Appendix 5. Distinguishing between Sinusoidal and Pseudosinusoidal Heart Rate Patterns

Although similar in appearance, sinusoidal and pseudosinusoidal fetal heart rate (FHR) patterns are associated with significantly different fetal outcomes. Sinusoidal FHR patterns are often secondary to:

• Chronic fetal anemia associated with fetal haemolysis.
• Acute, intrapartum asphyxia
• Fetal-maternal haemorrhage
• In-utero, fetal haemorrhage

Pseudosinusoidal FHR patterns, which closely resemble sinusoidal FHR patterns, are usually transient, resolve spontaneously without intervention and are usually associated with a good fetal outcome.

The cause of pseudosinusoidal FHR patterns is unknown but may seen after maternal narcotic analgesic administration. An undulating pattern often appears within five minutes of intravenous narcotic administration and spontaneously resolves without intervention within 30 minutes.

Sinusoidal FHR Pattern Characteristics

A sinusoidal fetal FHR pattern is defined as a pattern of fixed, uniform fluctuations of the FHR that create a pattern resembling successive geometric sine waves. It frequently is described as undulating and smooth and is characterized by the absence of variability.

The most widely accepted criteria to identify ‘true’ sinusoidal patterns are:

• A stable FHR baseline between 110 and 160 bpm with regular oscillations
• Oscillations of the sinusoidal waveform above and below an imaginary baseline (though the baseline is indeterminable with a sinusoidal pattern)
• Amplitude of the oscillations of 5-15 bpm (rarely is the amplitude of oscillations >15 bpm)
• Baseline variability minimal or absent.
• Frequency of oscillations 2-5 cycles/minute
• Absence of FHR accelerations

Pseudosinusoidal FHR Patterns

A pseudosinusoidal FHR pattern usually retains periods of moderate variability and/or an occasional fetal heart rate acceleration.