

# INTRANASAL FENTANYL

Sally Britnell

RCN, BHSc, PGCert. Health Sci. (Emergency Nursing)  
Children's Emergency Department  
Starship Children's Hospital



# WHAT WE COVER

- **Pain**

- Children in Pain
- Analgesia
- Pain Scales
- Time to Analgesia

- **Research**

- Current Research
- Area's Further Research

- **Fentanyl**

- Indications
- Pharmacotherapeutics
- Legislation
- Precautions
- Dose
- Intranasal Route
- Adverse Effects
- Delivery
- Recovery and Discharge

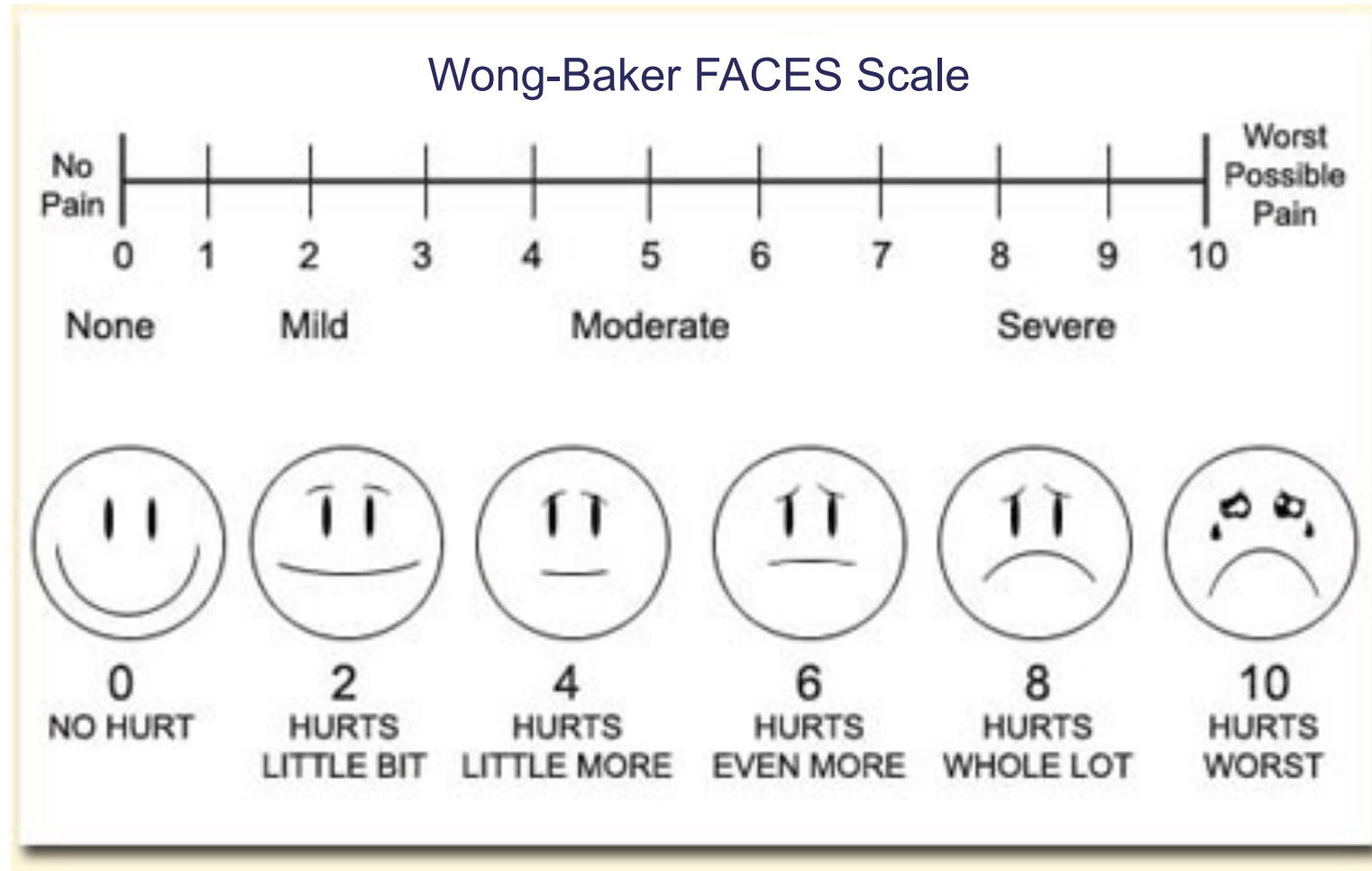


# PAIN

- **Pain**
  - Individual
  - Often misunderstood
  - Difficult to measure in children
- **Children in Pain**
  - Unpredictable
  - Frightened
  - Show varying responses
  - Behaviour changes



# PAIN SCALE



*Hinks, von Baeyer, Spafford, von Korlaar & Goodenough (2001)*



# PAIN SCALES

## FLACC Pain Scale

	0	1	2
Face	No particular expression or smile	Occasional grimace or frown, withdrawn, disinterested	Frequent to constant quivering chin, clenched jaw
Legs	Normal position or relaxed	Uneasy, restless, tense	Kicking, or legs drawn up
Activity	Lying quietly, normal position, moves easily	Squirming, shifting back and forth, tense	Arched, rigid or jerking
Cry	No cry (awake or asleep)	Moans or whimpers; occasional complaint	Crying steadily, screams or sobs, frequent complaints
Consolability	Content, relaxed	Reassured by occasional touching, hugging or being talked to, distractible	Difficult to console or comfort

*Manworren & Hynan (2003)*



# ANALGESIA

- **Requirements**
  - Initiated at triage
  - Least invasive
  - Easy to use
  - Non-specialist skill
  - Minimum time to analgesia
  - Effective

*Borland, Jacobs, King & O'Brien (2007); Borland, Bergesio, Pascoe, Turner, Woodger (2005);  
Shepherd (2007)*



# FENTANYL

- **Pharmacotherapeutics**

- Synthetic opiate analgesic
- Anxiolytic
- Euphoric
- Rapid Onset (5 – 10 minutes)
- Short acting (30 – 60 minutes)

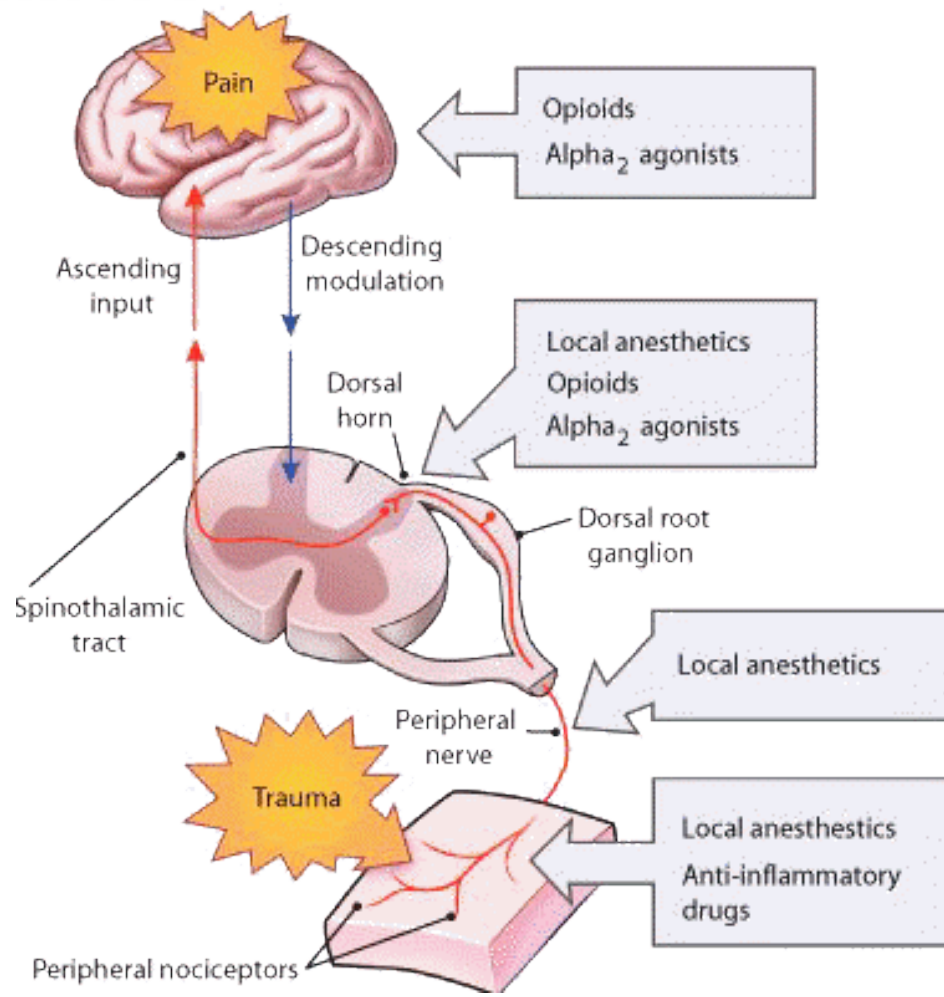
- **Legislation**

- Controlled Medicine

*MEDSAFE (2009), Shepherd (2007),*



# PAIN PATHWAY



*Rang, Dale, Ritter & Flower (2007)*





# INTRANASAL FENTANYL

- **Published Research Shows**
  - Effective
  - Safe
    - Children > 2 years
  - Comparative effect to IV Morphine in pain relief for:
    - Long bone fractures
    - Post operative pain
    - Burns dressings

*Ali & Klassen (2007); Borland, Jacobs, King & O'Brien (2007); Borland, Bergesio, Pascoe, Turner & Woodger (2005); Borland, Jacobs & Geelhoed (2002); Manjushree, Lahiri, Ghosh, Laha & Handa (2002)*



# INDICATIONS

- **Intranasal (IN) Fentanyl**
  - Pain (moderate / severe)
  - No IV access
  - Allow time for topical anaesthetic creams to work

*Borland, Jacobs, King & O'Brien (2007); Borland, Bergesio, Pascoe, Turner, Woodger (2005);  
Shepherd (2007)*



# INTRANASAL ROUTE

- **Absorption**
  - Rapid (5-10 minutes)
    - Large nasal mucosa surface area
    - Highly permeable nasal mucosa
    - Skip first pass metabolism
    - Bioavailability of greater than 50%
- **Minimally Invasive**
  - Decreases time to analgesia

*Shepherd (2007)*



# PRECAUTIONS

- **Conditions requiring immediate IV intervention**
- **URTI / Blocked Nose**
- **Prior narcotic or sedative administration**
- **Co morbidities requiring modified dose**
- **Drug Dependence**

*Medsafe (2009), Shepherd (2007)*



# CONTRAINDICATIONS

- **Caution in age less than 2 years**
- **Trauma**
  - Head
  - Chest
  - Abdominal
- **MAO Inhibitors**
- **Bronchial Asthma**

*Shepherd (2007); MEDSAFE (2009)*



# DOSE

- **Limits**
  - Minimum dose 20 micrograms
  - Maximum dose 100 micrograms
- **First Dose**
  - 1.5 micrograms / kg
- **Second Dose**
  - 0.5 micrograms / kg
  - > 10 minutes post first dose

*Shepherd (2007)*



# ADVERSE EFFECTS

- Nausea
- Vomiting
- Sedation
- Respiratory Depression
- Muscle Rigidity

*MEDSAFE (2009), Shepherd (2007)*



# DELIVERY EQUIPMENT

- Atomizer (MAD Device)
- 1 ml syringe (luer lock)

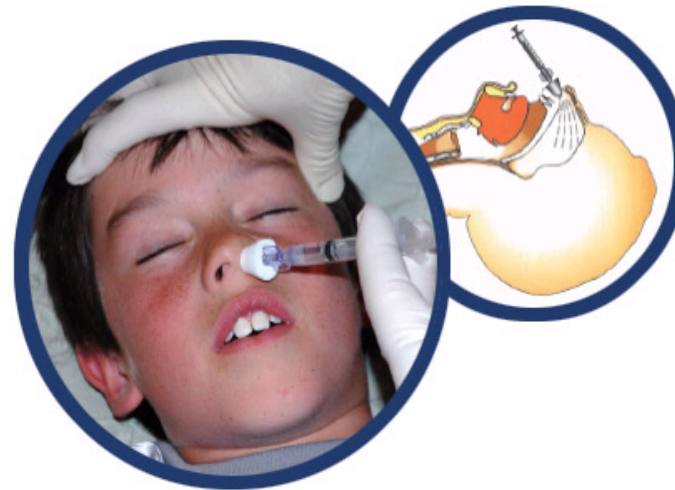
*Therapeutic Intranasal Medication Delivery (2009),*





# DELIVERY TECHNIQUE

- **Positioning**
  - Reclining 45 degrees
- **Maximum Volume**
  - 1 ml per nostril
- **Sniff**
  - while IN Fentanyl delivered



*Borland, Jcacomis & Geelhoed (2002); Shepherd (2007); Therapeutic Intranasal Medication Delivery (2009)*

# RECOVERY AND DISCHARGE

- **Observe for 20 minutes**
  - Escort for transfers
- **Discharge after 1 hour**
  - If responding age appropriately
- **Patient / Parent Information**

Shepherd (2007)



# FURTHER RESEARCH

- Nurse initiated IN Fentanyl
- Concentrated IN Fentanyl Solution
- IN Fentanyl for children under 2 years



## Starship Children's Hospital Clinical Guidelines Intranasal Fentanyl

### Dosage

- 1.5 micrograms / kg (first dose)
- 0.5 micrograms / kg (second dose)
- 10 minutes post first dose
- maximum dose 100 micrograms

### Delivery

- maximum 1 ml per nostril
- position - reclined at 45 degrees



### Actions

- analgesic
- anxiolytic
- euphoric

### Contraindications

- Head Injury
- Chest Injury
- Abdominal Trauma
- Age < 2 years
- Hypersensitivity

### Indications

- Pain (Moderate /Severe)
- IVL unavailable
- Allow time for local topical anaesthetic cream to be effective

### Onset

- 5-10 minutes

### Half Life

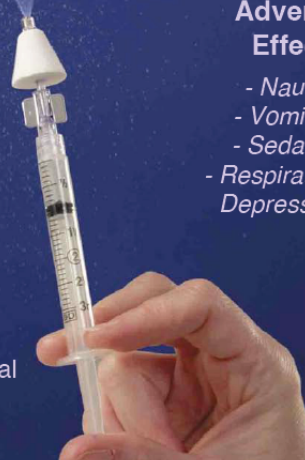
- 30-60 minutes

### Precautions

- Blocked Nose
- Injury Nature
- Prior Narcotic Doses
- Co-morbidities

### Adverse Effects

- Nausea
- Vomiting
- Sedation
- Respiratory Depression



# QUESTIONS

???



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