# Using drug use evaluation (DUE) to optimise analgesic prescribing in emergency departments (EDs)

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## BACKGROUND

Pethidine is widely prescribed in hospitals, despite lack of research evidence to support its use. It has no proven advantage over other opioid analgesics and there is significant potential for iatrogenic problems with its use.

In Australia, the National Health and Medical Research Council has clearly identified the limitations of pethidine (Figure 1). In the USA, the Joint Commission on Accreditation of Health Care Organizations has identified use of pethidine as a negative marker for prescribing practice. In Emergency Departments (EDs), where patients may have multiple problems and where a detailed medication history may not be available, pethidine use is best avoided. In spite of this, a survey of 18 NSW hospitals in 2001 showed that in many hospitals pethidine use in the ED accounted for a significant proportion of overall hospital use (average 15%; range 0 – 38%).

### THE PROBLEM WITH PETHIDINE[1]

- Pethidine has a shorter duration of action than morphine with no additional analgesic benefit
- Pethidine has just as many side-effects as morphine (including bronchospasm and increased biliary pressure)
- Pethidine is metabolised to norpethidine, 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.

Because of its euphoric effects:

- Pethidine is the drug most commonly requested by patients seeking opioids, and
- Pethidine is the drug most commonly abused by health professionals.

[1] National Health and Medical Research Council. Acute pain management: scientific evidence, Commonwealth of Australia, 1999

Figure 1

## OBJECTIVE

This multi-centre collaborative DUE project was designed to increase awareness of the limitations of pethidine in pain management in emergency medicine and to encourage use of appropriate alternatives. The goal was to reduce pethidine use by 50% with each audit cycle.

## DATA COLLECTION

Pharmacists collected data on volume of parenteral analgesics issued from pharmacy each month. Data was used to monitor the impact of the project and to highlight any new problems. (Figure 2)

Staff in EDs recorded reasons for pethidine prescribing during three one week audit periods. Data was used to direct and evaluate educational interventions. (Figure 3)

Figure 2

Figure 3

## METHODS

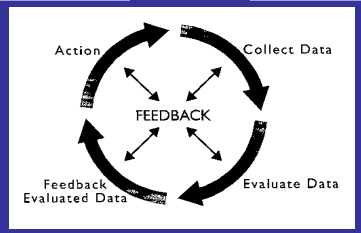
Twenty three hospitals in the NSW TAG network participated in the 12 month project. DUE methodology was used to: (1) facilitate clinical audit (2) evaluate audit data against agreed standards (3) feed back evaluated data and (4) implement targeted interventions. Three audit cycles were implemented between January and July 2003.

A clinical reference committee advised on key messages, feedback processes, educational interventions and mechanisms for on-going sustainability of the program. Executive level support was obtained from each hospital. ED staff were given information about the project and its objectives before the audit cycles commenced. A web page was set up to provide access to a resource kit of educational tools including slide presentations, guidelines and FAQs (frequently asked questions) about pethidine (see www.nswtag.org.au).

A project coordinator nominated by each hospital (usually a pharmacist or nurse), engaged local clinical champions and liaised with ED staff and hospital committees. Each coordinator facilitated data collection and feedback in their hospital. NSW TAG provided information and support to hospital coordinators to assist these processes.

Audit results directed the development of educational messages which were relevant to local ED practice

Each cycle began with a 1 week audit of ED prescriptions for pethidine




Audit results were reported back to prescribers and committees

Audit data was evaluated against evidence-based guidelines

Collaboration was encouraged and information shared by way of monthly teleconferences and regular email discussions

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NSW TAG is an initiative of NSW clinical pharmacologists and pharmacists, funded by the NSW Health Department. The educational resources produced for this project, and other resources for hospitals, can be downloaded from the NSW TAG web site at www.nswtag.org.au.

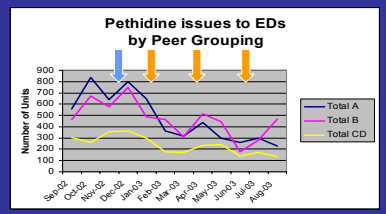
This study was supported by the National Institute of Clinical Studies, Australia's national agency for closing the gaps between evidence and practice in health care.

## INTERVENTIONS

Educational interventions were collaboratively developed to address prescribing issues identified in each audit. Resources included posters for ED treatment areas, posters for patient waiting rooms and reminder bookmarks for staff. Literature evidence was used to support facilitated discussions and 'academic detailing' sessions. Some hospitals introduced policies to remove pethidine from the ED. Nurse prescribing protocols were also amended. Positive and negative experiences were shared.

## RESULTS

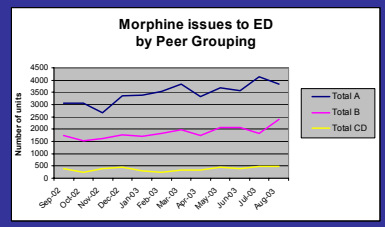
Audit cycles were implemented in January, April and July 2003. Results are presented below, stratified by hospital Peer Grouping.

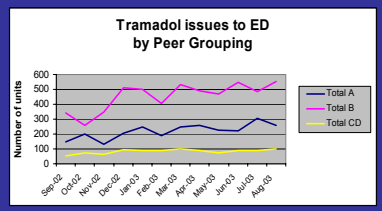



↓ = Pre-audit education

↓ = Audit & feedback cycles

A = Principal referral
B = Major non-teaching
C = District
D = Community




## CONCLUSION

Collaborative DUE was successful in influencing prescribing in EDs. Aggregated pethidine use decreased by 54% during the project. Increased use of desirable opioids (eg morphine) was noted, but increased use of less desirable opioids (eg tramadol) is of concern. Ongoing audits will target this issue.