

# An audit of supplementary prescribing practice in an intensive care unit shows pharmacists can reduce the prescribing workload safely

Yasmin Poonawala, Samantha Kay and Emma Graham-Clarke describe the findings of their audit of the impact of a supplementary prescriber pharmacist on prescribing in the critical care unit at City Hospital in Birmingham

### Abstract

**Objectives** To audit the prescribing of our local pharmacist supplementary prescriber on the ICU in terms of how much prescribing she did (number of drug chart amendments), errors picked up in doctor prescribing, errors in her own prescribing and possible ways of improving the system.

**Design** An audit proforma was designed with relevant questions consistent with the aims and objectives of the audit. One proforma was completed for each patient. The audit was conducted retrospectively.

**Participants** All 36 patients the pharmacist supplementary prescriber had been involved with during the chosen three-month audit period were selected. Only 31 patient notes could be obtained to complete the audit proforma.

**Results** The total number of amendments made by the supplementary prescriber amounted to 201. A large proportion of these amendments (43%) were prescribing a new drug. Other significant amendments were stopping drugs, changing the administration route, drug dose or re-writing drug charts. Nine prescription errors were made in a total of four patients. Twelve different drugs or agents appeared to be prescribed outside of the clinical management plans.

**Conclusions** The audit findings appear to confirm that supplementary prescribers in a critical care setting can make a significant impact on prescribing, resulting in reduced prescribing workload for critical care doctors. This contribution does not appear to be at the cost of patient safety. From these preliminary data we conclude there may be a role for expanding the drug categories from which the supplementary prescriber can prescribe. Other recommendations include ensuring the clinical management plan for each patient is preserved in their medical notes, because this has important implications from a medico-legal and clinical governance perspective.

### Introduction

The term supplementary prescribing was first described following the report *A review of prescribing, supply and administration* by Dr June Crown.<sup>1</sup> This report suggested that prescribing could be undertaken by suitably qualified non-medical health professionals if a clinical management plan (CMP) was in place for the patient, as determined by the patient's doctor.<sup>1-3</sup>

The proposals were intended to enhance

patient care by providing quicker and more efficient access to health care through an increased and flexible use of other, non-medical, health care professionals' skills. Following this report, Health Ministers felt nurses and pharmacists should be the key target groups to recruit as supplementary prescribers. Supplementary prescribing became legally possible in April 2003.<sup>2</sup>

The patient-specific clinical management plan is a key principle for supple-

mentary prescribing. Because this needs to be devised before beginning supplementary prescribing, it was envisaged that supplementary prescribers would be working in predominantly chronic ill health areas, such as diabetes, asthma and chronic pain. However, there are no legal restrictions on which clinical conditions supplementary prescribers can treat.<sup>2</sup>

Supplementary prescribers are able to prescribe any drug that ordinarily would be prescribed by a doctor or dentist at NHS expense. This includes all general sales list medicines, all prescription-only medicines, medicines outside of their licence, black triangle medicines in the *BNF* and medicines in a clinical trial if they have a clinical trial certificate or exemption. The only exception is prescribing controlled drugs in schedule 1.<sup>2,4</sup>

The National Prescribing Centre was commissioned by the Department of Health, to produce a competency framework for pharmacists taking on supplementary prescribing responsibilities. Its purpose is to provide an outline framework of the competencies that pharmacist supplementary prescribers should acquire during initial training and then maintain in order to deliver safe, effective prescribing. The competencies identified within the framework apply to all pharmacist supplementary prescribers, regardless of their area of

practice. To gain full benefit, it should be used in a structured manner, within protected time, to allow pharmacists to develop existing knowledge and skills to benefit patient care, and to maximise their contribution to the modern NHS.<sup>5</sup>

At the time of this audit, we knew of only three pharmacists in the country working as supplementary prescribers in an acute critical care setting. Given that we had the unique opportunity of working with such a supplementary prescriber, we felt it would be useful to audit the practice to see what impact was had on prescribing on the intensive care unit, and to assess the safety of the practice. The following study was undertaken to address these aims.

The patient-specific clinical management plan is a key principle for supplementary prescribing. Because this needs to be devised before beginning supplementary prescribing, it was envisaged that supplementary prescribers would be working in predominantly chronic ill health areas, such as diabetes, asthma and chronic pain. However, there are no legal restrictions on which clinical conditions supplementary prescribers can treat.

### Methods

First, we established a set time period for carrying out the audit. We decided to retrospectively audit the supplementary prescriber over a three-month period from December 2004 to February 2005. This period was chosen to avoid auditing the supplementary prescriber during her initial learning phase.

Retrospective audit was felt to be preferable than prospective audit to avoid the possibility of prescriber bias being introduced during the audit. Prescriber bias is the tendency to modify prescribing practice and therefore skew the audit data because of awareness that prescribing practice is being audited.

We developed a simple proforma sheet (Figure 1) that contained the main areas of the audit we wished to cover. This included: number of amendments to the drug chart; nature of amendment; new prescriptions started; number of prescription errors; type of error; any drugs prescribed outside the clinical management plan and any possible drugs that should be added to the management plan for future reference.

The supplementary prescriber kept a database of all patients she was involved with. This database was used to obtain a list of all the patients she had been working with during our selected audit period. No patients were excluded at this stage. She also provided copies of the clinical management plan she had been using as a basic template during the audit period.

A basic template CMP was used for each new admission to ICU and this would be amended to include any pre-admission medication the patient was taking that would not ordinarily be covered by the template CMP. This process was agreed with the independent prescriber (IP). Subsequently, any further drugs that the supplementary prescriber needed to prescribe for the patient would then be added to the CMP after discussion with the IP. As such, the template CMP was always modified and adjusted for each patient according to their needs before any prescribing had been carried out by the supplementary

Proforma	
Patient details	
1) Number of amendments to drug chart:	_____
2) Nature of amendment:	rewrite of drug chart new prescription change of dose change of administration route other _____
3) If new prescription, drug prescribed:	antibiotic anticoagulant gastroprophylaxis bowel motility agents agents for bronchospasm analgesics agents for CVS compromise agents for glycaemic control vitamins/minerals/electrolytes steroids _____
4) Number of prescription errors:	_____
5) Type of error:	_____
6) Drugs prescribed outside of management plan:	number _____ drug name _____
7) Possible drugs that should be added to management plan:	

Figure 1. The proforma sheet that was used to audit the clinical pharmacist's impact on prescribing in the critical care setting at City Hospital in Birmingham.

## Supplementary prescribing

The role of non-medical prescribers in the acute clinical environment is still very much in its infancy. To make an impact they require a fairly broad remit in terms of what they can prescribe.

prescriber. This would then be filed in the patient's medical notes when they were discharged from ICU.

To complete the audit proforma, each patient's medical notes had to be obtained. This was done using the hospital computer tracking system and the coding office. The drug charts used on our intensive care unit are easily identified in the patients' notes because they are colour-coded green as opposed to the normal blue ward drug charts. Using the green critical care drug charts, we then completed a proforma for each patient.

### Results

The supplementary prescriber was involved with 36 patients during the three-month period covered by the audit. However, we were unable to find the medical notes for five patients and so these five patients were excluded from the audit. The audit data collected was from the remaining 31 patients for whom we were able to obtain medical notes.

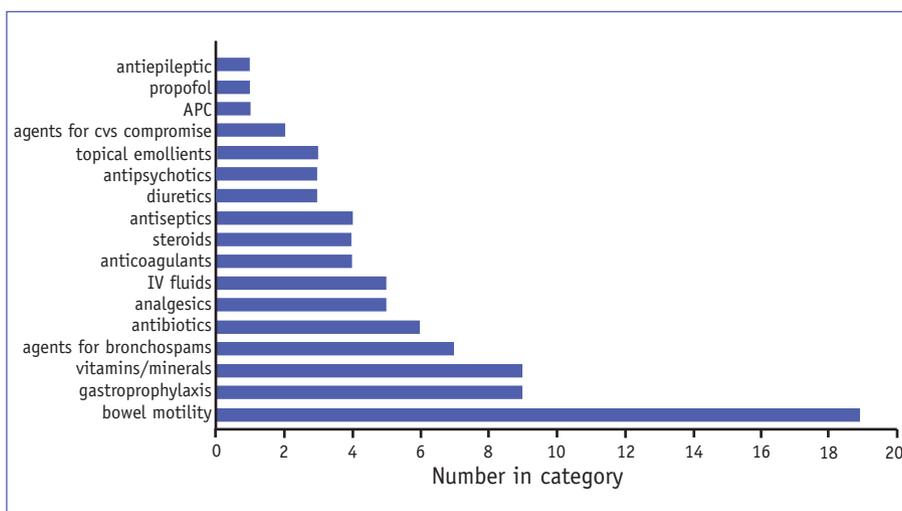


Figure 2. Breakdown of new prescriptions according to medicine category

### Amendments made by the SP

The total number of amendments made by the supplementary prescriber amounted to 201. These were then further divided according to the nature of the amendment. There were 14 instances of rewriting the drug chart, 86 new prescriptions, 29 changes of dose, 17 changes in the route of administration and 55 other amendments. The other amendments consisted of stopping drugs, changing frequency of administration to prn and rewriting incorrect prescriptions.

Of the 86 new prescriptions that were added to the drug charts by the supplementary prescriber 19 were for bowel motility agents (see Figure 2). Reduced gastric and intestinal motility is a common problem in the critically ill patient. It is, therefore, not surprising that the most frequently prescribed drugs are bowel motility agents.

The breakdown of new drugs prescribed and the number of times they were prescribed are shown in Figure 2. It is encouraging to see that the supplementary prescriber was prescribing a number of different agents from different drug categories. Nine prescription errors were made by the supplementary prescriber in a total of four patients. These were:

- failure to write the drug dose when

- failure to include the signature when prescribing a new drug (one error)
- failure to sign for six drugs when rewriting a drug chart (six errors — all on the same patient's drug chart)
- documenting one error on the proforma but omitting the details of its nature (one error).

A total of 12 different drugs or agents appeared to be prescribed by the supplementary prescriber outside of the CMPs. These were from the following groups:

- antiseptics (4 drugs)
- antipsychotic agents (3 drugs)
- anti-hypertensive agents (1 drug)
- drugs for the eye
- topical emollients (3 drugs)
- miscellaneous:
  - activated protein C (1 drug)
  - propofol (1 drug)
  - dantrolene (1 drug).

Overall, the 12 medicines prescribed outside the CMP account for 14% of all the new prescriptions prescribed by the supplementary prescriber. However, this figure should be viewed with caution because the CMP for each individual patient was not always available in the patients' notes, so we, the auditors, classified prescriptions that differed from the template CMP and where the patient's CMP was not available as being made outside the CMP. We recognise that the template CMP could have been updated before the prescription was written and this might not, therefore, reflect the true incidence of any prescribing outside the CMP. There were no adverse events or critical incident forms completed regarding these 12 drug prescriptions.

### Discussion

The main purpose of this audit was to consider what impact the supplementary prescriber made on prescribing in the critical care setting in terms of their level of contribution and their safety. This audit revealed that the supplementary prescriber made a total of 201 amendments to 31 patients' drug charts. This is equivalent to 6–7 amendments per patient. Because

many (43%) of these amendments were writing new prescriptions it can be inferred that the supplementary prescriber helped reduce the prescribing workload for doctors in the critical care unit. This is an encouraging finding because it validates one of the intended contributions of supplementary prescribers as defined by the initial government directive.

It is common practice for hospital pharmacists to review patients' drug charts daily whether they are on a ward or in a critical care unit. In this role, they will often recommend changes in drug doses or changes in forms of drug administration, or they may query the need for a particular drug. All these recommendations must be



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referred to the doctors to be actually implemented on the drug chart. However, a supplementary prescriber would be able to make such changes to a drug chart directly without waiting for a doctor. This audit has shown that the majority of the 'other' amendments made to patients' drug charts by the supplementary prescriber were changing drug doses and stopping prescriptions. It is likely therefore that the pharmacist's role is more efficient and effective in this context as well as reducing the prescribing workload for the critical care doctors.

In this audit we detected nine prescription errors (4.5%) that were made by the pharmacist supplementary prescriber. These errors predominantly occurred during the re-writing of prescriptions, or they were failing to sign the prescription even though the prescription had been written clearly and correctly. There were no adverse events

The audit findings confirm that supplementary prescribers in a critical care setting can reduce the prescribing workload for critical care doctors. This contribution was not at the cost of patient safety.

associated with these errors. The most likely cause of these errors was inattention or distraction of the supplementary prescriber. This is a problem that can affect all health care professionals, especially when doing a task that appears to be very familiar or repetitive. However, regular audit can help to re-focus individual practice and keep these errors to a minimum.

A serious clinical incident could have occurred in the case where the drug dose was omitted. However, the *absence* of any dose — compared with an *incorrect* dose — is more likely to prompt the administrator of the drug to seek clarification; hence this error also had no adverse outcome associated with it.

The role of non-medical prescribers in the acute clinical environment is still very much in its infancy. To make an impact they require a fairly broad remit in terms of what they can prescribe. However, some limits are also needed until the individual and the associated team are fully confident in the process of non-medical prescribing.

From this audit, 12 medicines *appeared* to have been prescribed outside the clinical management plan. The supplementary prescriber had assumed that each patient's CMP was filed in their medical notes when they were discharged from intensive care. Unfortunately, this was not the case. Where no CMP was available, we (the auditors) used the basic template CMP given by the supplementary prescriber at the start of the audit as our guide and therefore might have ascribed certain prescribing events to having been made outside of the CMP when they were not. The template CMP *was* always modified and adjusted for each individual patient *before* any prescribing was carried out by the supplementary prescriber. This is consistent with the key criteria for supplementary prescribing. It

also illustrates the dynamic process of creating and maintaining the CMP for each individual patient. Nevertheless, the audit raises important medico-legal issues for supplementary prescribers to consider in the event that an adverse clinical event should occur and there is no updated CMP found in the notes to justify the prescription in that patient.

This audit has also helped to highlight other drugs that should be added to the basic template CMP. Critical care patients frequently require sedative agents to tolerate procedures when in intensive care. Many who are receiving long-term sedation then require some form of anti-psychotic as they are weaned off their prolonged sedative infusions. It would be useful to add both these categories of drugs to the template CMP for all intensive care patients.

All patients are tested for MRSA on admission to ICU. If they test positive they are prescribed antiseptic agents, such as chlorhexidine wash. It would therefore be useful to add this to the template CMP.

These additions to the template CMP should only be implemented if the supplementary prescriber accepts the responsibility to prescribe these agents and feels they are still working within their knowledge base and expertise. Any addition should of course be considered in the context of the patient's needs and in discussion with the IP.

We conclude from our audit that the supplementary prescriber was safe in her role. There was only one amendment made by the supplementary prescriber to correct a prescription written by a critical care doctor who prescribed the wrong dose of a medicine. No critical incident occurred as a result of this because the supplementary prescriber identified and corrected the error before any medicine was administered.

## Supplementary prescribing

### Conclusion

In conclusion, the audit findings confirm that supplementary prescribers in a critical care setting can reduce the prescribing workload for critical care doctors. This contribution was not at the cost of patient safety. From these preliminary data, there may be a role for expanding the drug categories from which the supplementary prescriber can prescribe.

### Recommendations

1. Consider modifying the standard clinical management plan to allow the supplementary prescriber to prescribe drugs in the following categories in all critical care patients:-

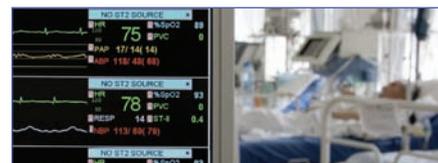
- sedative agents
- anti-psychotic agents
- antiseptic agents
- topical emollients.

2. Ensure the clinical management plan is preserved in the patient's records. This may be achieved by the ward clerk appropriately filing the CMP in the patient's notes, perhaps by attaching it to their critical care drug chart.
3. Consider keeping a copy of each patient's CMP separate from their medical notes as a 'back-up'.

Non-medical prescribing has now been in place for more than one year on the critical care unit and it would be interesting to re-audit the service. ✚

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## Potential funding opportunities

Finding funding for research or education is an unremitting problem for pharmacists and researchers. However, from time-to-time the editor receives information about funding opportunities that might be applicable to pharmacists. We shall, therefore, appraise you of any such potential sources of funding in the hope that you might be able to benefit from the information, beginning with the Leverhulme Trust and the Leverhulme Trade Charities Trust.

### The Leverhulme Trust

The Leverhulme Trust, established at the wish of William Hesketh Lever, the first Viscount Leverhulme, makes awards for the support of research and education. The total sum awarded in a typical year is around £35m and categories include:

**Early career fellowships.** These aim to provide career development opportunities for those who are at a relatively early stage of their academic careers but with a proven record of research. The Trust can contribute 50% of the required funding in partnership with the academic institution. It is anticipated that a Fellowship will lead to a more permanent academic position.

**Research project grants.** These aim to provide financial support for the salaries of research staff engaged in the project, plus associated costs directly related to the proposed research. The research theme and design is entirely determined by the applicant, but projects should be innovative, original and of high quality and potential.

**Research Fellowships.** These are open to experienced researchers, particularly those who are or have been prevented by routine duties from completing a programme of original research. There are no restrictions on academic discipline, and awards are not limited to those holding appointments in higher education.

### The Leverhulme Trade Charities Trust

The Leverhulme Trade Charities Trust is a separate organisation from the Leverhulme Trust but is administered from the same office. The Trust makes all awards and grants through a registered UK charitable institution, such as The Royal Pharmaceutical Society (for pharmacy research and education, for example) and never directly to individuals. Bursaries are also available for children of pharmacists who are 6th form students or undertaking undergraduate education, and these are awarded through certain associations of schools or UK universities.

For further information see [http://www.leverhulme.ac.uk/grants\\_awards/](http://www.leverhulme.ac.uk/grants_awards/) and <http://www.leverhulme-trade.org.uk/gr-general.html>