

BENCHMARKING CLINICAL PHARMACY SERVICES

(2) Wessex measured

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AIM • To conduct an audit of clinical pharmacy services in hospitals across Wessex using standards for practice developed and revised by the Wessex Clinical Pharmacy Quality Group.

DESIGN • Audit of the six categories of practice standards in 10 general hospitals across Wessex conducted by a visiting clinical pharmacy manager. The six categories of practice standards were prescription monitoring and endorsing (mandatory and discretionary), inpatient education, total parenteral nutrition (TPN), adverse drug reaction monitoring and reporting, management and training of clinical pharmacists, and quality assurance of clinical pharmacy service.

RESULTS • At each of the hospitals, five prescriptions were audited on four wards. Within the category of prescription monitoring and endorsing, none of the 10 hospitals scored the set standard of 100 per cent for the

mandatory standards (range 91.3–97.9 per cent), while all hospitals achieved the set score of 80 per cent for the discretionary standards (range 82.8–98.9 per cent). Inpatient education was limited and informal. Only three hospitals met the standards for TPN, and all these had established nutrition teams. The level of ADR reporting and monitoring was variable. Almost all of the hospitals met the standards for management and training of clinical pharmacists, while compliance with standards for quality assurance of clinical pharmacy services was poor, with hospitals achieving 30–65 per cent adherence.

CONCLUSION • The audit indicated the need for improvement in several service areas. The visits conferred several benefits, eg, acting as a tool for benchmarking and aiding development of services, allowing an exchange of ideas, and identifying areas for training. Future work will include further development of the standards.

In this paper we present the clinical pharmacy standards developed in Wessex, together with the first audit of the standards in hospitals across Wessex. The development of the standards was described previously.¹ The Wessex Clinical Pharmacy Quality Group (WCPQG) standards for practice covered six subjects (see Panel 1). The individual standards, which were revised in February 1999, are shown in Tables 2 to 6 (standards that were audited) and Panel 2 (standards that could not be audited).

METHOD

An audit of the standards was carried out from April to June, 1999. The hospitals audited were the North Hampshire Hospital, Basingstoke, the Royal United Hospital, Bath, the Royal Bournemouth Hospital, Bristol Royal Infirmary, Southmead Hospital, Bristol, Poole General Hospital, Salisbury District Hospital, Southampton General Hospital, Princess Margaret Hospital, Swindon and the Royal Hampshire County Hospital, Winchester.

The hospitals in the group were paired off on a geographical basis for ease of travel (eg, Bournemouth was paired with Poole,

and the clinical pharmacy manager from one hospital visited the other) and were randomly assigned a code letter (A to J) to aid data collection.

Before each visit, the visiting clinical pharmacy manager was given a list of the wards at the hospital describing their specialty, details of any ward-pharmacy cover provided, and details of each of the pharmacists employed at the hospital (year qualified, postgraduate qualifications, and ongoing education and training). The visiting pharmacist chose which wards to visit, at random, from this list.

It was agreed that wards covered by at least four pharmacists (or by 20 per cent of the pharmacists employed at the hospital, whichever was the smaller) should be included in the audit. The wards chosen had to include a minimum of one medical and one surgical ward. At least one pharmacist undergoing formal training (usually a clinical diploma), and one who was not, were also included. This enabled a broad spectrum of wards and pharmacists to be included in the exercise. The individual pharmacists were not informed of the visit.

At each hospital the host clinical pharmacy manager visited the wards with the auditing pharmacist. The host was able to explain the purpose of the visit to nursing staff and was able to answer any routine questions from them.

The prescription charts of five patients per ward were reviewed by the visiting and host clinical pharmacy managers and checked against the standards. Prescriptions for total parenteral nutrition (TPN) were identified through the aseptic dispensing records and chosen at random from current

patients. The remainder of the standards were worked through within the department with evidence being sought to confirm adherence to standards. Verbal confirmation that standards were being met was not relied upon.

The first visit yielded suggestions regarding improvements to, and the clarity of, the standards.

RESULTS

At each of the hospitals five prescriptions were audited on four wards and those meeting the standards were then expressed as a percentage of the total prescriptions.

Each ward visit to assess five prescriptions took between 30 and 45 minutes. The total visit time was approximately five hours for the initial visit, while the visit to the paired hospital took, on average, two hours less.

Panel 1: Subjects of clinical standards

- Prescription monitoring and endorsing
- Inpatient education
- Total parenteral nutrition
- Adverse drug reaction monitoring and reporting
- Management and training of clinical pharmacists
- Quality assurance of clinical pharmacy service

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TABLE 1: PERCENTAGE OF CRITERIA MET WITHIN STANDARD 1, PRESCRIPTION MONITORING AND ENDORSING, AND STANDARD 4, ADVERSE DRUG REACTION MONITORING, FOR HOSPITALS A TO J

	Hospital									
	A	B	C	D	E	F	G	H	I	J
Standard 1 mandatory (1-A)	97.9	95.0	97.1	97.1	NM	94.6	91.3	91.7	96.7	92.9
Standard 1 discretionary (1-B)	98.9	88.9	83.9	90.0	NM	91.7	82.8	88.9	89.4	90.0
Standard 4	90.0	50.0	50.0	30.0	50.0	50.0	50.0	90.0	60.0	0.0

Note: Each set of standards are listed in tables 2 to 6, NM = adherence to standard not measured

TABLE 2: PERCENTAGE OF ALL PRESCRIPTIONS FROM HOSPITALS A TO J MEETING CRITERIA IN STANDARD 1-A (MANDATORY)

Standard	Prescriptions meeting standard (%)
The prescription/chart:	
1.1 includes the patient's name and date of birth, and, if appropriate, their height, weight, surface area	95.0
1.2 is complete, legal, unambiguous and legible	86.7
1.3 does not include any drugs to which the patient is hypersensitive or intolerant	96.1
1.4 includes an appropriate dose, dosage interval and timing	93.3
1.5 includes an appropriate form and route	96.1
1.6 is written in accordance with local policy	95.0
1.7 includes an appropriate rate and volume for intravenous preparations, and there must be no incompatibilities, or stability problems	97.2
1.8 does not include pharmacologically identical or similar drugs	96.7
1.9 does not include any drug-disease interactions	98.9
1.10 includes a note of any drug-drug or drug-food interactions	92.8
1.11 is written in indelible ink	97.8
1.12 includes clarification of the drug strength	93.3

TABLE 3: PERCENTAGE OF ALL PRESCRIPTIONS FROM HOSPITALS A TO J MEETING CRITERIA IN STANDARD 1-B (DISCRETIONARY)

Standard	Prescriptions meeting standard (%)
The prescription:	
1.13 includes the generic name of the drug	85.5
1.14 includes the brand name of the drug, if appropriate	98.3
1.15 includes appropriate additional warnings and advice	81.1
1.16 includes a note of any interventions made, if appropriate	97.8
1.17 is for a drug that is reasonable for that patient	97.2
1.18 includes details of whether all doses have been given or were accounted for	77.2
1.19 includes an appropriate duration of therapy	98.3
1.20 is not for a non-formulary drug	93.3
1.21 is endorsed with appropriate supply information	75.6

Prescription monitoring and endorsing

The target for adherence to standards was set at 100 per cent for mandatory (1A) and 80 per cent for discretionary (1B) standards.

One hospital had electronic prescribing and the standards could not be applied.

No hospital scored 100 per cent for all of the mandatory standards (1A) (Table 1). The mean score for hospitals meeting individual standards was 94.9 per cent (range 86.7–98.9 per cent, Table 2). The lowest score of 86.7 per cent was for standard 1.2 (ie, for complete, legal, unambiguous and legible prescriptions) with six out of nine hospitals failing to fully meet the standard. The second lowest score in the mandatory category was 92.8 per cent for standard 1.10 (ie, for drug-drug/drug-food interactions to be noted on prescription charts or notes) with one hospital scoring just 60 per cent. All hospitals scored at least 80 per cent overall for

discretionary standards (1B) (Table 1). However, the scores for meeting individual standards ranged from 75.6 per cent to 98.3 per cent (mean score 89.3 per cent, Table 3).

The standards for which 80 per cent adherence were not met were standards 1.18 (ie, all doses given and accounted for) at 77.2 per cent adherence and standard 1.21 (ie, prescription endorsed with supply information) at 75.6 per cent adherence. These results were skewed by low results from two individual hospitals.

Standard 1.18 was met more easily where hospitals used a code system for recording non-administration, as opposed to hospitals where an "X" was used with the reason recorded. The low mean score for hospitals meeting standard 1.21 was because the prescription would "fail" if, for example, one out of 12 items had not been endorsed appropriately.

Panel 2: Standards for practice not audited

2. INPATIENT EDUCATION

The patient should:

- 2.1 have read the labels
- 2.2 have understood the labels
- 2.3 be able to manage the preparation
- 2.4 be able to manage their regimen
- 2.5 know the name of their medicine
- 2.6 recognise their medicine
- 2.7 know what to do if a dose is missed
- 2.8 know where to obtain further supply of their medicine
- 2.9 have received a warning card/PIL, if appropriate
- 2.10 know the purpose of each of their medicines
- 2.11 know of any side effects that might occur with their medicine
- 2.12 have had any drug related questions answered

3. TOTAL PARENTERAL NUTRITION

- 3.1 A pharmacist and/or nutrition team should be involved in assessing the patient against trust policy for IV feeding. Any problems should be discussed with the prescriber
- 3.2 There should be a dedicated, correctly sited central or peripheral line available before supply is initiated

A pharmacist and/or nutrition team should:

- 3.3 assess the regimen to check that it is appropriate for the patient and refer patients with complex or specialised needs to the appropriate trust specialist
- 3.4 ensure that blood sugars have been monitored and sliding scales prescribed where appropriate
- 3.5 ensure that regular blood tests are taken and recommend appropriate additions to the TPN bag from these results
- 3.6 check fluid balance and the rate of administration of TPN
- 3.7 ensure that TPN is discontinued when appropriate to the patients condition and that a member of the nutrition team is informed so they can advise on enteral feeding
- 3.8 The pharmacist will ensure that clear documentation is kept of all interventions regarding the provision of TPN

TABLE 4: PERCENTAGE OF HOSPITALS MEETING CRITERIA IN STANDARD 4 (ADVERSE DRUG REACTION MONITORING)

Standard	Prescriptions meeting standard (%)
4.1 A designated pharmacist monitors and co-ordinates the reporting of adverse drug reactions (ADRs)	40
4.2 A system is in place for notifying the co-ordinator of possible ADRs	20
4.3 All Committee on Safety of Medicine cards are sent to the co-ordinator for collation and then on to the CSM	20
4.4 Educational meetings are held for doctors, pharmacists and nursing staff on identifying and reporting ADRs	20
4.5 Doctors and pharmacists are urged to fill in CSM cards where appropriate	80
4.6 CSM cards are readily available to all staff	90
4.7 Regular bulletins are produced on significant ADRs and on areas of interest concerning ADRs	0
4.8 All drug charts are monitored for newly prescribed drugs that are commonly used to treat ADRs, use of drugs in patients with a high risk of ADRs occurring, and use of drugs with a high risk of ADRs	90
4.9 The background to all suspected ADRs is investigated	80
4.10 Drug information sources are used in the evaluation of a suspected ADR	80

TABLE 5: PERCENTAGE OF HOSPITALS MEETING CRITERIA IN STANDARD 5 (MANAGEMENT AND TRAINING OF CLINICAL PHARMACISTS)

Standard	Prescriptions meeting standard (%)
5.1 A timetable of ward visits is agreed with ward staff	100
5.2 A named pharmacist visits each ward for 80 per cent of visits and cover is available for ward visits	100
5.3 Care plans are produced for prioritised patients	0
5.4 Ward staff know how to contact their own clinical pharmacists efficiently	100
5.5 Other ward pharmacists have access to records for ward and patient specific information	90
5.6 A drug information centre that meets DIPG standards is available on site	100
<i>Clinical pharmacists' training</i>	
5.7 Induction and training schedules are in place for new pharmacists	90
5.8 Educational opportunities are available	100
5.9 Peer review occurs annually	60
5.10 A senior clinical pharmacist is identified for support	100
5.11 Training records are kept	70

Inpatient education None of the 10 hospitals offered, or was funded to provide, formal counselling services. Most provided a limited service upon request or only provided inpatient education for certain drugs or specialties. It was found to be impractical to measure the standards on this basis.

It was noted that the introduction of patients' own drug (POD) and self-medication schemes was making counselling more available to patients, but this was mostly on an informal and ad hoc basis. The standards did not take into account counselling provided as group sessions (eg, cardiac rehabilitation and psychiatric group sessions).

Total parenteral nutrition The three hospitals that met all the standards for TPN had established nutrition teams. One hospital did not meet any of the standards and the others met some. In smaller hospitals it was not possible to audit five prescriptions because of the reduced workload.

Adverse drug reaction monitoring and reporting The level of adverse drug reaction (ADR) monitoring and reporting among the

hospitals varied (Table 1, standard 4). At hospitals A and H, where 90 per cent of the standards were met, one hospital held the regional drug information centre and the other had recently developed an ADR initiative raising awareness and reporting. Most of the other hospitals met 50 per cent of the standards. Hospital J had no formal ADR scheme. Table 4 shows that 90 per cent of hospitals met standard 4.6 (ie, Committee on Safety of Medicines [CSM] cards readily available) and 4.8 (ie, prescriptions monitored for ADRs), but none of the hospitals met standard 4.7 (ie, regular ADR bulletins produced) because only a small number of reports were received.

TABLE 6: PERCENTAGE OF HOSPITALS MEETING CRITERIA IN STANDARD 6 (QUALITY ASSURANCE OF CLINICAL PHARMACY SERVICE)

Standard	Prescriptions meeting standard (%)
6.1 There are written specifications of service for clinical specialties	20
6.2 Written standards exist for:	
a) prescription endorsement	90
b) frequency of prescription review	90
c) provision of discharge counselling	30
d) provision of self-medication	70
e) provision of printed information	30
f) use of patients' own drugs	80
g) provision of compliance aids	10
h) drugs requiring blood level monitoring	20
6.3 The following activities should be monitored regularly:	
a) pharmaceutical interventions	90
b) intervention outcomes	30
c) discharge counselling	10
d) self-medication	20
e) use of patients' own drugs	60
f) monitoring of drug blood levels	20
g) adverse drug reaction reports	40
6.4 Clinical pharmacist error rates should be continually monitored	50
6.5 Clinical pharmacy services should be reviewed at least annually and actions identified to improve them	70
6.6 The service should be audited against recognised criteria annually	80
6.7 Information about the range and availability of clinical pharmacy services should be provided to ward and department staff	40
6.8 A complaints record should be maintained and action taken documented	60
6.9 Customer satisfaction is monitored and action taken where appropriate	40
6.10 Patient specific data held on computer is registered with the data protection registrar	90
6.11 Information is provided to patients about the purpose of the clinical pharmacy service	10
6.12 Systems are in place to record and control the use of drugs without a product licence	100
6.13 Pharmaceutical interventions are used to identify the potential risk and action agreed and documented	60

Management and training of clinical pharmacists Almost all of the hospitals met all of the standards for the management and training of clinical pharmacists (Table 5), with the exception of standard 5.3 (ie, the production of care plans for prioritised patients). Only one hospital used care plans

and this was only for renal patients. The availability of training records (standard 5.11) was superior in those hospitals with "investors in people" accreditation.

Quality assurance of clinical pharmacy service The poorest compliance to standards overall was seen for the standards for quality assurance of the clinical pharmacy service, with hospitals achieving between 30 and 65 per cent adherence. Only one hospital had written service specifications for all specialties (standard 6.1), some had them for isolated specialties, but most had none (Table 6). Written standards for service were generally in place if a service was provided, but several hospitals did not operate self-medication (standard 6.2d) or POD schemes (standard 6.2f).

Pharmaceutical interventions were monitored regularly in most hospitals (standard 6.3a). Other activities tended to be monitored regularly while they were being set up but only on an ad hoc basis thereafter (standards 6.3b–g).

Few hospitals monitored customer satisfaction (standard 6.9) or clinical pharmacist error rates (standard 6.4) on a regular basis, or provided information to hospital staff about the range and availability of clinical services (standard 6.7). No hospitals provided information to patients about the purpose of the clinical pharmacy service (standard 6.11).

DISCUSSION

Thorough preparation before the visits was essential and helped to reduce time spent at each hospital on the day of the audit. The return visit was shorter than the initial visit since much of the discussion had already taken place.

When reviewing the results against the standards, the group believed that the target standard of 100 per cent adherence to mandatory and 80 per cent adherence to discretionary standards in prescription monitoring and endorsing was valid. Thus, improvement needed to be made, particular-

ly for standard 1.2 (ie, for prescriptions to be complete, legal, unambiguous and legible).

An area that was thought to be particularly important was the noting of interventions on charts. This documentation was essential for a complete legal record of treatment and would be useful for audit purposes and clinical governance. The results showed that adherence to standards 1.10 (ie, interactions noted on charts) and 1.16 (ie, interventions noted on charts) could be improved upon.

Standard 1.18 (ie, all doses given or accounted for) led to much discussion within the group and its relevance to the benchmarking of clinical pharmacy services needs to be reviewed. Measuring standard 1.18 only gives an indication of whether the nurse has completed the prescription chart for doses given or missed, and does not measure any involvement by the pharmacist.

It can be argued that it is the pharmacist's responsibility to investigate any missed doses, so that patients do not fail to receive essential treatment due to lack of supply or the patient being "nil by mouth" when an alternative route may be appropriate.

Although none of the hospitals audited offered a formal counselling service, several were involved with POD and self-medication schemes. The group believed that standard 2 was valid and that it would be possible to measure in future audits as the services develop.

Assessing standard 3, which related to TPN, led to several hospitals addressing the issue of clinical pharmacist involvement in supply of TPN and design of TPN order forms.

The provision of an ADR monitoring and reporting service around the region is variable and some hospitals have identified areas for improvement.

For most hospitals audited, if a service was provided then standards existed (standard 6.2). However, the activity was generally monitored on setting up the service but then not on a regular basis (standard 6.3). The group thought that this might be difficult to improve upon unless external audit is provided.

The visits were considered to confer the following benefits:

- To act as a tool for benchmarking. Each department was able to review their service against the standards and see how they compared to other hospitals. One hospital has been able to use the results in a trust staffing review.
- To aid the development of services. The results have allowed weaknesses to be identified and established a baseline from which improvements can be planned.
- To allow an exchange of ideas on prescription design, hospital and departmental policies, and practice issues.
- To identify areas for training.

FUTURE WORK

The standards developed as part of this exercise require further development. Some standards are likely to be more crucial to patient care than others (eg, detection of drug interactions and drug history taking versus endorsing of supply) and so a weighting system could be a useful addition. In line with the results of this study, and our subsequent discussion, future work will include:

- amendment of current standards in line with first tranche of benchmarking
- development of standards for services provided (eg, PODs, self-medication, etc)
- consideration of, and development of, weighting or prioritisation of standards to allow informed debate on benchmarking results
- investigation of the feasibility of linking results to morbidity and mortality

REFERENCES

1. Bowden J, Catell R, Wright J. Benchmarking clinical pharmacy services (1): Developing the standards. *Pharm J* 2001;267:62–63.