When caring for a woman in labor, you may encounter numerous visual and audible alerts generated from the electronic fetal monitoring (EFM) system based on the fetal heart rate (FHR) pattern. You may consider the alerts helpful or view them as a nuisance. Ideally, with one-to-one nursing care for women in labor, there should be no need for EFM alerts as the nurse should be able to continuously assess the patient and the EFM tracing. As we all know, this is not always the situation; therefore, the issue of EFM alerts warrants consideration in terms of how they are used, default settings, and expectations for their acknowledgement.

Audible and visual EFM alerts are designed to notify clinicians of potentially concerning FHR changes. In many cases, the alerts reflect a false positive notification as the FHR pattern on review is actually within normal limits. The number of false positive alerts is related to system defaults set for each type of pattern. For example, default settings usually include FHR limits (e.g., <110 for bradycardia and >160 for tachycardia), duration, recovery time, and a reset feature. Most systems also include an alert for a poor signal. Duration is the amount of time that the FHR must be above or below the defined rate to trigger the alert. Recovery is the amount of time that the FHR must be in range before it is considered within defined limits. The reset feature includes the amount of time after the alert is acknowledged before the alert will trigger again; for example, if the FHR was >170 for 10 minutes and the clinician acknowledged the alert, the alert will trigger again in 10 minutes if the FHR is still >170. The “tighter” the default settings, the more false positive alerts will be triggered. If the default settings are set with a wider range of acceptable defined limits (e.g., bradycardia ≤100 and tachycardia ≥180), fewer alerts will be triggered; however, there is risk of missing a potentially deteriorating FHR pattern in the context of a busy unit where the nurse has more than one patient in labor and is unable to visually observe the other patients’ EFM tracings.

Generally, sensitivity (the ability to accurately detect an abnormality) plays a more prominent role in alert default settings than specificity (the abnormality that is detected actually reflects a problem). Therefore, there is risk of the clinician becoming desensitized to the many alerts that are triggered. This phenomenon is sometimes referred to as alert or alarm fatigue. At times in this situation, alerts may be disabled, silenced, or even ignored. In most EFM systems, the audit trail records all aspects of alerts including timing; FHR characteristic being alerted; when and from where (e.g., central screen or bedside) the alert was acknowledged, disabled or silenced; changes in the default settings; and the clinician who performed any of these activities. These data can become an issue in medical-legal cases.

There are no national standards for setting parameters for EFM alerts or the timeframe expected for acknowledgement. Often default settings are determined when the system is installed and may vary widely from one institution to another. In many cases, the default settings can be altered by the clinician based on the individual patient situation and be acknowledged from any computer on the unit. This area of clinical practice could benefit from research that would potentially lead to standardization, minimizing risk of alert fatigue and ultimately promoting patient safety.

Suggestions for Research

• What default settings for EFM alerts provide the most useful data to promote fetal well-being?
• What is the ideal balance between sensitivity and specificity related to EFM alerts?
• How are visual and/or audible EFM alerts displayed in the patient’s room perceived by the woman in labor and her support person(s)?

Additional Considerations for Standardization of Practice

• Should there be a requirement that alerts can only be acknowledged at the bedside?
• Should the system allow for clinicians to change alert settings based on individual clinical situations (e.g., maternal fever with fetal tachycardia will continuously generate alerts unless the upper parameters of the FHR are changed)?
• If individualization of settings is allowed, what processes should be in place to ensure safety?
• What is a reasonable time frame to expect that an EFM alert will be acknowledged?