



How's the Baby Doing? – A Midwifery Model of Fetal Surveillance

Resources to support evidence-informed approaches to fetal assessment in community birth settings

How to use this guide: this guide is divided into three sections by evidence source: (1) professional guidelines; (2) research articles; and (3) other evidence sources. Wherever possible, a link to the free full text version of the article/resource is included. If the article or resource is not available freely online, then CALM has provided access via the members-only section of the CALM website. Please note: this is not an exhaustive list of evidence and research on fetal surveillance. Rather, this guide coalesces key sources and up-to-date leading research to support you in your ongoing growth and development.

(1) Professional Guidelines

American College of Nurse-Midwives. (2015). Intermittent Auscultation for Fetal Heart Rate Surveillance: American College of Nurse-Midwives. *Journal of Midwifery and Women's Health*, 60(5), 626-632. doi: 10.1111/jmwh.12372.

- Free full text available at: <https://onlinelibrary.wiley.com/doi/full/10.1111/jmwh.12372>

American College of Obstetricians and Gynecologists. (2019). Committee Opinion No. 766: Approaches to limit intervention during labor and birth. *Obstetrics & Gynecology*, 133(2), e164-e173. doi: 10.1097/AOG.0000000000003074

- Free full text available at: <https://www.acog.org/Clinical-Guidance-and-Publications/Committee-Opinions/Committee-on-Obstetric-Practice/Approaches-to-Limit-Intervention-During-Labor-and-Birth?IsMobileSet=false>

American College of Obstetricians and Gynecologists. (2010). Practice Bulletin No. 116: Management of intrapartum fetal heart rate tracings. *Obstetrics & Gynecology*, 116(5), 1232-1240. doi: 10.1097/AOG.0b013e3182004fa9.

- Free full text available at: <https://semcme.org/wp-content/uploads/Fetal-Assessment-Pre-Reading-ACOG-Practice-Bulletin-2.pdf>

American College of Obstetricians and Gynecologists. (2009). Practice Bulletin No. 106: Intrapartum fetal heart rate monitoring: nomenclature, interpretation, and general management principles. *Obstetrics & Gynecology*, 114(1), 192-202. doi: 10.1097/AOG.0b013e3181aef106

- Free full text available at: https://www.mnhospitals.org/Portals/0/Documents/patientsafety/Perinatal/3a_ACOG%20Bulletin%20106.pdf

Association of Women’s Health, Obstetric and Neonatal Nurses (AWHONN). (2015). Fetal heart monitoring. *JOGGN*, 44(5), 683-686. DOI: <https://doi.org/10.1111/1552-6909.12743>

- Free full text available at [https://www.joggn.org/article/S0884-2175\(15\)35318-1/fulltext](https://www.joggn.org/article/S0884-2175(15)35318-1/fulltext)

Lewis, D., Downe, S., for the FIGO Intrapartum Fetal Monitoring Expert Consensus Panel. (2015). FIGO consensus guidelines on intrapartum fetal monitoring: Intermittent auscultation. *International Journal of Gynecology & Obstetrics*, 131, 9-12.

- Free full text available at: <https://obgyn.onlinelibrary.wiley.com/doi/full/10.1016/j.ijgo.2015.06.019>

National Institute for Health and Care Excellence (NICE). (2017). *Intrapartum care for healthy women and babies*. London: National Institute for Health and Care Excellence.

- Free full text available at: <https://www.nice.org.uk/guidance/cg190>

World Health Organization (WHO). (2018). *WHO recommendation on intermittent fetal heart rate auscultation during labour*. Geneva: World Health Organization.

- Free full text available at <https://extranet.who.int/rhl/topics/preconception-pregnancy-childbirth-and-postpartum-care/care-during-childbirth/care-during-labour-1st-stage/who-recommendation-intermittent-fetal-heart-rate-auscultation-during-labour>

(2) Research Articles

Blix, E., Maude, R., Hals, E., Kisa, S., Karlsen, E., Nohr, E. A., ... Kaasen, A. (2019). Intermittent auscultation fetal monitoring during labour: A systematic scoping review to identify methods, effects, and accuracy. *PLoS One*, 14(7), e0219573. doi:10.1371/journal.pone.0219573

- Free full text available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6619817/>

Devane, D., Lalor, J. G., Daly, S., McGuire, W., Cuthbert, A., & Smith, V. (2017). Cardiotocography versus intermittent auscultation of fetal heart on admission to labour ward for assessment of fetal wellbeing. *The Cochrane Database of Systematic Reviews*, 1(1), CD005122. doi:10.1002/14651858.CD005122.pub5

- Free full text available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6464914/>

Heelan L. (2013). Fetal monitoring: creating a culture of safety with informed choice. *The Journal of Perinatal Education*, 22(3), 156–165. doi:10.1891/1058-1243.22.3.156

- Free full text available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4010242/>

Martis, R., Emilia, O., Nurdaiani, D.S., & Brown, J. (2017). Intermittent auscultation (IA) of fetal heart rate in labour for fetal well-being. *Cochrane Database of Systematic Reviews*, 2, CD008680. DOI: 10.1002/14651858.CD008680.pub2

- Free full text available at: <https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD008680.pub2/full>

Maude, R. M., Skinner, J. P., & Foureur, M. J. (2014). Intelligent Structured Intermittent Auscultation (ISIA): Evaluation of a decision-making framework for fetal heart monitoring of low-risk women. *BMC Pregnancy and Childbirth*, 14, 184. doi:10.1186/1471-2393-14-184

- Free full text available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4070350/>

Millar, L. J., Shi, L., Hoerder-Suabedissen, A., & Molnár, Z. (2017). Neonatal Hypoxia Ischaemia: Mechanisms, Models, and Therapeutic Challenges. *Frontiers in cellular neuroscience*, 11, 78. doi:10.3389/fncel.2017.00078

- Free full text available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5420571/>

Sartwelle, T. P., & Johnston, J. C. (2018). Continuous Electronic Fetal Monitoring during Labor: A Critique and a Reply to Contemporary Proponents. *Surgery Journal*, 4(1), e23–e28. doi:10.1055/s-0038-1632404

- Free full text available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5842073/>

Sartwelle, T. P., Johnston, J. C., & Arda, B. (2017). The Ethics of Teaching Physicians Electronic Fetal Monitoring: And Now for the Rest of the Story. *Surgery Journal*, 3(1), e42–e47. doi:10.1055/s-0037-1599229

- Free full text available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5553489/>

Ugwumada, A. (2014). Are we (mis)guided by current guidelines on intrapartum fetal heart rate monitoring? Case for a more physiological approach to interpretation. *BJOG*, 121(9), 1063–70. doi: 10.1111/1471-0528.12900

- Free full text available at: <https://obgyn.onlinelibrary.wiley.com/doi/full/10.1111/1471-0528.12900>

Ugwumada, A., Steer, P., Parer, B., Carbone, B., Vayssiere, C., Maso, G., & Arulkumaran, S. (2016). Time to optimize and enforce training in interpretation of intrapartum cardiotocograph. *BJOG*, 123(6), 866–869. doi: 10.1111/1471-0528.13846

- Free full text available at: <https://obgyn.onlinelibrary.wiley.com/doi/full/10.1111/1471-0528.13846>

(3) Other Evidence Sources

Bailey, R.E. (2011). Chapter E: Intrapartum Fetal Surveillance. *ALSO Course Manual*. Washington, DC: American Academy of Family Physicians.

- Full text available on the members-only portion of the CALM website

Decercq, E., Sakala, C., Corry, M., Applebaum, S., & Herrlich, A. (2013). *Listening to Mothers III: Pregnancy and Childbirth*. New York: Childbirth Connection.

- Free full text available at: <http://www.nationalpartnership.org/our-work/resources/health-care/maternity/listening-to-mothers-iii-pregnancy-and-birth-2013.pdf>

Gibb, D., & Arulkumaran, S. (2017). *Fetal Monitoring in Practice, 4th edition*. London: Elsevier.

- Full text available on the members-only portion of the CALM website

Simpson, K.R. (2016). *Fetal Assessment and Safe Labor Management*. Chicago: National Certification Corporation (NCC).

- Free full text available at <https://www.ncc-efm.org/filz/2016%20NCC%20Monograph%20Free%20Version.pdf>