

“How long is a day?” Discrepancies in prescribing practice: a questionnaire study

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We present results from a questionnaire study of doctors (mainly paediatricians) and pharmacists which revealed that 24% of respondents prescribe incorrectly when asked to interpret how many antibiotic doses to prescribe in a specified time span. This contrasts

with a 100% correct response when prescribing using total number of drug doses. We suggest this as a safer and more cost-effective way of prescribing.

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Introduction

Modern medicine has placed great emphasis on risk management¹ and financial accountability and as such a reduction in both drug budget and prescribing errors² is high on the agenda of all hospital trusts. As we move towards more protocol led and standardised care, inconsistencies in the interpretation of instructions, with the associated financial and patient care consequences, have become increasingly unacceptable. During our own clinical practice we have observed discrepancies in the prescription of short antibiotic courses. This type of prescribing is more commonly seen in paediatrics when antibiotics may be administered to a child with possible sepsis and stopped after 48 hours if the patient is well and the microbiological cultures are negative. The errors we have seen are due to inconsistencies in the interpretation of instructions and we found them to be both common and going on unnoticed. Despite much in the literature about medication errors and their

prevention³ we were unable to find previous work looking into this type of prescribing inconsistency.

We suggest that with clearer instructions these discrepancies can be reduced.

Methods

170 anonymous questionnaires were distributed amongst doctors and pharmacists, of all grades, working at a number of different hospitals in the UK. Approximately half the hospitals were District General Hospitals and half were teaching hospitals. All had paediatric departments and all but one included general paediatrics. The participants were given three concise clinical scenarios (which are described below) and it was emphasised that only prescribing habits were being studied and not clinical practice or drug policy.

Table 1 was given as an example of how to complete the questionnaire. Question 2 acted as a control.

Thank you for answering the following questions. We would appreciate you clearly marking the end of each prescribing period. A simple example is given below.

Table 1

Drug	Dose	Route	Time	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Penicillin V	750 mg	PO	06.00	✓	✓	✓	✓	✓	X -----	
			12.00	✓	✓	✓	✓	✓	X -----	
			18.00	✓	✓	✓	✓	✓	X -----	
			24.00	✓	✓	✓	✓	✓	X -----	

1. A child presents at 10.00 hours to your department with suspected meningococcal septicaemia and after performing appropriate investigations you want to commence her on antibiotic therapy. Your hospital's policy is the use of **once daily** ceftriaxone. Please prescribe ceftriaxone for 48 hours only, on the chart below, and clearly indicate when this period has finished (Table 2).

Table 2

Drug	Dose	Route	Time	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Ceftriaxone	1 G	IV	12.00							

2. You see an asthmatic child in the emergency department and decide to prescribe three once daily doses of 20 mg prednisolone. Please indicate how you would do this on the chart provided (Table 3). The child's first dose will be at 08.00.

Table 3

Drug	Dose	Route	Time	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Prednisolone	20 mg	PO	08.00							

3. a) You are working in a tertiary care centre and a doctor from a DGH, who is transferring a patient to your care explains, over the telephone, that the patient has received 24 hours of a b.d. drug. How many **doses** have they received?
 b) When the patient has been transferred your consultant asks you to complete 48 hours of the b.d. drug and then to stop it. How many more doses are they due?

Results

170 questionnaires were distributed from which we received 122 replies, giving a response rate of 72%. 113 replies were from hospital doctors: 38% SHO, 35% registrar, 12% consultant and 15% other/unknown. The majority, 85%, worked in paediatrics and the others were from a variety of different specialties. Though fewer questionnaires were distributed amongst pharmacists we had a similar response rate and received nine replies from pharmacists with varying levels of experience.

17% of responders prescribed 48 hours of once daily ceftriaxone as three doses, whereas 83% correctly stated it was two doses. The third question, describing a telephone referral, gave almost identical results with 82% correctly calculating 24 hours of a twice daily antibiotic to be two doses and 18% believing it to be three. In stark contrast, all respondents prescribed the prednisolone correctly. Unexpectedly, 24% of respondents answered at

least one of the antibiotic questions incorrectly, suggesting some intra-individual inconsistency despite posing an essentially identical question in two different scenarios.

We also analysed the data to look at different grades and specialty of doctor and compared pharmacists with doctors. We found that errors were made fairly evenly across all these different groups.

Discussion

The results imply that there is a problem inherent to the practice of the prescribing of short fixed drug courses, rather than inexperience, specialty or profession. Almost a quarter of doctors/pharmacists are prescribing incorrectly when interpreting how many doses of a drug are given in a set time. This strongly contrasts with the unanimous correct response when asked to prescribe using the total number of doses.

These results have several implications. If we consider the child described in question 1, in whom the ceftriaxone was stopped after 48 hours (after clinical improvement and negative microbiological cultures), then in 17% of cases the patient would have received 50% more drug, may have had a prolonged hospital stay and the possibility of further cannulations. More general implications include increased antimicrobial resistance, fewer available inpatient beds and the financial aspects of longer hospital stays and increased drug costs.

With greater specialisation and centralisation of resources inter-hospital transfer of patients is increasing. The pertinence of the third question therefore highlights the need for clear explanations between professionals involved in the transfer of patient care. Describing the actual number of doses of a drug that a patient has received reduces the possibility of confusion and subsequent sub optimal management.

As all respondents answered consistently when asked to prescribe a drug by the number of doses, we suggest that this is a more uniform, possibly more cost effective and safer way of prescribing.

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