additional training in case management and were provided with an extensive resource guide of services in/near the project area.
Zhang 2018 ⁴⁴ N = 579 (301 for doula group vs 51 TENS vs 213 EPI)	Intervention: Other Labor & Delivery as doula Comparator: TENS unit or Epidural analgesia	Maternal NR <hr/> Neonatal 1-min Apgar, mean (SD) [95% CI]: 9.90 (0.55) [9.84, 9.96] vs 9.92 (0.34) [9.83, 10.02] vs 9.90 (0.88) [9.78, 9.93], <i>p</i> =.978 5-min Apgar, mean (SD) [95% CI]: 9.96 (0.35) [9.96, 10.00] vs 9.98 (0.14) [9.94, 10.02] vs 9.97 (0.23) [9.94, 10.00], <i>p</i> =.892 Infant birth weight (g), mean (SD) [95% CI]: 3245.42 (346.14) [3206.15, 3284.68] vs 3311.76 (383.09) [3204.02, 34419.51] vs 3358.22 (343.52) [3311.82, 3404.48], <i>p</i> =.161	Doulas started to be in contact with women only when they reached a cervical dilation of 3 cm in the delivery room. They continuously accompanied the participants from the time the cervix was dilated to 3 cm until after childbirth.

All births were at term (part of inclusion criteria)

Author Year	Intervention/Comparator	Efficacy/Effectiveness Outcomes	Implementation Outcomes
		<p>Delivery</p> <p>Forceps delivery: 14 (4.7%) vs 5 (9.8%) vs 13 (6.1%), $p=0.252$</p> <p>SVD: 287 (95.3%) vs 46 (90.2%) vs 200 (93.9%), $p=0.252$</p> <p>Duration of labor</p> <p>First stage (min), mean (SD) [95% CI]: 369.47 (183.49) [348.66, 390.28] vs 462.80 (188.31) [409.84, 515.77] vs 558.07 (216.48) [528.76, 587.38], $p < 0.0001$</p> <p>Second stage (min), mean (SD) [95% CI]: 45.81 (33.34) [42.03, 49.60] vs 60.06 (36.07) [49.91, 70.20] vs 60.08 (37.29) [55.03, 65.13], $p < 0.0001$</p> <p>Third stage (min), mean (SD) [95% CI]: 8.00 (4.70) [7.47, 8.53] vs 8.84 (6.32) [7.07, 10.62] vs 8.47 (6.02) [7.66, 9.29], $p = .444$</p>	

Abbreviations. ACOG= American College of Obstetrics & Gynecology; Apgar Score= appearance, pulse, grimace, activity, respiration - newborn assessment comprised of five components (color, heart rate, reflexes, muscle tone, and respiration), each scored as 0, 1, or 2, and the normative total value is >7 out of 10; AOR=adjusted odds ratio; AVD=assisted vaginal delivery; CBD= ; CI=confidence interval; DONA= Doulas of North America, national organization with doula training and certification standards; EPI=epidural analgesia; FGM=female genital mutilation; FHRM=fetal heart rate monitoring; HSB=Healthy Start Brooklyn program; IEC=information, education, communication; L&D=labor and delivery; MHA=Mayan Health Alliance; NHS=National Health Service; NICU=neonatal intensive care unit; NR=not reported; NSD=no significant difference; OCN=obstetric care navigation; OR=odds ratio; OPD=outpatient department; PROM=premature rupture of membranes; RR=risk ratio; SD= standard deviation; SVB=spontaneous vaginal birth; SVD=spontaneous vaginal delivery; TBA=traditional birth attendant; TENS=transcutaneous electrical nerve stimulation; TOLAC=trial of labor after cesarean; VAS=visual analogue scale; VBAC=vaginal birth after cesarean; VD=vaginal delivery; YWCA=Young Women’s Christian Association.

Notes. All data are displayed to compare groups with labor support or doula versus the comparator. Maternal age is shown in years. term pregnancy (ACOG definition): between 37 weeks 0 days and 38 weeks 6 days’ gestation. Full term pregnancy (ACOG definition): between 39 weeks 0 days and 40 weeks 6 days’ gestation. Late term pregnancy (ACOG definition): between 41 weeks 0 days and 41 weeks 6 days’ gestation. Post term pregnancy (ACOG definition): 42 weeks 0 days’ gestation and beyond. Alert line: a partogram provides a pictorial overview of labor to alert midwives and obstetricians to deviations in maternal or fetal wellbeing and labor progress. Charts often contain pre-printed alert and action lines. An alert line represents the slowest 10% of primigravid women’s labor progress. Parity indicates number of pregnancies including live births and stillbirths. “Intervention-free delivery” is defined as no drugs, augmentation of labor, or instrumental delivery.



QUALITY ASSESSMENT OF INCLUDED PRIMARY STUDIES

Randomized Controlled Trials

Author, Year	Risk of Bias from Randomization Process ^a	Risk of Bias from Deviation from Intended Interventions ^a	Risk of Bias from Deviation from Intended Interventions ^a	Risk of Bias from Missing Outcome Data ^a	Risk of Bias in Measurement of the Outcome ^a	Risk of Bias in Selection of the Reported Result ^a	Overall Risk of Bias ^a
Bolbol-Haghighi 2016 ¹	Low Random opaque sealed envelopes. No baseline differences between groups	Low Patients and caregivers aware of assigned intervention but analyzed in their assigned groups.	Low All patients received allocated intervention. Knowledge of intervention status may have influenced other aspects of care between groups.	Low All patients had data for labor and delivery immediate neonatal outcomes.	Low Outcome assessors likely aware of intervention groups but objective unlikely to be influenced by knowledge of intervention.	Low Number of midwifery students different in protocol than study but explained that only included midwives passing all units. Appears that all results were reported.	Low
Campbell 2006 ²	Low Random opaque sealed envelopes. No baseline differences between groups	Low Patients and caregivers aware of assigned intervention, but intention to treat analysis performed.	Some concerns ~10% of doula group did not adhere to intervention. Participants in control group had support person identified, so that person may have provided additional support with knowledge of the intervention but did not have the training.	Some concerns Intention to treat analysis included all patients. Additional analysis excluding <10% of participants with differential exclusions from doula and non-doula group. Unclear if there were other missing data and how it was handled.	Low Outcome assessors likely aware of intervention groups but objective unlikely to be influenced by knowledge of intervention.	Some concerns No study protocol identified, but appears that all results were reported. ITT analysis provided	Some concerns

Author, Year	Risk of Bias from Randomization Process ^a	Risk of Bias from Deviation from Intended Interventions ^a	Risk of Bias from Deviation from Intended Interventions ^a	Risk of Bias from Missing Outcome Data ^a	Risk of Bias in Measurement of the Outcome ^a	Risk of Bias in Selection of the Reported Result ^a	Overall Risk of Bias ^a
Cogan 1988 ³	Some concerns No details on method of randomization, just states it was done by a research assistant.	Low Patients and caregivers aware of assigned intervention but appear to be analyzed in their assigned groups.	Some concerns No information on adherence to intervention. Knowledge of intervention status may have influenced other aspects of care between groups.	High 26% of participants were excluded from analysis with differential exclusion between intervention and control groups: 35% intervention vs 18% control.	Low Outcome assessors blinded to intervention status. Objective outcomes.	Some concerns No study protocol identified, but appears that all results were reported.	High
Dickinson 2002 ⁴	Low Random opaque sealed envelopes. No baseline differences between groups.	Low Patients and caregivers aware of assigned intervention, but remained in and were analyzed in the assigned intervention group, even if they chose an alternate route of analgesia	Some concerns Patients allowed to choose their method of analgesia. High rate of cross-over: 27.8% epidural to continuous support and 61.3% continuous support to epidural.	Some concerns No mention of level or handling of missing data, but likely low levels.	Low Low for objective outcomes such as epidural use, delivery method, etcetera. Some concerns for pain as a woman's rating of pain may be influenced by knowledge of the intervention.	Some concerns No study protocol identified, but appears that all results were reported.	Some concerns
Gagnon 1997 ⁵	Low	Low	Low	Low	Low	Some concerns	Low
Gagnon 1999 ⁶	Random opaque sealed envelopes. No baseline	Patients and caregivers aware of assigned	States that no patients crossed over interventions.	Missing data excluded, but low levels overall (<5%)	Outcome assessors likely aware of intervention	Noted one change in protocol to gather data on additional	

Author, Year	Risk of Bias from Randomization Process ^a	Risk of Bias from Deviation from Intended Interventions ^a	Risk of Bias from Deviation from Intended Interventions ^a	Risk of Bias from Missing Outcome Data ^a	Risk of Bias in Measurement of the Outcome ^a	Risk of Bias in Selection of the Reported Result ^a	Overall Risk of Bias ^a
	differences between groups	intervention but were analyzed in their assigned groups.	Knowledge of intervention status may have influenced other aspects of care between groups.		groups, but outcomes objective unlikely to be influenced by knowledge of intervention.	outcomes due to studies published with those outcomes.	
Gordon 1999 ⁷	Low Random sealed envelopes. No baseline differences between groups.	Low Patients and caregivers aware of assigned intervention, but appears they were analyzed in their assigned groups.	Some concerns No information on adherence to intervention. Knowledge of intervention status may have influenced other aspects of care between groups.	Some concerns Excluded ~30% of assigned participants prior to the intervention. No mention of level or handling of missing data among those who received the intervention.	Low Outcomes of interest were objective and unlikely to be influenced by knowledge of intervention.	Some concerns No study protocol identified, but appears that all results were reported.	Some concerns
Hans 2018 ⁸	Low Random opaque sealed envelopes. No baseline differences between groups.	Low Patients and caregivers aware of assigned intervention but were analyzed in their assigned groups.	Some concerns Most patients received at least one doula visit, but 25% did not have doula present at birth. Knowledge of intervention status may have influenced other aspects of care between groups.	Some concerns Missing data up to 18% at 37-week interview. Missing data excluded.	Some concerns Although most outcomes were objective, they were self-reported 3 weeks after delivery and may be influenced by labor and/or doula experience.	Some concerns No study protocol identified, but appears that all results were reported.	Some concerns

Author, Year	Risk of Bias from Randomization Process ^a	Risk of Bias from Deviation from Intended Interventions ^a	Risk of Bias from Deviation from Intended Interventions ^a	Risk of Bias from Missing Outcome Data ^a	Risk of Bias in Measurement of the Outcome ^a	Risk of Bias in Selection of the Reported Result ^a	Overall Risk of Bias ^a
Hodnett 2002 ⁹	Low Randomization at centralized location. No baseline differences between groups.	Low Patients and caregivers aware of assigned intervention but were analyzed in their assigned groups.	Low Appropriate intervention delivered to ~95% of patients. Knowledge of intervention status may have influenced other aspects of care between groups.	Low All patients had data for labor and delivery immediate neonatal outcomes.	Low Outcome assessors likely aware of intervention groups, but outcomes objective unlikely to be influenced by knowledge of intervention.	Some concerns No study protocol identified, but appears that all results were reported.	Low
Hofmeyr 1991 ¹⁰	Low Random opaque sealed envelopes. No baseline differences between groups.	Low Patients and caregivers aware of assigned intervention but appear to be analyzed in their assigned groups.	Some concerns No information on adherence to intervention. Knowledge of intervention status may have influenced other aspects of care between groups.	Some concerns No information on handling of missing data, appears to be excluded. Missing data different for different variables but looks to be at 20% or more for some variables.	Some concerns Interviewer blind to intervention status except for final questions. Some data by interview, other appears from labor notes - likely not blinded.	Some concerns No study protocol identified, but appears that all results were reported.	Some concerns
Isbir 2017 ¹¹	Low Random block assignment. No information on allocation concealment. No baseline	Low Caregivers aware of assigned intervention. Patients were blinded but may	Some concerns 17% intervention and 8% control group didn't receive intervention.	Some concerns Missing data excluded (12.5% missing).	Some concerns Patient survey at 1 hour post-delivery. Patients were blinded but it's likely they may have known	Some concerns No study protocol identified, but appears that all results were reported.	Some concerns

Author, Year	Risk of Bias from Randomization Process ^a	Risk of Bias from Deviation from Intended Interventions ^a	Risk of Bias from Deviation from Intended Interventions ^a	Risk of Bias from Missing Outcome Data ^a	Risk of Bias in Measurement of the Outcome ^a	Risk of Bias in Selection of the Reported Result ^a	Overall Risk of Bias ^a
	differences between groups.	have been aware of level of care. Patients analyzed in their assigned groups.	Knowledge of intervention status by caregivers may have influenced other aspects of care between groups.		if they were receiving extra care which may have influenced their responses.		
Kashanian 2010 ¹²	Low Random opaque sealed envelopes. No baseline differences between groups.	Low Patients and caregivers aware of assigned intervention but were analyzed in their assigned groups.	Some concerns No information on adherence to intervention. Knowledge of intervention status may have influenced other aspects of care between groups.	Some concerns No mention of level or handling of missing data, but likely low levels.	Low Outcome assessors likely aware of intervention groups, but outcomes objective unlikely to be influenced by knowledge of intervention.	Some concerns No study protocol identified, but appears that all results were reported.	Some concerns
Kennell 1991 ¹³	Some concerns No details on method of randomization. Second control group added part way through process, unclear if randomized.	Low Patients and caregivers aware of assigned intervention but were analyzed in their assigned groups.	Some concerns No information on adherence to intervention. Birthing women in the same large delivery ward so some aspects of intervention may have been observed by others.	Some concerns No mention of level or handling of missing data, but likely low levels.	Low Outcome assessors likely aware of intervention groups, but outcomes objective unlikely to be influenced by knowledge of intervention.	Some concerns No study protocol identified, but appears that all results were reported.	Some concerns

Author, Year	Risk of Bias from Randomization Process ^a	Risk of Bias from Deviation from Intended Interventions ^a	Risk of Bias from Deviation from Intended Interventions ^a	Risk of Bias from Missing Outcome Data ^a	Risk of Bias in Measurement of the Outcome ^a	Risk of Bias in Selection of the Reported Result ^a	Overall Risk of Bias ^a
Klaus 1986 ¹⁴	Low Random opaque sealed envelopes. No baseline differences between groups.	Low Patients and caregivers aware of assigned intervention but were analyzed in their assigned groups.	Some concerns No information on adherence to intervention. Mentioned clinicians were not aware of study but were likely aware of presence of a doula. Knowledge of intervention status may have influenced other aspects of care between groups.	Some concerns No mention of level or handling of missing data. ~10% excluded from originally randomized groups for various reasons (ie, low birth weight).	Low Outcome assessors likely aware of intervention groups, but outcomes objective unlikely to be influenced by knowledge of intervention.	Some concerns No study protocol identified, but appears that all results were reported.	Some concerns
Langer 1998 ¹⁵	Low Random opaque sealed envelopes. No baseline differences between groups.	Low Patients and caregivers aware of assigned intervention but were analyzed in their assigned groups.	Some concerns No information on adherence to intervention. Knowledge of intervention status may have influenced other aspects of care between groups.	Low No women lost to follow-up in the hospital. Less than 10% lost at follow-up visit. Missing data appear to be excluded, but low levels.	Low Outcome assessors blinded to intervention status.	Some concerns No study protocol identified, but appears that all results were reported. ITT analysis provided.	Some concerns
Lesser 2005 ¹⁶	Some concerns No details on method of randomization.	Low Patients and caregivers aware of	Some concerns No information on adherence to intervention.	Some concerns No mention of level or handling of missing data.	Some concerns No information about how outcome data	Some Concerns No study protocol identified, but appears that all	Some concerns

Author, Year	Risk of Bias from Randomization Process ^a	Risk of Bias from Deviation from Intended Interventions ^a	Risk of Bias from Deviation from Intended Interventions ^a	Risk of Bias from Missing Outcome Data ^a	Risk of Bias in Measurement of the Outcome ^a	Risk of Bias in Selection of the Reported Result ^a	Overall Risk of Bias ^a
		assigned intervention but were analyzed in their assigned groups.	Knowledge of intervention status may have influenced other aspects of care between groups.		was obtained. Outcome assessors likely aware of intervention groups, but outcomes objective unlikely to be influenced by knowledge of intervention.	results were reported	
Madi 1999 ¹⁷	Low Random assignment via opaque, sealed, numbered envelopes. No significant differences at baseline.	Some concerns Low No blinding used in assignment. Both participants and personnel were aware of group assignment.	Some concerns Authors also noted that limited privacy, overcrowding, and restriction of visitors in all conditions may have affected results.	Low No missing outcome data.	Low All outcome data were extracted from medical records after labor and delivery.	Low Authors used a pre-coded master sheet for data and all results reported.	Low
McGrath 2008 ¹⁸	Low Random opaque sealed envelopes numbered sequentially. No significant differences between groups at baseline.	Some concerns No information on blinding reported. All participants were also analyzed together regardless of group assignment to describe the	Some concerns Although some deviation from inclusion criteria, the data for participants who came with birth partners other than male companion was reported out separately in	Some concerns Low Outcomes of interest did not have any missing data. Response rate for questionnaires at 24 h and 6 wks postpartum	Some concerns Research assistants collected demographic information after delivery. Labor outcomes were collected from hospital charts. Other outcomes were collected	High Outcomes reported for all participants are not reported between groups (<i>ie</i> , oxytocin use, labor length, forceps/vacuum extraction). No study protocol identified.	Some concerns

Author, Year	Risk of Bias from Randomization Process ^a	Risk of Bias from Deviation from Intended Interventions ^a	Risk of Bias from Deviation from Intended Interventions ^a	Risk of Bias from Missing Outcome Data ^a	Risk of Bias in Measurement of the Outcome ^a	Risk of Bias in Selection of the Reported Result ^a	Overall Risk of Bias ^a
		obstetric environment.	the results, and only 3 participants had no companion.	ranged from 75.5-87.9%.	from questionnaires. No blinding.		
Morhason-Bello 2009 ¹⁹	Some concerns Random opaque sealed envelopes. Differences in baseline characteristics show randomization was not effective.	Low Patients and caregivers aware of assigned intervention but were analyzed in their assigned groups.	Low Patient flow chart showed good adherence to interventions.	Low Less than 10% in each group were excluded/lost.	Some Concerns Low for objective outcomes such as epidural use, delivery method, etcetera. Some concerns for pain as a woman's rating of pain may be influenced by knowledge of the intervention.	Some Concerns Research protocol mentioned, but not provided. Appears that all results were reported.	Low
Ravangard 2017 ²⁰	Some concerns No details on method of randomization.	Some concerns Patients and caregivers aware of assigned intervention. Unclear numbers analyzed in each group.	Some concerns No information on adherence to intervention. Knowledge of intervention status may have influenced other aspects of care between groups.	Some concerns No mention of level or handling of missing data.	Some concerns Self-reported pain, patients aware of intervention and may have influenced pain ratings.	Low No apparent discrepancies with protocol	Some concerns
Safarzadeh 2012 ²¹	Some concerns States "simple random sampling", but no	Some concerns Patients and caregivers aware of	Some concerns No information on adherence to intervention.	Some concerns No mention of	Some concerns Self-reported pain, patients aware of	Some concerns No study protocol identified, but appears that all	Some concerns

Author, Year	Risk of Bias from Randomization Process ^a	Risk of Bias from Deviation from Intended Interventions ^a	Risk of Bias from Deviation from Intended Interventions ^a	Risk of Bias from Missing Outcome Data ^a	Risk of Bias in Measurement of the Outcome ^a	Risk of Bias in Selection of the Reported Result ^a	Overall Risk of Bias ^a
	details on how patients were selected or if allocation was concealed.	assigned intervention. Unclear numbers analyzed in each group.	Knowledge of intervention status may have influenced other aspects of care between groups.	level or handling of missing data.	intervention and may have influenced pain ratings.	results were reported.	
Trueba 2000 ²²	Some concerns No details on method of randomization. States no differences in baseline characteristics, but no details provided.	Some concerns Patients and caregivers aware of assigned intervention, unclear numbers assigned vs analyzed.	Some concerns No information on adherence to intervention. Knowledge of intervention status may have influenced other aspects of care between groups.	Some concerns No mention of level or handling of missing data.	Low Outcome assessors likely aware of intervention groups, but outcomes objective unlikely to be influenced by knowledge of intervention.	Some concerns No study protocol identified, but appears that all results were reported.	Some concerns
Yuenyong 2012 ²³	Low Random opaque sealed envelopes. No baseline differences between groups.	Low Patients and caregivers aware of assigned intervention but analyzed in their assigned groups.	Some concerns 13% of intervention participants had non-adherence to full intervention. Knowledge of intervention status may have influenced other aspects of care between groups.	Low Missing data excluded but low levels (~3%).	Low Outcome assessors knew intervention assignment for objective outcomes. Assessor blinded for satisfaction survey.	Some concerns No study protocol identified, but appears that all results were reported.	Some concerns

Abbreviations. ITT=intention to treat.

Notes. Low concern: study is overall good quality across all domains. Some concerns: Study raises some concerns in at least one domain, but not judged to be high risk of bias. High: Multiple and/or serious risk of bias that severely weaken confidence in results (Cochrane RCT ROB tool).

Observational Studies

Author Year	Selection Bias ^a	Bias in Classification of Interventions ^a	Bias due to Departures from Intended Interventions ^a	Bias due to Measurement of Outcomes? ^a	Bias Due to Confounding? ^a	Bias due to Missing Data? ^a	Bias in the Selection of Reported Results ^a	Overall Bias ^a
Austad 2020 ²⁴	Low	Low	Low Changes to the OCN process made during their QI meetings - unclear how this may have influenced referrals and care.	Unclear Documentation of intervention services could not be rigorously conducted due to the nature of intervention and staffing of laypersons.	Unclear Patients were referred to OCN for risk factors and were likely at higher risk of poor outcomes. Groups similar at baseline in demographics but may be other potential confounding factors.	Unclear The data on cesarean delivery was only captured from 92% of the total cohort.	Low	Unclear
Byrskog 2020 ²⁵	Low All women in registry in given time frame	Low	Unclear No information on how well the intervention was adhered to by those who had a doula in their registry data.	Low	Low	Unclear Would say unclear here. Excluded ~11% of migrant women data for missing data in CBD register.	Low	Unclear
Chen 2020 ²⁶	Unclear Patients were invited	Low	Unclear There is no information on	Low	Unclear Authors controlled for	Unclear Delivery outcomes	Low	Unclear

Author Year	Selection Bias ^a	Bias in Classification of Interventions ^a	Bias due to Departures from Intended Interventions ^a	Bias due to Measurement of Outcomes? ^a	Bias Due to Confounding? ^a	Bias due to Missing Data? ^a	Bias in the Selection of Reported Results ^a	Overall Bias ^a
	to participate in the study based on need, some may have systematically excluded patients		how well the intervention was adhered to by those receiving a doula. Agree that the presenting of outcomes is an issue, but don't think it's an intervention adherence issue.		confounds affecting outcome irrespective of doula support - including need for doula support in the control group.	reported only for primipara which might have been an attempt to control for confounding, and unclear handling of other missing data.		
Dundek 2006 ²⁷	Low All participants were birthing Somali women identified through the hospital records/ system in 2002.	Unclear Intervention documented but no detail about the specific components of support described or how doula support was assigned.	Unclear No information on adherence to intervention once doula was offered/ accepted, or if the doula care differed between those in the doula group.	Unclear Prospective study, but retrospectively collected outcomes. Although likely minimal bias with hospital records and objective outcome of cesarean delivery.	Unclear No information on differences between doula and non-doula groups that may have confounded outcomes.	Low	Low	Unclear
Feng 2013 ²⁸	Low	Low During labor, 200 participants volunteered to receive	Unclear No information on adherence to intervention once selection was made (<i>ie</i> ,	Low Unclear for pain - subjective and patients were self-selected to receive or not receive pain	Unclear Possible differences between the groups (only mentions age,	Unclear ~15% missing pain data because of need for cesarean.	Low	Unclear

Author Year	Selection Bias ^a	Bias in Classification of Interventions ^a	Bias due to Departures from Intended Interventions ^a	Bias due to Measurement of Outcomes? ^a	Bias Due to Confounding? ^a	Bias due to Missing Data? ^a	Bias in the Selection of Reported Results ^a	Overall Bias ^a
		analgesia and were assigned a doula in the observational group, the control received neither .	did any of the control group decide to receive anesthesia)	medication, so could influence outcome ratings Low for cesarean outcome	gestational week, and fetal size) that may have influenced outcome.	Differential exclusions between groups - 10% in observation and 19% control.		
Fulton 2011 ²⁹	Low	High Author did not have access to important information as to the characteristics of each doula, doula arrival time during labor, and the types of comfort measures employed.	High Language barriers between doulas and mothers may have impacted data reporting.	Low	High Baseline differences between the groups in both studies and the adjusted analyses were only for the self-esteem outcomes, not the labor and delivery outcomes.	High The amount of missing data ranged from 0% to 32% and appears missing data were deleted for descriptive analyses.	Low	High
Gadappa 2021 ³⁰	High Control group selection unclear - it seems like they would have had a large number to	Low	Unclear Only those who had the trained birth companion attend the labor, but no detail provided about the control groups.	Low	Unclear Groups were similar in age, parity, but there could be other differences that aren't captured.	High Large numbers of patients excluded from overall potential sample. Unclear numbers for each reason for exclusion. Reports of	Low	High

Author Year	Selection Bias ^a	Bias in Classification of Interventions ^a	Bias due to Departures from Intended Interventions ^a	Bias due to Measurement of Outcomes? ^a	Bias Due to Confounding? ^a	Bias due to Missing Data? ^a	Bias in the Selection of Reported Results ^a	Overall Bias ^a
	select from but ended up at around 4,000 included.					abusive treatment of women in the hospital setting may have influenced attrition.		
Goedkoop 2009 ³¹	Unclear Unclear how doulas were identified. Limited information on birthing individuals (no demographics reported)	Unclear Doula level of training, level of experience and settings not described.	High No information about the doulas practice and the level of cross-over between those included in the NHS statistics.	High Outcomes presented as aggregate percentages from doula reported survey data. Unclear how NHS outcomes were selected.	High Likely that those choosing to have a doula differed from the general population statistics, and we have no information on their demographics, pregnancy characteristics, etcetera.	Unclear Survey sent in 2 waves to different cohorts of doulas, unclear which data came from each survey.	High Survey sent in 2 waves to different cohorts of doulas, unclear which data came from each survey.	High
Gruber 2013 ³²	Low Study limited to expectant mothers who attended at least 3 Healthy Moms Healthy Babies	Low Groups were clearly classified by whether they had doula support.	Unclear No information about how well the intervention was adhered to in those that selected to have a doula.	Low	Unclear Differences between groups based on self-selection into the doula care group that could lead to confounding.	Low	Low	Unclear

Author Year	Selection Bias ^a	Bias in Classification of Interventions ^a	Bias due to Departures from Intended Interventions ^a	Bias due to Measurement of Outcomes? ^a	Bias Due to Confounding? ^a	Bias due to Missing Data? ^a	Bias in the Selection of Reported Results ^a	Overall Bias ^a
	childbirth classes.							
Kabakian-Khasholian 2018 ³³	Unclear Selection criteria differed slightly between groups.	Unclear Wide variation in hospital policies regarding labor companionship in Arab countries and the definition and scope of labor support also varies from country to country.	High At least 1 site did not allow labor support during birth after the first stage of labor.	Low	Unclear Baseline characteristics were similar in comparison groups but may be missing other variables related to pregnancy risk.	Unclear Total groups determined after accounting for missing information - unclear level of missing data or if all of those were excluded.	Low	High
KC 2020 ³⁴	Low	Low	Unclear Adherence to interventions not clear- if companions stayed during labor or if any noted as not having a companion got companionship during labor.	Low	High Potential for residual confounding, unclear if they adjusted for the outcome of cesarean delivery. Data collection from 6 different sites across Nepal with likely varied patient demographics.	Unclear Missing values excluded. Unclear level of missing data for all variables. About 5,000 individuals enrolled in the study did not complete the study/final interview.	High Data presented in aggregates and not controlling for SES and location of sites.	High
Kozhimannil 2013 ⁴²	Unclear	Unclear	Unclear	High	Unclear	Low	High	Unclear

Author Year	Selection Bias ^a	Bias in Classification of Interventions ^a	Bias due to Departures from Intended Interventions ^a	Bias due to Measurement of Outcomes? ^a	Bias Due to Confounding? ^a	Bias due to Missing Data? ^a	Bias in the Selection of Reported Results ^a	Overall Bias ^a
	Selection criteria somewhat differed between the 2 groups.	It is unclear if mothers who had Medicaid funded births also had doulas, so there is potential for cross-over between "control" and doula supported births.	No information about how well the intervention was adhered to in those that were a part of the doula program.	Results for doula data came only from 1 site and at a different time than the rest of the data.	There were differences between the 2 groups and there was statistical adjustment, but there is likely residual confounding from factors that weren't measured.	No data missing for Everyday Miracles program. Sensitivity analysis for missing Medicaid data.	BW, epidural, and other pain medication rates for non-doula supported births not reported.	
Kozhimannil 2014 ³⁶	Low	High Doula support likely varied greatly among the respondents along with type of care received, and other perinatal support or lack of	Low	High Doula support likely varied greatly among the respondents along with type of care received, and other perinatal support or lack of	Low	Unclear Only mention of missing data is in reasons for cesarean table. Otherwise, no info on handling of missing data.	Low	High
Mottl-Santiago 2008 ³⁷	Low	Low	Unclear No information about adherence to the doula support in those identified	Low	Low	Unclear Footnote in table 2 that missing data were excluded, but no other information	Low	Unclear

Author Year	Selection Bias ^a	Bias in Classification of Interventions ^a	Bias due to Departures from Intended Interventions ^a	Bias due to Measurement of Outcomes? ^a	Bias Due to Confounding? ^a	Bias due to Missing Data? ^a	Bias in the Selection of Reported Results ^a	Overall Bias ^a
			as having a birth sister.			provided other than the initial exclusions from the analyzed sample.		
Nommsen-Rivers 2009 ³⁸	High Participants selecting formula feed only were differentially placed in control group.	Low	Low	Low	Low	High Excluded participants planning to solely formula feed because of differences in allocation.	Low	High
Shelp 2004 ⁴³	Low	Low	Unclear Unclear adherence to doula intervention or how those data were captured. Follow-up data was limited to survey with large loss to follow-up and limitations based on language.	Unclear Although outcomes are objective, it's unclear if these data came from the nurse survey or medical records. Cesarean rates were lower for doula-attended births, Apgar scores were similar for non-attended vs attended.	High No information on patients or differences between those receiving and not receiving doula care.	Unclear No mention if they had any missing data or how it was handled for cesarean and Apgar outcomes.	Unclear Only cesarean rates and Apgar scores reported, maternal outcomes not reported and primarily qualitative.	High
Spiby 2015 ⁴⁰	Unclear Several different	Low	High Almost 20% of mothers who	Low Doula service database	Unclear No adjustment for potential	Unclear Varying levels of missing data	Low	High

Author Year	Selection Bias ^a	Bias in Classification of Interventions ^a	Bias due to Departures from Intended Interventions ^a	Bias due to Measurement of Outcomes? ^a	Bias Due to Confounding? ^a	Bias due to Missing Data? ^a	Bias in the Selection of Reported Results ^a	Overall Bias ^a
	comparison groups, unclear if the selection criteria were the same for all		were referred to the doula service were recorded as having disengaged from the service.		confounding between comparison groups which were taken from different locations.	reported throughout - looks to be included as its own variable or excluded.		
Thomas 2017 ⁴¹	Unclear Data collected by client data used for other home-visit programs + labor/delivery data, and telephone survey	Unclear Potential for cross-over with other births in NYC that may have had doulas but were not accounted for	Unclear No information about adherence to the doula support in those identified as having a doula	Unclear Doula-collected data and limited information about the comparator data collection. I think the issue of other births having doulas would be departure from intervention and classification of intervention issues.	High Differences between the 2 groups, include race, insurance status, and timing of care, which could influence outcome and are not adjusted for in the analyses.	Unclear Handling of missing data not described	Low	High
Zhang 2018 ⁴⁴	Low	Low	Low	Low	Unclear There was a baseline difference in employment status and outcomes of interest not adjusted.	Low	Low	Unclear

Abbreviations. Apgar Score=appearance, pulse, grimace, activity, respiration - newborn assessment comprised of five components (color, heart rate, reflexes, muscle tone, and respiration), each scored as 0, 1, or 2, and the normative total value is >7 out of 10; BW=birth weight; CBD=community-based doula; FGM=female genital mutilation; FGS=female genital surgery; HCUP=Health Care Cost and Utilization Project; HCUP=Health Care Cost and Utilization Project;



HSB=Health Start Brooklyn Program; MHA=Mayan Health Alliance; NHS=National Health Services; NYC=New York City; OCN=Obstetric Care Nurse; QI=quality improvement; SES=socioeconomic status; TBA=traditional birth attendant; WIC=Women, Infants, and Children nutrition program.

Notes. a. Low concern - study is overall good quality across all domains; Some concerns - Study raises some concerns in at least one domain, but not judged to be high risk of bias; High - Multiple and/or serious risk of bias that severely weaken confidence in results (ROBINS-I tool for evaluating observational studies).

STRENGTH OF EVIDENCE FOR INCLUDED STUDIES

Outcome	Studies	Study Limitations	Directness	Consistency	Precision	Reporting Bias	Summary of Evidence
Maternal & Delivery Outcomes (Doula Support vs. No Doula Support)							
Maternal mortality w/ trained doula support (1 study; 782 participants)	1 cohort/ non-RCT ²⁴	Unclear RoB	Direct	Unknown	Unknown	Unknown	Insufficient evidence: It is unclear whether trained doula support impacts maternal mortality. A single observational study of trained birth attendants affiliated with the MHA among rural Guatemalan villages reported 0 maternal deaths in both doula-supported group and among those who did not receive doula care.
Cesarean w/ trained doula support (25 Studies; 307,888 participants)	12 RCTs ^{2,4,5,7-9,12,13,15,16,18,22} 13 cohort/ non-RCTs ^{24-28,31,32,36,37,40-43}	Low to high RoB RCTs: 2 low 10 some concerns Cohorts: 8 unclear 5 high	Direct	Consistent	Precise	Undetected	Moderate strength evidence: Trained doula support is likely associated with reduced rate or no difference in cesarean delivery based on direct, consistent, and precise information from 25 primary studies with low to high RoB that reported mixed findings for reduced cesarean rates with trained doula support showing reduced rates cesarean in 5 high to unclear RoB studies, and non-significant difference 19 others. One high RoB cohort study reported higher cesarean rates in the doula supported group, but this is because the comparator was indigenous care with no facility for cesarean available.
Cesarean w/ layperson as doula support (8 studies;	5 RCTs ^{10,14,17,19,23} 3 cohort/	Low to high RoB RCTs:	Direct	Inconsistent	Unknown	Detected	Low strength evidence: Layperson as doula support may be associated with reduced rate of cesarean, based on inconsistent, precise information from 8 primary

Outcome	Studies	Study Limitations	Directness	Consistency	Precision	Reporting Bias	Summary of Evidence
22,981 participants)	non-RCTs ^{30,33,34}	2 low 3 some concerns Cohorts: 3 high					studies with low to high RoB that reported mixed findings for reduced cesarean rates with doula support including wide confidence intervals and non-significant ORs. Several smaller RCTs reported consistently lower or similar cesarean rates with a layperson doula, while larger cohort studies with high RoB reported mixed findings. Two cohort studies reported higher cesarean rates in the layperson doula group; 1 was a retrospective medical record review where the details of the support person were inconsistently captured, which may reflect some reporting bias. The other cohort study was set in 3 different countries in the middle east where the support person's access to the birthing individual was varied based on country and hospital policy.
Oxytocin/ Pitocin use w/ trained doula support (12 studies; 3,010 participants)	10 RCTs ^{1,3,5-7,11-13,16,18,22} 2 cohort/non-RCTs ^{26,28}	Low to high RoB RCTs: 2 low 7 some concerns 1 high Cohorts: 1 high 1 unclear	Direct	Consistent	Unknown	Undetected	Moderate strength of evidence: Trained doula support is likely associated with reduced or no difference in the use of oxytocin or Pitocin based on direct, and consistent evidence from 12 primary studies with unknown precision and low to high RoB that reported mixed findings for lower rates of oxytocin and Pitocin use in doula-supported births.
Oxytocin/ Pitocin use w/	5 RCTs ^{14,17,19,21,23}	Low to some concern RoB	Direct	Consistent	Unknown	Undetected	Moderate strength of evidence:

Outcome	Studies	Study Limitations	Directness	Consistency	Precision	Reporting Bias	Summary of Evidence
layperson as doula support (5 studies; 1,381 participants)		RCTs: 2 low 3 some concern					Layperson as doula support is likely associated with reduced or no difference in the use of oxytocin or Pitocin based on direct, and consistent, information from 5 primary studies with unknown precision and low to some concern RoB that reported mixed findings for lower rates of oxytocin and Pitocin use in layperson-supported births.
Epidural use w/ trained doula support (17 studies; 302,929 participants)	11 RCTs ^{2-9,13,15,16,18} 6 Cohort ^{25,29,31,32,37,42}	Low to high RoB RCTs: 2 low 7 some concern 1 high Cohorts: 3 unclear 3 high	Direct	Consistent	Precise	Undetected	Moderate strength of evidence: Trained doula support is likely associated with reduced or no difference in the use of epidural based on direct, consistent, and precise information from 17 primary studies with low to high RoB that reported mixed findings for lower rates of epidural use in doula-supported births.
Epidural use w/ layperson as doula support (1 study, 120 participants)	1 RCT ²³	Some concern	Direct	Unknown	Unknown	Undetected	Insufficient evidence: Layperson as doula support is not likely associated with reduced or no difference in the use of epidural based on 1 study with some concern RoB which reported non-significant results for lower epidural use rates in layperson-supported births.
Labor pain w/ trained doula support	2 RCTs ^{11,20}	Some concern to high RoB	Direct	Consistent	Unknown	Undetected	Low strength of evidence: Trained doula support may be associated with reduced or no

Outcome	Studies	Study Limitations	Directness	Consistency	Precision	Reporting Bias	Summary of Evidence
(5 studies; 851 participants)	3 cohort ^{28,29,38}	RCTs: 2 some concern Cohorts: 1 unclear 2 high					difference in labor pain based on direct and consistent evidence from 5 low to high RoB studies that reported mixed findings for lower rates of labor pain in doula-supported births.
Labor pain w/ layperson as doula support (3 studies, 942 participants)	3 RCTs ^{10,19,21}	Low to some concern RoB RCTs: 1 low 2 some concern	Direct	Consistent	Unknown	Undetected	Low strength of evidence: Layperson as doula support may be associated with reduced or no difference in labor pain based on direct and consistent evidence from 3 low to some concern RoB studies which reported lower pain in layperson supported births.
Duration of labor w/ trained doula support (15 studies; 15,691 participants)	12 RCTs ^{1-6,11-13,15,16,18,22} 3 Cohort ^{26,28,44}	Low to high RoB RCTs: 1 low 9 some concern 2 high Cohorts: 3 unclear	Direct	Consistent	Precise	Undetected	Moderate strength of evidence: Trained doula support is likely associated with shorter duration of labor based on direct and consistent evidence from 13 low to high RoB studies that reported shorter duration of labor. One study reported longer duration of total labor ($p < 0.01$) in doula-supported groups; however, authors report the natural birth rate was significantly higher (87.0% vs 56.8%) and the cesarean birth rate was significantly lower (13.0% vs 43.2%) in the doula group than in the control group.

Outcome	Studies	Study Limitations	Directness	Consistency	Precision	Reporting Bias	Summary of Evidence
Duration of labor w/ layperson as doula support (6 studies; 34,494 participants)	5 RCTs ^{10,14,19,21,23} 1 cohort ³³	Low to high RoB RCTs: 1 low 4 some concern Cohort: 1 high	Direct	Consistent	Precise	Undetected	Moderate strength of evidence: Layperson as doula support is likely associated with shorter duration of labor based on direct and consistent evidence from 5 low to high RoB studies that reported shorter duration of labor in supported births. One study set in 3 different Arab countries and hospital settings reported longer durations of labor ($p=0.001$) which increased by 30 minutes after implementation of the birth companion model, but consistent with other included studies, was associated with lower cesarean and higher vaginal birth rates.
Neonatal Outcomes (Doula Support vs. No Doula Support)							
Infant mortality w/ trained Doula support^a (1 study; 782 participants)	1 cohort/ non-RCT ²⁴	Unclear RoB	Direct	Unknown	Unknown	Unknown	Insufficient evidence: It is unclear whether trained doula support impacts infant mortality. A single observational study of trained birth attendants affiliated with the MHA among rural Guatemalan villages reported low neonatal death (6/276 [2.2%] vs 13/571 [2.8%], $p=0.732$), with no significant differences between groups. Stillbirth rates were slightly higher in the doula- supported group (4/276 [1.5%] vs 0/571 [0%], $p=0.007$).
Apgar score w/ trained doula support (16 studies;	9 RCTs ^{1-5,9,12,15,18} 7 cohort/	Low to high RoB RCTs: 3 low	Direct	Inconsistent	Unknown	Undetected	Low strength of evidence: Trained doula support may or may not be associated with better Apgar scores, based on direct and inconsistent information with unknown precision from 16 primary

Outcome	Studies	Study Limitations	Directness	Consistency	Precision	Reporting Bias	Summary of Evidence
22,377 participants)	non-RCTs ^{25,26,29,37,38,43,44}	5 some concerns 1 high Cohorts: 4 unclear 3 high					studies with low to high RoB that reported mixed findings for improved neonatal outcomes.
Apgar score w/ layperson as doula support (5 studies; 11,658 participants)	3 RCTs ^{10,17,23} 2 cohort/ non-RCTs ^{30,33}	Low to high RoB RCTs: 1 low 2 some concerns Cohorts: 2 high	Direct	Consistent	Unknown	Undetected	Low strength of evidence: Layperson as doula support may be associated with better or no difference in Apgar scores, based on direct information from 5 primary studies with low to high RoB and unknown precision that reported mixed findings for improved neonatal outcomes. 2 RCTs with RoB of some concern reported slightly positive Apgar scores at 1 minute for supported groups compared with unsupported, and 1 low RoB RCT reported no significant differences between groups. One single high RoB cohort study reported lower Apgar scores among supported births but was set in 3 different countries in the middle east where the support person's access to the birthing individual was varied based on country and hospital policy.
Low birth weight w/ trained doula support^a (6 studies;	2 RCTs ^{25,40-42} 4 cohort/ non-RCTs ^{3,8}	Some concern to high RoB RCTs:	Direct	Consistent	Unknown	Undetected	Low strength of evidence: Trained doula support may be associated with reduced or no difference in rates of low birth weight, based on indirect information from 6

Outcome	Studies	Study Limitations	Directness	Consistency	Precision	Reporting Bias	Summary of Evidence
280,940 participants)		1 some concerns 1 high Cohorts: 2 unclear 2 high					primary studies with high to unclear RoB and unknown precision. Two RCTs and 1 cohort study with high/some concern RoB reported a positive association with doula support and fewer low birth weight neonates, and 2 other RCTs and 1 cohort study with high/unclear RoB found no significance difference between supported and unsupported births. The definition of low birth weight was not standardized across all studies, but many used ≤ 2500 grams as a cut-off.
NICU admission w/ trained doula support (4 studies in 5 publications; 1,266 participants)	3 RCTs ^{3,5,6,8} 1 cohort/ non-RCT ⁴⁰	Low to high RoB RCTs: 1 low 1 some concerns 1 high Cohort: 1 high	Direct	Consistent	Imprecise	Undetected	Low strength of evidence: Trained doula support may be associated with lower or no difference in NICU admissions, based on direct, consistent, imprecise information from 4 primary studies with high/unclear RoB that reported non-significant results.
NICU admission w/ layperson as doula support (2 studies; 9,166 participants)	1 RCT ¹⁴ 1 cohort/ non-RCT ³⁰	Some concerns to high RoB RCT: 1 some concerns Cohort: 1 high	Direct	Consistent	Unknown	Unknown	Low strength of evidence: Layperson as doula support may be associated with lower NICU admissions, based on direct and consistent information with unknown precision from 1 RCT with high RoB with non-significant results and 1 cohort study with RoB with some concern that reported lower NICU admissions with support compared with no support.

Abbreviations. Apgar Score=appearance, pulse, grimace, activity, respiration - newborn assessment comprised of five components (color, heart rate, reflexes, muscle tone, and respiration), each scored as 0, 1, or 2, and the normative total value is >7 out of 10; BW=birth weight; MHA=Mayan Health Alliance; NICU=neonatal intensive care unit; OR=odds ratio; RCT=randomized controlled trial; RoB=risk of bias.

Notes. No studies identified for the *Maternal Mortality*, *Infant Mortality* or *Low Birth Weight* outcomes with layperson as doula support. b. When confidence intervals or p-values were not available, precision and consistency could not be assessed with confidence, in these instances we graded these dimensions with “unknown” which is a modification of the guidance provided in the AHRQ Methods Guide.⁴⁵

APPENDIX D: PEER REVIEW DISPOSITION

Comment #	Reviewer #	Comment	Author Response
<i>Are the objectives, scope, and methods for this review clearly described?</i>			
1	1	Yes	n/a
2	2	Yes	n/a
3	3	Yes	n/a
4	4	Yes	n/a
<i>Is there any indication of bias in our synthesis of the evidence?</i>			
5	1	No	n/a
6	2	No	n/a
7	3	No	n/a
8	4	Yes - This is written more in terms of OB- led care, medical model of care, instead of Midwifery Model of Care- which is something that can be studied a little more. Might not be a bias per se.	Thank you, given the scope of work for this report, our report does focus primarily on a medical model of care, but as suggested, future research can benefit from studying other models of care.
<i>Are there any published or unpublished studies that we may have overlooked?</i>			
9	1	Yes - For a review on implementation considerations check BMC Pregnancy Childbirth 2017 Aug 31;17(1):265. doi: 10.1186/s12884-017-1447-9.	Thank you, we have reviewed this study and incorporated it into our report as it pertains to implementation.
10	2	No	n/a
11	3	No	n/a
12	4	Yes - Not sure if these are primary sources of studies, but the Listening to Mothers I and II studies is an excellent resource to go back to look at quality of care for birthing people. Evidence Based Birth synthesizes lots of research (Cochrane and otherwise) into research papers- highly recommend just seeing what research papers they reference in their research on the Evidence for Doulas.	Thank you, we used the Evidence-based Birth website to hand search additional studies that met our study inclusion criteria. Thank you for recommending the DeClerq and Sakala publications of the Listening to Mothers I & II studies, these studies did not fit the scope of our current report which specifically examined clinically important maternal and neonatal outcomes.
<i>Additional suggestions or comments can be provided below.</i>			
13	1	Page 5, line 50-53: giving birth with the support of a doula is presented as an alternative mode of childbirth which it isn't. Having a birth companion of	Thank you, we have removed the word "alternative" and reworded this section to the following:

Comment #	Reviewer #	Comment	Author Response
		<p>choice is a global recommended practice and it needs to be presented as such and not as an alternative.</p>	<p><i>“Additionally, birth companions or doulas can provide complementary continuous labor support throughout a pregnancy and are a globally recommended model of care. Doulas act as companions to the pregnant individual and provide a range of reproductive care services depending on their degree of training and the clinical care setting”</i></p>
14	1	<p>Doula is typically defined as a trained professional who provides emotional and physical support during childbirth and beyond and who is not medically trained. It appears that any form of support during labor and birth provided by anyone outside of the medial team caring for the woman is considered a doula support in this document. Doula is a profession that has identifiable functions and training. It is important to make the differentiation in this document otherwise the purpose of the evidence synthesis remains unclear. I suggest using labor and birth companionship or birth companions rather than doula support considering the evidence that is reviewed includes interventions that evaluated the effectiveness of professional doulas as well as other lay companions during childbirth.</p>	<p>Thank you for your feedback. For the purposes of this report and the needs of our operational partners, we did define doula support in terms of trained/certified doulas vs. lay persons who provided birth companionship. As you have pointed out, the profession itself has very specific functions and training, however the available published literature we identified that met our scope and inclusion did not always clearly define the birth companion role and did often use the doula label in their studies. As a result, we felt it was important to retain those labels but have tried to provide enough details in our evidence tables for the reader to help them understand the context in which each study took place.</p>
15	1	<p>In general, synthesis of findings from previous studies and the categorization of strength of evidence must take into consideration the power of the studies reviewed. It is necessary to go beyond the number of studies found in the literature reporting on the outcome of interest and looking the strength of the findings in individual studies.</p>	<p>Thank you for your feedback, we have conducted a strength of evidence assessment of all included studies which is available in the supplementary materials section of this report. We also rated the quality of individual studies and took that into consideration in our strength of evidence rating. We were unable rate precision in most studies due to lack of reporting of power and lack of information on what constitutes a clinically meaningful difference in outcomes. Our findings align closely with that of previously published systematic reviews for the outcomes of interest in this report.</p>
16	1	<p>Following-up on the previous point, the decision on the effectiveness of birth companionship should emanate from studies with designs that provide valid</p>	<p>Thank you for your comment, a large proportion of our included studies were RCTs, and we have referenced Bohren 2017 in our report, as well as included all</p>

Comment #	Reviewer #	Comment	Author Response
		findings on effectiveness such as RCTs. The authors in this systematic review need to rely on previous meta-analysis in this topic to draw conclusions on effectiveness of continuous support on health and birth outcomes (See Bohren et al Cochrane Database Syst Rev. 2017 Jul; 2017(7))	relevant studies in our synthesis. Our findings also align with the meta-analysis conducted by Bohren et al.
17	1	The relationship of continuous support during childbirth with maternal mortality can be indirect. As women are more likely to use facilities for childbirth when they are encouraged to have birthing companions, this will increase the likelihood of having access to life saving interventions during childbirth and thus reduce maternal mortality.	Thank you for your comment. While our findings showed an unclear correlation between doula support and maternal mortality, we do acknowledge that our results are limited to those studies that met our inclusion criteria, but we didn't identify any studies attempting to measure mortality this way, thus our included studies were focused on direct measurement of maternal mortality.
18	2	I find this report to be well-researched and unbiased. I anticipate that it will be of value to The Office of Women's Health as we work to further support pregnant and postpartum Veterans.	Thank you for your feedback..
19	3	Statement starting on line 33 starting with "although maternity care is not currently provided by VHA" is incorrect. VHA does provide maternity care through purchasing from the community. Recommend that the text be revised to better reflect that throughout the report.	Thank you for your comment, we have made this correction throughout the report.
20	3	Consider revising the description of maternity care coordinators (MCCs) to be "to work with pregnant Veterans to ensure that they get the care and resources they need during pregnancy and postpartum." This is important as the MCCs also help coordinate care that pregnant Veterans may be receiving in VA during pregnancy (e.g. mental health care). MCCs also are critical for ensuring that Veterans receive the lactation supplies that are included in the maternity care benefit (nursing bras, pump, pads, etc). Recommend that this text be revised throughout the report.	Thank you for your feedback. We have reworded this section, and throughout the report as follows: <i>"Maternity Care Coordinators (MCCs) are appointed to work with pregnant Veterans to ensure that they get the care and resources they need during pregnancy and postpartum, and to navigate their care with providers outside the VHA.⁵ MCCs are a critical resource for ensuring that Veterans receive the lactation supplies that are included in the maternity care benefit (ie. nursing bras, breast pumps, nursing pads, etc)."</i>

Comment #	Reviewer #	Comment	Author Response
21	3	The paragraph starting on line 42 seems to misunderstand that doulas are never a replacement for a ob/gyn, certified nurse midwife, or community midwife. Their role is to provide emotional support, coaching, and sometimes education (e.g. birth education, parenting, etc). The most standard definition that I have found is “Doulas are non-medical persons that provide emotional, physical, and informational support for pregnant people before, during and after labor, often coaching clients to self-advocate in medical settings.” Thus, they can be present in the context of any birth setting (hospital, home birth, independent birth center). While doulas a typically an independent service paid and contracted by the pregnant person, more recently hospital based doula programs have been implemented.	<p>Thank you, we have removed the word “alternative” and reworded this section to the following:</p> <p><i>“Additionally, birth companions or doulas can provide complementary continuous labor support throughout a pregnancy and are a globally recommended model of care. Doulas act as companions to the pregnant individual and provide a range of reproductive care services depending on their degree of training and the clinical care setting”</i></p>
22	3	A missing bit is providing the reader with a brief explanation of why avoiding labor interventions such as Pitocin may be preferable. This literature is pretty complex w lots of methodologic issues, but it is important to point out that basically birth in the US is highly medicalized, expensive, with worse outcomes then other high income nations. One contributor to the poor outcomes is thought to be the overmedicalization and overuse of interventions. Recommend referencing the ACOG Committee Opinion Number 766 Approaches to Limit Intervention During Labor and Birth.	<p>Thank you for pointing out the need for clarification of the reason for use of labor interventions as an outcome of interest. We have added the following text to address this:</p> <p><i>“High rates of cesarean birth and the use of medical interventions during labor in the U.S are associated with significant morbidity and mortality. One of the leading causes of primary cesarean delivery is arrested labor, which in the hospital setting is often addressed with the use of oxytocin.¹⁵ It has been proposed that doula care may lead to reduced use of oxytocin or epidural analgesia; Supportive care during labor may enhance physiological labor processes and maternal feelings of agency and confidence in the birthing person’s ability to successfully navigate the labor, thereby reducing the need for labor interventions.^{14”}</i></p>
23	3	The objective is stated to cover maternal, infant and delivery outcomes. However, no clear definition/differentiation of these is made. In particular Table ES-1 presents findings in no particular order	Thank you for your comment, the ES and subsequent results and summary of findings are ordered in accordance with the key questions laid out in the

Comment #	Reviewer #	Comment	Author Response
		with respect to outcome. Recommend throughout the report to clearly and consistently define and order these outcomes. Figure 1 begins to do this, but it mixes maternal and delivery outcomes. These either should be consistently one set or separated. I would lean towards lumping into a single category.	report. We have added sub headers in the table to help clearly delineate between outcome groups.
24	3	Unclear why studies that took place in low income countries where the context of birth is very different were included. If these are retained then I recommend including something in the limitations about this and separating these from the studies that occurred in high-income countries.	Thank you for your comment, we have added the following comment to the discussion regarding low-income/developing countries: <i>“..some studies were conducted in developing countries while others were in higher-income countries in which the context of birth is very different. Given the scope and purpose of this review, this review focused on characteristics of doula support and outcomes of interest without consideration to healthcare system and healthcare access.”</i>
25	4	comment on Acknowledgements: Fatima Abdallah, DTI (am not a DONA doula, but rather a DTI doula or you can use the letter CD (Certified Doula)	Thank you, we have made the correction.
26	4	Page 5, line 51- don't use alternative, only use complementary. Doulas are not an alternative to the OBs, but are part of complementary care. Alternatively, if you wanted to discuss alternatives in the future or add something more inclusive, midwifery care is an alternative to OB based care- usually ideal for low risk pregnancies, and can be provided in a hospital or out of hospital birth space. Topic for a different paper. Doula care on the other hand, is complementary care to both types of obstetrical care; that provided by either OBs or midwives.	Thank you for your comment, we have reworded this section to read as follows: <i>“Contemporary maternal labor and delivery (L&D) care often equates to a hospital-based birth with a team of obstetrical medical providers. A complementary care model is the use of a birth companion or doula which is a globally recommended practice providing continuous labor support throughout a pregnancy, often in concert with obstetric care. Doulas act as companions to the pregnant individual and provide a range of reproductive care services depending on their degree of training and the clinical care setting”</i>
27	4	Page 16, line 9/10: description of doula support- instead of just emotional support, doula support can be described as emotional, informational, physical support	Thank you for your comment, we did not limit our inclusion to only emotional support and included all types of support in our report.

Comment #	Reviewer #	Comment	Author Response
28	4	page 30, line 8-9: What is a doula trained nurse midwife? That doesn't make sense. A nurse midwife is a completely different field than a doula's but there is often confusion about this. Nurse-midwives actually take on role of OB more than than of a doula. They are medically trained personnel with a focus on low risk pregnancies and birth care.	Thank you for that clarification. We have reworded this to read as "nurse/midwife with doula training" to reference those described in the literature as labor staff who received additional training to provide supportive doula services.
29	4	Page 30, line 27: Just a note- more often, doulas work as independent of the hospital system, and specifically hired by the pregnant family. This helps keep them aligned with the preferences of their clients, and not influenced by hospital policies if they might go against preferences of the pregnant individual. It allows for advocacy of pregnant person's values and preferences.	Thank you, we inserted this additional information into Table 2.
30	4	page 104 line 28, last column- doula midwife is not a designation. A doula is not a midwife. Perhaps this was a term used in research paper; as in a midwife also with doula training?	<p>Yes, that is correct, the authors of Feng 2013 used the term "doula midwife" to describe the labor companion for participants in their observational study (p. 574):</p> <p><i>"In the observation group, from initial labouring to two hours postpartum, each primipara was accompanied with one Doula midwife. During the delivery accompanying process, Doula midwife conducted psychological, physiological, and physical care, and explained delivery-related concepts to primiparas and their families and provided mental and spiritual support"</i></p> <p>Source: Feng, B. B., Wang, L., & Zhai, J. J. (2013). Investigation on delivery analgesia effect of combined spinal epidural anesthesia plus Doula and safety of mother and baby. <i>Clinical and Experimental Obstetrics & Gynecology</i>, 40(4), 574-578</p>
31	4	page 139 line 29- doulas do not contradict medical personnel, but one way to help families receive the model of care they desire is to offer midwifery services as well as obstetrical services. Many families might feel like their preferences in a birth are better	Thank you for this additional insight into the doula scope of practice, we have added this context into Appendix F.

Comment #	Reviewer #	Comment	Author Response
32	4	<p>served by one model of care vs the other. Once they are in a space that is in line with their preferences, it helps overall. There are two models of care for birth-Midwifery model of care and Medical or Active Management of Labor. Doulas help show alternatives and options in care from one provider to another, and that gives clients an ability to choose which model of care is more in line with their preferences.</p> <p>page 139, line 60- Many top-notch doula orgs not included here, another one is DTI- Doula Trainings International</p>	<p>Thank you, in the interest of brevity we were unable to provide a comprehensive list of organizations, but we have now included DTI in our supplementary materials.</p>

APPENDIX E: PROFESSIONAL DOULA STANDARDS

As of 2022, there is no state licensure for doulas and certification is not standardized – based on surveillance conducted in 2018, only 23 states contained hospitals that had implemented any kind of doula service agreement/policy;⁴⁶ however, many state agencies have begun to implement programs that would provide access to doula support for those with less financial means, including state funded Medicaid programs. Hospitals that regularly work with doula services or have hospital-based doula care have made doula certification a requirement.⁴⁷⁻⁵¹

SCOPE OF PRACTICE⁵²

Planning assistance: Help parents make informed choices based on what they value. A doula does not give medical advice or perform any medical tasks. The doula may describe the procedure, explain why it is done, clarify the procedure’s risks and benefits, and offer alternatives.

Provide resources: Connect families with additional resources and support. When clients have questions about medical issues, the doula can consider this an opportunity to facilitate communication between the client and their caregivers. When the birthing person and their family speak directly with their health care providers, it reduces risk of miscommunication and promotes informed decision-making.

Facilitate effective communication between families and healthcare team: Doulas do not contradict health care providers. Entering an adversarial relationship with that provider undermines the woman’s confidence in her provider and in her ability to make her own choices.

One way to help families receive the model of care they desire is to offer midwifery services as well as obstetrical services. Many families might feel like their preferences in a birth are better served by one model of care versus the other. Once they are in a space that is in line with their preferences, it helps overall.

There are two models of care for birth- Midwifery model of care and Medical or Active Management of Labor: doulas provide their clients with information on both models to help them make an informed choice.

REQUIRED COURSEWORK & CORE COMPETENCIES^{52,53}

- Physiology of childbirth
- Common interventions and evidence-based care
- Comfort measures for Childbirth
- Breastfeeding
- Anatomy and cervical change during labor
- The emotional impact of labor and birth
- Bishop score, induction of labor, and medical interventions
- The stages of labor and how doulas support each phase
- Communicating with medical care providers and clients utilizing emotional intelligence
- Hospital birth and home birth
- Hormones associated with labor
- Physical comfort measures and emotional support
- Cesarean birth and emergency situations
- The Golden Hour and how to support it
- Breastfeeding
- Family bonding
- Newborn assessments and medications
- The client/doula relationship
- Doula contracts and business basics

US-BASED CERTIFICATION ORGANIZATIONS

Doulas of North America (DONA)	https://www.dona.org/become-a-doula/birth-doula-certification/
Doula Trainings International (DTI)	https://doulatraininginternational.com/
International Childbirth Education Association (ICEA)	https://icea.org/certification/icd-exam/
International Doula Institute	https://internationaldoulainstitute.com/birth-doula-certification-program/
ProDoula	https://www.prodoula.com/labor-doula-trainings/

APPENDIX F: RESEARCH IN PROGRESS

Status	Study Title	Study Design	Information Resources
Recruiting	EngagINg the COmmunity to Reduce Preterm Birth Via Adherence to an Individualized Prematurity Prevention Plan (INCORPorATe IP3)	Prospective cohort	ClinicalTrials.gov Identifier: NCT04933812
Enrolling by invitation	Growing Together: Expanding Knowledge About and Evaluating Services for Incarcerated Pregnant and Postpartum Women in Arkansas	Non-randomized controlled trial (allocation based on self-selection)	ClinicalTrials.gov Identifier: NCT04421235
Recruiting	Today Not Tomorrow Pregnancy and Infant Support Pro Record #7	Non-randomized controlled trial (allocation based on self-selection)	ClinicalTrials.gov Identifier: NCT04879797
Recruiting	Randomized Controlled Trial to Evaluate Efficacy of Psychological Support Based on Positive Suggestions (PSBPS) on Mental Health Morbidity and Cognitive Function	Open-label cluster RCT	ClinicalTrials.gov Identifier: NCT04100577
Not yet recruiting	Mobilizing Doulas to Empower Women in Post-partum Diabetes Prevention, a Randomized Controlled Trial	Single-blinded RCT	ClinicalTrials.gov Identifier: NCT04406792
Active, not recruiting	Pilot Study of ICU Doulas Providing Psychological Support Based on Positive Suggestions to Mitigate Psychological and Cognitive Sequelae of Critical Illness	Prospective cohort	ClinicalTrials.gov Identifier: NCT03736954
Not yet recruiting	Reducing Racial Disparities in SMM: Assessing the Integration of Maternal Safety Bundles and Community Based Doulas to Improve Outcomes for Black Women	Non-randomized controlled trial (allocation based on locations)	ClinicalTrials.gov Identifier: NCT04879797
Not yet recruiting	Well-Mama Community Doula Navigator Study (Enhancing Perinatal Care Support to Improve Maternal Mortality Disparities)	Open-label RCT	ClinicalTrials.gov Identifier: NCT05179369
In progress	Cooperation Between Midwives and Doulas in Context of Perinatal Care – A Systematic Review of Qualitative and Quantitative Studies	Systematic review	PROSPERO ID: CRD42020182428 https://www.crd.york.ac.uk/PROSPERO/
In progress	Community-Based Doulas for Migrant Women: A Systematic Review and Narrative Synthesis	Systematic review	PROSPERO ID: CRD42020193216 https://www.crd.york.ac.uk/PROSPERO/

Status	Study Title	Study Design	Information Resources
In progress	Doula Support for Minority and Disadvantaged Women: A Meta-Analysis of Observational Studies	Meta-analysis	PROSPERO ID: CRD42020209563 https://www.crd.york.ac.uk/PROSPERO/
In progress	Childbirth and Psychological Outcomes of Doula Support: A Systematic Review and Meta-Analysis	Systematic review/meta-analysis	PROSPERO ID: CRD42020222764 https://www.crd.york.ac.uk/PROSPERO/
In progress	The Influence of Support People, Including the Partner and Care-Providers, and the Use of Antenatal Education Information and Techniques During Labour and Birth. A Meta-Synthesis.	Systematic review/meta-analysis	PROSPERO ID: CRD42021275614 https://www.crd.york.ac.uk/PROSPERO/

Abbreviations: ICU=intensive care unit; PROSPERO=international prospective register of systematic reviews; RCT=randomized controlled trial; SMM=severe maternal morbidity.

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