A Study to Determine the Importance of Ward Pharmacists Reviewing Discharge Prescriptions
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ABSTRACT

Objective: To evaluate the potential impact on appropriateness of discharge medication if discharge prescriptions were reviewed by the ward pharmacist before being dispensed.

Method: Over a four-week period discharge prescriptions were reviewed by either the ward pharmacist involved in the patient’s care (cases) or a dispensary pharmacist who had no knowledge of the patient’s care (controls). A second review with the availability of patient records was carried out to identify additional queries that should have been raised prior to dispensing.

Results: Fifty-five prescriptions (29 case, 26 control) containing 279 items (140 case, 139 control) were reviewed. Forty-four queries (23 case, 21 control) were found on initial checking of the prescription, 12 more queries (1 case, 11 control) were found on the second review of the prescription. There were 13 potentially clinically significant queries in the case group, 12 (92%) were made during initial prescription review. There were 23 potentially clinically significant queries in the control group, only 12 (52%) were made on initial prescription review. Changes to the prescription resulting from potentially clinically significant queries prior to dispensing occurred in 19 (79%) queries (10 case, 83%; and 9 control, 75%). Of queries raised prior to dispensing in the control group, 18 involved contacting hospital staff for resolution where they could have been resolved using the inpatient prescription chart, notes or the patient themselves. This compared to only one in the case group.

Conclusion: Review of discharge prescriptions by the ward pharmacist involved in the patient’s care optimises the appropriateness of discharge medication and the efficiency of the discharge process.

Aust J Hosp Pharm 2001; 31: xxx-x.

INTRODUCTION

The literature has reports of medication errors arising due to transcription errors and the discharge process. The writing of a separate prescription for discharge medication is a source of this potential error. This can be reduced by the ward pharmacist involved in the patient’s care checking the discharge prescription against the inpatient chart.

The Royal Brisbane Hospital is a 650-bed tertiary referral centre for a variety of statewide specialty services. The inpatient prescription is designed as a series of separate sheets and when a patient is discharged there may be three or four of these for a patient. They are not routinely sent to the pharmacy with the separate discharge prescription and the discharge prescription is not routinely reviewed by the ward pharmacist.

It is important for hospitals to review current practices and continually improve service provision. The aim of this study was to investigate if errors were arising on discharge prescriptions and whether they could be avoided by the pharmacist reviewing the discharge prescription at the ward level as opposed to review at the point of dispensing.

METHOD

The study was conducted over four weeks in August and September 2000 and involved discharge prescriptions presented to pharmacy in normal working hours. Two general medical wards were used.

For controls (ward one) the prescription was sent to the pharmacy department for dispensing (defined for the purposes of this study as the assembling and checking of medication in agreement with a prescription order) without being checked by the ward pharmacist. The dispensary pharmacist checked the prescription as part of standard procedure (this included checking appropriate dose, interactions, duration of treatment, availability on formulary and accuracy of supply) and resolved any queries arising as a result. These queries and their outcomes were recorded for the study. The prescription was prepared and returned to the ward or stored in the pharmacy for future supply to the patient.

For cases (ward two) the prescription was checked by the ward pharmacist in the ward or by telephone if the prescription had been sent to pharmacy without having been checked previously. Queries raised from this check were recorded. The prescription was prepared and returned to the ward or stored in the pharmacy for future supply to the patient.

A second review was carried out by an independent pharmacist for both controls and cases after the discharge of the patient using the patients’ notes. All queries were then analysed by the independent pharmacist for their clinical significance. Queries where strength, dose or directions differed from the inpatient chart, or where a medication had been omitted from the discharge prescription were classified as clinically significant. When the majority of medications were not prescribed further consideration was given as to the likely reasons. Those with one or two items missing were considered to be potential omissions and explored further. Those classified as unlikely to have clinical significance included queries regarding supply of non-formulary medication, prescription illegality, payment for medication by patient, and whether supply was required for items that were previously supplied to the ward for the patient.
RESULTS
There were 55 discharge prescriptions for 279 dispensed items included in the study. There were 29 prescriptions (140 items) in the case group compared with 26 prescriptions (139 items) in the control group. Twenty-three queries were raised in the case group prior to dispensing and 21 in the control group.

In the second review of the prescriptions one additional query was discovered in the case group and 11 in the control group (Table 1). All prescriptions involved in the study were reviewed twice, except for one control prescription for one item that was excluded as the patient’s notes were unavailable.

Table 1. Results of review of discharge prescriptions for cases (reviewed by ward pharmacist) and controls (reviewed by dispensary pharmacist)

<table>
<thead>
<tr>
<th></th>
<th>Cases n (%)</th>
<th>Controls n (%)</th>
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</thead>
<tbody>
<tr>
<td>Prescriptions reviewed</td>
<td>29</td>
<td>26</td>
</tr>
<tr>
<td>Items</td>
<td>140</td>
<td>139</td>
</tr>
<tr>
<td>Total number of queries</td>
<td>24</td>
<td>32</td>
</tr>
<tr>
<td>Queries raised on initial review</td>
<td>23 (96%)</td>
<td>21 (66%)</td>
</tr>
<tr>
<td>Queries raised on second review</td>
<td>1 (4%)</td>
<td>11 (34%)</td>
</tr>
<tr>
<td>Queries with potential clinical significance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>13</td>
<td>23</td>
</tr>
<tr>
<td>Raised on initial review</td>
<td>12 (92%)</td>
<td>12 (52%)</td>
</tr>
<tr>
<td>Raised on second review</td>
<td>1 (8%)</td>
<td>11 (48%)</td>
</tr>
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In the case group 92% of the queries considered clinically significant were identified prior to dispensing, compared with only 52% in the control group (Table 1). Of the 24 queries with potential clinical significance raised prior to dispensing, 19 (79%) across both groups (10 cases, 83%; and 9 controls, 75%) resulted in a change to the prescription. Examples of queries considered to be of potential clinical significance are shown in Appendix 1.

Table 2 shows the resources used to solve the queries raised prior to dispensing. The retrospective review of the case notes identified that 27 of the queries (9 cases, 18 controls) could have been resolved using the inpatient chart, patients’ notes or direct contact with the patient. This occurred for 8 of the 9 cases (meaning ward staff were only contacted in 1 case unnecessarily), but could not occur for any of the 18 controls.

Table 2. Results of discharge prescriptions reviewed prior to dispensing: resolution of query

<table>
<thead>
<tr>
<th>Resource used to resolve query</th>
<th>Cases</th>
<th>Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inpatient medication sheet, patient notes or patient</td>
<td>8 (35%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Doctor, nurse or other pharmacist</td>
<td>14 (61%)</td>
<td>19 (90%)</td>
</tr>
<tr>
<td>Other</td>
<td>1 (4%)</td>
<td>2 (10%)</td>
</tr>
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</table>

DISCUSSION
A pharmacist based in the dispensary is unable to assess the appropriateness of discharge prescriptions, as they do not have access to inpatient medication charts. Sending medication charts to the pharmacy with the discharge prescription is often not practical. Assessment of a discharge prescription in the ward by the ward pharmacist would seem to be the logical solution as they are able to assess the prescription in light of information available to them in the ward and from the patient.

This study has demonstrated that when a query with clinical significance regarding the discharge prescription is raised by a pharmacist prior to dispensing, it results in a change to the discharge prescription in the majority of cases—83% in the case group and 75% in the control group.

In the control group 34% of queries were not raised prior to dispensing and could be regarded as ‘invisible’ to the staff dispensing the prescription. This figure is similar to that found by Elfellah and Jappy who suggested that 38% of interventions made by the ward pharmacist could not have been made by the dispensary pharmacist.3

There were more queries found on the second review in the control group than in the case group. All queries found on the second review were considered to be of potential clinical significance. The results infer that all clinically non-significant queries with a discharge prescription (i.e. legal and practical side of dispensing) would be identified by a pharmacist who had no knowledge of the patient. Of concern is that only approximately 50% of the queries of clinical significance (i.e. the patient’s pharmaceutical care) would be identified. Review by the ward pharmacist involved in the patient’s care improves this to approximately 90%. Furthermore, we estimate that of the 12 queries of potential clinical significance that were raised by the ward pharmacist prior to dispensing, only three (25%) were likely to have been raised if the dispensary pharmacist alone reviewed the prescription. This has obvious potential impact on the patient’s continuity of care between primary and secondary sectors and possible clinical sequelae.

Ward pharmacists, with access to patient records and patients, are less likely to need to consult other healthcare workers to clarify prescriptions. This is likely to save time and make the discharge prescription process more efficient.

In the current hospital pharmacy environment with a high demand on discharge services, conducting studies on the discharge prescription process is a difficult and time consuming task. This study was limited as it was confined to small numbers over a short period of time. While a study on a larger scale would be valuable to further investigate this area, it must also be considered that this would take time, and optimising patient care is obviously a key priority, especially in the modern environment where risk management is a major concern. Due to the small numbers, no statistical comparison of variables between wards was performed. Different ward pharmacists visited the two medical wards used in the study. This could have led to bias in the results. Patients on the two wards were covered by the same medical teams.

Despite these limitations, this is an example of a quality assurance activity that can be undertaken in pharmacy practice. The results of this study are being used to review pharmacy practices to move the discharge review process closer to the patient.

CONCLUSION

Review of discharge prescriptions by the ward pharmacist who has been involved in the patient’s care optimises the appropriateness of discharge medication and the efficiency of the discharge process. It would seem prudent for ward pharmacists to routinely review discharge prescriptions prior to dispensing whenever it is reasonably practicable.

References


Appendix 1. Examples of queries judged by the independent pharmacist to be of potential clinical significance

A. Raised by the ward pharmacist, resulting in a change to the discharge prescription, and judged to be unlikely to be picked up by a dispensary pharmacist with no knowledge of the patient
   • Aspirin (antiplatelet) prescribed on inpatient chart, not prescribed on discharge
   • Clindamycin prescribed on inpatient chart, not prescribed on discharge and still required
   • Metformin dosage 500 mg QDS prescribed on discharge, 1 g TDS prescribed on inpatient chart—should be 1 g TDS

B. Found on second review when comparing the discharge prescription with the patients’ notes (for controls)
   • Glyceryl trinitrate patch 5 mg/24 h prescribed as inpatient, not on discharge prescription (all other regular inpatient medications were prescribed on discharge)
   • Allopurinol 100 mg daily prescribed on inpatient chart, 300 mg daily on discharge with no obvious reason for dose increase
   • Diprosone 0.05% Ointment prescribed on discharge, Diprosone OX 0.05% Ointment prescribed on inpatient chart

Submitted: May 2001
Accepted after external review: October 2001