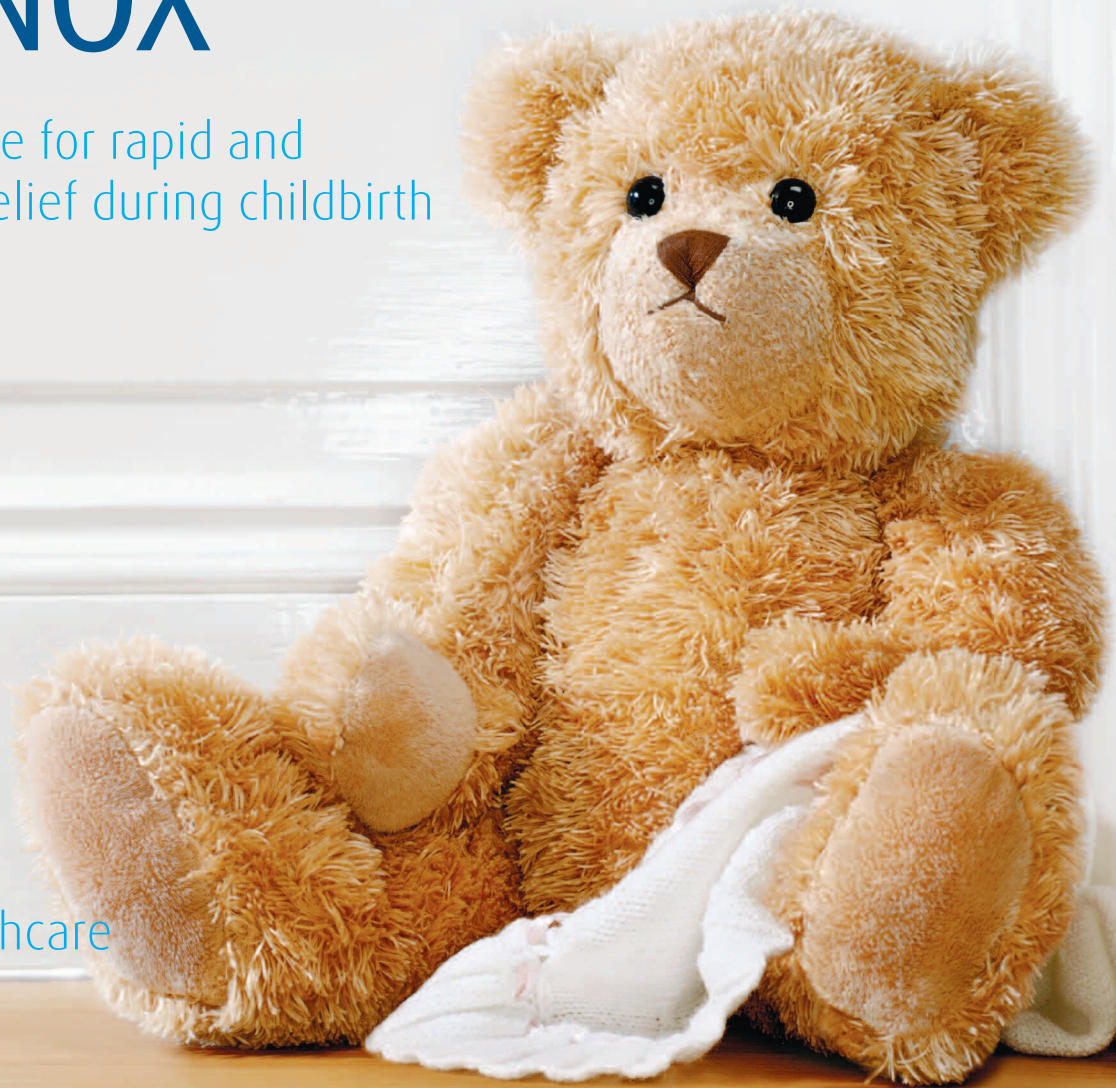


# ENTONOX<sup>®</sup>

The natural choice for rapid and  
controlled pain relief during childbirth

BOC: Living healthcare





## ENTONOX® – Fast and effective pain relief for an altogether more relaxed birth experience

ENTONOX is a ready-to-use gas mixture consisting of 50% nitrous oxide and 50% oxygen. The balanced nitrous oxide/oxygen ratio assures good oxygenation and minimises the risk of over sedation<sup>1</sup>. ETONOX is easily self-administered by mothers under the supervision of midwives<sup>2</sup>.

During a painful procedure like childbirth, when the emphasis is on delivering relief from pain and discomfort with minimal sedation, ETONOX is a commonly used technique<sup>3</sup>. It is fast acting, self-regulated, and disperses rapidly from the body following cessation of inhalation<sup>2</sup>.

The analgesic and sedative effects of ETONOX are well documented – and not only in obstetrics. Its analgesic properties have been shown to help overcome the

apprehension experienced by patients prior to a range of painful procedures. From acute trauma and fracture manipulation to childbirth<sup>4-6</sup>.

Nitrous oxide exhibits classical dose dependent analgesic effects, reducing the level of pain experienced. ETONOX is fast and effective – the onset of pain relief is gained within two to three minutes – and any effects wear off rapidly<sup>7,8</sup>.

- Not only analgesic, but contains sedative properties
- Non-invasive, inhaled analgesic
- Rapid onset/offset of action
- ETONOX can be combined with all other analgesics.





## Giving mothers control over their bodies helps smooth the passage of the baby

Today there are several techniques for providing pain relief during childbirth. Regional analgesia by means of epidural analgesia has become the most effective pain-alleviating technique but there are limitations, including more or less pronounced motor block. Other blocks, for example paracervical blocks, are used infrequently. Systematic opioids such as morphine and pethidine have a limited effect on contraction-induced pain and negative effects on the child<sup>9</sup>.

ENTONOX<sup>®</sup> is another frequently used method of pain relief. The level of pain relief provided by ENTONOX has been compared to other opiates: 30%–50% of nitrous oxide/oxygen is comparable to 15 mg of morphine or 100 mg of pethidine<sup>10,11</sup>.

During childbirth the pain experienced by women as they undergo contractions is acute. This can lead to feelings of frustration, further draining the woman of vital energy she will need later in the birthing process.

ENTONOX does not completely eliminate the pain of contractions, but it helps to make them more manageable. It can help mothers cope with painful contractions in early labour and allowing, as near as possible, the mother to experience the sensation of a natural birth.



## Self-regulated and effective pain relief

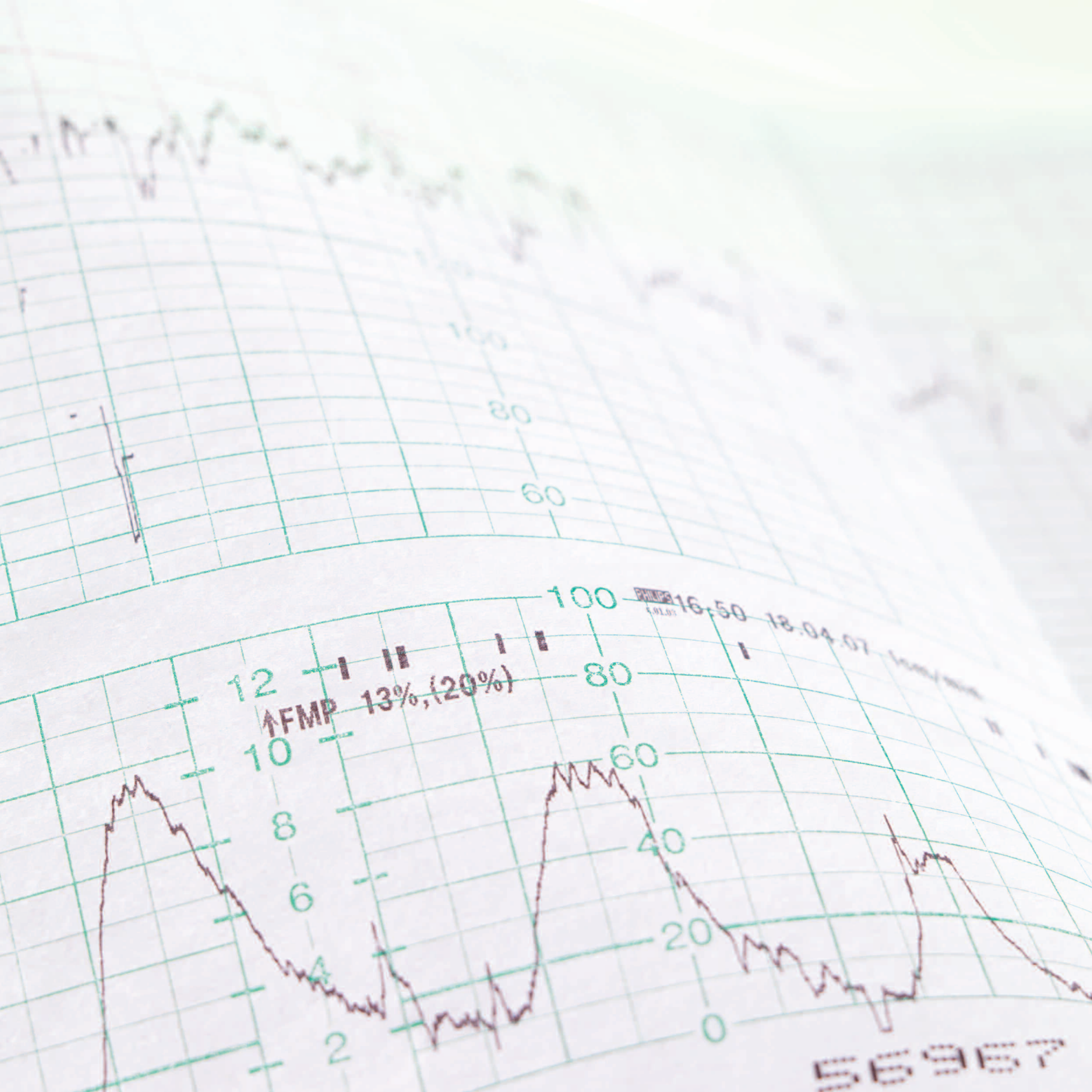
Self-administered ENTONOX analgesia is an invaluable source of short-term pain relief that allows mothers to adjust their intake to suit their own individual pain thresholds and comfort levels. By keeping track of their contractions, mothers can time their intake for maximum effect.

The fast offset of action associated with ENTONOX ensures women remain in control of the birthing process and in touch with what is happening in their bodies, even when contractions are at their peak. Compared to other methods of pain relief ENTONOX does not prolong the duration of labour, with all effects wearing off rapidly after cessation of administration<sup>2</sup>.

Apart from minor side-effects such as drowsiness and sometimes nausea, no serious adverse effects have been reported in studies examining the use of ENTONOX in mothers or neonates. ENTONOX can be used when suturing is required following birth<sup>3</sup>.

- Conscious, self-regulated pain relief
- Mother remains in control of her body and the birthing process
- Safe - no residual effects on the baby or mother.







## Proven pain relief in childbirth

ENTONOX® possesses many of the characteristics associated with the ideal analgesic agent. ENTONOX is non-invasive, has a rapid onset and offset of action, predictable effects, only mild side-effects, and is designed for ease of use and safe handling<sup>8</sup>.

In many countries, ENTONOX is by far the most widely used inhalation agent in obstetrics today. Self-administered ENTONOX analgesia is easy to use, safe and less resource demanding than epidural analgesia, for instance.

This method of pain relief has gained widespread acceptance due to its simplicity and availability, potential for patient-controlled delivery and overall lack of severe side-effects<sup>2</sup>.

ENTONOX requires minimal supervision and is acceptable to most mothers. In addition to providing effective pain relief, it is reassuringly safe for both mother and newborn. ENTONOX does not affect the duration of labour and has no relaxation effects on the uterus<sup>6</sup>.

- ENTONOX has no known negative effects on the baby.
- There are no known negative effects on breathing, circulation, the ability to push, or other bodily functions.
- The benefits of ENTONOX are gained quickly, and the gas and its effects are rapidly eliminated from the body.
- Any dizziness and/or nausea will wear off quickly after cessation of inhalation.



## Mechanism of action

### How does ENTONOX® compare with other methods of pain relief?

ENTONOX takes effect within the brain and spinal cord, reducing pain sensations. It is fast and effective – the onset of pain relief is gained within two to three minutes.

ENTONOX is a commonly used alternative to epidurals or systemic opioids. After cessation of administration all effects wear off rapidly<sup>8</sup>.

### What effect will ENTONOX have on the baby?

ENTONOX is known to cross the placenta but has no known negative effects on the baby. In fact the oxygen part of ENTONOX

may help increase the levels of oxygen in your bloodstream, which ultimately will pass via the placenta to the baby. This is good for the baby, especially during a labour contraction<sup>3</sup>.

### Are there any side-effects?

Some mothers experience certain side-effects. However, it is often difficult to tell if these side effects are caused by labour itself or from breathing ENTONOX.

Many mothers comment on feelings of light-headedness during administration and sometimes nausea can be experienced.







## Caring for the working environment

According to the American Society of Anesthesiologists' task force on trace anaesthetic gases there is insufficient evidence to recommend any routine medical surveillance of personnel exposed to trace concentrations of waste anaesthetic gases as long as routines are followed that ensure compliance with existing occupational limits<sup>12</sup>.

To minimise the potentially negative effects on health from chronic exposure to trace concentrations in the working environment most authorities have set clear recommendations on ambient air quality.

The maximum limits set in the UK and Ireland for the average exposure level, measured over an eight hour period is 100 ppm.

This is well below the limits that are likely to have any effect on the midwives and medical personnel working within the hospital or at the patient's home. These levels should be adhered to wherever ENTONOX is used<sup>12</sup>.

- ENTONOX should be administered in rooms with proper ventilation and/or air exchange systems set to the proper levels. *For example* in a home birth setting, open doors or windows to provide adequate ventilation.
- National air quality guidelines should be followed.



## ENTONOX® administration

ENTONOX is generally administered via a mouthpiece attached to a demand valve system. The demand valve can be fitted to either a standard pipeline wall outlet or to the regulator on the cylinder. By the mother breathing normally through the mouthpiece the demand valve is opened and the gas delivered. As the mother breathes in deeply, gas flows out of the equipment and is quickly absorbed through the lungs and ceases to flow whenever the mother stops inhaling.

Alternatively, the gas may be delivered using a facemask. The mother should hold the mask securely around her mouth and nose and by breathing normally the gas will be delivered.

The gas mixture is self-administered under clinical supervision. If the mother receives more gas than necessary, she will become drowsy and drop the mouthpiece or mask so that the gas will stop flowing. As a result, this form of "on demand" administration allows a mother to tailor her ENTONOX intake to suit her individual pain threshold throughout the birthing process and there is minimal risk of over sedation.

### Fast acting

Mothers will start to feel the initial analgesic effect of ENTONOX after four to five breaths and it will reach maximum effect within two to three minutes. For mothers in labour, synchronising inhalation to the rhythm of

their contractions is important to achieve maximum pain relief. The mother will need to commence inhalation as soon as a tightening sensation is felt so that full analgesic effect is achieved at the peak of a painful contraction. ENTONOX can be used throughout the painful aspects of the procedure, or for as long as the analgesic effect is desired.

### Ceasing administration

Following discontinuation of the administration, the effects wear off quickly. The mother should be allowed to recover under calm and controlled conditions - until the degree of consciousness has recovered satisfactorily.

### Considerations for use

Local policies and protocols for use should always be strictly adhered to.

Specific information on the safe use of ENTONOX can be found in the following publications from BOC Healthcare:

ENTONOX, Medical Gas Safety Datasheet and Summary of Product Characteristics

Further information on ENTONOX can be found at:

[www.entonox.co.uk](http://www.entonox.co.uk)

[www.bochealthcare.co.uk](http://www.bochealthcare.co.uk)

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