

Fetal Heart Monitoring

An official position statement of the Association of Women's Health, Obstetric and Neonatal Nurses

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Position

The Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN) maintains that the availability of registered nurses (RNs) and other health care professionals who are skilled in fetal heart monitoring (FHM) techniques, including auscultation and electronic fetal monitoring (EFM), is essential to maternal and fetal well-being during antepartum care, labor, and birth. Fetal heart monitoring requires advanced assessment and clinical judgment skills and should not be delegated to unlicensed assistive personnel or others who do not possess the appropriate licensure, education, and skills validation. A woman's preferences and clinical presentation should guide selection of FHM techniques. In general, the least invasive method of monitoring is preferred to promote physiologic labor and birth. Labor is dynamic; therefore, consideration of preferences and identification of risk factors should occur upon admission to the birth setting and should be ongoing throughout labor.

Background

The intent of intrapartum fetal surveillance is to assess uterine activity and fetal heart rate (FHR) response to labor to make appropriate, physiologically based clinical decisions (Lyndon & Ali, 2015). Fetal heart monitoring includes initial and ongoing assessments of the woman and fetus, use of monitoring techniques such as intermittent FHR auscultation or EFM and interpretation of FHM data, and provision of clinical interventions as needed. Regardless of the setting, each aspect of FHM should be performed by a licensed, experienced, health care professional consistent with the scope of practice as defined by appropriate state regulations. These health care professionals include RNs, certified nurse-midwives, certified midwives, other advanced practice nurses such as nurse practitioners and clinical nurse specialists, physicians, and physician assistants.

The Role of the Nurse

Electronic fetal heart monitoring is not a substitute for appropriate, professional, nursing care and support of women in labor. Perinatal RNs are responsible for FHM, and this responsibility may not be delegated to personnel without requisite assessment skills and scope of practice. Health care facilities should ensure

that RN staffing levels are appropriate for the volume and acuity of their patient populations. AWHONN's *Guidelines for Professional Registered Nurse Staffing for Perinatal Units* (2010) outlines specific staffing recommendations for administering FHM. These guidelines, other relevant recommendations from professional associations and organizations, and state and federal regulations should be incorporated into FHM policies, procedures, and unit operations.

Registered nurses and other health care professionals should use the standardized, descriptive terms set forth by the National Institute of Child Health and Human Development to communicate and document FHR characteristics (e.g., baseline rate, variability, decelerations, and accelerations; Macones, Hankins, Spong, Hauth, & Moore, 2008). Effective communication and collaboration among health care professionals are central to providing quality care and optimizing patient outcomes. Policies, procedures, protocols, and practice guidelines that promote collegiality among health care professionals should be used in every facility.

Implementation of customary interventions in response to FHM data and clinical assessment is within the scope of practice of the RN. Interprofessional policies should support the RN in making decisions regarding fetal monitoring practice, intervening independently when appropriate to maternal and/or fetal condition, and identifying appropriate mechanisms to use if there is a difference of opinion regarding interpretation of fetal monitoring data or a woman's plan of care. These policies, used to safeguard the best interests of the woman, her fetus, and all members of the health care team, should clearly describe the facility's chain of communication for escalation of any unresolved concerns and adhere to state regulations.

Frequency of Fetal Assessment During Labor

Assessment of fetal status during labor occurs via intermittent auscultation or EFM. Frequency of assessment is based on identified maternal and/or fetal risk factors and phase and stage of labor (see Tables 1 and 2). When the FHR cannot be recorded and assessed continuously via EFM, recommendations for assessment based on intermittent auscultation are applicable (see Table 1), for example, during maternal



TABLE 1 ASSESSMENT AND DOCUMENTATION OF FETAL STATUS USING INTERMITTENT AUSCULTATION^{a,b}

	Latent phase (<4 cm)	Latent phase (4–5 cm)	Active phase (≥ 6 cm)	Second stage (passive fetal descent)	Second stage (active pushing)
Low-risk without oxytocin	Insufficient evidence to make a recommendation Frequency at the discretion of the midwife or physician	Every 15–30 minutes	Every 15–30 minutes	Every 15 minutes	Every 5–15 minutes

^aFrequency of assessment should always be determined based on the status of the mother and fetus and at times will need to occur more often based on their clinical needs, e.g., in response to a temporary or on-going change.

^bSummary documentation is acceptable, and individual hospital policy should be followed.

ambulation or in situations in which a continuous signal cannot be maintained.

The following professional associations have suggested protocols for frequency of assessment of FHR by auscultation and EFM to determine fetal status during labor: [American Academy of Pediatrics & American College of Obstetricians and Gynecologists \(2017\)](#), [National Institute for Health and Care Excellence \(2014\)](#), and [Society of Obstetricians and Gynaecologists of Canada \(Liston, Sawchuck, & Young, 2018\)](#). Suggested frequencies are generally based on protocols in reports of clinical trials in which investigators compared perinatal outcomes associated with FHR auscultation and EFM. (Haverkamp et al., 1979; Haverkamp, Thompson, McFee, & Cetrulo 1976; Kelso et al., 1978; Luthy et al. 1987; McDonald, Grant, Sheridan-Pereira, Boylan, & Chalmers, 1985; Neldam et al., 1986; Renou, Chang, Anderson, & Wood, 1976; Vintzileos et al., 1993). These classic studies took place in the late 1970s to the early 1990s, and no similar studies have been conducted since that time. The reported range of frequency of assessment using auscultation varied from every 15 to 30 minutes during the first stage of labor to

every 5 to 15 minutes during the second stage of labor. In most studies, a 1:1 nurse to patient ratio was used for auscultation protocols, and researchers studied low risk and/or high risk patient populations. Specific cervical dilatation parameters for stages of labor generally were not defined, with the exception of [Haverkamp et al. \(1976\)](#) and [Neldam et al. \(1986\)](#) who used 5 centimeters or greater dilation as the definition of active labor.

To date, there have been no clinical trials in which investigators examined fetal surveillance methods and frequency during the latent phase of labor. Therefore, during this phase, health care providers should use their best clinical judgment when deciding the method and frequency of fetal surveillance.

During the last decade, more evidence has emerged about normal labor progress and the influence of assessment of labor progress based on cervical status on mode of birth. Previously held views about normal labor have been questioned, specifically the number of centimeters of cervical dilation that constitutes the beginning of active labor. Based on a cumulative body of evidence about normal labor progress, 6 centimeters rather than 4 centimeters dilation

TABLE 2 ASSESSMENT OF FETAL STATUS USING ELECTRONIC FETAL MONITORING^{a,b}

	Latent phase (<4 cm)	Latent phase (4–5 cm)	Active phase (≥ 6 cm)	Second stage (passive fetal descent)	Second stage (active pushing)
Low-risk without oxytocin	Insufficient evidence to make a recommendation Frequency at the discretion of the midwife or physician	Every 30 minutes	Every 30 minutes	Every 30 minutes	Every 15 minutes
With oxytocin or risk factors	Every 15 minutes with oxytocin; every 30 minutes without	Every 15 minutes	Every 15 minutes	Every 15 minutes	Every 5 minutes

^aFrequency of assessment should always be determined based on the status of the mother and fetus and at times will need to occur more often based on their clinical needs, e.g., in response to a temporary or on-going change.

^bSummary documentation is acceptable, and individual hospital policy should be followed.

should be considered the beginning of the active phase of the first stage of labor. Using this and other criteria to define normal progression of labor and establish active labor has the potential to minimize risk of primary, and therefore subsequent, cesarean birth in healthy, low risk women (American College of Obstetricians and Gynecologists & Society for Maternal-Fetal Medicine, 2014; Spong, Berghella, Wenstrom, Mercer, & Saade, 2012).

Recently, the importance of these new data and associated implications for clinical practice have been highlighted (American College of Obstetricians and Gynecologists & Society for Maternal-Fetal Medicine, 2014; Spong et al., 2012). AWHONN supports recommendations, including the use of 6 centimeters dilation to define the beginning of the active phase of the first stage of labor, and has clarified suggestions for fetal assessment during labor in this context (see Tables 1 and 2). In the absence of new data on frequency of fetal assessment associated with cervical dilation, AWHONN continues to recommend increasing the frequency of fetal assessment at 4 centimeters dilation. Because variation exists in the original research protocols used to compare intermittent auscultation with continuous EFM, clinicians should make decisions about the method and frequency of fetal assessment based on evaluation of the woman's preferences and response to labor, the phase and stage of labor, assessment of maternal and fetal conditions and risk factors, and facility rules and procedures.

Documentation

Clinical information about the mother and fetus should be documented throughout the course of labor. The nature of documentation, including style, format, and frequency interval, should be clearly delineated in each institution. Documentation should occur concurrent with assessment when using auscultation, as there is no other record of FHM data in this situation.

Documentation does not necessarily need to occur at the same intervals as assessment when using continuous EFM because FHM data are recorded in the tracing. For example, while evaluation of the FHR may occur every 15 minutes with EFM, a summary of findings of fetal status may be documented in the medical record less frequently. However, it is important that the documentation reflect the frequency of assessment and the interpretation of FHM findings. During induction or augmentation of labor with oxytocin, the FHR should be evaluated and documented before and following dosing changes. Summary documentation of fetal status approximately every 30 minutes that indicates continuous nursing bedside attendance and evaluation is sufficient when a woman is in the active, pushing phase of the second stage of labor (Simpson, 2014).

AWHONN supports use of summary documentation at intervals established by the individual facility and described in policies, procedures, and guidelines. A documentation policy should be based on state guidelines as well as those of professional associations and regulatory and certifying bodies. Each institution should also determine policies and procedures regarding maintenance, storage, archiving, and retrieval of all forms of FHM records and the parameters for maintaining the EFM tracing as part of the medical record when used.

AWHONN supports development of interprofessional institutional policies, procedures, and protocols that outline responsibility for ongoing FHM documentation. Documentation should contain streamlined, factual, and objective information and should include but should not be limited to the following:

- A systematic admission assessment of the woman and fetus;
- Ongoing assessments of the woman and fetus, including FHR and uterine activity data;
- Interventions provided and evaluation of responses;
- Communication with the woman and her family or primary support person;
- Communication with providers; and
- Communication related to escalation of concerns.

After documentation of characteristics of intermittent auscultation data or the FHR tracing, such as baseline rate, variability, and presence or absence of accelerations and decelerations, some clinicians elect to include further interpretation by noting the FHR category: normal (category I), indeterminate (category II), or abnormal (category III), and only if using EFM. Documentation of FHR category is optional; however, clinicians should follow institutional policies for documentation of fetal status during labor.

Fetal Heart Monitoring Education

Ongoing education and periodic validation of knowledge and competence for RNs and other health care professionals who engage in FHM are recommended. Ideally, attendance at educational programs will be interprofessional. To prepare clinicians for use of auscultation and EFM and the evaluation of uterine activity, AWHONN urges that each facility establishes and/or ensures the availability of educational programs for guided clinical experience, skills validation, and ongoing competence assessment. AWHONN supports education that includes the physiologic basis for interpretation of FHM data, implications for labor support, and interprofessional communication strategies.

Research Recommendations

AWHONN supports research focused on enhancing the body of knowledge and best practices regarding fetal assessment. Specifically, AWHONN supports research concerning the following:

- Efficacy of FHM that includes standardized definitions and FHM terminology,
- Efficacy of interventions used in response to fetal monitoring findings,
- Effect of uterine activity on fetal oxygenation,
- Efficacy of EFM and/or intermittent auscultation related to neonatal outcomes,
- Effect of EFM on a woman's labor experience and outcomes,
- Effect of staffing on optimal patient outcomes related to fetal assessment and intervention,
- Identification of optimal information technology applications including decision support and clinical alarms,

- Effectiveness of implementation strategies for increasing the routine use of intermittent auscultation in women at low risk for fetal intolerance of labor,
- Effectiveness of de-implementation strategies for reducing the routine use of continuous electronic fetal monitoring in women at low risk for fetal intolerance of labor, and
- Comparison of patient outcomes and quality indicators when using auscultation and palpation versus EFM.



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