Improving Analgesia: 
Farewell to Pethidine

A Multi-centre DUE Project

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ED Pharmacist, St Vincent’s Hospital, Sydney

Coordinated by NSW Therapeutic Assessment Group
Supported by the National Institute of Clinical Studies Australia's national agency for closing the gaps between evidence and practice in health care.
Background

Is there a problem?

- Prescribing of pethidine in general practice
- Prescribing audit in hospitals 2001
- Influence of hospital prescribers
- Continuity of care
The Problem

• Pethidine limitations include:
  – higher potential for adverse effects and interactions than other opioids
  – no proven advantage

• Widely prescribed in hospital despite lack of evidence
## ADRAC reaction reports

<table>
<thead>
<tr>
<th>Drug</th>
<th>Years of data collection</th>
<th>Number of reactions reported to ADRAC</th>
<th>Sole suspected agent</th>
</tr>
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<tbody>
<tr>
<td>Pethidine</td>
<td>1972-2003</td>
<td>2321</td>
<td>845</td>
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<tr>
<td>Morphine</td>
<td>1974-2003</td>
<td>799</td>
<td>380</td>
</tr>
<tr>
<td>Tramadol</td>
<td>1999-2003</td>
<td>1307</td>
<td>838</td>
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</tbody>
</table>
Evidence-based Guidelines:

Pethidine is not the strong analgesic of choice in Emergency Departments
Aim

• To increase awareness of limitations of pethidine

• To encourage use of appropriate alternatives
Approach

- Linking Emergency Department (ED) teams and pharmacists

- Work together using DUE to achieve aims

- Utilise the resources and experience available through the TAG network
The DUE Cycle

Action → Collect Data

FEEDBACK

Feedback → Evaluate Data

Evaluated Data
NSW TAG
= NSW Therapeutic Assessment Group

- NSW TAG = independent, non-profit organisation

- Promotes quality use of medicines through collaboration and consensus.

- NSW TAG committee = representatives from teaching hospital Drug Committees in NSW and University Departments of Clinical Pharmacology.

- The TAG network represents 46 NSW public hospitals
23 Participating Hospitals

- Auburn Hospital
- Bankstown Hospital
- Blacktown Hospital
- Mt Druitt Hospital
- Grafton Base Hospital
- Frankston Hospital (Vic)
- John Hunter Hospital
- Lismore Base Hospital
- Mullumbimby Hospital
- Murwillumbah Hospital
- Prince of Wales Hospital
- Royal North Shore Hospital
- Royal Prince Alfred Hospital
- Southern AHS (7 hospitals)
- Sydney / Sydney Eye Hospital
- Westmead Hospital
- Wollongong Hospital
Approach

- **DUE**
  - 3 cycles over 12 months, commenced in September 2002
  - Each cycle involved 1 week audit of ED prescriptions for pethidine.
  - Audit results fed back to prescribers
  - Audit results directed education and messages specific to local ED practice
Clinical Reference Committee

Prof Ric Day - Clinical Pharmacologist, SVH / NSW TAG
Dr Andis Graudins - Emergency Physician, Prince of Wales
A/Prof Milton Cohen - Pain Physician, Darlinghurst Pain Clinic
Dr Alex Wodak - Alcohol and Drug Specialist SVH
Dr Robert Dowsett - Emergency Physician, Westmead
Ms Kanan Gandecha - Pharmaceutical Services, NSW Health
Ms Margaret Knight - Consumer
Mr Stuart Dorkin - ED Nurse, Westmead Hospital
Ms Kathleen Ryan - Quality Manager, St Vincents Hospital
Ms Nolene Smith - Project Officer, NICS
Ms Susie Welch - ED Pharmacist, Project Officer, NSW TAG
Ms Karen Kaye - Executive Officer, NSW TAG
NSW TAG’s Role as Facilitator

• **Hospital Coordinators**
  – SUPPORT them in their liaison with ED staff & hospital committees

  – PROVIDE materials to facilitate data collection, education and feedback

  – FACILITATE collaboration and sharing of experience to help spread practice improvement

  – COMMUNICATION strategies - email, monthly teleconference, website (www.nswtag.org.au)
NSW TAG represents experts in drug therapy from the teaching hospitals in NSW.

Our goal is to promote quality use of medicines by sharing unbiased, evidence-based information about drug therapy.

NSW TAG is an independent, not-for profit association. Our members are clinical pharmacologists, pharmacists and other clinicians from the teaching hospitals of NSW and affiliated academic units.

NSW TAG is funded by the NSW Department of Health.

Read what's new this week!

You can search this site using the USE feature at CIAP. Click here for CIAP home page to log-in.

Disclaimer

An initiative of NSW Clinical Pharmacologists & Pharmacists. Funded by the NSW Department of Health
NSW TAG’s Role as Facilitator

- Coordinate evaluation of project progress.
  - Data on volume of parenteral analgesics issued from pharmacy departments each month
Strategies - Audit/Feedback Process

• Cycle 1
  – Focus on educational messages
  – Alternative treatment guidelines
  ­ posters
  ­ bookmarks
IS PETHIDINE THE BEST CHOICE?

GENERAL PRINCIPLES

- Consider non-opioids first
- Check time and dose of last analgesia
- Check for drug dependence eg methadone
- If opioids required for chronic pain: use oral route
- Only use injectable opioids for severe acute pain unrelated to existing chronic pain eg fracture
- Morphine preferred IV/SC for titration or repeated doses
- Don’t withhold analgesia if indicated
- Treat pain effectively – don’t under-dose
- Observe patient after dosing

Why Pethidine is not recommended

- Pethidine has a shorter duration of action than morphine with no additional analgesic benefit
- It has similar side-effects to morphine, including increased biliary pressure
- Pethidine is metabolised to non-pethidine, which has potential toxic effects (eg convulsions), especially in patients with renal dysfunction
- Pethidine is associated with potentially serious interactions in combination with other drugs
- Pethidine is the drug most commonly requested by patients seeking opioids, and
- Pethidine is the drug most commonly abused by health professionals

Renal colic

- Rectal NSAIDs as effective as parenteral NSAIDs
- Parenteral NSAIDs better than opioids
- Metoclopramide and hyoscine-n-butyrylhydriodide may also be effective

Biliary colic, pancreatitis

- NSAIDs effective in biliary colic
- Use morphine IV or NSAID (PR or IM)
- Consider smooth muscle relaxants eg hyoscine-n-butyrylhydriodide
- No evidence to support use of pethidine

Migraine

- Review effectiveness of previous anti-migraine therapy (must be used early)
- - Paracetamol or aspirin
- - NSAIDs or weak opioid (eg codeine)
- - If strong opioids required, use oral route
- Investigate appropriately
- Avoid prolonged bed rest and encourage early return to normal activity
- Explain condition and promote self-management with non-pharmacological approaches

For further information refer to:
Back Pain Exacerbation

- Respiratory approach
  - Paracetamol or aspirin
  - NSAIDs or weak opioids
  - If strong opioids required, use with caution
  - Investigate appropriately
  - Avoid prolonged bed rest and encourage early return to normal activity
  - Explain condition and promote self-management with non-pharmacological approaches

Renal colic

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Biliary colic, pancreatitis

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- Use morphine IV or NSAID (PRN or IM)
- Consider smooth muscle relaxants eg. hyoscine-n-butylbromide
- No evidence to support use in pancreatitis

Migraine

- Review effectiveness of previous migraine therapy (must be used r.
  - Prochlorperazine or aspirin
  - NSAIDs (oral / rectal / IM)
  - NIV 023 (oral / rectal / IM)
  - Fracture, ergotamine

- Hydrate early
- Consider intravenous fluids in monitored environment
- If treated early, strong opioids not required
- Treatment failure may require reassessment
- Consider referral to specialist

General Principles

- Consider non-opioid
- Check time and dose of last analgesia
- Check for drug - eg. methadone
  - Only use in severe ac.
  - If opioids required for chronic pain, use oral route
  - Only use injectable opioids for severe acute pain, ensure to existing chronic pain management
  - Morphine premix (IVAC for infusion)
  - Don't withhold analgesia
  - Treat pain effectively - don't under-dose
  - Close pain effectively - don't override

NSW THERAPEUTIC ASSESSMENT GROUP

For further information to:

ANALGESIA GUIDELINES

General Principles

- Consider non-opioid
- Check time and dose of last analgesia
- Check for drug dependency
- If opioid required for chronic pain, use oral route
  - Only use injectable opioids for severe acute pain, ensure existing chronic pain management
  - Morphine premix (IVAC for infusion)
  - Don't withhold analgesia
  - Treat pain effectively - don't under-dose
  - Close pain effectively - don't override

ANALGESIA GUIDELINES
Audit/ Feedback Process

• Cycle 2
  – Ongoing areas of concern
    • morphine allergy
    • colic

_answers to frequently asked questions

• patients seeking pethidine,
• feedback from consumer rep

_patient waiting room poster
TREATING YOUR PAIN

In our Emergency Department we take your pain seriously. We aim to treat your pain quickly and effectively.

Principles for treating pain in our Emergency Department

We will use the most appropriate pain control for treating your pain.

The choice of pain medication will depend on:
• a careful assessment of your pain,
• your previous response to pain medications,
• other conditions you may have.

Please tell us if you have had allergies or reactions to any medications in the past.

The emergency department staff will check that your pain medication is working effectively.

What you can do

TELL the doctor, nurse or pharmacist:
• when you last took pain medication and how much you took
• what medication you normally take at home (including alternative or complementary medicines eg. vitamins etc)
• about previous allergies or reactions you have had to medications

ASK the doctor, nurse or pharmacist:
• for an explanation about any medications that you are given
• what you should do about pain control when you go home

For severe pain in the Emergency Department strong ( opioids) pain medications may be required. Morphine is the preferred opioid medication. Pethidine is usually not the best choice for pain control.

Why Pethidine is not recommended:
• Pethidine has a shorter duration of action than morphine with no additional benefit.
• Pethidine is broken down in the body to a substance, which has possible toxic effects (eg convulsions) especially if you have kidney problems.
• Pethidine can have serious interactions with other drugs
• Pethidine can be addictive

For further information refer to:
(Online access available via NIMIC website: www.nimic.gov.au or via link from TAG website)
Have We Made a Difference?

Use of pethidine in EDs: Indications identified to date

Number of episodes

Abdo pain Back pain Burns Biliary pain Chest pain Migraine / Headache Pancreatitis Renal colic Trauma / fracture Morphine allergy Unknown Other

Audit 1 Audit 2 Audit 3
Have We Made a Difference?

Pethidine Issues to EDs
All hospitals

Number of units

Pethidine issues to ED by Peer Grouping

Number of units

Total A
Total B
Total CD
Have We Made a Difference?
Have We Made a Difference?

**Total issues of tramadol to EDs**

*All hospitals*

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<thead>
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**Number of units**

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<td>1600</td>
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**Graphs showing**

- **Total issues of tramadol to EDs**
- **All hospitals**
- **Number of units**
- **Graphs with lines indicating Total All, Total B, Total CD**
What’s Next ?
Conclusion

• A clear reduction in ED use of pethidine has occurred.

More importantly:

• Prescribers are thinking about
  • alternatives
  • most appropriate analgesia

• Promotion of information sharing between pharmacists, nurses and doctors and ED staff

@Enable prescribers to make appropriate treatment choices
Hospital Coordinators

Ms Wai-Jen Lee
Ms Charissa Salzmann
Ms Margaret Macarthur
Ms Helen Evans
Ms Paula Doherty
Ms Jenni Prince
Ms Linda Graudins
Ms Roseleen O’Doherty

Ms Vanessa Simpson
Ms Gabrielle Couch
Ms Cathy Vlouhos
Ms Lorraine Koller
Dr Rob Dowsett
Mr Lou Gaetani
Ms Mary Mitchellhill