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Respiratory depression is one of the primary concerns associated with remifentanil patient controlled analgesia (PCA) use in labour. Capnography monitoring has been recommended as a routine with postoperative PCA[1] and was suggested for use with remifentanil PCA[2] because hypoventilation or apnoea generally precede oxygen desaturation[3].

In a study that did not receive a grant from funding agencies in the public, commercial, or not-for-profit sectors; and following local Ethics Committee approval, we initiated nasal end-tidal carbon dioxide ($_{ET}CO_2$) monitoring, in addition to oxyhaemoglobin saturation via pulse oximetry (SpO_2) , in order to assist midwives with respiratory monitoring during use of remifentanil PCA. We used a bi-aperture nasal cannula (Bluepoint Medical, Selmsdorf, Germany), whereby each nasal prong is divided into two channels, one for sampling CO_2 expired through the nose and one for delivering oxygen. A capnogram was displayed on the same screen as the pulse oximetry readings. All midwives received individual education about the physiological basis of waveform capnography.

The remifentanil PCA protocol was a 20 mcg bolus, delivered at 100 mL/h, with a 2 minute lockout interval. If analgesia proved inadequate, the bolus dose could be increased up to 40 mcg. Low flow oxygen was administered via the nasal prongs at 3 L/min. Pulse oximetry and capnography data were stored and later downloaded for analysis.

Over an 18 month period 37 women were monitored by nasal capnography. All women successfully completed $_{ET}CO_2$ monitoring for the duration of remifentanil PCA. A total of 291 apnoeic episodes (defined as the absence of