

## Use of hospital prescribing data to monitor the implementation of clinical guidelines

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### Abstract

*Aim:* The aim of this study was to evaluate the use of the hospital prescription's record in monitoring prescribing guidelines. Guidelines are also helpful in education and in improving professional standards.

*Method:* The study evaluated the effects of the introduction of the new clinical guidelines on the number of prescriptions of parenteral thiamine (Pabrinex). The new guidelines recommended use of parental thiamine for the prevention and treatment of Wernicke-Korsakoff syndrome, in the management of alcohol dependence syndrome.

*Results:* Following implementation of the guidelines we noted 260% increase in the mean monthly Pabrinex prescriptions. Pharmacy prescription data can be used for alternative, cost-effective and reliable ways of monitoring prescribing guidelines in specific clinical condition.

**Keywords:** Prescription data, guidelines, parental thiamine, Wernicke encephalopathy

### Introduction

Clinical practice guidelines are systematically developed statements used to assist clinicians in making decisions about appropriate healthcare for the specific clinical circumstances. The purpose of guidelines is to improve the quality of healthcare and outcome for patients. With the help of guidelines, scientific and evidence-based information can be disseminated to clinicians, who can then apply them to routine clinical practice. Guidelines are also helpful in education and in improving professional standards. Though guidelines are useful they are not compulsory, and clinicians should use their own judgement in making clinical decisions for the particular patient at that time and setting.

Once a guideline is implemented, scheduled review and monitoring helps to further develop the guideline. Monitoring is a process of collecting information so that an assessment may be performed to determine if the guideline's goals are met. Hospital prescriptions are electronically recorded at the pharmacy database

and can be used for monitoring purposes. Therefore, pharmacy prescription data can be used as an alternative, cost-effective and reliable way of monitoring prescribing guidelines in specific clinical conditions.

Wernicke's encephalopathy (WE) is relatively common in patients with chronic alcohol use and is associated with high mortality. Symptoms of WE include acute onset ophthalmoplegia, ataxia and confusion. This occurs due to thiamine depletion (Hell *et al.* 1976). Studies suggest that 35% of chronic alcoholics may develop lesions indicative of Wernicke-Korsakoff syndrome. The WE is also found to have a 20% mortality rate, with 70% developing Korsakoff psychosis and only 10% recovering (Victor *et al.* 1989).

Hope *et al.* (1999) found variations in the use of B-vitamin supplements among physicians and psychiatrists in UK, which highlighted the need for guidelines. Patients undergoing inpatient alcohol detoxification are at a much greater risk of developing WE; oral vitamins are poorly absorbed and are ineffective in

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preventing and treating the disease. However, parenteral vitamins are effective in preventing and treating Wernicke's encephalopathy (Cook 2000). The risk of anaphylaxis reaction is 4 in 1 million and 1 in 5 million for intravenous and intramuscular route, respectively, but the reports of rare anaphylactic reactions have led to a dramatic reduction in the use of parenteral vitamins (Thompson & Cook 1997).

In light of the evidence, the use of parental vitamin supplements in treating WE was included in a revised edition of local hospital guidelines. Revision of the section on the management of alcohol withdrawal included recommendations on the use of Pabrinex during inpatient alcohol detoxification instead of using oral vitamin supplements. In accordance to the Committee of safety of medicine (CSM) advice and in recognition of the very small risk of anaphylaxis, administration of Pabrinex was advised with adequate resuscitation facilities. CSM is an independent advisory committee that advises the UK Licensing Authority (Government Health Ministers) on the quality, efficacy and safety of medicines.

### Materials and methods

This study was carried out in Stoke-on-Trent in North Staffordshire. There are two NHS Hospital Trusts in North Staffordshire. The Acute Hospital Trust covers management of medical, surgical, child health, gynaecology, A&E, etc., while the Combined Health Care Trust covers mental health, learning disability and elderly care. Both Trusts serve a population of 480,000.

The Clinical Guidelines Partnership introduced a revised edition of the clinical practice guidelines in January 2001 that included guidelines on using Pabrinex in the management of alcohol withdrawal. New guidelines advised use of parental thiamine as Pabrinex one pair of ampoules given by IV infusion in 100 ml sodium chloride or glucose. These guidelines were advisory and are reviewed yearly.

### Outcome measures

Evaluation of the impact the guidelines had on changes in clinician's prescribing of Pabrinex during inpatient treatment of alcohol detoxification were observed. Adherence to the guidelines was based on the number of prescriptions issued for Pabrinex nine months before the guidelines and nine months afterwards

### Results

The paired sample *t* test is used to see if there is a significant difference between Pabrinex prescriptions before and after the implementation of the new guidelines. The results shows an increase in the average number of monthly prescriptions, from 79 to

Table I. Monthly Pabrinex prescriptions.

Time from Guidelines (Months)	Pairs of pabrinex ampoules used	
	Pre-guidelines	Post-guidelines
1	73	215
2	59	246
3	85	156
4	107	183
5	65	236
6	71	327
7	78	216
8	53	152
9	121	140
Mean	79	208

208 with mean difference of 128 ( $t = -5.418$ ,  $df = 8$ ,  $p < 0.001$ ) (Table I).

### Conclusion

The results show a significant increase in the use of Pabrinex by hospital clinicians after implementation of the revised guidelines. This indicates that the guidelines were successful in changing clinical practice and implementing evidence-based practice.

New drugs, guidelines, evidence or newer indications of older drugs are some of the reasons why clinicians need to make changes to prescribing practice. According to OECD Health Data 2005, pharmaceutical spending has increased by an average 32% in real terms since 1998, in 30 developed countries ([www.oecd.org](http://www.oecd.org)). With an increase in spending on drugs there is a growing demand to make effective use of prescribing data. Prescribing data helps pharmacists to use resources appropriately and create the proper policy. The UK general practice research database (Hallowell 1997) and PACT data (Weiss *et al.* 1996) on community prescribing shows how IT systems can be used for analysing prescribing data. Interpretation of the prescribing can be complicated at times due to many indicators that can be derived from routinely collected data.

Prescription information can be used to cost-effectively monitor adherence to guidelines. Regular monitoring and reviews of the prescriptions can be provided quickly by maximising the use of IT systems in prescription practice. In addition, because the individual patient data is not used there is no need for ethical committee approval, which could be time consuming in most cases. The limitation of using this method is that it can only give indications of the changing clinical practice, as prescription is only one aspect of the total care recommended by the guidelines.

### Acknowledgement

Dr R Belgamwar's contribution to this paper includes analysis and writing the report. Dr R. Bloor contributed in

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study development and writing the report. Mr M Frischer managed data analysis and provided statistical report.

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*JOB NUMBER:* MS 129300

*JOURNAL:* GPHE

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- Q2** (Royal College of Physicians, 2001) reference not cited in text, please check.