



 **Съезд**  
Congress



5-7 сентября 2018 / Санкт-Петербург  
September 5-7, 2018 / St. Petersburg



# Non-Neuraxial Techniques for Labour Analgesia

**Robin Russell**

**Nuffield Department of Anaesthetics  
Oxford, UK**

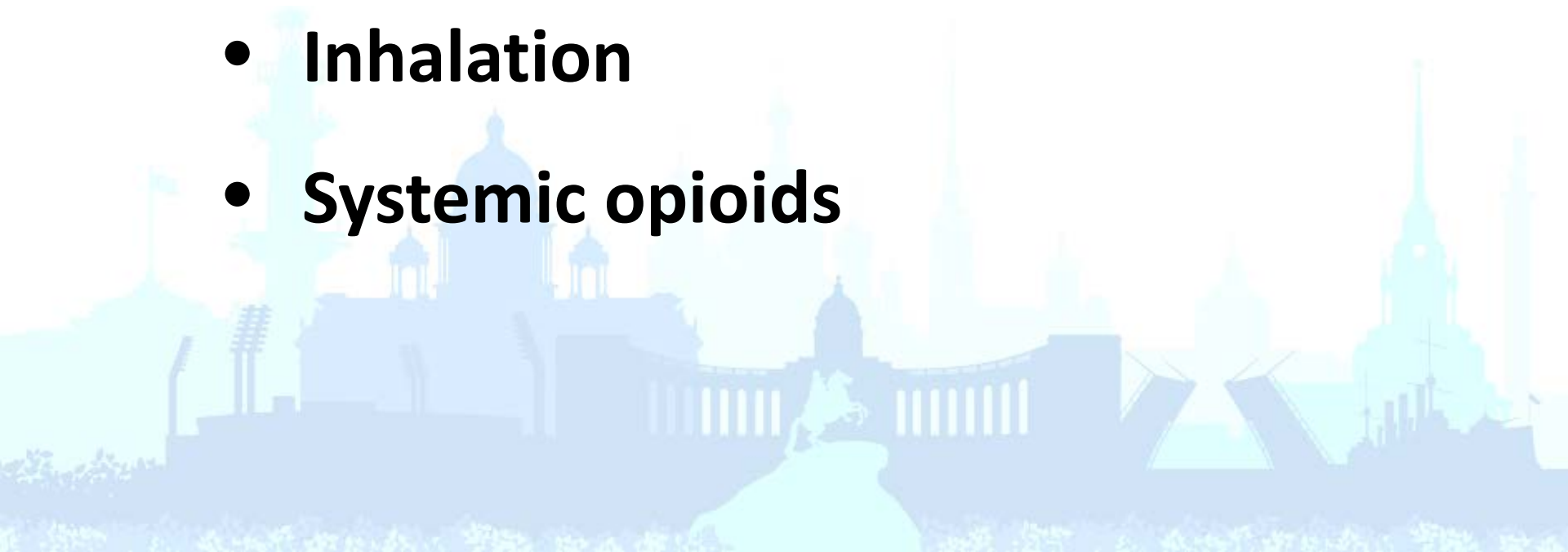






# Non-Neuraxial Techniques

- **Preparation**
- **Non-Pharmacological**
- **Inhalation**
- **Systemic opioids**



## Apple iOS

Launch the Safari browser on Apple's iOS and navigate to the website or web page you want to add to your home screen. Tap the Share button on the browser's toolbar and then press the Add to Home Screen icon in the Share Menu.



## Android

Launch Chrome for Android and open the website you want to pin to your home screen. Tap the menu button and tap Add to homescreen. You'll be able to enter a name for the shortcut and then Chrome will add it to your homescreen.



### Translations

The OAA are now focussing on translating their main publications into the 20 most common languages used in the UK from census data.

## LabourPains.com - for expectant parents, midwives and healthcare professionals

Welcome to LabourPains.com, the public information website of the OAA. Created specifically for expectant parents as well as midwives and healthcare professionals. On this site you can learn all about the pain relief choices available during labour and how to cope with labour pains. The information on LabourPains.com has been written by a multi-disciplinary group of doctors, midwives and mothers, ensuring that you have access to information which is trustworthy, unbiased and scientifically proven. Take a look, tell us what you think and don't forget to spread the word!



**PAIN RELIEF IN LABOUR**  
Our frequently asked questions



**C-SECTION**  
Our frequently asked questions



**VIEW ALL LEAFLETS**



**VIEW ALL TRANSLATIONS**



### Labour Pains Top 10 Translations

Polish	Arabic
Punjabi	French
Urdu	Chinese
Bengali	Portuguese
Gujarati	Spanish



**Further resources for expectant parents**



**Resources for midwives & healthcare professionals**

### LP News



CS Week ...

New Leaflet Added - Birthing Partners ...

Testimonials - Thank You ...

[Previous News](#)

### Tweets by @labourpainsOAA

**LabourPains.com**  
@labourpainsOAA  
Happy Birthday NHS!  
We would like to say a massive thank you to all NHS staff who work tirelessly day in, day out, providing excellent care and treatment in every way possible. #NHS100 #NHS #LabourPains #OAA #Celebrating100



[Embed](#) [View on Twitter](#)



## Preparation

- Antenatal education
- Managing expectations
- Plan for analgesia
- Support in labour
- Breathing & relaxation techniques



## Natural Childbirth

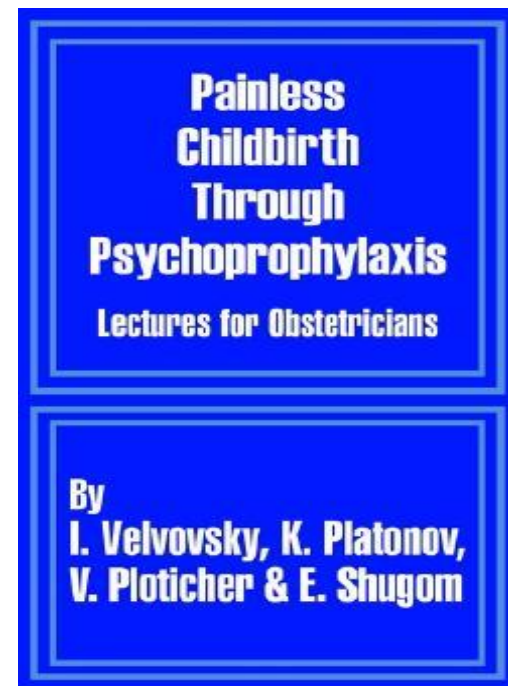


**Grantly Dick-Read**

## Psychoprophylaxis



**Fernand Lamaze**





# Non-Neuraxial Techniques

- Preparation
- **Non-Pharmacological**
- Inhalation
- Systemic opioids



## Non-Pharmacological Techniques

- Hypnosis
- Acupuncture
- Massage
- Reflexology
- Transcutaneous electrical nerve stimulation
- Sterile water injections
- Hydrotherapy
- Aromatherapy





**Cochrane**  
**Library**

**Cochrane** Database of Systematic Reviews

- **Healthcare reviews**
- **Well-conducted controlled trials**
- **Evidence-based medicine**
- **Quality issues**
- **Study design**
- **Author interpretation**

## Hypnosis for pain management during labour and childbirth (Review)

Madden K, Middleton P, Cyna AM, Matthewson M, Jones L

*Cochrane Database of Systematic Reviews* 2016, Issue 5. Art. No.: CD009356.

- **9 trials (n = 2954)**
- **Antenatal & labour hypnosis**
- **Quality of evidence low**
- **↓ pharmacological pain relief\***
- **No reduction in epidural analgesia**
- **No impact on other outcomes**

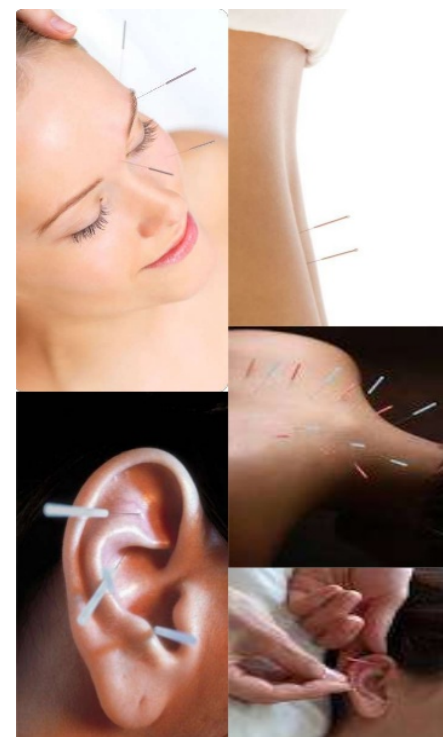


## Acupuncture or acupressure for pain management in labour (Review)

Smith CA, Collins CT, Crowther CA, Levett KM

*Cochrane Database of Systematic Reviews* 2011, Issue 7. Art. No.: CD009232.

- **13 trials (n = 1986)**
- **Placebo / standard care / no treatment**
- **High risk of bias**
- **↓ pain intensity vs. no treatment**
- **↑ satisfaction vs. placebo**
- **↓ pharmacological analgesia vs. placebo**



## Massage, reflexology and other manual methods for pain management in labour (Review)

Smith CA, Levett KM, Collins CT, Dahlen HG, Ee CC, Suganuma M

*Cochrane Database of Systematic Reviews* 2018, Issue 3. Art. No.: CD009290.

- **14 trials (n = 1055)**
- **Quality of evidence low**
- **Risk of bias**
- **Marginal benefit: pain intensity  
feeling of control  
satisfaction**





## Transcutaneous electrical nerve stimulation (TENS) for pain management in labour (Review)

Dowswell T, Bedwell C, Lavender T, Neilson JP

*Cochrane Database of Systematic Reviews 2009, Issue 2. Art. No.: CD007214.*

- **16 trials (n = 1466)**
- **Quality of evidence low**
- **Risk of bias**
- **Limited evidence of analgesic benefit**
- **No impact on other outcomes**

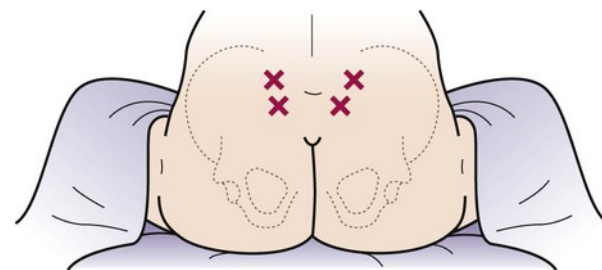


## Intracutaneous or subcutaneous sterile water injection compared with blinded controls for pain management in labour (Review)

Derry S, Straube S, Moore RA, Hancock H, Collins SL

Cochrane Database of Systematic Reviews 2012, Issue 1. Art. No.: CD009107.

- 7 trials (n = 766)
- Double blind RCTs
- Risk of bias
- Back pain only
- No robust evidence of efficacy
- No impact on other outcomes





## **Non-Pharmacological Techniques**

- **Poor quality evidence**
- **Marginal benefits**
- **Ethical**
- **Maternal choice**
- **Lack of harm**
- **Expectation vs. experience**
- **Continued use**



# Non-Neuraxial Techniques

- Preparation
- Non-Pharmacological
- **Inhalation**
- Systemic opioids



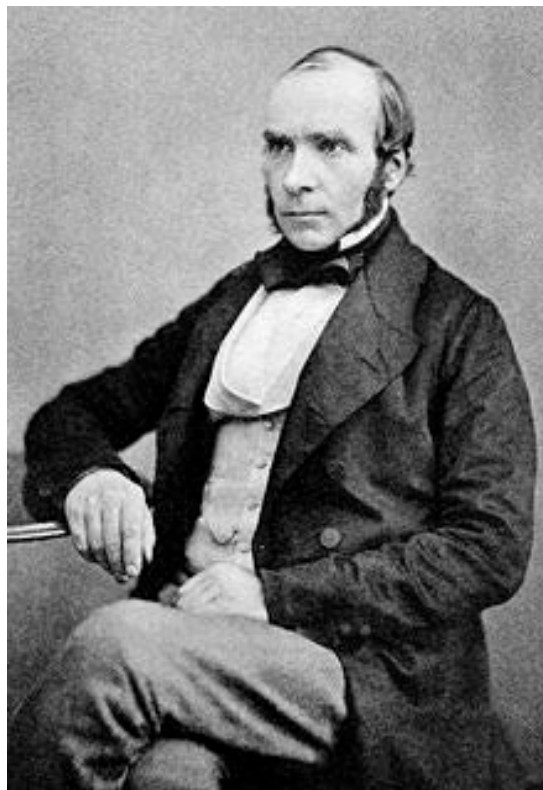


## Inhalational Agents

- Ether
- Chloroform
- Nitrous oxide
- Ethylene
- Cyclopropane
- Trilene
- Methoxyflurane
- Isoflurane
- Sevoflurane
- Desflurane
- Xenon



**James Simpson**



**John Snow**



**Stanislav Klikovich**



## Nitrous Oxide

- Gas & Air
- Minnitt's apparatus
- Midwife administration
- Variable concentrations
- Oxygen replaces air
- Not portable
- Entonox



## Entonox

- Nitrous oxide in oxygen
- Tunstall 1961
- UK, Australia, Scandinavia
- Efficacy
- Side effects



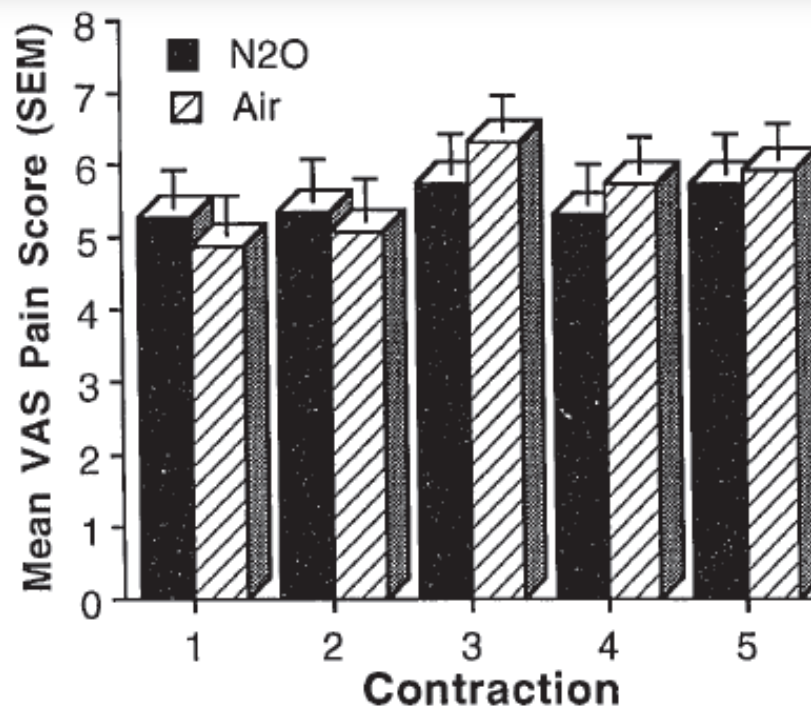
Mike Tunstall



## ***Nitrous Oxide in Early Labor***

### ***Safety and Analgesic Efficacy Assessed by a Double-blind, Placebo-controlled Study***

Jan Carstoniu, M.A., M.D., F.R.C.P.C.,\* Shimon Levytam, M.D.,† Peter Norman, M.D., F.R.C.P.C.,‡  
Denise Daley, M.D., F.R.C.P.C.,§ Joel Katz, Ph.D.,§ Alan N. Sandler, M.Sc., M.B., Ch.B., F.R.C.P.C. ||



**Fig. 1. Effect of nitrous oxide and air on visual analogue scale (VAS) pain scores during each uterine contraction. There was no difference in the VAS score between the patients receiving nitrous oxide or air for any contraction.**

## Inhaled analgesia for pain management in labour (Review)

Klomp T, van Poppel M, Jones L, Lazet J, Di Nisio M, Lagro-Janssen ALM  
*Cochrane Database of Systematic Reviews 2012, Issue 9. Art. No.: CD009351.*

- 26 trials (n = 2959)
- Heterogeneity in analysis
- Risk of bias
- Better than placebo or nothing
- Flurane derivatives more effective
- Side effects
- Safety





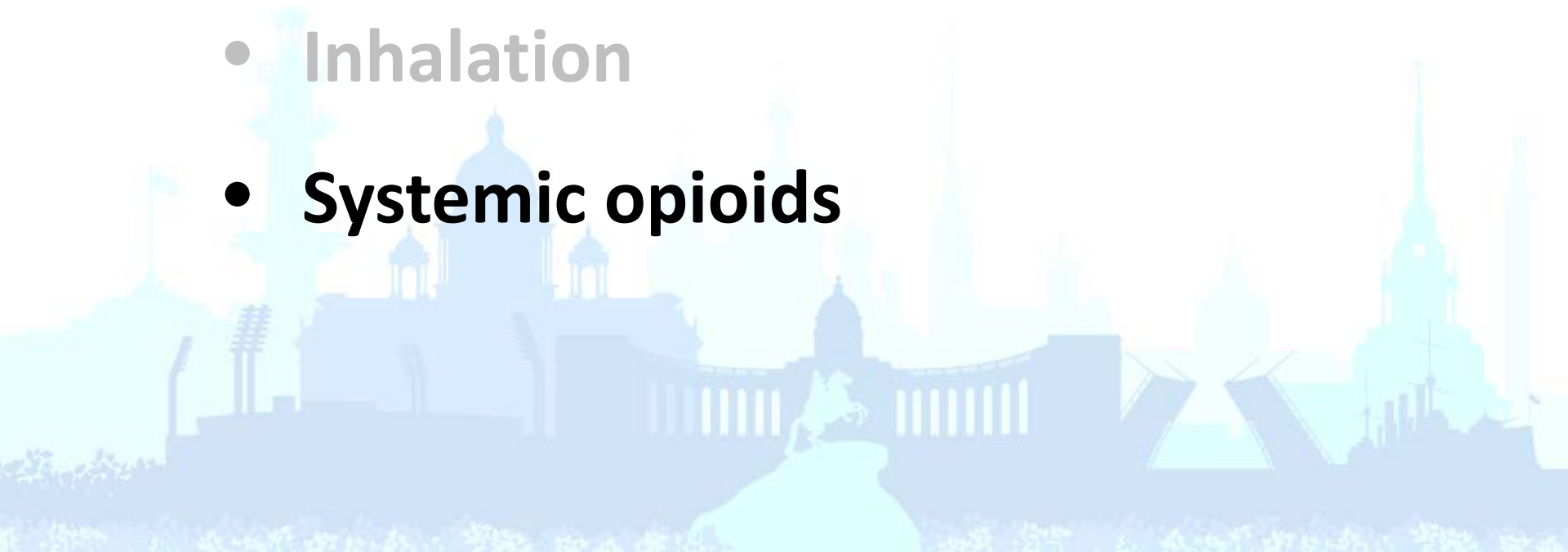
# Inhalational Agents

- Variable use
- Questionable efficacy
- Side effects
- Maternal autonomy
- Non-invasive
- Satisfaction



# Non-Neuraxial Techniques

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- **Systemic opioids**

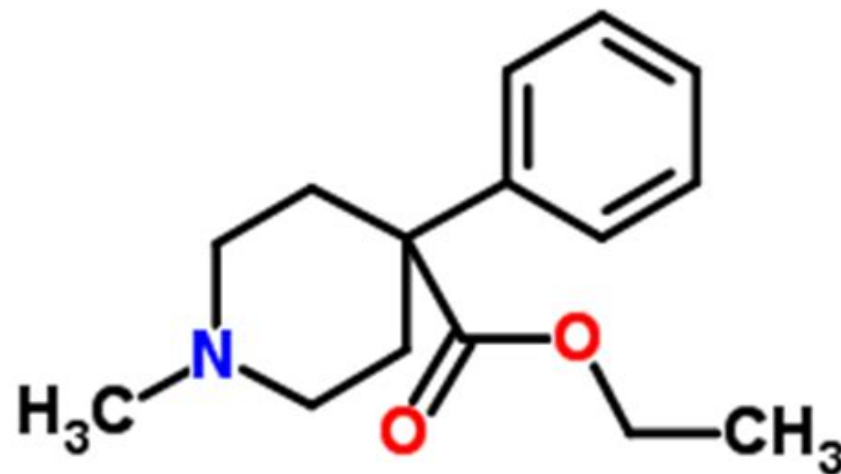




# Twilight Sleep

[illegible]

# Pethidine

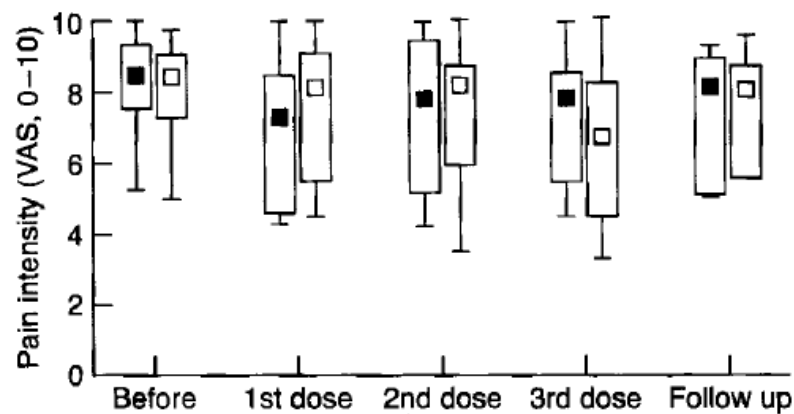




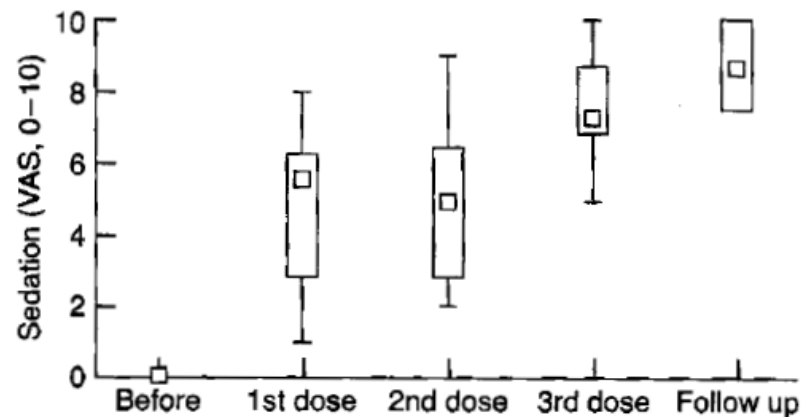
## **Pethidine**

- **Developed in Germany**
- **Atypical opioid chemical structure**
- **Effective analgesia without side effects?**
- **Widely available in 1950s**
- **Midwife administration**
- **Concerns regarding efficacy & side effects**

## Analgesic Efficacy & Sedation



**Fig. 1.** Pain intensity before and following morphine (dose 0.05 mg/kg body weight) or pethidine (dose 0.5 mg/kg body weight) given intravenously at iterative doses. Values are presented in box plot with median and interquartile range and total range indicated by vertical whiskers. No significant effect was found after each dose.  
 ■ = morphine; □ = pethidine.



**Fig. 2.** Sedation scores before and after successive doses of opioid. There was no significant difference in results between the two opioids so data for morphine and pethidine have been combined. Box and whisker plots represent median with interquartile range.





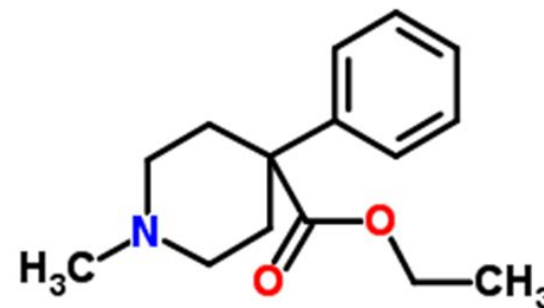


## Parenteral opioids for maternal pain management in labour (Review)

Smith LA, Burns E, Cuthbert A

*Cochrane Database of Systematic Reviews* 2018, Issue 6. Art. No.: CD007396.

- 61 trials (n > 8000)
- Heterogeneity
- Quality of evidence low / very-low
- Minimal pain relief
- Sedation, nausea & vomiting
- Neonatal effects



International Journal of Obstetric Anesthesia (2016) 25, 66–74  
0959-289X/\$ - see front matter © 2015 Elsevier Ltd. All rights reserved.  
<http://dx.doi.org/10.1016/j.ijoa.2015.12.004>



ELSEVIER

[www.obstetanesthesia.com](http://www.obstetanesthesia.com)

## REVIEW ARTICLE

# Remifentanyl for labor analgesia: an evidence-based narrative review

M. Van de Velde,<sup>a</sup> B. Carvalho<sup>b</sup>

<sup>a</sup>Department of Cardiovascular Sciences, Katholieke Universiteit Leuven and Department of Anaesthesiology, University Hospitals Gasthuisberg, Leuven, Belgium

<sup>b</sup>Department of Anesthesiology, Perioperative and Pain Medicine, Stanford University, CA, USA

- Potent short-acting opioid
- Rapid onset & offset
- Effect site concentration peak at 2 min
- Multiple PCA regimens
- Placental transfer
- Safety concerns



## Patient-controlled analgesia with remifentanyl versus alternative parenteral methods for pain management in labour (Review)

Weibel S, Jelting Y, Afshari A, Pace NL, Eberhart LHJ, Jokinen J, Artmann T, Kranke P  
*Cochrane Database of Systematic Reviews* 2017, Issue 4. Art. No.: CD011989.

- 20 trials (n = 3569)
- Multiple comparisons
- Quality of evidence moderate / poor
- High risk of bias
- Better than other opioids
- Not as effective as neuraxial analgesia



# Intravenous remifentanyl patient-controlled analgesia versus intramuscular pethidine for pain relief in labour (RESPITE): an open-label, multicentre, randomised controlled trial



*Matthew J A Wilson, Christine MacArthur, Catherine A Hewitt, Kelly Handley, Fang Gao, Leanne Beeson, Jane Daniels, on behalf of the RESPITE Trial Collaborative Group\**

- **Multicentre UK randomised study**
- **IV remifentanyl PCA (n =201) vs. IM pethidine (n = 199)**
- **Epidural conversion 19% vs 41% ( $P < 0.0001$ )**
- **Median VAS pain scores 50.7 vs. 64.6 ( $P < 0.0003$ )**
- **↑ satisfaction with analgesia**
- **↑ need for supplemental O<sub>2</sub> ( $P < 0.0001$ )**
- **No serious maternal adverse effects**
- **No difference in neonatal outcome**



# Editorial



Anaesthesia

Journal of the Association of Anaesthetists of  
Great Britain and Ireland

## Remifentanyl for labour analgesia: time to draw breath?

N. A. Muchatuta S. M. Kinsella

Anaesthesia 2013, 68, 227-235

- ↑ popularity
- Superior pain relief to other opioids & inhalation
- Inferior pain relief to epidural
- Similar satisfaction to epidural
- Ideal regimen unknown
- Cases reports of cardiorespiratory arrest





Kranke et al. *BMC Pregnancy and Childbirth* 2013, **13**:139  
<http://www.biomedcentral.com/1471-2393/13/139>

 **BMC**  
Pregnancy & Childbirth

**DEBATE**

**Open Access**

## Must we press on until a young mother dies? Remifentanyl patient controlled analgesia in labour may not be suited as a “poor man’s epidural”

Peter Kranke<sup>1\*</sup>, Thierry Girard<sup>2</sup>, Patricia Lavand’homme<sup>3</sup>, Andrea Melber<sup>4</sup>, Johanna Jokinen<sup>1</sup>, Ralf M Muellenbach<sup>1</sup>,  
Johannes Wirbelauer<sup>5</sup> and Arnd Hönig<sup>6</sup>

- **Relative efficacy**
- **Safety concerns**
- **Cost implications**
- **One-to-one care**
- **Appropriate monitoring by experienced staff**
- **Valuable method in controlled environment?**



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