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Addressing prescription discrepancies in renal patients: a prospective audit

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Abstract

Background Management of chronic renal failure requires complex medication regimens to manage hypertension, hyperlipidaemia, diabetes, phosphate, anaemia and acidosis. Patient engagement in medicine management is essential to avoid potential harm.

Methods We prospectively audited the rate of discrepancies between our hospital record of patient medications and their current prescription. We investigated whether changes to appointment letters reduced the number of discrepancies.

Results The proportion of patients attending renal outpatient clinics failing to bring a list or unable to recall their medications fell over a 3-year period following changes to appointment letters (median proportion: 0.45 in 2014, 0.36 in 2015, 0.30 in 2016, Chi-sq = 46.94, $p < 0.001$); percentage of patients forgetting to bring a list with significant prescription discrepancies fell from 10.9% in 2014 to 3.9% in 2016).

Conclusion Changes to appointment letters can potentially improve prescribing safety in an outpatient setting.

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Introduction

Renal patients often have a complicated medical history necessitating frequent changes in medications and dosage. When they are seen in outpatient clinics it is imperative to have an up to date list of medications that, taken in combination with blood results and physical examination, facilitates accurate assessment of response to current treatment and determines future treatment plans.

Current methods to retrieve an up to date list of medications include contacting the GP, checking the renal records of the medications that the patient was taking at the last outpatient clinic, and asking the patient. One of the most reliable methods when reconciling medications is through a pharmacist who clarifies the current prescription with the patient's community pharmacy, and looks at recent orders of medications.[1] Nester et al. studied the impact of medicines reconciliation with and without the contributory work of a pharmacist,[1] and demonstrated that when a pharmacist was involved, more prescription discrepancies were found between what the patient was actually taking and the initial hospital record. Another study looked at the potential harm that could have occurred as a result of prescription discrepancies.[2] In this study, 22% of the discrepancies could have resulted in harm during hospitalisation, and 59% could have caused patient harm if the error was continued beyond discharge.[2] These studies show that involvement of a pharmacist in obtaining an accurate drug history is beneficial. However, similar support in an outpatient setting is often not available due to time constraints and cost. The quickest and most reliable way of obtaining an accurate drug history is to ask the patient directly. But this method is only reliable if the patient is prepared with a current medication list or is able to accurately recall their medications.

This prospective audit aimed to assess the accuracy of hospital records of patient prescriptions and investigate whether changes to appointment letters could improve the accuracy of documentation.

Method

Over the course of three years, data were collected on all patients attending renal clinic appointments at Dorset County Hospital, Poole Hospital, the Royal Bournemouth Hospital, and Yeovil Hospital. Since all patients were seen by a single renal consultant, these data were pooled for the purposes of this audit and biases towards any particular patient group were therefore reduced. Patients were a mixture of general nephrology, pre-dialysis, and renal replacement therapy

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Table 1 Analysis of patients bringing list of medication to appointments during 2014

	Pre-intervention (Jan 2014)	Letter change 1 (Feb 2014)	Letter change 2 (Aug 2014)
Proportion of patients bringing list	0.54 (0.58)	0.54 (0.80)	0.57 (0.83)
Proportion of patients requiring list confirmation from GP	0.10 (0.27)	0.13 (0.44)	0.14 (0.67)
Proportion of patients whose GP list has discrepancies	1.00 (1.00)	0.88 (1.00)	0.67 (1.00)
Mean number of discrepancies per GP list patient	1.00 (5.50)	2.00 (7.00)	1.00 (7.00)

- Reported statistics are median and (range) as data were not normally distributed
- Proportion of patients bringing list = number of patients bringing list/total number of patients seen for that clinic session
- Proportion of patients requiring list confirmation from GP = number of patients not bringing list with no recall of meds/total number of patients seen for that clinic session
- Proportion of patients whose GP list has discrepancies = number of patients with discrepancies/total number of patients not bringing list with no recall of medications for that clinic session
- Mean number of discrepancies per GP list patient = total number of list discrepancies/number of patients with discrepancies

(haemodialysis, peritoneal dialysis and post-transplant), from an area generally covering a rural, higher socioeconomic class and elderly population. Data were not collected when a patient failed to attend their outpatient appointment. Data were recorded according to whether a patient had brought a copy of their repeat prescription to clinic and, if they did not, whether they could accurately recall their medications (as judged by the physician in clinic – patients on under three drugs). If they did not bring a list and could not recall their medications, the patient's GP surgery was contacted during the clinic appointment for an accurate list of drugs actually being received by the patient. The dependent variable measured was the number of discrepancies between GP prescribing and the hospital record.

Data collection started in January 2014. The first intervention (first independent variable) was initiated in February 2014 where the clinic appointment letters were changed to include a reminder for patients to bring a copy of their repeat prescription. On the letter the following text was added: 'Please can you bring your GP prescription for medication with you to every clinic visit. This provides the doctor with essential information about the medication that you are taking'. In August 2014 the second intervention (second independent variable) highlighting this message in bold, was applied. Because patient follow up varied from bi-weekly to once a year, data were collected over a 3-year period to monitor discrepancy levels following the changes to the letter. It is routine policy in our unit for all patients to receive a copy of their clinic letters.

The proportion of patients presenting without a copy of their repeat prescription was calculated per clinic by dividing the number of patients falling into this category by the total number of patients attending that clinic session. Since data were not normally distributed, descriptive statistics are reported as median with the range of the data, and the Kruskal-Wallis test was used to look for differences between periods before and after letter changes as well as between years of data collection. All analyses were performed using IBM SPSS Statistics version 24.

Results

A total of 1975 patients were seen in 2014 (271 new patients, 1704 follow up patients) in 168 clinic sessions. During 2015, 1902 patients (185/1717) were seen in 163 clinic sessions, and 1886 patients (231/1655) in 165 sessions during 2016. All patients who attended clinic were eligible for the study. The overall non-attendance percentage for renal clinics in our unit was 7.3% in 2014, 5.6% in 2015, and 5.5% in 2016.

Short term changes in list presentation

A comparison of data before, during and after the letter changes in 2014 (Table 1), revealed the only measure showing a significant difference was mean number of discrepancies per GP list patient (Chi-square = 8.64, p = 0.01). However, this change represented an increase in the number of discrepancies from a median of 1 to 2 per patient following the first letter change.

Longer term changes in list presentation

Longer term changes in list presentation were made using yearly comparisons. The proportion of patients bringing their repeat prescription to their clinic appointment increased from 0.55 to 0.70 between 2014 and 2016 (Table 2). This resulted in a decrease in the number of patients requiring list confirmation from their GP.

The percentage of total patients forgetting to bring their list of medication to clinic and who could not recall their medications either, where checking with the GP revealed significant discrepancies between what the patient was taking and what they had been prescribed, fell from 10.5 % in 2014 to 8.9% in 2015 and to 3.9% in 2016 (Figure 1).

Discussion

This prospective audit demonstrated discrepancies between hospital records and what the patient actually takes. Changing clinic appointment letters to remind patients to bring a list of their current prescription may reduce drug discrepancies

	2014	2015	2016	
Proportion of patients bringing list	0.55 (0.83)	0.64 (0.82)	0.70 (0.75)	Chi-sq = 46.94 p < 0.001
Proportion of patients requiring list confirmation from GP	0.13 (0.67)	0.10 (0.50)	0.08 (0.38)	Chi-sq = 39.35 p < 0.001
Proportion of patients whose GP list has discrepancies	0.75 (1.00)	0.75 (1.00)	0.00 (1.00)	Chi-sq = 35.86 p < 0.001
Mean number of discrepancies per GP list patient	1.42 (7.00)	1.50 (8.00)	0.00 (5.00)	Chi-sq = 36.92 p < 0.001

Reported statistics are median and (range). All measures showed a significant change across the years ($p < 0.05$)

Table 2 Comparative analysis of patients bringing list of medication to appointments during 2014, 2015 and 2016

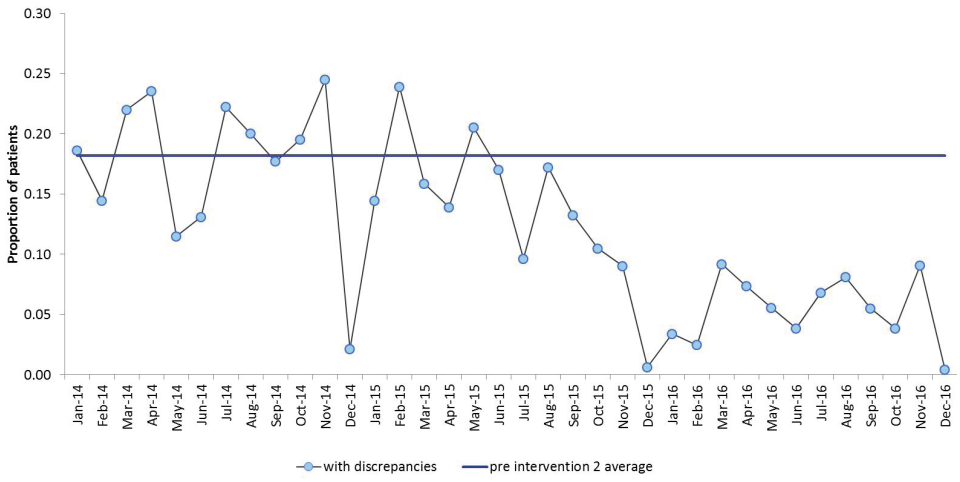

Figure 1 Proportion of patients with list discrepancies over the audit period compared to the mean for the period preceding the second letter change (January–August 2014).

in an outpatient setting, and could potentially enable safer prescribing. Also, time during clinic is saved, as it is not spent searching for a drug history. Determining accurate medicine history may facilitate discussion around adherence issues.

Discrepancies between GP and renal records suggest that changes to medication are not always being recorded on different systems simultaneously. Kaboli et al. found that very few computerised records are accurate (5.3% in 493 patients over the age of 65).[3] Other studies demonstrate that even when prescription discrepancies were found, drug record systems were not consistently being updated.[4] Staroselsky et al. investigated whether empowering patients with the responsibility to update their own drug records would improve accuracy.[4] Patients were given access to a secure portal of their drug records and were able to request update of any incorrect information.[4] There was no difference in prescription discrepancies between patients who notified their doctor more frequently of drug history changes.[4] One of the main reasons for this was failure of doctors to update the electronic prescription system.[4]

Other methods implemented to improve accuracy of medicine reconciliation include educating patients about their medicines. In England, community pharmacists have been encouraged to perform medication use reviews with patients to improve medication compliance.[5] The impact of medicine use reviews in reducing drug discrepancies on GP records is unknown.[5] Pharmacists commented they receive little feedback from GPs about any prescription discrepancies they have discovered.[5] This highlights that despite medicine reconciliation, the main drug record system may not be updated and prescription discrepancies remain.

Stewart et al. showed that using an electronic medical record and a pharmacist performing medication reconciliation with the patient prior to seeing a doctor reduced prescription discrepancies, but not completely.[6] They found that discrepancies remained during follow up consultations because of drug omissions or unreported over-the-counter drugs.[6] It is unclear from the study whether drug omissions were due to patient or doctor decisions. They suggested that discrepancies can arise between what the patient actually takes and what the doctor has prescribed despite the medicines being on a repeat prescription.[6]

Our study did not investigate the type of drugs subject to discrepancies, except they were all prescribed drugs

rather than over-the-counter preparations. Neither did we investigate any impact of age, sex, and comorbidities. It would be interesting to gather further data regarding how many of these drug discrepancies were due to patients choosing to discontinue a prescribed medication, or true dose discrepancies, because checking with GP surgeries in some cases identified that patients were not actually receiving some of their prescribed medications.

Leonhardt et al. interviewed patients to investigate the reasons why they were unable to recall the medications they took.[7] Answers included patients thinking the doctor already had a medication list, and some were afraid to ask the doctor when they didn't understand what medication they were taking.[7] It could be useful to conduct interviews/questionnaires for patients to search for possible human factors behind why patients do not bring their medication list or cannot recall the medications they take.

McLean et al.'s study showed that text messages reminding patients of their appointment increases attendance.[8] A similar method may also improve the number of patients bringing a prescription list to clinic. In our clinics patients are texted to remind them of their appointments, subject to their agreement to receiving texted reminders. This study did not look at the difference in drug discrepancies in patients who had received both a text and letter reminder compared to those only receiving a letter; a further study looking at whether these independent variables affect the number of drug prescription discrepancies would be interesting. Other digital aids such as smartphone apps and 'Renal Patient View' may assist some patients but this may not be available to all, especially those who do not have the skills or means to access smartphones and computers. The planned universal introduction of the NHS Digital Summary Care Record could resolve most issues around medication discrepancies, especially as this system also enables medication dispensation to be viewed. However it is not available to all NHS organisations at present, requires smart card access, and current digital systems can make information retrieval limited and time-consuming. Improvements in data access systems and IT hardware across the NHS are planned, but not all GP surgeries and patients are willing to sign up to this service so there will always be a need for more direct checks in some cases.

Conclusion

This prospective audit has demonstrated a reduction in prescription discrepancies in a renal outpatient clinic following the introduction of a message on the appointment letter asking patients to bring a medication list. Further studies addressing human factors and the types of drug discrepancies may provide insight into why drug discrepancies remain. The introduction of the NHS Digital Summary Care Record should resolve most issues around medication discrepancies; although in a minority of cases direct checking of patient medicines may still be required.

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